

FCC Part 15C Measurement and Test Report

For

Trend-tech Technology Co., Limited

No. 609, Noble Plaza, QianJin YiLu, Bao'An District, Shenzhen,

CHINA

FCC ID: 2ABM8-WNA011

FCC Rules:	<u>FCC Part 15C</u>
Product Description:	<u>2.4GHz WIFI Wireless LAN Adapter</u>
Tested Model:	<u>WNA011</u>
Report No.:	<u>STR13128352I</u>
Tested Date:	<u>2013-12-26 to 2014-01-04</u>
Issued Date:	<u>2014-01-04</u>
Tested By:	<u>Seven Song / Engineer</u> <i>Seven Song</i>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Trend-tech Technology Co., Limited
 Address of applicant: No. 609, Noble Plaza, QianJin YiLu, Bao'An District, Shenzhen, China
 Manufacturer: Trend-tech Technology Co., Limited
 Address of manufacturer: No. 609, Noble Plaza, QianJin YiLu, Bao'An District, Shenzhen, China

General Description of EUT	
Product Name:	2.4GHz WIFI Wireless LAN Adapter
Trade Name:	/
Model No.:	WNA011
Adding Model:	WNA011V2
<p><i>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 WNA011, but the circuit and the electronic construction do not change, declared by the manufacturer.</i></p>	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n-HT20, 802.11n-HT40
Frequency Range:	2412-2472MHz for 11b/g/n-HT20 2422-2472MHz for 802.11n-HT40
RF Output Power:	17.68 dBm (Conducted)
Data Rate:	1-11Mbps, 6-54Mbps, 150Mbps up to 300Mbps
Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Quantity of Channels:	13 for 802.11b/g/n-HT20 9 for 802.11n-HT40
Channel Separation:	5MHz
Antenna Type:	SMA-reverse Antenna
Antenna Gain:	Antenna 0: 2dBi, Antenna 1: 2dBi
Lowest Internal Frequency of EUT:	40MHz
Device Category:	Fixed Device

1.2 Test Standards

The following report is prepared on behalf of the Trend-tech Technology Co., Limited 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.

- **CNAS Registration No.: L4062**

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

1.5 EUT 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, 2442MHz, 2472MHz
TM2	802.11g	2412MHz, 2442MHz, 2472MHz
TM3	802.11n-HT20	2412MHz, 2442MHz, 2472MHz
TM4	802.11n-HT40	2422MHz, 2442MHz, 2462MHz

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
PC	Lenovo	M2620V	SS06937183

Special Cable List and Details

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

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. RF Exposure

3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the RF Exposure Report.

4. Antenna Requirement

4.1 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.

4.2 Evaluation Information

This product has two SMA-reverse antennas, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

According to 15.247(a)(1)(iii), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2013-05-07	2014-05-06
Attenuator	ATTEN	ATS100-4-20	/	2013-05-07	2014-05-06

5.3 Test Procedure

According to the KDB 558074 D01 v03r01, 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 \geq 3 kHz.
5. Set the VBW \geq 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.

5.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

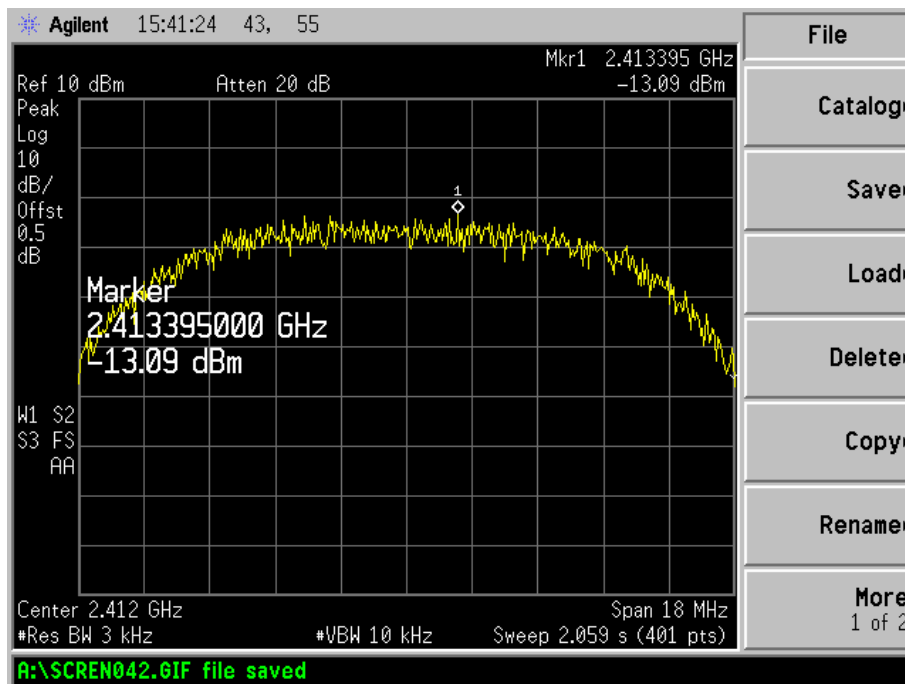
Test Mode	Test Channel MHz	Antenna 0 PSD dBm/3kHz	Antenna 1 PSD dBm/3kHz	Antenna 0 and Antenna 1 dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-13.09	-12.93	/	8
	2442	-11.63	-11.70	/	8
	2472	-12.23	-12.70	/	8
802.11g	2412	-15.90	-15.71	/	8
	2442	-15.80	-15.87	/	8
	2472	-16.21	-16.26	/	8

Test Mode	Test Channel MHz	Antenna 0 PSD dBm/3kHz	Antenna 1 PSD dBm/3kHz	Antenna 0 and Antenna 1 dBm/3kHz	Limit dBm/3kHz
802.11n HT20 MCS0	2412	-16.15	-16.56	-13.34	8
	2442	-16.62	-16.22	-13.41	8
	2472	-16.54	-16.14	-13.33	8
802.11n HT40 MCS0	2422	-19.18	-18.95	-16.05	8
	2442	-18.49	-18.84	-15.65	8
	2462	-18.64	-19.07	-15.84	8

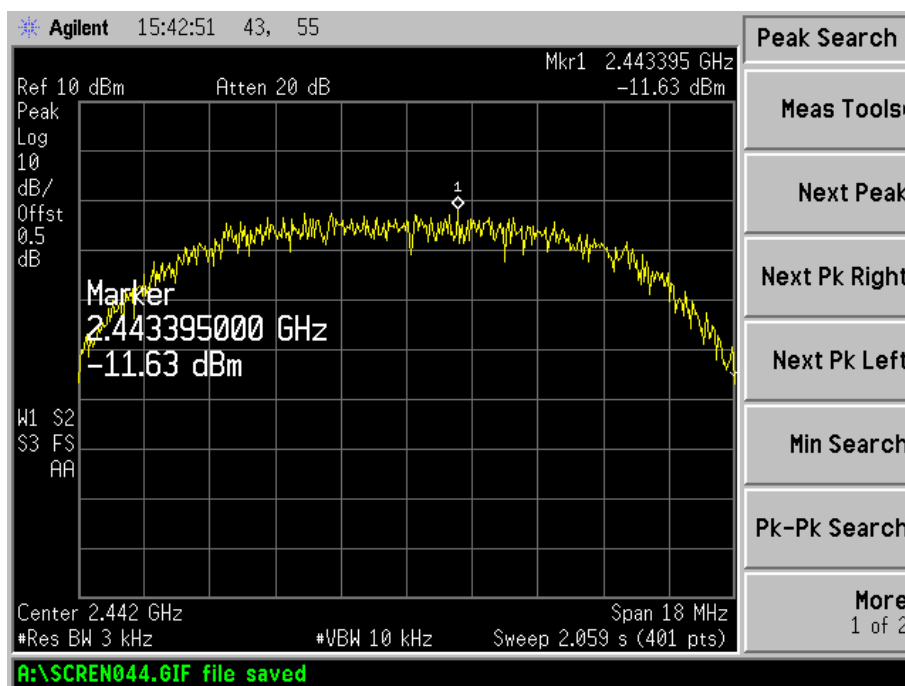
Note: The EUT will be simultaneous transmission at the Antenna 0 and Antenna 1 for the mode of 802.11n HT20 or HT40, transmission only single at Antenna 0 or Antenna 1 for 802.11b/g;

Please refer to the following test plots:

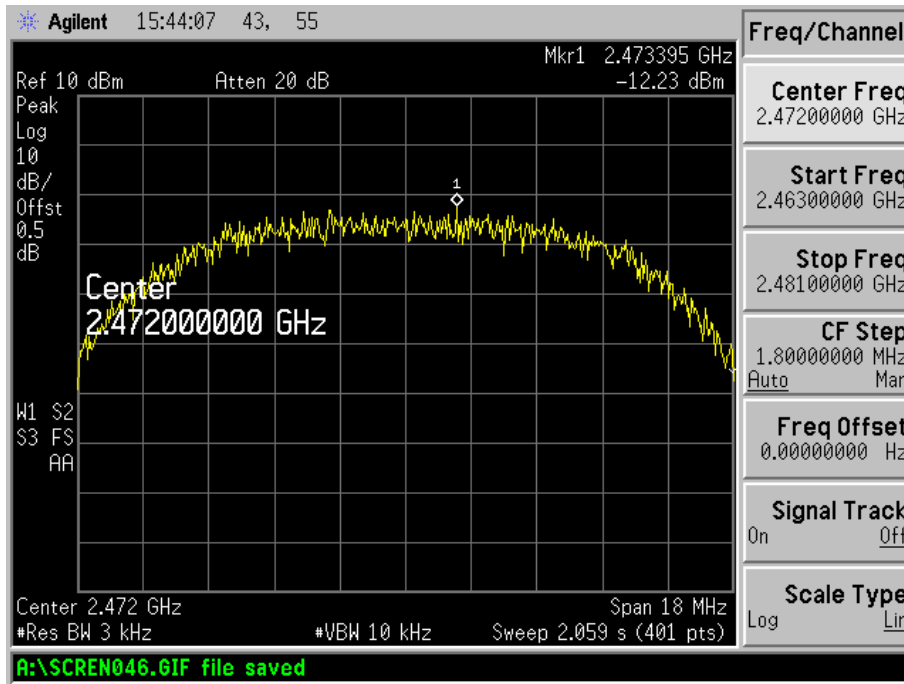
For Antenna 0
802.11b-Low Channel



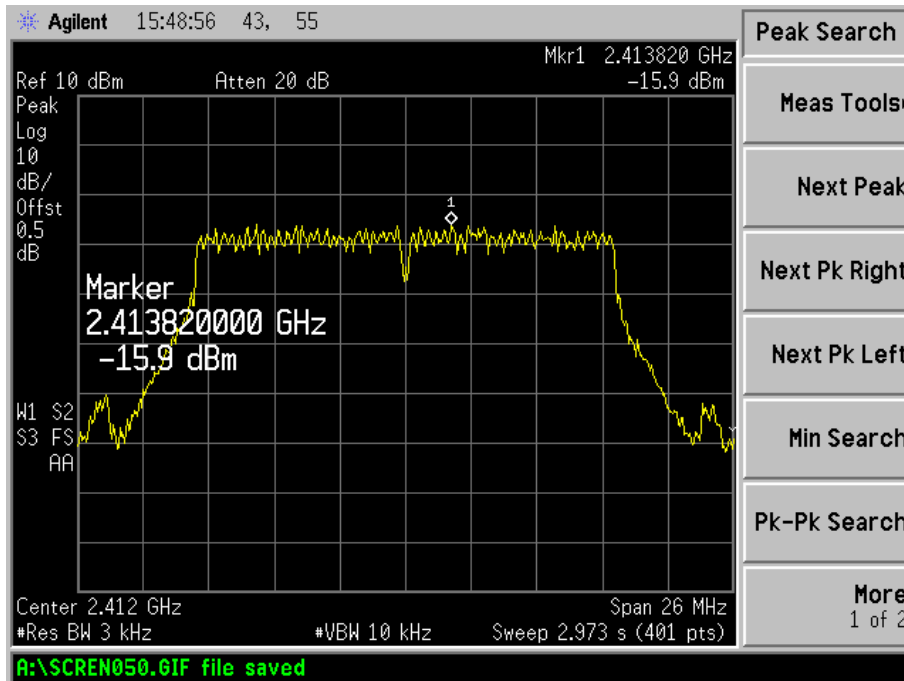
802.11b-Middle Channel



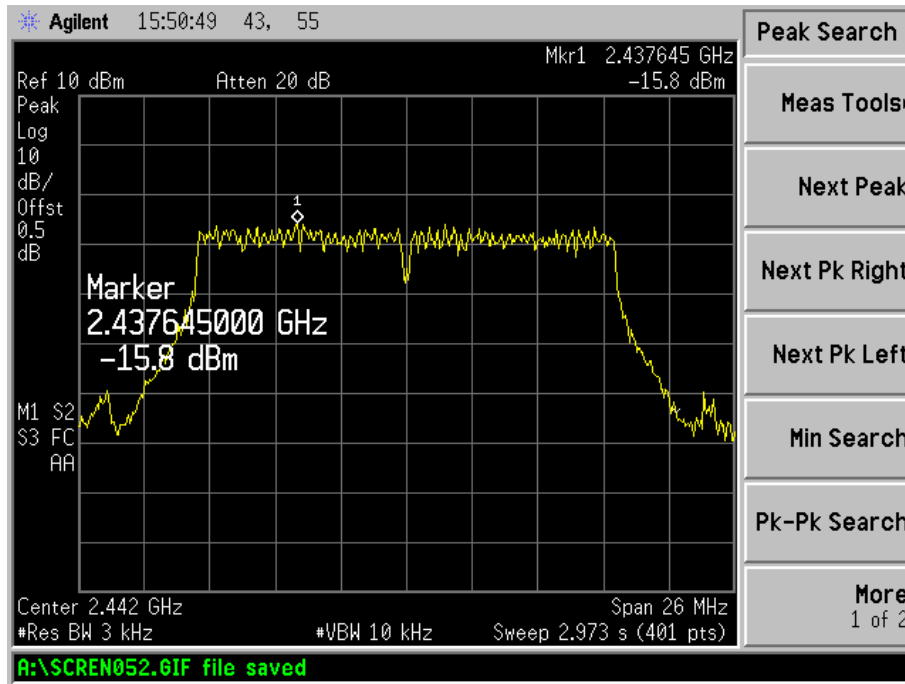
802.11b-High Channel



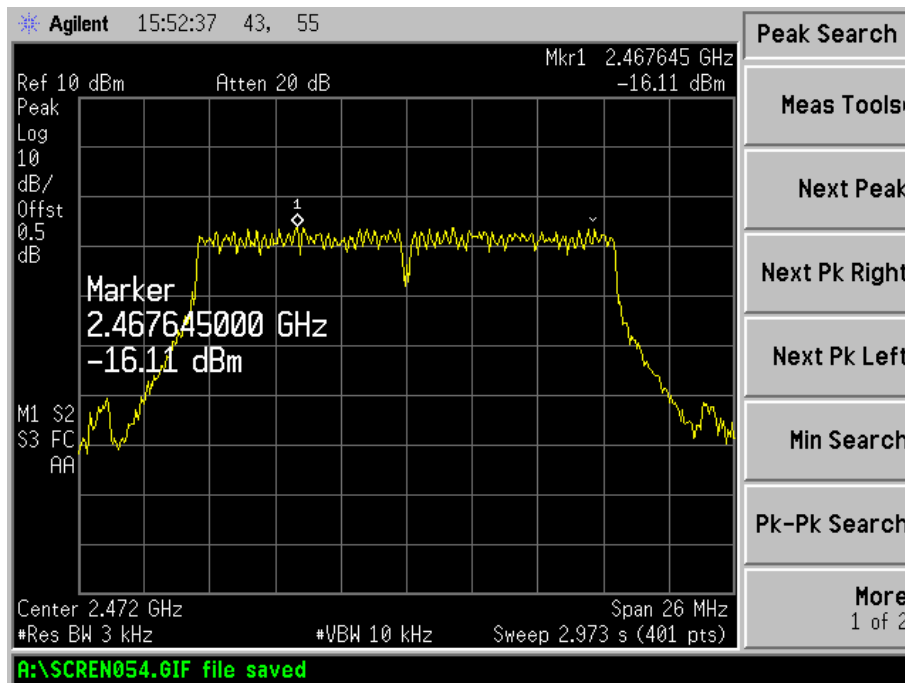
802.11g-Low Channel



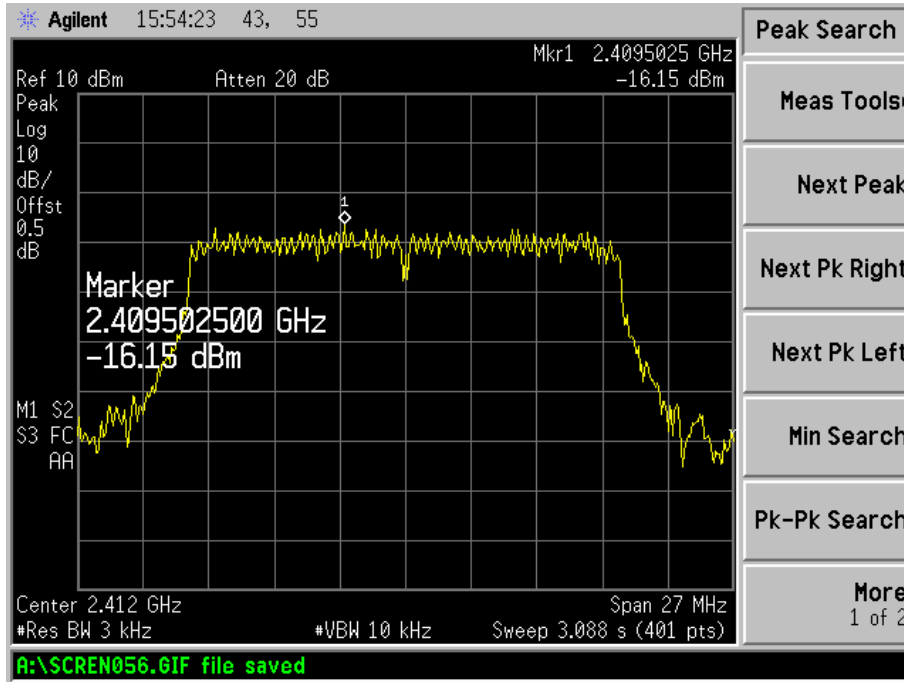
802.11g-Middle Channel



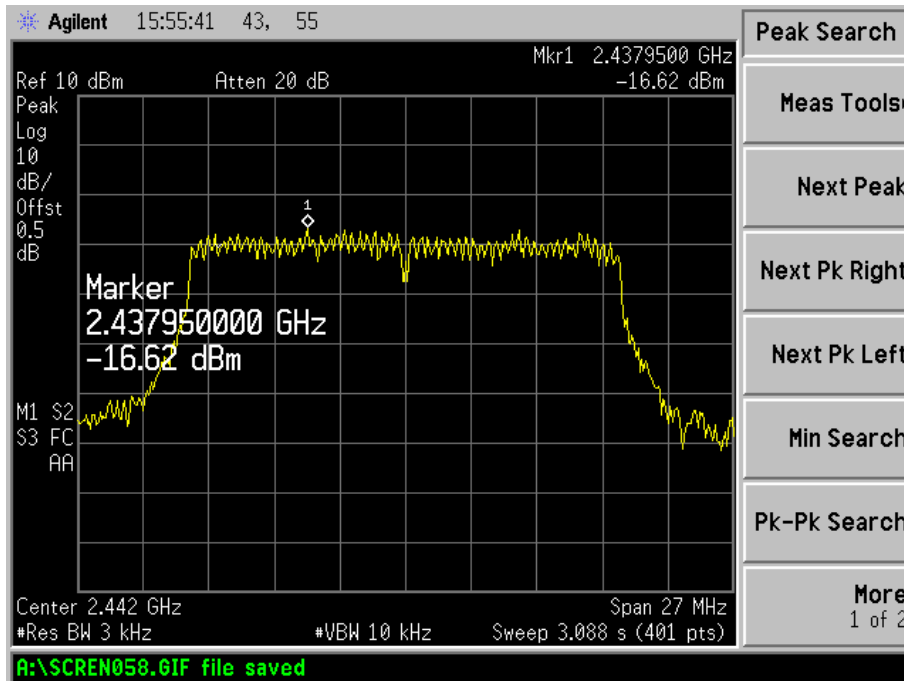
802.11g-High Channel



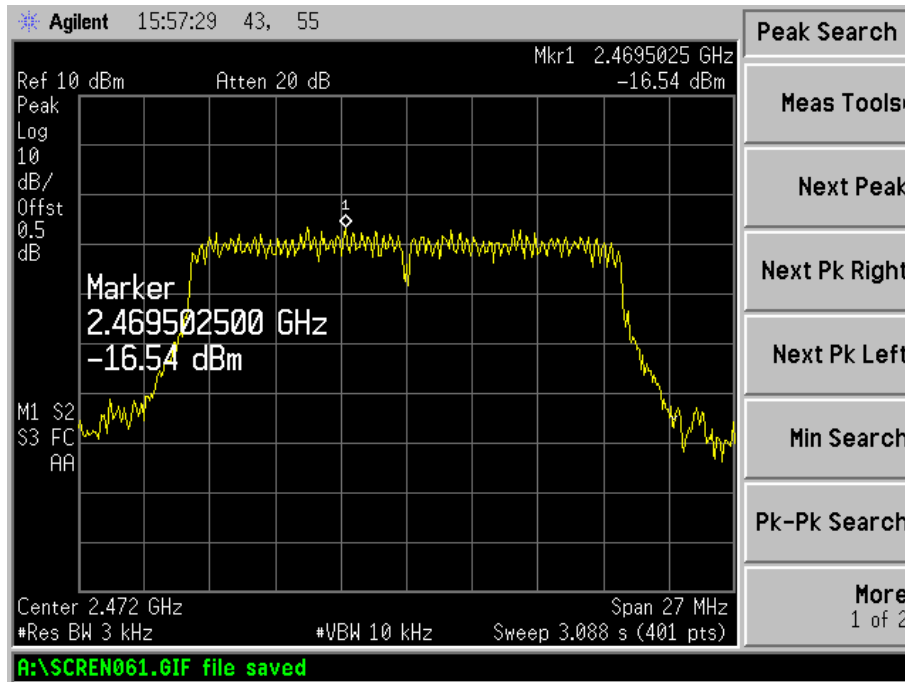
802.11n-HT20-Low Channel



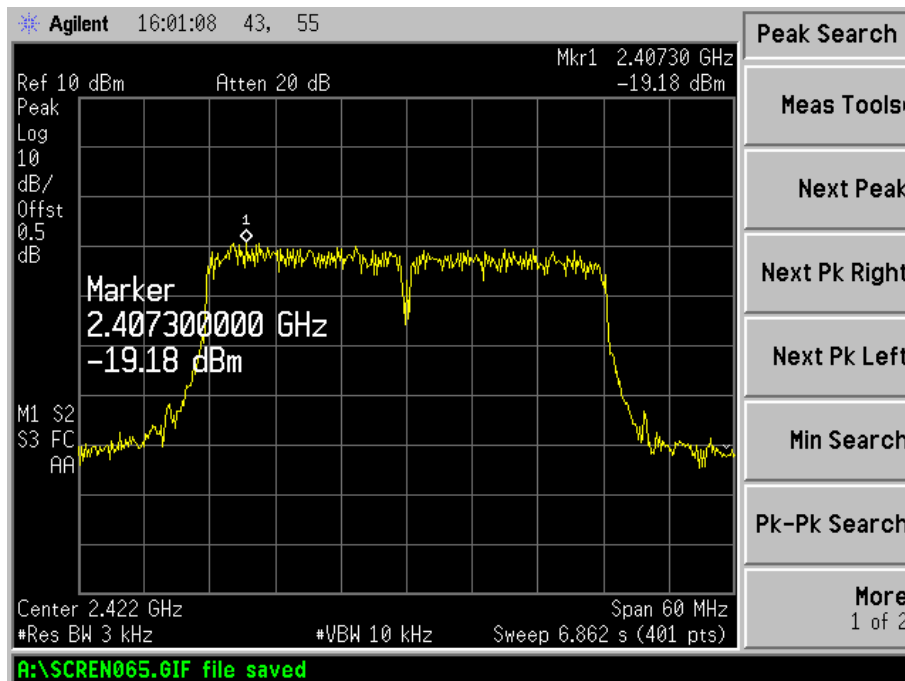
802.11n-HT20-Middle Channel



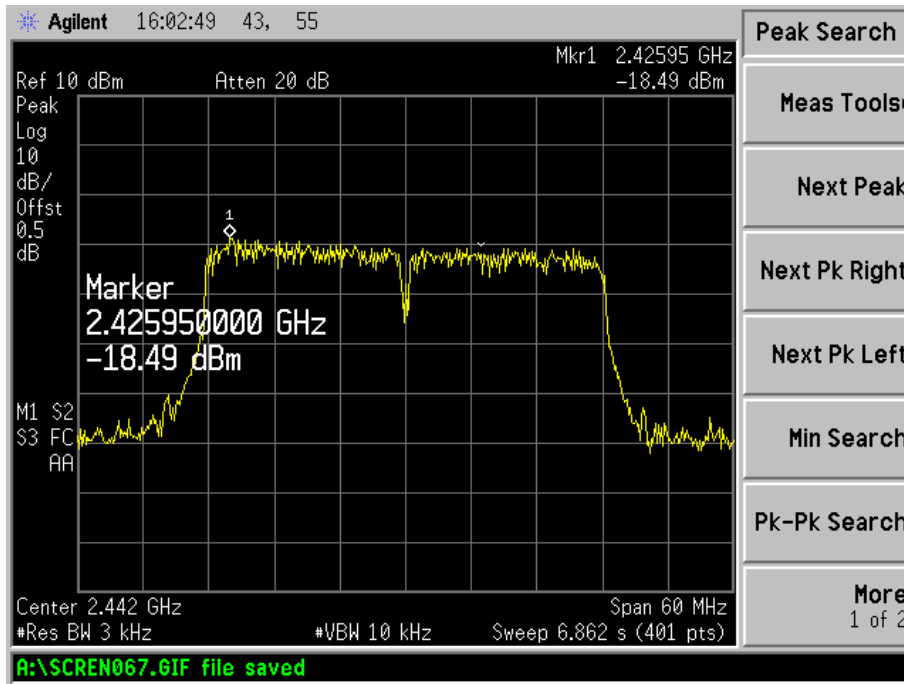
802.11n-HT20-High Channel



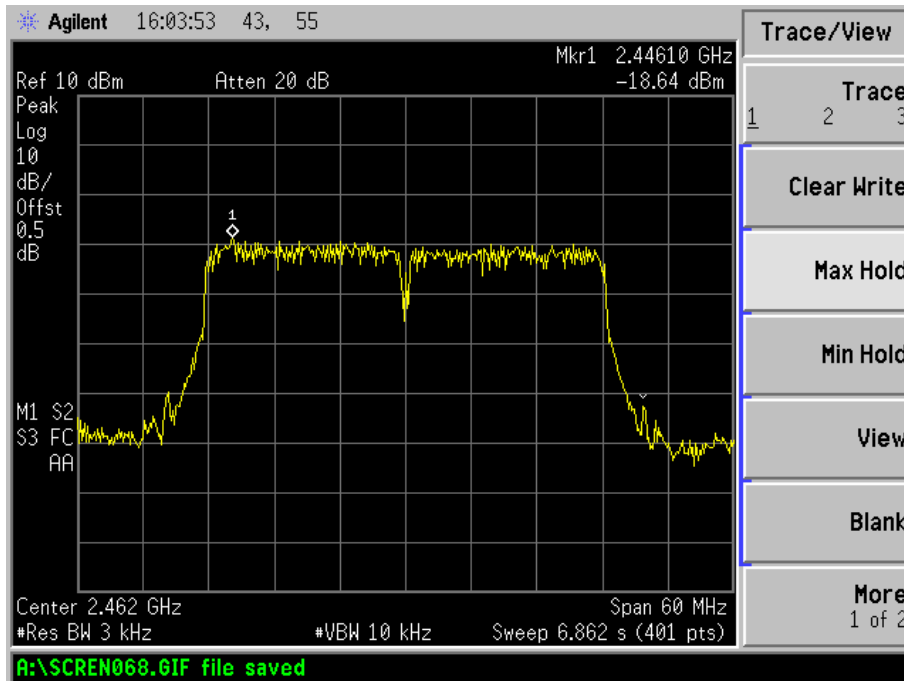
802.11n-HT40-Low Channel



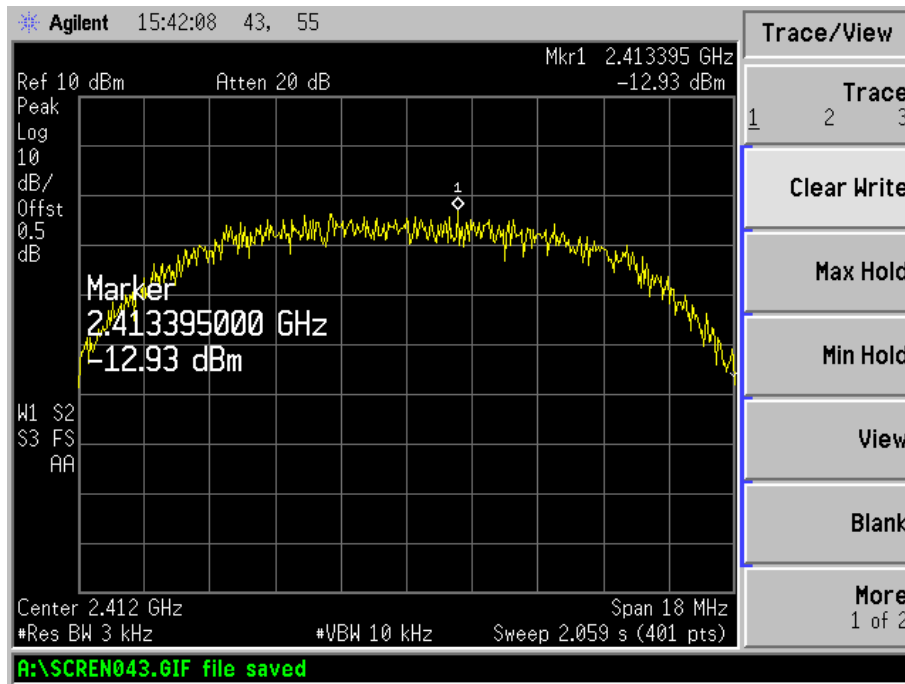
802.11n-HT40-Middle Channel



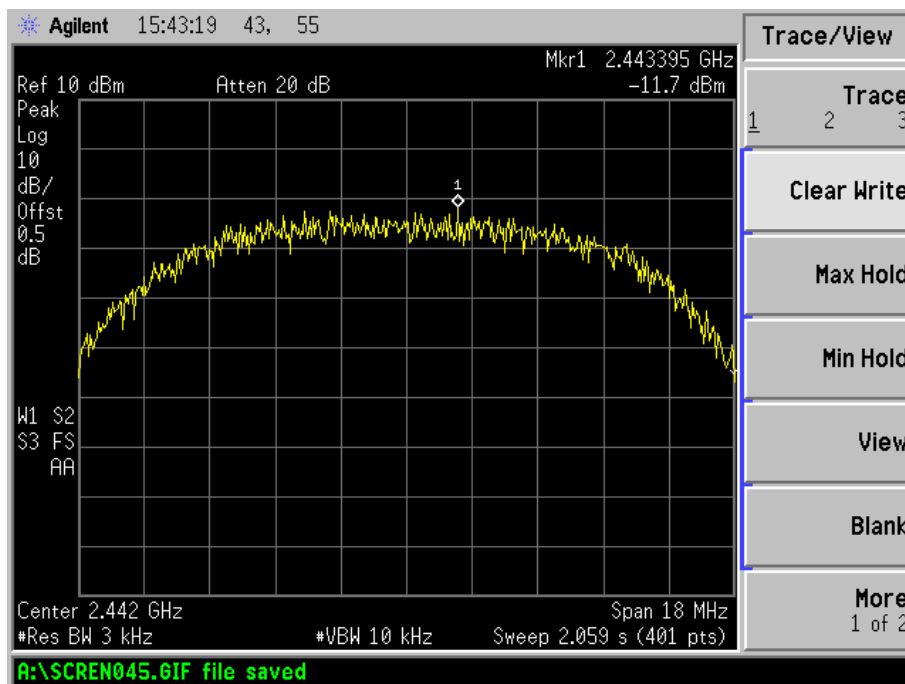
802.11n-HT40-High Channel



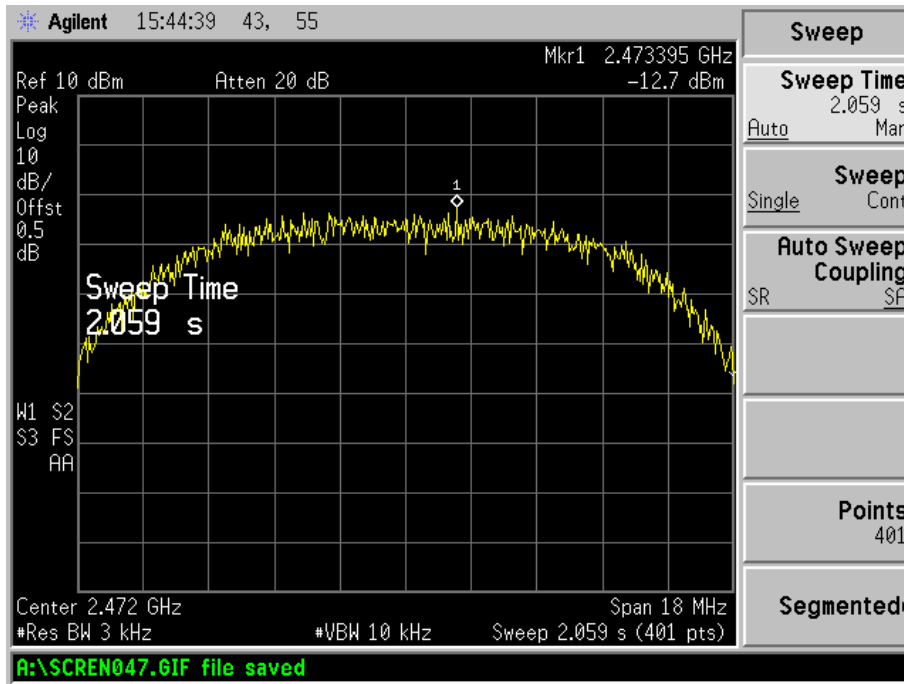
For Antenna 1
802.11b-Low Channel



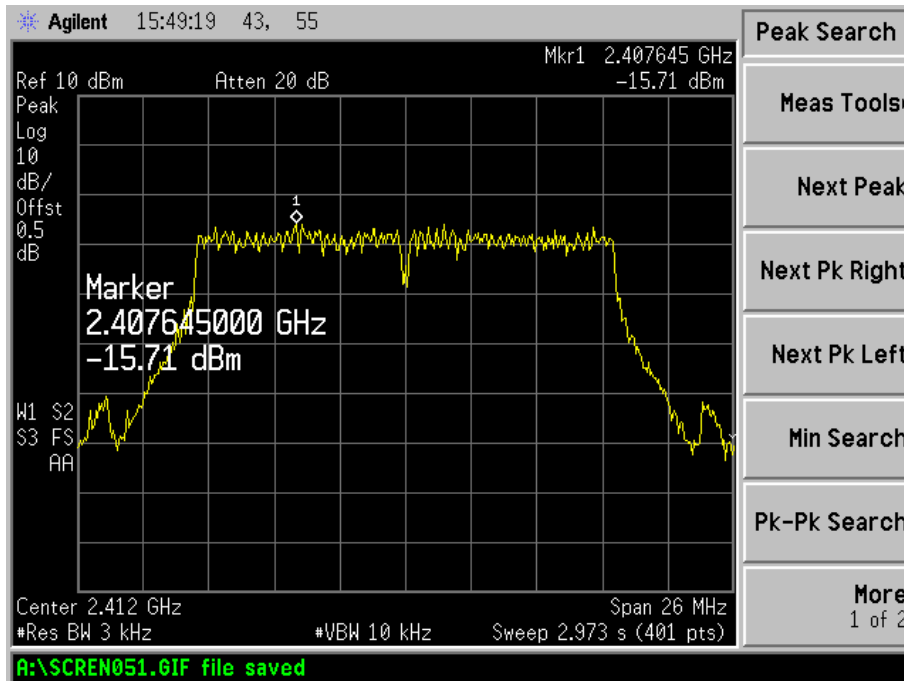
802.11b-Middle Channel



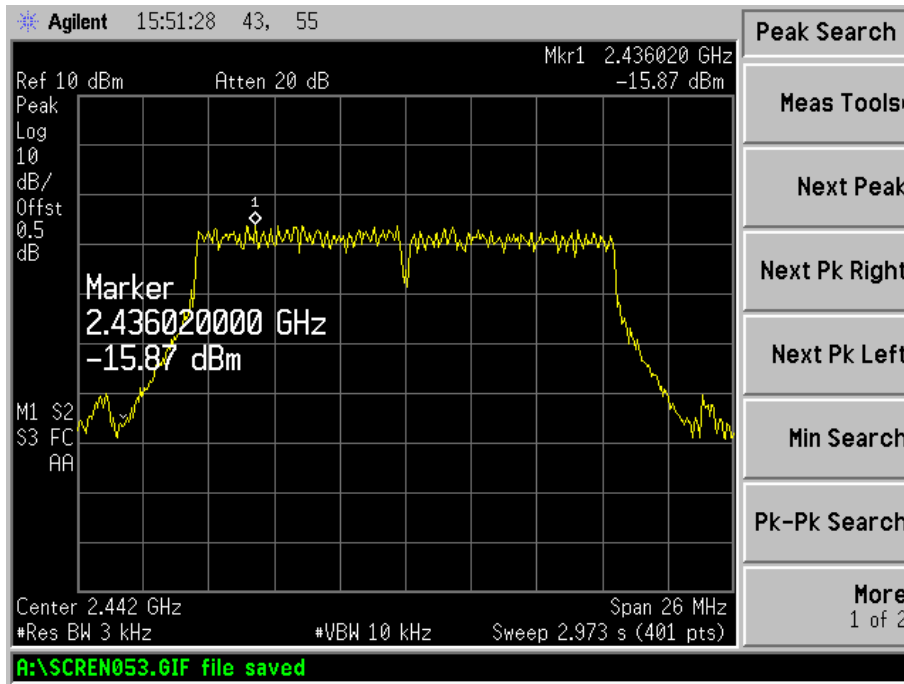
802.11b-High Channel



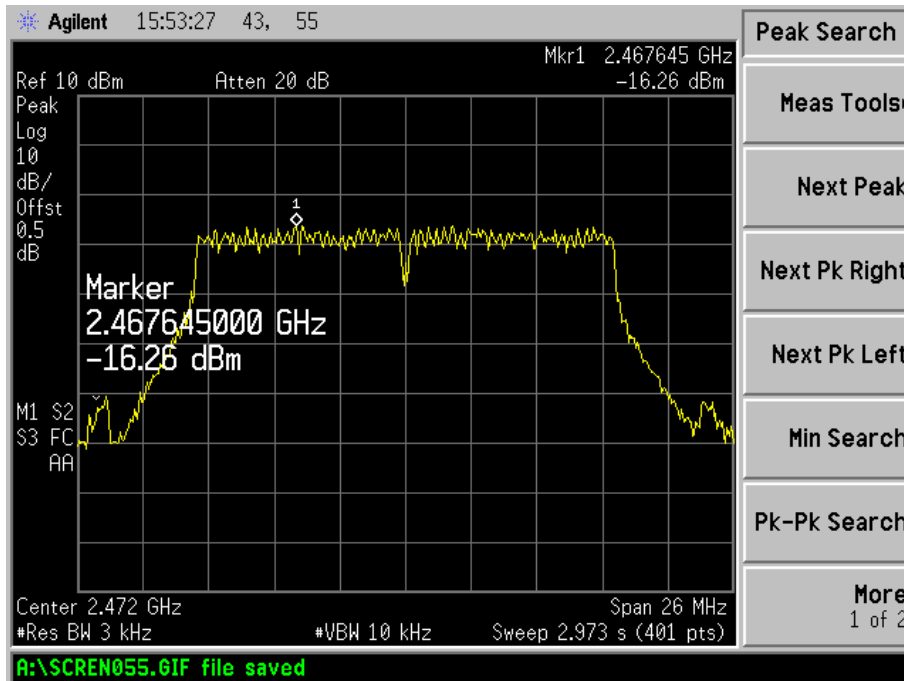
802.11g-Low Channel



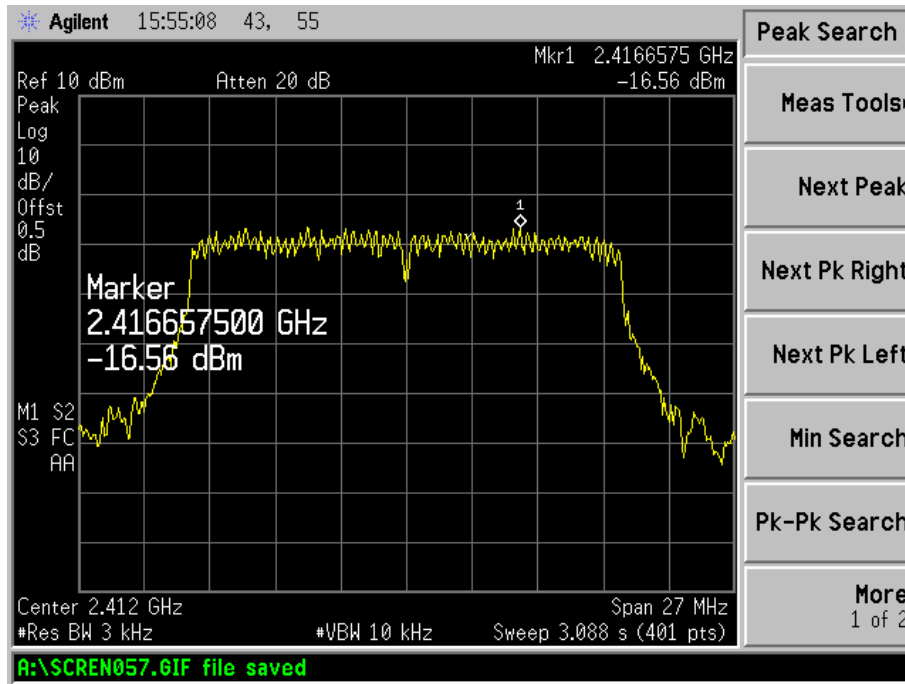
802.11g-Middle Channel



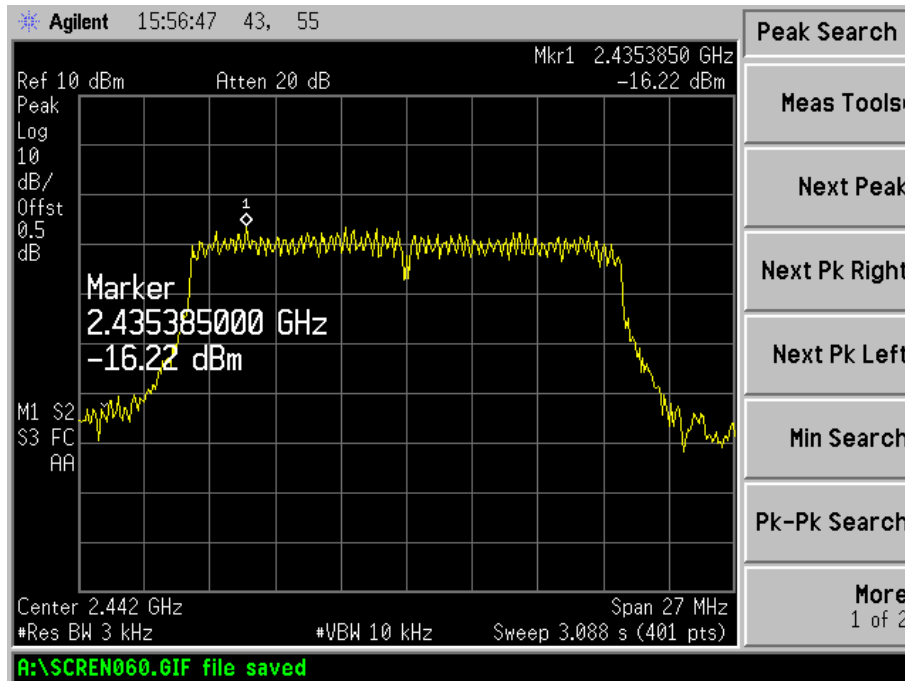
802.11g-High Channel



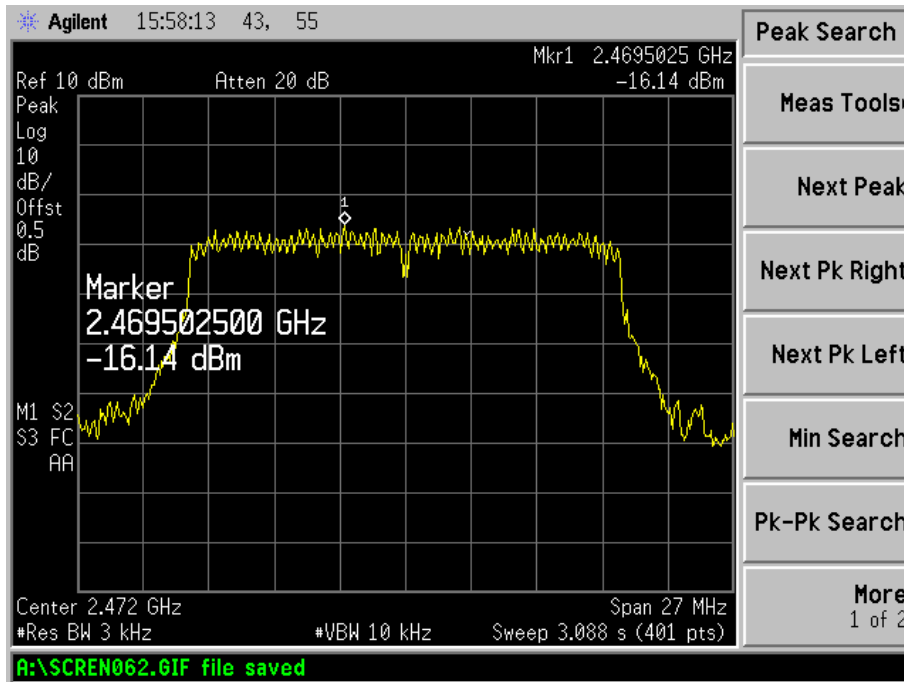
802.11n-HT20-Low Channel



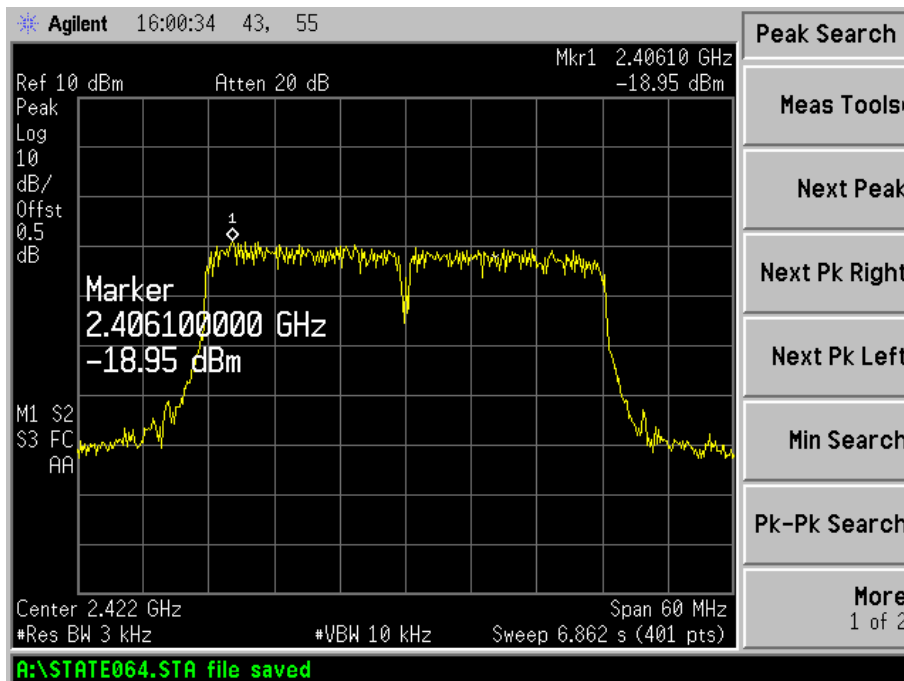
802.11n-HT20-Middle Channel



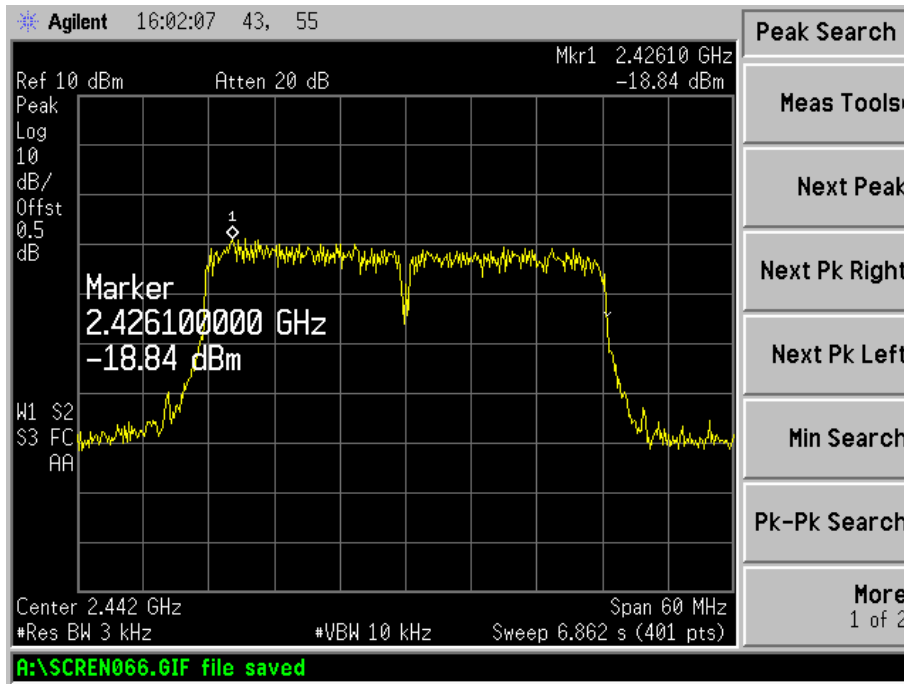
802.11n-HT20-High Channel



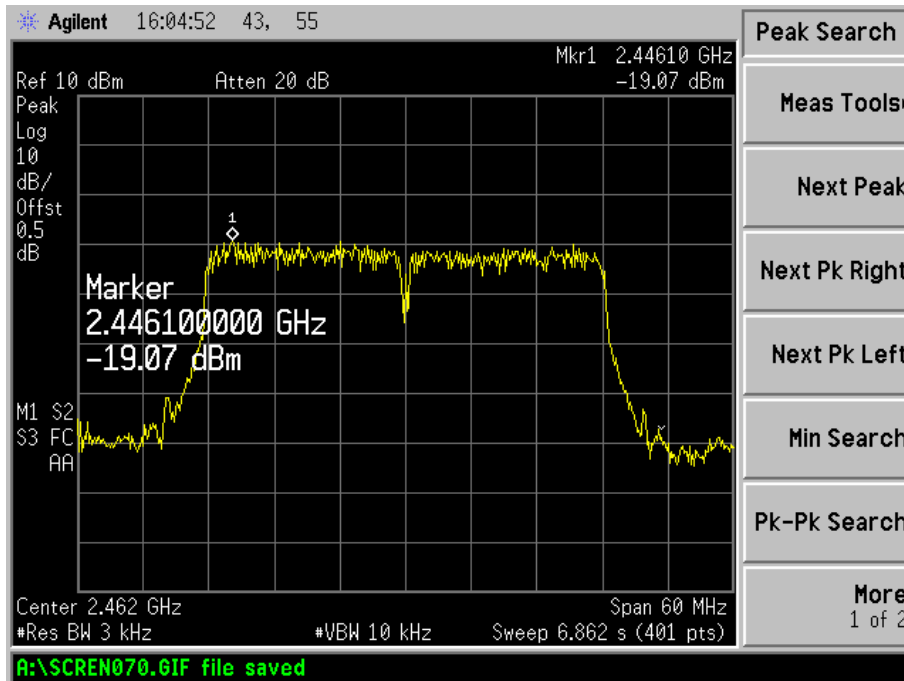
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



6. 6dB Bandwidth

6.1 Standard Applicable

According to 15.247(a)(2). Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2013-05-07	2014-05-06
Attenuator	ATTEN	ATS100-4-20	/	2013-05-07	2014-05-06

6.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set RBW = 100 kHz.
3. Set the video bandwidth (VBW) ≥ 3 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..

6.4 Environmental Conditions

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

6.5 Summary of Test Results/Plots

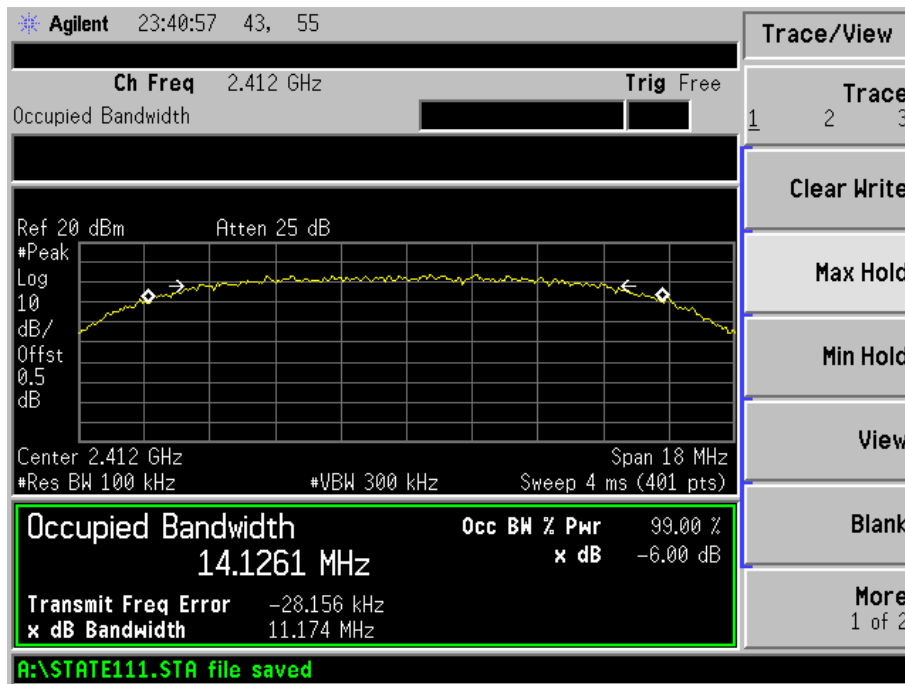
Test Mode	Test Channel MHz	6 dB Bandwidth Antenna 0 (kHz)	6 dB Bandwidth Antenna 1(kHz)	Limit kHz
802.11b	2412	11174	11135	500
	2442	11163	11164	500
	2472	11179	10820	500
802.11g	2412	16549	16491	500
	2442	16480	16517	500
	2472	16518	16525	500
802.11n-HT20	2412	17687	17540	500
	2442	17687	17680	500
	2472	17705	17667	500
802.11n-HT40	2422	36189	35892	500
	2442	36480	35964	500
	2462	36507	36202	500

Note: The EUT will be simultaneous transmission at the Antenna 0 and Antenna 1 for the mode of 802.11n HT20 or HT40, transmission only single at Antenna 0 or Antenna 1 for 802.11b/g;

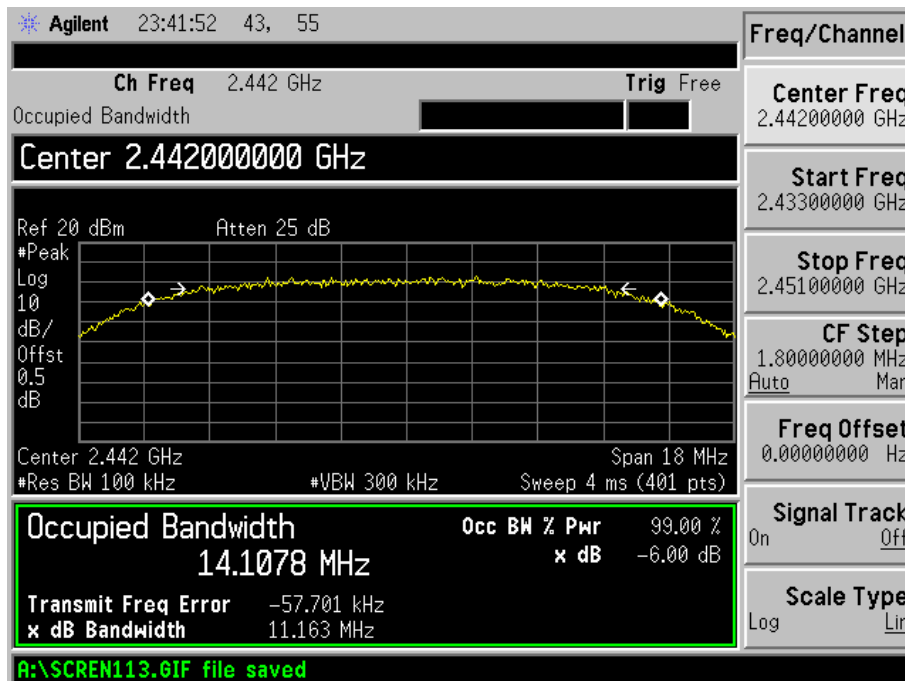
Please refer to the following test plots:

For Antenna 0

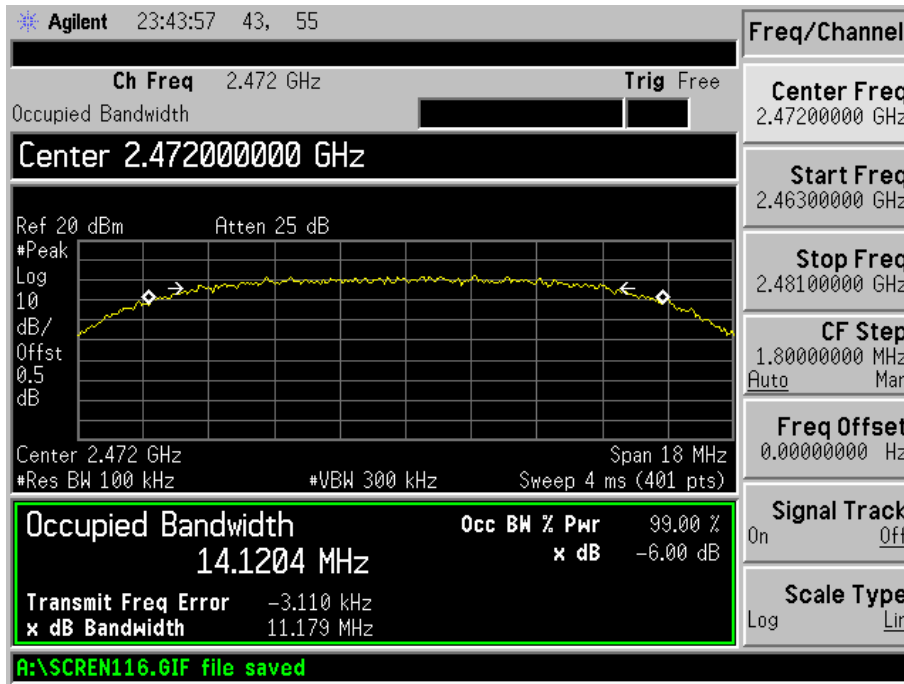
802.11b-Low Channel



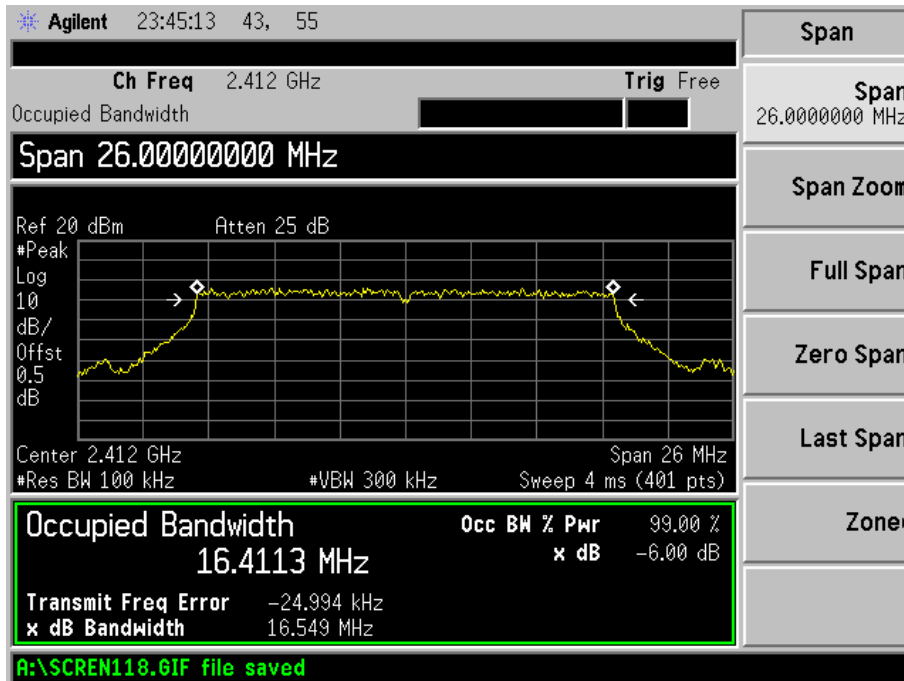
802.11b-Middle Channel



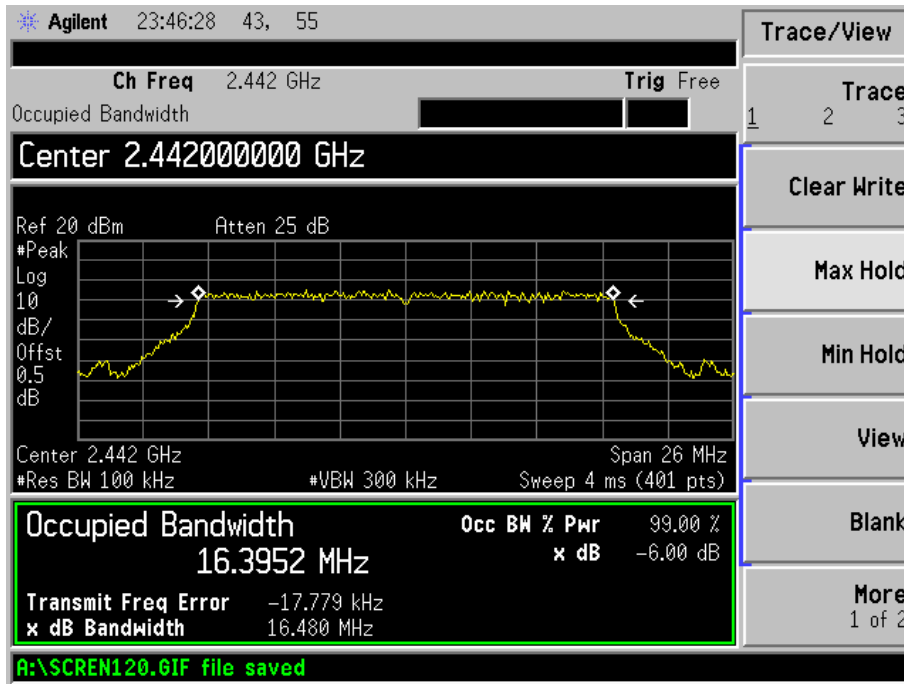
802.11b-High Channel



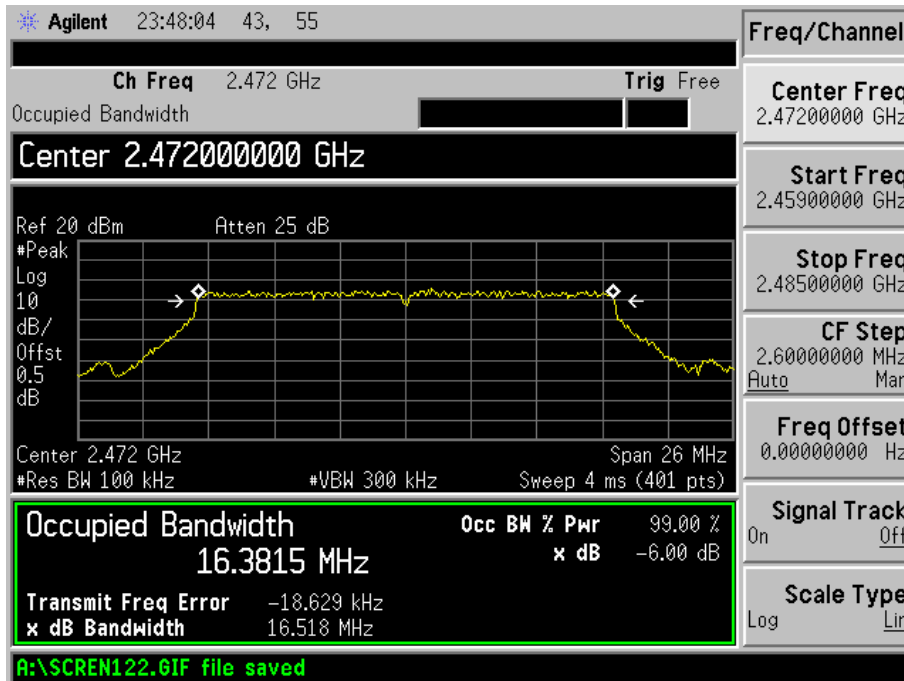
802.11g-Low Channel



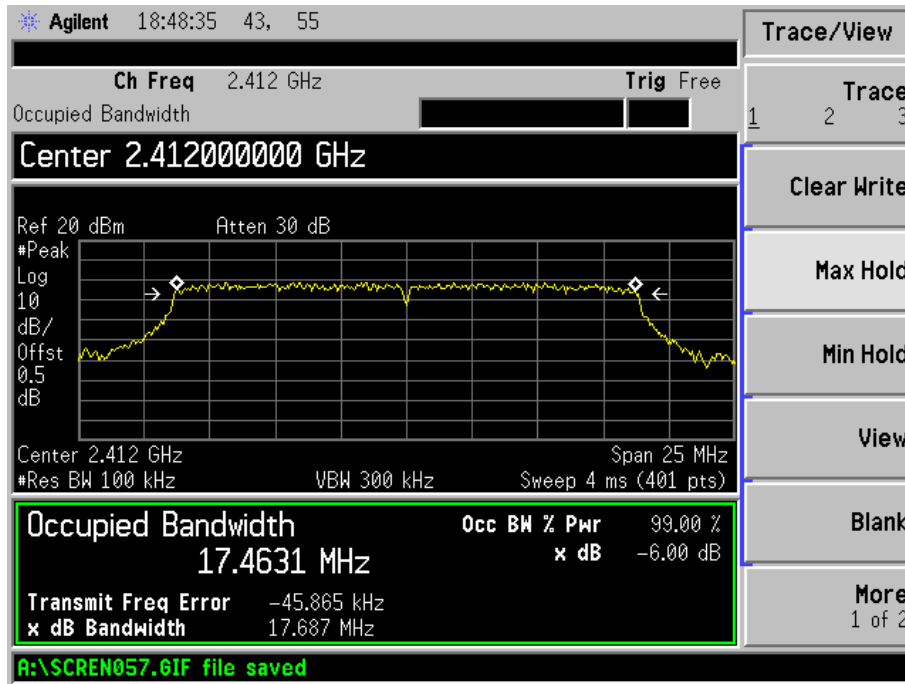
802.11g-Middle Channel



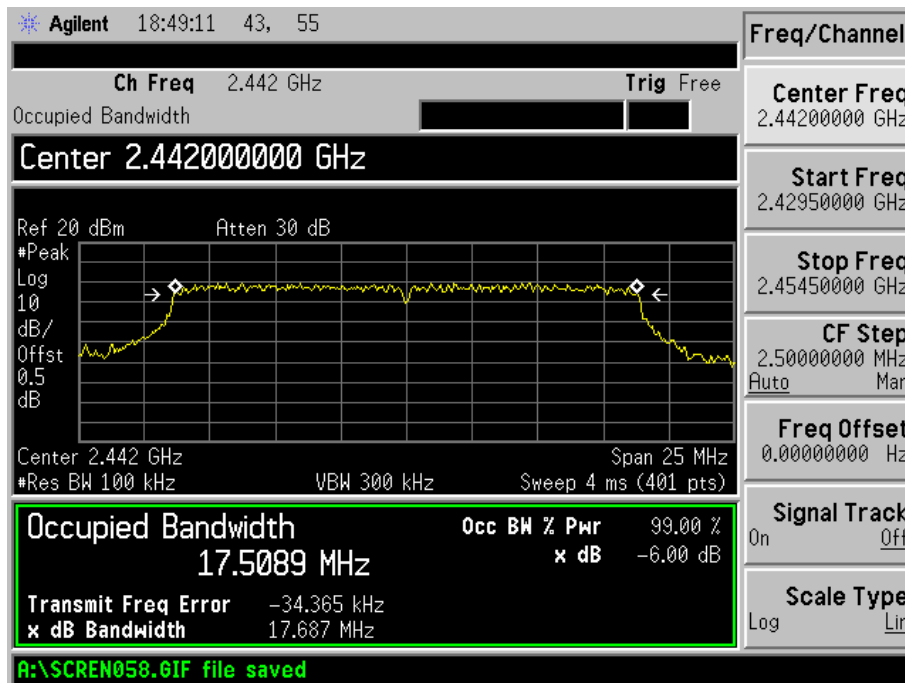
802.11g-High Channel



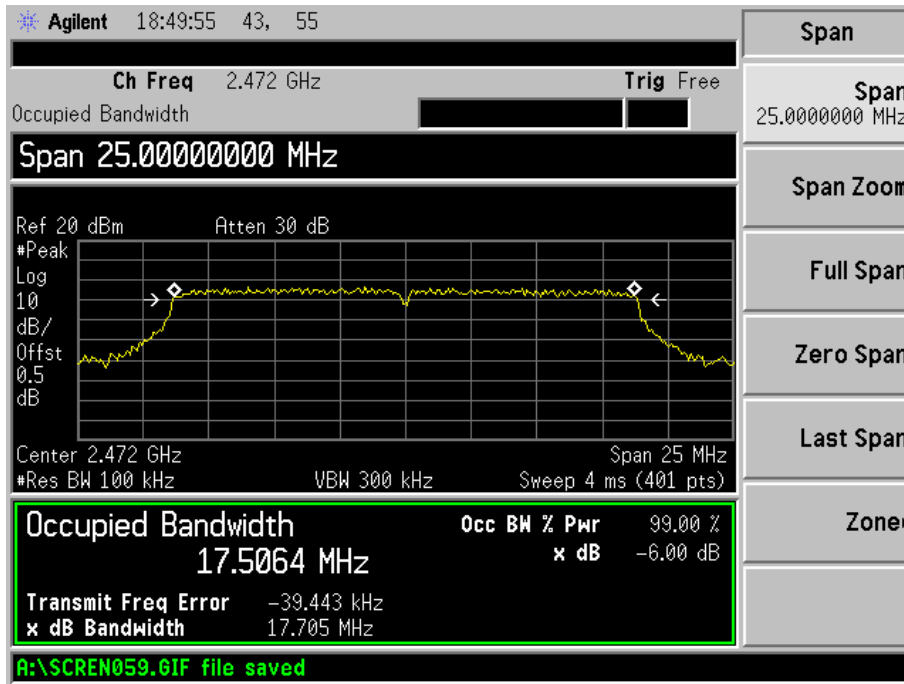
802.11n-HT20-Low Channel



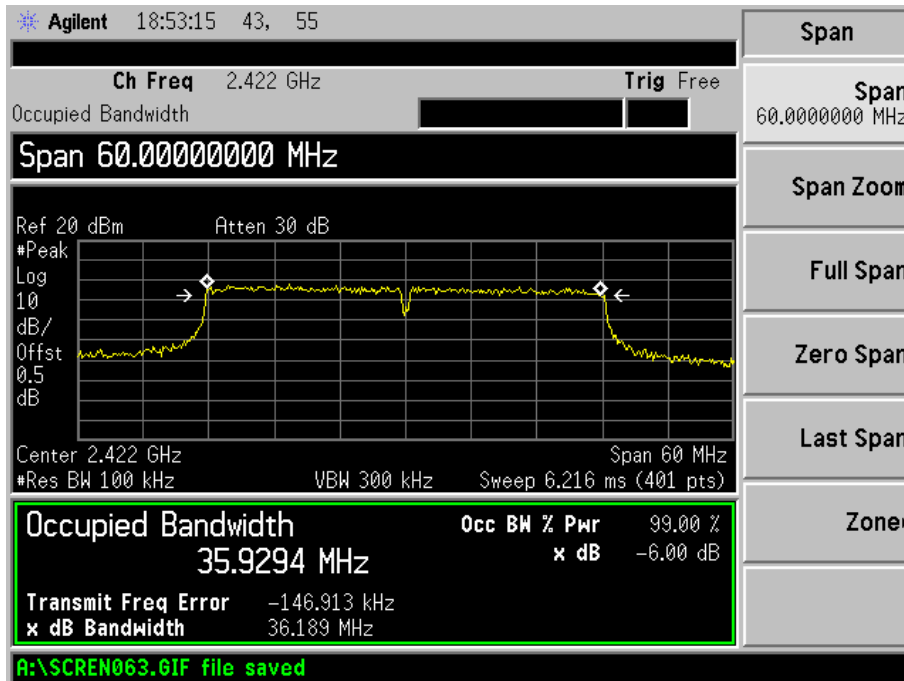
802.11n-HT20-Middle Channel



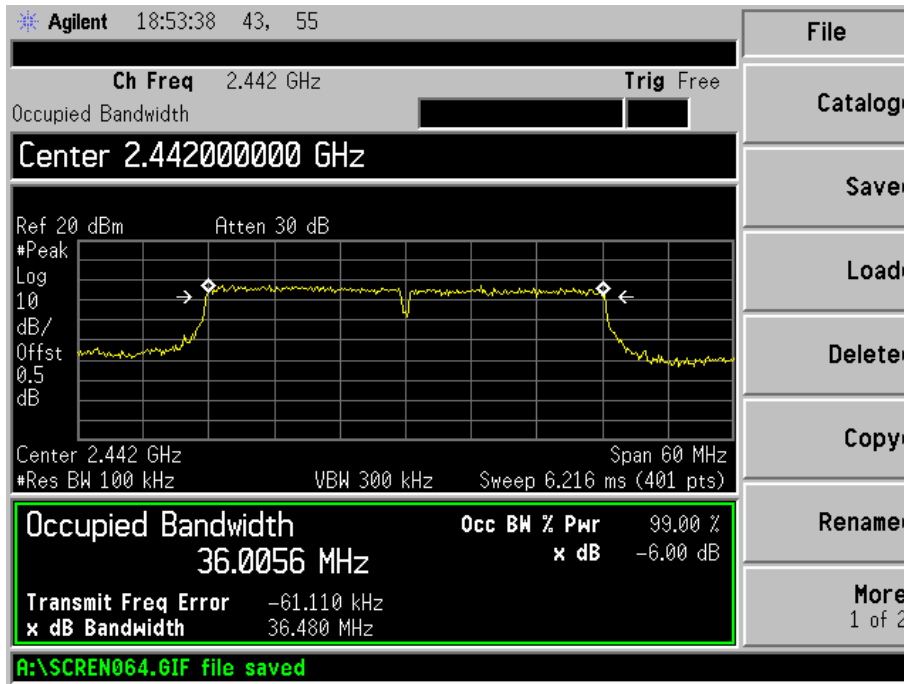
802.11n-HT20-High Channel



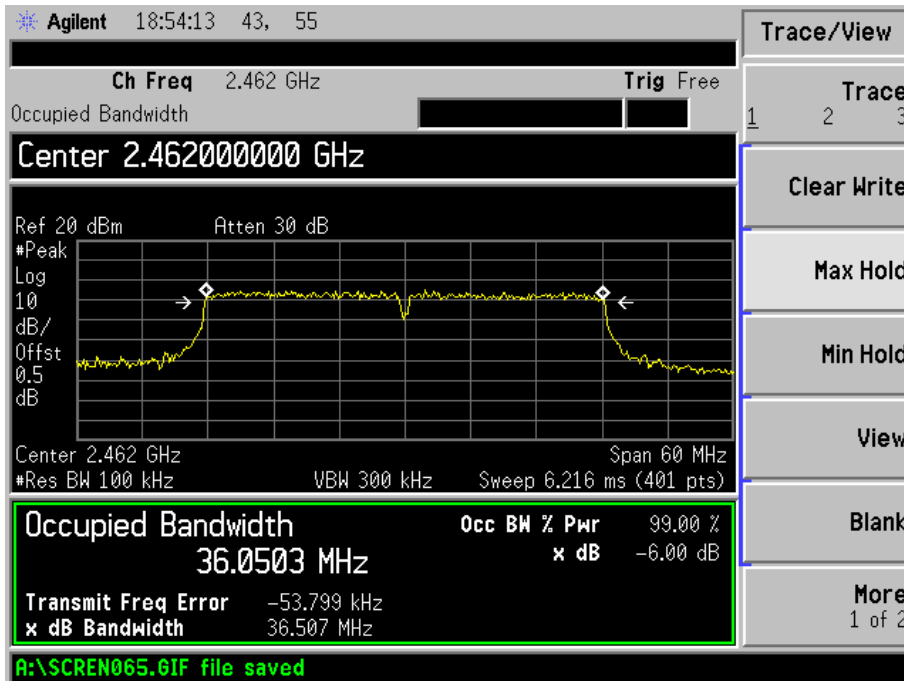
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel

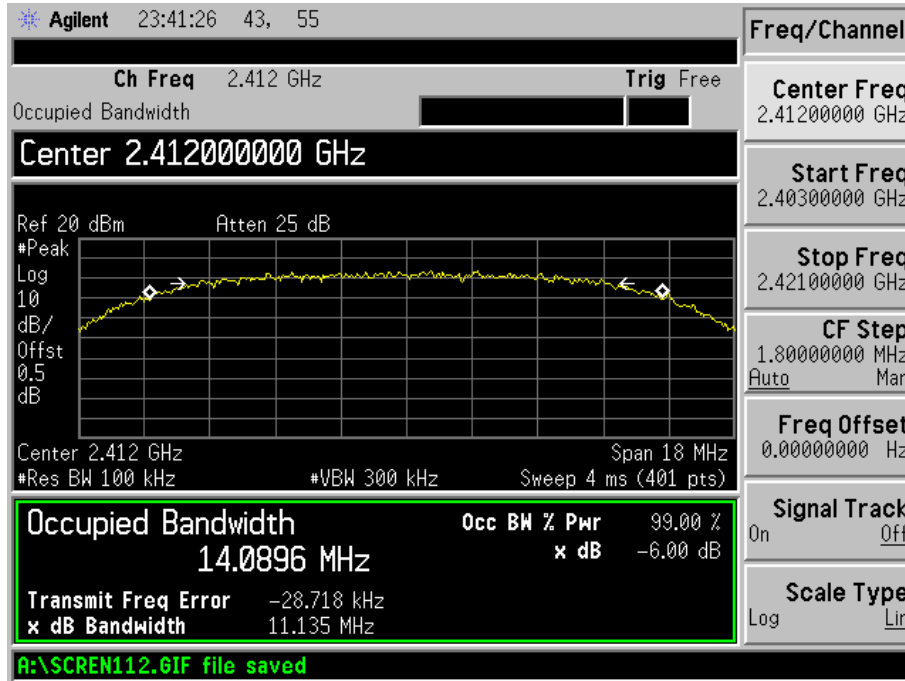


802.11n-HT40-High Channel

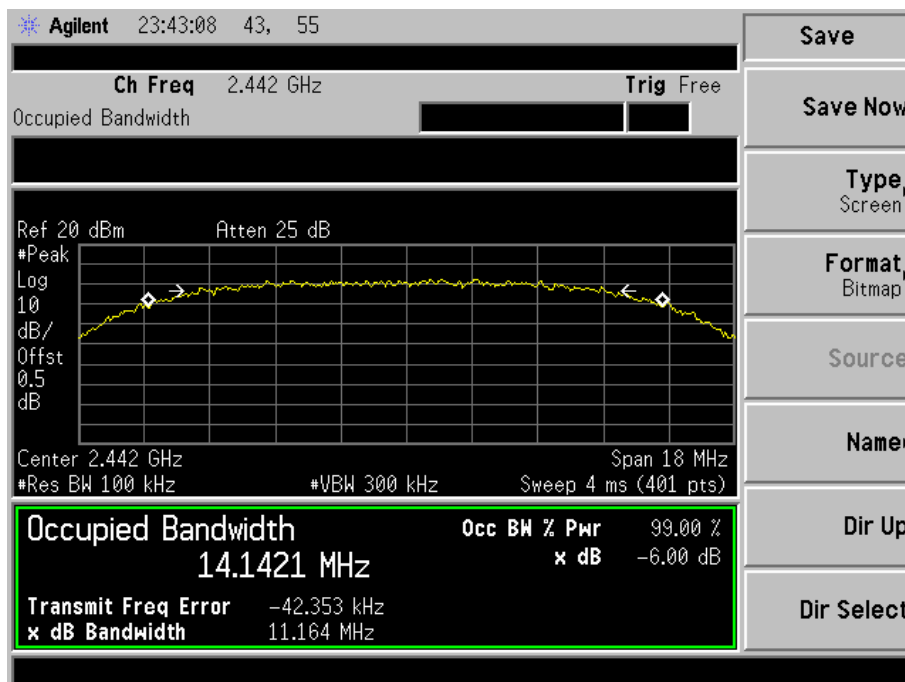


For Antenna 1

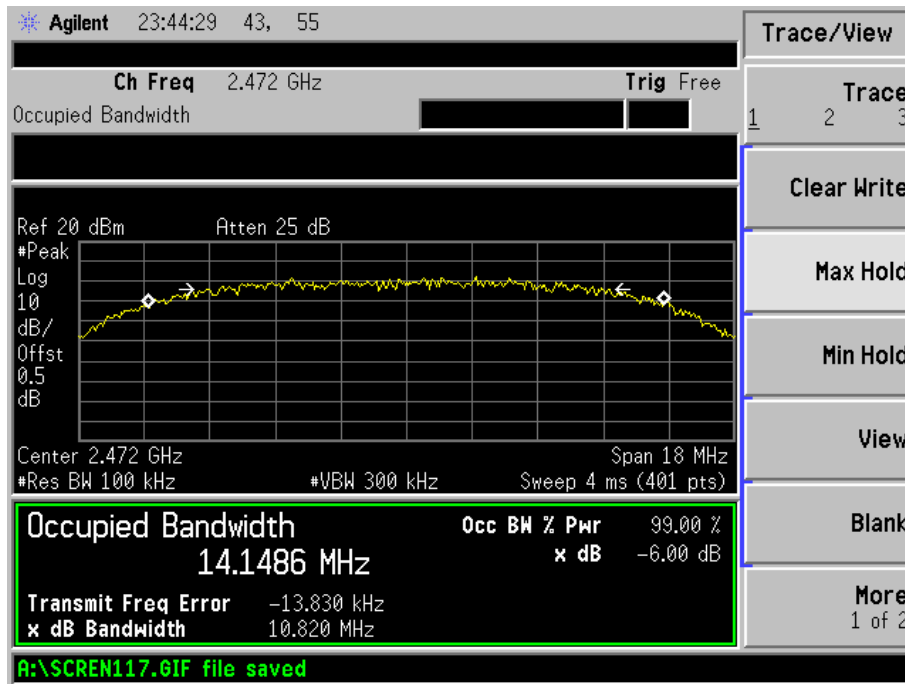
802.11b-Low Channel



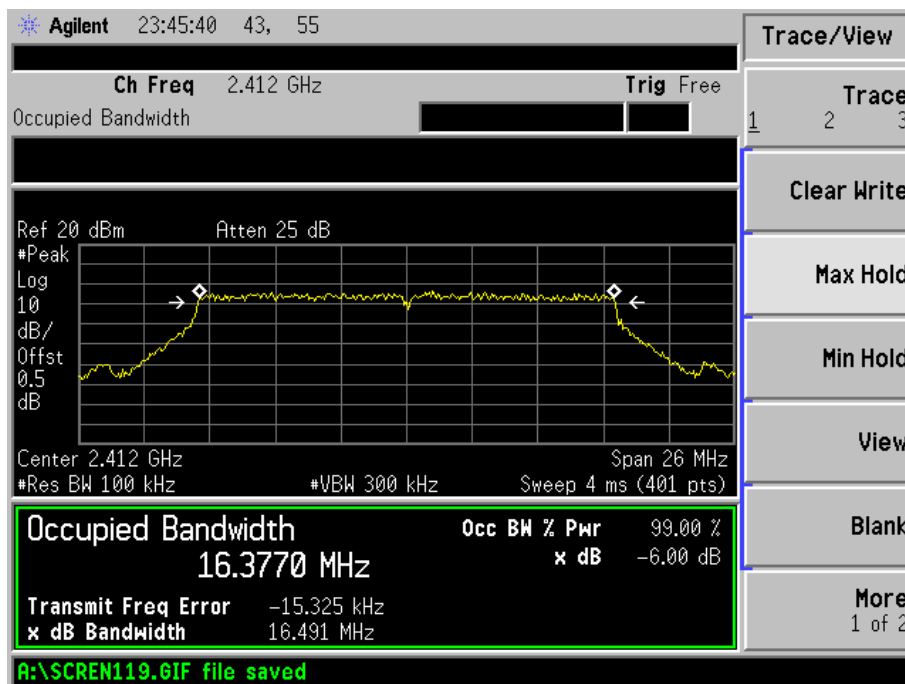
802.11b-Middle Channel



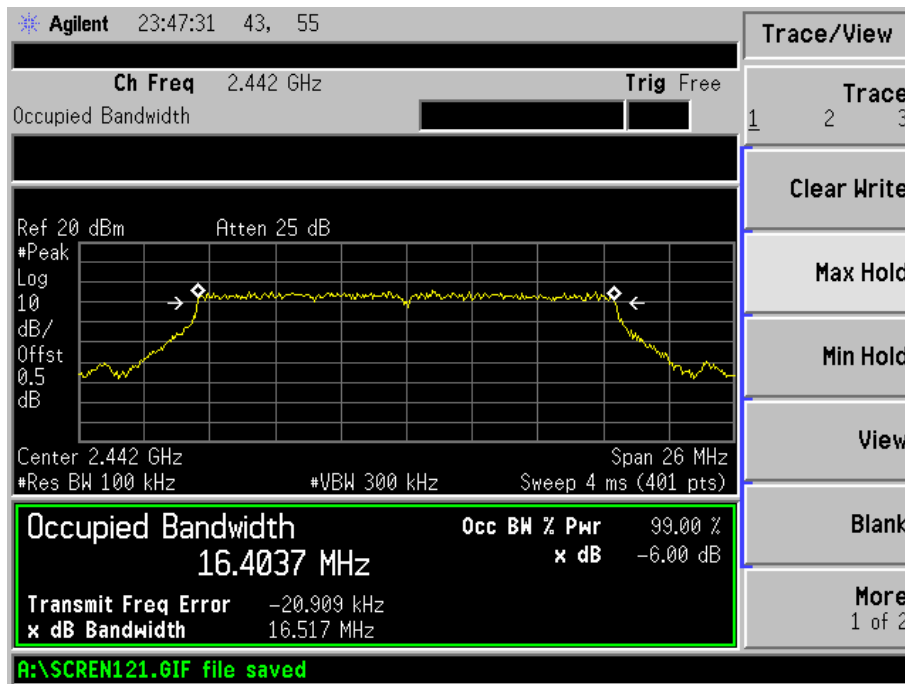
802.11b-High Channel



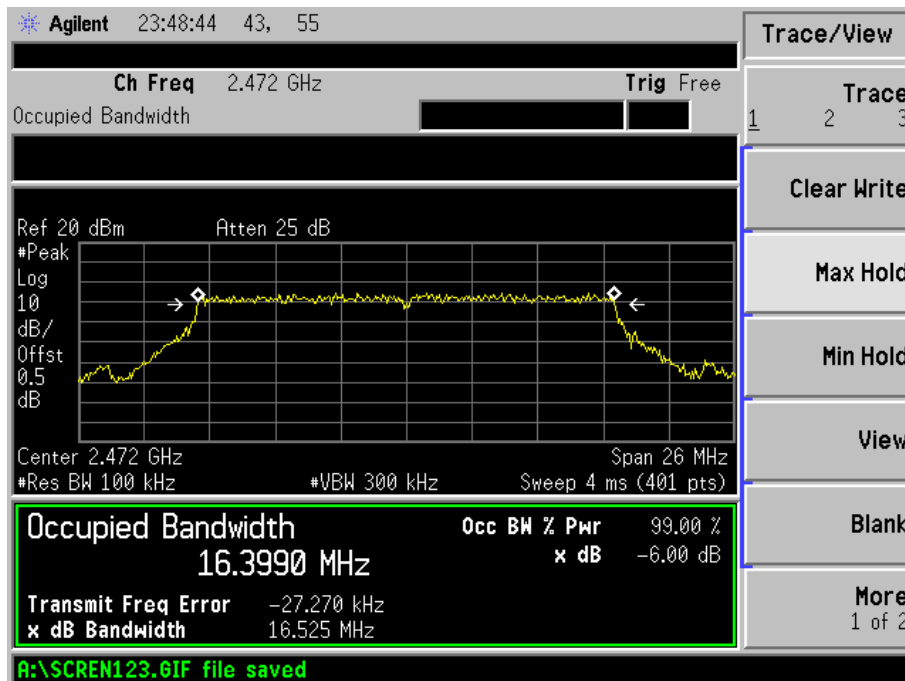
802.11g-Low Channel



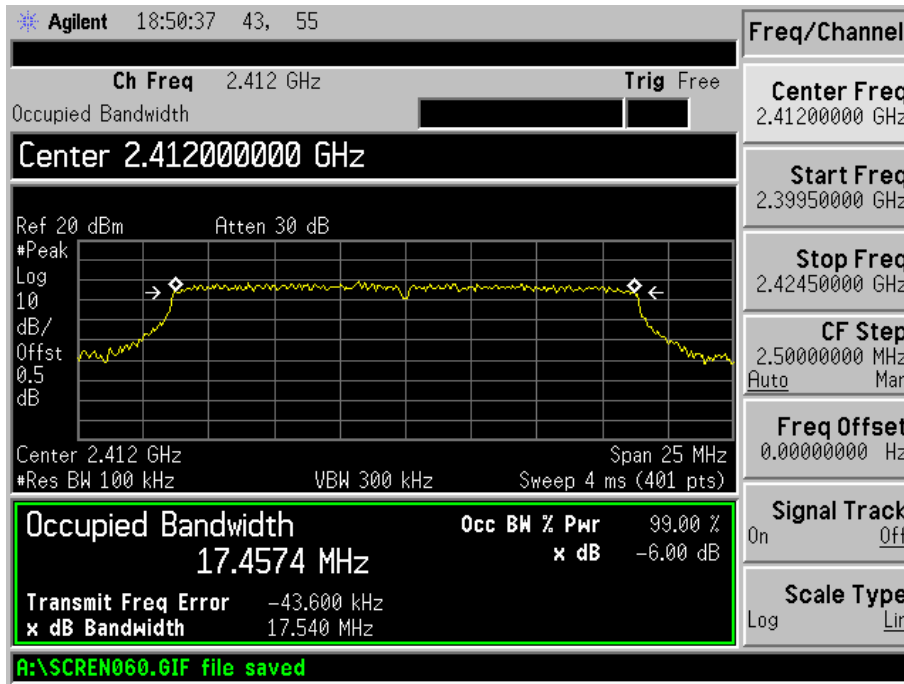
802.11g-Middle Channel



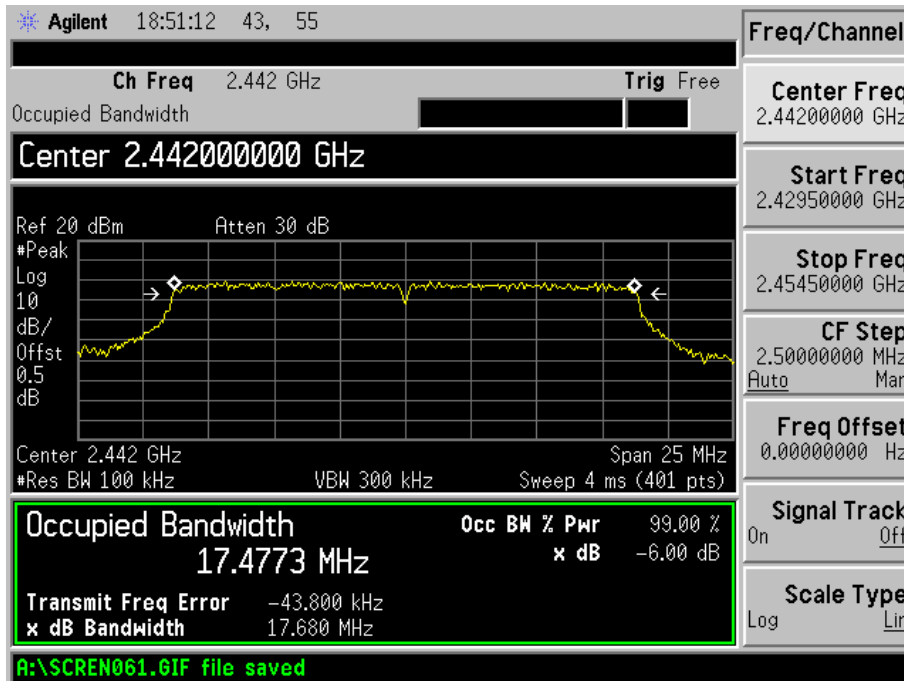
802.11g-High Channel



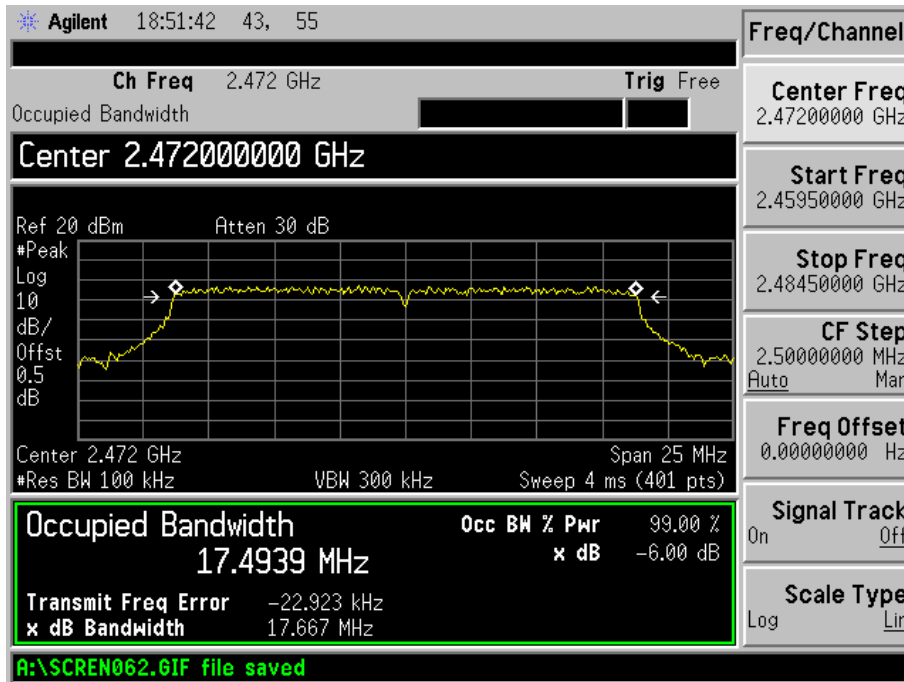
802.11n-HT20-Low Channel



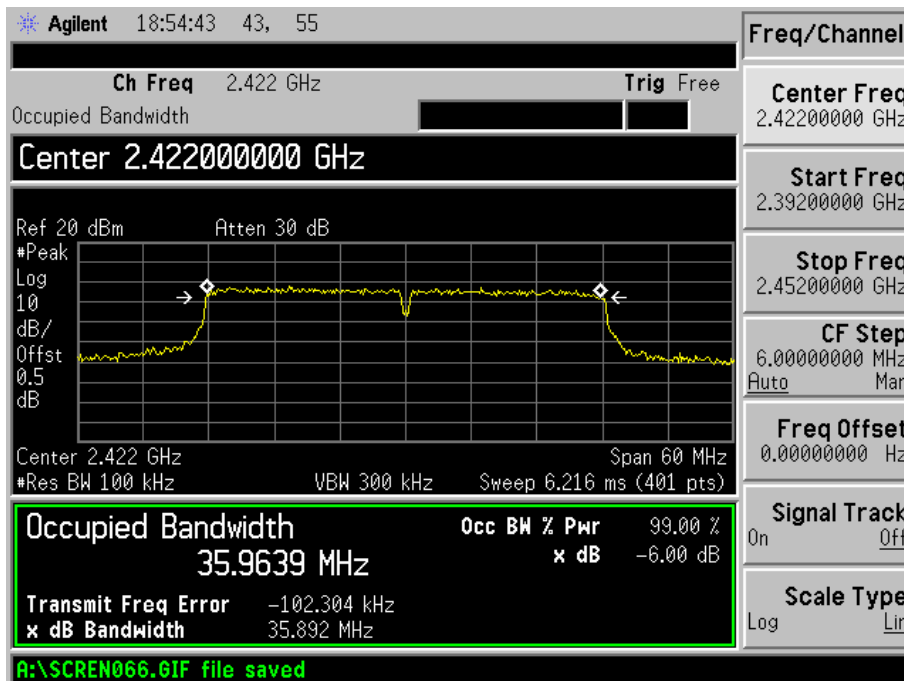
802.11n-HT20-Middle Channel



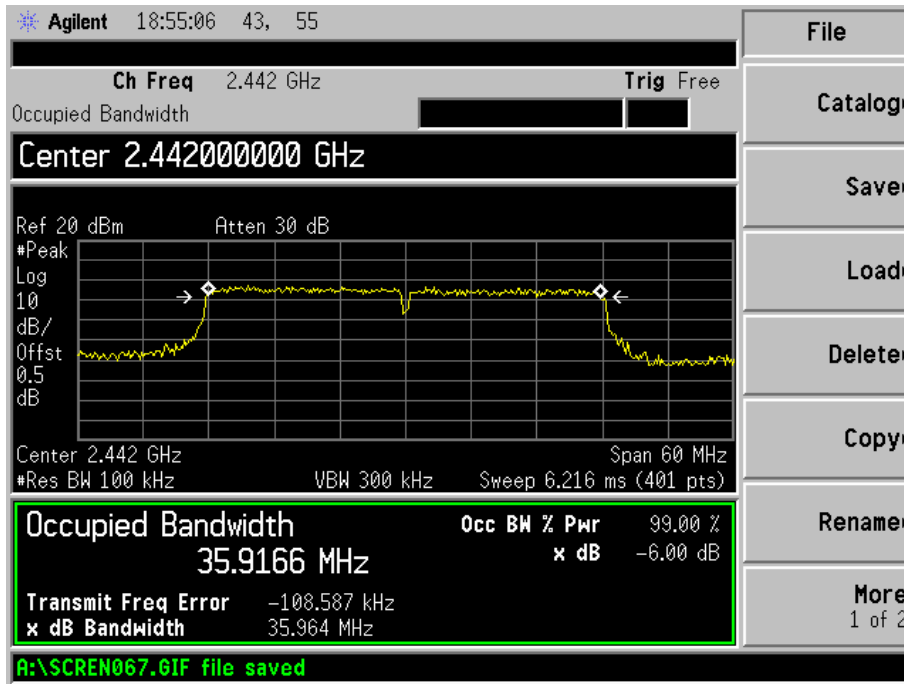
802.11n-HT20-High Channel



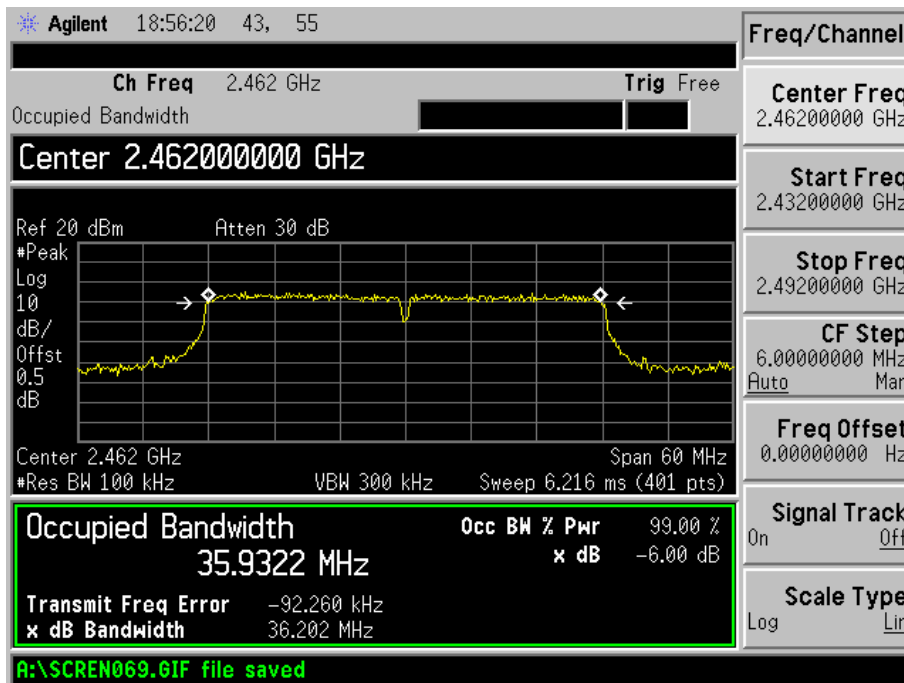
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



7. RF Output Power

7.1 Standard Applicable

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

7.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2013-05-07	2014-05-06
Attenuator	ATTEN	ATS100-4-20	/	2013-05-07	2014-05-06

7.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 D01 v03r01, 8.1.2 Option 2 (channel integration method) this procedure should only be used when the maximum available RBW of the spectrum/signal analyzer is less than the DTS bandwidth.

1. Set the RBW = 1 MHz.
2. Set the VBW \geq 3 RBW
3. Set the span \geq 1.5 x DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

7.4 Environmental Conditions

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

7.5 Summary of Test Results/Plots

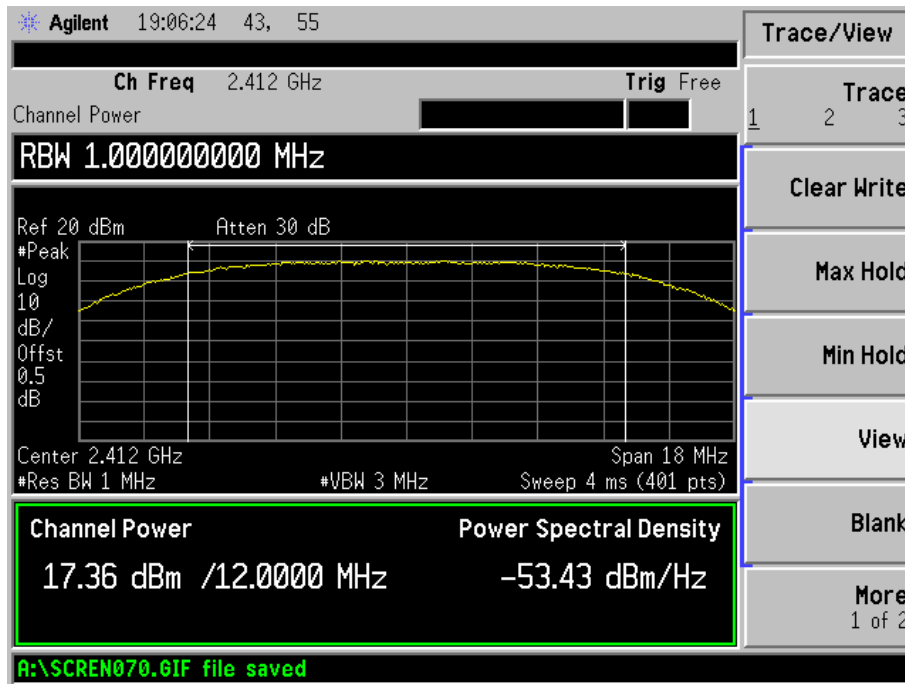
Test Mode	Frequency MHz	Reading Antenna 0 dBm	Reading Antenna 1 dBm	Output Power Antenna 0 (mW)	Output Power Antenna 1 (mW)	Total Power mW	Limit mW
802.11b 11Mbps	2412	17.36	17.68	54.45	58.61	/	1000
	2442	17.52	17.63	56.49	57.94	/	1000
	2472	17.57	17.42	57.15	55.21	/	1000
802.11g 54Mbps	2412	15.45	15.36	35.08	34.36	/	1000
	2442	15.47	15.45	35.24	35.08	/	1000
	2472	15.40	15.49	34.67	35.40	/	1000
802.11n HT20 MCS0	2412	13.28	13.58	21.28	22.80	44.08	1000
	2442	13.49	13.40	22.34	21.88	44.22	1000
	2472	13.63	13.63	23.07	23.07	46.14	1000
802.11n HT40 MCS0	2422	13.60	13.47	22.91	22.23	45.14	1000
	2442	13.48	13.41	22.28	21.93	44.21	1000
	2462	13.38	13.38	21.78	21.78	43.56	1000

Note: The EUT will be simultaneous transmission at the Antenna 0 and Antenna 1 for the mode of 802.11n HT20 or HT40, transmission only single at Antenna 0 or Antenna 1 for 802.11b/g;

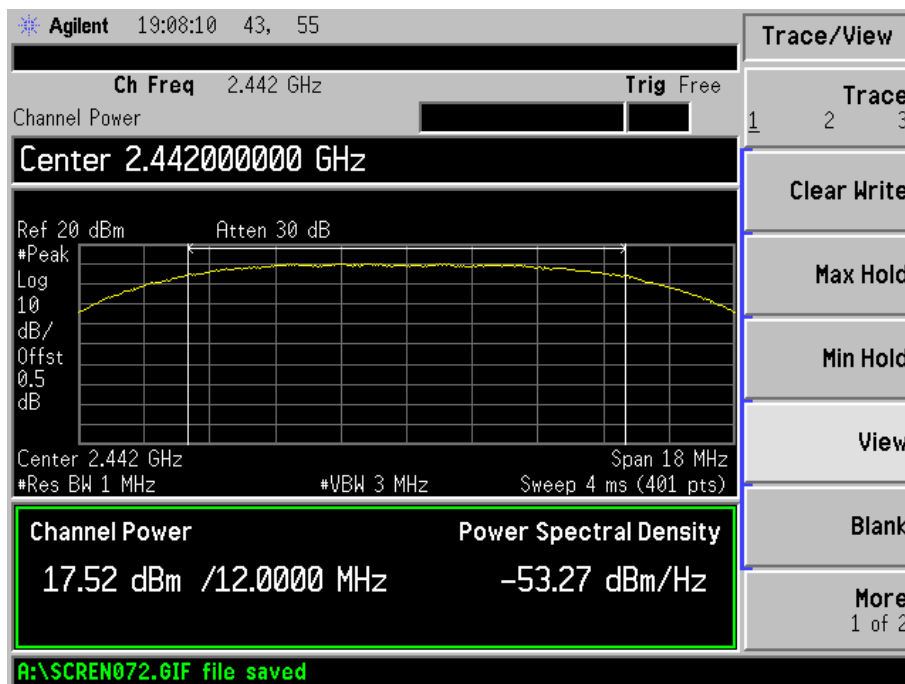
Please refer to the following test plots:

For Antenna 0

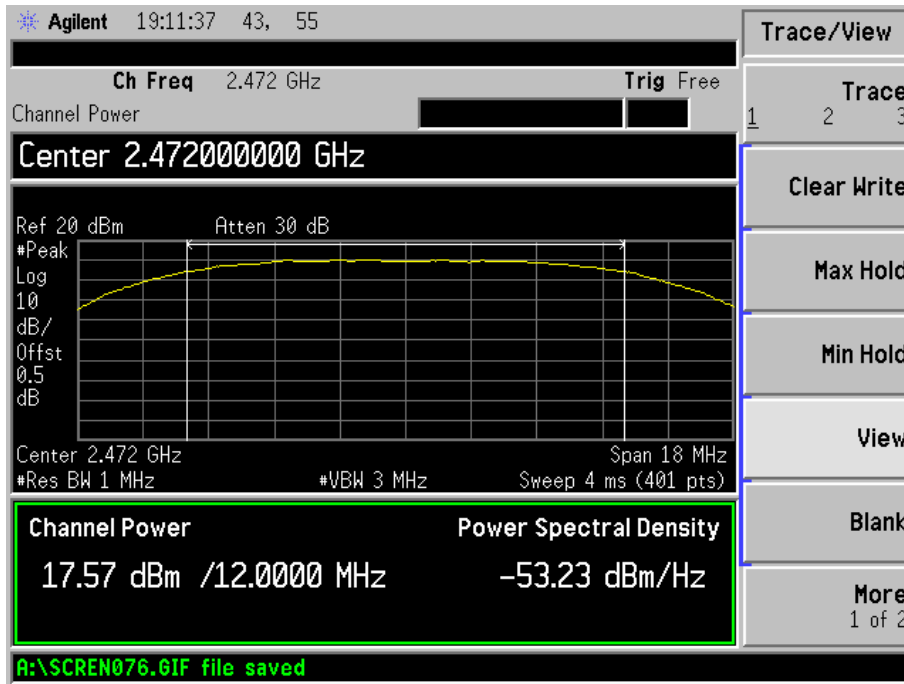
802.11b-11Mbps-Low Channel



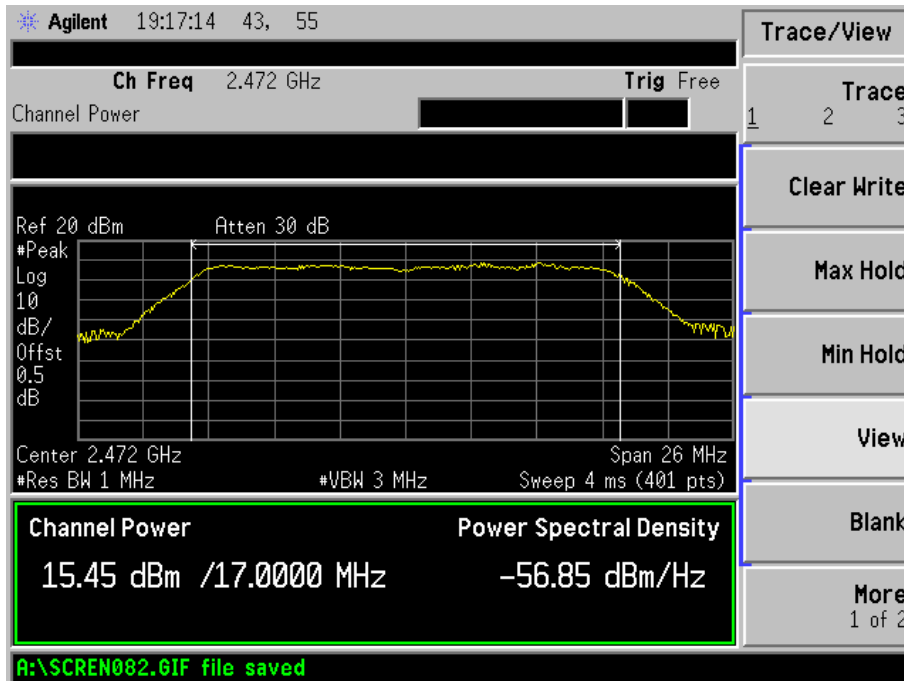
802.11b-11Mbps-Middle Channel



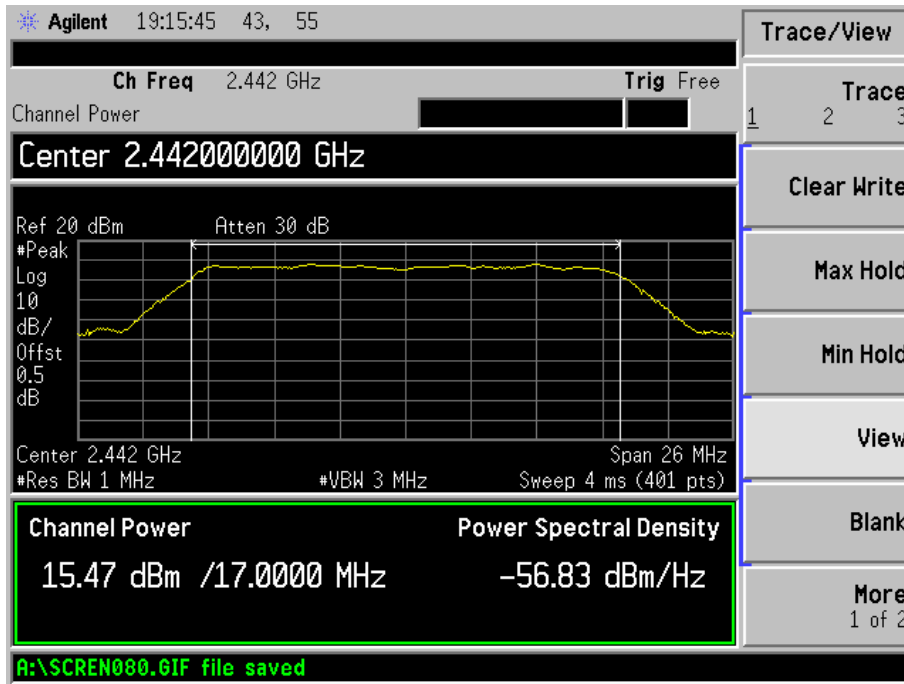
802.11b-11Mbps-High Channel



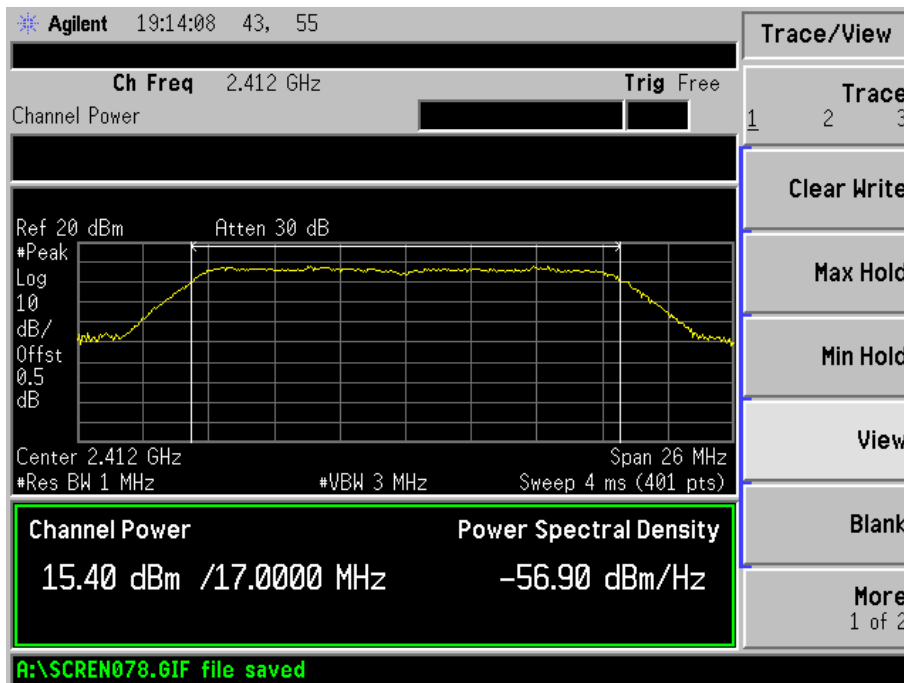
802.11g-54Mbps-Low Channel



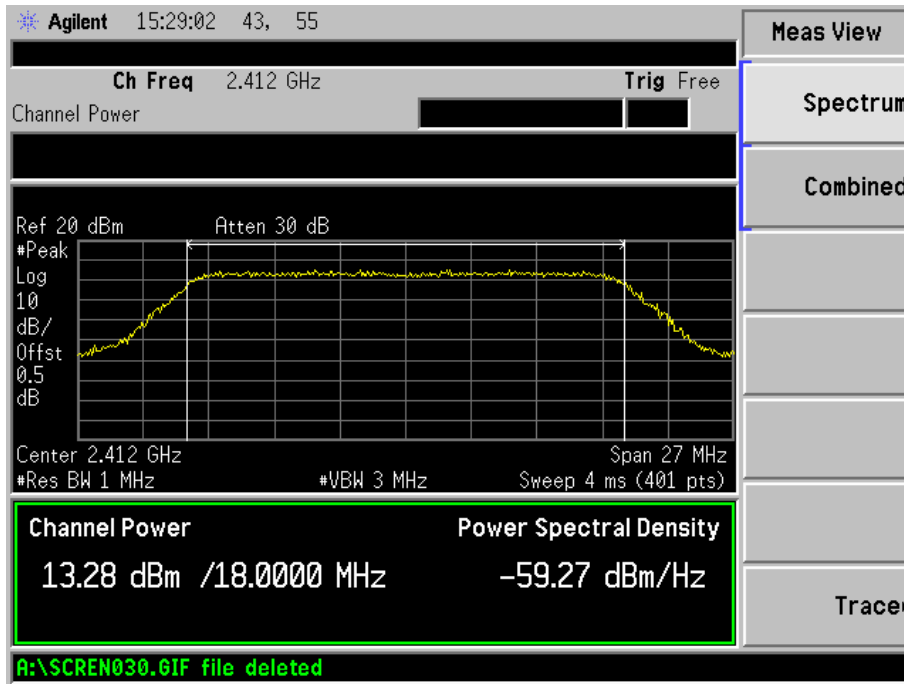
802.11g-54Mbps-Middle Channel



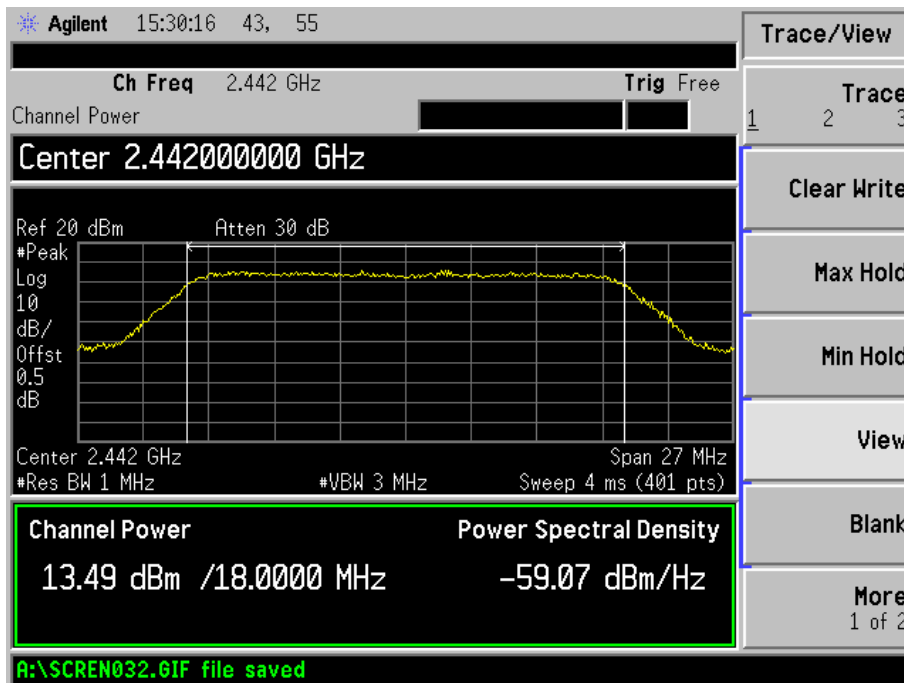
802.11g-54Mbps-High Channel



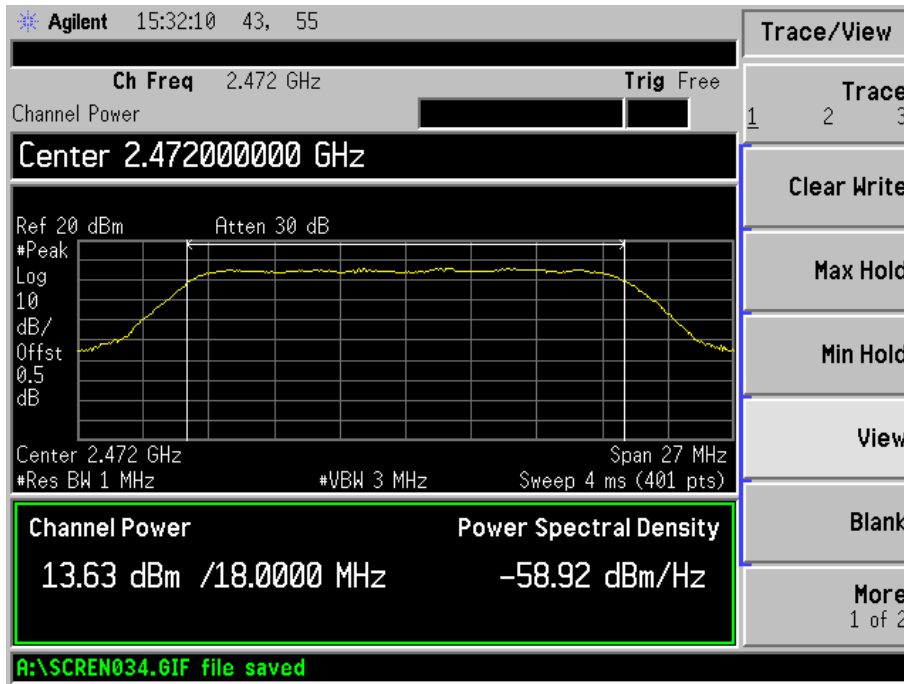
802.11n-HT20-MCS0-Low Channel



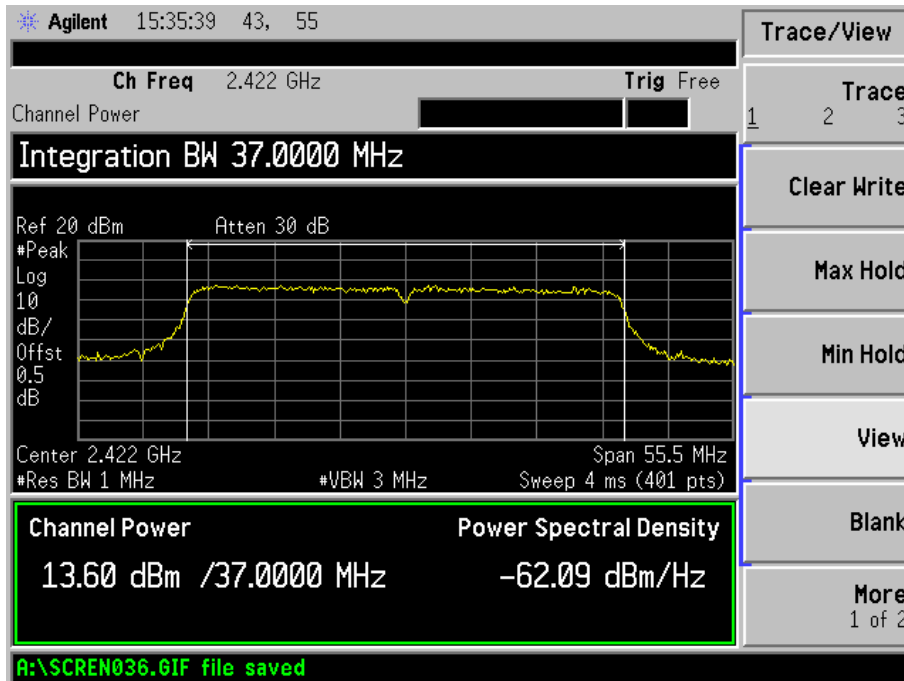
802.11n-HT20-MCS0-Middle Channel



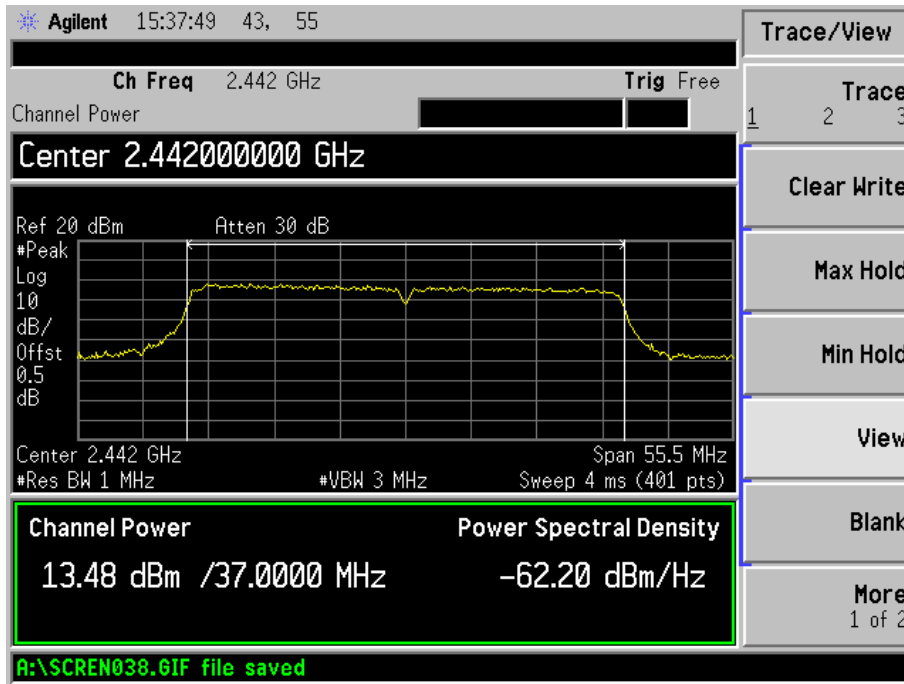
802.11n-HT20-MCS0-High Channel



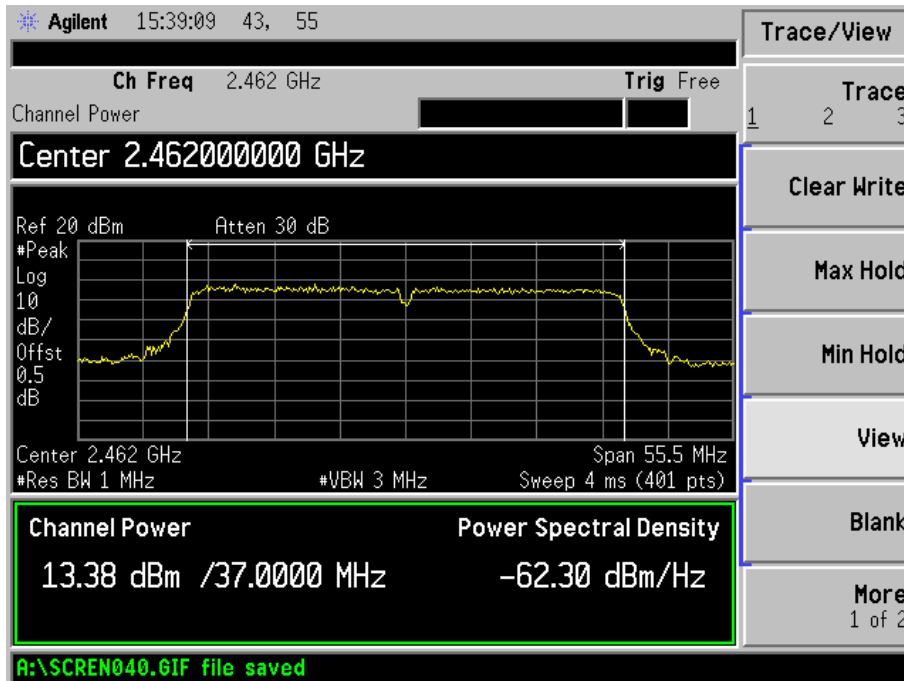
802.11n-HT40-MCS0-Low Channel



802.11n-HT40-MCS0-Middle Channel

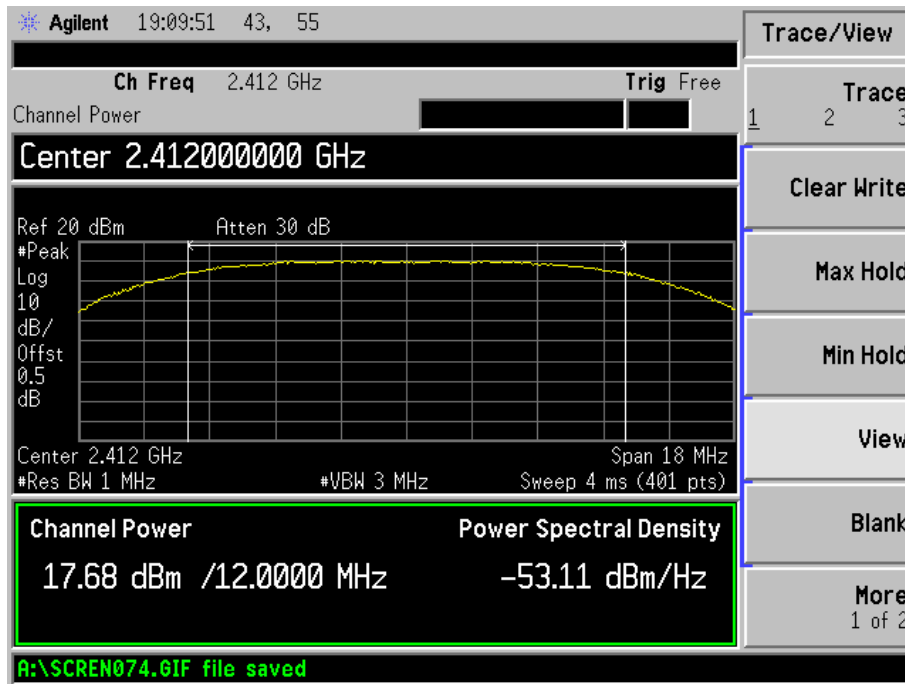


802.11n-HT40-MCS0-High Channel

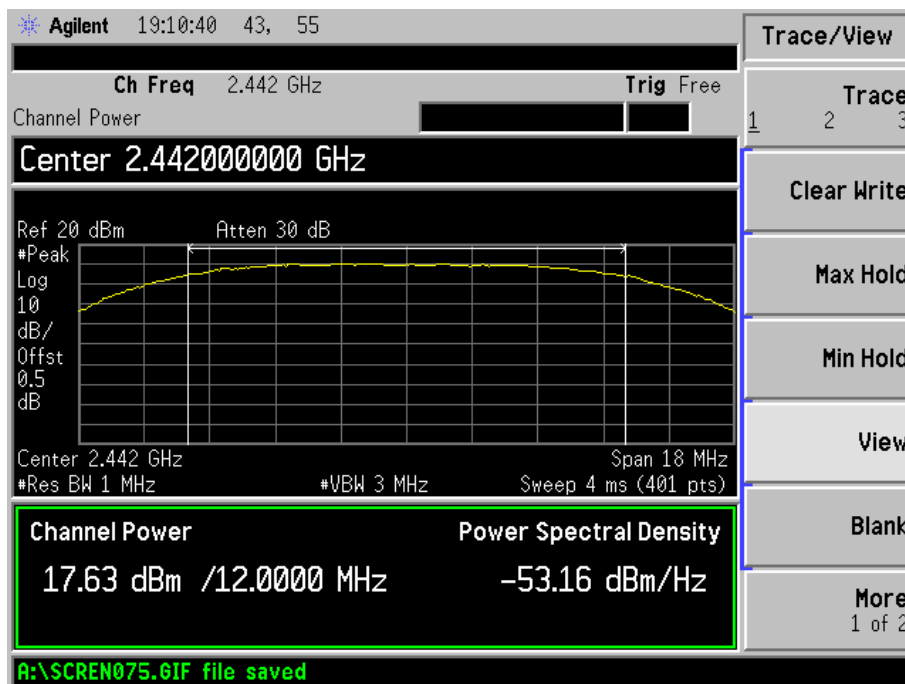


For Antenna 1

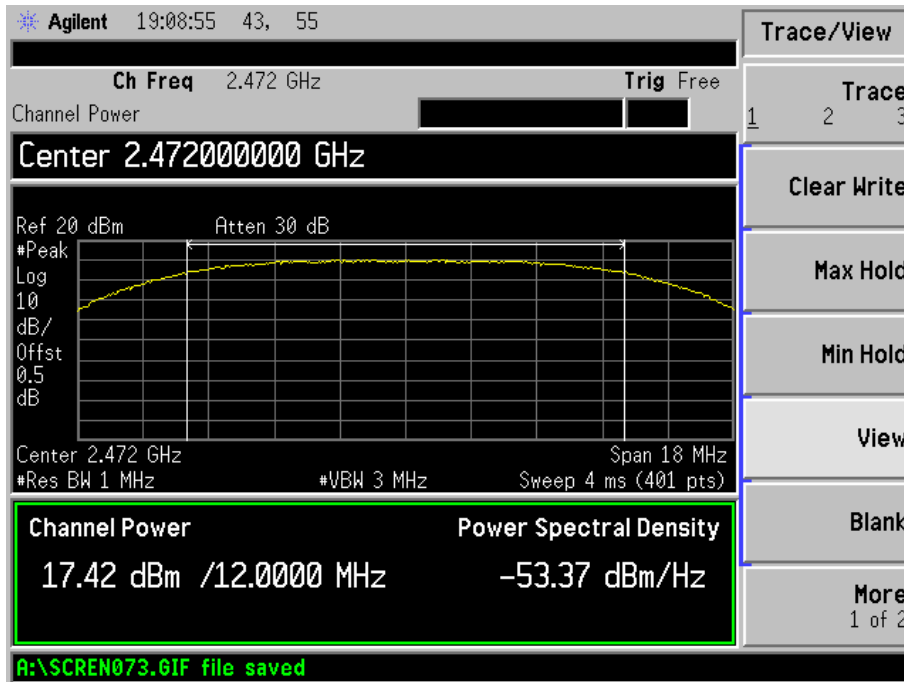
802.11b-11Mbps-Low Channel



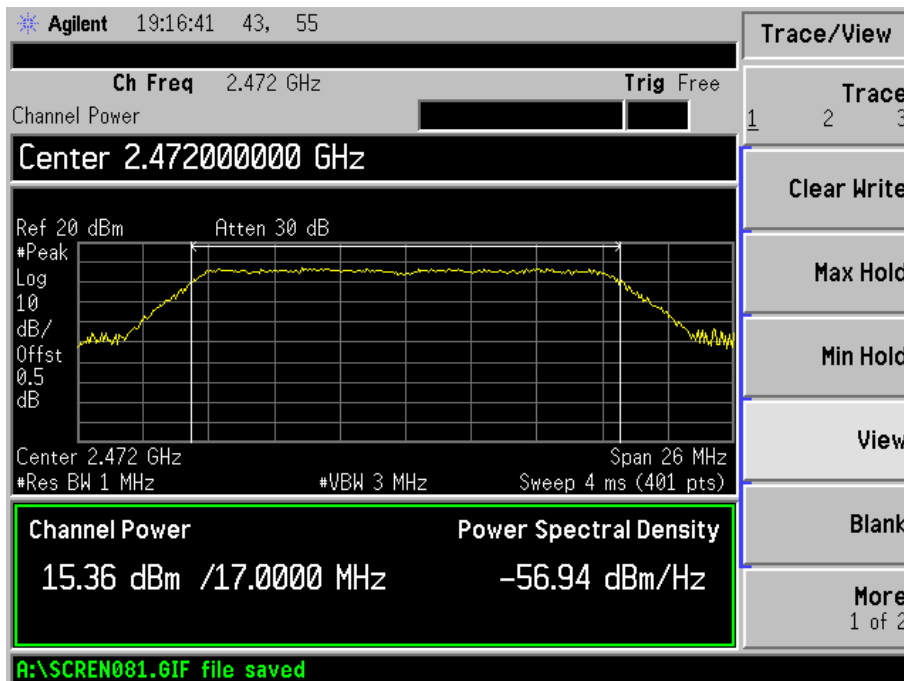
802.11b-11Mbps-Middle Channel



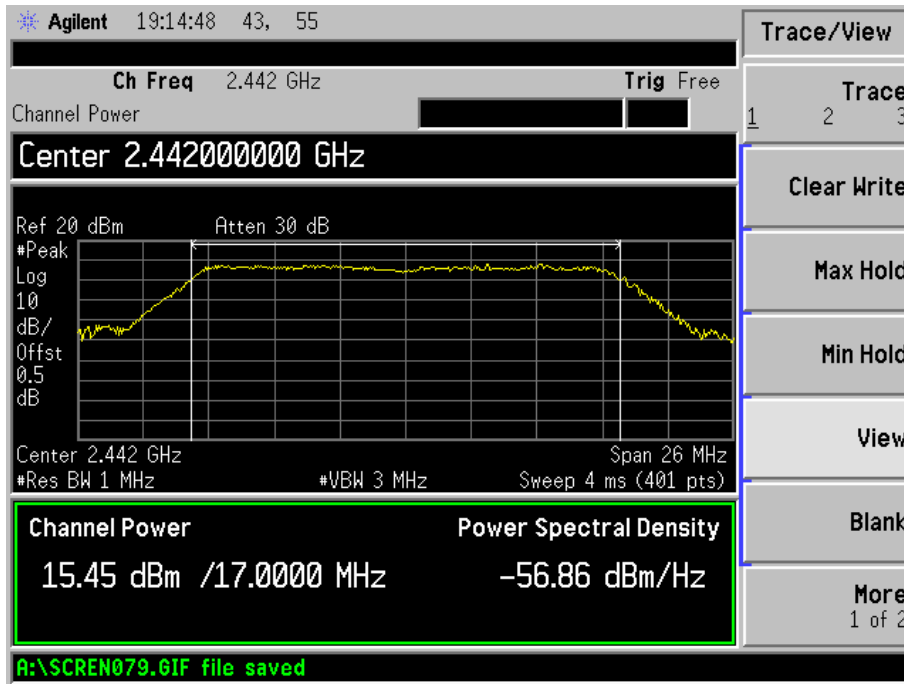
802.11b-11Mbps-High Channel



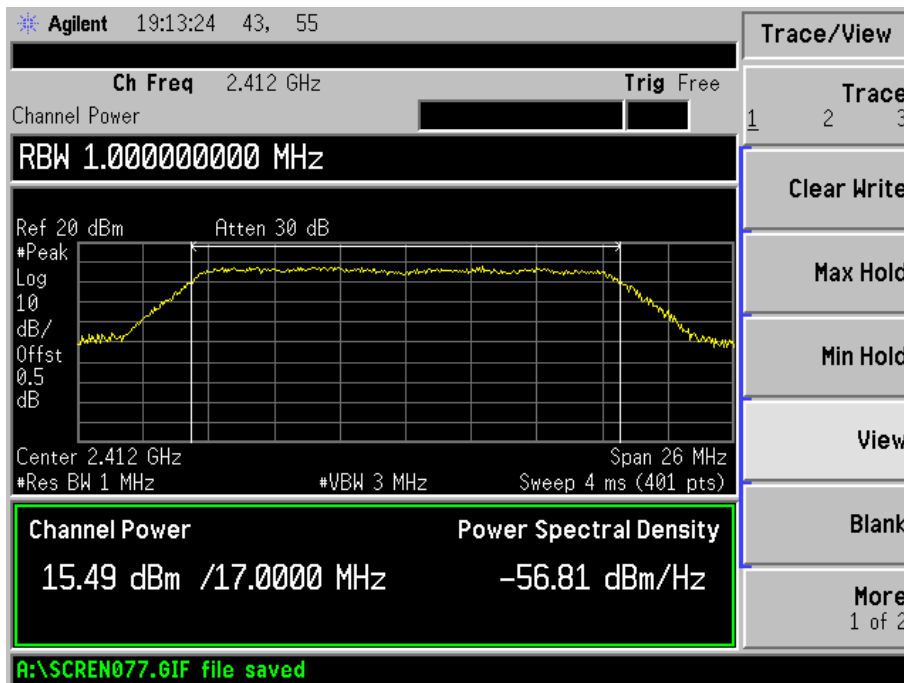
802.11g-54Mbps-Low Channel



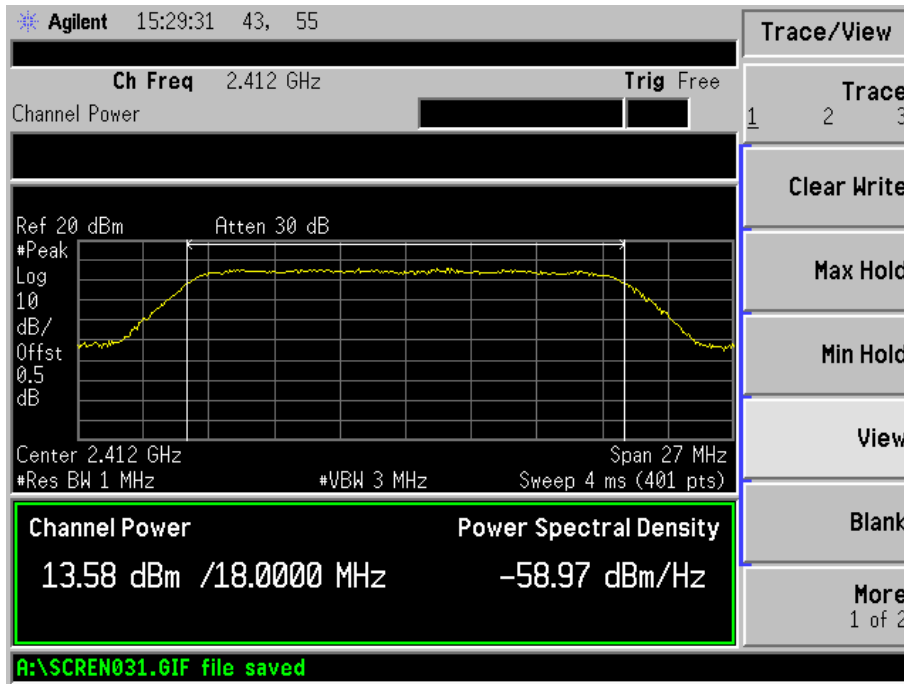
802.11g-54Mbps-Middle Channel



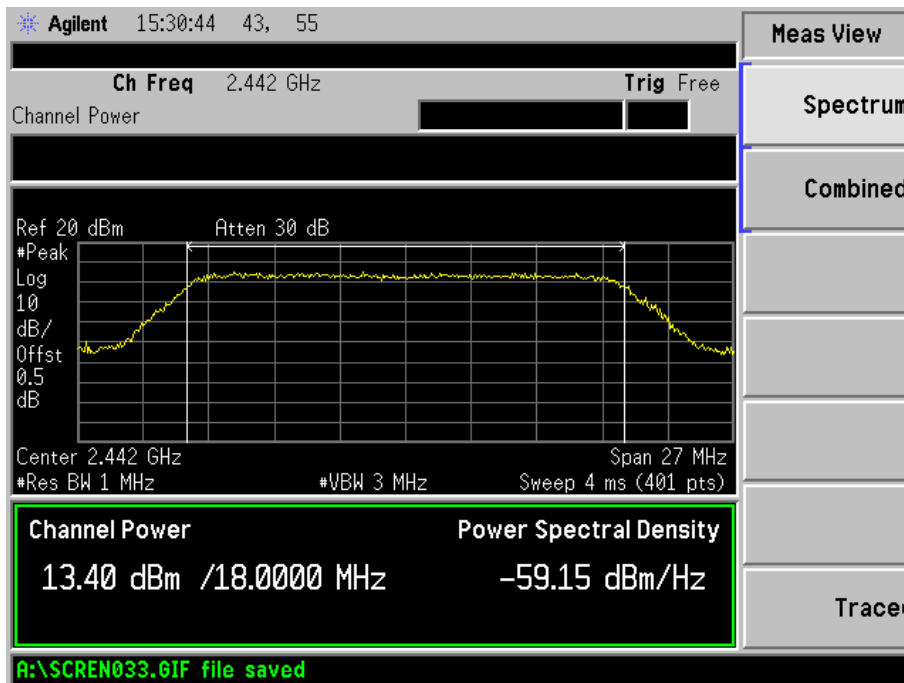
802.11g-54Mbps-High Channel



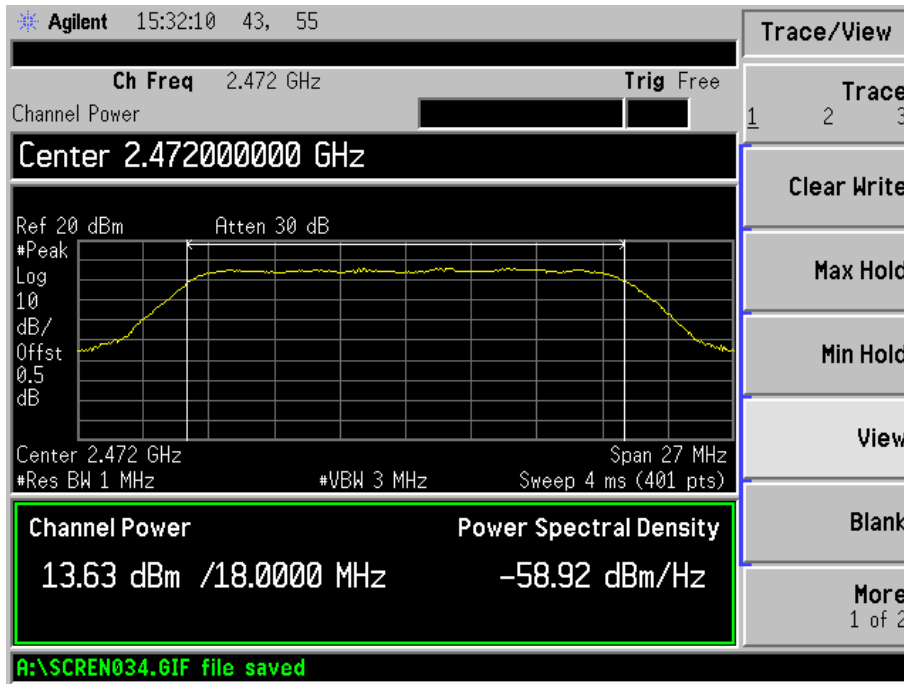
802.11n-HT20-MCS0-Low Channel



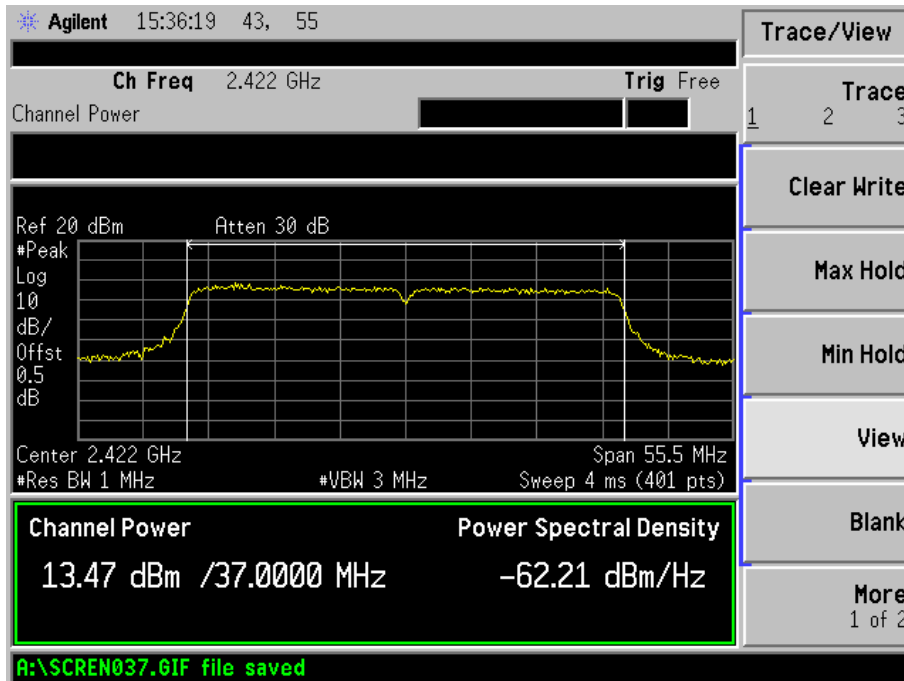
802.11n-HT20-MCS0-Middle Channel



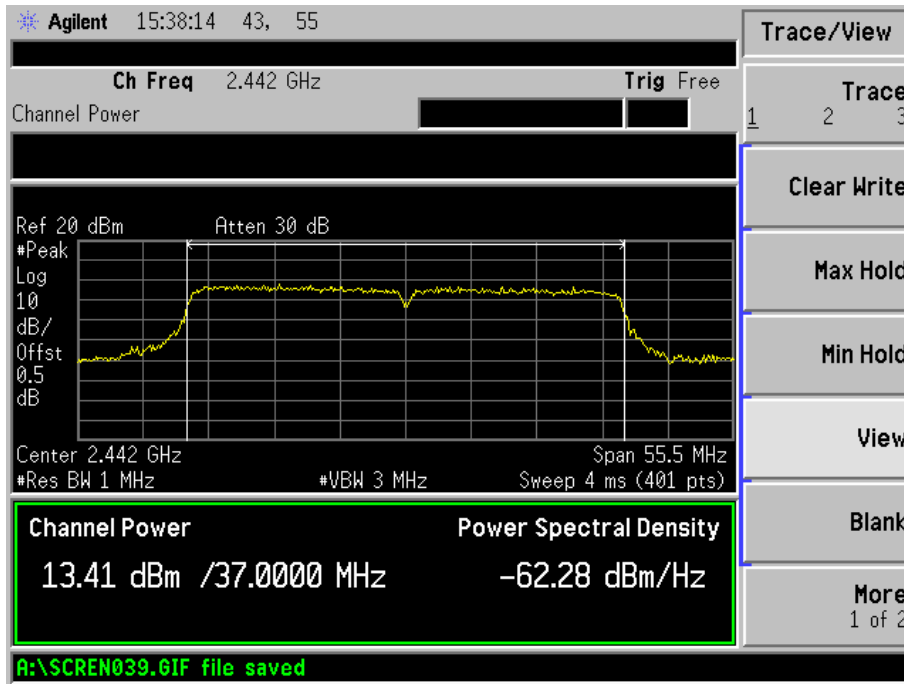
802.11n-HT20-MCS0-High Channel



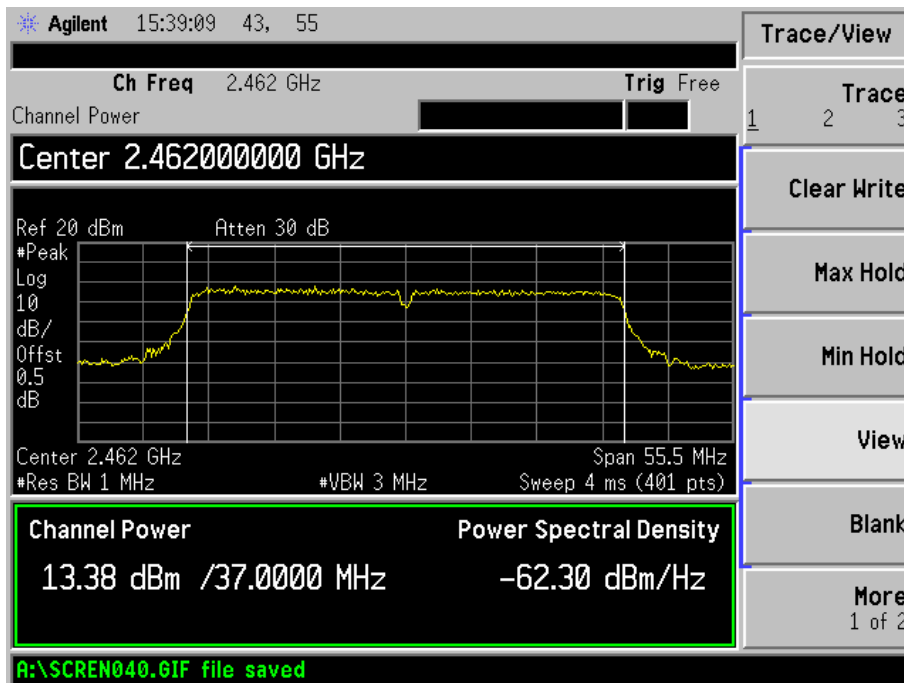
802.11n-HT40-MCS0-Low Channel



802.11n-HT40-MCS0-Middle Channel



802.11n-HT40-MCS0-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

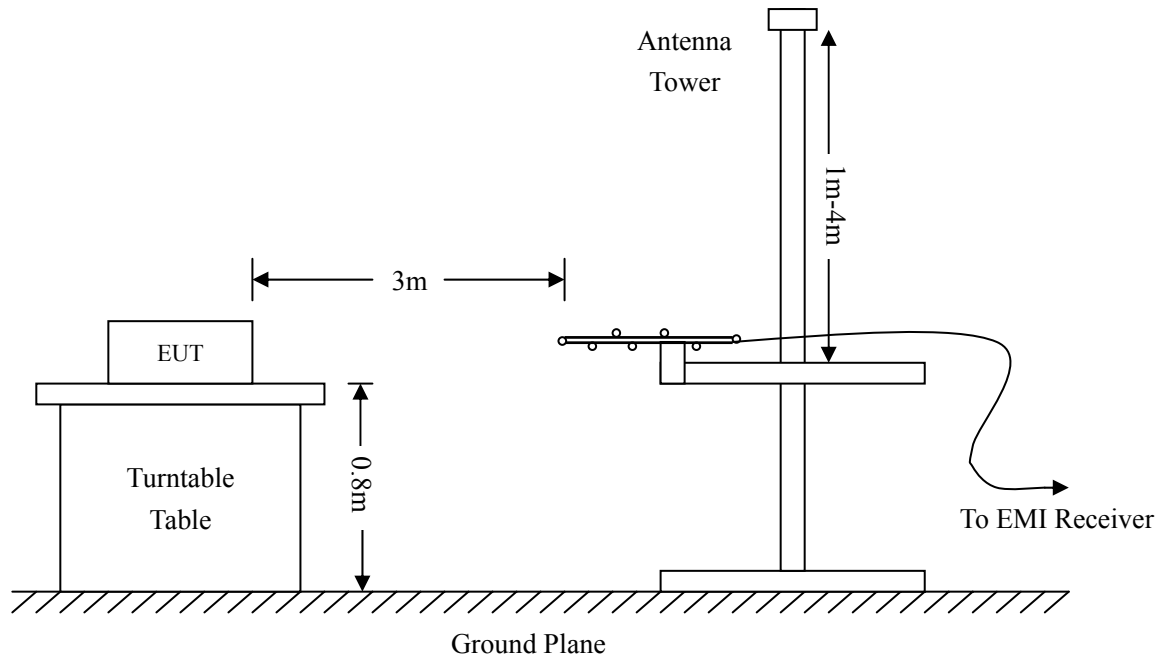
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Horn Antenna	ETS	3116B	00088203	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

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:

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

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

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

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:

**-4.43 dB at 890.7278 MHz in the Vertical polarization for 802.11n-HT20-Highest Channel, 30MHz 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)

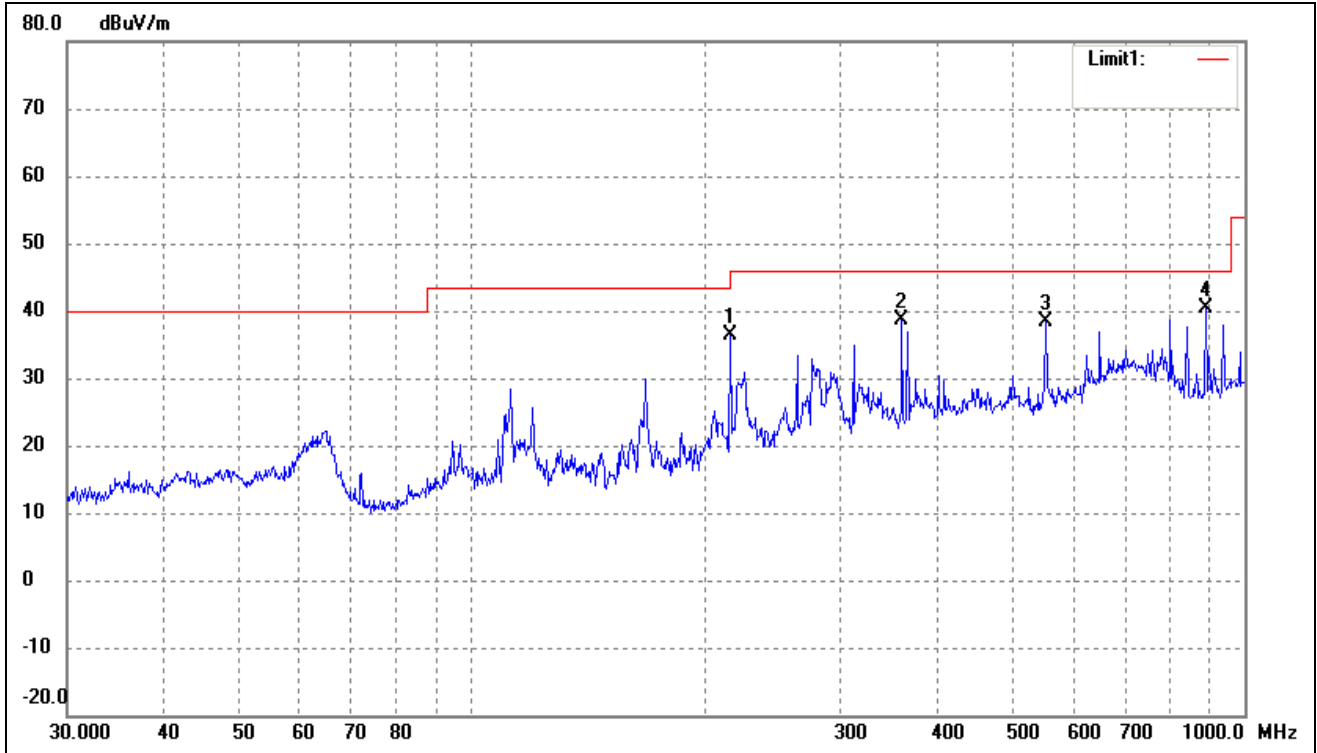
EUT: 2.4GHz WIFI Wireless LAN Adapter

Tested Model: WNA011

Operating Condition: 802.11b Transmitting Low Channel-2412MHz (Antenna 0)

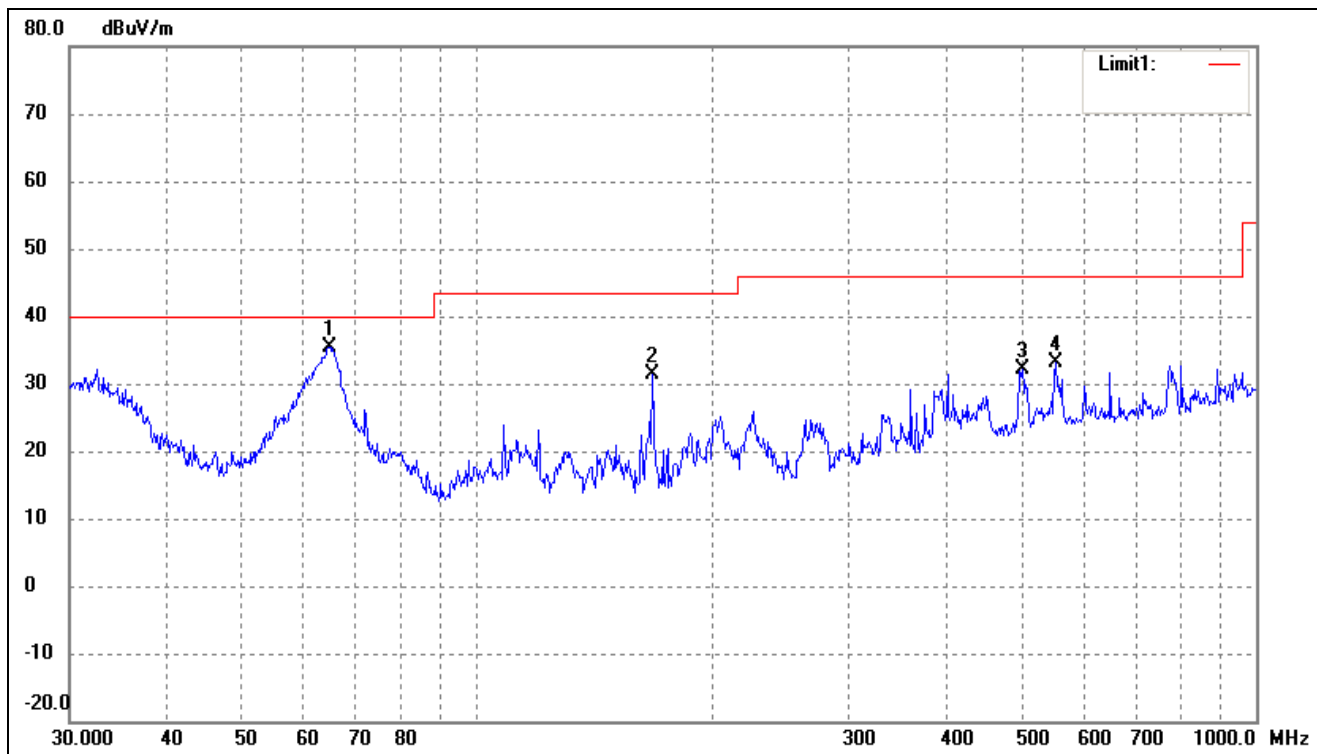
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	216.0240	45.30	-8.93	36.37	46.00	-9.63	215	100	peak
2	360.4477	42.80	-4.05	38.75	46.00	-7.25	360	100	peak
3	552.8833	38.19	0.20	38.39	46.00	-7.61	225	100	peak
4*	890.7278	35.08	5.19	40.27	46.00	-5.73	178	100	peak

Test Specification: Vertical

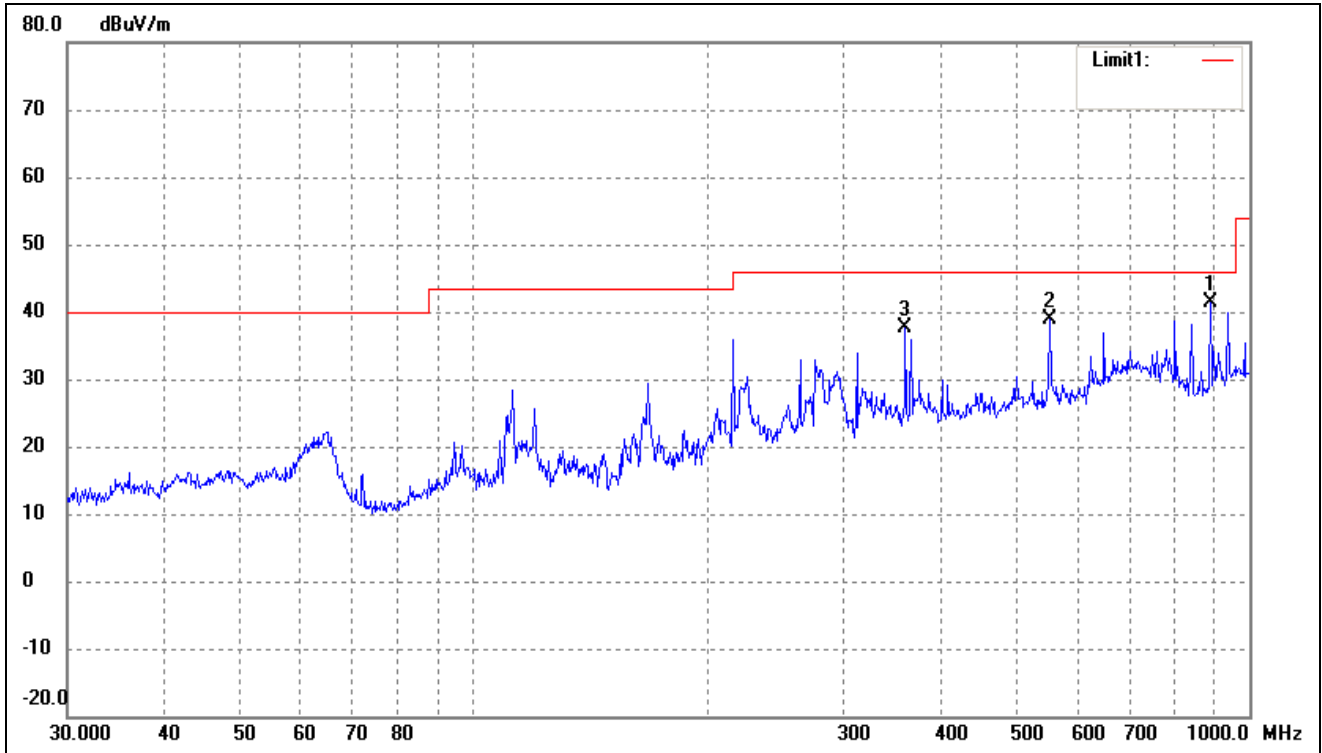


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	64.6594	45.24	-9.79	35.45	40.00	-4.55	360	100	peak
2	167.8243	43.42	-11.95	31.47	43.50	-12.03	24	100	peak
3	501.1790	33.27	-1.10	32.17	46.00	-13.83	264	100	peak
4	552.8833	33.02	0.20	33.22	46.00	-12.78	117	100	peak

Operating Condition: 802.11b Transmitting Middle Channel-2442MHz (Antenna 0)

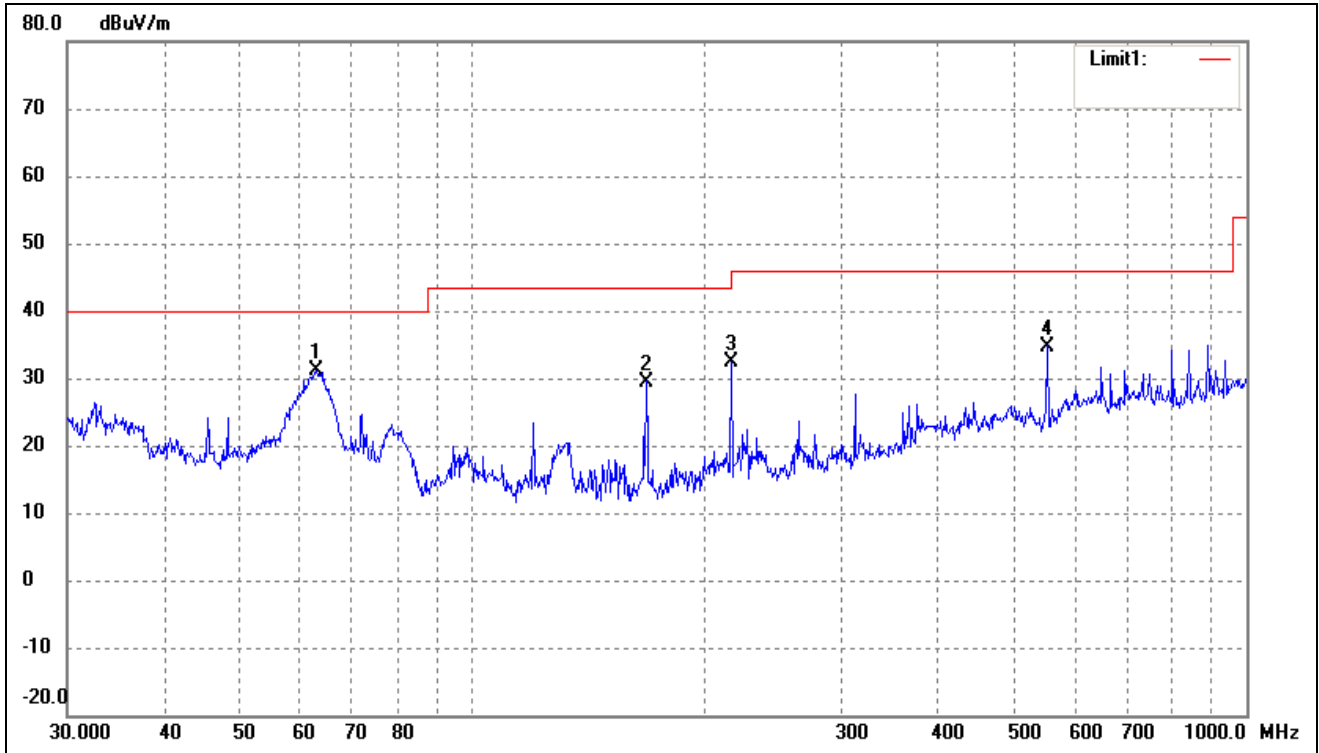
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	36.08	5.19	41.27	46.00	-4.73	266	100	peak
2	552.8832	38.69	0.20	38.89	46.00	-7.11	225	100	peak
3	360.4476	41.80	-4.05	37.75	46.00	-8.25	176	100	peak

Test Specification: Vertical

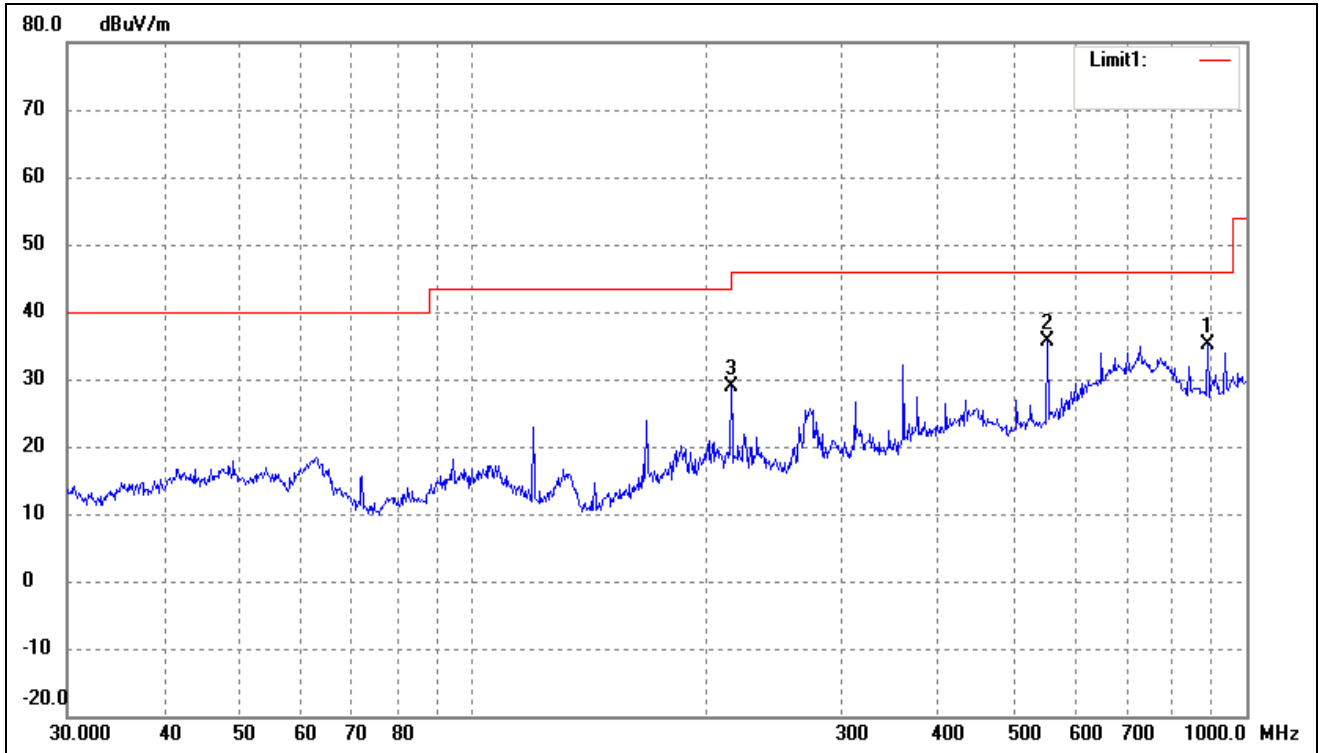


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	62.8708	40.55	-9.50	31.05	40.00	-8.95	226	100	peak
2	167.8243	41.45	-11.95	29.50	43.50	-14.00	321	100	peak
3	216.0240	41.36	-8.93	32.43	46.00	-13.57	175	100	peak
4	552.8833	34.55	0.20	34.75	46.00	-11.25	360	100	peak

Operating Condition: 802.11b Transmitting Highest Channel-2472MHz (Antenna 0)

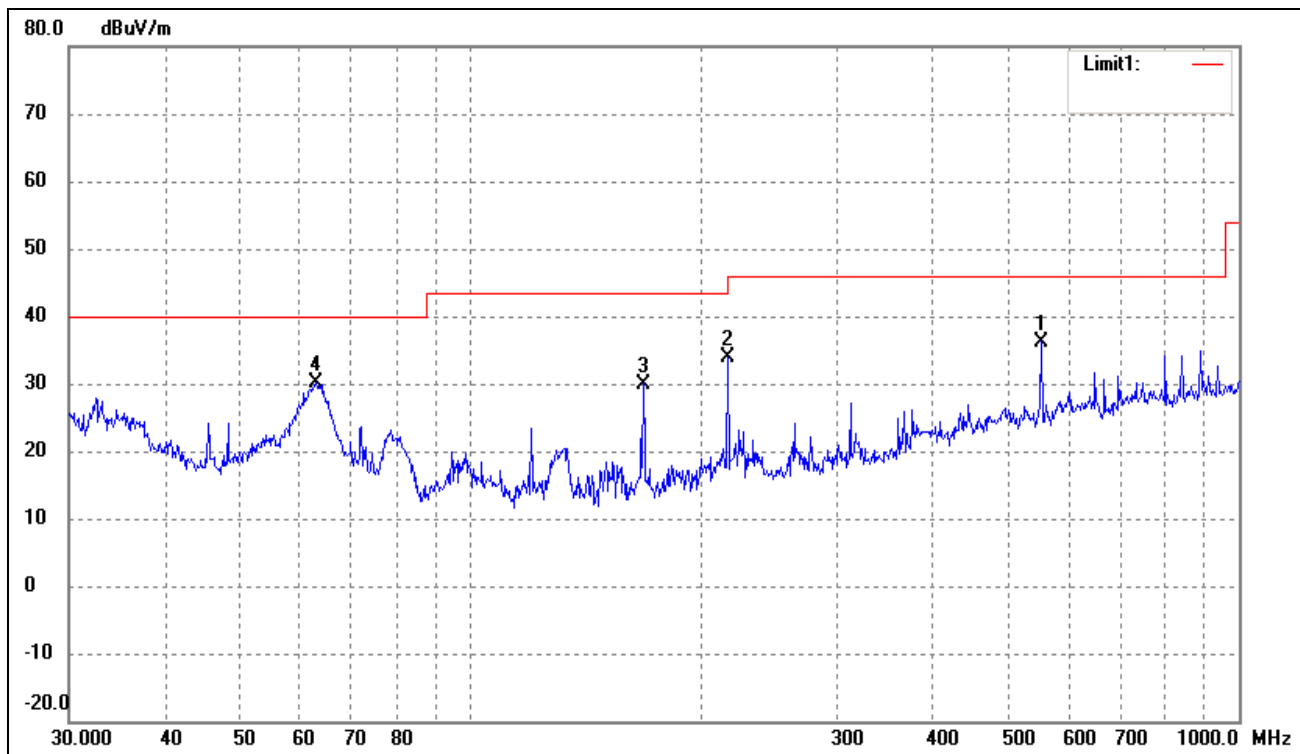
Comment: AC 120V/60Hz ; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	29.82	5.19	35.01	46.00	-10.99	360	100	peak
2*	552.8833	35.38	0.20	35.58	46.00	-10.42	255	100	peak
3	216.0240	37.90	-8.93	28.97	46.00	-17.03	64	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	552.8833	36.05	0.20	36.25	46.00	-9.75	115	100	peak
2	216.0240	42.86	-8.93	33.93	46.00	-12.07	270	100	peak
3	167.8243	41.95	-11.95	30.00	43.50	-13.50	360	100	peak
4	62.8708	39.55	-9.50	30.05	40.00	-9.95	178	100	peak

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

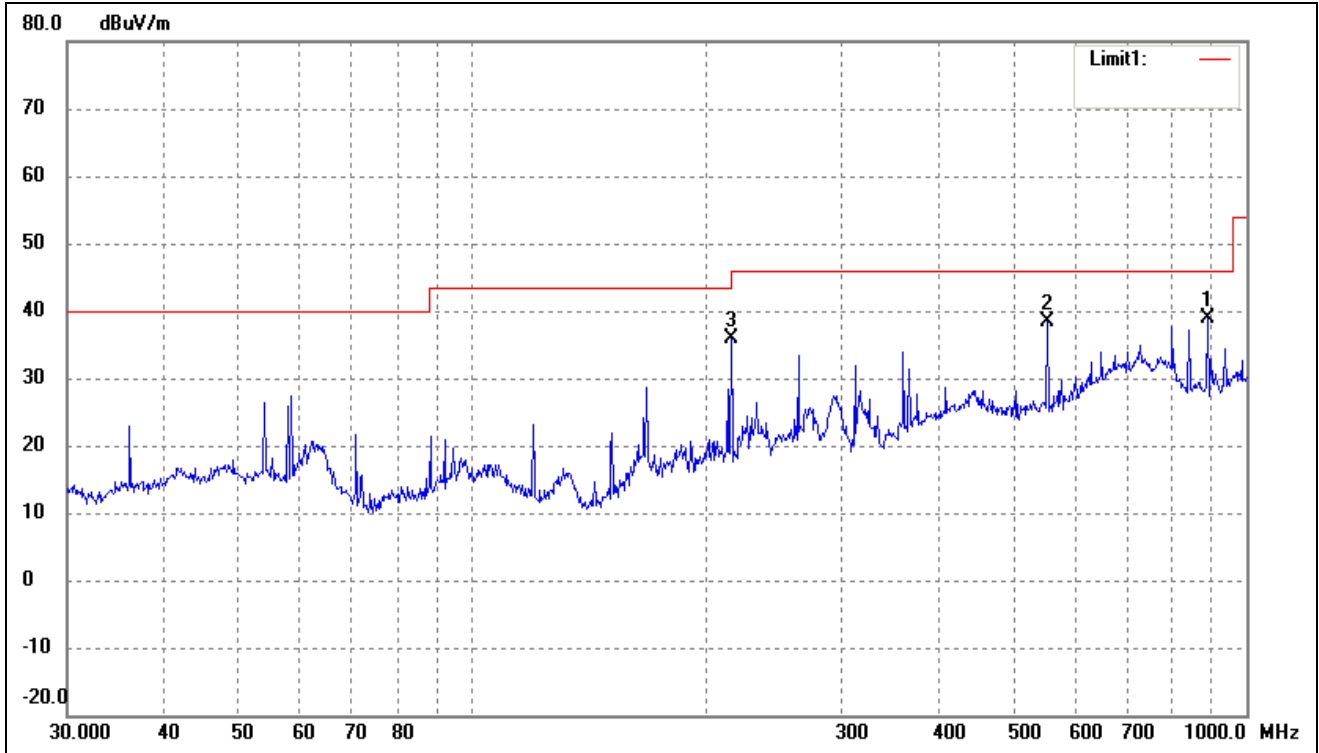
EUT: 2.4GHz WIFI Wireless LAN Adapter

Tested Model: WNA011

Operating Condition: 802.11b Transmitting Low Channel-2412MHz (Antenna 1)

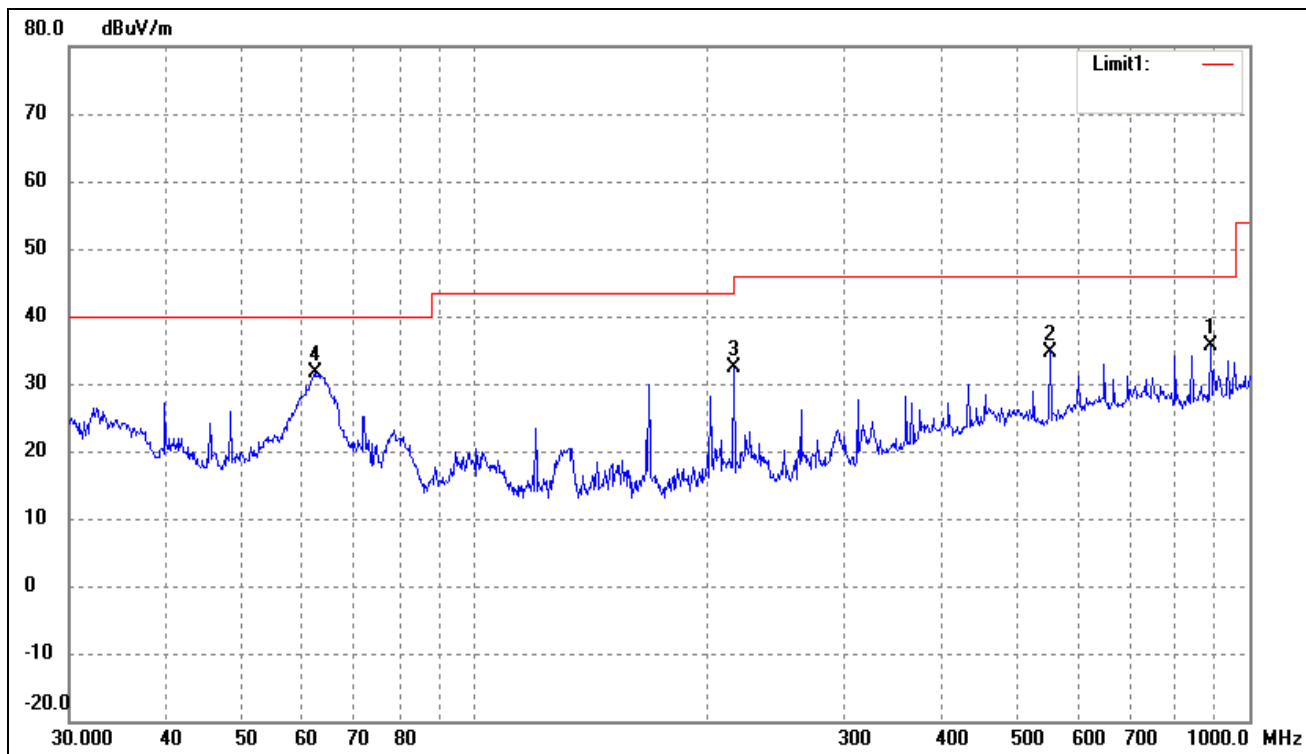
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	33.64	5.19	38.83	46.00	-7.17	215	100	peak
2	552.8833	38.08	0.20	38.28	46.00	-7.72	360	100	peak
3	216.0240	44.87	-8.93	35.94	46.00	-10.06	225	100	peak

Test Specification: Vertical

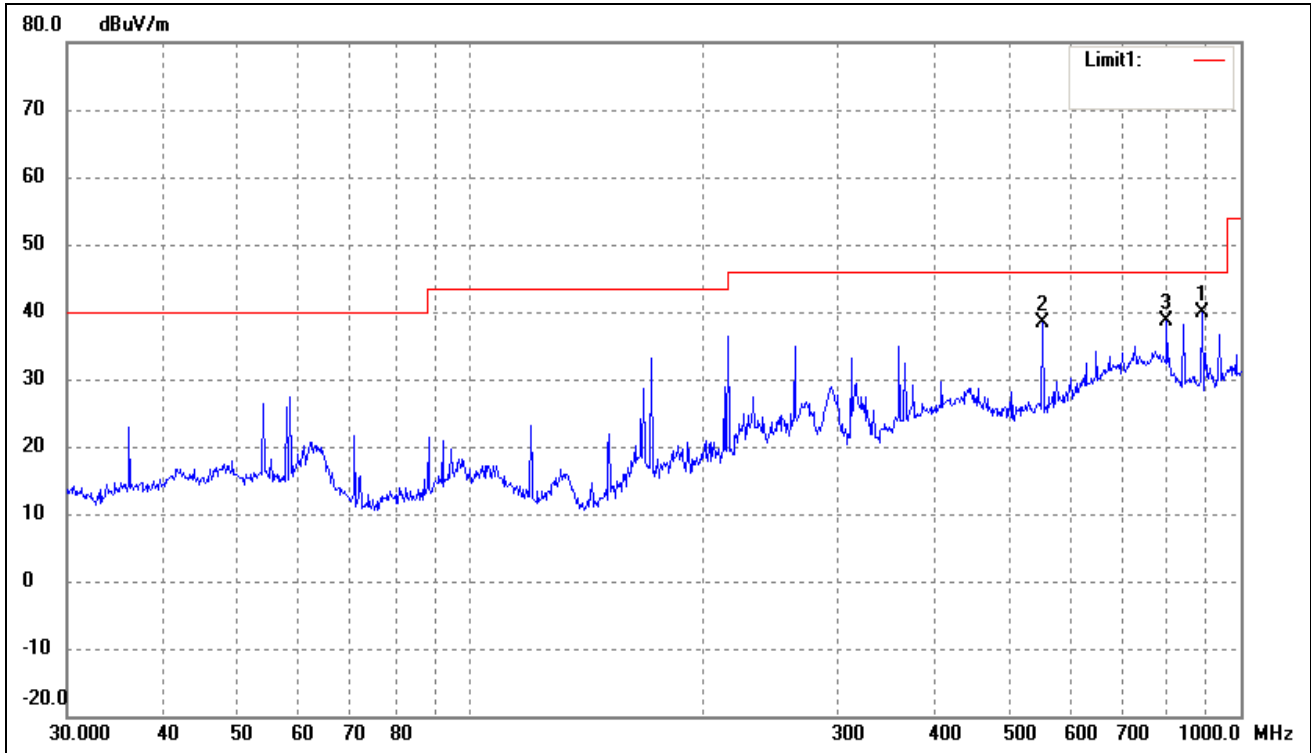


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	30.55	5.19	35.74	46.00	-10.26	360	100	peak
2	552.8833	34.55	0.20	34.75	46.00	-11.25	224	100	peak
3	216.0240	41.36	-8.93	32.43	46.00	-13.57	64	100	peak
4*	62.2128	40.97	-9.39	31.58	40.00	-8.42	360	100	peak

Operating Condition: 802.11b Transmitting Middle Channel-2442MHz (Antenna 1)

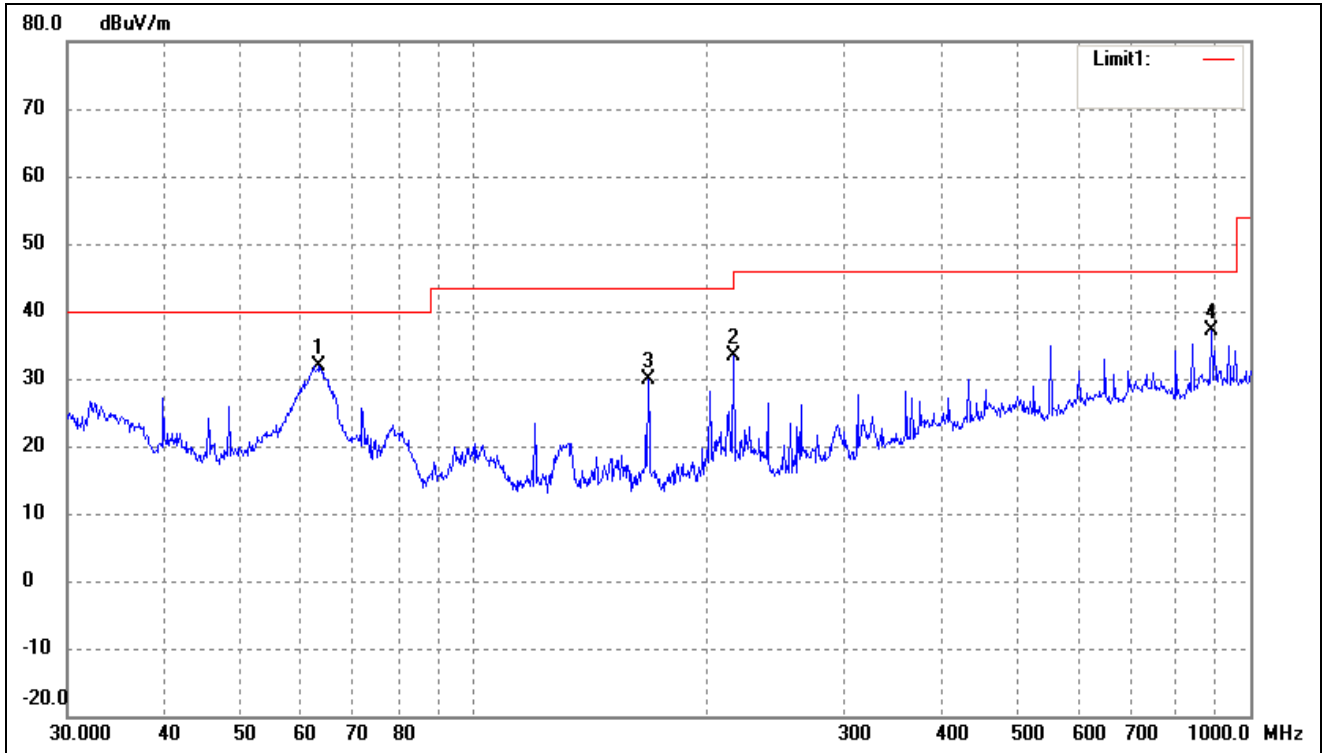
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	34.64	5.19	39.83	46.00	-6.17	164	100	peak
2	552.8833	38.08	0.20	38.28	46.00	-7.72	231	100	peak
3	801.7863	34.88	3.75	38.63	46.00	-7.37	225	100	peak

Test Specification: Vertical

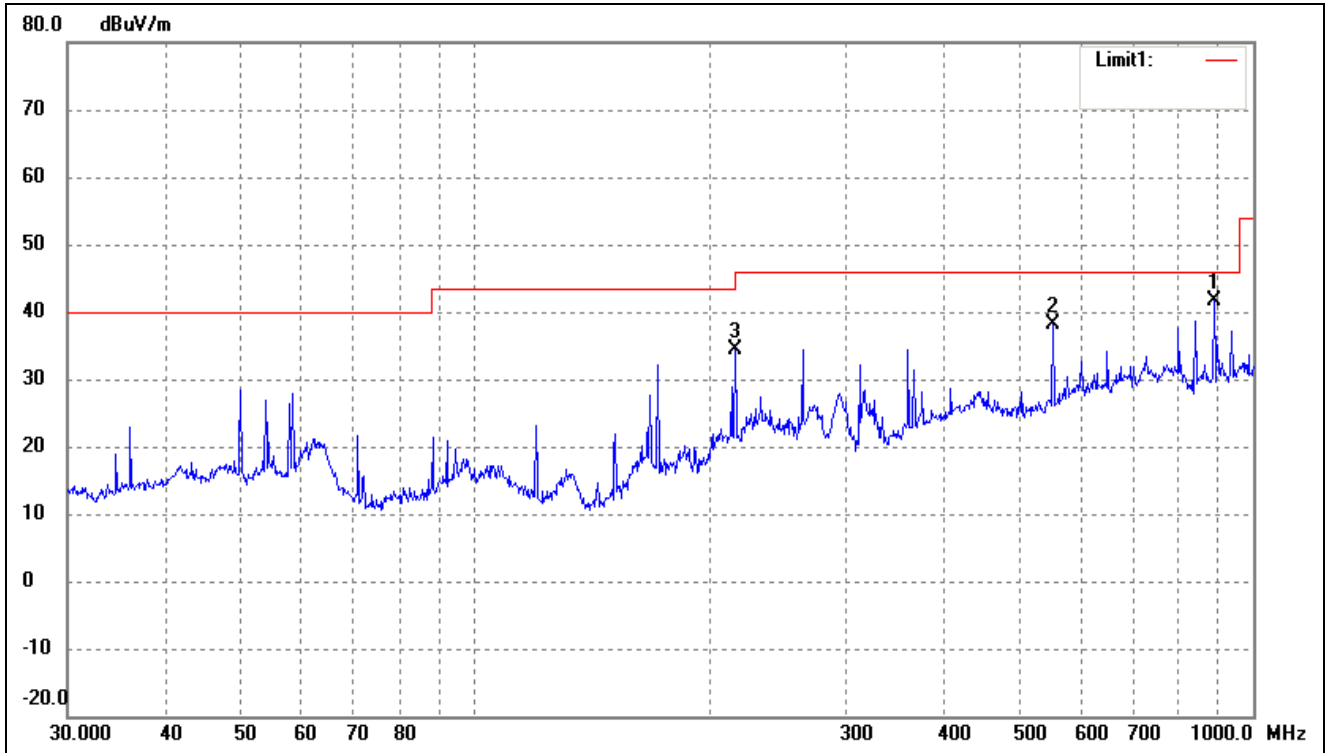


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	63.3132	41.52	-9.57	31.95	40.00	-8.05	136	100	peak
2	216.0240	42.36	-8.93	33.43	46.00	-12.57	241	100	peak
3	167.8243	41.76	-11.95	29.81	43.50	-13.69	360	100	peak
4	890.7278	32.05	5.19	37.24	46.00	-8.76	360	114	peak

Operating Condition: 802.11b Transmitting Highest Channel-2472MHz (Antenna 1)

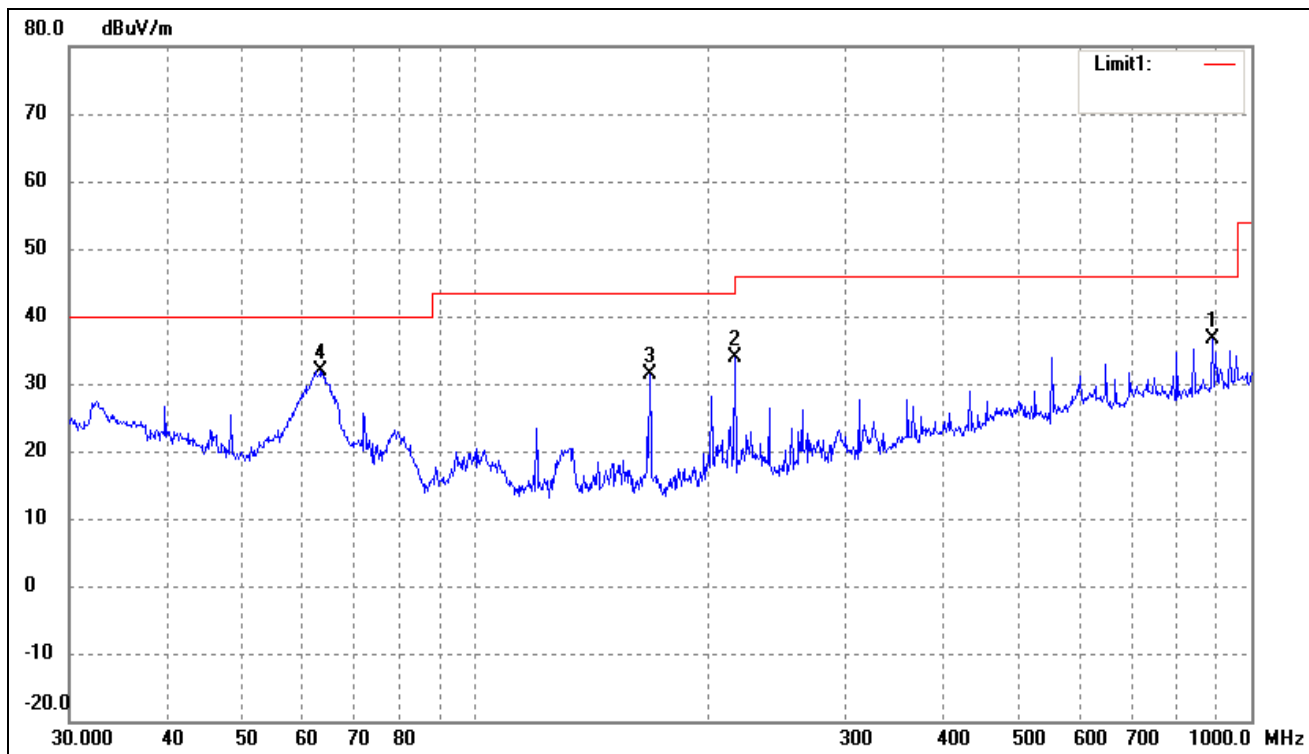
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	36.38	5.19	41.57	46.00	-4.43	360	100	peak
2	552.8833	37.98	0.20	38.18	46.00	-7.82	255	100	peak
3	216.0240	43.37	-8.93	34.44	46.00	-11.56	64	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	31.55	5.19	36.74	46.00	-9.26	114	100	peak
2	216.0240	42.86	-8.93	33.93	46.00	-12.07	270	100	peak
3	167.8243	43.26	-11.95	31.31	43.50	-12.19	360	100	peak
4*	63.3132	41.52	-9.57	31.95	40.00	-8.05	143	100	peak

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

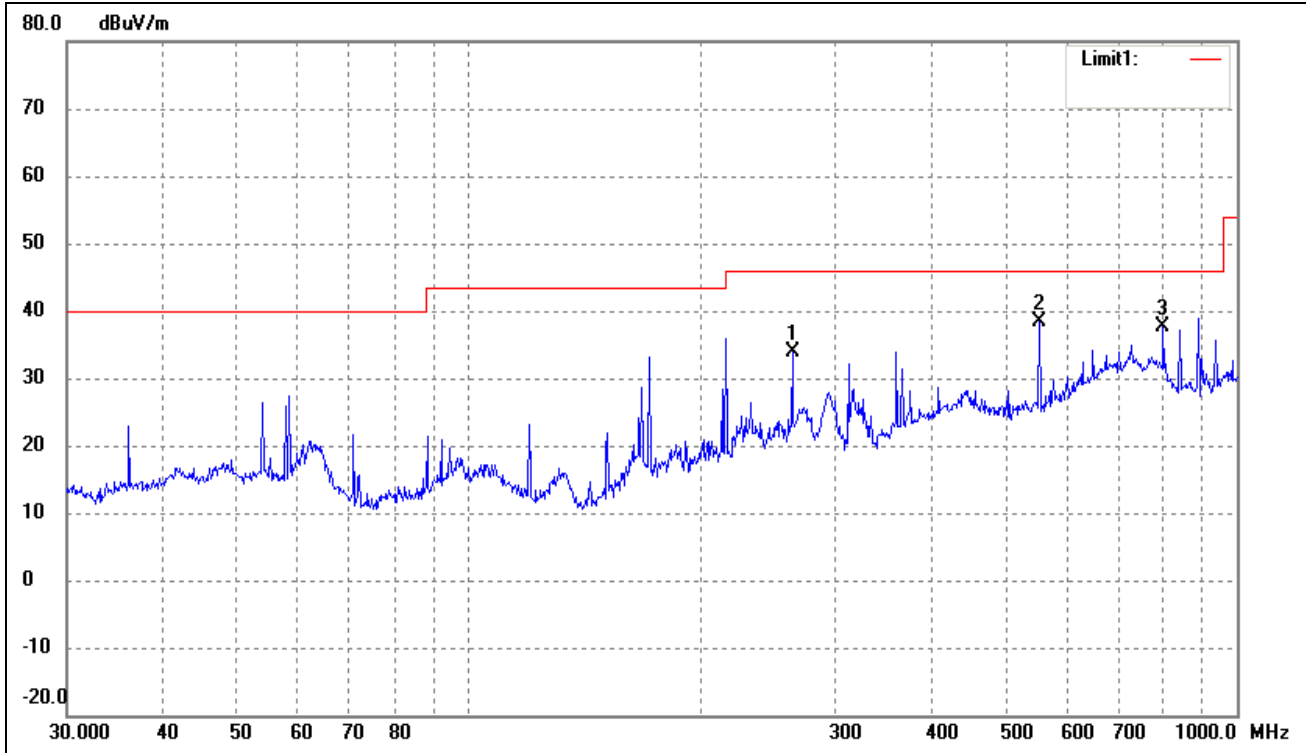
EUT: 2.4GHz WIFI Wireless LAN Adapter

Tested Model: WNA011

Operating Condition: 802.11g Transmitting Low Channel-2412MHz(Antenna 0)

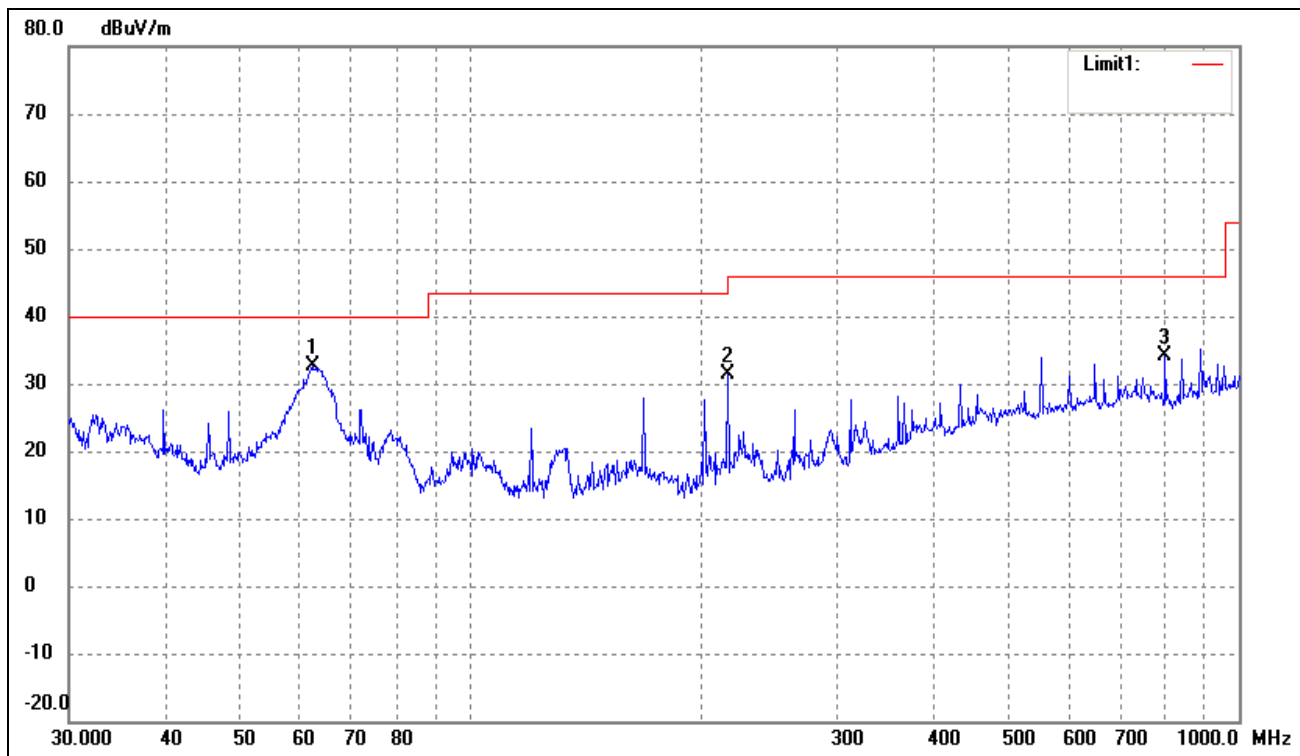
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	263.8190	40.85	-7.09	33.76	46.00	-12.24	256	100	peak
2*	552.8833	38.08	0.20	38.28	46.00	-7.72	305	100	peak
3	801.7863	33.88	3.75	37.63	46.00	-8.37	147	100	peak

Test Specification: Vertical

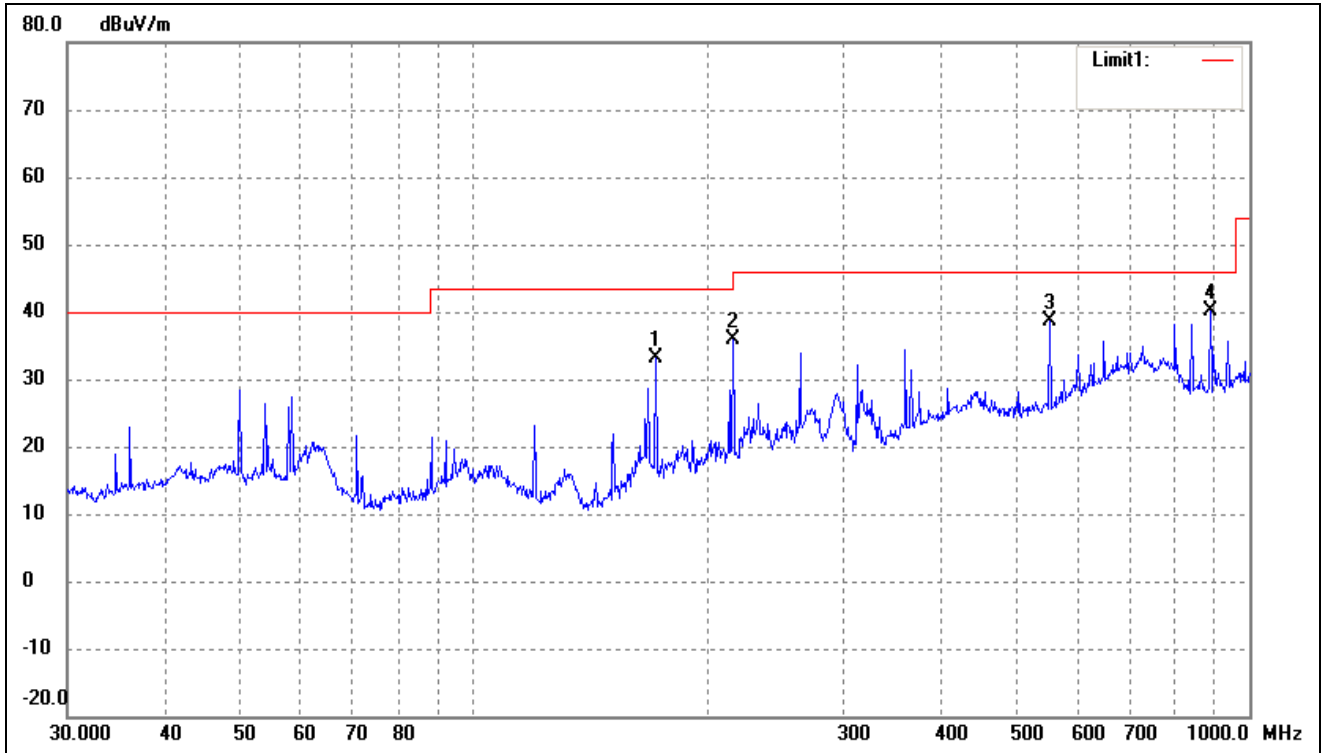


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	62.2128	41.97	-9.39	32.58	40.00	-7.42	253	100	peak
2	216.0240	40.36	-8.93	31.43	46.00	-14.57	36	100	peak
3	801.7863	30.48	3.75	34.23	46.00	-11.77	44	100	peak

Operating Condition: 802.11g Transmitting Middle Channel-2442MHz (Antenna 0)

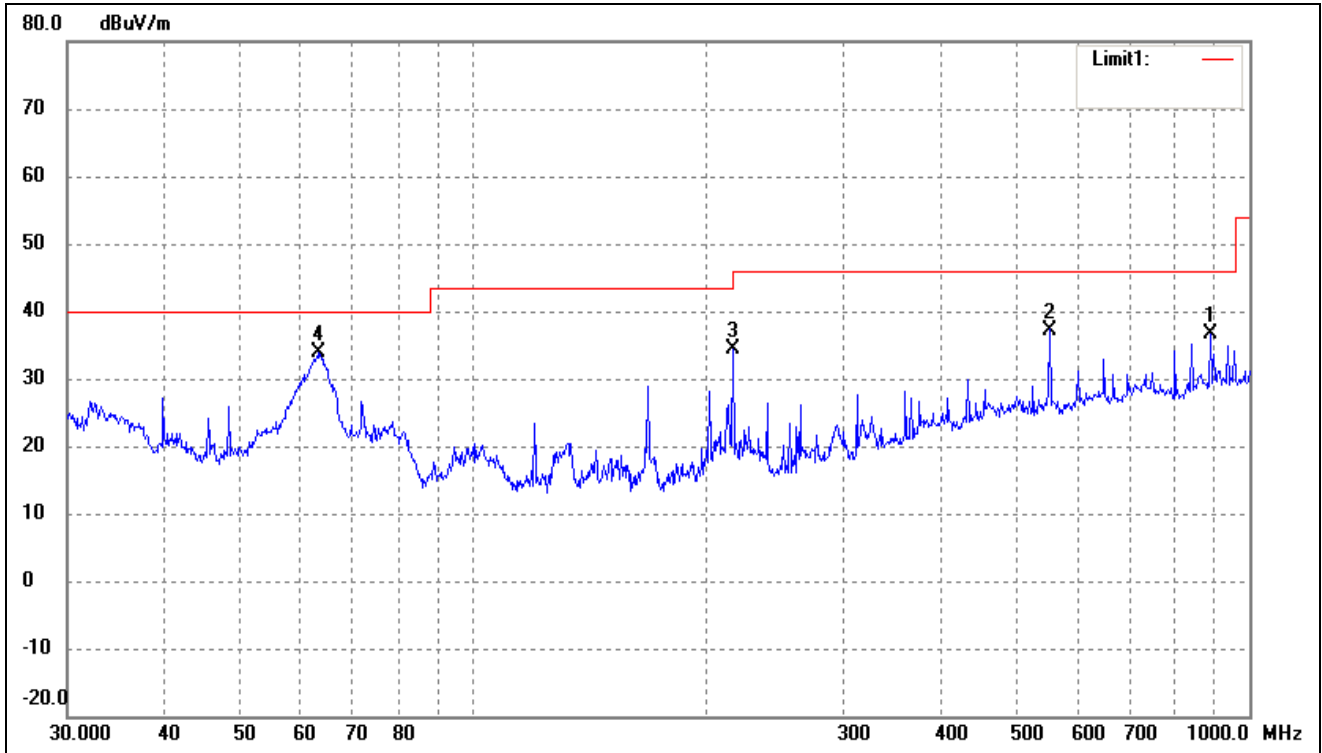
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	171.9946	44.72	-11.70	33.02	43.50	-10.48	253	100	peak
2	216.0240	44.87	-8.93	35.94	46.00	-10.06	48	100	peak
3	552.8833	38.48	0.20	38.68	46.00	-7.32	51	100	peak
4*	890.7278	34.88	5.19	40.07	46.00	-5.93	247	100	peak

Test Specification: Vertical

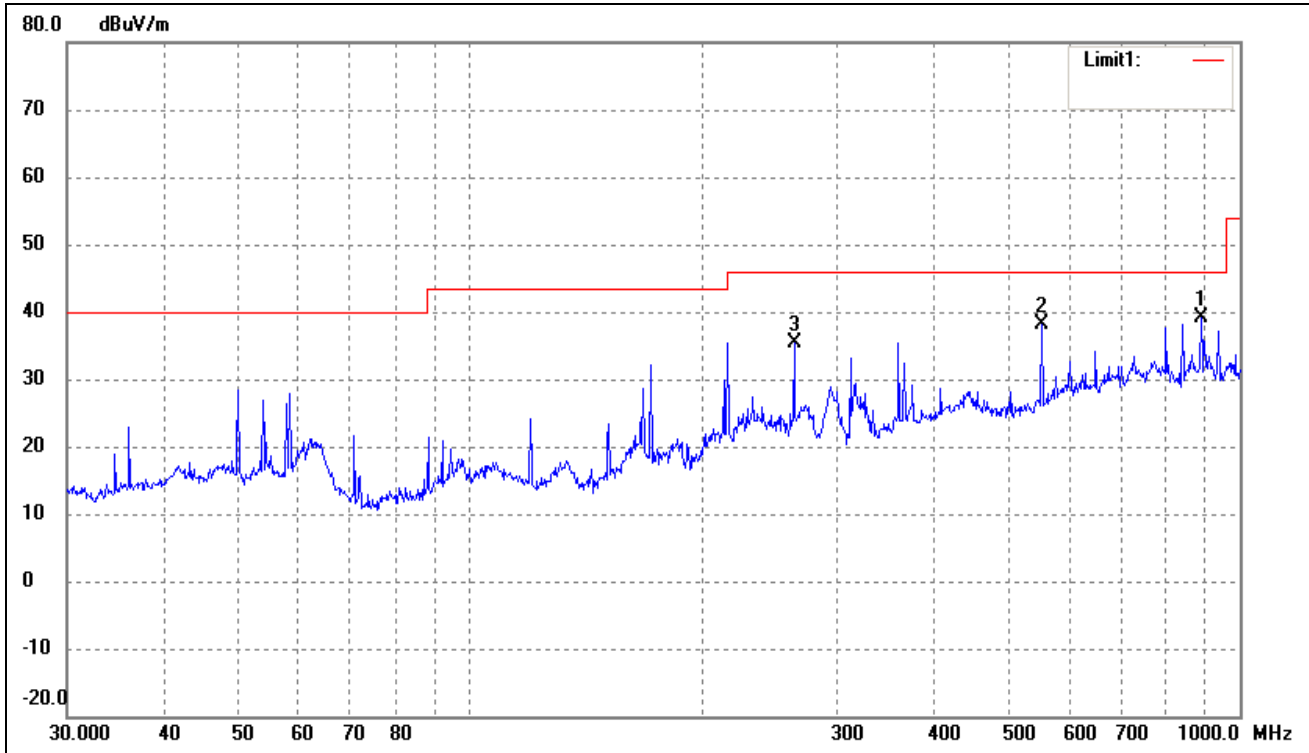


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	31.55	5.19	36.74	46.00	-9.26	360	100	peak
2	552.8833	37.05	0.20	37.25	46.00	-8.75	360	100	peak
3	216.0240	43.36	-8.93	34.43	46.00	-11.57	360	100	peak
4*	63.3132	43.52	-9.57	33.95	40.00	-6.05	274	100	peak

Operating Condition: 802.11g Transmitting Highest Channel-2472MHz (Antenna 0)

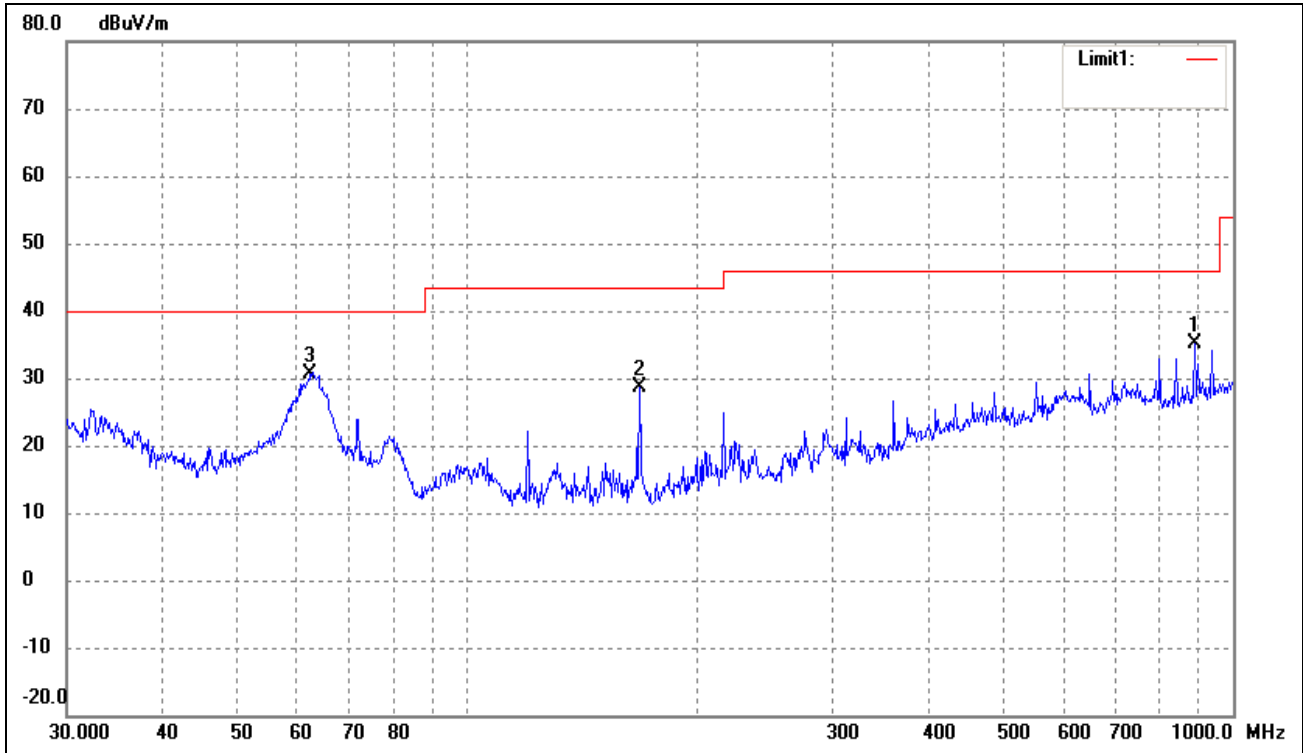
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	33.88	5.19	39.07	46.00	-6.93	36	100	peak
2	552.8832	37.98	0.20	38.18	46.00	-7.82	25	100	peak
3	263.8190	42.35	-7.09	35.26	46.00	-10.74	136	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	29.82	5.19	35.01	46.00	-10.99	214	100	peak
2	167.8243	40.49	-11.95	28.54	43.50	-14.96	223	100	peak
3*	62.4314	40.08	-9.42	30.66	40.00	-9.34	156	100	peak

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

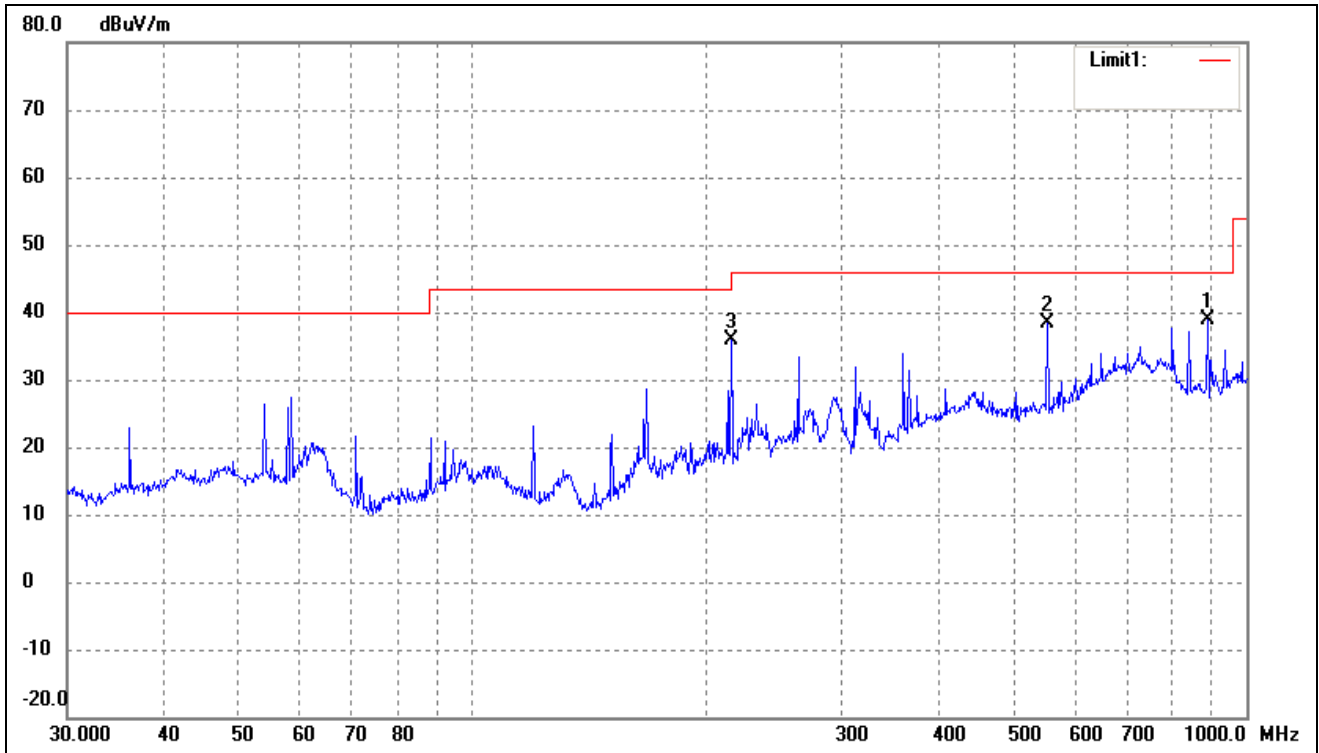
EUT: 2.4GHz WIFI Wireless LAN Adapter

Tested Model: WNA011

Operating Condition: 802.11g Transmitting Low Channel-2412MHz(Antenna 1)

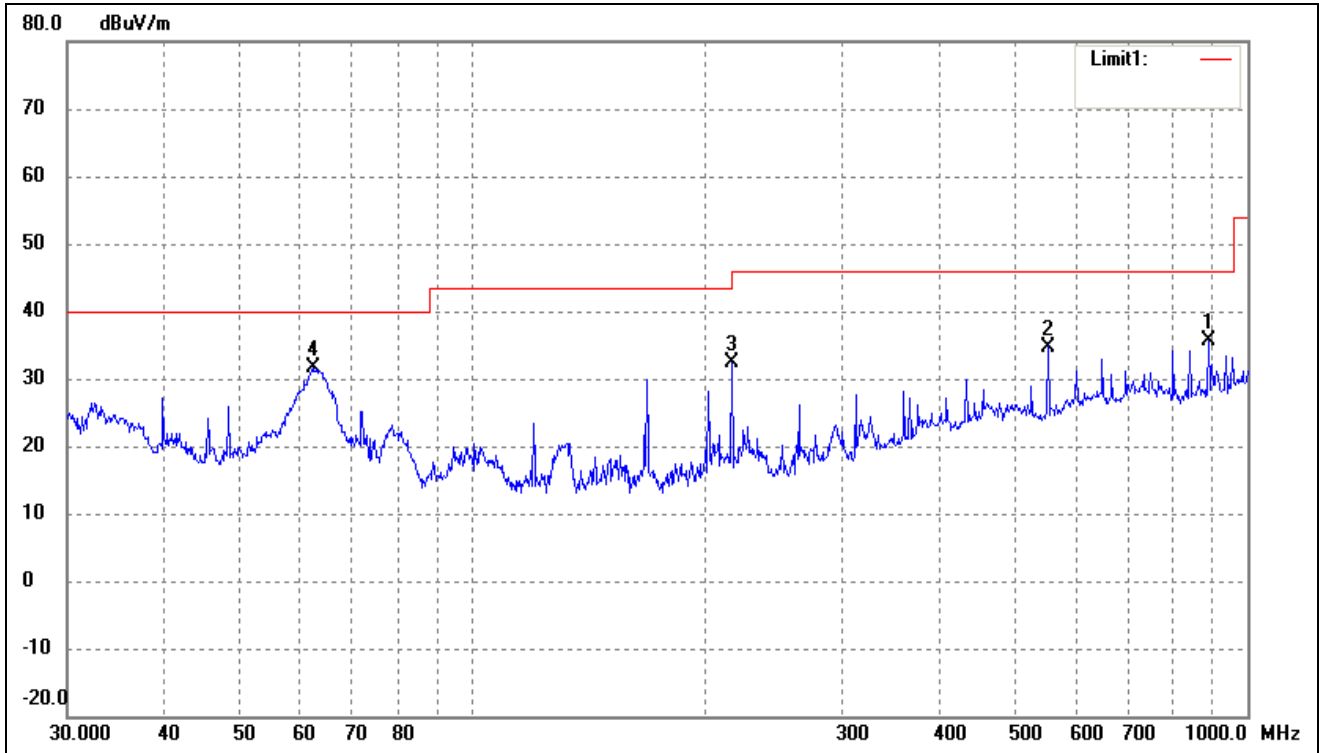
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	33.64	5.19	38.83	46.00	-7.17	215	100	peak
2	552.8833	38.08	0.20	38.28	46.00	-7.72	360	100	peak
3	216.0240	44.87	-8.93	35.94	46.00	-10.06	225	100	peak

Test Specification: Vertical

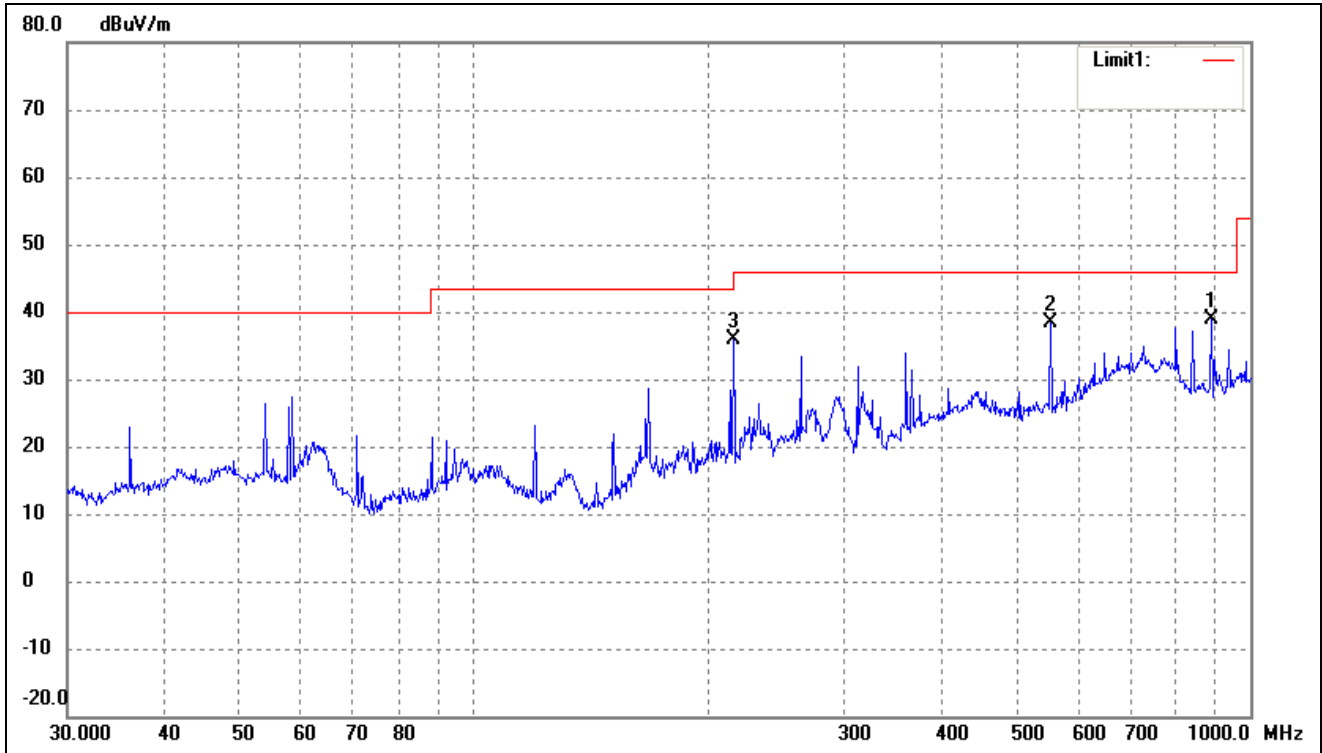


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	30.55	5.19	35.74	46.00	-10.26	360	100	peak
2	552.8833	34.55	0.20	34.75	46.00	-11.25	224	100	peak
3	216.0240	41.36	-8.93	32.43	46.00	-13.57	64	100	peak
4*	62.2128	40.97	-9.39	31.58	40.00	-8.42	360	100	peak

Operating Condition: 802.11g Transmitting Middle Channel-2442MHz (Antenna 1)

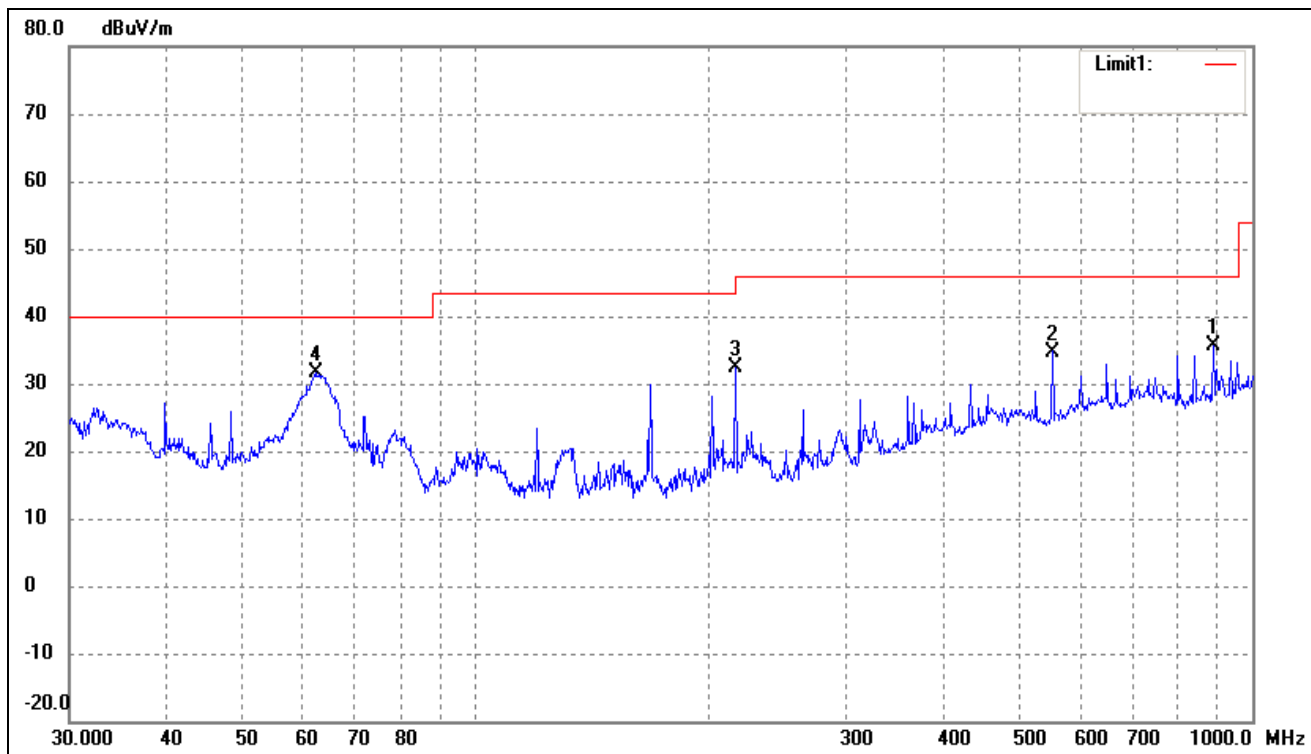
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	33.64	5.19	38.83	46.00	-7.17	226	100	peak
2	552.8833	38.08	0.20	38.28	46.00	-7.72	360	100	peak
3	216.0240	44.87	-8.93	35.94	46.00	-10.06	54	100	peak

Test Specification: Vertical

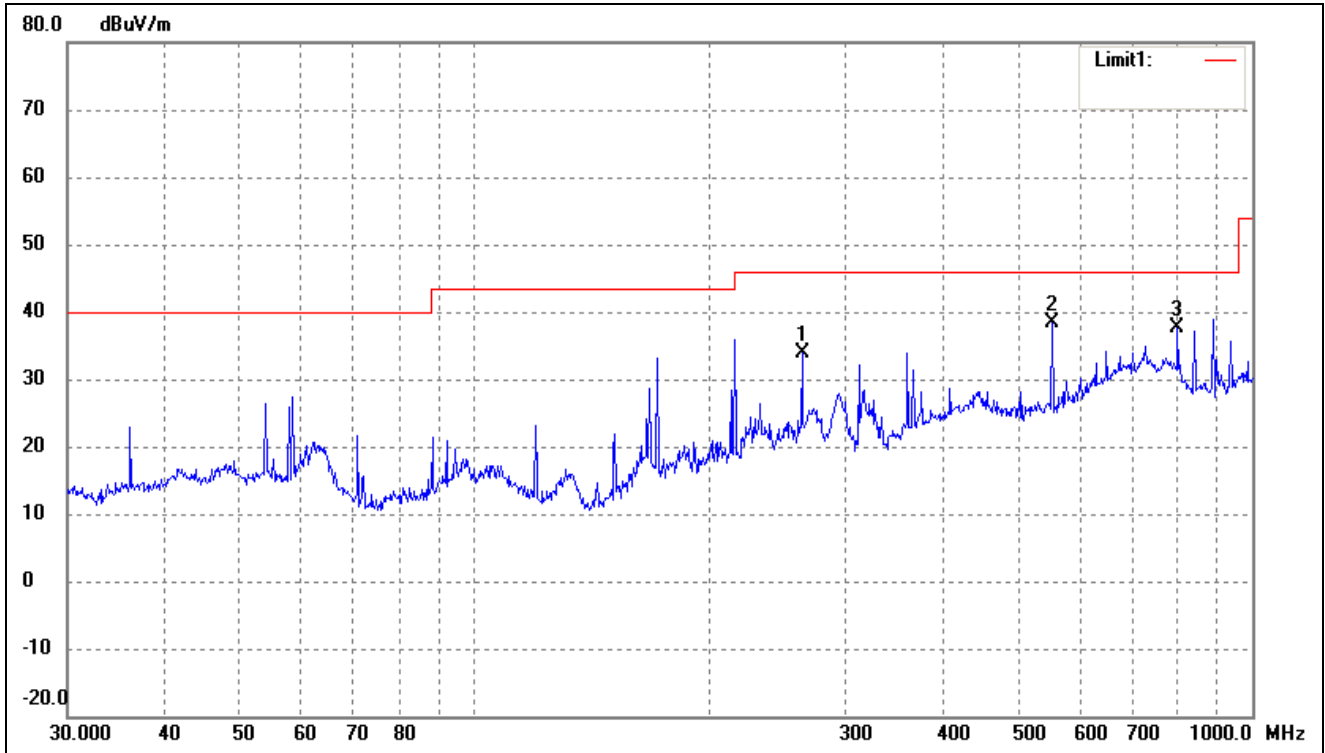


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	30.55	5.19	35.74	46.00	-10.26	147	100	peak
2	552.8833	34.55	0.20	34.75	46.00	-11.25	336	100	peak
3	216.0240	41.36	-8.93	32.43	46.00	-13.57	360	100	peak
4*	62.2128	40.97	-9.39	31.58	40.00	-8.42	117	200	peak

Operating Condition: 802.11g Transmitting Highest Channel-2472MHz (Antenna 1)

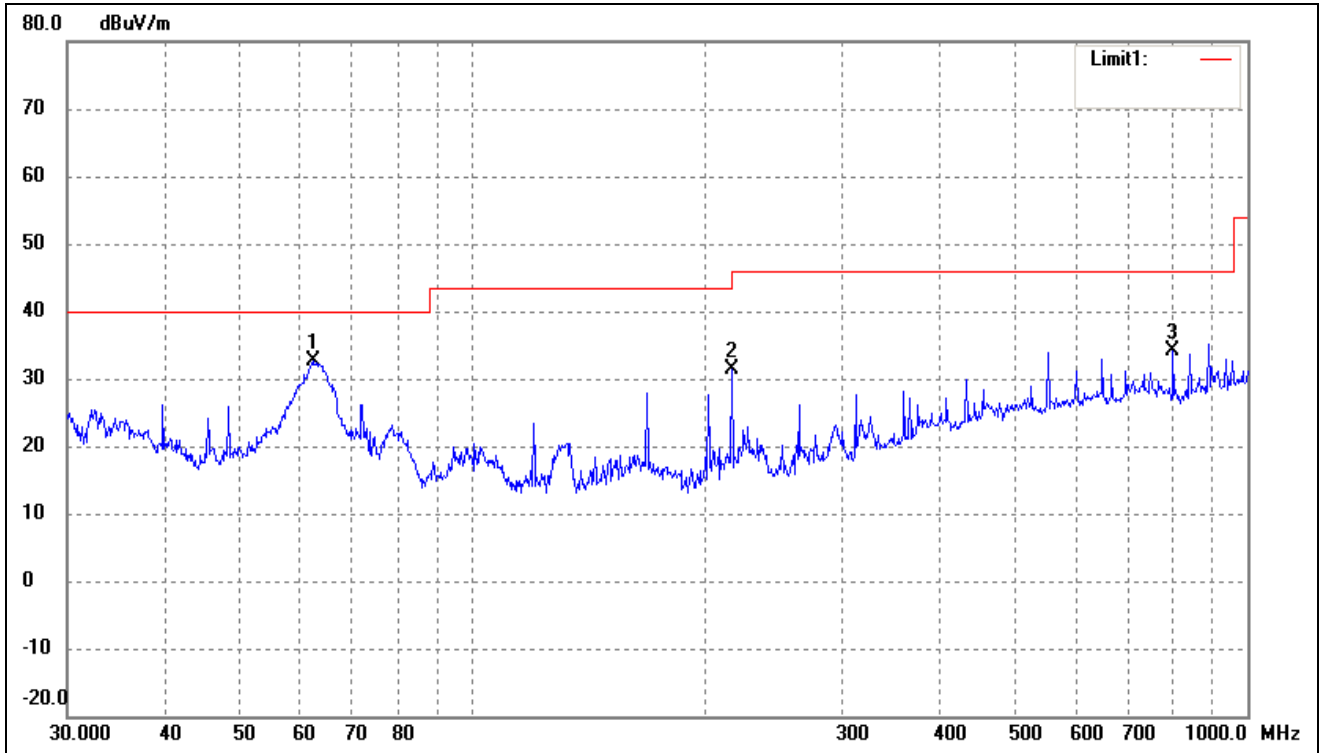
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	263.8190	40.85	-7.09	33.76	46.00	-12.24	227	100	peak
2*	552.8833	38.08	0.20	38.28	46.00	-7.72	146	100	peak
3	801.7863	33.88	3.75	37.63	46.00	-8.37	360	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	62.2128	41.97	-9.39	32.58	40.00	-7.42	118	100	peak
2	216.0240	40.36	-8.93	31.43	46.00	-14.57	254	100	peak
3	801.7863	30.48	3.75	34.23	46.00	-11.77	180	100	peak

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

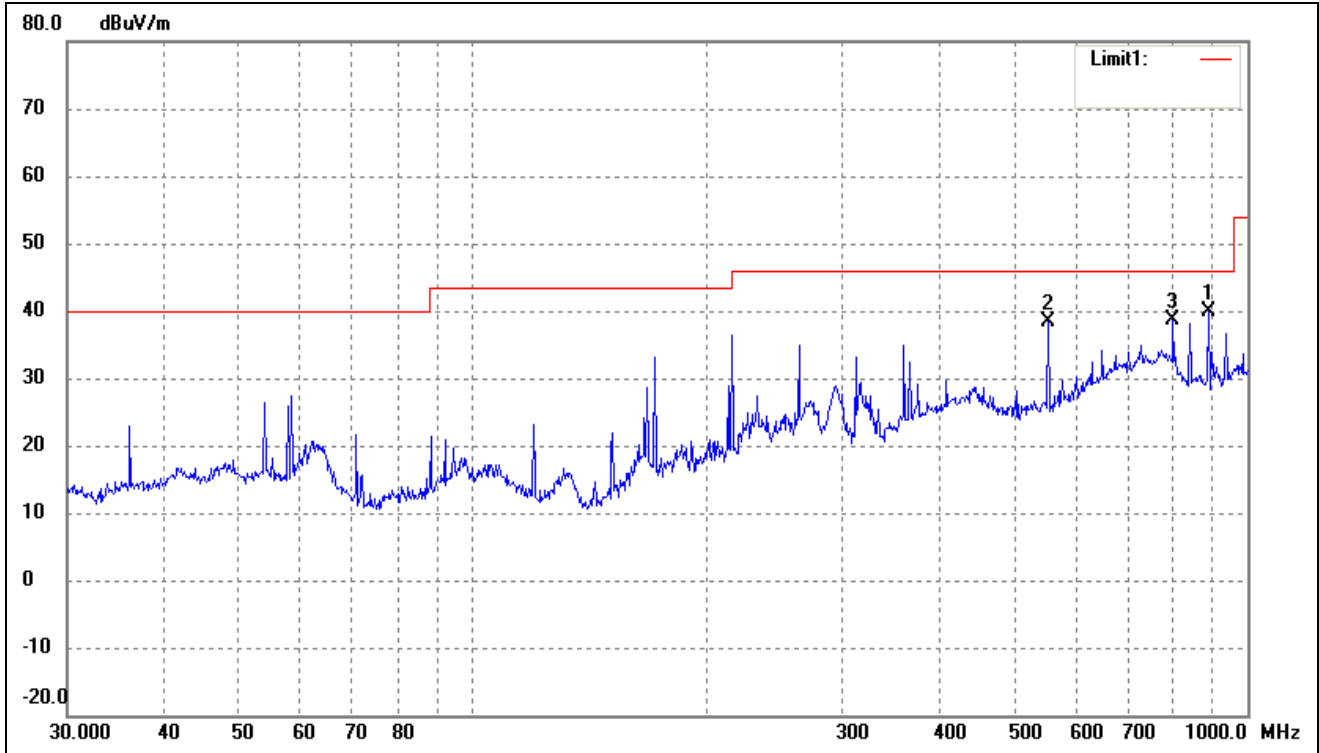
EUT: 2.4GHz WIFI Wireless LAN Adapter

Tested Model: WNA011

Operating Condition: 802.11n/HT20 Transmitting Low Channel-2412MHz

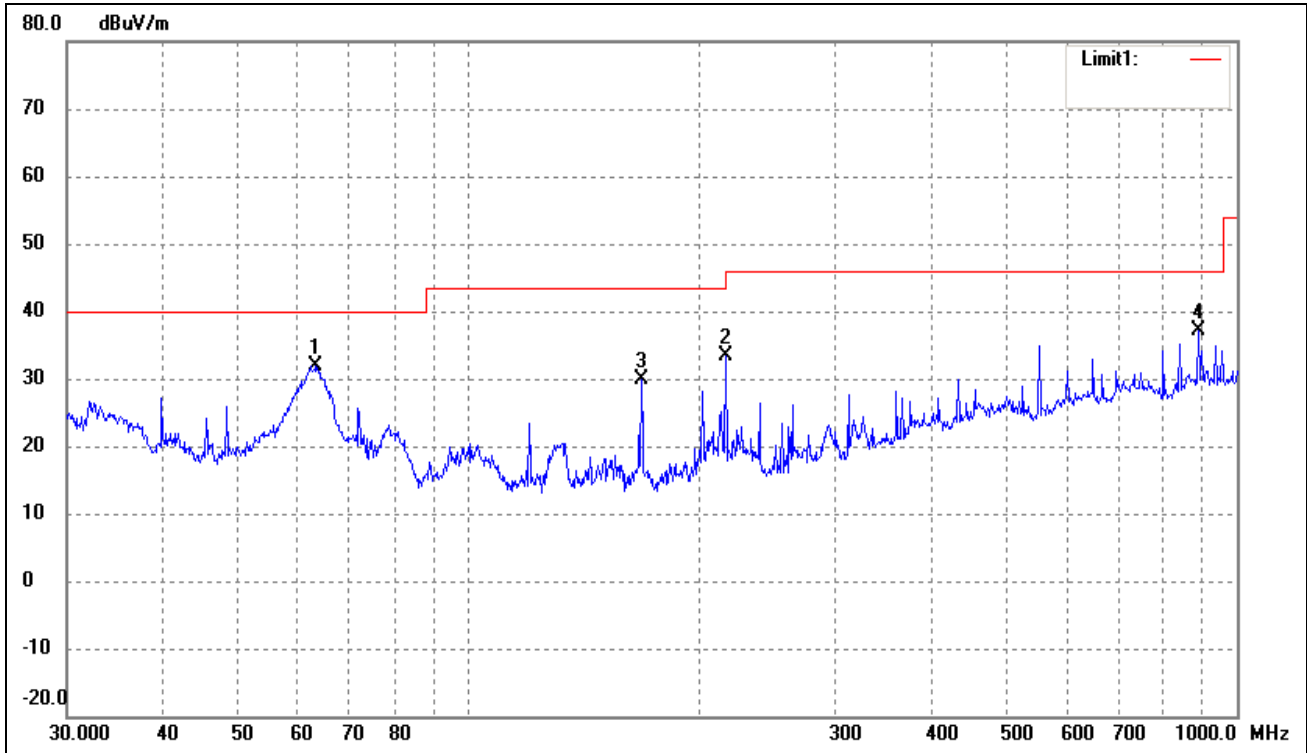
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	34.64	5.19	39.83	46.00	-6.17	145	100	peak
2	552.8833	38.08	0.20	38.28	46.00	-7.72	23	100	peak
3	801.7863	34.88	3.75	38.63	46.00	-7.37	265	100	peak

Test Specification: Vertical

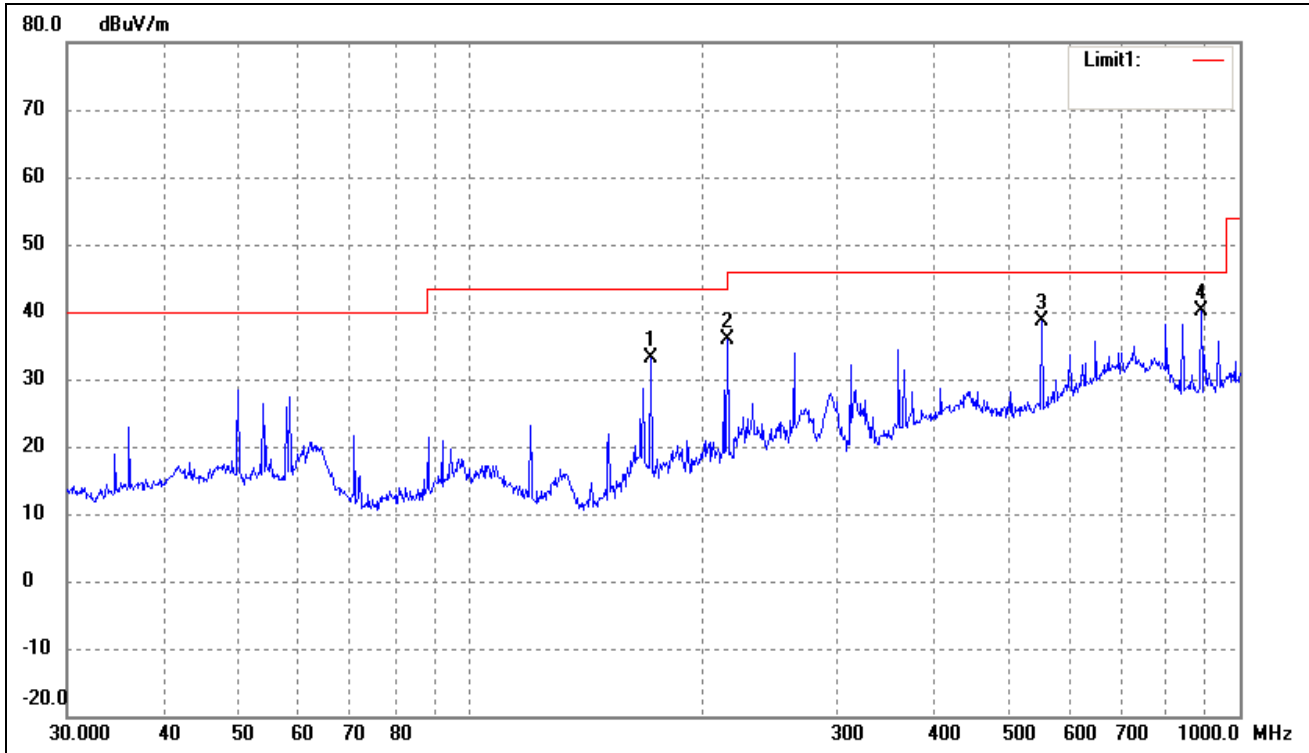


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	63.3132	41.52	-9.57	31.95	40.00	-8.05	224	100	peak
2	216.0240	42.36	-8.93	33.43	46.00	-12.57	270	100	peak
3	167.8243	41.76	-11.95	29.81	43.50	-13.69	360	100	peak
4	890.7278	32.05	5.19	37.24	46.00	-8.76	112	100	peak

Operating Condition: 802.11n/HT20 Transmitting Middle Channel-2442MHz

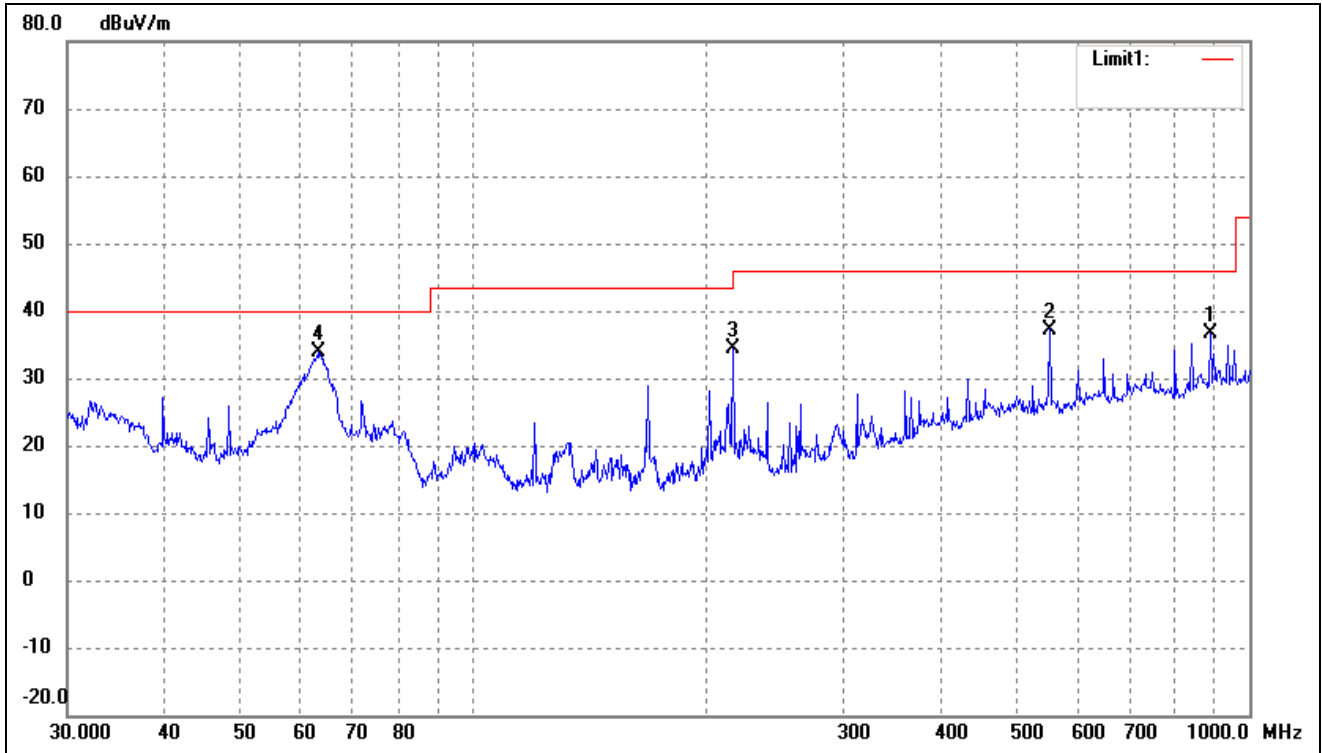
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	171.9946	44.72	-11.70	33.02	43.50	-10.48	360	100	peak
2	216.0240	44.87	-8.93	35.94	46.00	-10.06	225	100	peak
3	552.8833	38.48	0.20	38.68	46.00	-7.32	152	100	peak
4*	890.7278	34.88	5.19	40.07	46.00	-5.93	223	100	peak

Test Specification: Vertical

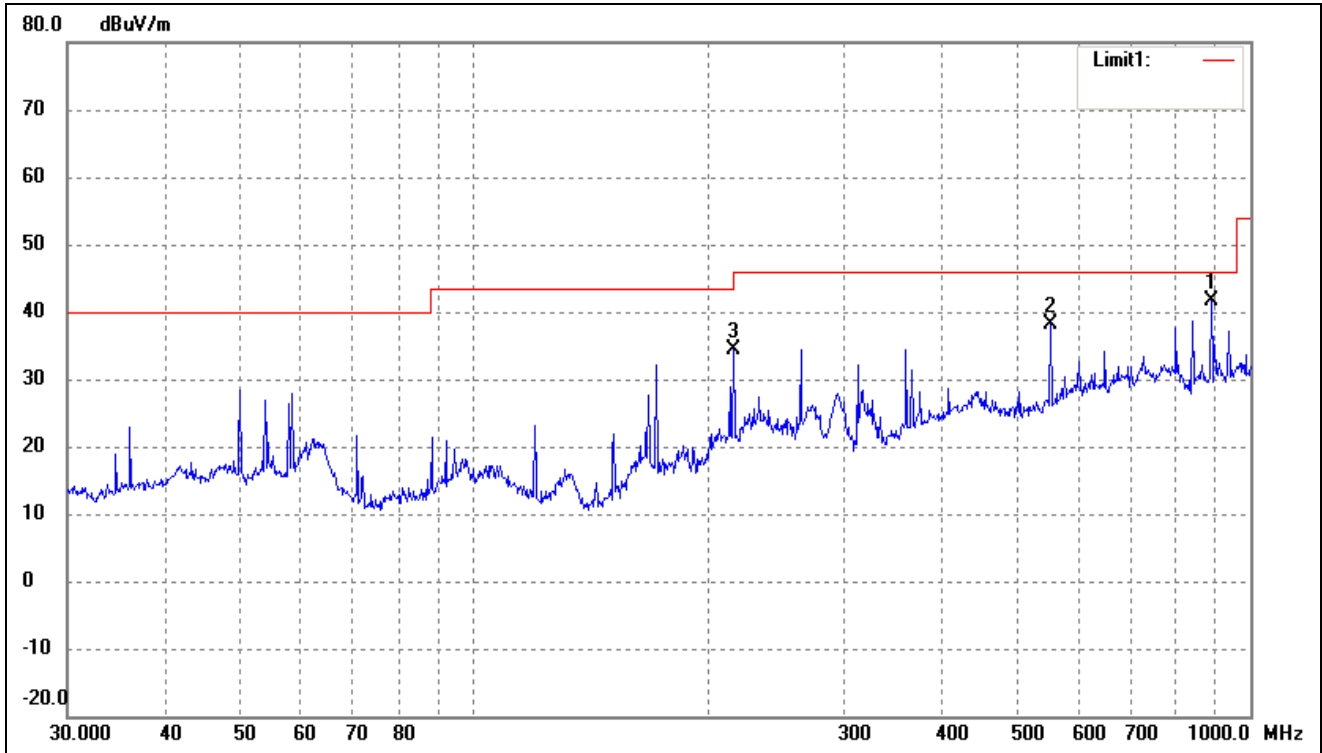


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	31.55	5.19	36.74	46.00	-9.26	245	100	peak
2	552.8833	37.05	0.20	37.25	46.00	-8.75	36	100	peak
3	216.0240	43.36	-8.93	34.43	46.00	-11.57	155	100	peak
4*	63.3132	43.52	-9.57	33.95	40.00	-6.05	360	100	peak

Operating Condition: 802.11n/HT20 Transmitting Highest Channel-2472MHz

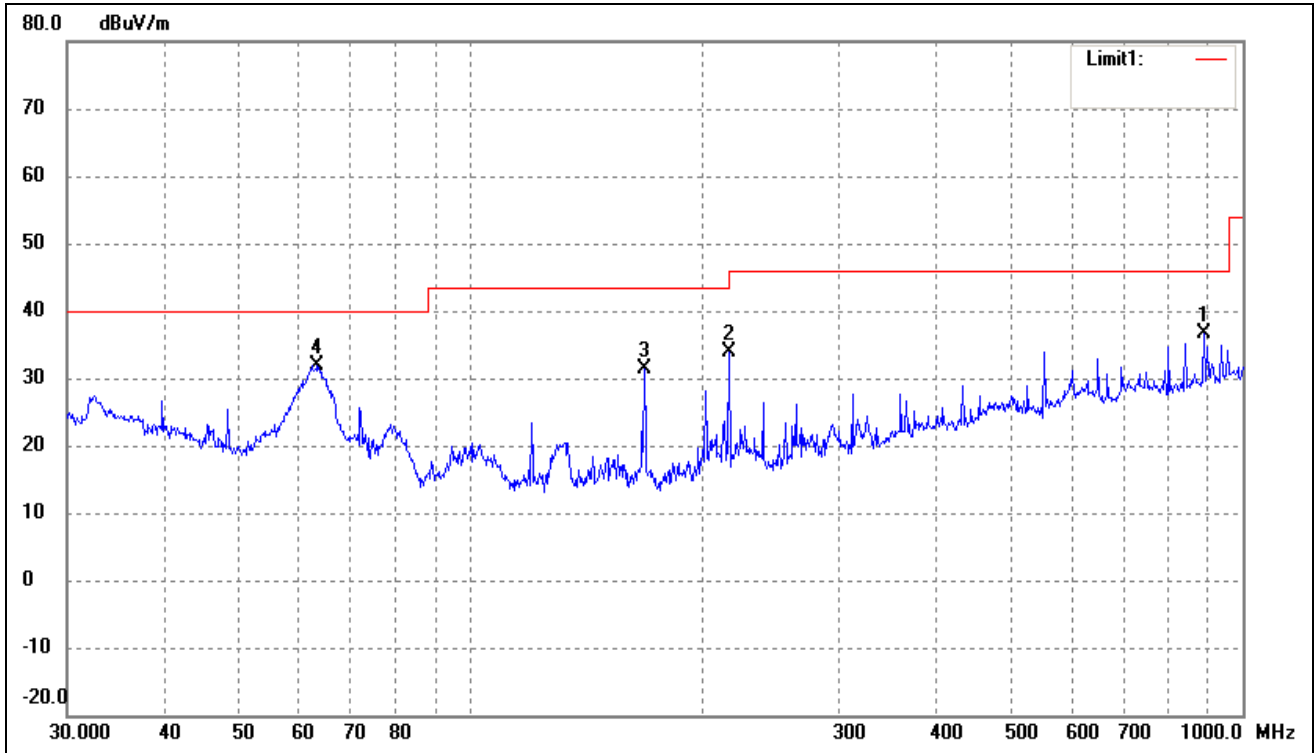
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	36.38	5.19	41.57	46.00	-4.43	253	100	peak
2	552.8833	37.98	0.20	38.18	46.00	-7.82	15	100	peak
3	216.0240	43.37	-8.93	34.44	46.00	-11.56	248	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	31.55	5.19	36.74	46.00	-9.26	255	100	peak
2	216.0240	42.86	-8.93	33.93	46.00	-12.07	360	100	peak
3	167.8243	43.26	-11.95	31.31	43.50	-12.19	277	100	peak
4*	63.3132	41.52	-9.57	31.95	40.00	-8.05	360	100	peak

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

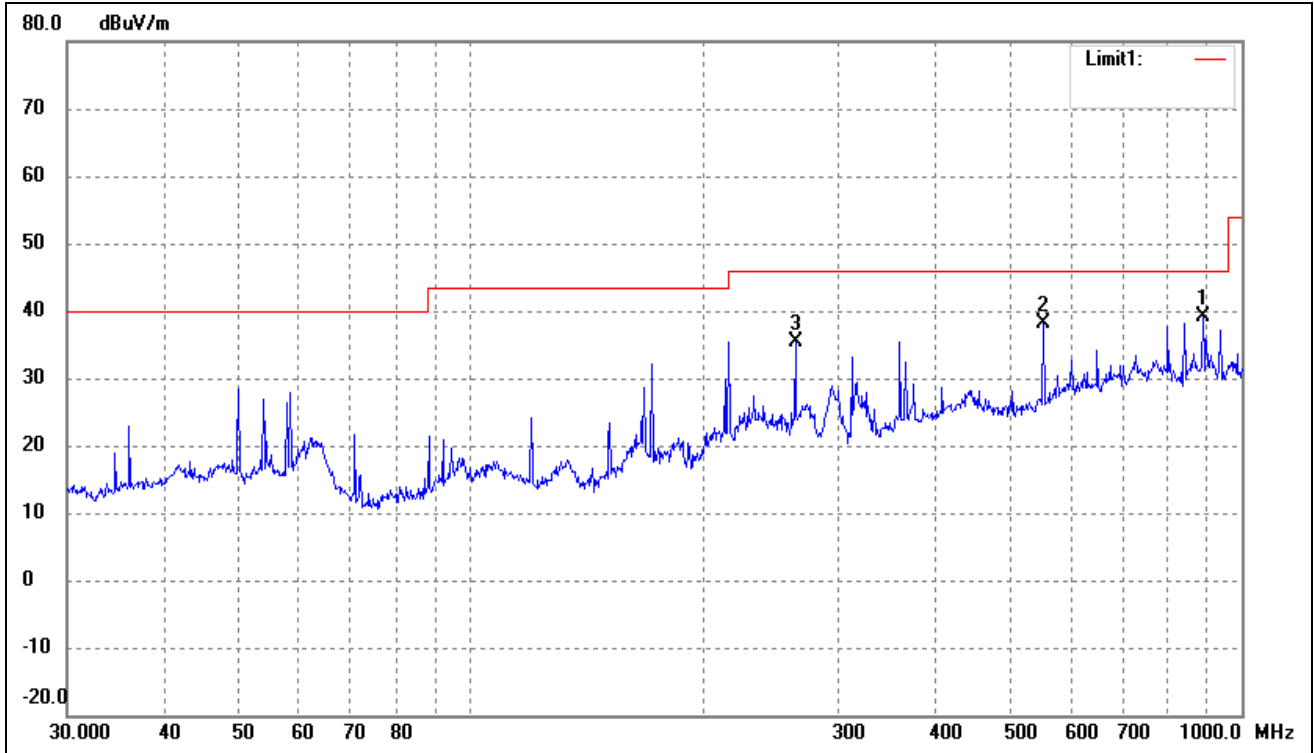
EUT: 2.4GHz WIFI Wireless LAN Adapter

Tested Model: WNA011

Operating Condition: 802.11n/HT40 Transmitting Low Channel-2422MHz

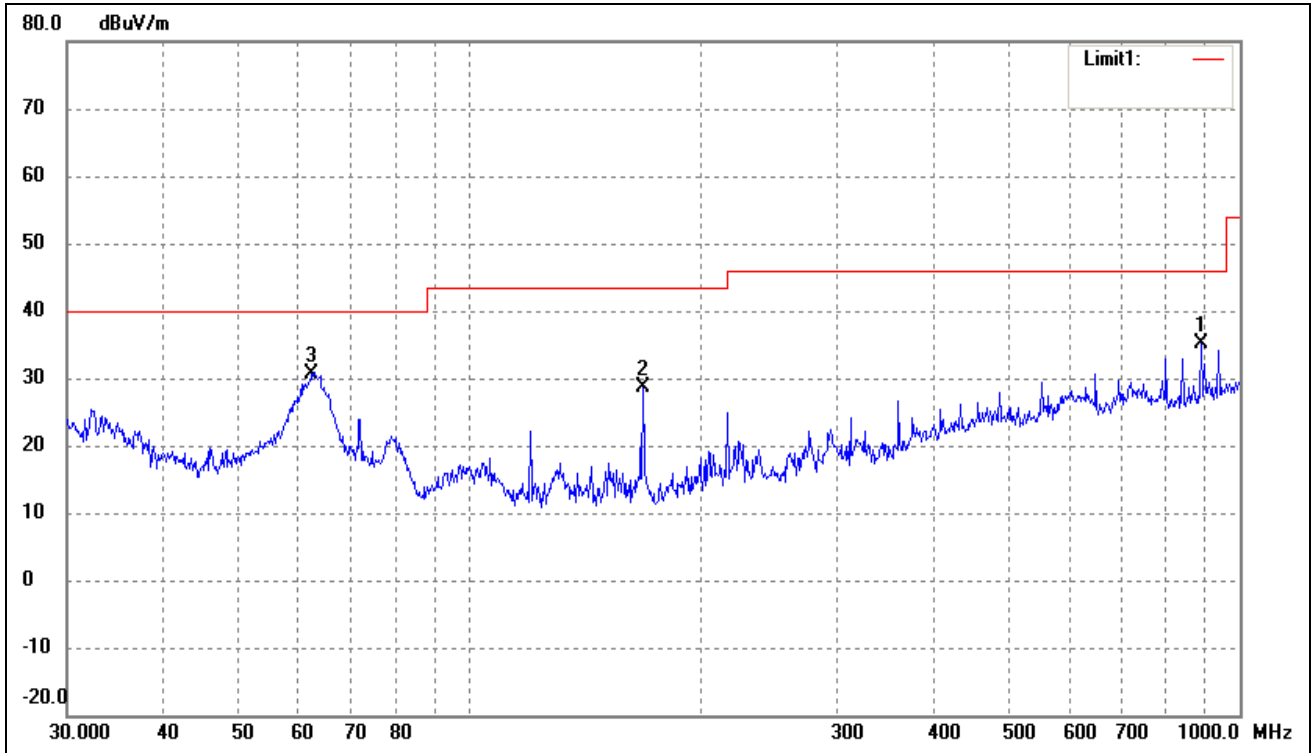
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	890.7278	33.88	5.19	39.07	46.00	-6.93	360	100	peak
2	552.8832	37.98	0.20	38.18	46.00	-7.82	214	100	peak
3	263.8190	42.35	-7.09	35.26	46.00	-10.74	228	100	peak

Test Specification: Vertical

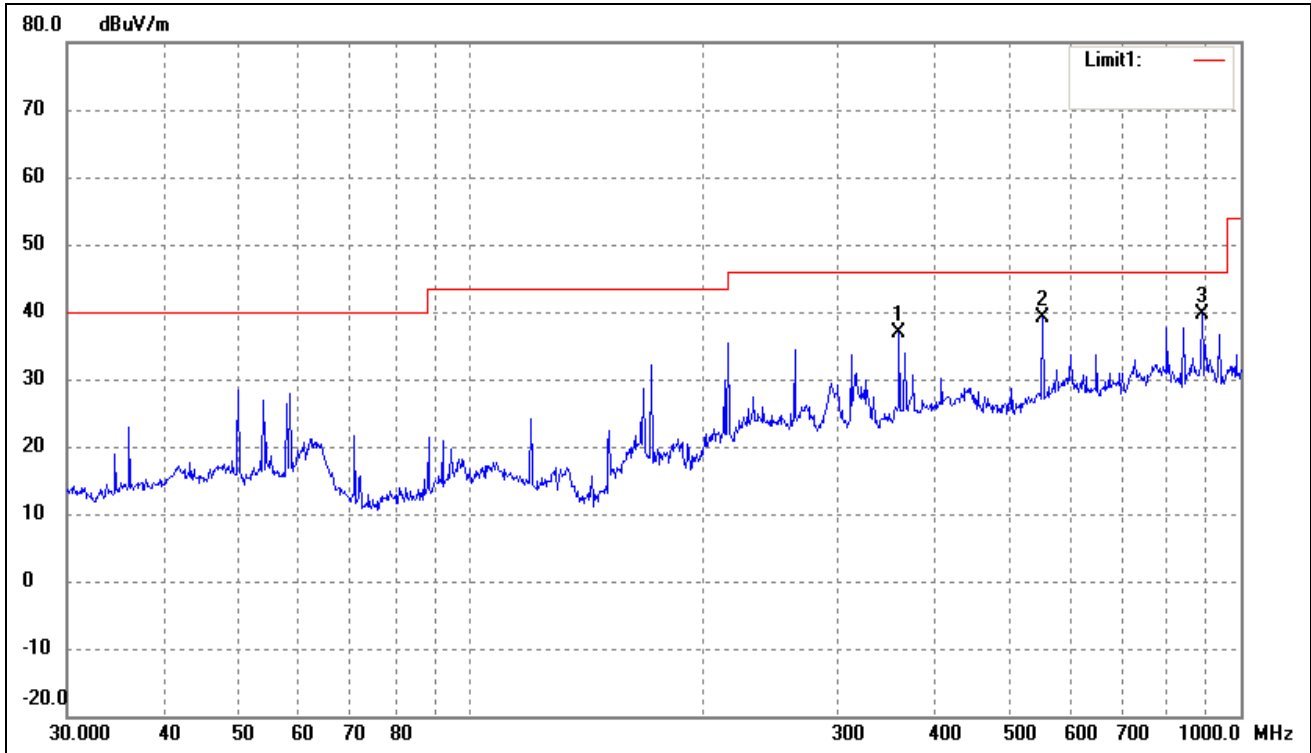


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	890.7278	29.82	5.19	35.01	46.00	-10.99	360	100	peak
2	167.8243	40.49	-11.95	28.54	43.50	-14.96	25	100	peak
3*	62.4314	40.08	-9.42	30.66	40.00	-9.34	98	100	peak

Operating Condition: 802.11n/HT40 Transmitting Middle Channel-2442MHz

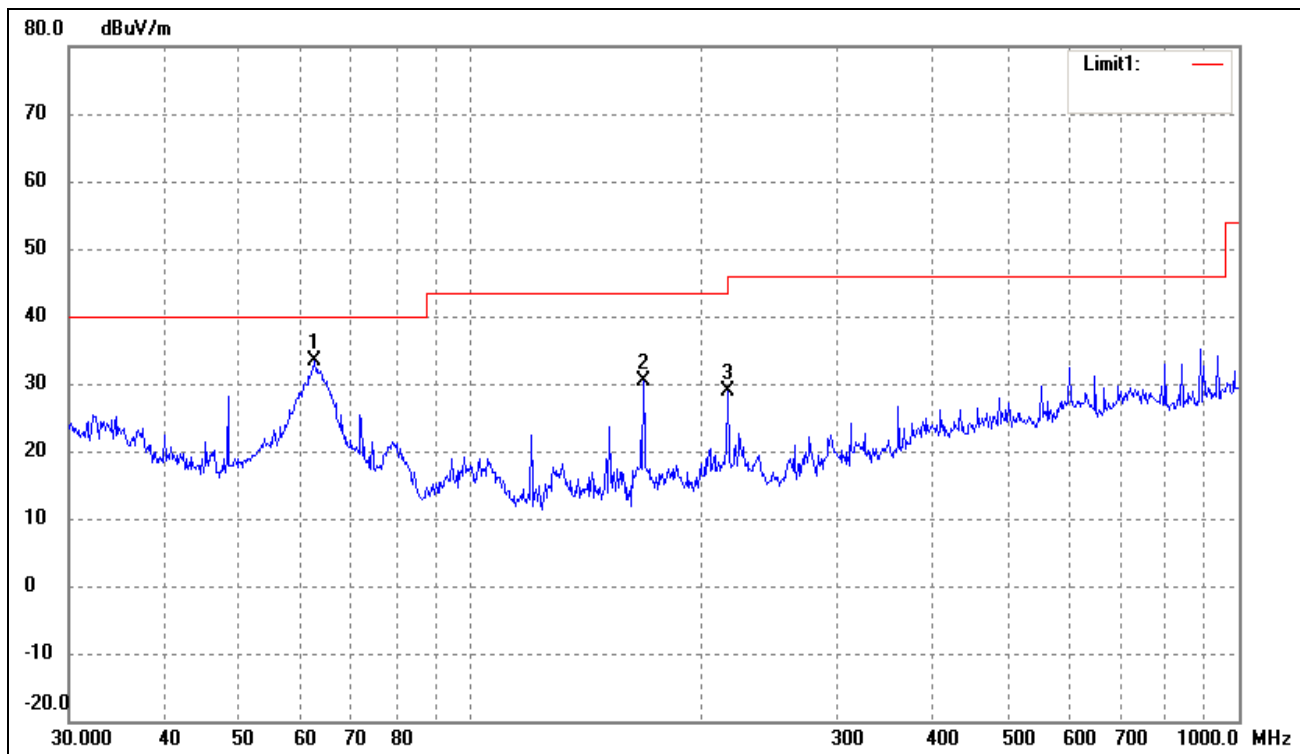
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	360.4476	40.87	-4.05	36.82	46.00	-9.18	360	100	peak
2	552.8832	38.98	0.20	39.18	46.00	-6.82	87	100	peak
3*	890.7278	34.38	5.19	39.57	46.00	-6.43	148	100	peak

Test Specification: Vertical

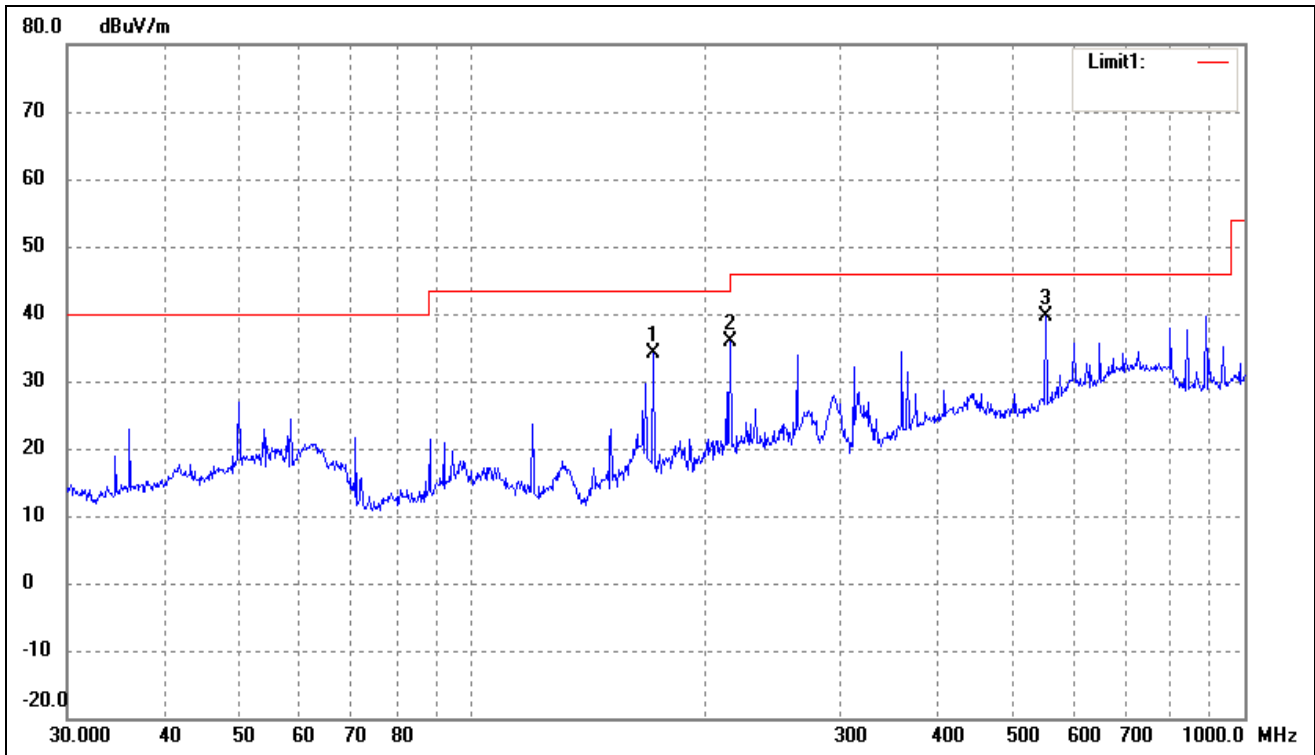


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1*	62.6507	42.88	-9.47	33.41	40.00	-6.59	148	100	peak
2	167.8243	42.21	-11.95	30.26	43.50	-13.24	24	100	peak
3	216.0240	37.72	-8.93	28.79	46.00	-17.21	79	100	peak

Operating Condition: 802.11n/HT40 Transmitting Highest Channel-2462MHz

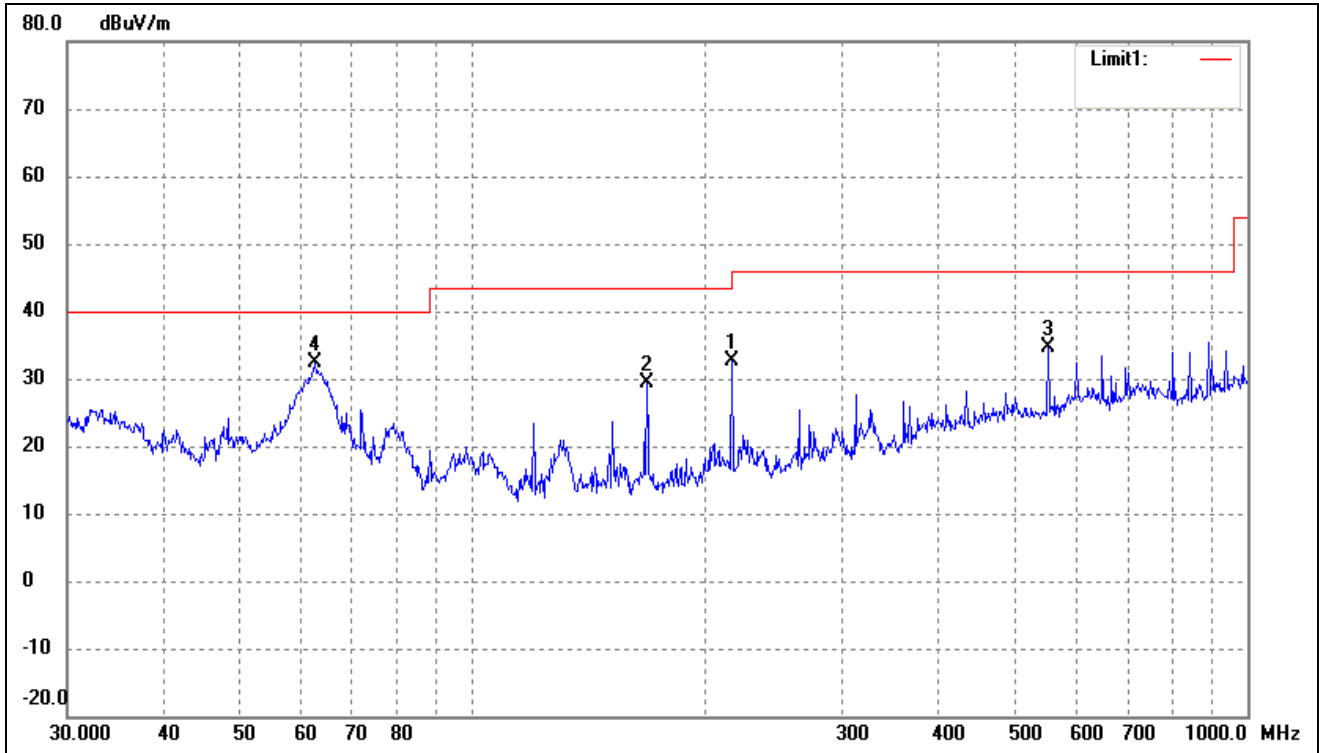
Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	171.9946	45.72	-11.70	34.02	43.50	-9.48	360	100	peak
2	216.0240	44.87	-8.93	35.94	46.00	-10.06	25	100	peak
3*	552.8833	39.48	0.20	39.68	46.00	-6.32	360	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Detector
1	216.0240	41.45	-8.93	32.52	46.00	-13.48	360	100	peak
2	167.8243	41.21	-11.95	29.26	43.50	-14.24	289	100	peak
3	552.8833	34.55	0.20	34.75	46.00	-11.25	124	100	peak
4*	62.6507	41.88	-9.47	32.41	40.00	-7.59	116	200	peak

Spurious Emissions Above 1GHz

Test Mode: 802.11b (Antenna 0)

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824	64.61	-3.88	60.73	74.00	-13.27	H	PK
4824	46.11	-3.88	42.23	54.00	-11.77	H	AV
7236	45.79	1.14	46.93	74.00	-27.07	H	PK
7236	34.23	1.14	35.37	54.00	-18.63	H	AV
4824	65.70	-3.88	61.82	74.00	-12.18	V	PK
4824	49.29	-3.88	45.41	54.00	-8.59	V	AV
7236	46.41	1.14	47.55	74.00	-26.45	V	PK
7236	34.74	1.14	35.88	54.00	-18.12	V	AV
Middle Channel-2442MHz							
4874	70.88	-3.74	67.14	74.00	-6.86	H	PK
4874	43.51	-3.74	39.77	54.00	-14.23	H	AV
7311	49.80	1.47	51.27	74.00	-22.73	H	PK
7311	36.57	1.47	38.04	54.00	-15.96	H	AV
4874	68.55	-3.74	64.81	74.00	-9.19	V	PK
4874	51.74	-3.74	48.00	54.00	-6.00	V	AV
7311	50.17	1.47	51.64	74.00	-22.36	V	PK
7311	37.09	1.47	38.56	54.00	-15.44	V	AV
High Channel-2472MHz							
4924	67.32	-3.59	63.73	74.00	-10.27	H	PK
4924	50.88	-3.59	47.29	54.00	-6.71	H	AV
7386	49.07	1.79	50.86	74.00	-23.14	H	PK
7386	36.16	1.79	37.95	54.00	-16.05	H	AV
4924	65.79	-3.59	62.20	74.00	-11.80	V	PK
4924	50.49	-3.59	46.90	54.00	-7.10	V	AV
7386	52.19	1.79	53.98	74.00	-20.02	V	PK
7386	37.56	1.79	39.35	54.00	-14.65	V	AV

Test Mode: 802.11b (Antenna 1)

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	65.96	-3.88	62.08	74.00	-11.92	H	PK
4824	48.24	-3.88	44.36	54.00	-9.64	H	AV
7236	49.61	1.14	50.75	74.00	-23.25	H	PK
7236	38.46	1.14	39.60	54.00	-14.40	H	AV
4824	65.80	-3.88	61.92	74.00	-12.08	V	PK
4824	48.16	-3.88	44.28	54.00	-9.72	V	AV
7236	51.58	1.14	52.72	74.00	-21.28	V	PK
7236	38.83	1.14	39.97	54.00	-14.03	V	AV
Middle Channel-2442MHz							
4874	57.27	-3.75	53.52	74.00	-20.48	H	PK
4874	44.57	-3.75	40.82	54.00	-13.18	H	AV
7311	46.80	1.47	48.27	74.00	-25.73	H	PK
7311	35.72	1.47	37.19	54.00	-16.81	H	AV
4874	60.00	-3.75	56.25	74.00	-17.75	V	PK
4874	48.08	-3.75	44.33	54.00	-9.67	V	AV
7311	50.07	1.47	51.54	74.00	-22.46	V	PK
7311	37.35	1.47	38.82	54.00	-15.18	V	AV
High Channel-2472MHz							
4924	48.01	-3.59	44.42	74.00	-29.58	H	PK
4924	45.63	-3.59	42.04	54.00	-11.96	H	AV
7386	44.87	1.79	46.66	74.00	-27.34	H	PK
7386	33.83	1.79	35.63	54.00	-18.37	H	AV
4924	56.84	-3.59	53.25	74.00	-20.75	V	PK
4924	48.32	-3.59	44.73	54.00	-9.27	V	AV
7386	45.25	1.79	47.04	74.00	-26.96	V	PK
7386	33.84	1.79	35.63	54.00	-18.37	V	AV

Test Mode: 802.11g (Antenna 0)

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824	64.12	-3.88	60.24	74.00	-13.76	H	PK
4824	45.40	-3.88	41.52	54.00	-12.48	H	AV
7236	57.60	1.14	58.74	74.00	-15.26	H	PK
7236	38.66	1.14	39.80	54.00	-14.20	H	AV
4824	68.43	-3.88	64.55	74.00	-9.45	V	PK
4824	47.01	-3.88	43.13	54.00	-10.87	V	AV
7236	56.01	1.14	57.15	74.00	-16.85	V	PK
7236	34.92	1.14	36.06	54.00	-17.94	V	AV
Middle Channel-2442MHz							
4874	62.20	-3.75	58.45	74.00	-15.55	H	PK
4874	44.12	-3.75	40.37	54.00	-13.63	H	AV
7311	52.92	1.47	54.39	74.00	-19.61	H	PK
7311	37.27	1.47	38.74	54.00	-15.26	H	AV
4874	66.09	-3.75	62.34	74.00	-11.66	V	PK
4874	46.95	-3.75	43.20	54.00	-10.80	V	AV
7311	55.64	1.47	57.11	74.00	-16.89	V	PK
7311	38.84	1.47	40.31	54.00	-13.69	V	AV
High Channel-2472MHz							
4924	61.90	-3.59	58.31	74.00	-15.69	H	PK
4924	43.97	-3.59	40.38	54.00	-13.62	H	AV
7386	54.86	1.79	56.65	74.00	-17.35	H	PK
7386	37.73	1.79	39.52	54.00	-14.48	H	AV
4924	66.40	-3.59	62.81	74.00	-11.19	V	PK
4924	49.32	-3.59	45.73	54.00	-8.27	V	AV
7386	54.95	1.79	56.74	74.00	-17.26	V	PK
7386	36.68	1.79	38.47	54.00	-15.53	V	AV

Test Mode: 802.11g (Antenna 1)

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824	60.34	-3.88	56.46	74.00	-17.54	H	PK
4824	45.88	-3.88	42.00	54.00	-12.00	H	AV
7236	50.95	1.14	52.09	74.00	-21.91	H	PK
7236	37.38	1.14	38.52	54.00	-15.48	H	AV
4824	62.53	-3.88	58.65	74.00	-15.35	V	PK
4824	46.49	-3.88	42.61	54.00	-11.39	V	AV
7236	53.43	1.14	54.57	74.00	-19.43	V	PK
7236	37.56	1.14	38.70	54.00	-15.30	V	AV
Middle Channel-2442MHz							
4874	60.15	-3.74	56.41	74.00	-17.59	H	PK
4874	45.69	-3.74	41.95	54.00	-12.05	H	AV
7311	51.38	1.47	52.85	74.00	-21.15	H	PK
7311	33.80	1.47	35.27	54.00	-18.73	H	AV
4874	65.07	-3.74	61.33	74.00	-12.67	V	PK
4874	49.35	-3.74	45.61	54.00	-8.39	V	AV
7311	55.16	1.47	56.63	74.00	-17.37	V	PK
7311	35.88	1.47	37.35	54.00	-16.65	V	AV
High Channel-2472MHz							
4924	58.82	-3.59	55.23	74.00	-18.77	H	PK
4924	43.85	-3.59	40.26	54.00	-13.74	H	AV
7386	54.84	1.79	56.63	74.00	-17.37	H	PK
7386	36.50	1.79	38.29	54.00	-15.71	H	AV
4924	65.19	-3.59	61.60	74.00	-12.40	V	PK
4924	47.89	-3.59	44.30	54.00	-9.70	V	AV
7386	52.39	1.79	54.18	74.00	-19.82	V	PK
7386	36.21	1.79	38.00	54.00	-16.00	V	AV

Test Mode: 802.11n-HT20

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824	71.31	-3.88	67.43	74.00	-6.57	H	PK
4824	49.46	-3.88	45.58	54.00	-8.42	H	AV
7236	58.98	1.14	60.12	74.00	-13.88	H	PK
7236	40.18	1.14	41.32	54.00	-12.68	H	AV
4824	72.45	-3.88	68.57	74.00	-5.43	V	PK
4824	50.30	-3.88	46.42	54.00	-7.58	V	AV
7236	61.17	1.14	62.31	74.00	-11.69	V	PK
7236	39.38	1.14	40.52	54.00	-13.48	V	AV
Middle Channel-2442MHz							
4874	69.52	-3.74	65.78	74.00	-8.22	H	PK
4874	48.27	-3.74	44.53	54.00	-9.47	H	AV
7311	58.66	1.47	60.13	74.00	-13.87	H	PK
7311	38.86	1.47	40.33	54.00	-13.67	H	AV
4874	71.72	-3.74	67.98	74.00	-6.02	V	PK
4874	50.61	-3.74	46.87	54.00	-7.13	V	AV
7311	58.77	1.47	60.24	74.00	-13.76	V	PK
7311	39.49	1.47	40.96	54.00	-13.04	V	AV
High Channel-2472MHz							
4924	68.46	-3.59	64.87	74.00	-9.13	H	PK
4924	47.11	-3.59	43.52	54.00	-10.48	H	AV
7386	58.95	1.79	60.74	74.00	-13.26	H	PK
7386	39.78	1.79	41.57	54.00	-12.43	H	AV
4924	72.02	-3.59	68.43	74.00	-5.57	V	PK
4924	49.43	-3.59	45.84	54.00	-8.16	V	AV
7386	60.35	1.79	62.14	74.00	-11.86	V	PK
7386	41.02	1.79	42.81	54.00	-11.19	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							
4844.000	69.29	-3.86	65.43	74.00	-8.57	H	PK
4824.000	48.44	-3.86	44.58	54.00	-9.42	H	AV
7236.000	59.14	1.10	60.24	74.00	-13.76	H	PK
7236.000	39.21	1.10	40.31	54.00	-13.69	H	AV
4824.000	70.38	-3.86	66.52	74.00	-7.48	V	PK
4824.000	49.75	-3.86	45.89	54.00	-8.11	V	AV
7236.000	60.22	1.10	61.32	74.00	-12.68	V	PK
7236.000	40.75	1.10	41.85	54.00	-12.15	V	AV
Middle Channel-2442MHz							
4884.000	66.98	-3.74	63.24	74.00	-10.76	H	PK
4884.000	46.59	-3.74	42.85	54.00	-11.15	H	AV
7326.000	57.21	1.47	58.68	74.00	-15.32	H	PK
7326.000	38.86	1.47	40.33	54.00	-13.67	H	AV
4884.000	69.59	-3.74	65.85	74.00	-8.15	V	PK
4884.000	50.40	-3.74	46.66	54.00	-7.34	V	AV
7326.000	60.00	1.47	61.47	74.00	-12.53	V	PK
7326.000	42.00	1.47	43.47	54.00	-10.53	V	AV
High Channel-2462MHz							
4924.000	67.84	-3.59	64.25	74.00	-9.75	H	PK
4944.000	46.70	-3.59	43.11	54.00	-10.89	H	AV
7416.000	58.68	1.79	60.47	74.00	-13.53	H	PK
7416.000	38.34	1.79	40.13	54.00	-13.87	H	AV
4944.000	70.05	-3.59	66.46	74.00	-7.54	V	PK
4944.000	50.06	-3.59	46.47	54.00	-7.53	V	AV
7416.000	59.40	1.79	61.19	74.00	-12.81	V	PK
7416.000	37.59	1.79	39.38	54.00	-14.62	V	AV

Note1: The EUT will be simultaneous transmission at the Antenna 0 and Antenna 1 for the mode of 802.11n HT20 or HT40, transmission only single at Antenna 0 or Antenna 1 for 802.11b/g;

Note2: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 3th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19

8.3 Test Procedure

According to the KDB 558074 D01 v03r01, 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 product 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 KDB 558074 D01 v03r01, the conducted spurious emissions test method as follows:

1. Set start frequency to DTS channel edge frequency.
2. Set stop frequency so as to encompass the spectrum to be examined.
3. Set RBW = 100 kHz.
4. Set VBW \geq 300 kHz.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize (this may take some time, depending on the extent of the span).
9. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

8.4 Environmental Conditions

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

8.5 Summary of Test Results/Plots

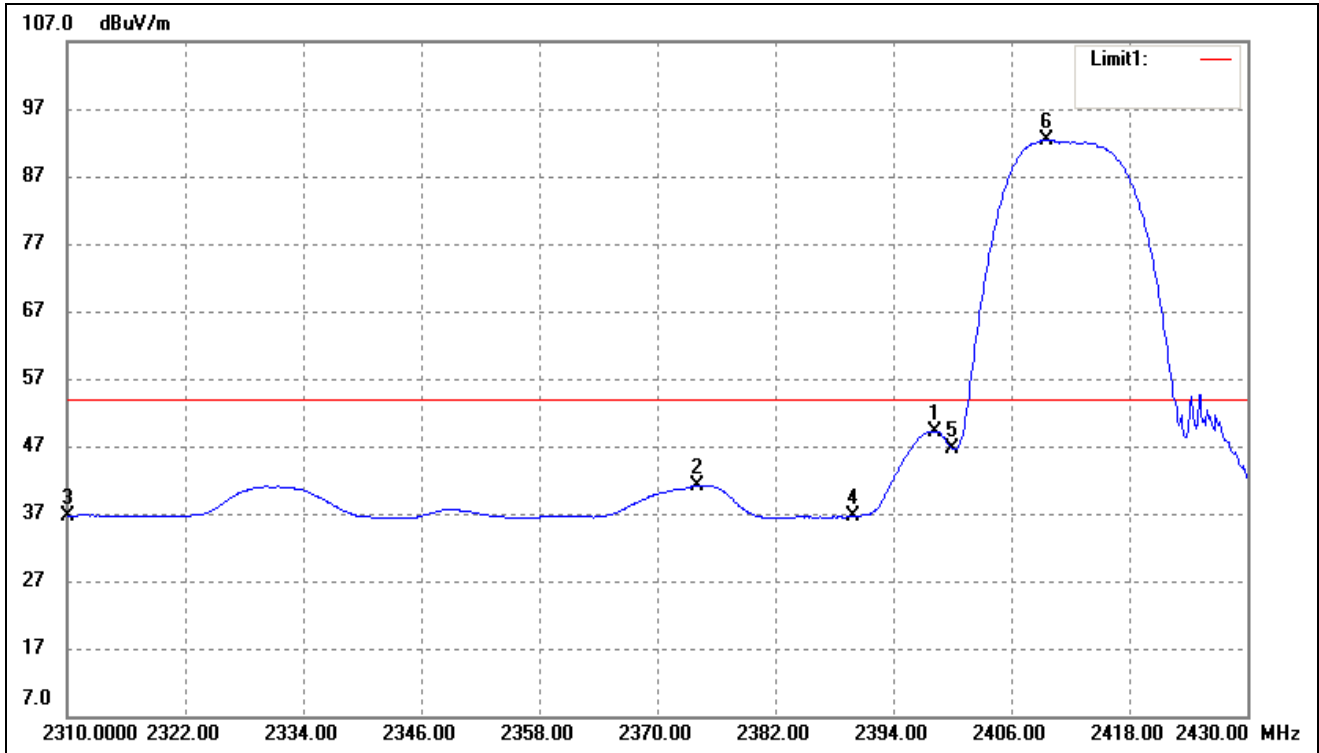
Test Mode	Test Frequency MHz	Limit dBuV / dBc	Result
802.11b (Antenna 0)	2310.00	<54 dBuV	Pass
	2390.00	<54 dBuV	Pass
	2398.20	>20 dBc	Pass
	2486.44	<54 dBuV	Pass
802.11b (Antenna 1)	2310.00	<54 dBuV	Pass
	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2486.44	<54 dBuV	Pass
802.11g (Antenna 0)	2310.00	<54 dBuV	Pass
	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass
802.11g (Antenna 1)	2310.00	<54 dBuV	Pass
	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass
802.11n-HT20	2310.00	<54 dBuV	Pass
	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass
802.11n-HT40	2310.00	<54 dBuV	Pass
	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-Lowest Bandedge (Antenna 0)

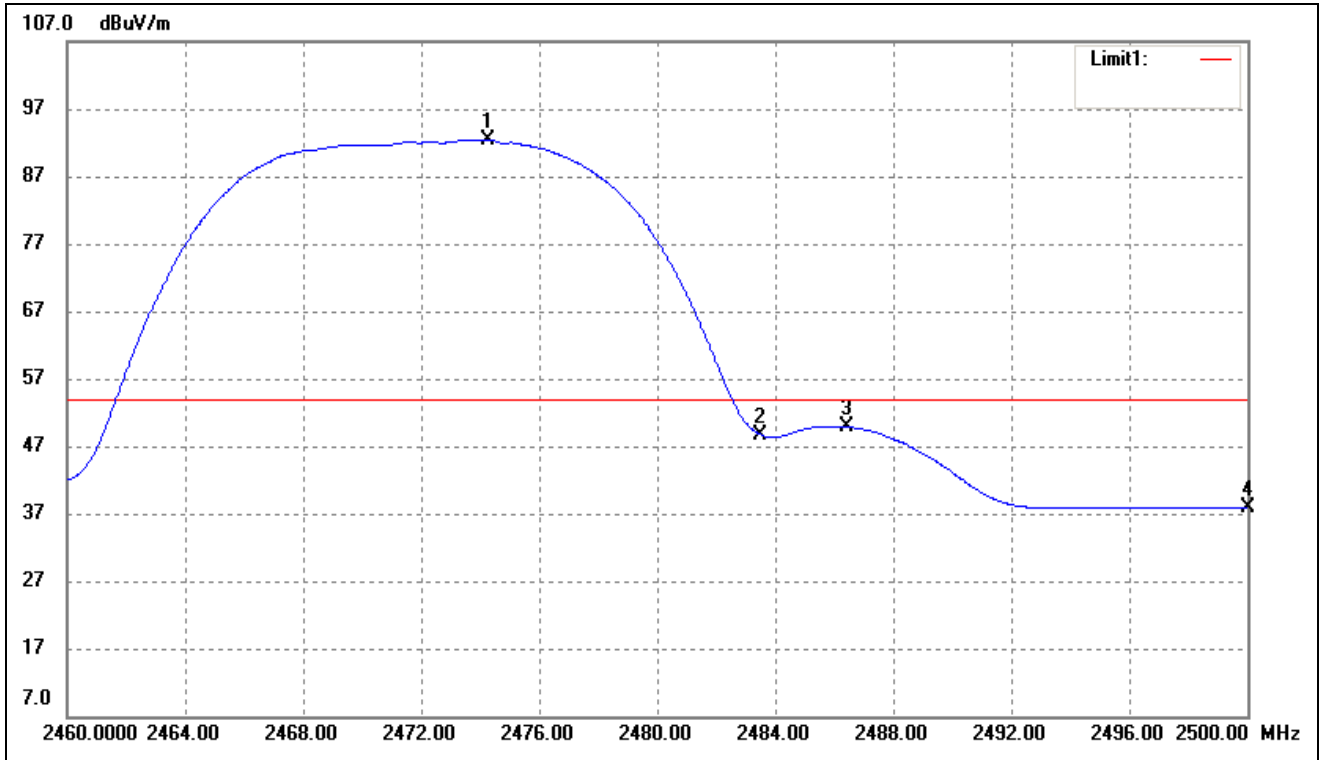
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2398.200	37.29	11.90	49.19	54.00	-12.76	Average Detector
6	2409.600	80.50	11.97	92.47			Average Detector
2	2374.080	29.54	11.70	41.24	54.00	-12.76	Average Detector
	2374.080	36.33	11.70	48.03	74.00	-26.49	Peak Detector
3	2310.000	25.44	11.18	36.62	54.00	-17.38	Average Detector
	2310.000	36.33	11.18	47.51	74.00	-26.49	Peak Detector
4	2390.000	24.80	11.83	36.63	54.00	-17.37	Average Detector
	2390.000	36.29	11.83	48.12	74.00	-25.88	Peak Detector
5	2400.000	34.83	11.91	46.74	54.00	-7.26	Average Detector
	2400.000	45.16	11.91	57.07	74.00	-16.93	Peak Detector

802.11b-Highest Bandedge (Antenna 0)

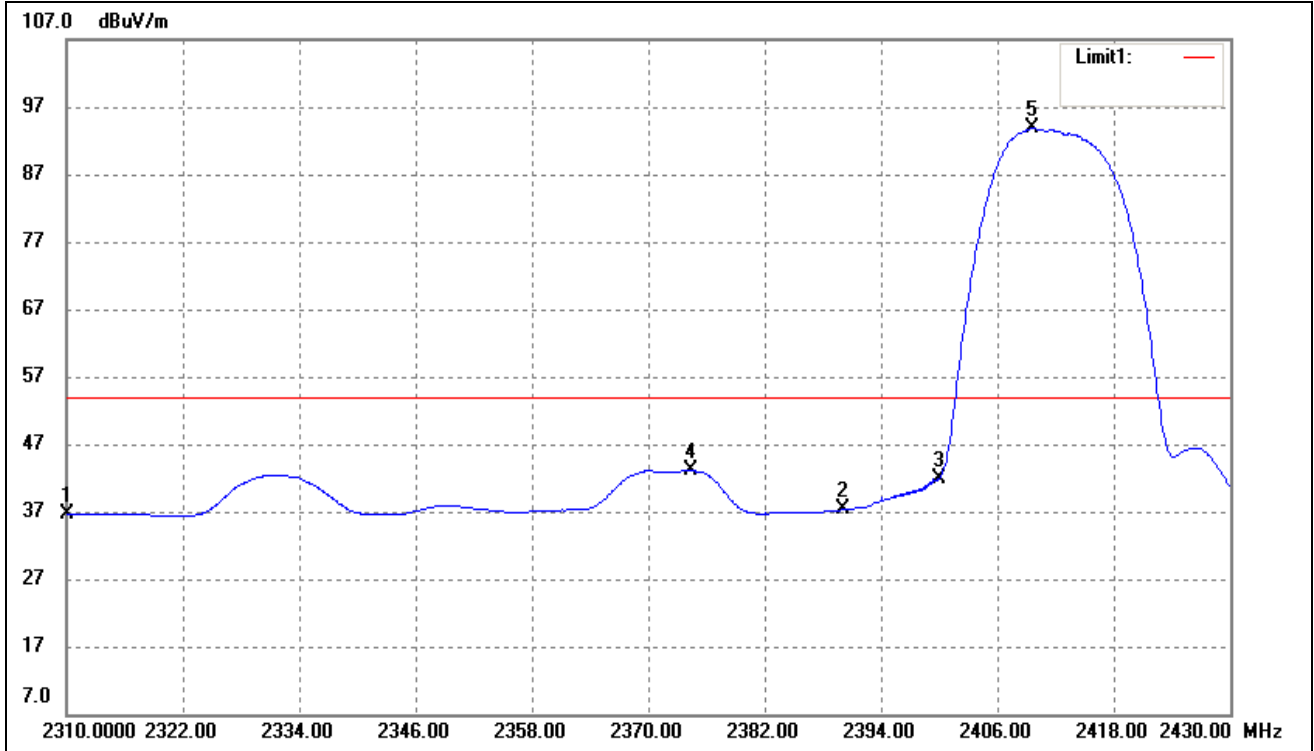
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2474.240	80.01	12.43	92.44	/	/	Average Detector
		88.01	12.42	100.43	/	/	Peak Detector
2	2483.500	36.16	12.49	48.65	54.00	-5.35	Average Detector
		46.06	12.49	58.55	74.00	-15.45	Peak Detector
3	2486.440	Delta = 46.35dBc		46.09	54.00	-7.91	Average Detector
		Delta = 46.35dBc		54.08	74.00	-19.92	Peak Detector
4	2500.000	25.16	12.61	37.77	54.00	-16.23	Average Detector
		37.22	12.61	49.83	74.00	-24.17	Peak Detector

802.11b-china 1-Lowest Bandedge (Antenna 1)

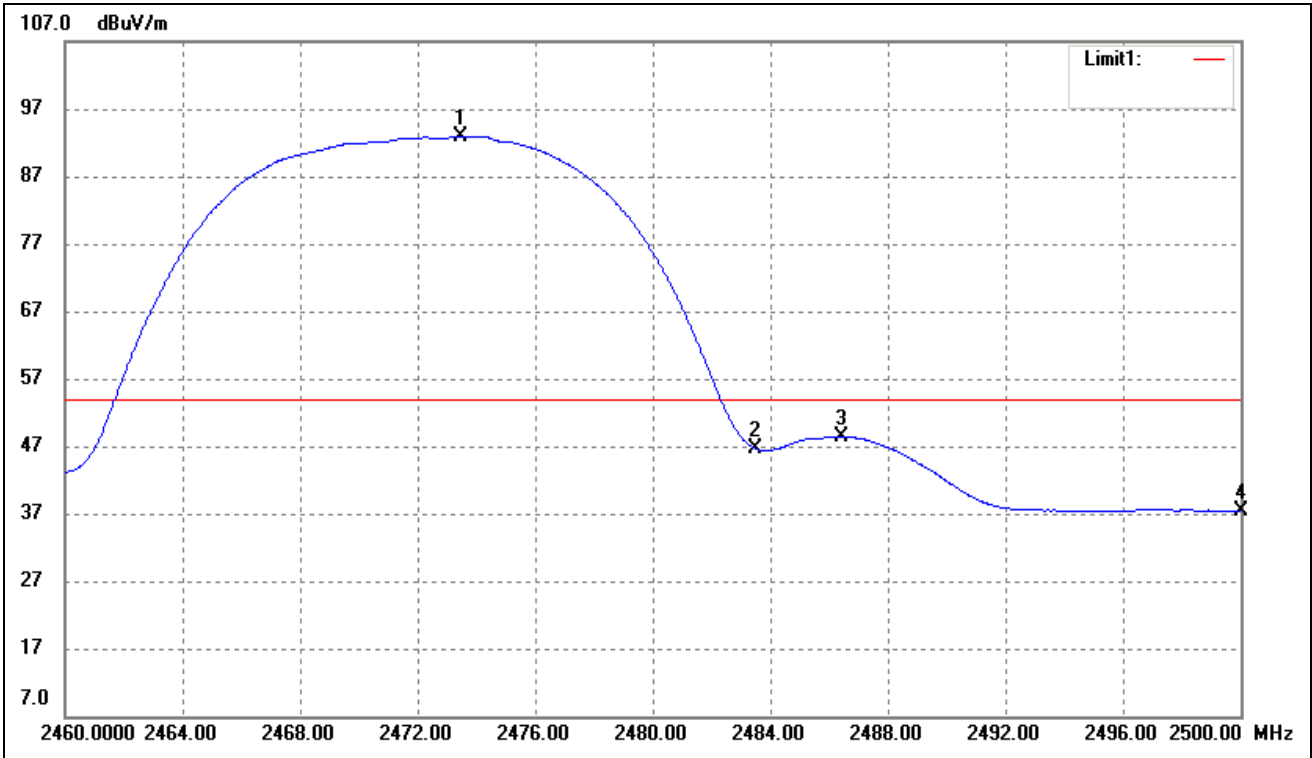
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	25.34	11.18	36.52	54.00	-17.48	Average Detector
		36.56	11.18	47.74	74.00	-26.26	Peak Detector
2	2390.000	25.44	11.83	37.27	54.00	-16.73	Average Detector
		37.24	11.83	49.07	74.00	-24.93	Peak Detector
4	2374.320	31.44	11.70	43.14	54.00	-10.86	Average Detector
		42.16	11.70	53.86	74.00	-20.14	Peak Detector
3	2400.000	30.08	11.91	41.99	Delta = 51.84dBc		Average Detector
5	2409.600	81.86	11.97	93.83		Average Detector	

802.11b-Highest Bandedge (Antenna 1)

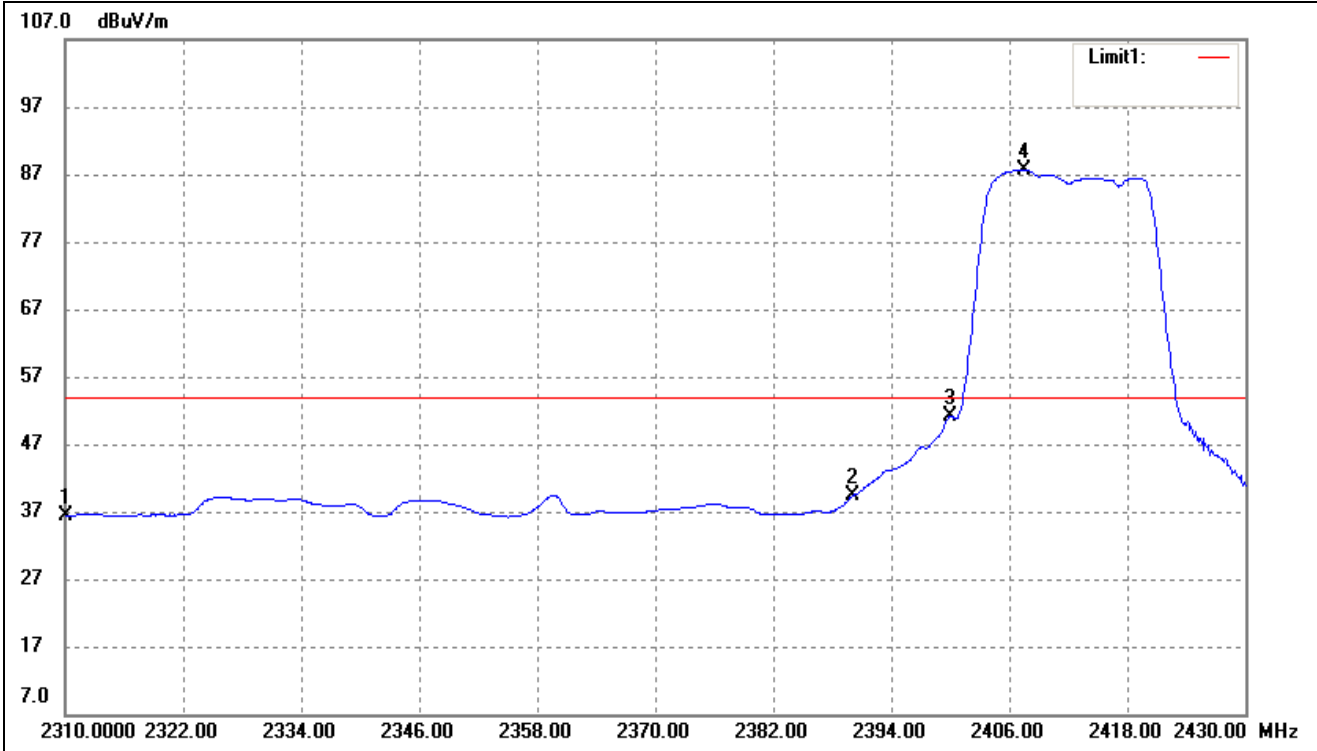
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2473.440	80.50	12.42	92.92	/	/	Average Detector
	2473.440	88.86	12.42	101.28	/	/	Peak Detector
2	2483.500	34.12	12.49	46.61	54.00	-7.39	Average Detector
	2483.500	43.38	12.49	55.87	74.00	-18.13	Peak Detector
3	2486.400	Delta = 46.74dBc		46.18	54.00	-7.82	Average Detector
	2486.400	Delta = 46.74dBc		54.54	74.00	-19.46	Peak Detector
4	2500.000	24.87	12.61	37.48	54.00	-16.52	Average Detector
	2500.000	34.98	12.61	47.59	74.00	-26.41	Peak Detector

802.11g-Lowest Bandedge (Antenna 0)

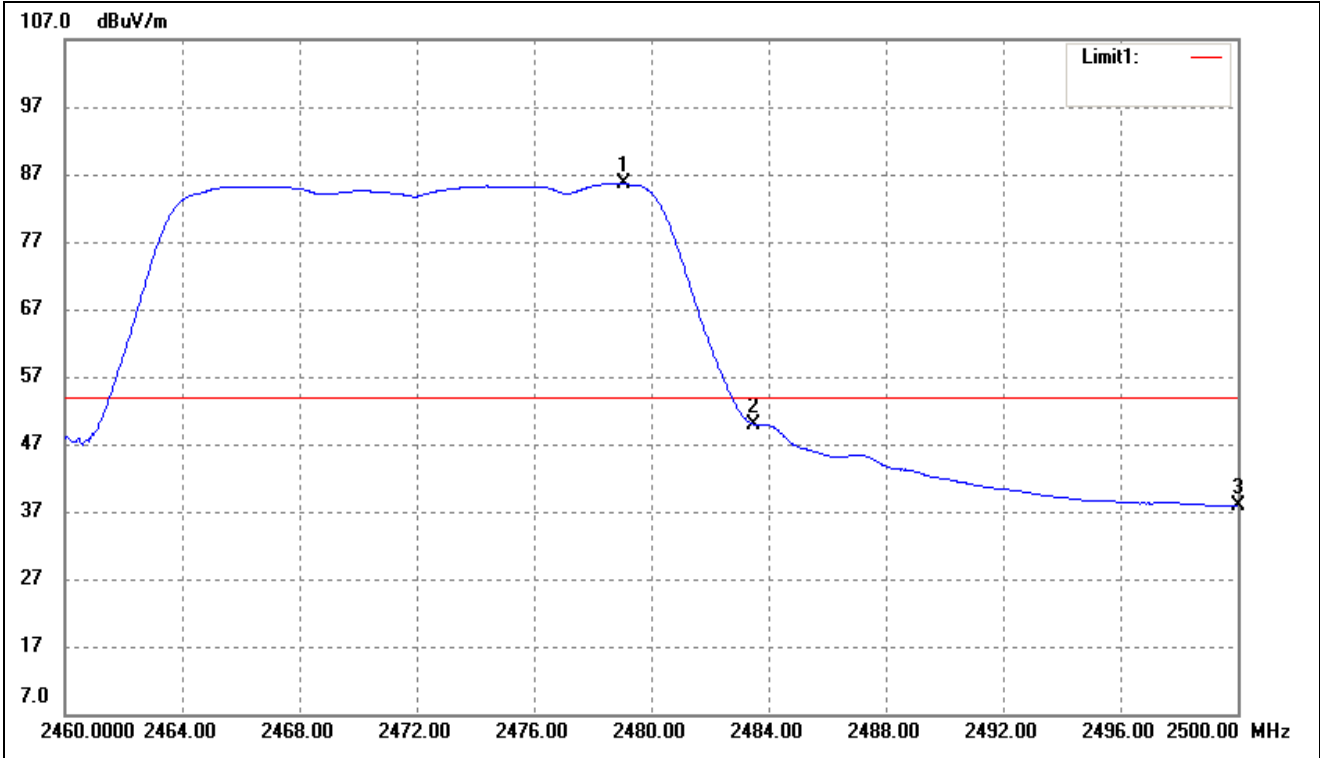
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	25.24	11.18	36.42	54.00	-17.58	Average Detector
	2310.000	36.30	11.18	47.48	74.00	-26.52	Peak Detector
2	2390.000	27.47	11.83	39.30	54.00	-14.70	Average Detector
	2390.000	43.30	11.83	55.13	74.00	-18.87	Peak Detector
3	2400.000	39.19	11.91	51.10	Delta = 36.60dBc		Average Detector
4	2407.440	75.74	11.96	87.70			Average Detector

802.11g-Highest Bandedge (Antenna 0)

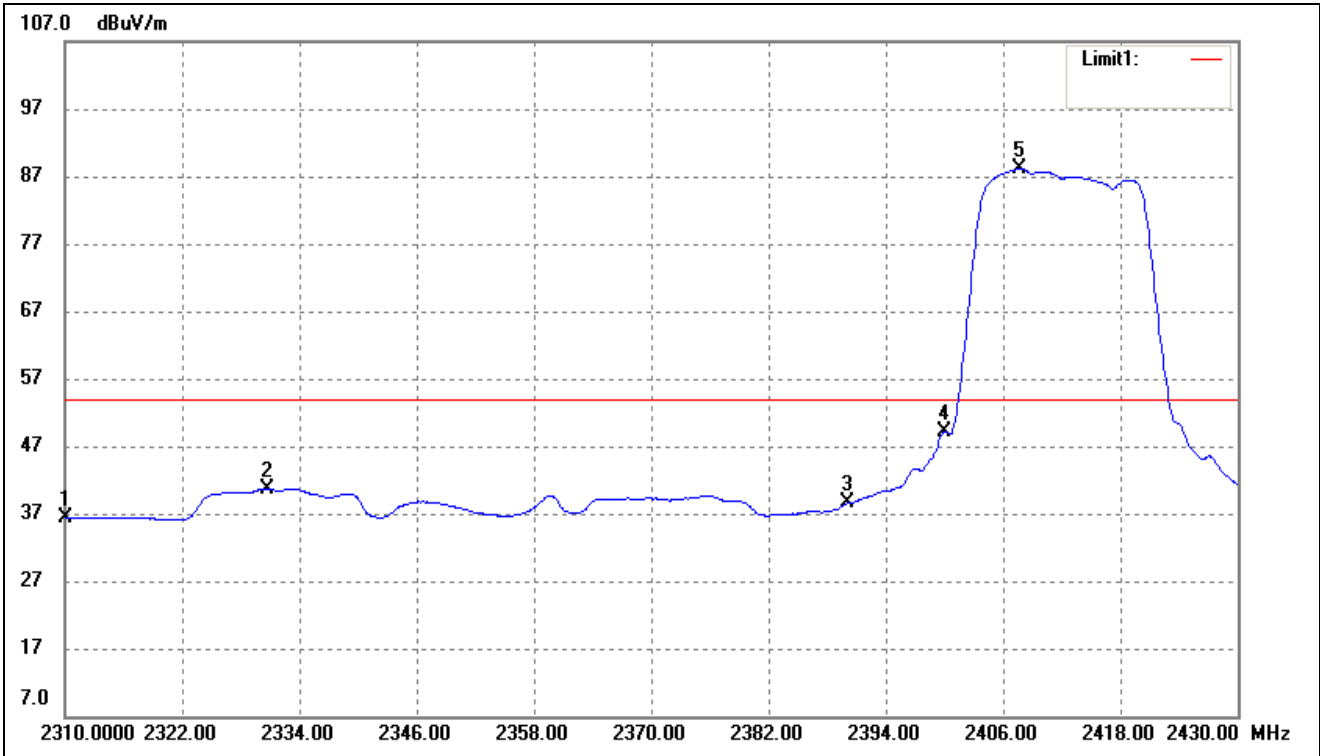
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2479.080	73.10	12.46	85.56	/	/	Average Detector
	2477.320	85.38	12.45	97.83	/	/	Peak Detector
2	2483.500	Delta = 38.64dBc		46.92	54.00	-7.08	Average Detector
	2483.500			59.19	74.00	-14.81	Peak Detector
3	2500.000	25.22	12.61	37.83	54.00	-16.17	Average Detector
	2500.000	46.88	12.61	59.49	74.00	-14.51	Peak Detector

802.11g-Lowest Bandedge (Antenna 1)

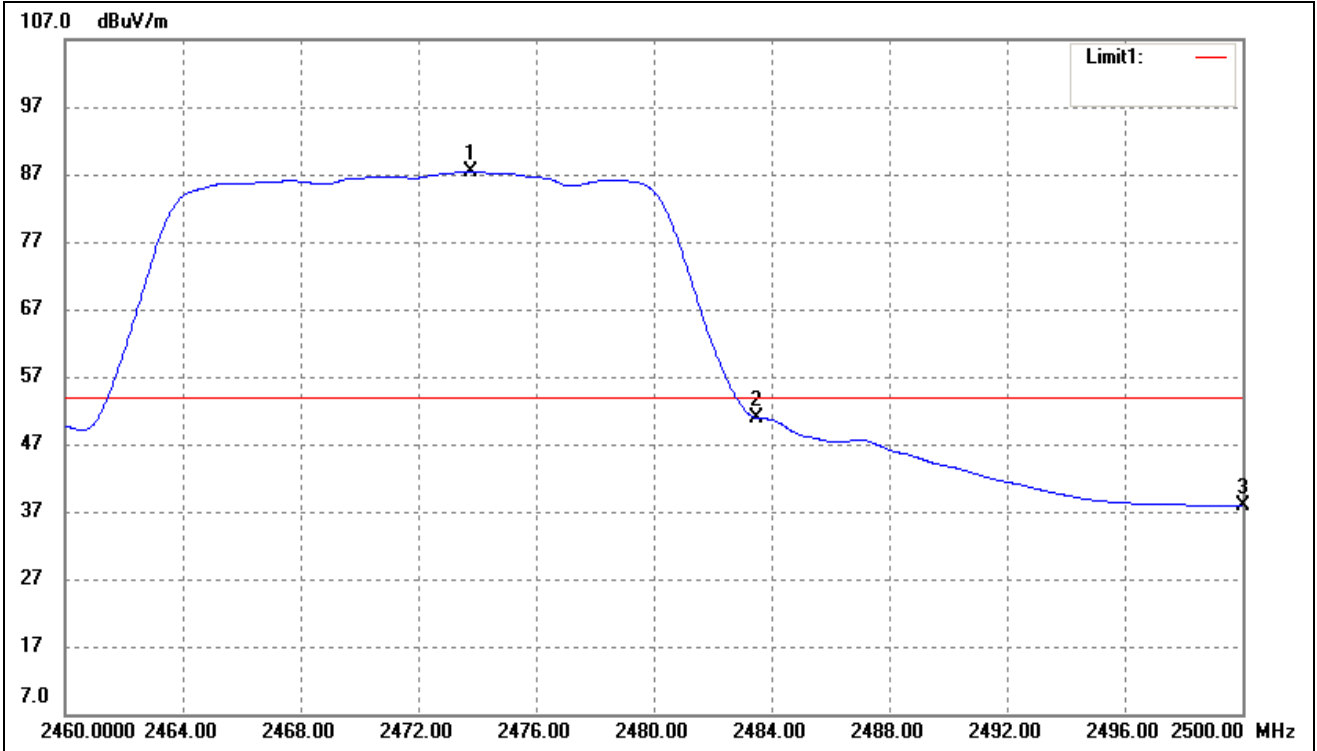
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	25.12	11.18	36.30	54.00	-17.70	Average Detector
		36.14	11.18	47.32	74.00	-26.68	Peak Detector
2	2330.640	29.34	11.35	40.69	54.00	-13.31	Average Detector
		40.52	11.35	51.87	74.00	-22.13	Peak Detector
3	2390.000	26.69	11.83	38.52	54.00	-15.48	Average Detector
		38.54	11.83	50.37	74.00	-23.63	Peak Detector
4	2400.000	37.29	11.91	49.20	Delta = 38.93dBc		Average Detector
5	2407.680	76.17	11.96	88.13		Average Detector	

802.11g-Highest Bandedge (Antenna 1)

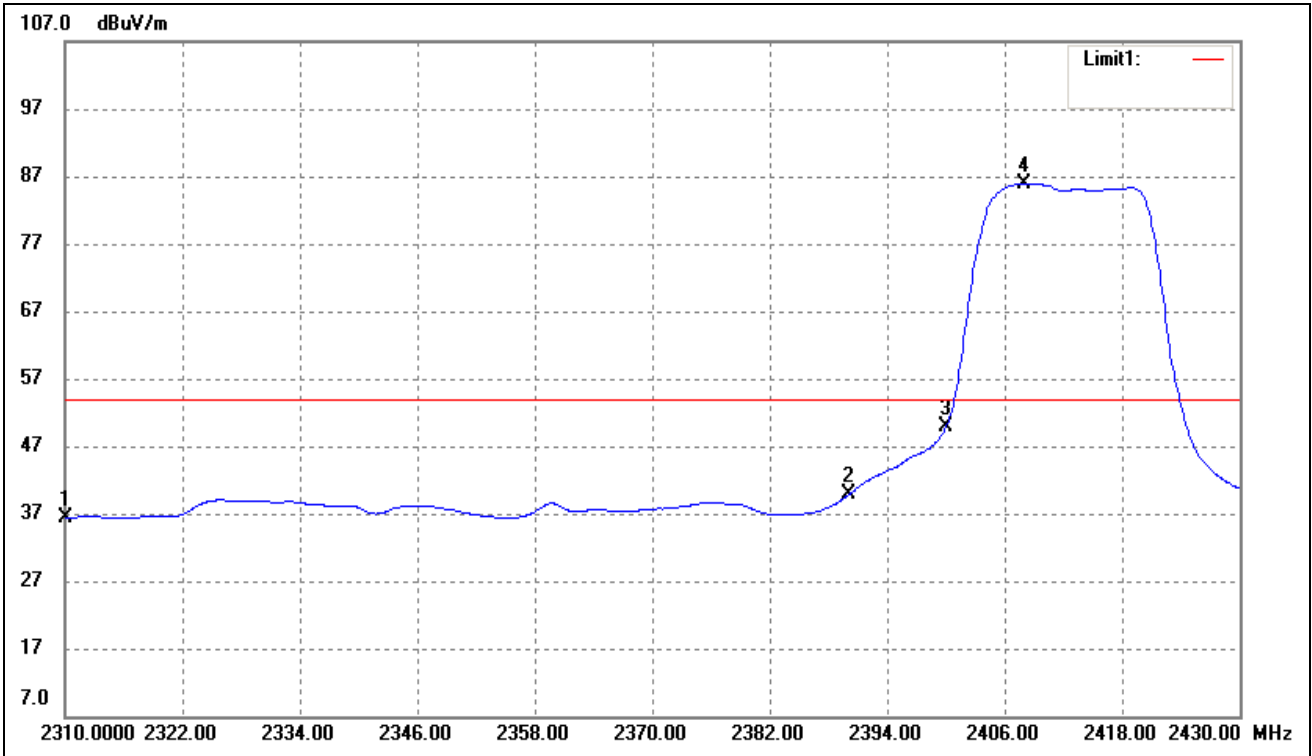
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2473.800	74.94	12.43	87.37	/	/	Average Detector
	2473.800	86.85	12.43	99.28	/	/	Peak Detector
1	2483.500	Delta = 38.35 dBc		49.02	54.00	-4.98	Average Detector
	2483.500			60.93	74.00	-13.07	Peak Detector
2	2500.000	25.17	12.61	37.78	54.00	-16.22	Average Detector
	2500.000	37.72	12.61	50.33	74.00	-23.67	Peak Detector

802.11n-HT20-Lowest Bandedge

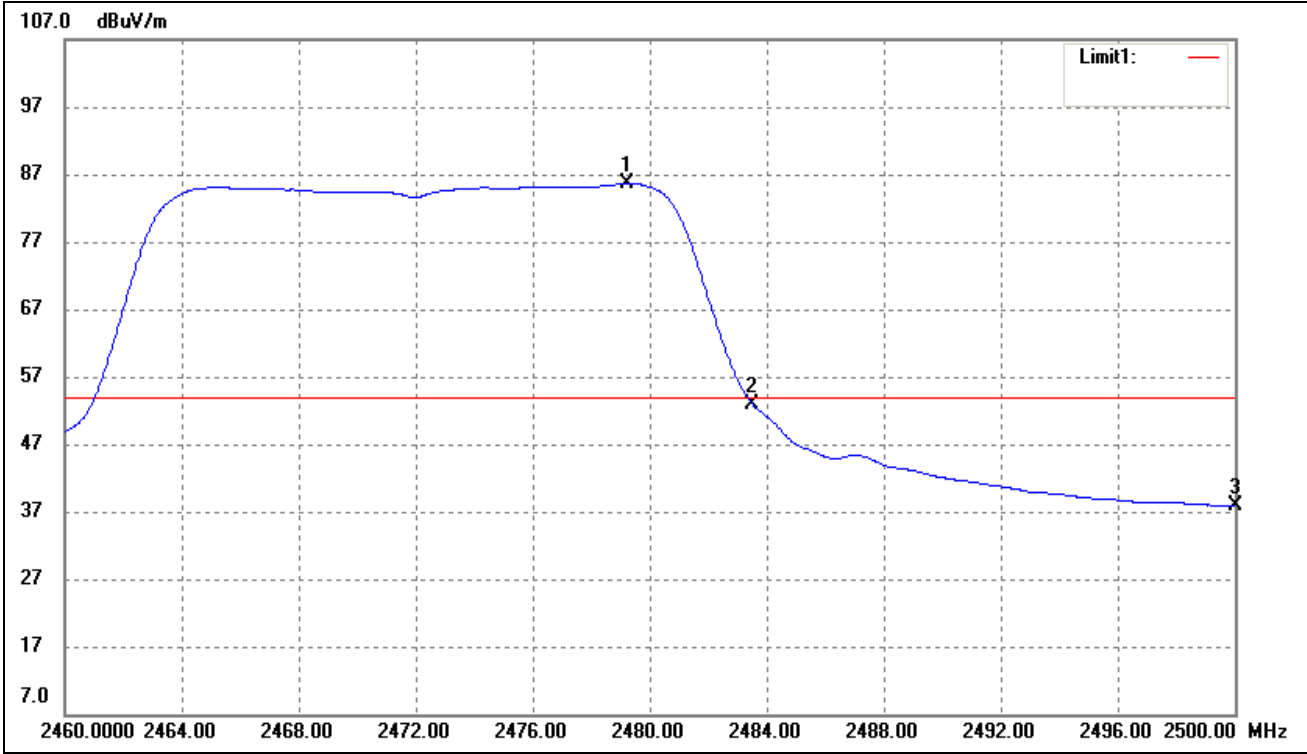
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	25.21	11.18	36.39	54.00	-17.61	Average Detector
		37.19	11.18	48.37	74.00	-25.63	Peak Detector
2	2390.000	27.95	11.83	39.78	54.00	-14.22	Average Detector
		47.46	11.83	59.29	74.00	-14.71	Peak Detector
3	2400.000	37.96	11.91	49.87	Delta = 36.09dBc		Average Detector
4	2407.920	74.00	11.96	85.96			Peak Detector

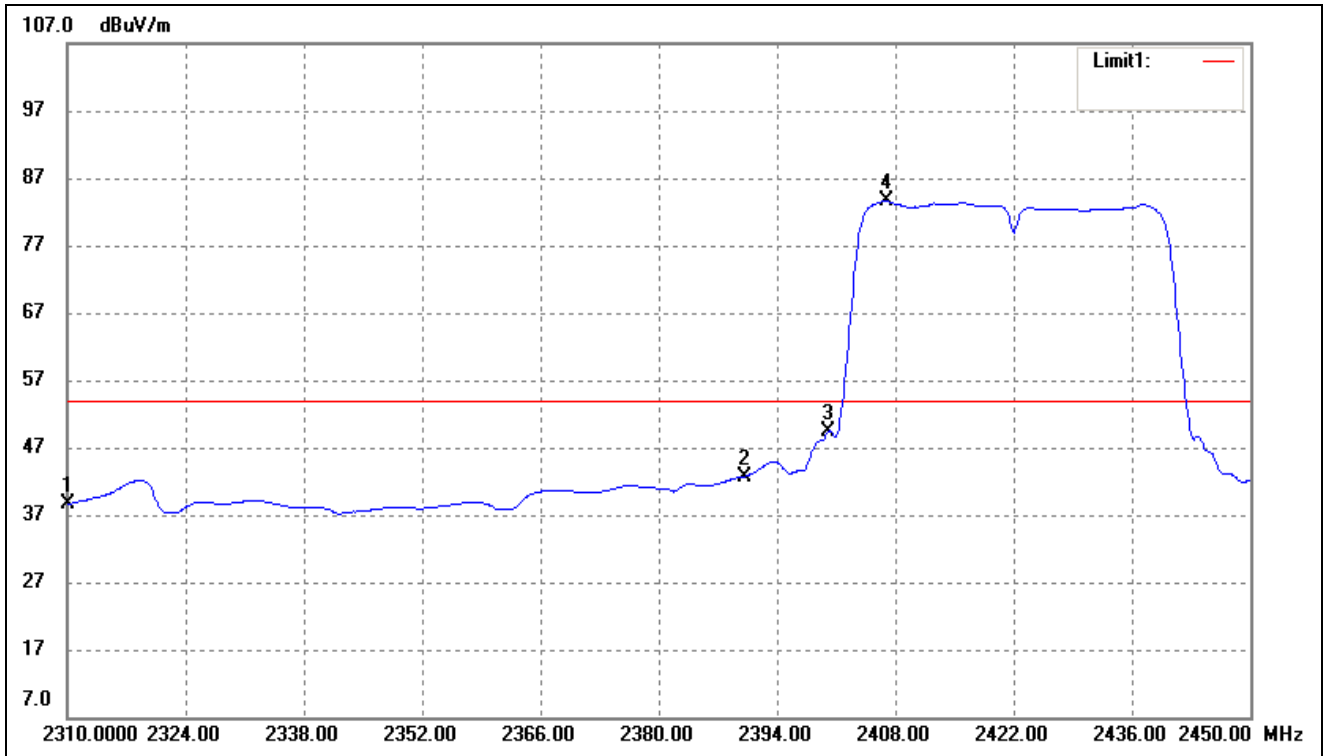
802.11n-HT20-Highest Bandedge

Vertical (Worst case)



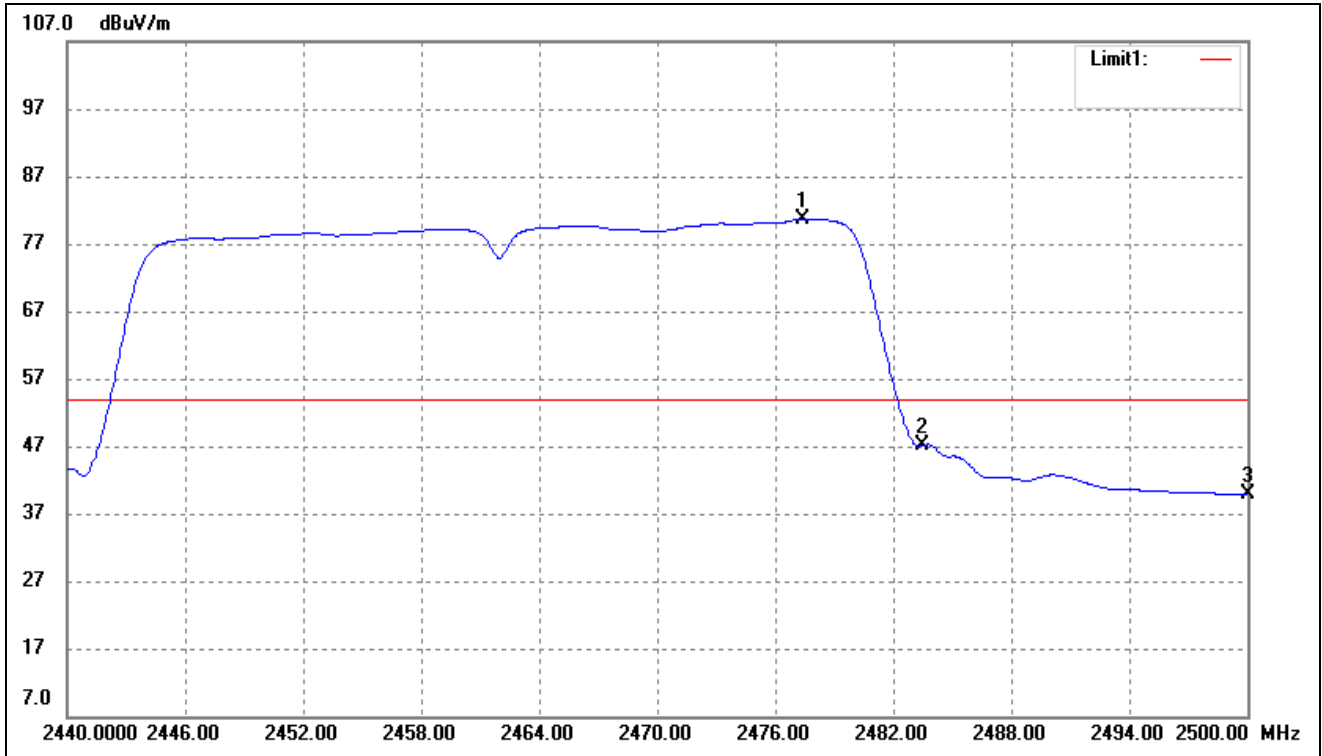
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2479.200	73.21	12.46	85.67	/	/	Average Detector
	2479.200	84.45	12.46	96.91	/	/	Peak Detector
2	2483.500	Delta = 36.74dBc		48.93	54.00	-5.07	Average Detector
	2483.500	Delta = 36.74dBc		60.17	74.00	-13.83	Peak Detector
3	2500.000	25.30	12.61	37.91	54.00	-16.09	Average Detector
	2500.000	40.66	12.61	53.27	74.00	-20.73	Peak Detector

802.11n-HT40-Lowest Bandedge



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	27.45	11.18	38.63	54.00	-15.37	Average Detector
		41.22	11.18	52.40		74.00	-21.60
2	2390.000	30.86	11.83	42.69	54.00	-11.31	Average Detector
		43.38	11.83	55.21		74.00	-18.79
3	2400.000	37.48	11.91	49.39	Delta = 34.26 dBc		Average Detector
4	2406.880	71.70	11.95	83.65			Average Detector

802.11n-HT40-Highest Bandedge



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2477.380	68.24	12.45	80.69	/	/	Average Detector
	2477.380	83.70	12.45	96.15	/	/	Peak Detector
2	2483.500	Delta = 35.47 dBc		45.22	54.00	-8.78	Average Detector
	2483.500			60.68	74.00	-13.32	Peak Detector
3	2500.000	27.39	12.61	40.00	54.00	-14.00	Average Detector
	2500.000	48.28	-3.28	45.00	74.00	-29.00	Peak Detector

Note1: The EUT will be simultaneous transmission at the Antenna 0 and Antenna 1 for the mode of 802.11n HT20 or HT40, transmission only single at Antenna 0 or Antenna 1 for 802.11b/g;

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	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

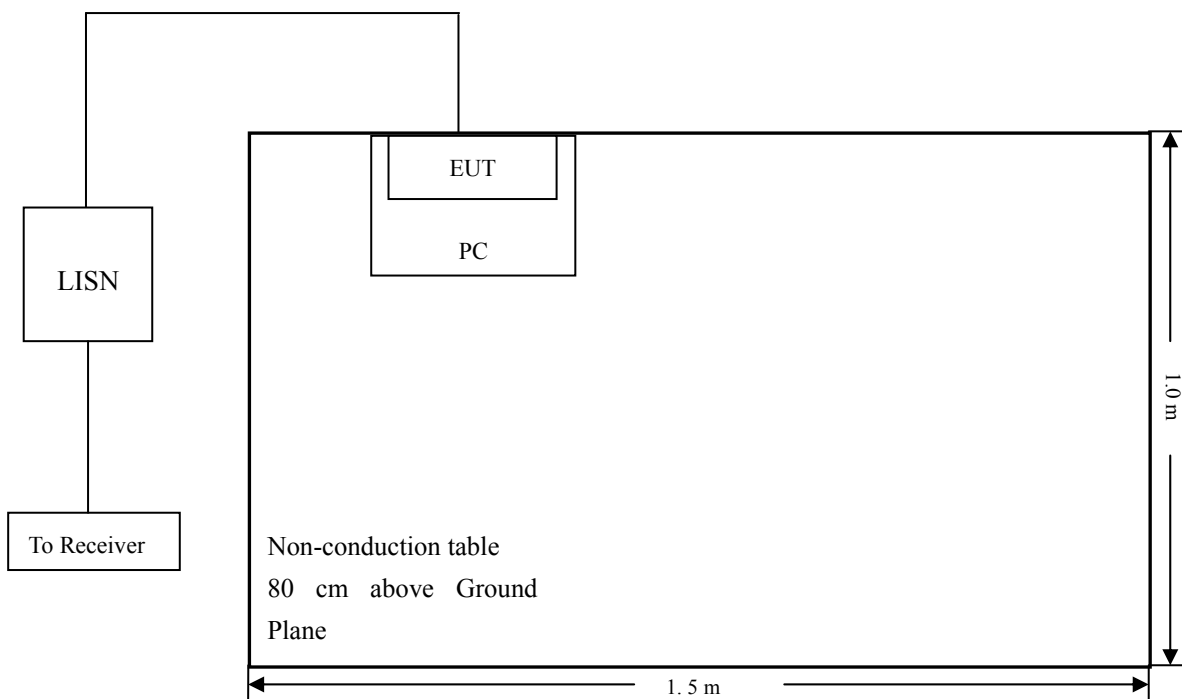
9.3 Test Procedure

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:

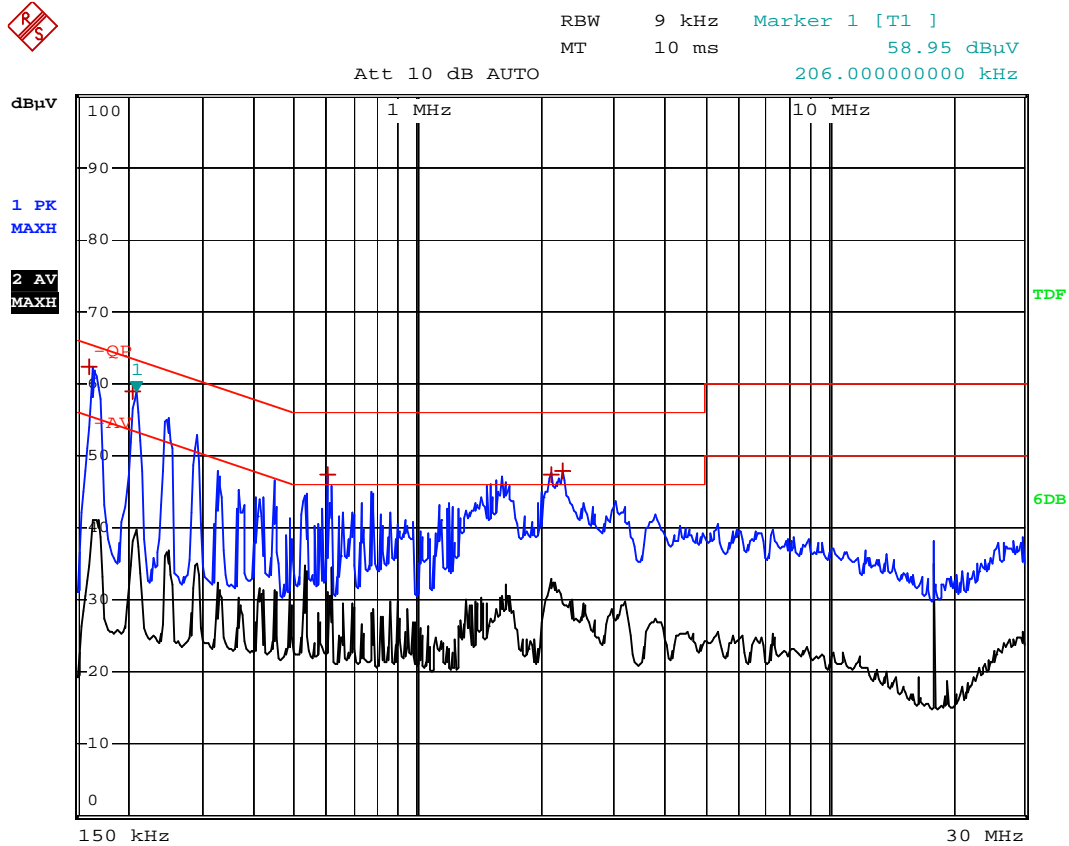
-3.06 dB at 0.162MHz in the Neutral mode, Max peak detector, 0.15-30MHz

9.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

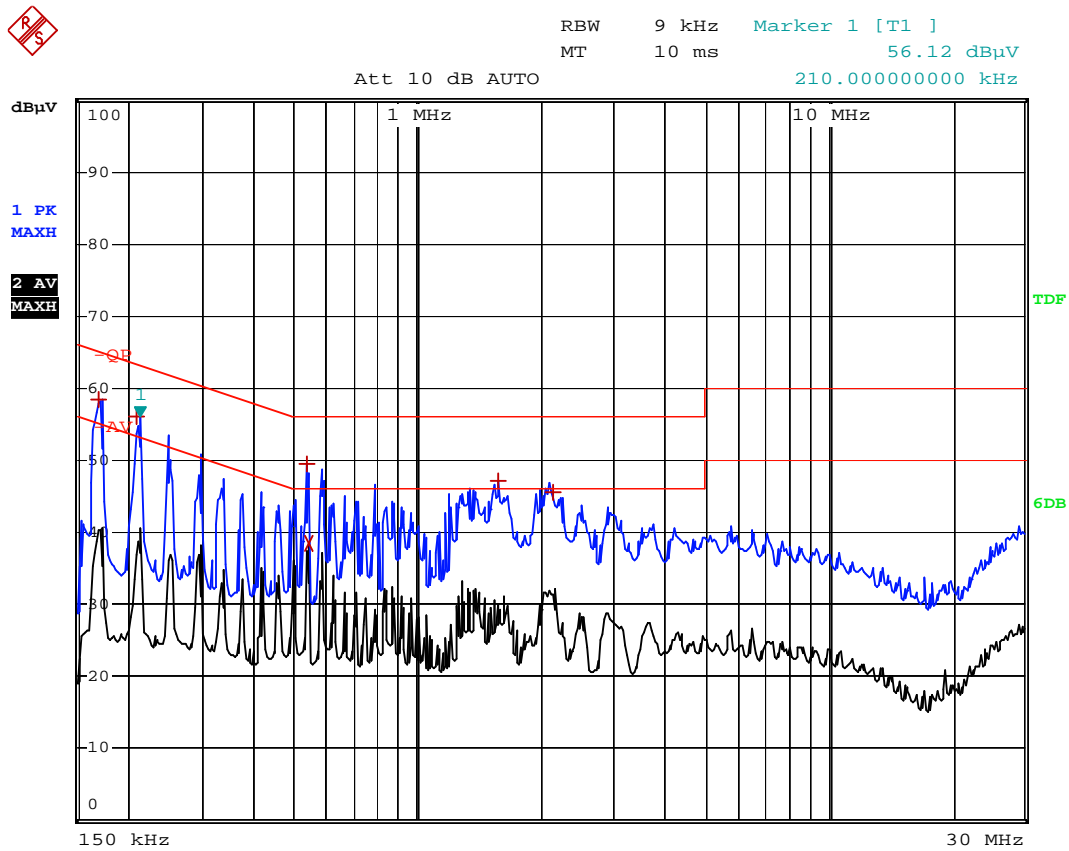
EUT: 2.4GHz WIFI Wireless LAN Adapter
 Tested Model: WNA011
 Operating Condition: Transmitting
 Comment: AC 120V/60Hz; PCI 3.3V

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)				
Trace1:		-QP		
Trace2:		-AV		
Trace3:		---		
TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	162 kHz	62.29	-3.06
1	Max Peak	206 kHz	58.94	-4.41
1	Max Peak	606 kHz	47.33	-8.66
1	Max Peak	2.114 MHz	47.42	-8.57
1	Max Peak	2.25 MHz	47.78	-8.21

Test Specification: Live



EDIT PEAK LIST (Prescan Results)			
Trace1:		-QP	
Trace2:		-AV	
Trace3:		---	
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	170 kHz	58.47	-6.48
1 Max Peak	210 kHz	56.11	-7.08
1 Max Peak	538 kHz	49.40	-6.59
2 Average	542 kHz	38.49	-7.50
1 Max Peak	1.57 MHz	47.04	-8.95
1 Max Peak	2.134 MHz	45.59	-10.40

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