

FCC Part 15C

Measurement and Test Report

For

AsiaRF Co., Ltd.

1F., No.2, Lane45, Shuiyuan Street., Yonghe Dist, New Taipei City 234, Taiwan

FCC ID: TKZAWUHN2408

Report Concerns: Original Report	Equipment Type: Top Catcher CC Tactical
Model:	<u>AWUHN2408</u>
Report No.:	<u>STR12048085I-1</u>
Test Date:	<u>2012-04-17 to 2012-05-22</u>
Issue Date:	<u>2012-05-23</u>
Tested By:	<u>Seven Song / Engineer</u> <i>Seven Song</i>
Reviewed By:	<u>Lahm Peng / EMC Manager</u> <i>Lahm peng</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 SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: AsiaRF Co., Ltd.
 Address of applicant: 1F., No.2, Lane45, Shuiyuan Street., Yonghe Dist, New Taipei City 234, Taiwan

Manufacturer: AsiaRF Co., Ltd.
 Address of manufacturer: 1F., No.2, Lane45, Shuiyuan Street., Yonghe Dist, New Taipei City 234, Taiwan

General Description of E.U.T

Items	Description
EUT Description:	Top Catcher CC Tactical
Trade Name:	AsiaRF
Model No.:	AWUHN2408
Add Model:	CC Tactical
Rated Voltage:	USB DC 5V
RF Output Power	Max. 20.66dBm (Conducted)
Frequency range:	802.11b/g/n-HT20: 2412MHz~2462MHz 802.11n-HT40: 2422MHz~2452MHz
Number of channels:	802.11b/g/n-HT20: 11 802.11n-HT40: 7
Channel Separation:	5MHz
Antenna Gain:	Antenna 1: 15 dBi (Length 129 cm) Antenna 2: 8 dBi (Length 52 cm)
Type of Antenna:	Detachable Antenna

Note: The test data is gathered from a production sample, provided by the manufacture. The others models listed in the report have different appearance only of AWUHN2408 without circuit and electronic construction changed, declared by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the AsiaRF 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 equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted with Low Channel, Middle Channel and High Channel, accordingly in reference to the Operating Instructions.

1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

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

1.5 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components. The test software, provided by the customer, is started while the EUT is on to simulate the normal work. under the Windows XP terminal.

1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	NP-R20	124V93FP30082V

1.7 EUT Cable List and Details

Cable Description	Length (m)	Shielded/Unshielded	With Core/Without Core
USB Cable	4.0	Shielded	With Core

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 15.203; § 15.247(c)(1)(i)	Antenna Requirement	Compliant
§ 15.207	Conducted Emission	Compliant
§ 15.247(e)	Power Spectral Density	Compliant
§ 15.247(a)(2)	6 dB Bandwidth	Compliant
§ 15.247(b)(3)	Power Output	Compliant
§ 15.209(a)(d)	Radiated Emission	Compliant
§ 15.247(d)	Band edge	Compliant

3. ANTENNA REQUIREMENT

3.1 Standard Applicable

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

3.2 Test Result

This product has a detachable and unique 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	2012-03-28	2013-03-27
Attenuator	ATTEN	ATS100-4-20	/	2012-03-28	2013-03-27

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

4.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW, VBW=3KHz, Span = 20MHz.
4. Repeat above procedures until all frequency measured was complete.

4.4 Environmental Conditions

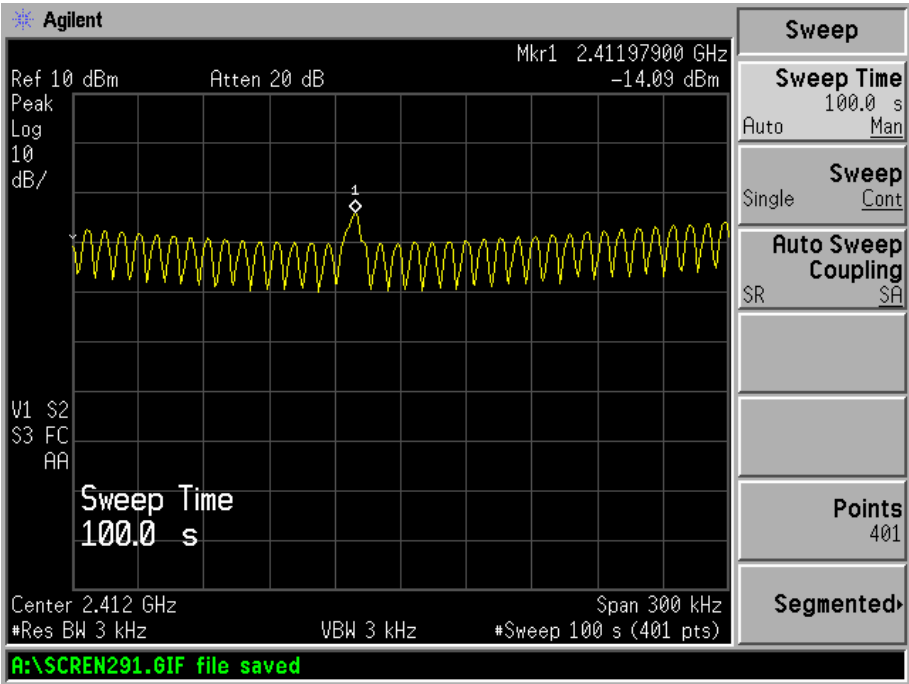
Temperature:	20° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

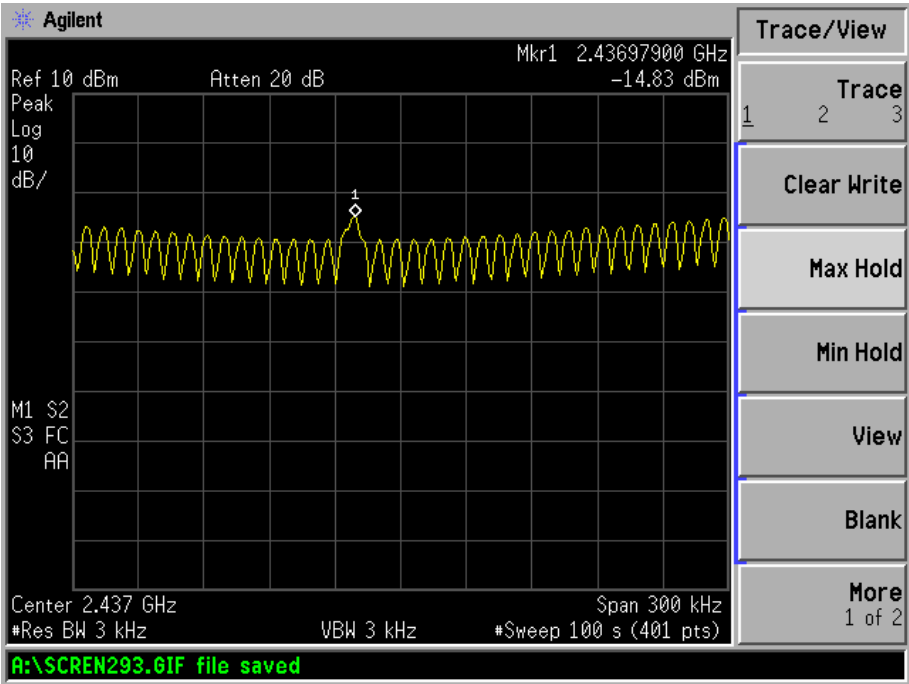
Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-14.09	8
	Middle channel (2437MHz)	-14.83	8
	High channel (2462MHz)	-13.91	8
802.11g	Low channel (2412MHz)	-11.39	8
	Middle channel (2437MHz)	-12.49	8
	High channel (2462MHz)	-13.55	8
802.11n-HT20	Low channel (2412MHz)	-13.26	8
	Middle channel (2437MHz)	-13.87	8
	High channel (2462MHz)	-12.59	8
802.11n-HT40	Low channel (2422MHz)	-13.82	8
	Middle channel (2437MHz)	-14.90	8
	High channel (2452MHz)	-13.45	8

For 802.11b

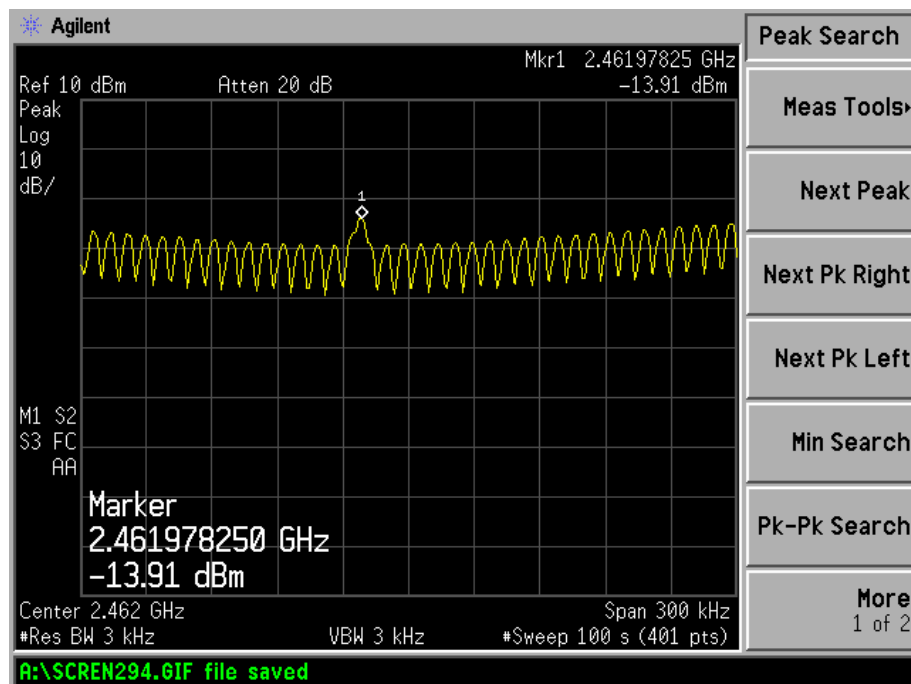
Low Channel:



Middle Channel:

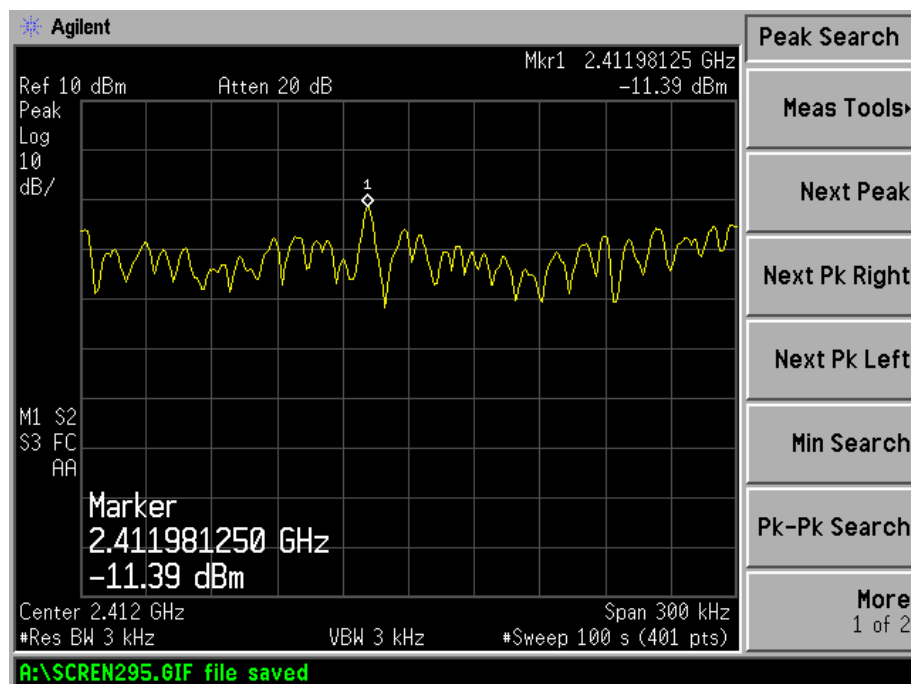


High Channel:

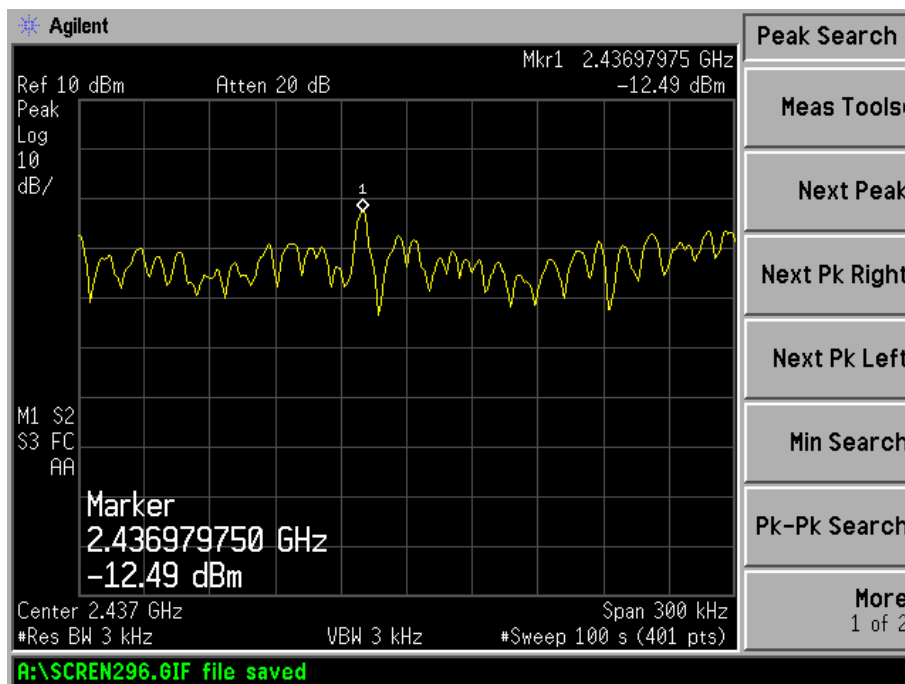


For 802.11g

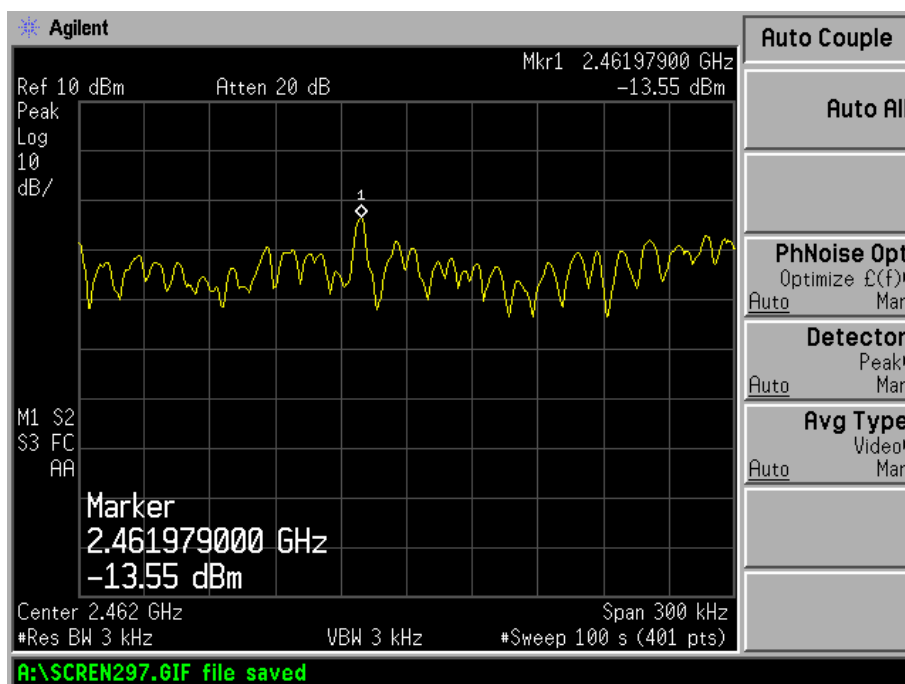
Low Channel:



Middle Channel:

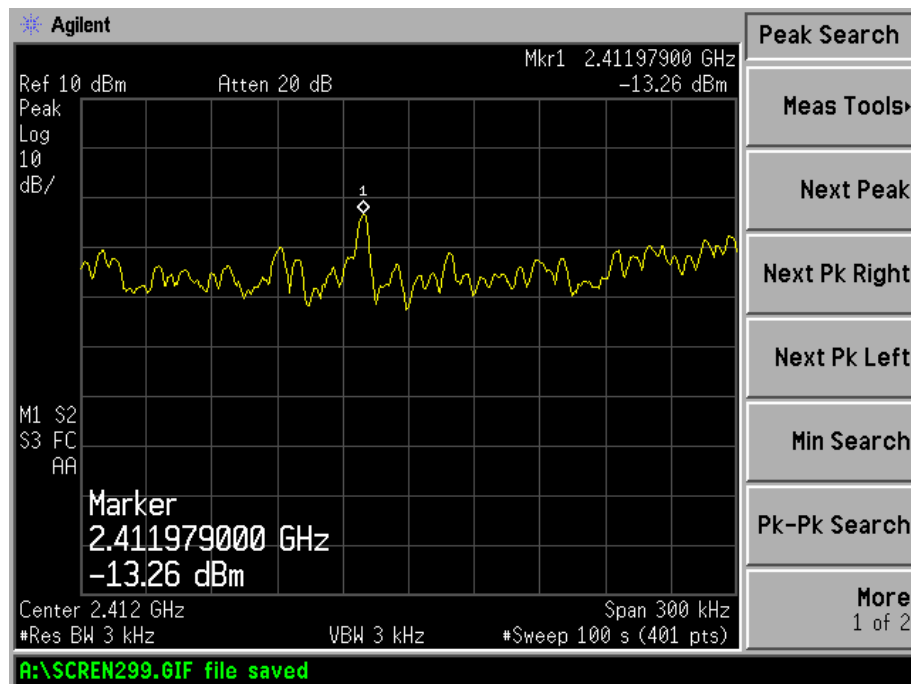


High Channel:

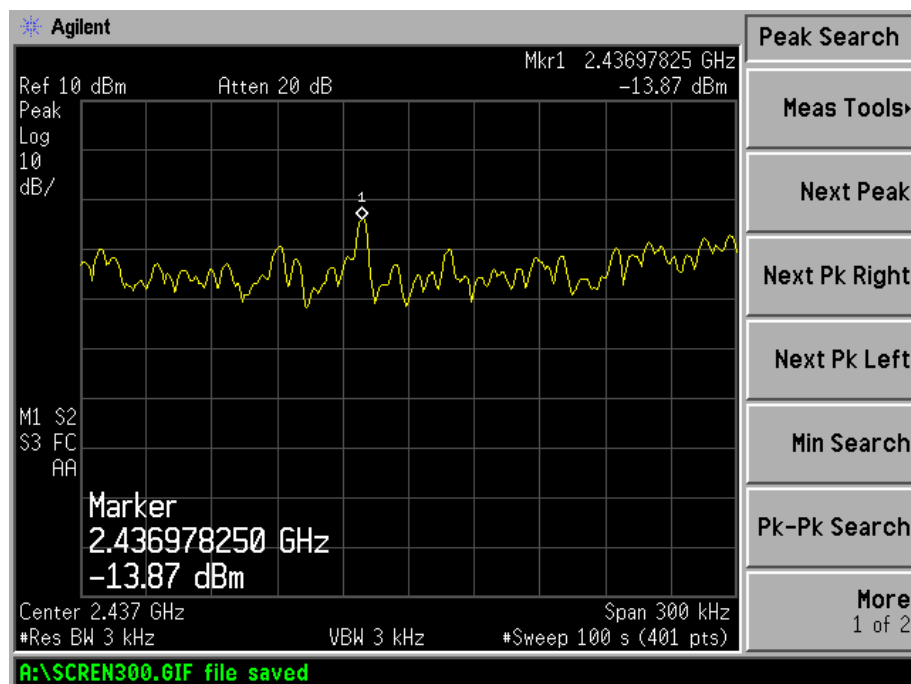


For 802.11n-HT20

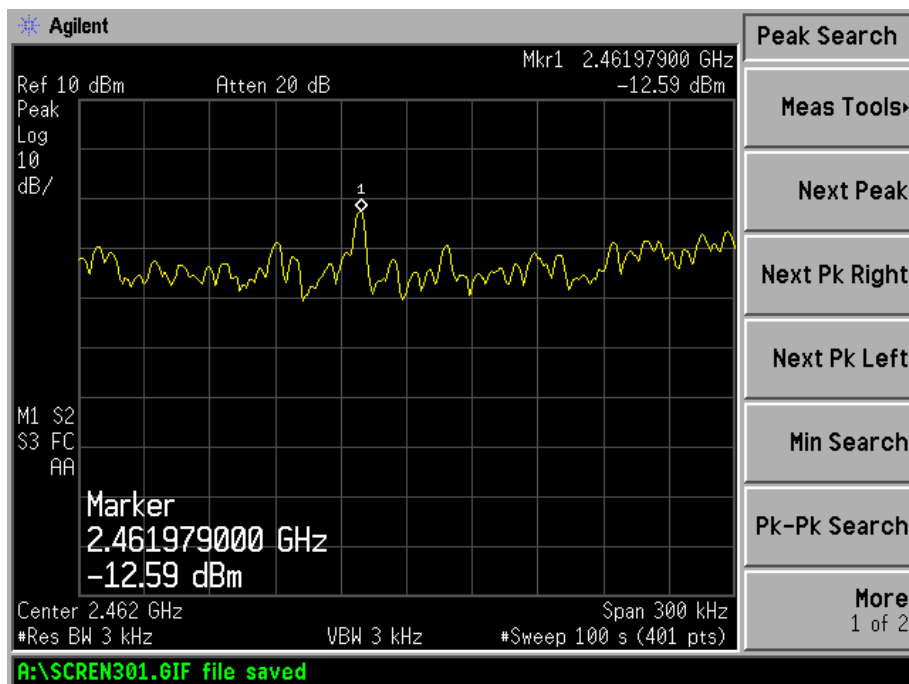
Low Channel:



Middle Channel:

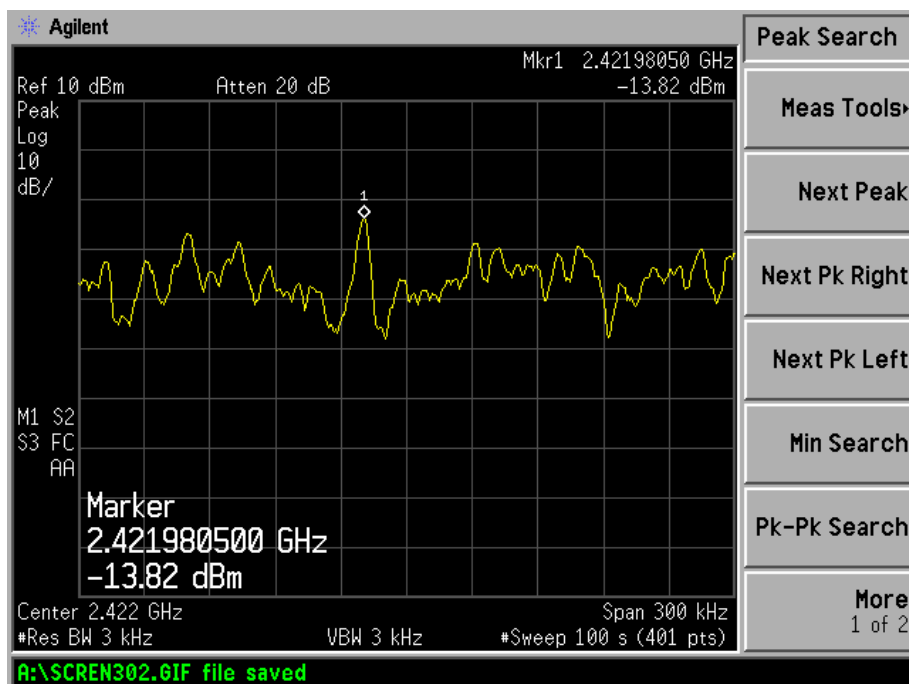


High Channel:

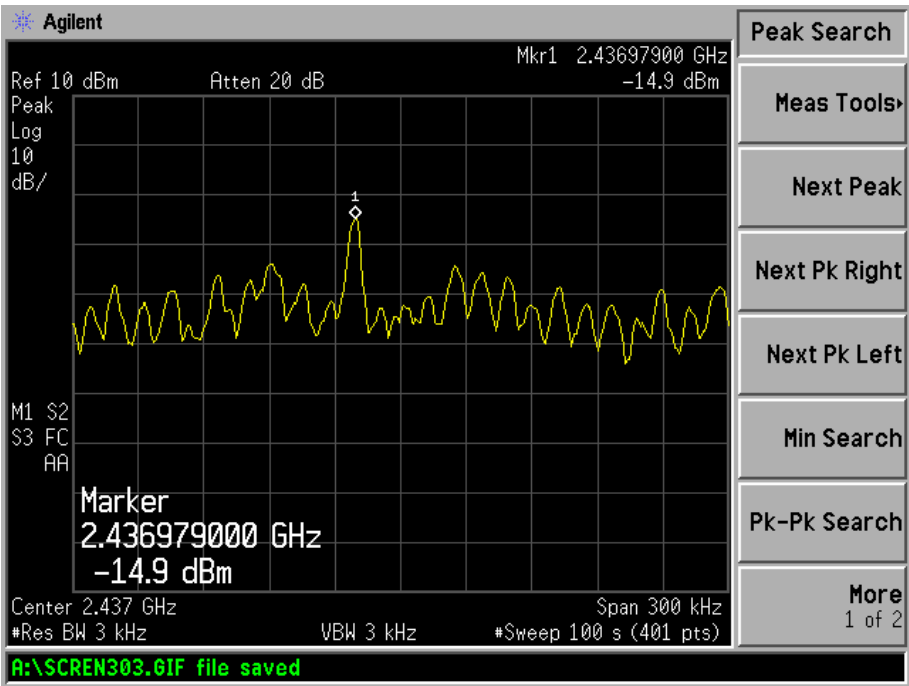


For 802.11n-HT40

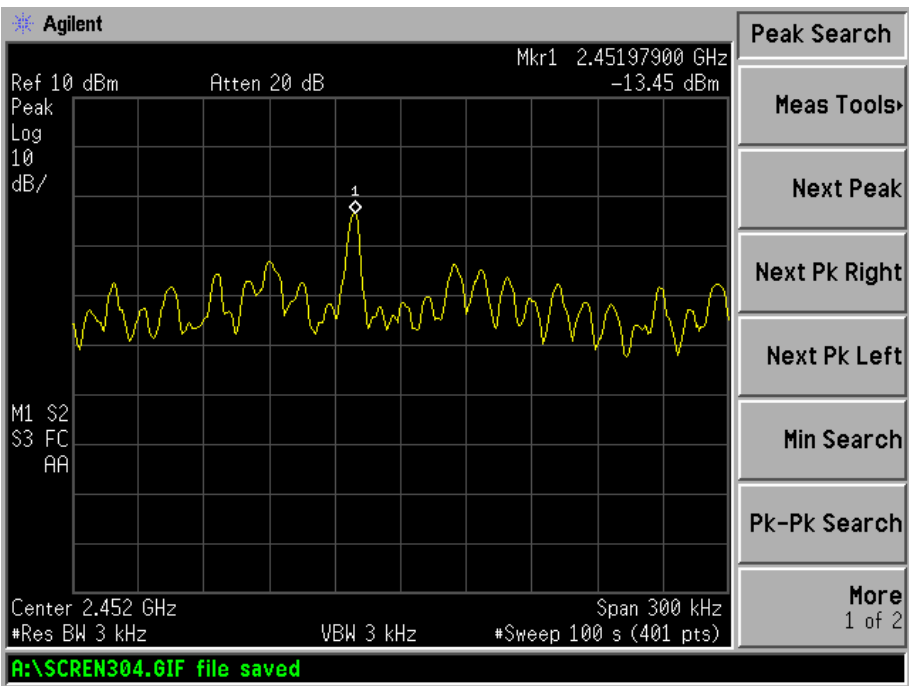
Low Channel:



Middle Channel:



High Channel:



5. 6-dB 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	2012-03-28	2013-03-27
Attenuator	ATTEN	ATS100-4-20	/	2012-03-28	2013-03-27

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

5.4 Environmental Conditions

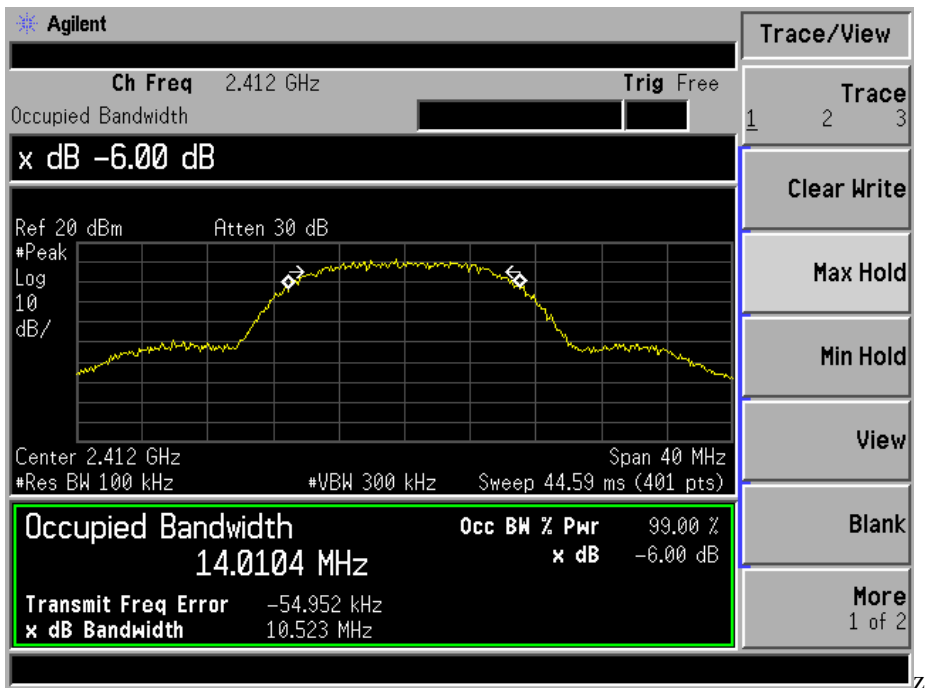
Temperature:	24° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

5.5 Summary of Test Results/Plots

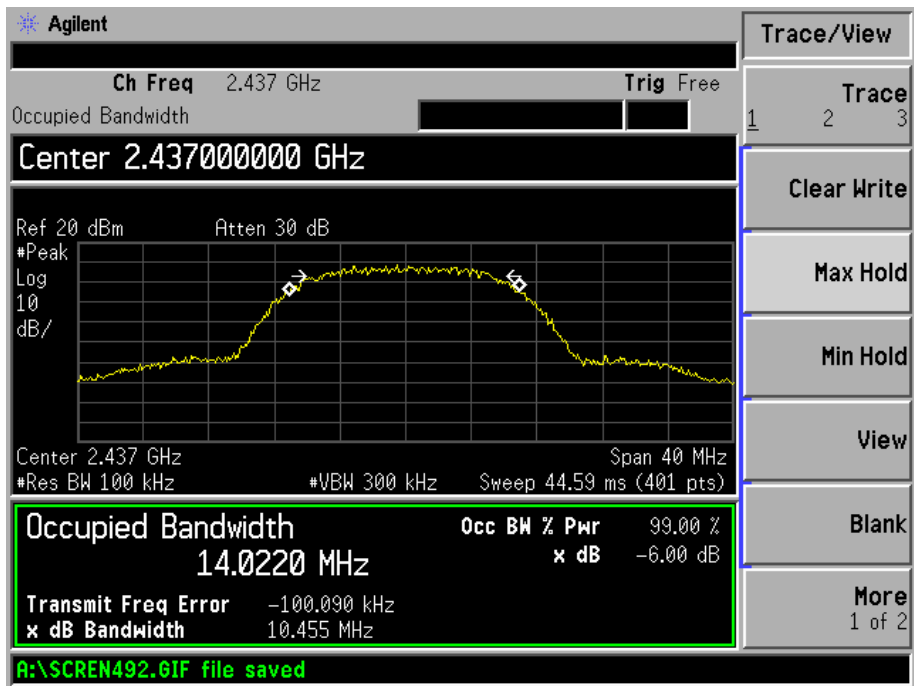
Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	10523	500
	2437	10455	500
	2462	10565	500
802.11g	2412	16573	500
	2437	16554	500
	2462	16559	500
802.11n-HT20	2412	17705	500
	2437	17714	500
	2462	17710	500
802.11n-HT40	2422	36353	500
	2437	36127	500
	2452	36083	500

For 802.11b

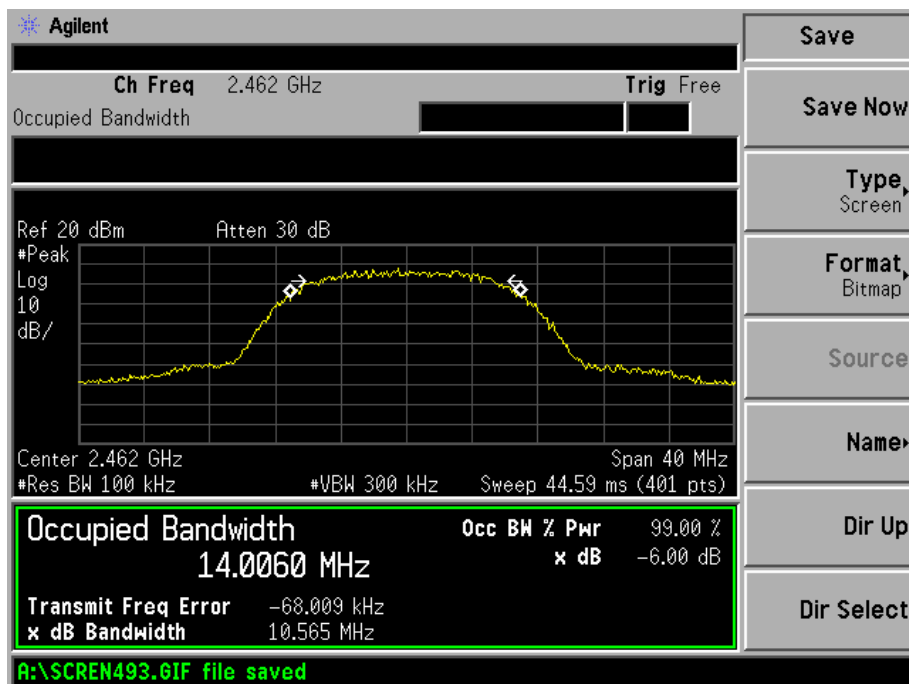
Low Channel:



Mid Channel:

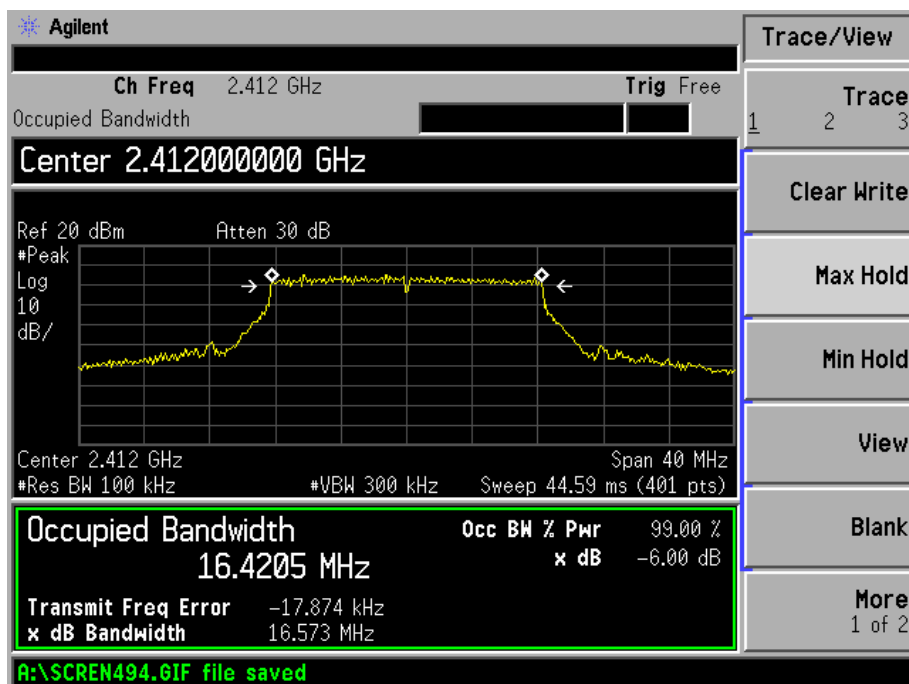


High Channel:

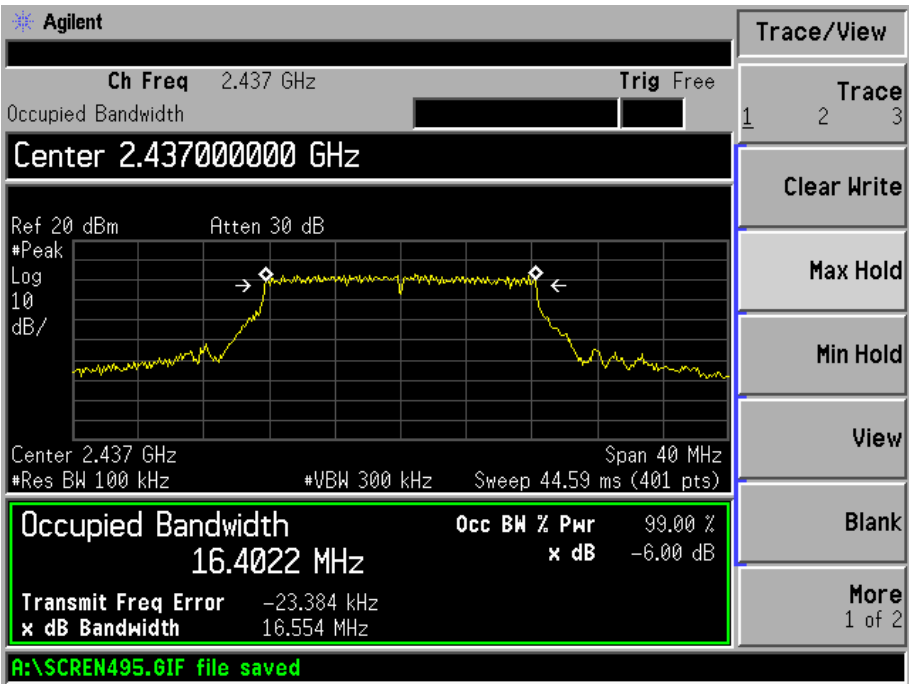


For 802.11g

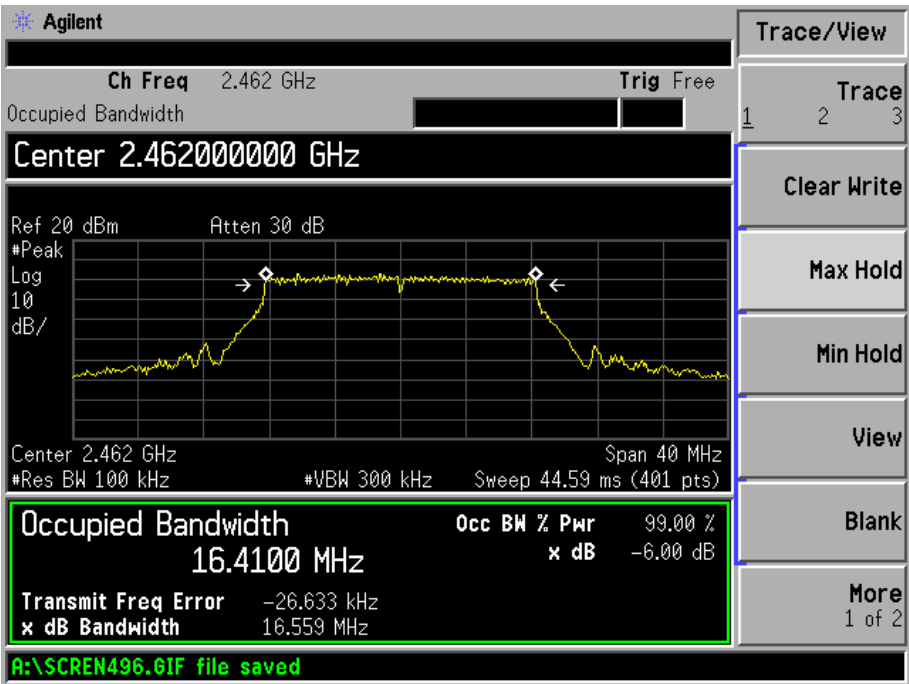
Low Channel:



Mid Channel:

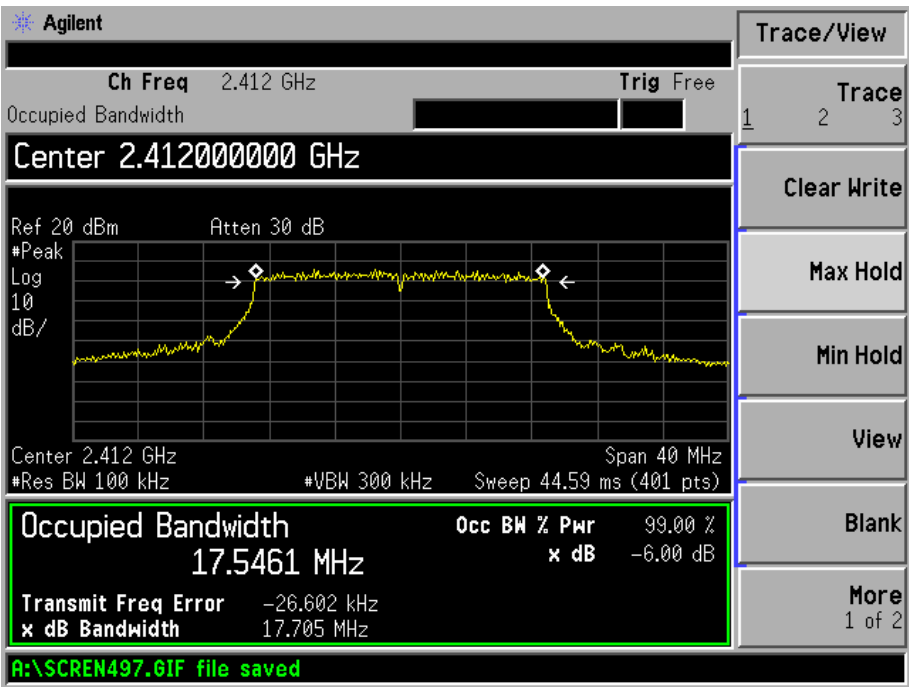


High Channel:

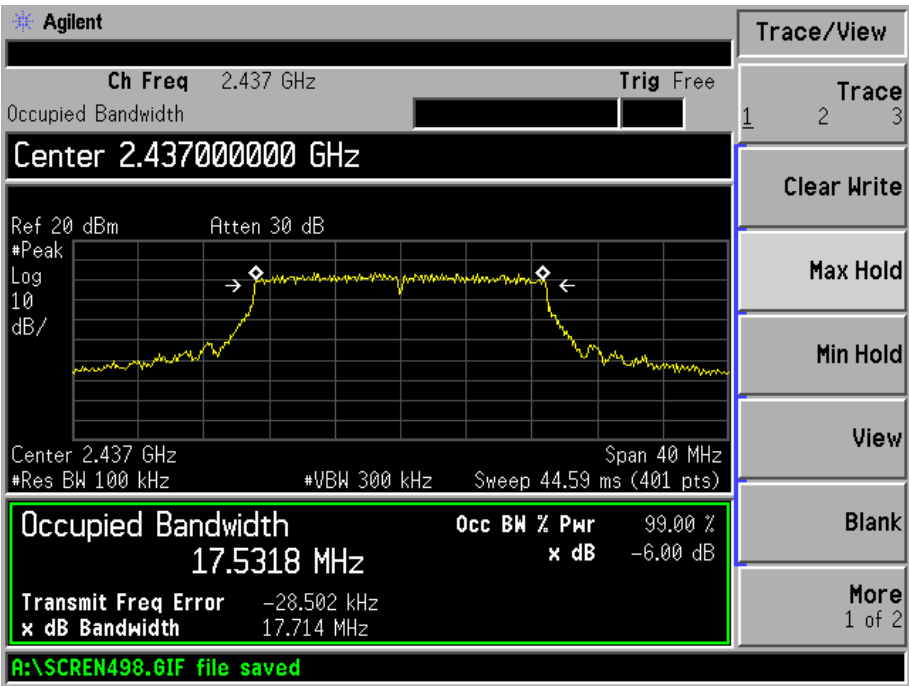


For 802.11n-HT20

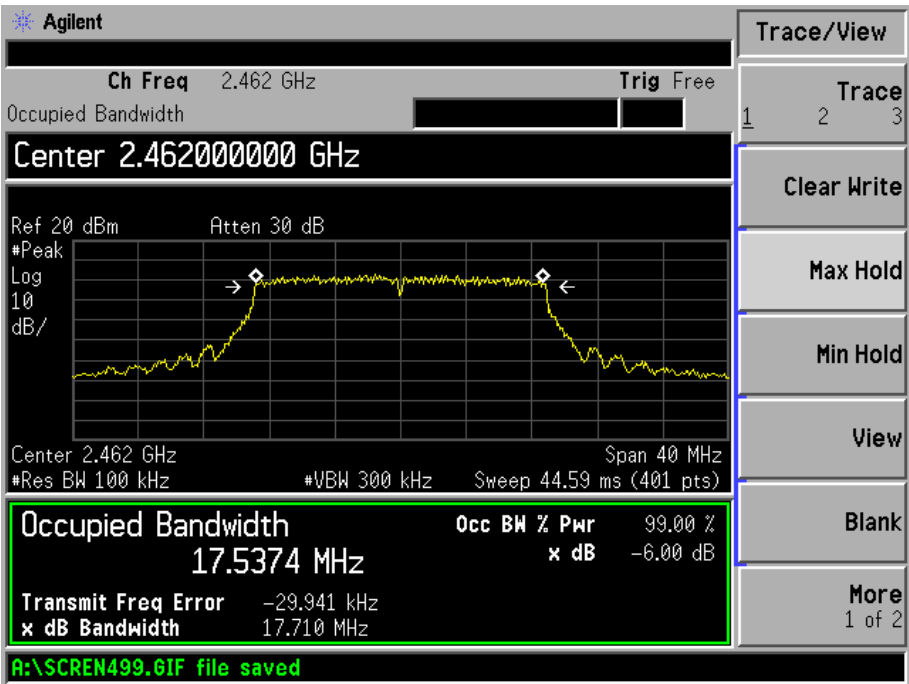
Low Channel:



Mid Channel:

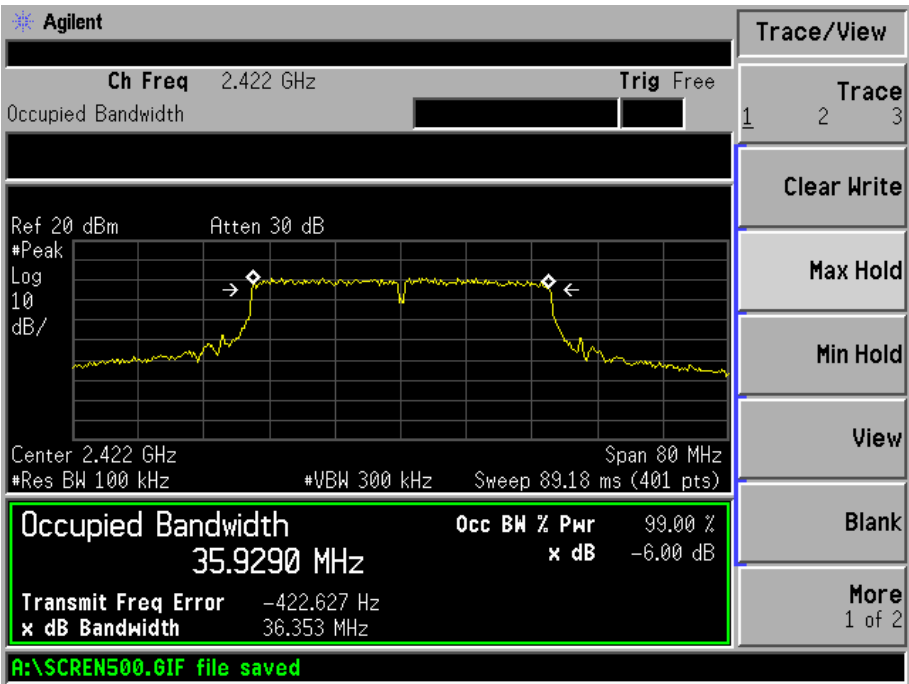


High Channel:

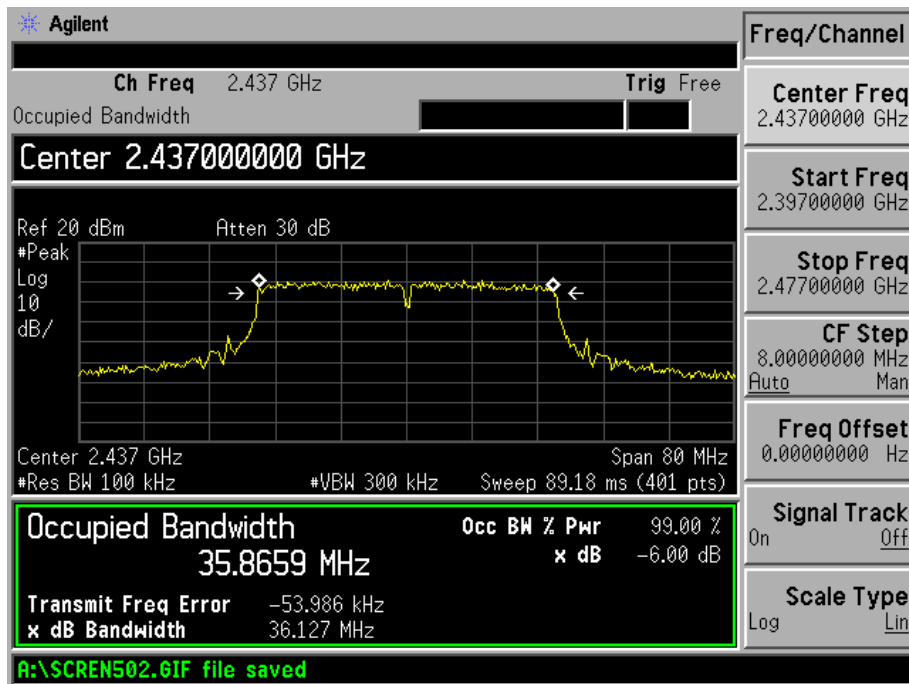


For 802.11n-HT40

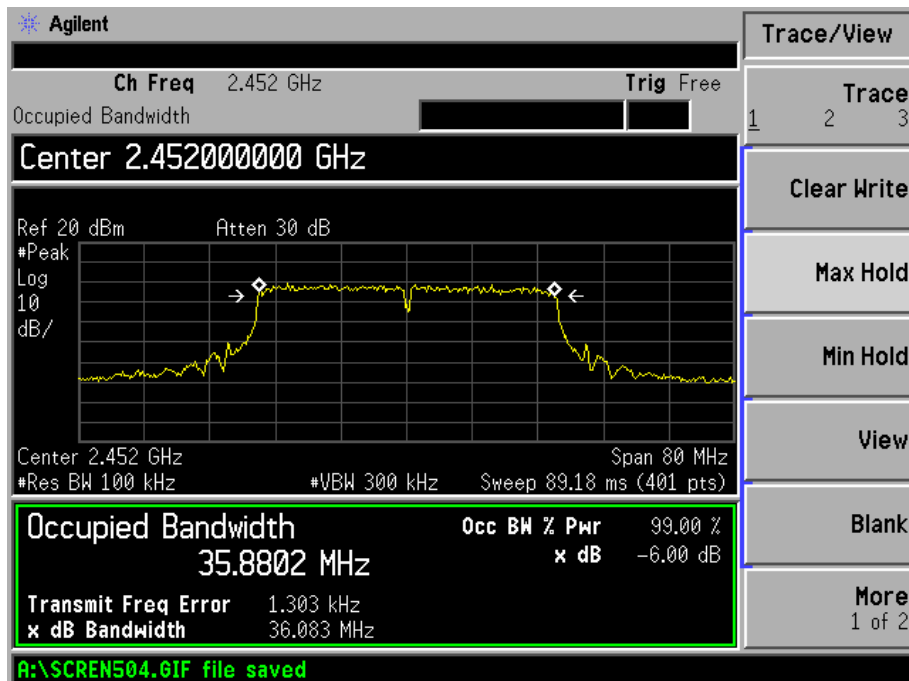
Low Channel:



Mid Channel:



High Channel:



6. POWER OUTPUT

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	2012-03-28	2013-03-27
Attenuator	ATTEN	ATS100-4-20	/	2012-03-28	2013-03-27

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 (2005), the method #1 of the power output option2 was used, the following is the measurement procedure.

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

6.4 Environmental Conditions

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

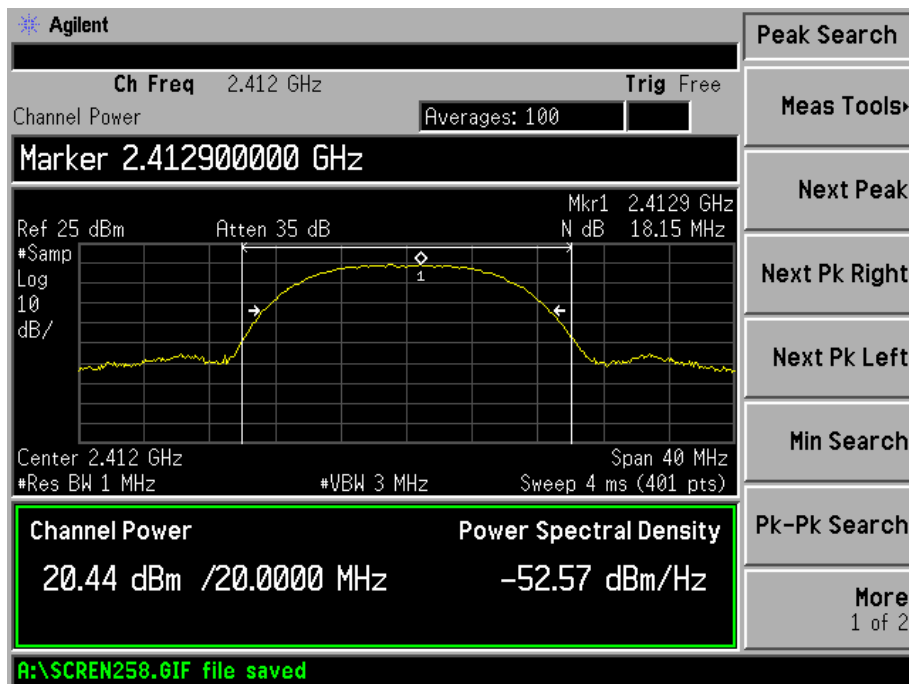
6.5 Summary of Test Results/Plots

Test mode	Frequency MHz	Reading dBm	Output power W	Limit W
802.11b (1M Short)	2412	20.44	0.1107	0.1259
	2437	20.42	0.1102	0.1259
	2462	20.66	0.1164	0.1259
802.11b (11M Short)	2412	20.41	0.1099	0.1259
	2437	20.52	0.1127	0.1259
	2462	20.53	0.1130	0.1259
802.11b (1M Short)	2412	20.52	0.1127	0.1259
	2437	20.53	0.1130	0.1259
	2462	20.50	0.1122	0.1259
802.11b (11M Short)	2412	20.54	0.1132	0.1259
	2437	20.52	0.1127	0.1259
	2462	20.58	0.1143	0.1259
802.11g (6M)	2412	18.14	0.0652	0.1259
	2437	18.35	0.0684	0.1259
	2462	18.10	0.0646	0.1259
802.11g (54M)	2412	18.23	0.0665	0.1259
	2437	18.25	0.0668	0.1259
	2462	17.90	0.0617	0.1259
802.11n-HT20	2422	18.14	0.0652	0.1259
	2437	18.35	0.0684	0.1259
	2452	18.10	0.0646	0.1259
802.11n-HT40	2422	17.45	0.0556	0.1259
	2437	17.25	0.0531	0.1259
	2452	17.61	0.0577	0.1259

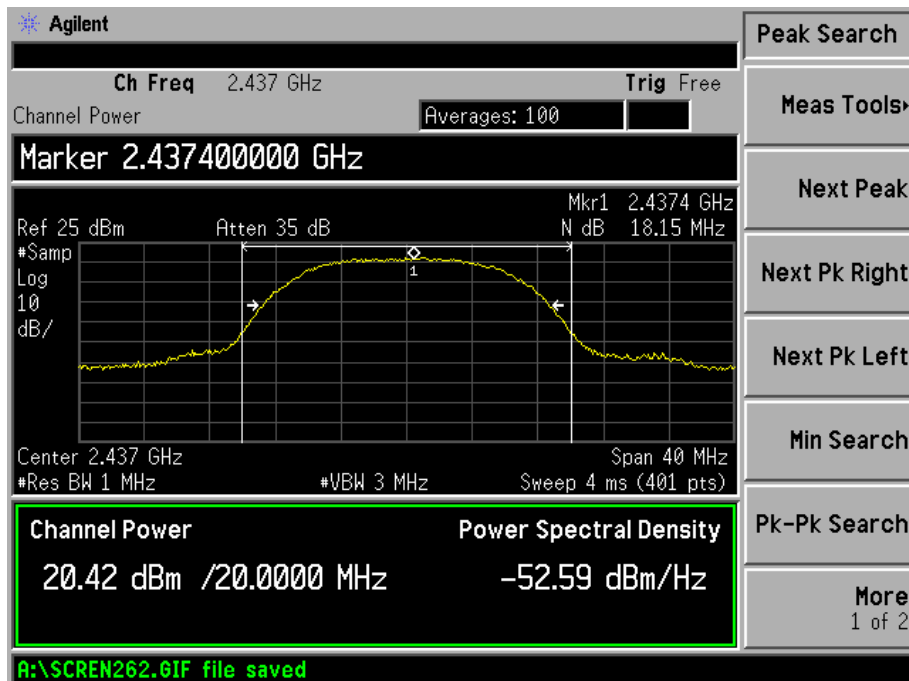
Maximum antenna gain = 15 dBi Limit = 30 - (15-6) = 21 dBm (0.1259 W)

For 802.11b_1M Short rate

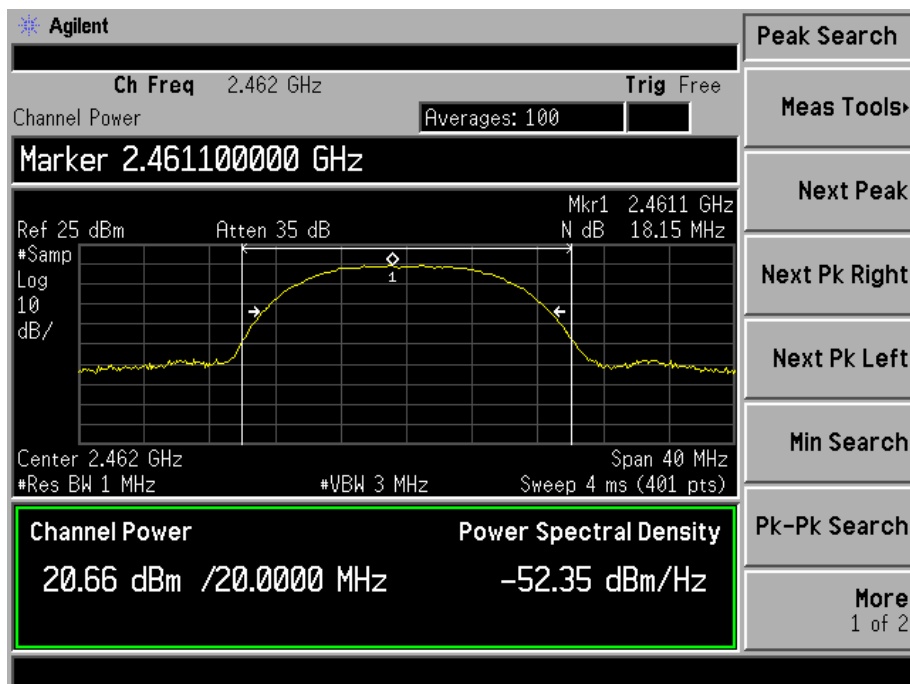
Low Channel:



Middle Channel:

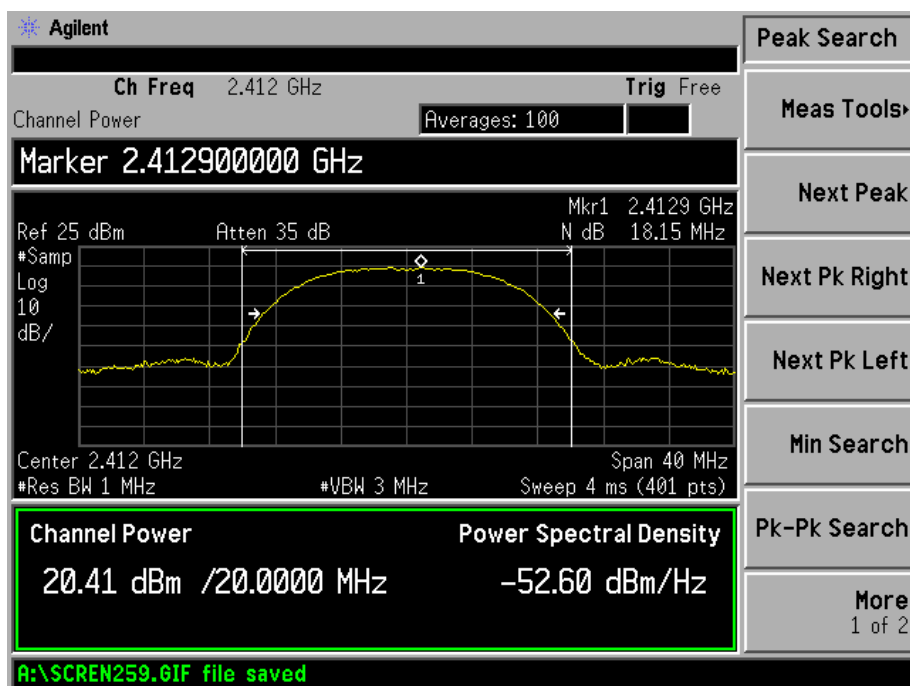


High Channel:

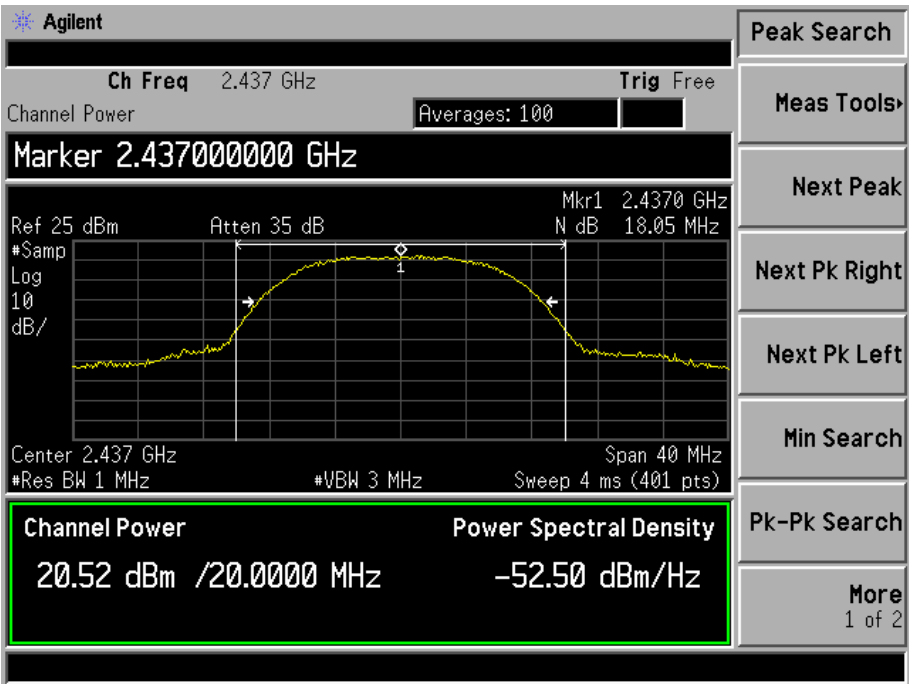


For 802.11b_11M Short rate

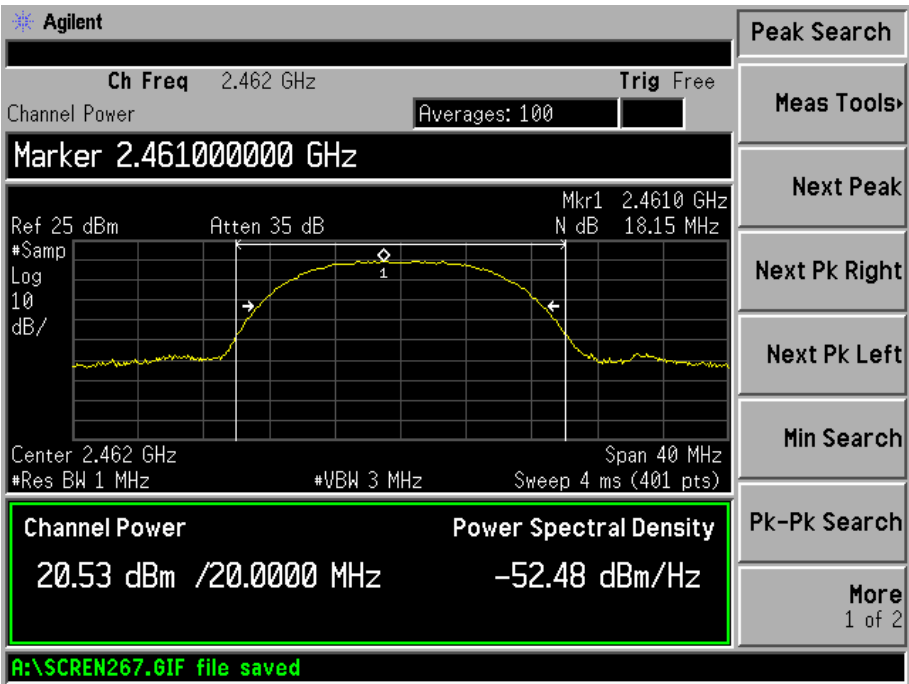
Low Channel:



Middle Channel:

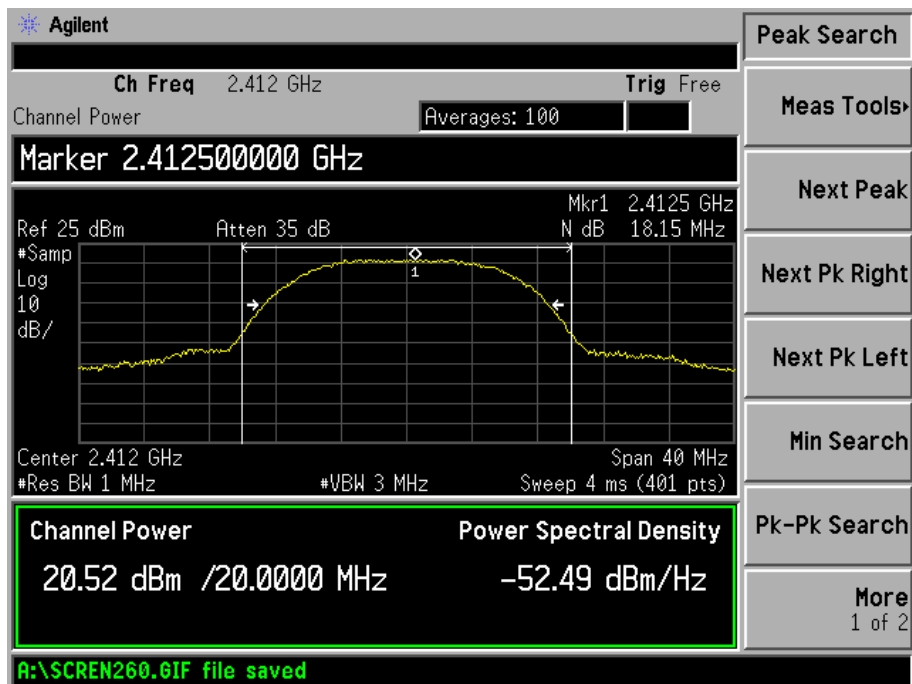


High Channel:

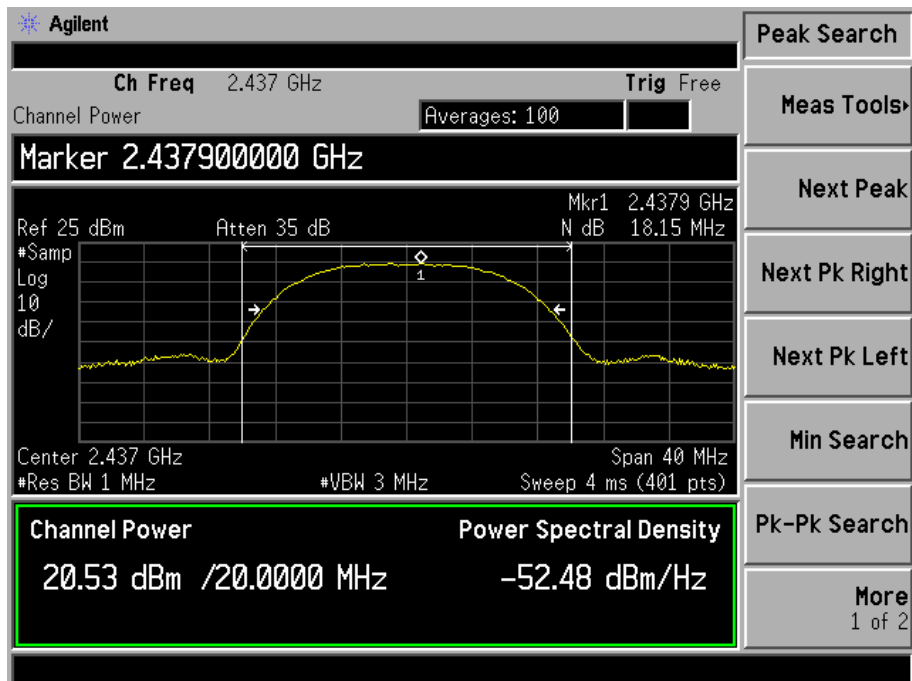


For 802.11b_1M Long rate

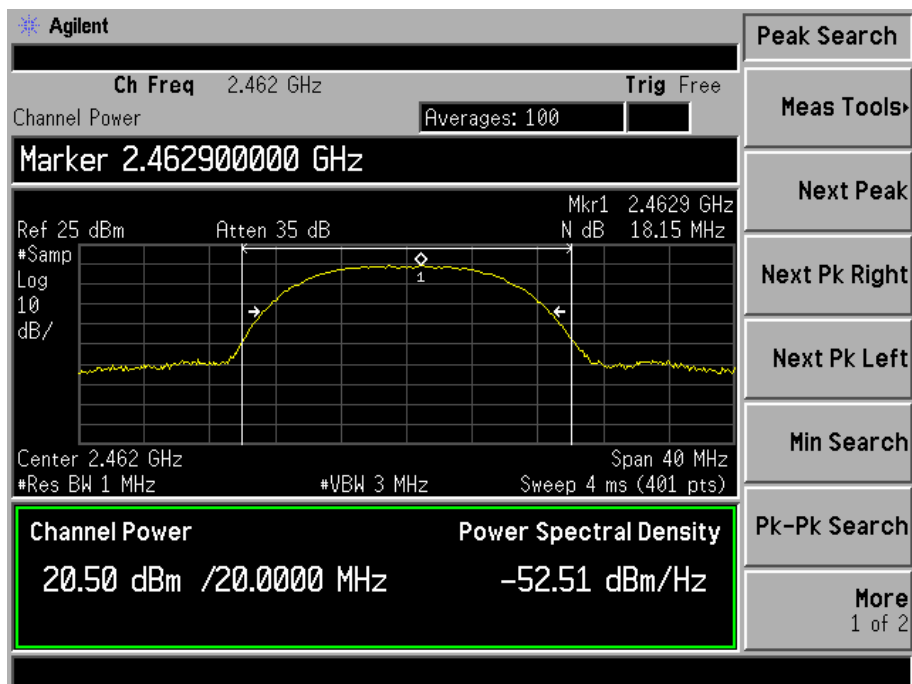
Low Channel:



Middle Channel:

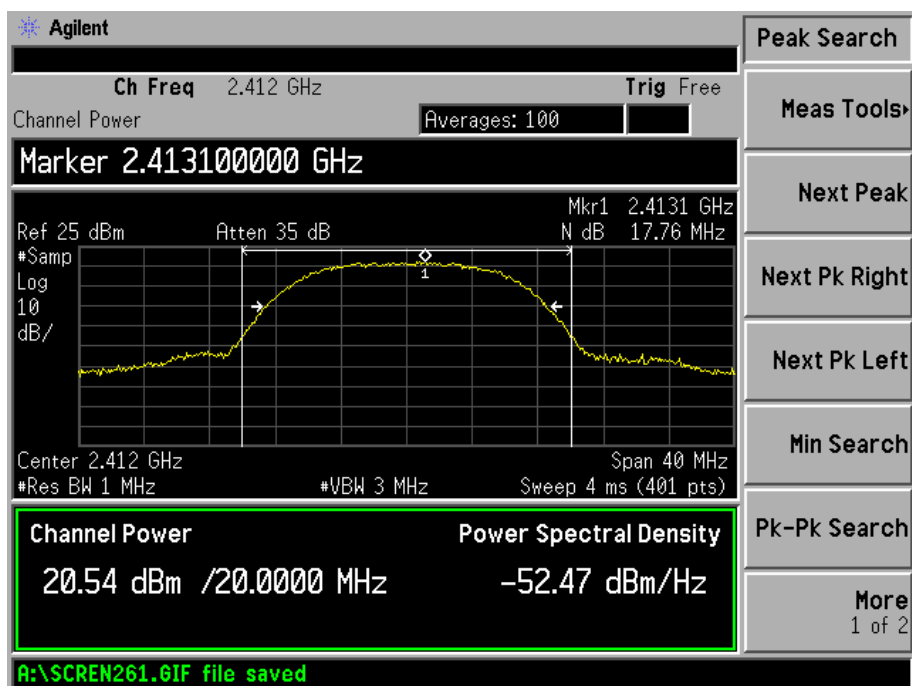


High Channel:

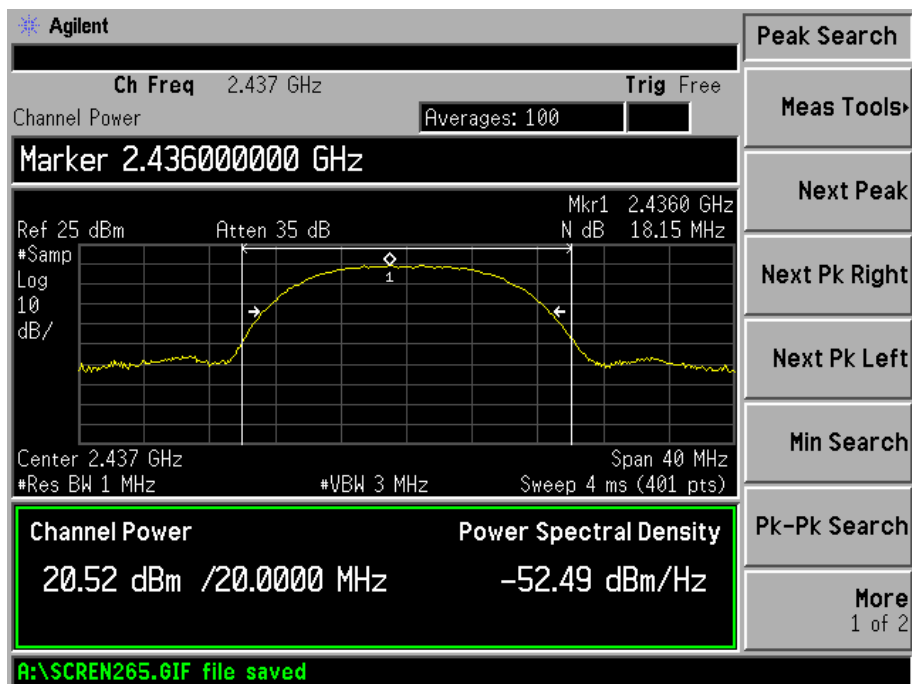


For 802.11b_11M Long rate

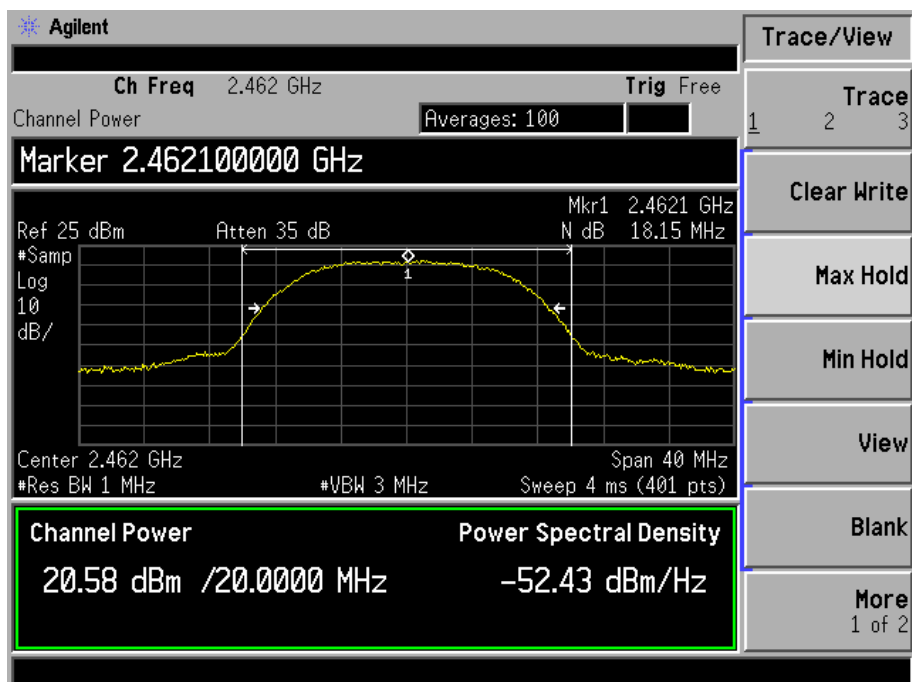
Low Channel:



Middle Channel:

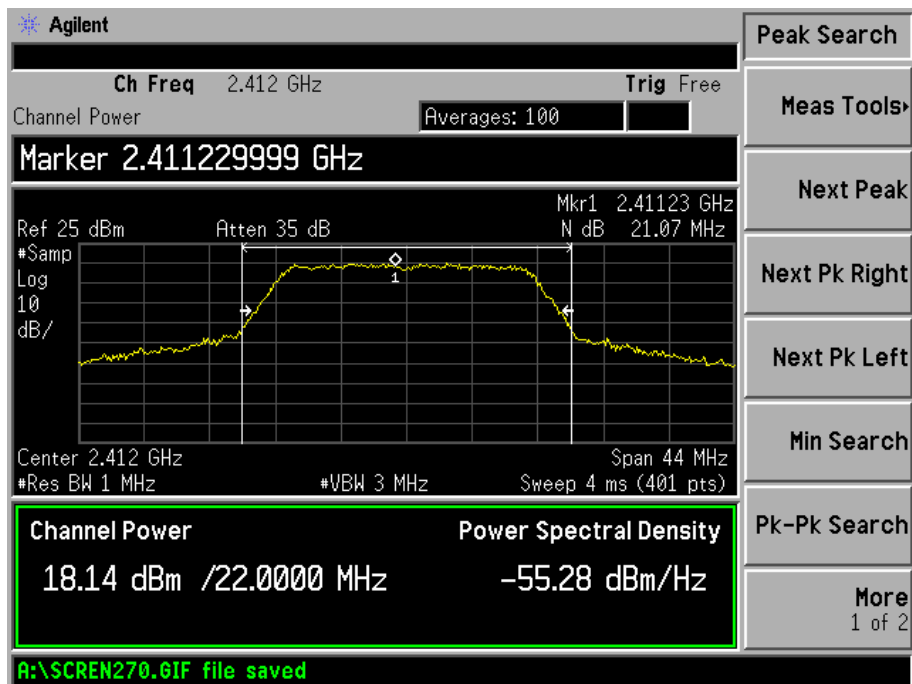


High Channel:

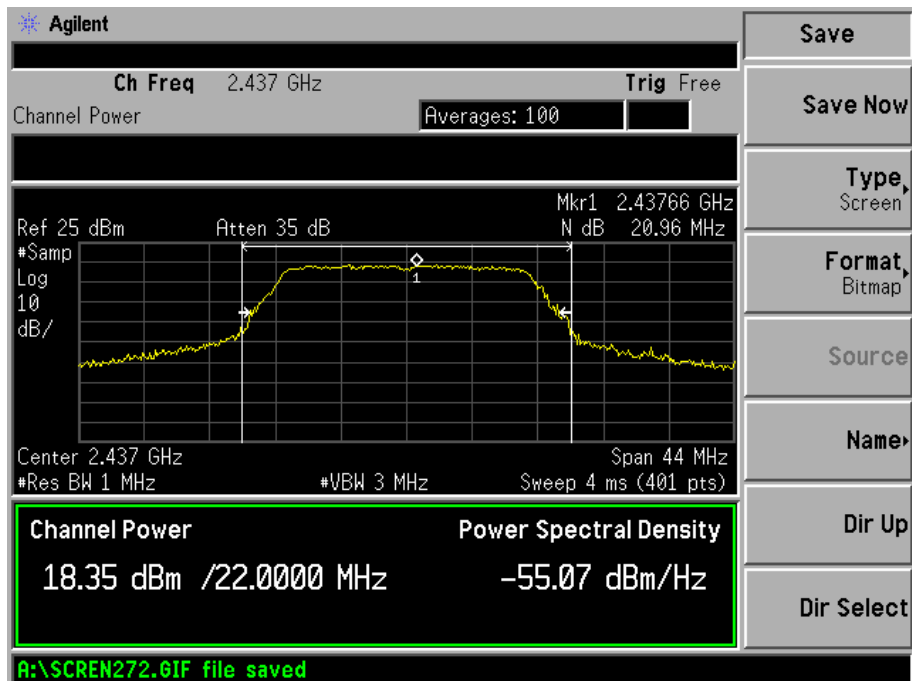


For 802.11g_6M rate

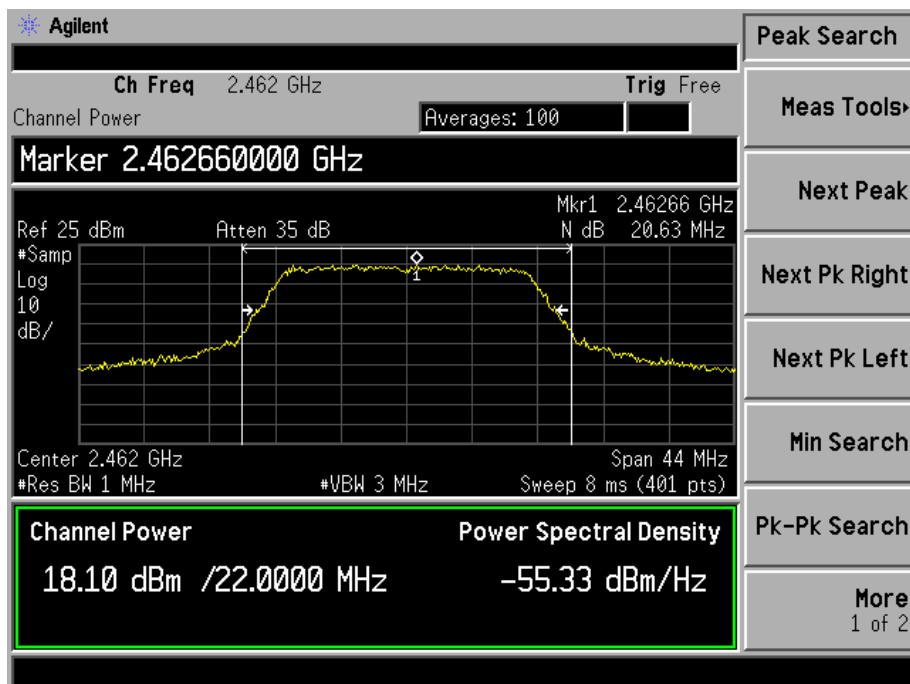
Low Channel:



Middle Channel:

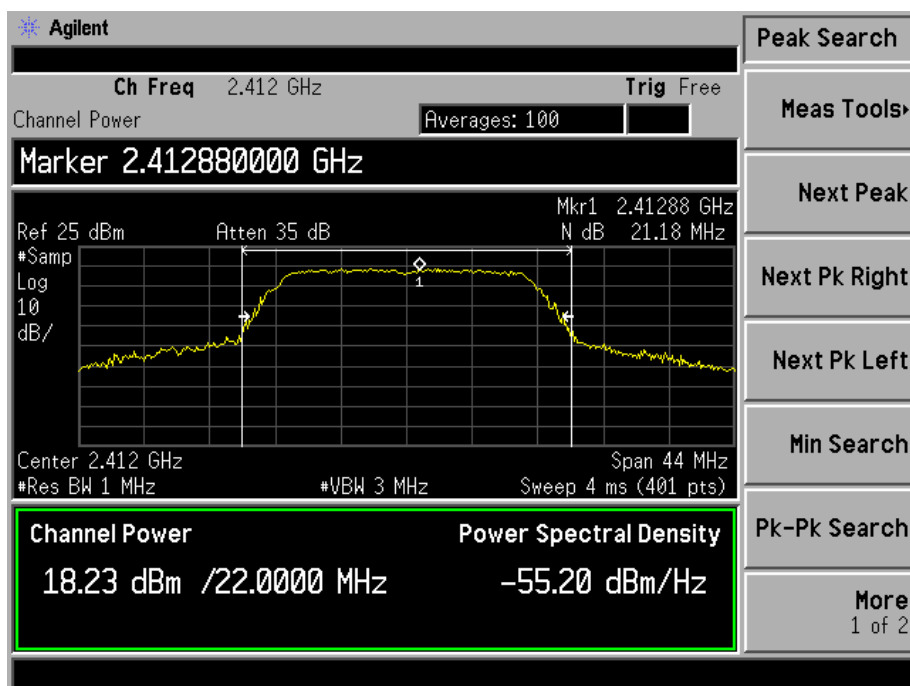


High Channel:

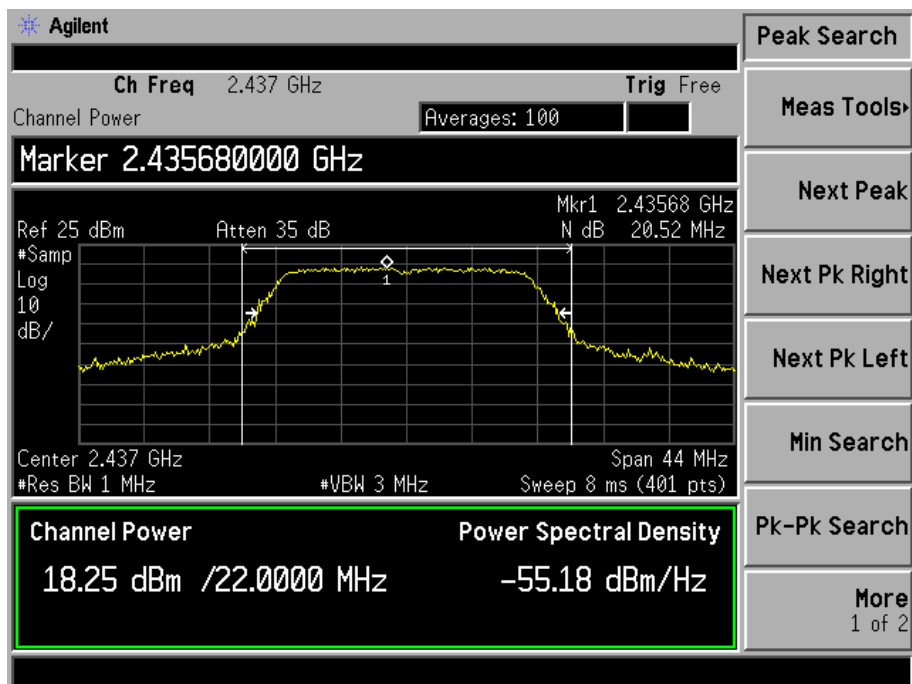


For 802.11g_54M rate

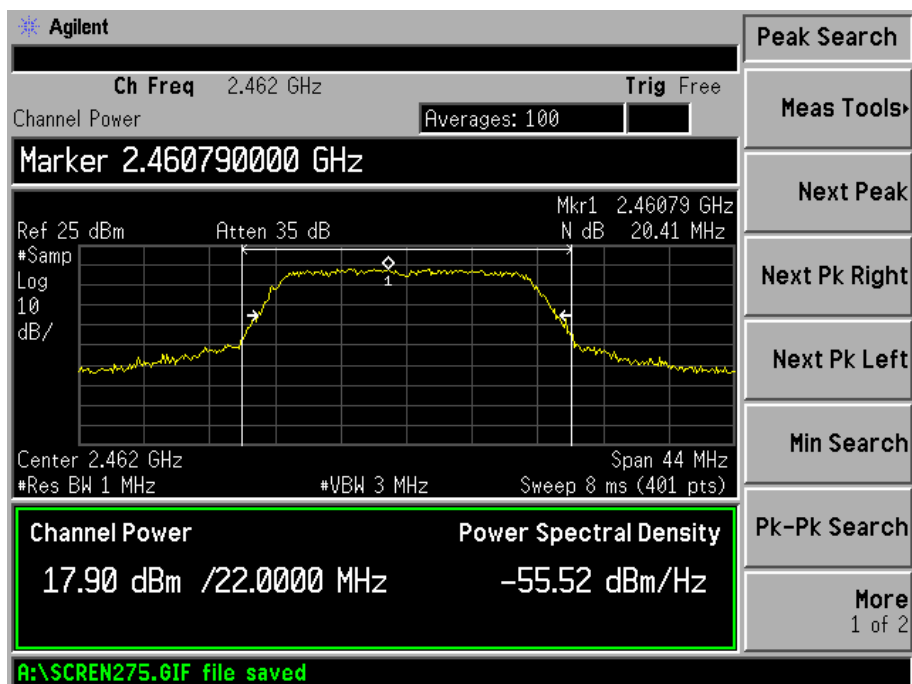
Low Channel:



Middle Channel:

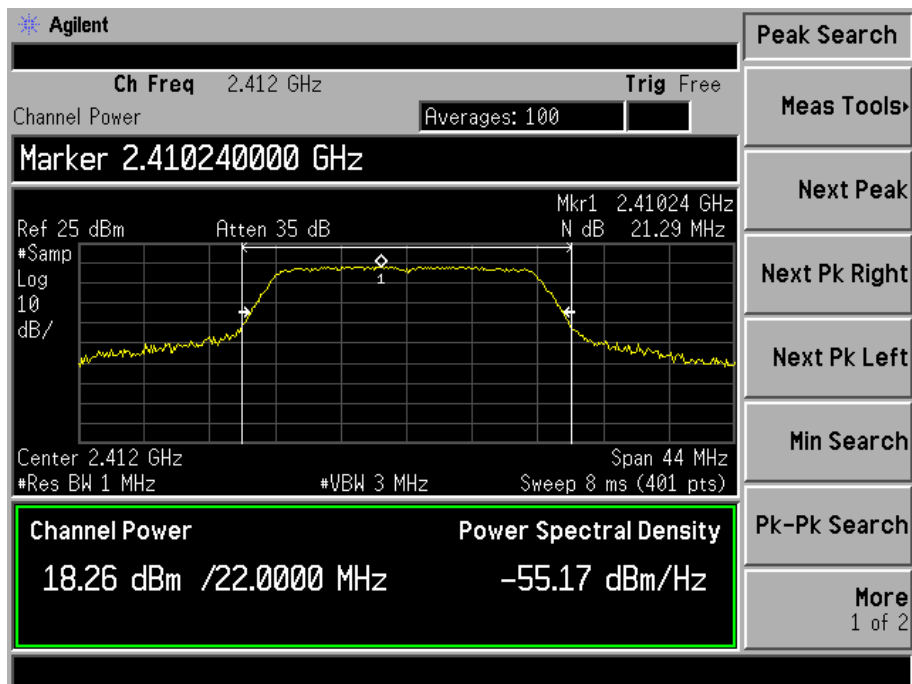


High Channel:

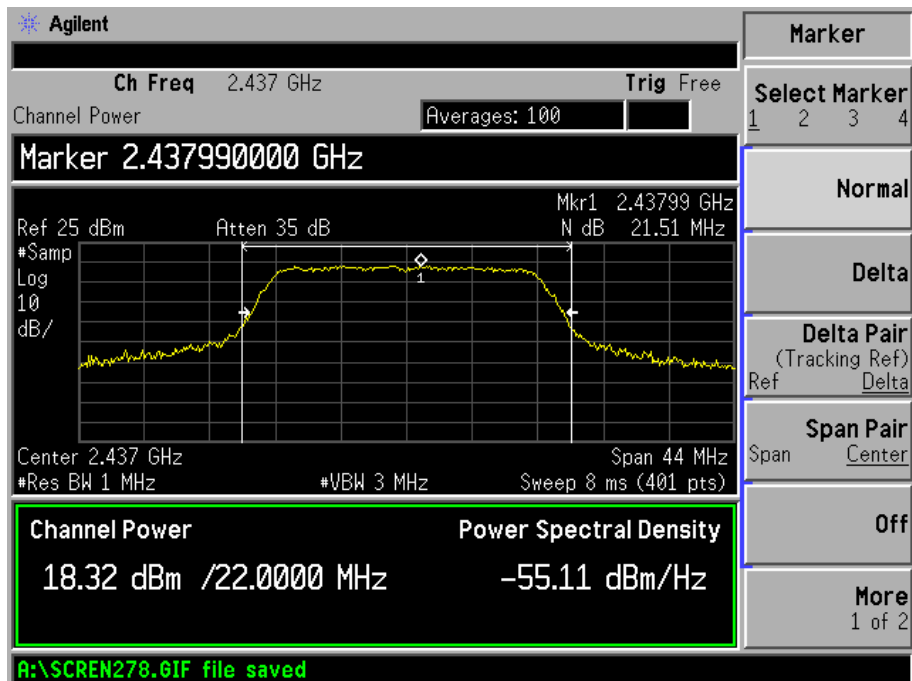


For 802.11n-HT20 rate

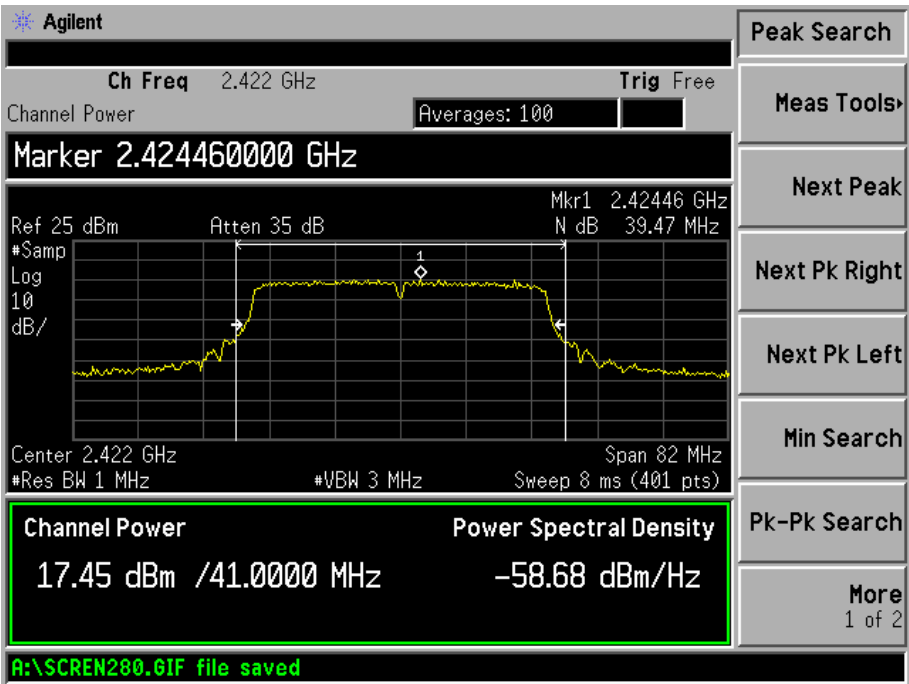
Low Channel:



Middle Channel:

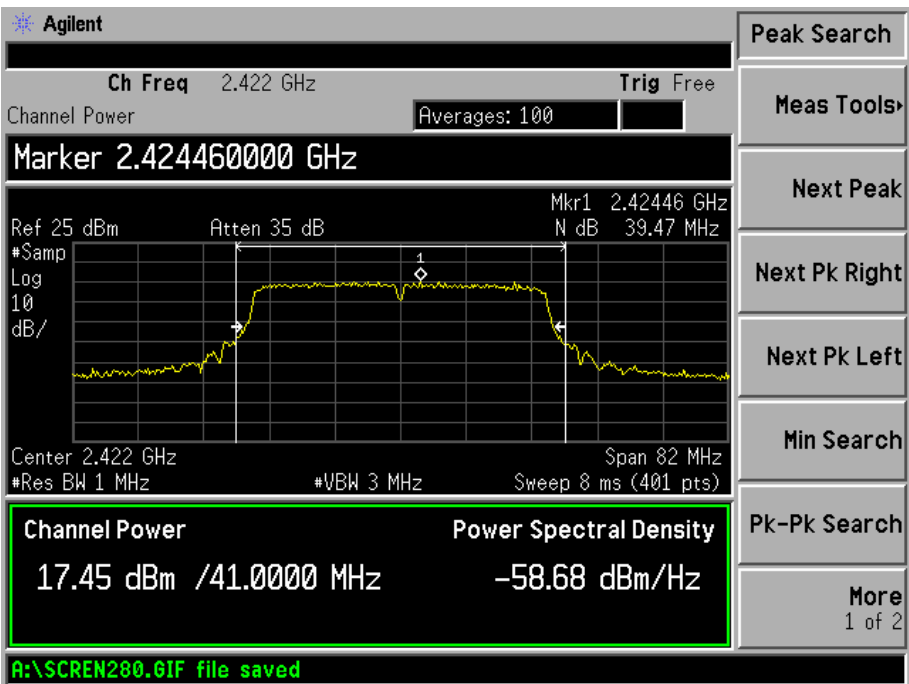


High Channel:

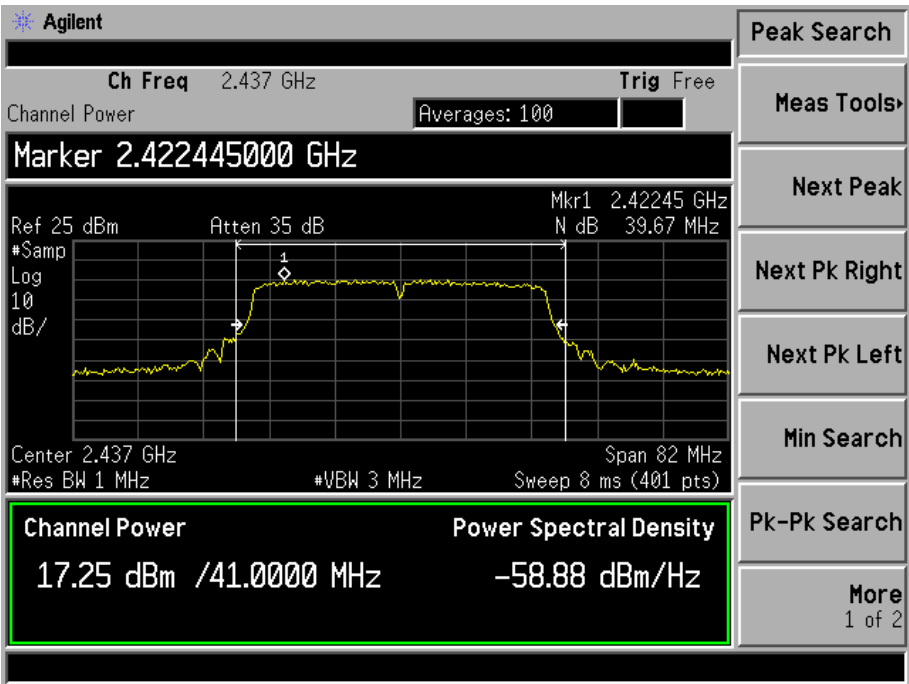


For 802.11n-HT40 rate

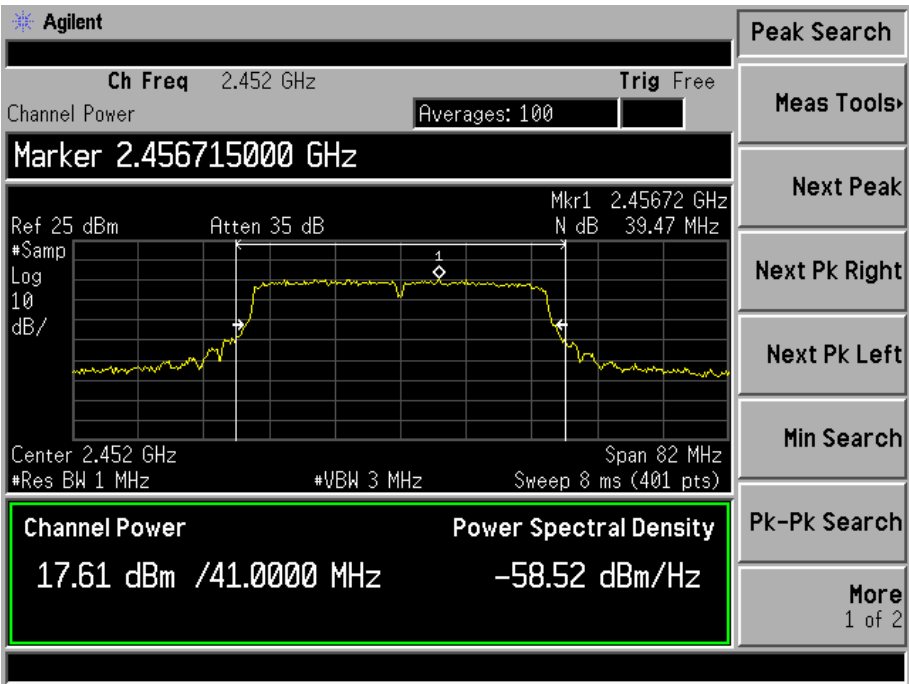
Low Channel:



Middle Channel:



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

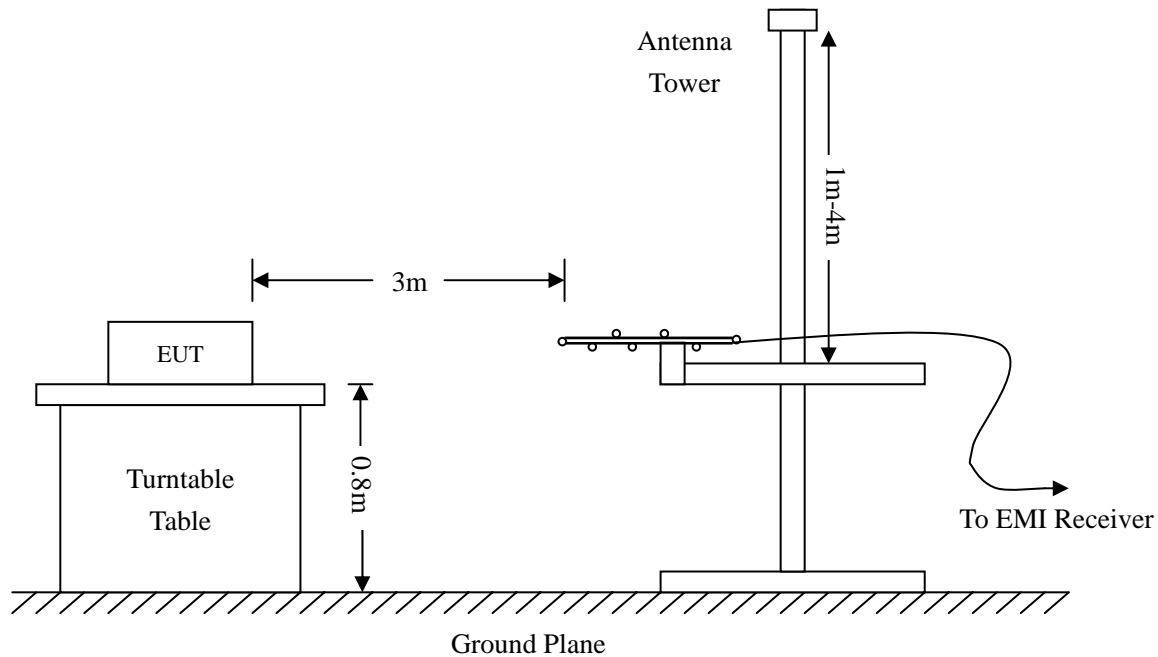
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2012-03-28	2013-03-27
Positioning Controller	C&C	CC-C-1F	N/A	2012-03-28	2013-03-27
RF Switch	EM	EMSW18	SW060023	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24
Horn Antenna	ETS	3116B	00088203	2012-02-25	2013-02-24
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2012-02-25	2013-02-24

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 adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

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

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

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

7.6 Environmental Conditions

Temperature:	22° 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:

-1.33dBμV at 603.5392MHz in the Vertical polarization, Transmitting 802.11n-HT20 Middle Channel for Antenna 1: 15dBi test mode with, 30 MHz to 25 GHz, 3Meters

-1.46dBμV at 603.5392MHz in the Vertical polarization, Transmitting 802.11g High Channel for Antenna 2: 8dBi test mode with, 30 MHz to 25 GHz, 3Meters

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

For Antenna 1: 15dBi

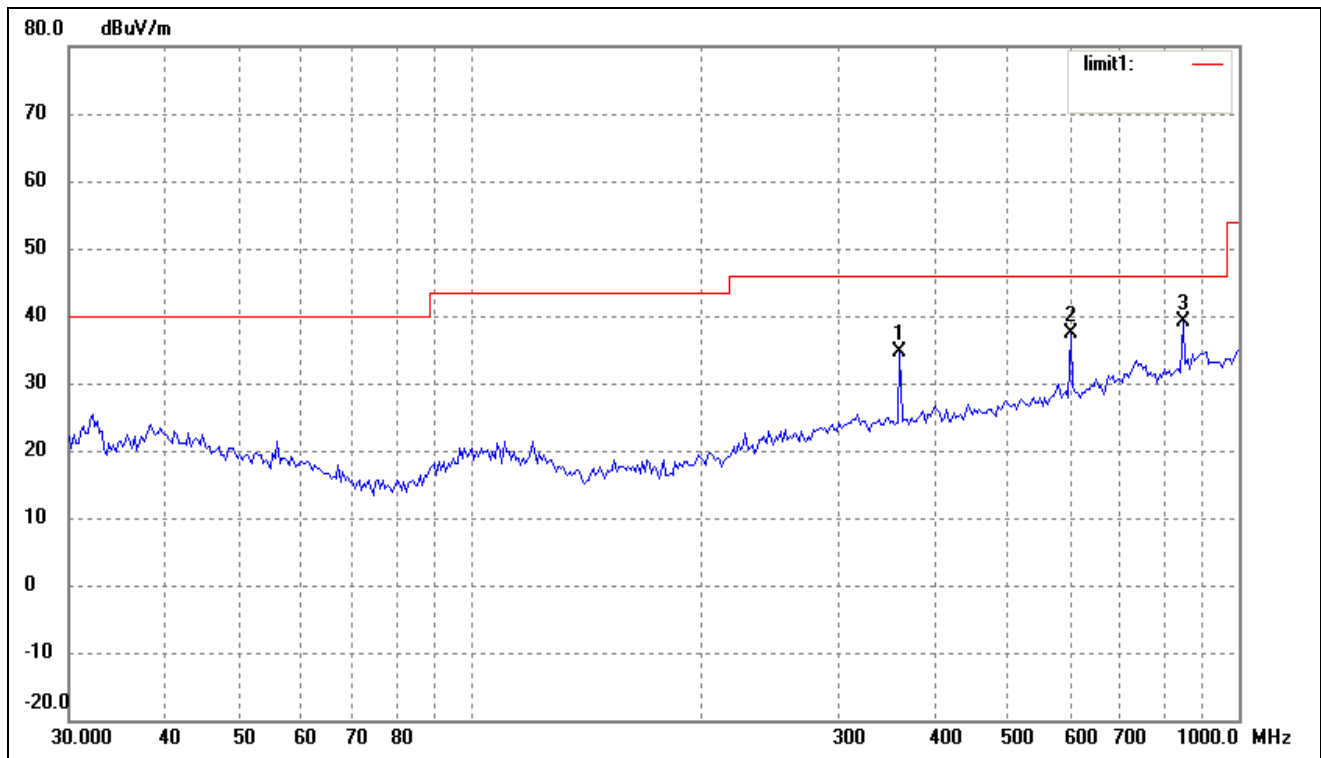
Test Result/Plots:

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11b) Low Channel

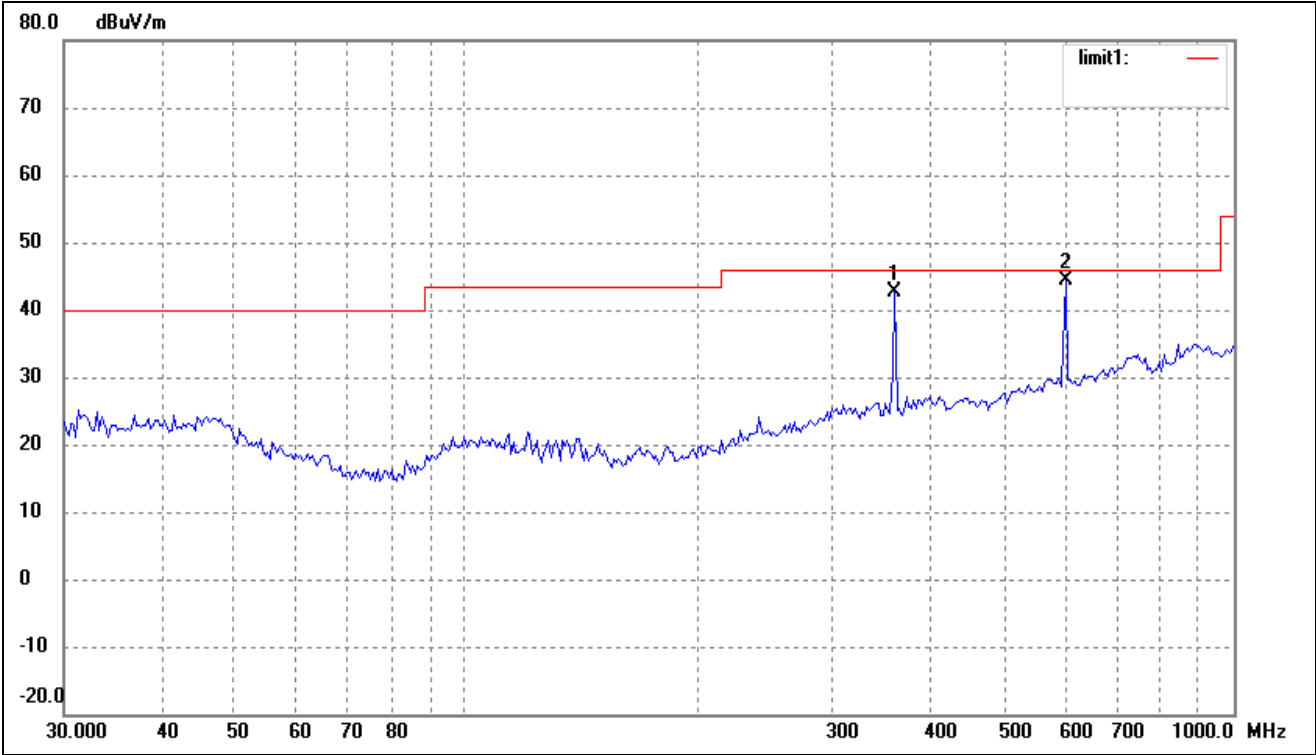
Comment:

Horizontal



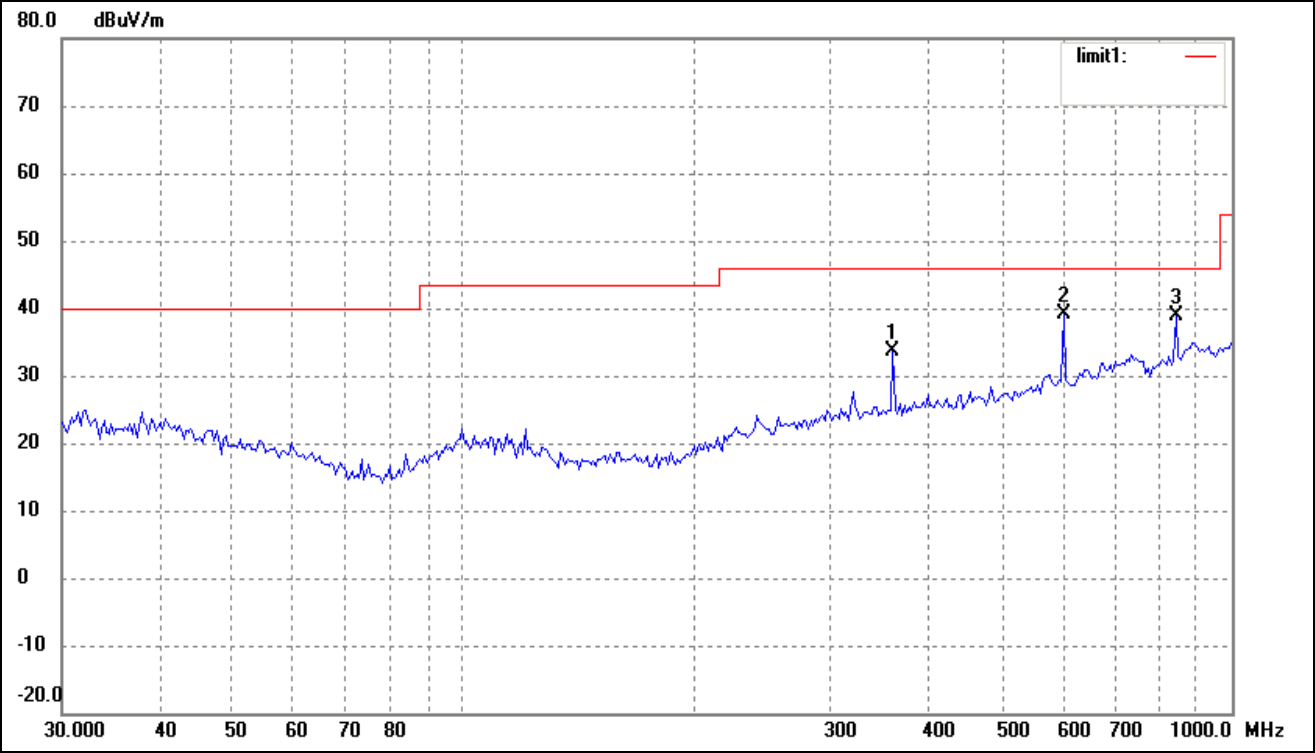
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	24.02	10.69	34.71	46.00	-11.29	360	100	peak
2	603.5392	22.67	14.62	37.29	46.00	-8.71	113	100	peak
3	845.0878	21.80	17.45	39.25	46.00	-6.75	86	100	peak

Vertical



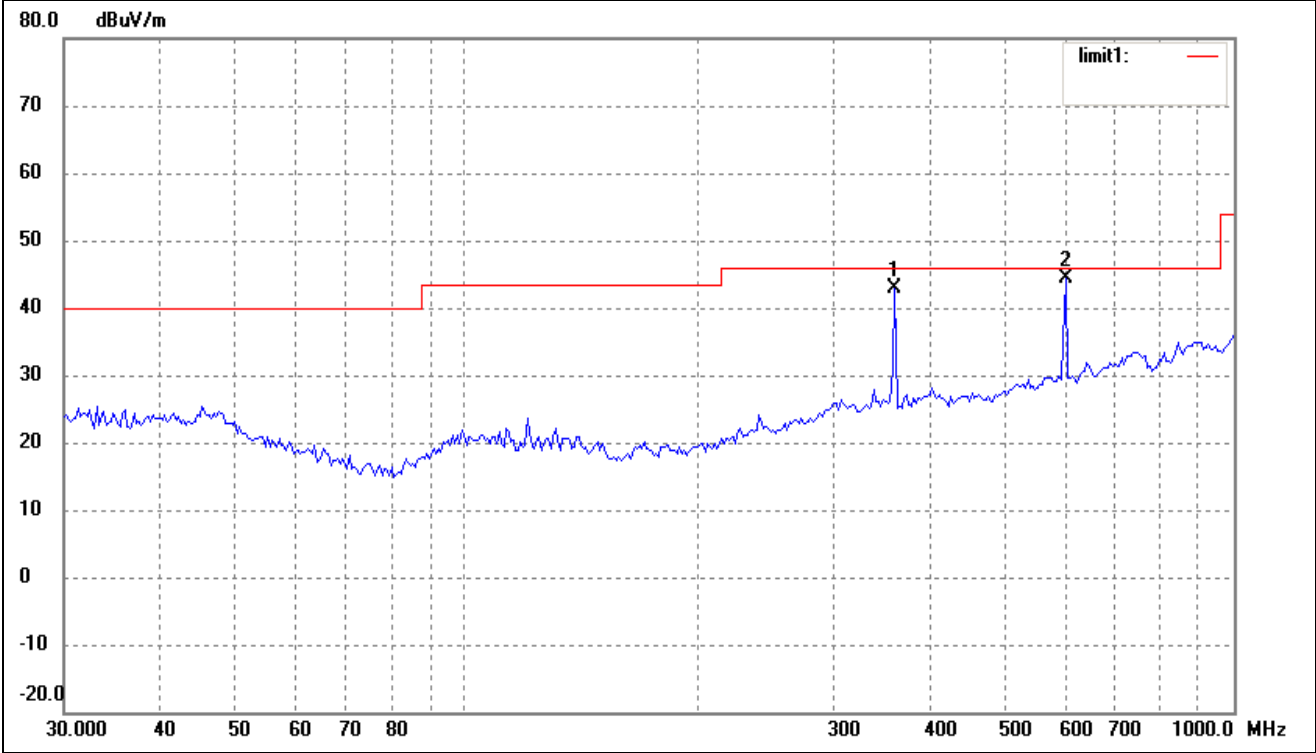
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.04	10.69	42.73	46.00	-3.27	224	100	QP
2	603.5392	29.72	14.62	44.34	46.00	-1.66	360	100	QP

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



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	22.97	10.69	33.66	46.00	-12.34	352	100	peak
2	603.5392	24.51	14.62	39.13	46.00	-6.87	245	100	peak
3	845.0878	21.52	17.45	38.97	46.00	-7.03	160	100	peak

Vertical



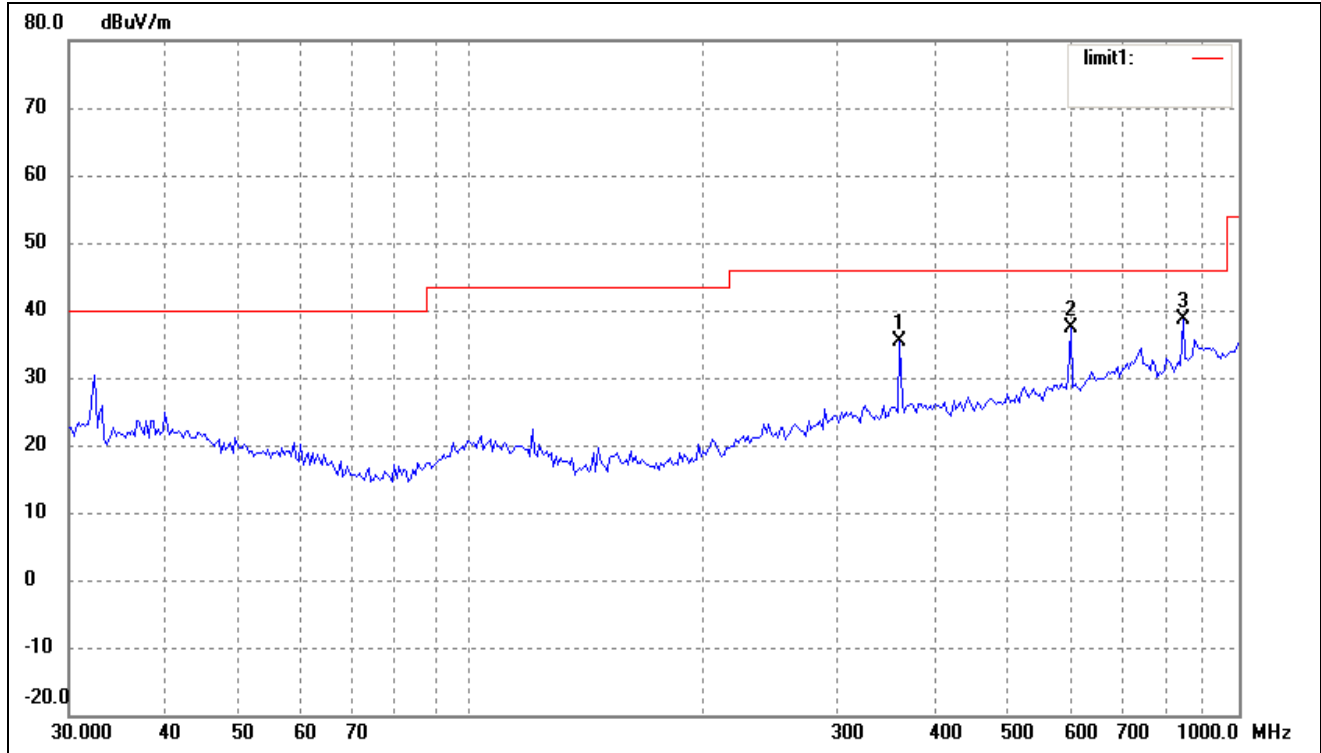
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.10	10.69	42.79	46.00	-3.21	232	100	QP
2	603.5392	29.72	14.62	44.34	46.00	-1.66	115	100	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11b) High Channel

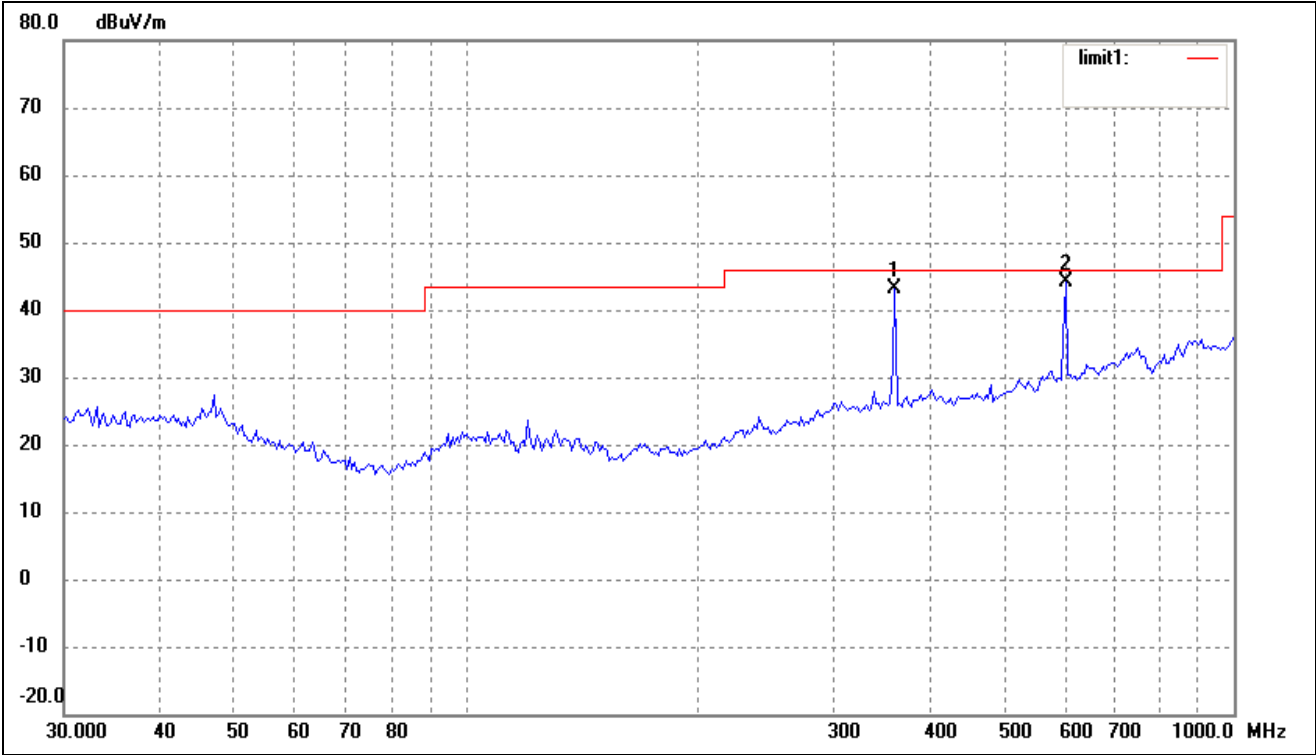
Comment:

Horizontal



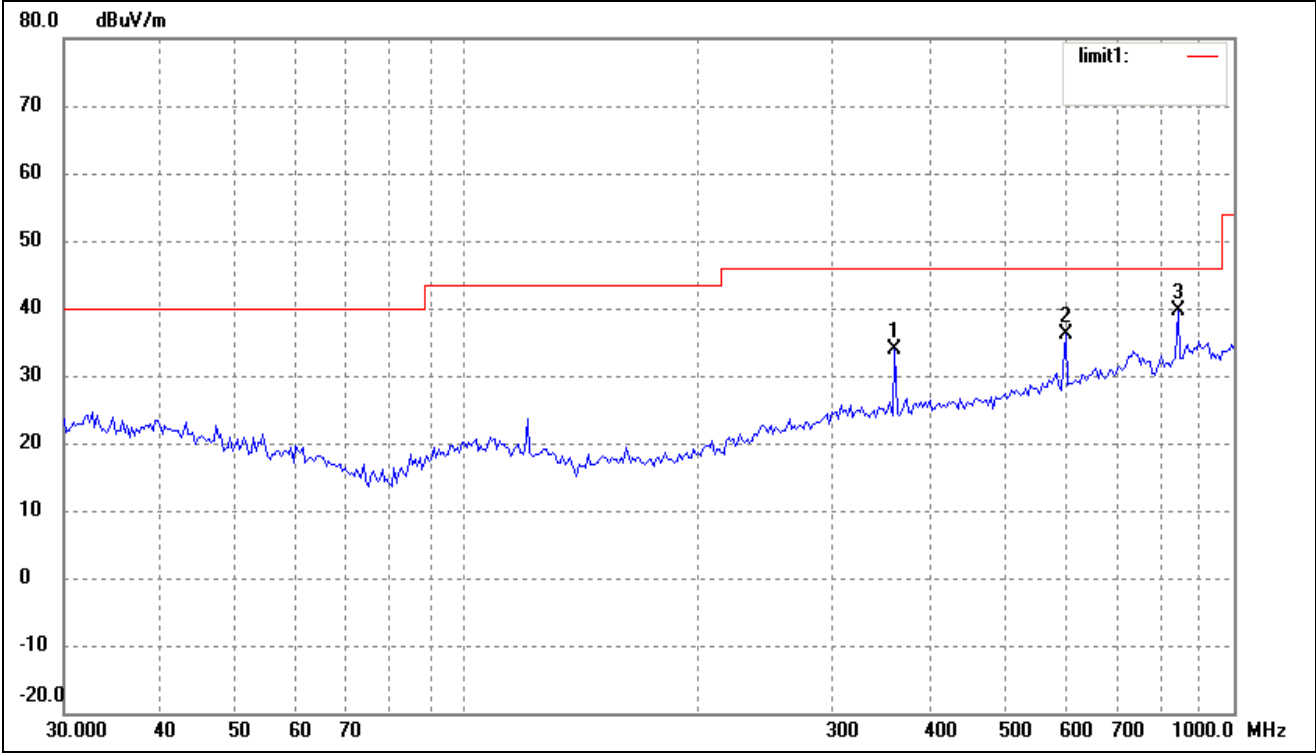
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	24.59	10.69	35.28	46.00	-10.72	360	100	peak
2	603.5392	22.85	14.62	37.47	46.00	-8.53	360	100	peak
3	845.0878	21.22	17.45	38.67	46.00	-7.33	360	200	peak

Vertical



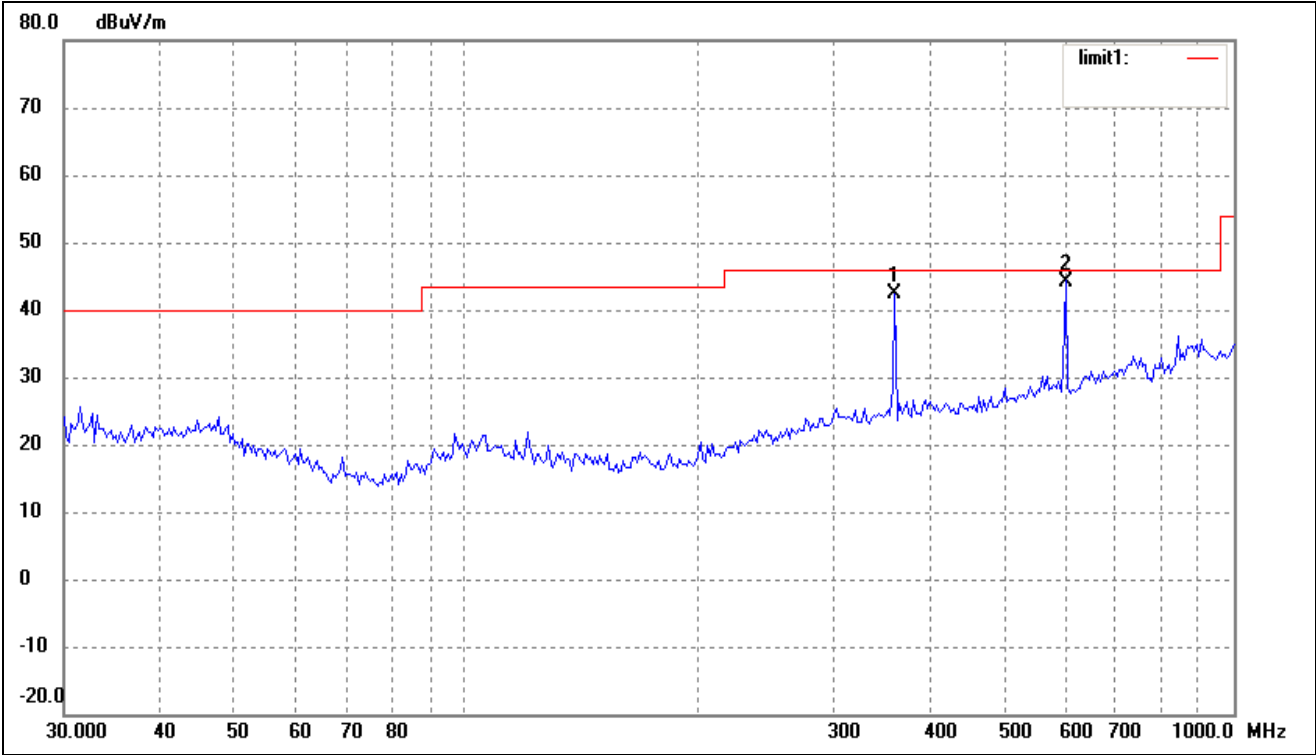
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.42	10.69	43.11	46.00	-2.89	251	100	QP
2	603.5392	29.59	14.62	44.21	46.00	-1.79	116	100	QP

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



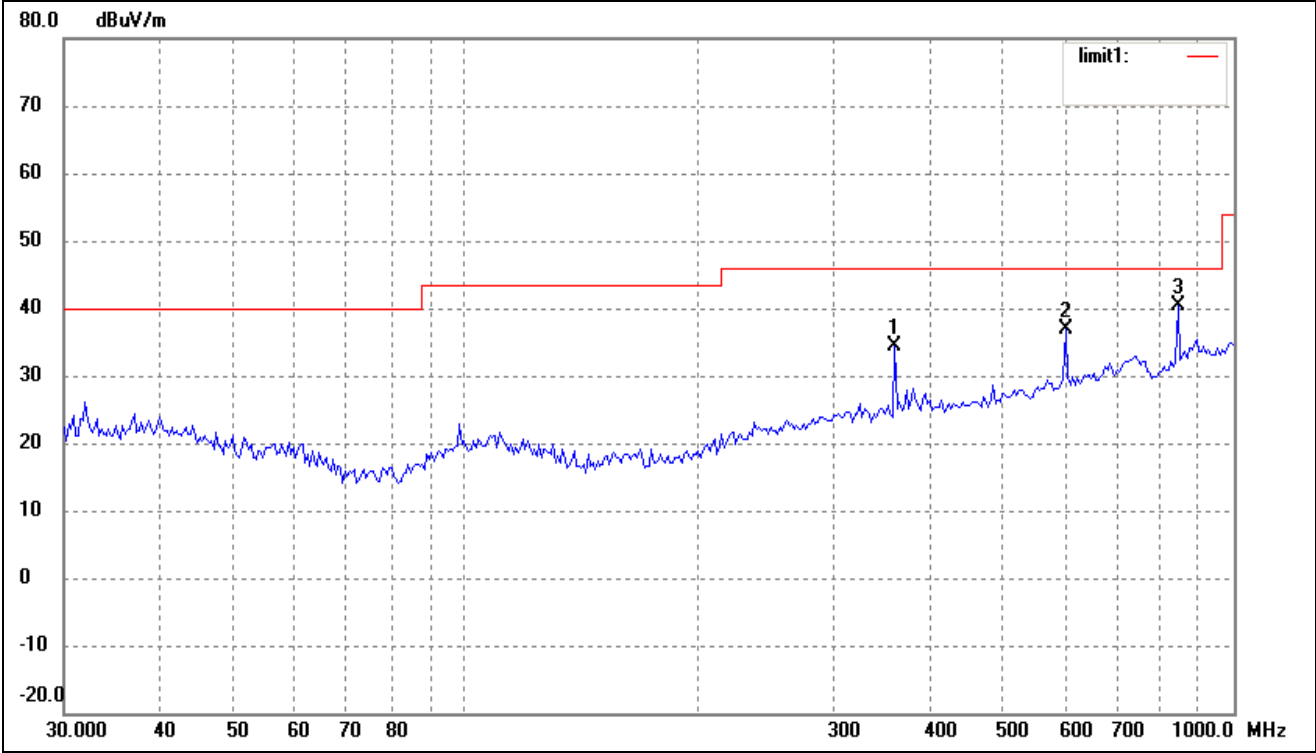
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	23.09	10.69	33.78	46.00	-12.22	225	100	peak
2	603.5392	21.43	14.62	36.05	46.00	-9.95	134	100	peak
3	845.0878	22.26	17.45	39.71	46.00	-6.29	360	200	peak

Vertical



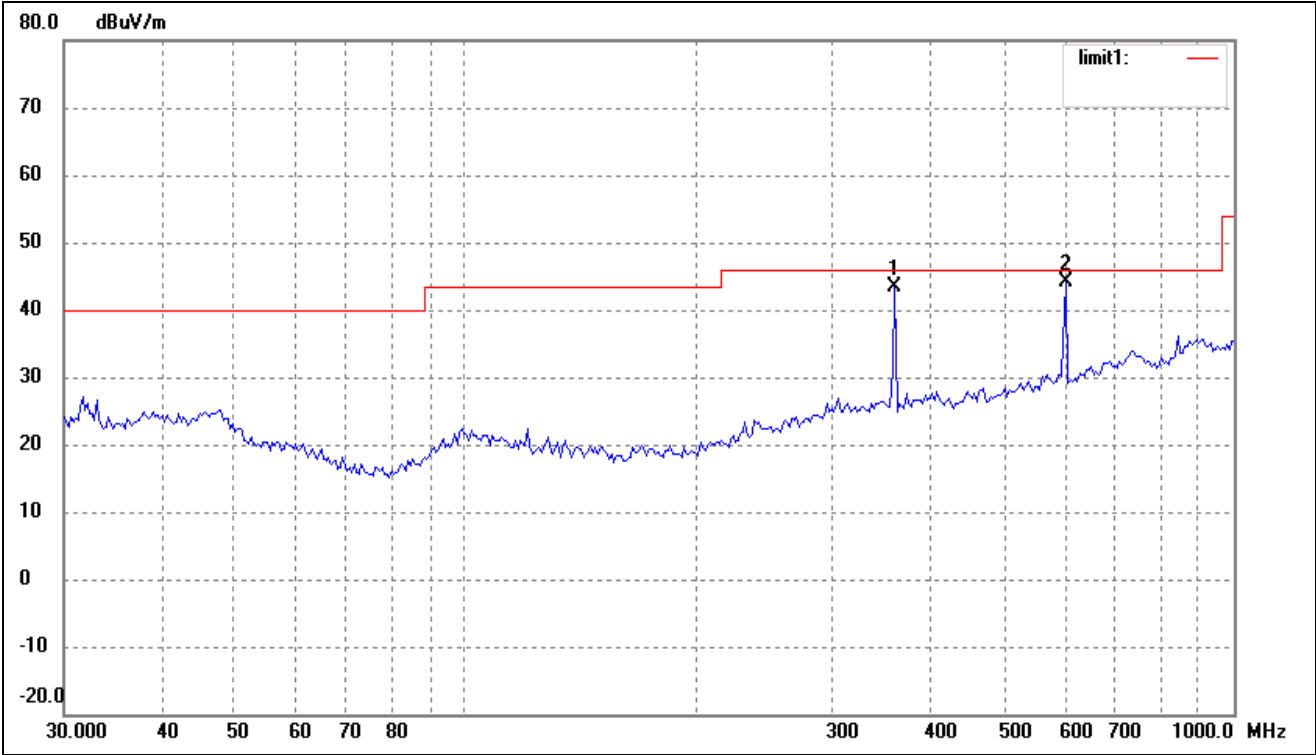
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	31.72	10.69	42.41	46.00	-3.59	137	100	QP
2	603.5392	29.63	14.62	44.25	46.00	-1.75	225	100	QP

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



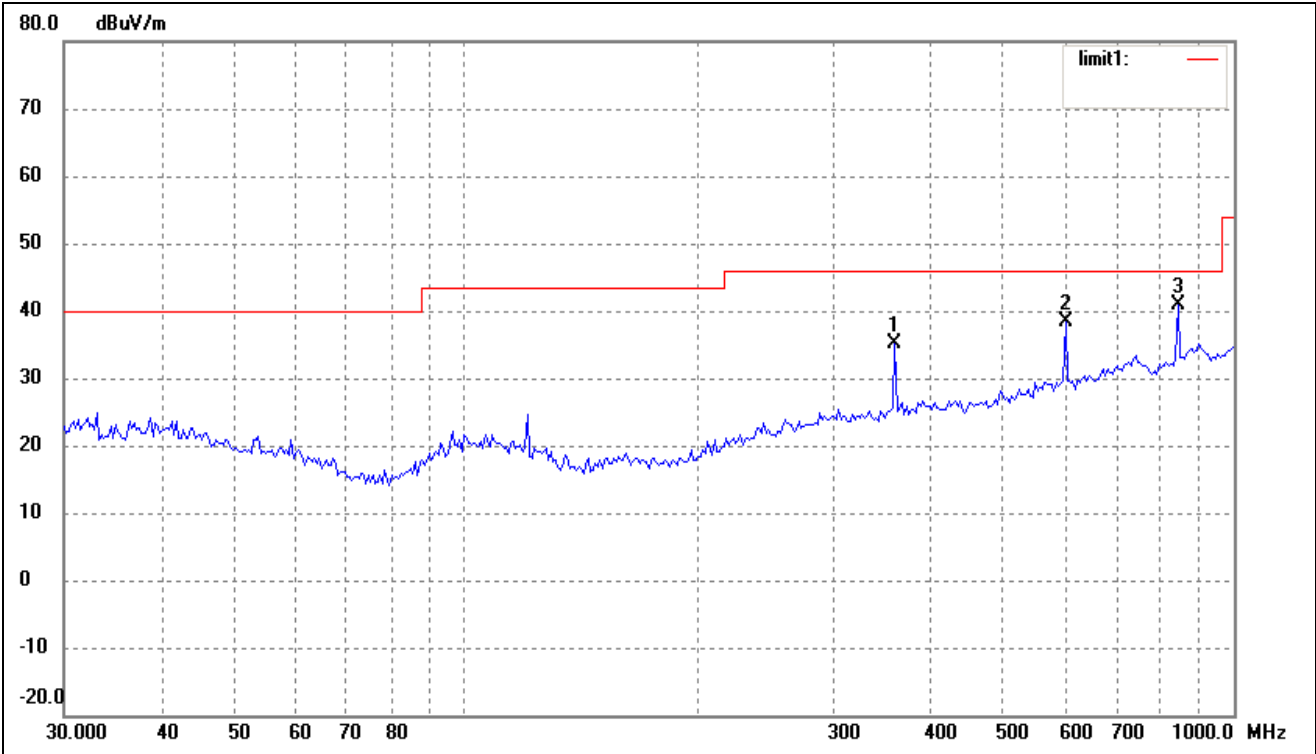
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	23.61	10.69	34.30	46.00	-11.70	360	100	peak
2	603.5392	22.19	14.62	36.81	46.00	-9.19	224	100	peak
3	845.0878	22.81	17.45	40.26	46.00	-5.74	136	100	QP

Vertical



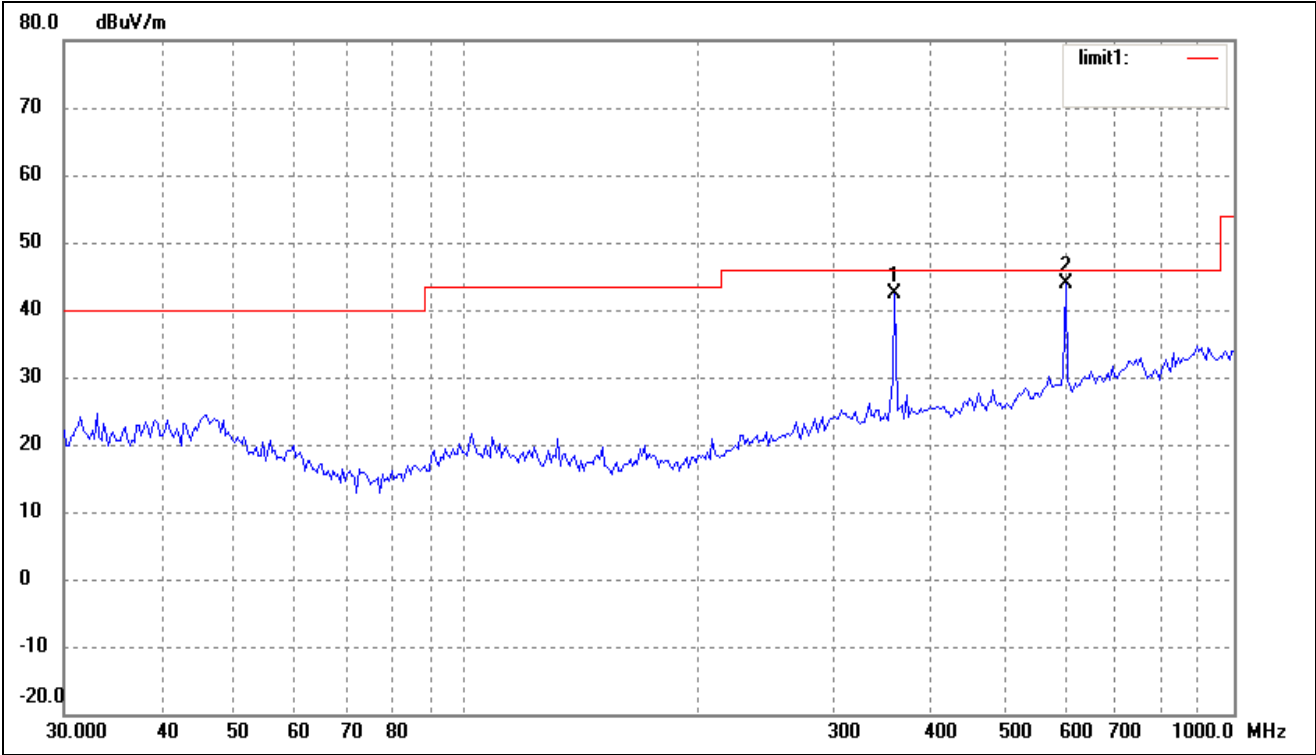
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.59	10.69	43.28	46.00	-2.72	255	100	QP
2	603.5392	29.60	14.62	44.22	46.00	-1.78	113	100	QP

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



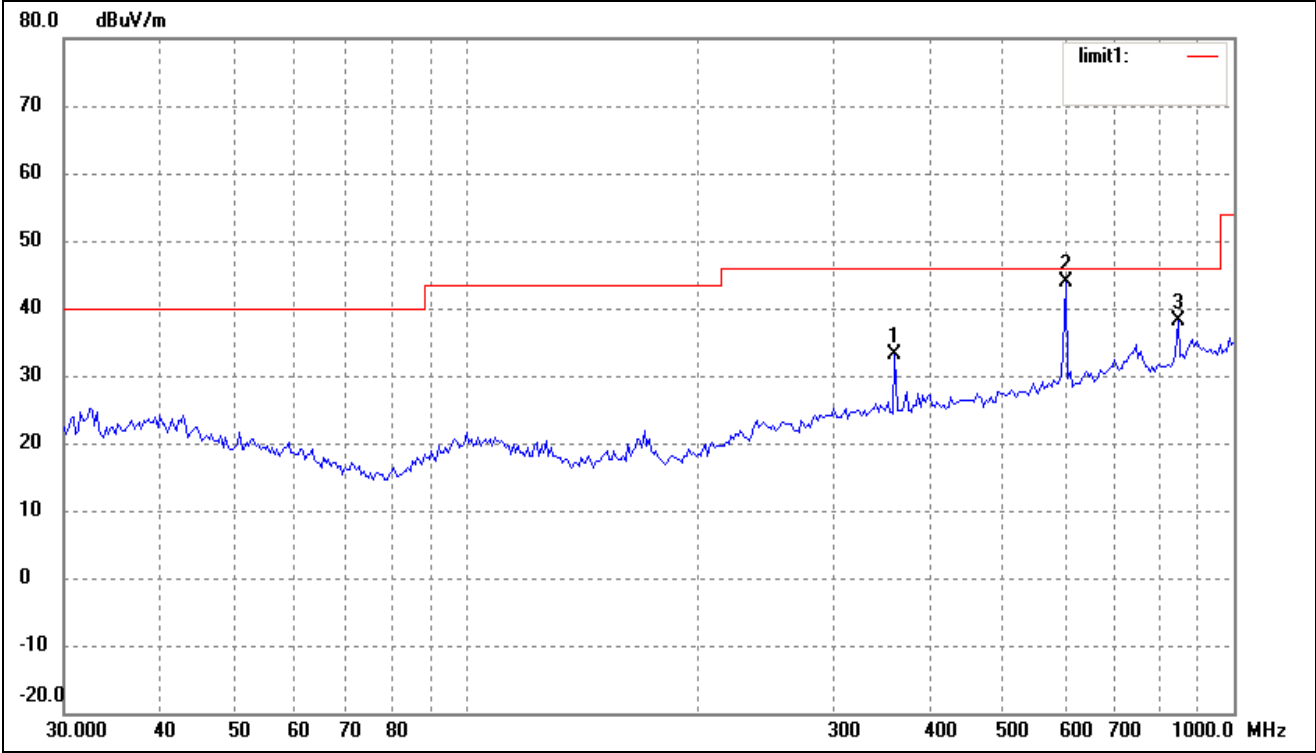
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	24.40	10.69	35.09	46.00	-10.91	257	100	peak
2	603.5392	23.71	14.62	38.33	46.00	-7.67	118	100	peak
3	845.0878	23.53	17.45	40.98	46.00	-5.02	210	100	peak

Vertical



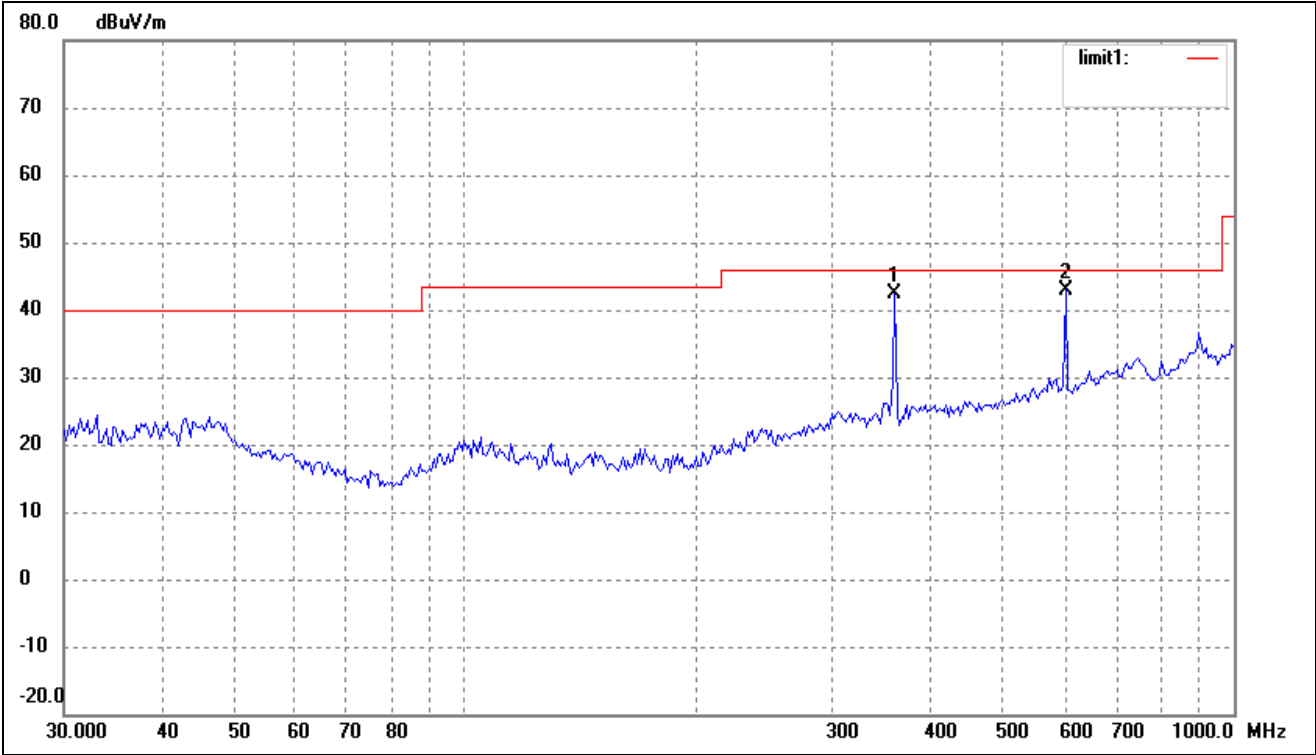
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	31.65	10.69	42.34	46.00	-3.66	227	100	QP
2	603.5392	29.27	14.62	43.89	46.00	-2.11	179	100	QP

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



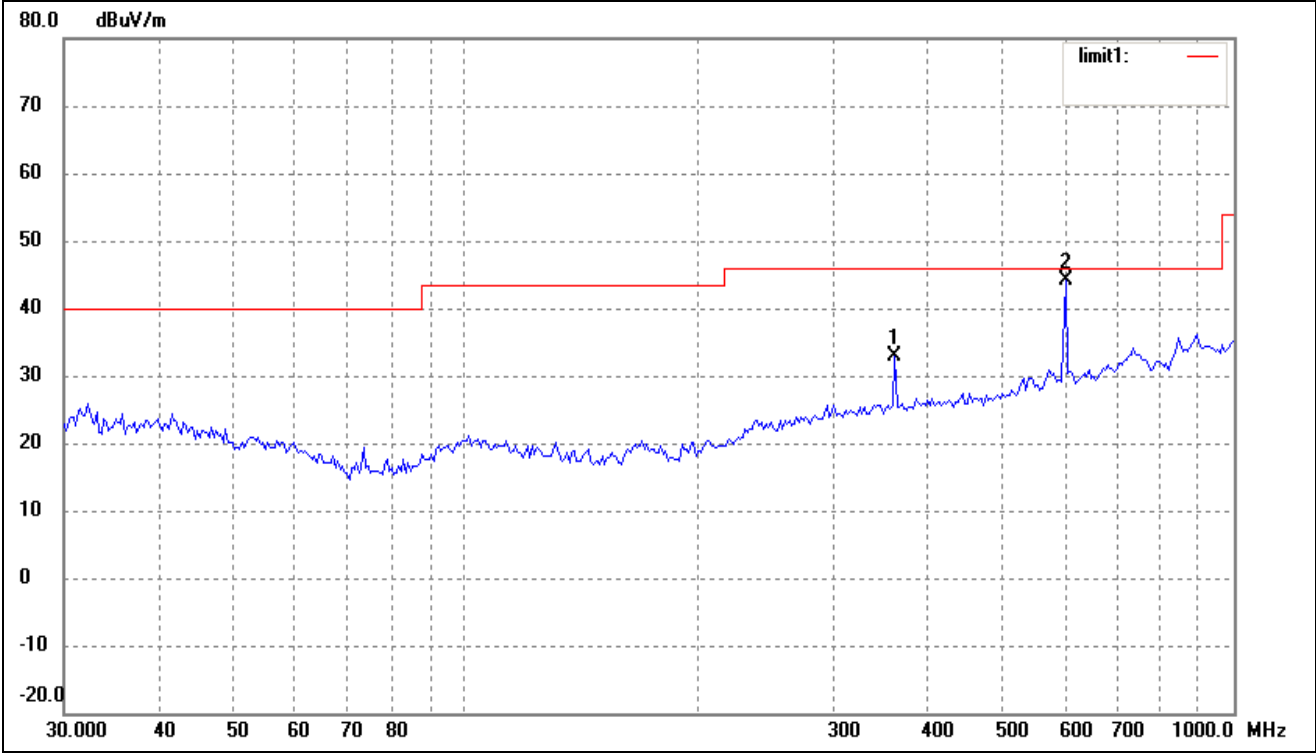
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	22.43	10.69	33.12	46.00	-12.88	152	100	peak
2	603.5392	29.20	14.62	43.82	46.00	-2.18	114	100	QP
3	845.0878	20.79	17.45	38.24	46.00	-7.76	360	100	peak

Vertical



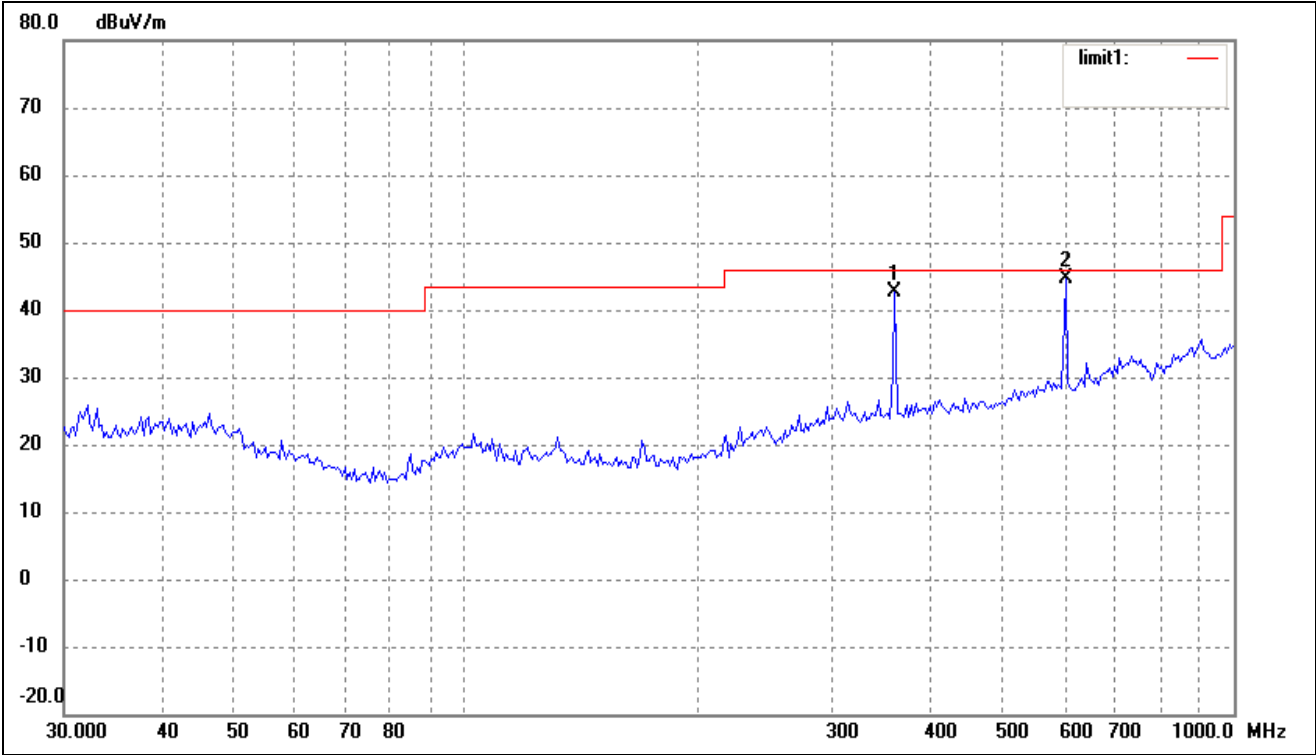
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	31.72	10.69	42.41	46.00	-3.59	360	100	QP
2	603.5392	28.18	14.62	42.80	46.00	-3.20	224	100	QP

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



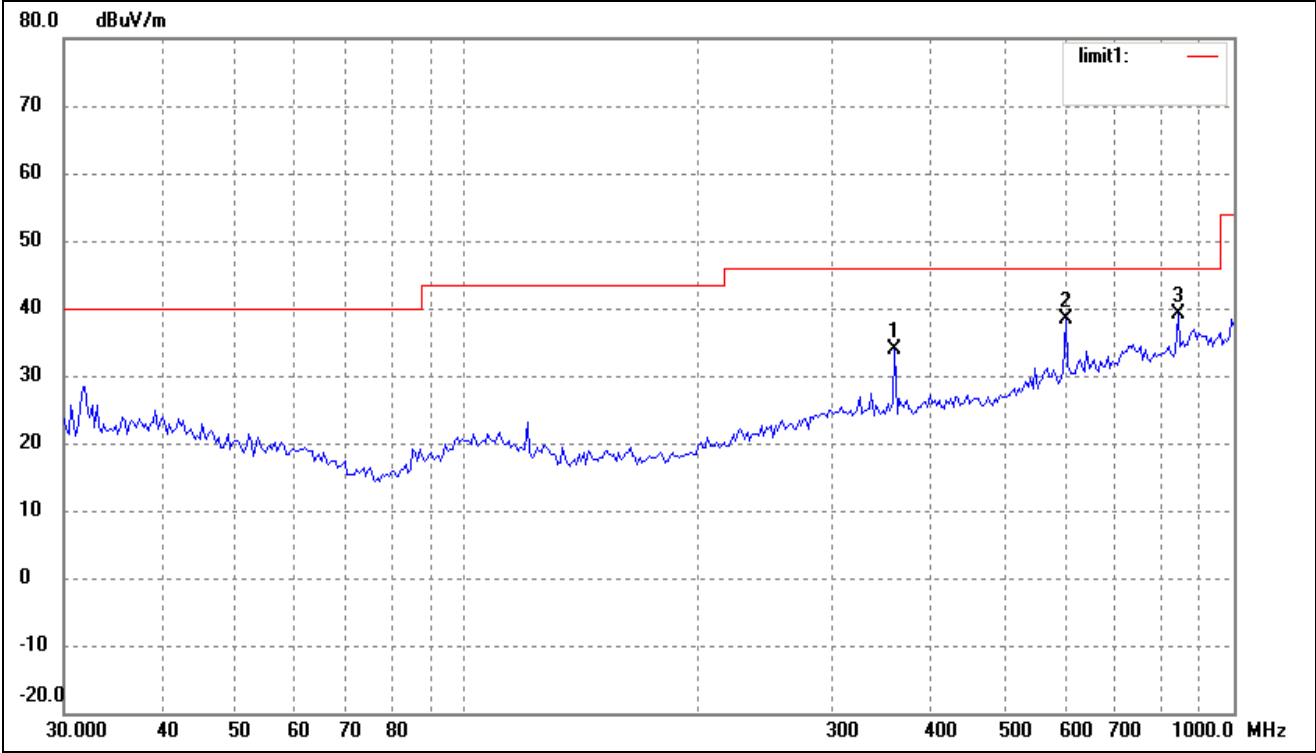
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	22.09	10.69	32.78	46.00	-13.22	347	100	peak
2	603.5392	29.54	14.62	44.16	46.00	-1.84	52	100	QP

Vertical



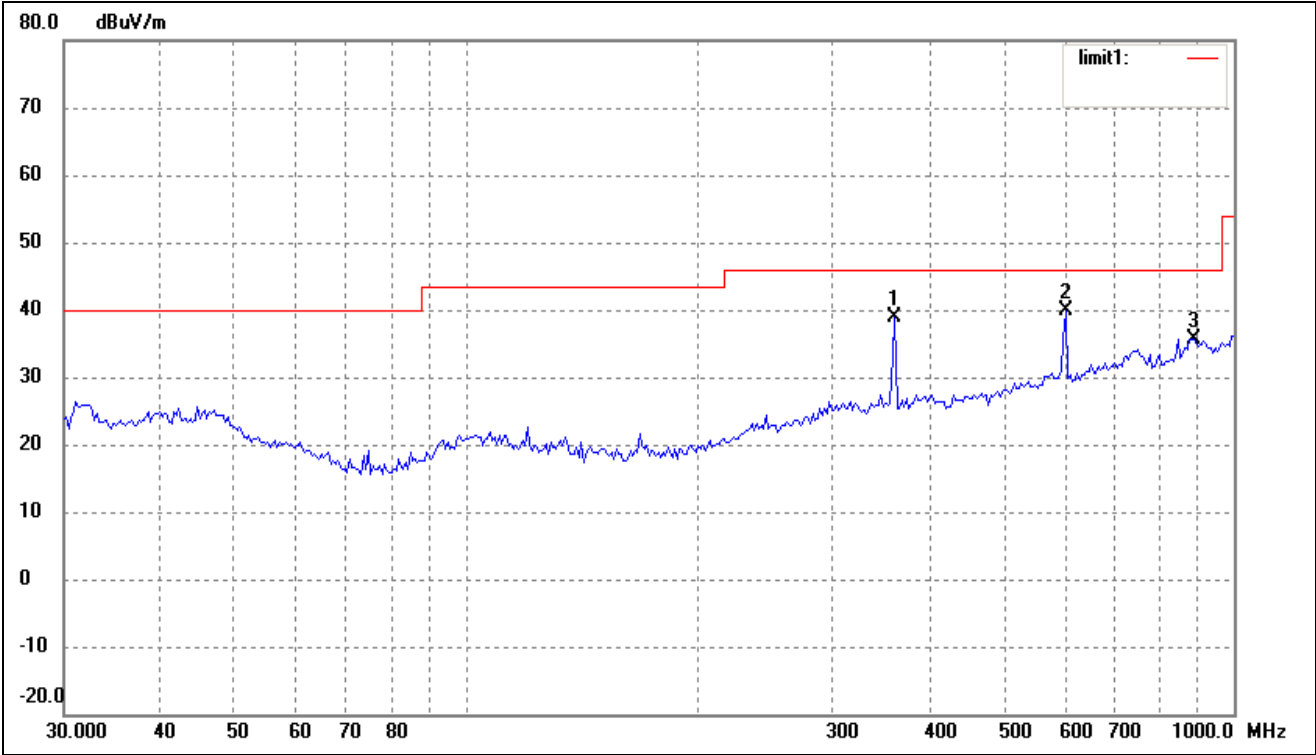
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.03	10.69	42.72	46.00	-3.28	254	100	QP
2	603.5392	30.05	14.62	44.67	46.00	-1.33	116	100	QP

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



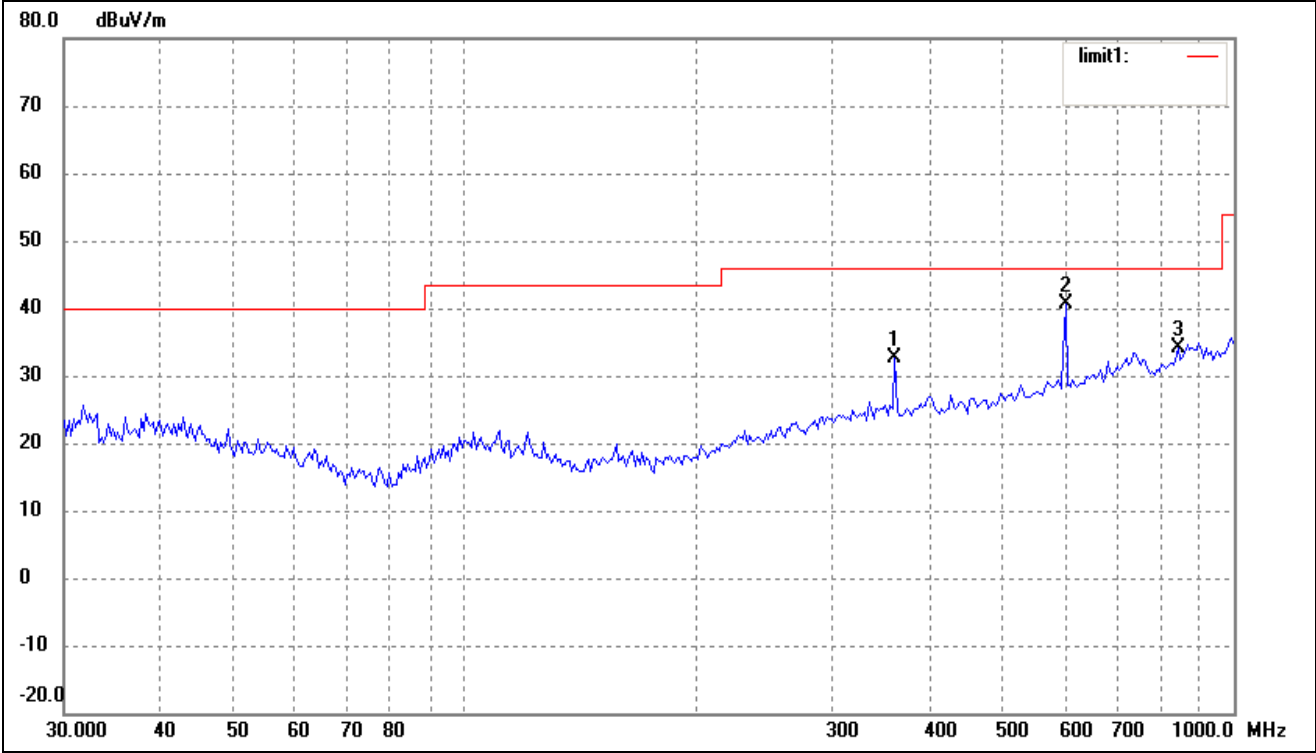
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	23.11	10.69	33.80	46.00	-12.20	87	100	peak
2	603.5392	23.71	14.62	38.33	46.00	-7.67	116	100	peak
3	845.0878	21.67	17.45	39.12	46.00	-6.88	320	100	peak

Vertical



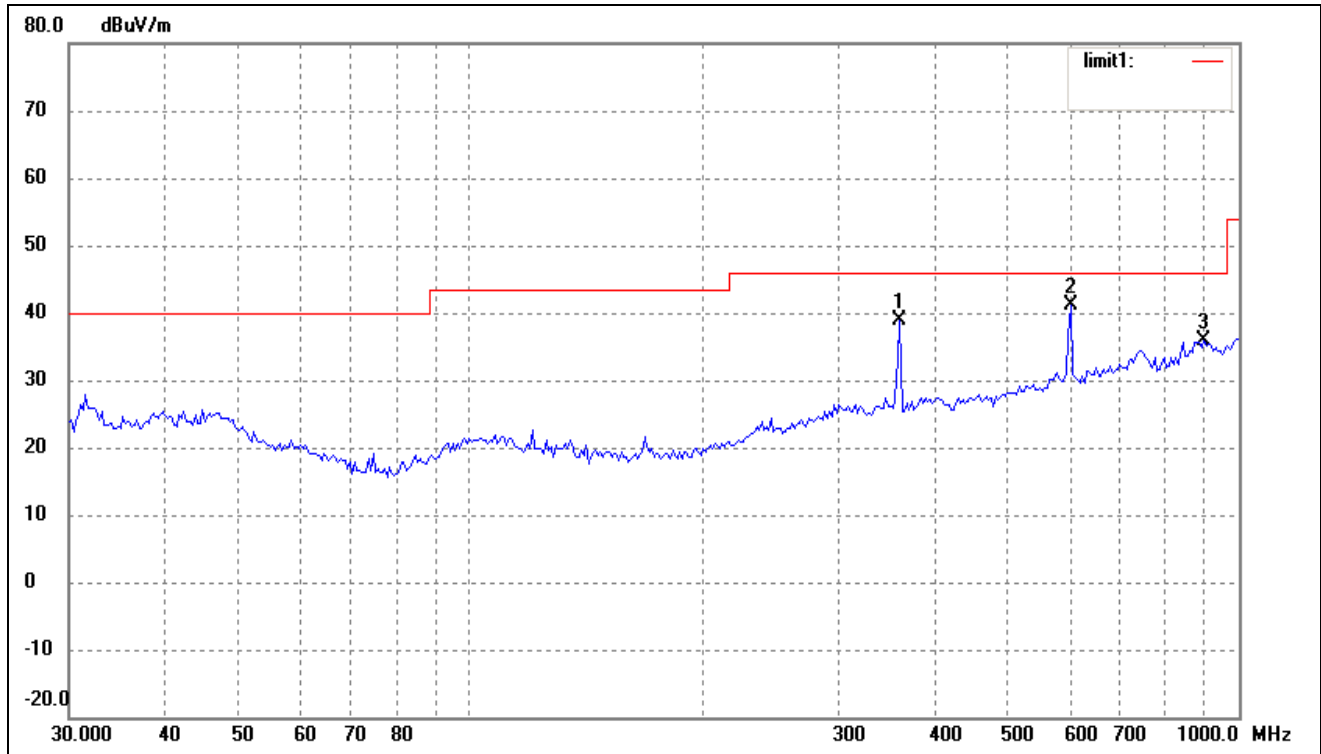
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	28.23	10.69	38.92	46.00	-7.08	57	100	peak
2	603.5392	25.18	14.62	39.80	46.00	-6.20	260	100	peak
3	887.6099	16.50	19.15	35.65	46.00	-10.35	117	200	peak

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



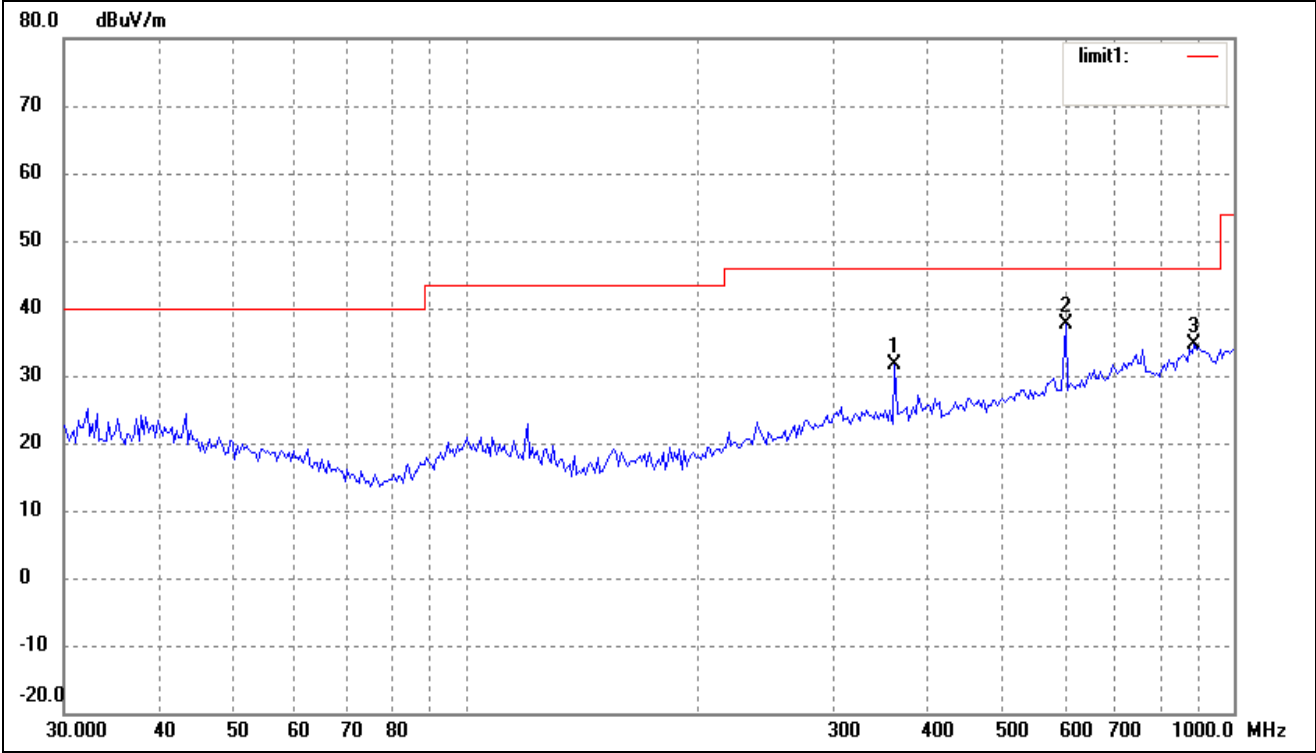
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	21.95	10.69	32.64	46.00	-13.36	154	100	peak
2	603.5392	26.07	14.62	40.69	46.00	-5.31	227	100	QP
3	845.0878	16.63	17.45	34.08	46.00	-11.92	203	100	peak

Vertical



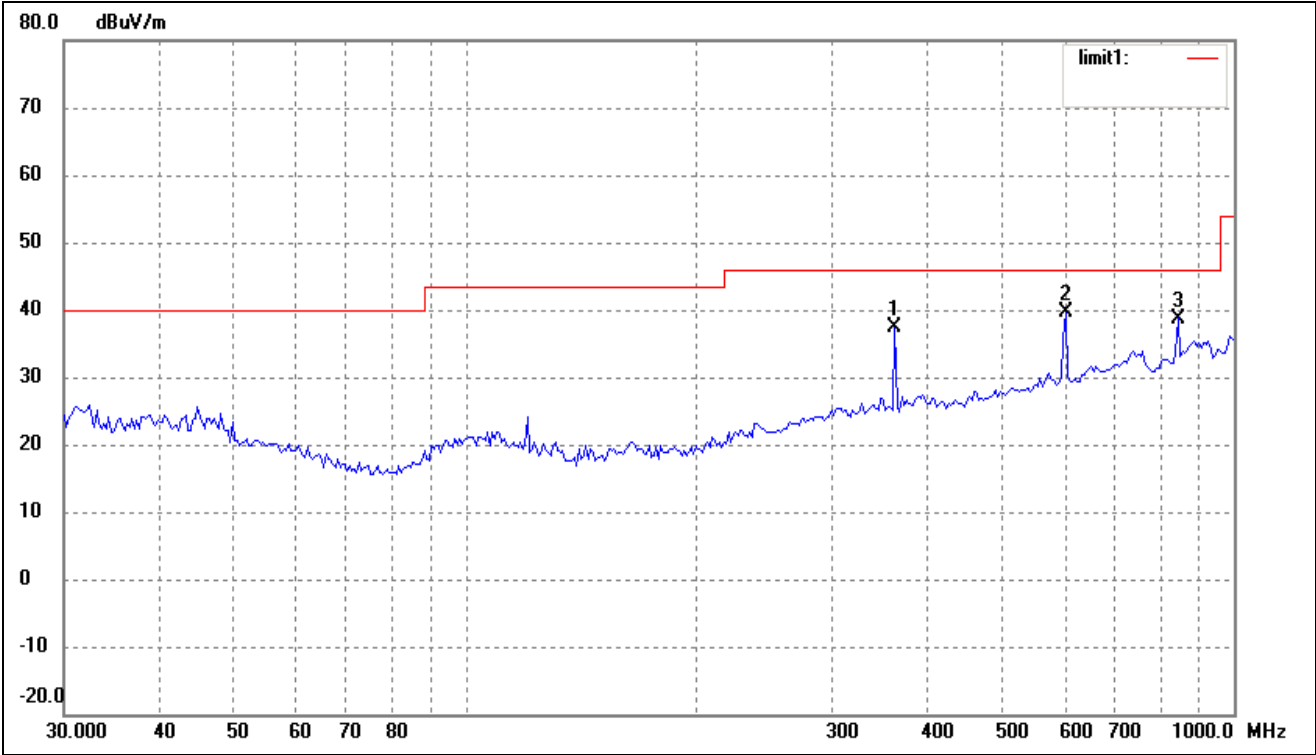
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	28.23	10.69	38.92	46.00	-7.08	340	100	peak
2	603.5392	26.60	14.62	41.22	46.00	-4.78	119	100	QP
3	900.1474	16.56	19.38	35.94	46.00	-10.06	200	100	peak

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



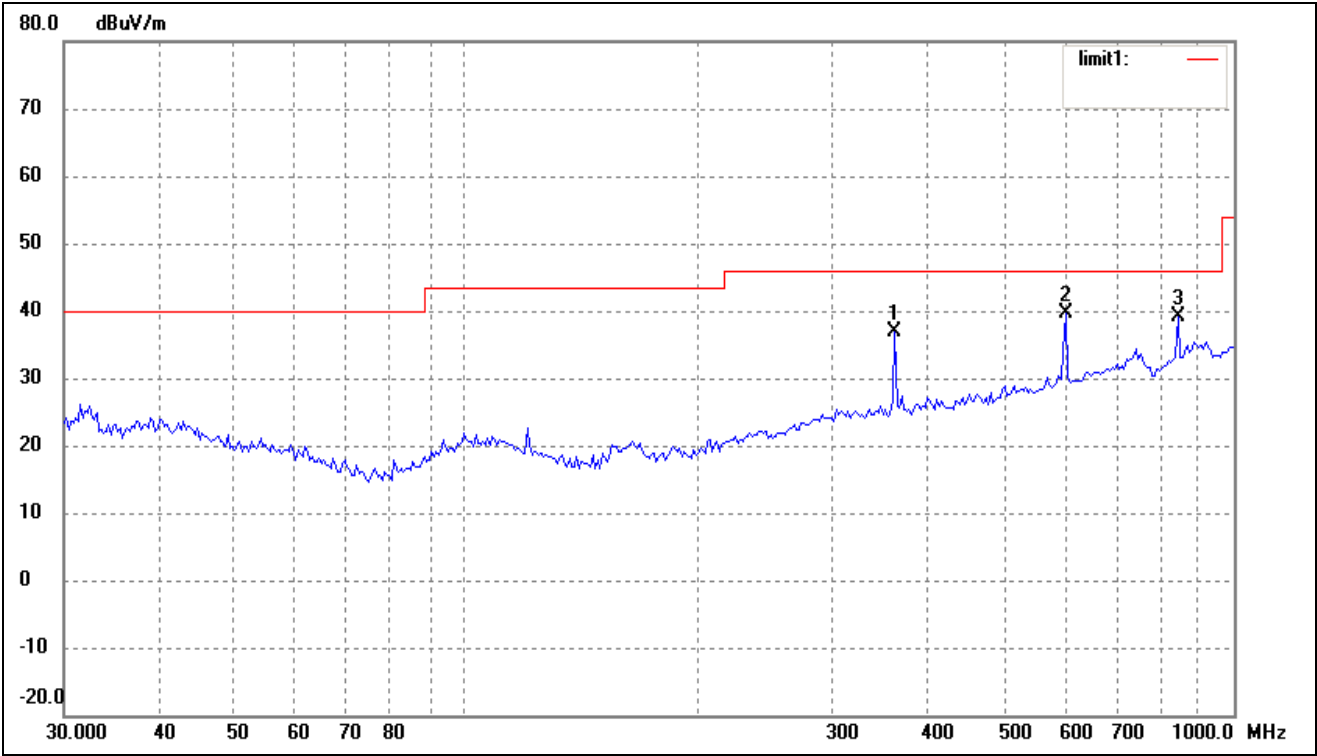
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	20.93	10.69	31.62	46.00	-14.38	247	100	peak
2	603.5392	22.93	14.62	37.55	46.00	-8.45	164	100	peak
3	887.6099	15.50	19.15	34.65	46.00	-11.35	203	100	peak

Vertical



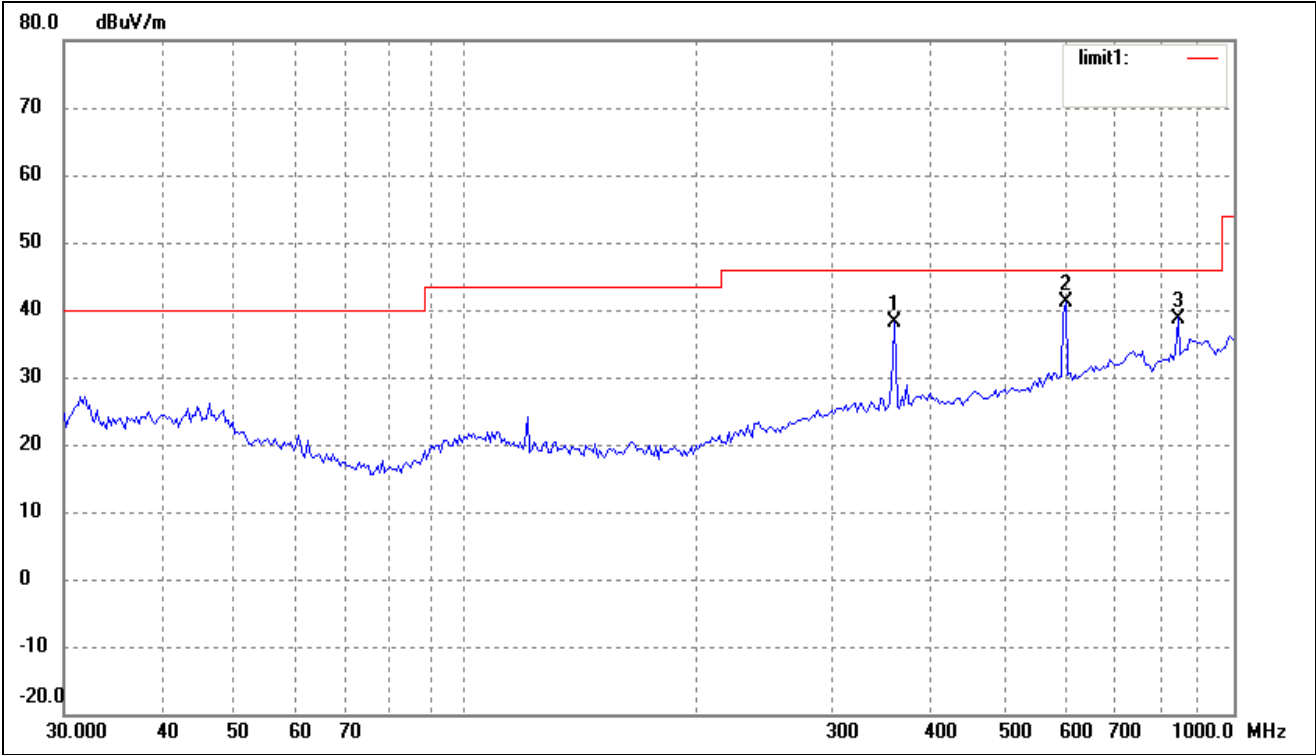
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	26.57	10.69	37.26	46.00	-8.74	360	100	peak
2	603.5392	24.99	14.62	39.61	46.00	-6.39	127	100	peak
3	845.0878	21.30	17.45	38.75	46.00	-7.25	180	100	peak

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



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	26.31	10.69	37.00	46.00	-9.00	237	100	peak
2	603.5392	25.12	14.62	39.74	46.00	-6.26	116	100	peak
3	845.0878	21.61	17.45	39.06	46.00	-6.94	200	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	27.36	10.69	38.05	46.00	-7.95	360	100	peak
2	603.5392	26.42	14.62	41.04	46.00	-4.96	152	100	QP
3	845.0878	21.30	17.45	38.75	46.00	-7.25	334	100	peak

*Spurious Emission above 1GHz**Test Mode: Transmitting (802.11b)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)										
4824.0	PK	49.0	90	V	34.1	5.2	33.0	55.3	74	-18.7
4824.0	PK	49.9	270	H	34.1	5.2	33.0	56.2	74	-17.8
7236.0	PK	42.5	180	V	37.4	6.1	33.5	52.5	74	-21.5
7236.0	PK	43.7	45	H	37.4	6.1	33.5	53.7	74	-20.3
4824.0	AV	39.1	270	V	34.1	5.2	33.0	45.4	54	-8.6
4824.0	AV	37.3	90	H	34.1	5.2	33.0	43.6	54	-10.4
7236.0	AV	30.2	45	V	37.4	6.1	33.5	40.2	54	-13.8
7236.0	AV	30.7	60	H	37.4	6.1	33.5	40.7	54	-13.3
Middle Channel (2437MHz)										
4874.0	PK	50.9	45	V	34.1	5.2	33.0	57.2	74	-16.8
4874.0	PK	50.0	270	H	34.1	5.2	33.0	56.3	74	-17.7
7311.0	PK	42.0	45	V	37.4	6.1	33.5	52.0	74	-22.0
7311.0	PK	41.4	180	H	37.4	6.1	33.5	51.4	74	-22.6
4874.0	AV	38.4	270	V	34.1	5.2	33.0	44.7	54	-9.3
4874.0	AV	36.9	90	H	34.1	5.2	33.0	43.2	54	-10.8
7311.0	AV	30.0	60	V	37.4	6.1	33.5	40.0	54	-14.0
7311.0	AV	31.1	45	H	37.4	6.1	33.5	41.1	54	-12.9
High Channel (2462MHz)										
4924.0	PK	50.1	270	V	34.1	5.2	33.0	56.4	74	-17.6
4924.0	PK	49.5	45	H	34.1	5.2	33.0	55.8	74	-18.2
7386.0	PK	40.4	180	V	37.4	6.1	33.5	50.4	74	-23.6
7386.0	PK	39.8	45	H	37.4	6.1	33.5	49.8	74	-24.2
4924.0	AV	39.0	90	V	34.1	5.2	33.0	45.3	54	-8.7
4924.0	AV	37.9	270	H	34.1	5.2	33.0	44.2	54	-9.8
7386.0	AV	30.3	60	V	37.4	6.1	33.5	40.3	54	-13.7
7386.0	AV	31.5	60	H	37.4	6.1	33.5	41.5	54	-12.5

Note: Testing is carried out with frequency rang 30MHz 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.

*Spurious Emission Above 1GHz**Test Mode: Transmitting (802.11g)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)										
4824.0	PK	49.3	90	V	34.1	5.2	33.0	55.6	74	-18.4
4824.0	PK	51.1	270	H	34.1	5.2	33.0	57.4	74	-16.6
7236.0	PK	40.3	180	V	37.4	6.1	33.5	50.3	74	-23.7
7236.0	PK	41.3	45	H	37.4	6.1	33.5	51.3	74	-22.7
4824.0	AV	39.9	270	V	34.1	5.2	33.0	46.2	54	-7.8
4824.0	AV	38.0	90	H	34.1	5.2	33.0	44.3	54	-9.7
7236.0	AV	32.0	45	V	37.4	6.1	33.5	42.0	54	-12.0
7236.0	AV	31.2	60	H	37.4	6.1	33.5	41.2	54	-12.8
Middle Channel (2437MHz)										
4874.0	PK	49.4	45	V	34.1	5.2	33.0	55.7	74	-18.3
4874.0	PK	48.0	270	H	34.1	5.2	33.0	54.3	74	-19.7
7311.0	PK	42.5	45	V	37.4	6.1	33.5	52.5	74	-21.5
7311.0	PK	43.7	180	H	37.4	6.1	33.5	53.7	74	-20.3
4874.0	AV	38.0	270	V	34.1	5.2	33.0	44.3	54	-9.7
4874.0	AV	36.6	90	H	34.1	5.2	33.0	42.9	54	-11.1
7311.0	AV	30.9	60	V	37.4	6.1	33.5	40.9	54	-13.1
7311.0	AV	31.5	45	H	37.4	6.1	33.5	41.5	54	-12.5
High Channel (2462MHz)										
4924.0	PK	49.1	270	V	34.1	5.2	33.0	55.4	74	-18.6
4924.0	PK	48.0	45	H	34.1	5.2	33.0	54.3	74	-19.7
7386.0	PK	42.9	180	V	37.4	6.1	33.5	52.9	74	-21.1
7386.0	PK	41.4	45	H	37.4	6.1	33.5	51.4	74	-22.6
4924.0	AV	38.3	90	V	34.1	5.2	33.0	44.6	54	-9.4
4924.0	AV	37.5	270	H	34.1	5.2	33.0	43.8	54	-10.2
7386.0	AV	32.0	60	V	37.4	6.1	33.5	42.0	54	-12.0
7386.0	AV	30.3	60	H	37.4	6.1	33.5	40.3	54	-13.7

Note: Testing is carried out with frequency rang 30MHz 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.

*Spurious Emission above 1GHz**Test Mode: Transmitting (802.11n-HT20)*

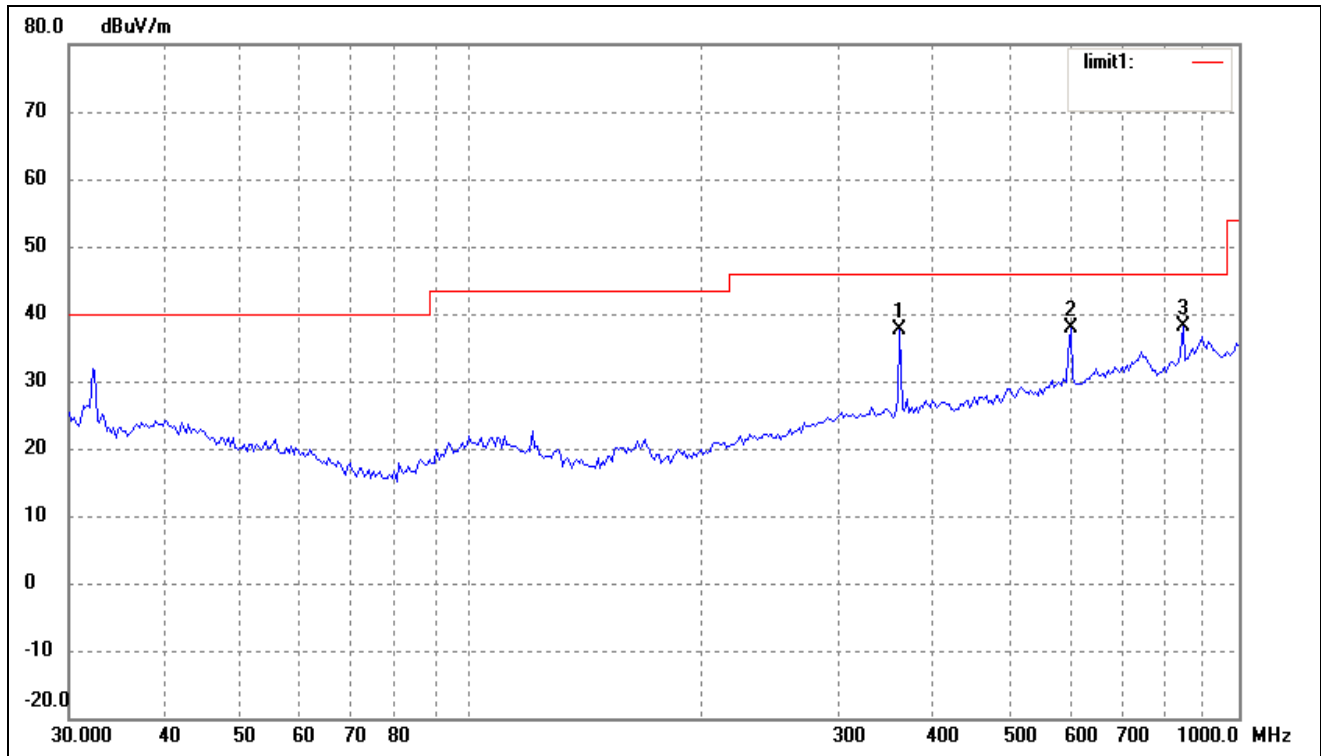
Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)										
4824.0	PK	48.0	90	V	34.1	5.2	33.0	54.3	74	-19.7
4824.0	PK	45.7	270	H	34.1	5.2	33.0	52.0	74	-22.0
7236.0	PK	40.3	180	V	37.4	6.1	33.5	50.3	74	-23.7
7236.0	PK	40.4	45	H	37.4	6.1	33.5	50.4	74	-23.6
4824.0	AV	34.0	270	V	34.1	5.2	33.0	40.3	54	-13.7
4824.0	AV	34.9	90	H	34.1	5.2	33.0	41.2	54	-12.8
7236.0	AV	29.8	45	V	37.4	6.1	33.5	39.8	54	-14.2
7236.0	AV	28.7	60	H	37.4	6.1	33.5	38.7	54	-15.3
Middle Channel (2437MHz)										
4874.0	PK	47.2	45	V	34.1	5.2	33.0	53.5	74	-20.5
4874.0	PK	46.5	270	H	34.1	5.2	33.0	52.8	74	-21.2
7311.0	PK	41.4	45	V	37.4	6.1	33.5	51.4	74	-22.6
7311.0	PK	40.9	180	H	37.4	6.1	33.5	50.9	74	-23.1
4874.0	AV	38.4	270	V	34.1	5.2	33.0	44.7	54	-9.3
4874.0	AV	36.2	90	H	34.1	5.2	33.0	42.5	54	-11.5
7311.0	AV	30.6	60	V	37.4	6.1	33.5	40.6	54	-13.4
7311.0	AV	29.8	45	H	37.4	6.1	33.5	39.8	54	-14.2
High Channel (2462MHz)										
4924.0	PK	49.1	270	V	34.1	5.2	33.0	55.4	74	-18.6
4924.0	PK	45.0	45	H	34.1	5.2	33.0	51.3	74	-22.7
7386.0	PK	40.5	180	V	37.4	6.1	33.5	50.5	74	-23.5
7386.0	PK	39.6	45	H	37.4	6.1	33.5	49.6	74	-24.4
4924.0	AV	36.1	90	V	34.1	5.2	33.0	42.4	54	-11.6
4924.0	AV	34.7	270	H	34.1	5.2	33.0	41.0	54	-13.0
7386.0	AV	30.3	60	V	37.4	6.1	33.5	40.3	54	-13.7
7386.0	AV	30.0	60	H	37.4	6.1	33.5	40.0	54	-14.0

Note: Testing is carried out with frequency rang 30MHz 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.

*Spurious Emission Above 1GHz**Test Mode: Transmitting (802.11n-HT40)*

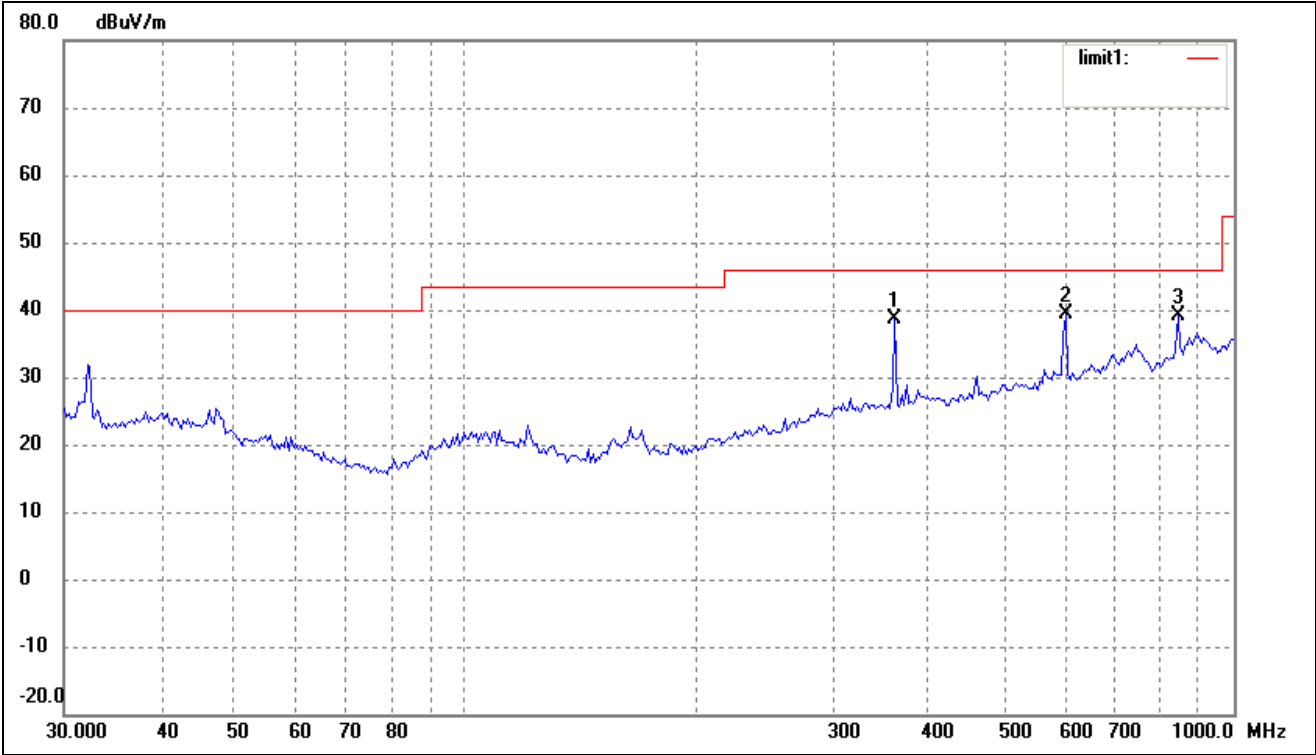
Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2422MHz)										
4844.0	PK	46.9	90	V	34.1	5.2	33.0	53.2	74	-20.8
4844.0	PK	47.7	270	H	34.1	5.2	33.0	54.0	74	-20.0
7246.0	PK	42.0	180	V	37.4	6.1	33.5	52.0	74	-22.0
7246.0	PK	40.1	45	H	37.4	6.1	33.5	50.1	74	-23.9
4844.0	AV	39.1	270	V	34.1	5.2	33.0	45.4	54	-8.6
4844.0	AV	36.9	90	H	34.1	5.2	33.0	43.2	54	-10.8
7246.0	AV	30.0	45	V	37.4	6.1	33.5	40.0	54	-14.0
7246.0	AV	29.8	60	H	37.4	6.1	33.5	39.8	54	-14.2
Middle Channel (2437MHz)										
4874.0	PK	46.0	45	V	34.1	5.2	33.0	52.3	74	-21.7
4874.0	PK	47.7	270	H	34.1	5.2	33.0	54.0	74	-20.0
7311.0	PK	41.2	45	V	37.4	6.1	33.5	51.2	74	-22.8
7311.0	PK	40.7	180	H	37.4	6.1	33.5	50.7	74	-23.3
4874.0	AV	36.9	270	V	34.1	5.2	33.0	43.2	54	-10.8
4874.0	AV	34.6	90	H	34.1	5.2	33.0	40.9	54	-13.1
7311.0	AV	31.0	60	V	37.4	6.1	33.5	41.0	54	-13.0
7311.0	AV	30.2	45	H	37.4	6.1	33.5	40.2	54	-13.8
High Channel (2452MHz)										
4904.0	PK	47.9	270	V	34.1	5.2	33.0	54.2	74	-19.8
4904.0	PK	46.0	45	H	34.1	5.2	33.0	52.3	74	-21.7
7356.0	PK	40.2	180	V	37.4	6.1	33.5	50.2	74	-23.8
7356.0	PK	41.4	45	H	37.4	6.1	33.5	51.4	74	-22.6
4904.0	AV	36.7	90	V	34.1	5.2	33.0	43.0	54	-11.0
4904.0	AV	35.8	270	H	34.1	5.2	33.0	42.1	54	-11.9
7356.0	AV	30.3	60	V	37.4	6.1	33.5	40.3	54	-13.7
7356.0	AV	31.0	60	H	37.4	6.1	33.5	41.0	54	-13.0

Note: Testing is carried out with frequency rang 30MHz 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.

For Antenna 2: 8dBi*Test Result/Plots:**Spurious Emission From 30 MHz to 1 GHz**Test mode: Transmitting (802.11b) Low Channel**Comment:**Horizontal*

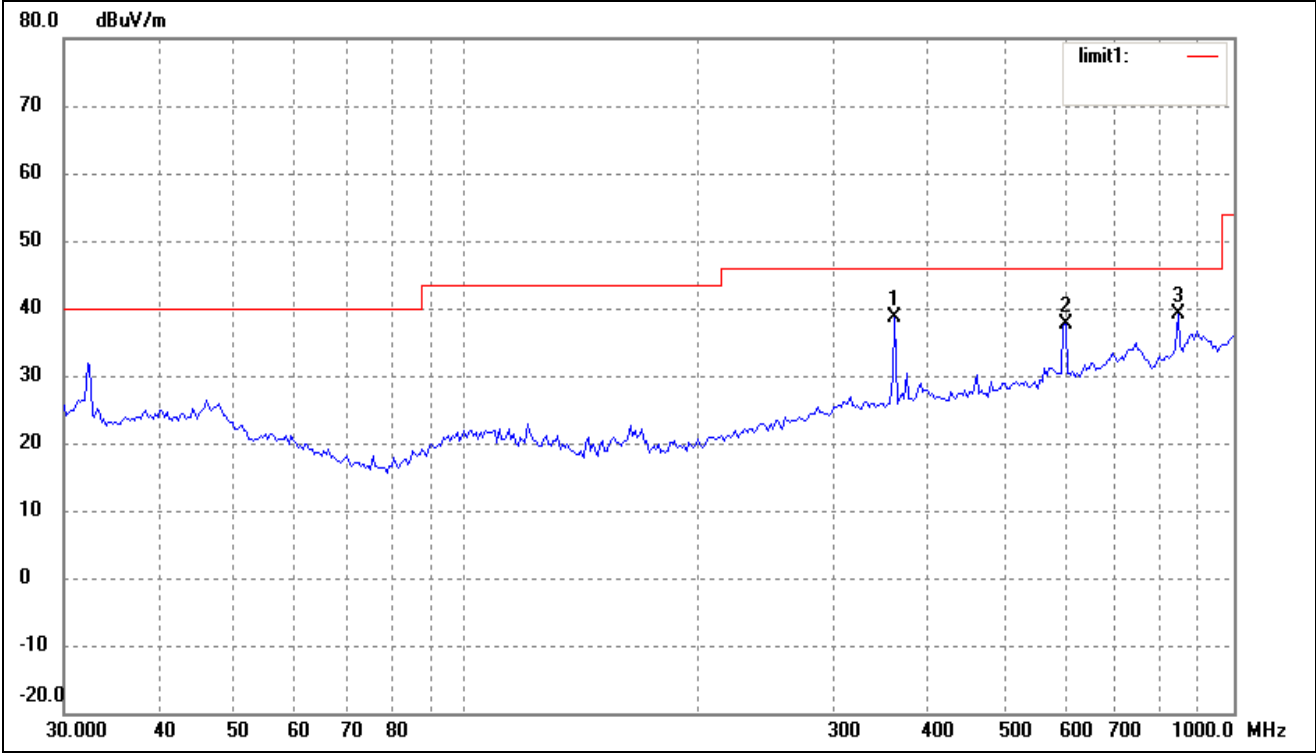
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	26.93	10.69	37.62	46.00	-8.38	223	100	peak
2	603.5392	23.33	14.62	37.95	46.00	-8.05	113	100	peak
3	845.0878	20.61	17.45	38.06	46.00	-7.94	246	100	peak

Vertical



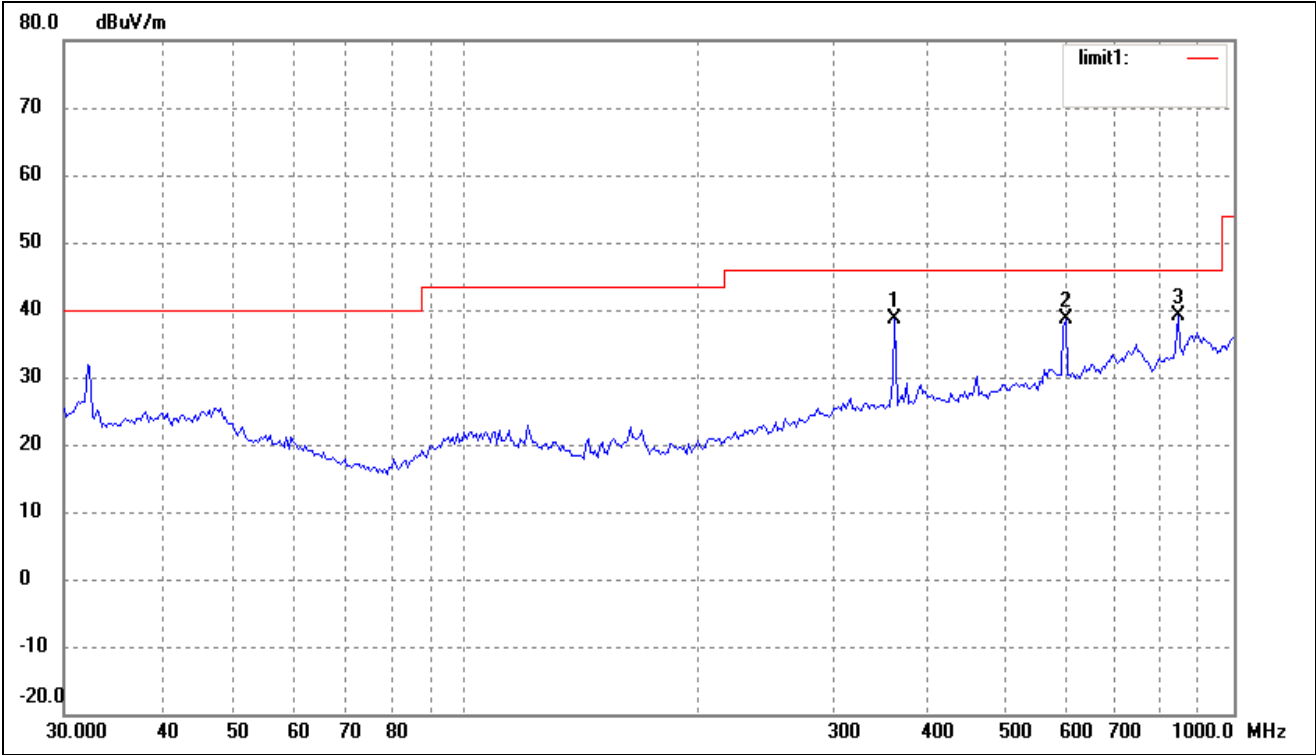
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	27.85	10.69	38.54	46.00	-7.46	247	100	peak
2	603.5392	24.79	14.62	39.41	46.00	-6.59	164	100	peak
3	845.0878	21.61	17.45	39.06	46.00	-6.94	200	100	peak

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



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	27.92	10.69	38.61	46.00	-7.39	231	100	peak
2	603.5392	22.94	14.62	37.56	46.00	-8.44	102	100	peak
3	845.0878	21.61	17.45	39.06	46.00	-6.94	50	100	peak

Vertical



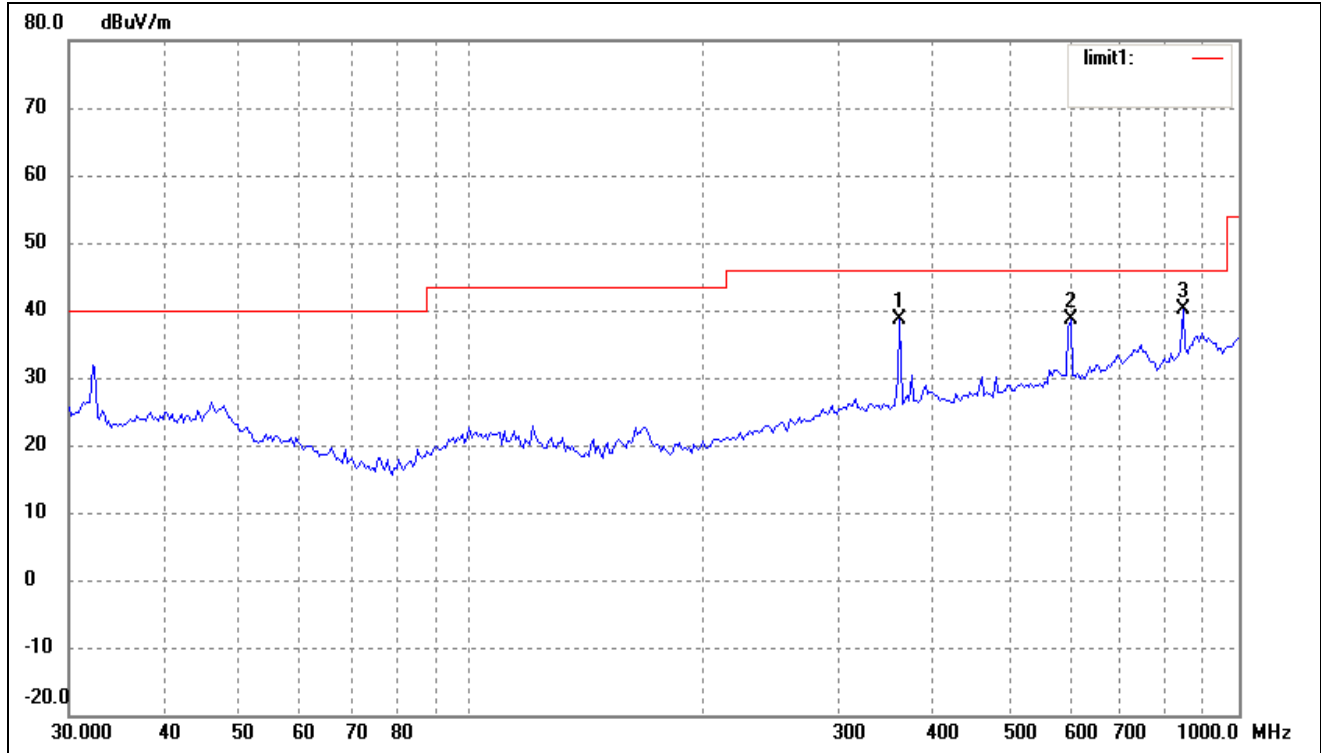
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	27.92	10.69	38.61	46.00	-7.39	231	100	peak
2	603.5392	23.94	14.62	38.56	46.00	-7.44	280	100	peak
3	845.0878	21.61	17.45	39.06	46.00	-6.94	360	100	peak

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11b) High Channel

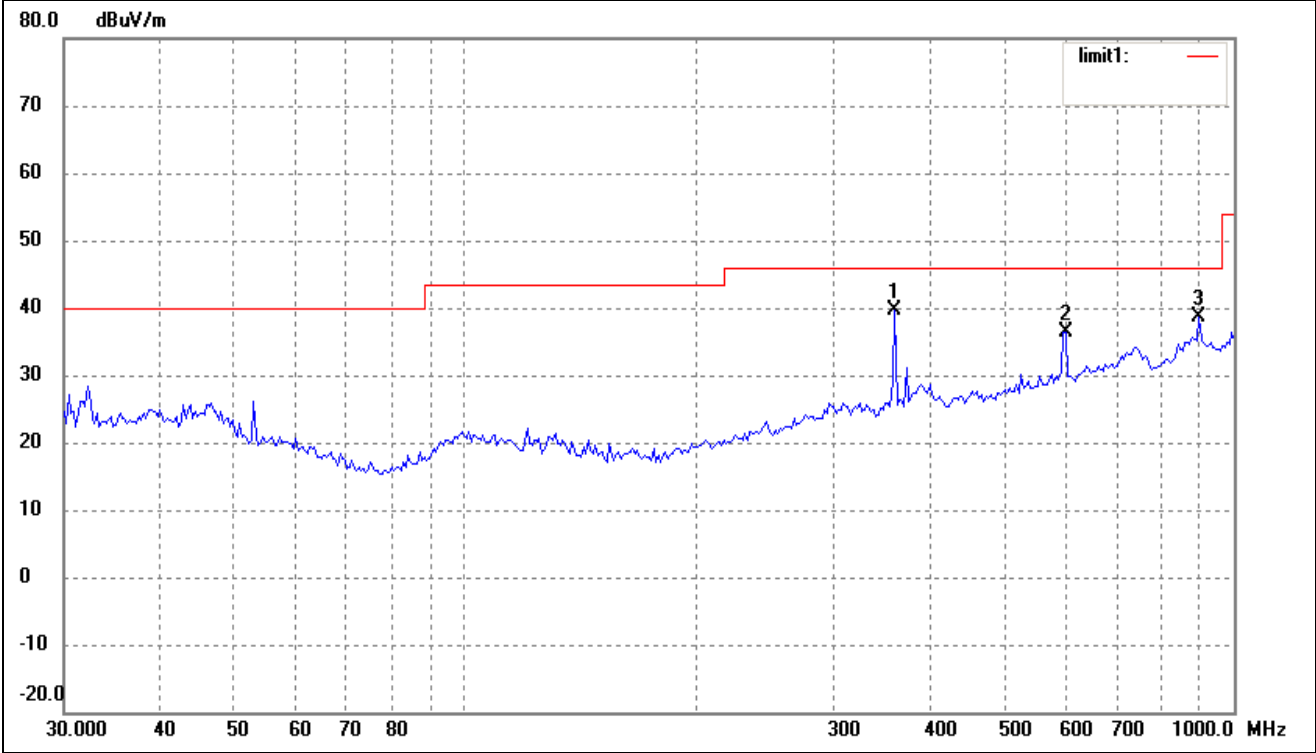
Comment:

Horizontal



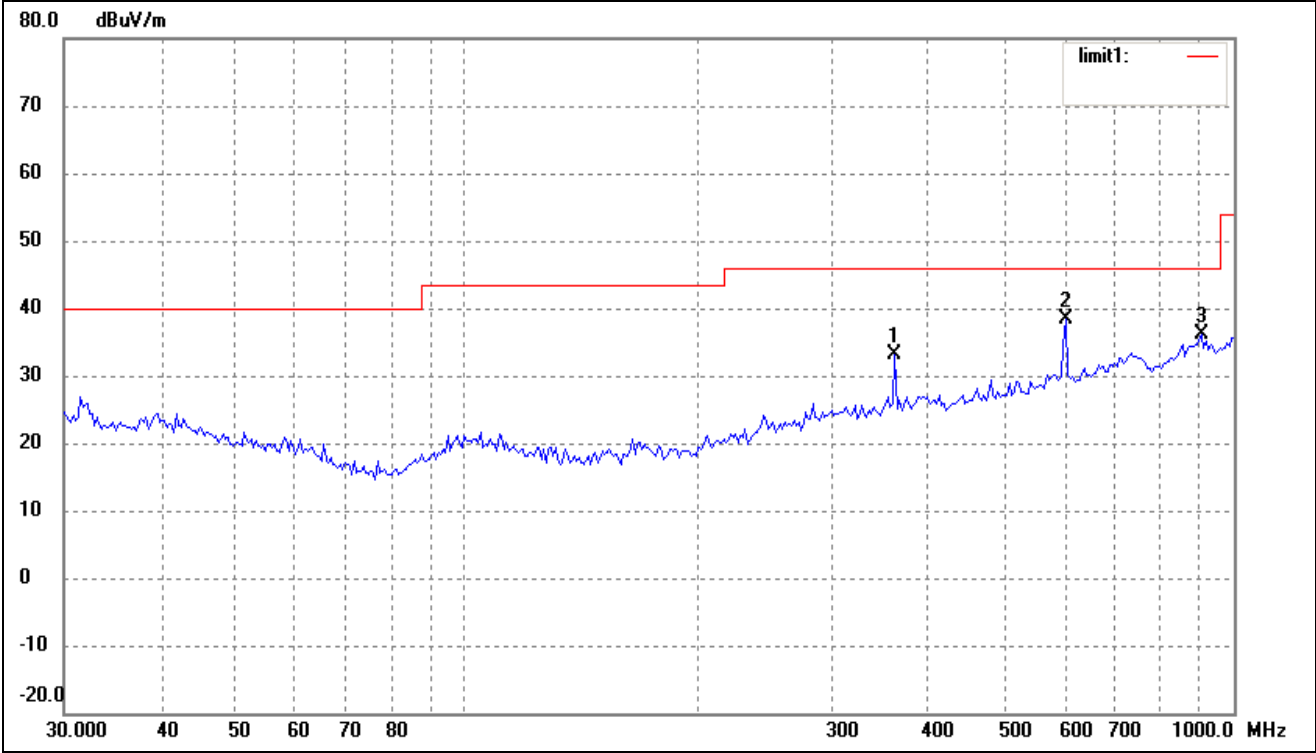
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	27.92	10.69	38.61	46.00	-7.39	360	100	peak
2	603.5392	23.94	14.62	38.56	46.00	-7.44	112	100	peak
3	845.0878	22.61	17.45	40.06	46.00	-5.94	30	100	peak

Vertical



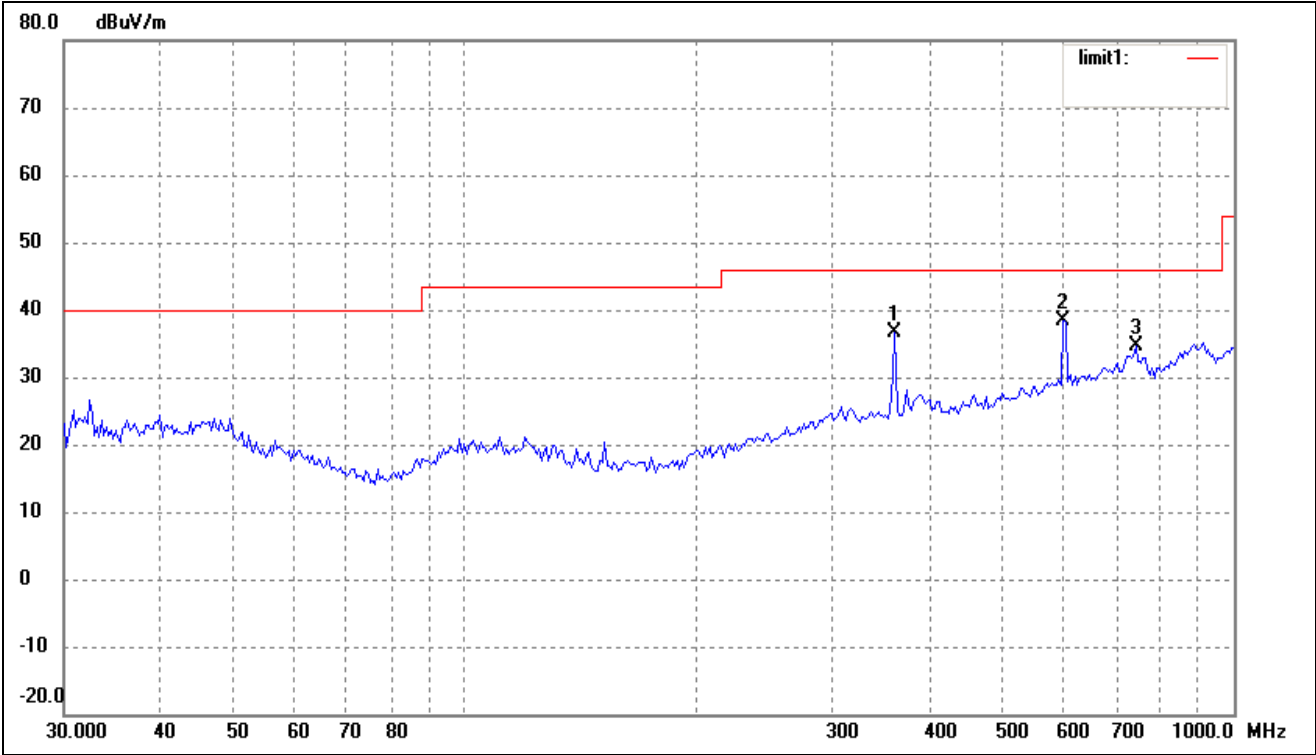
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	29.04	10.69	39.73	46.00	-6.27	360	100	peak
2	603.5392	21.70	14.62	36.32	46.00	-9.68	120	100	peak
3	900.1474	19.23	19.38	38.61	46.00	-7.39	225	200	peak

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



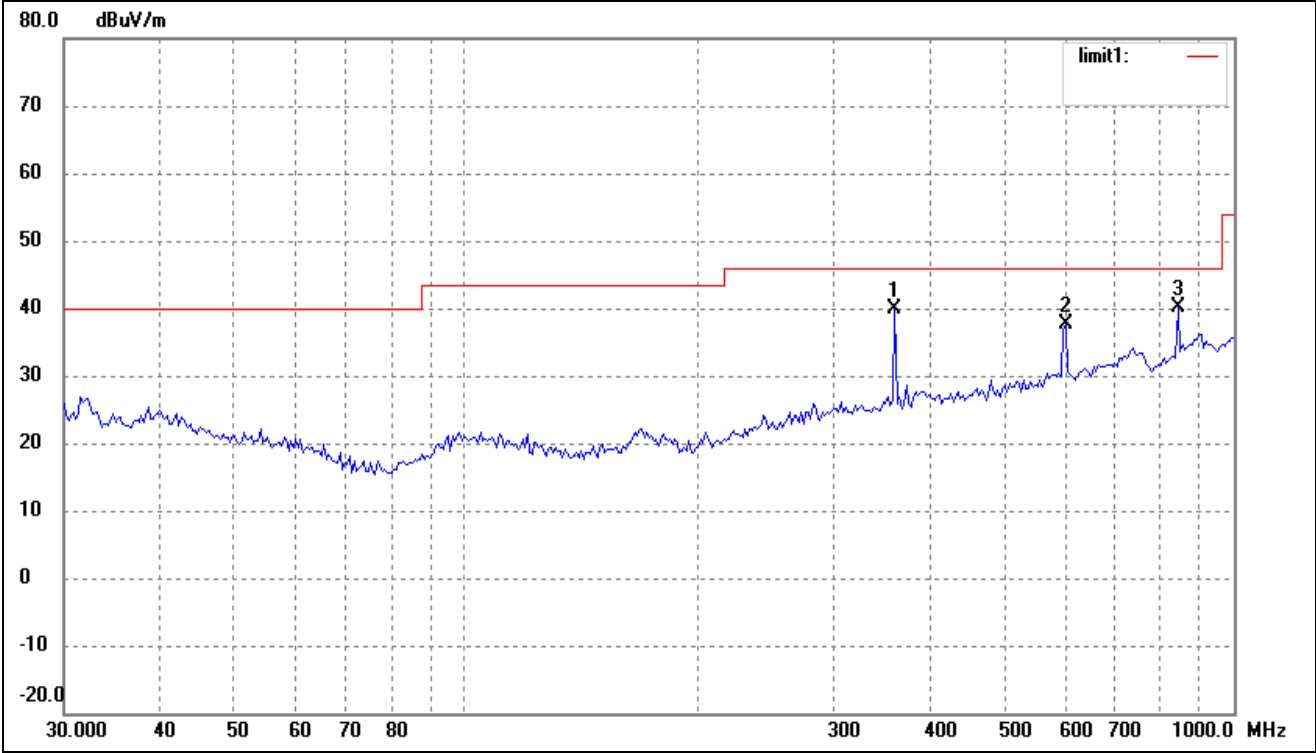
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	22.44	10.69	33.13	46.00	-12.87	360	100	peak
2	603.5392	23.75	14.62	38.37	46.00	-7.63	360	100	peak
3	906.4824	17.02	19.15	36.17	46.00	-9.83	120	100	peak

Vertical



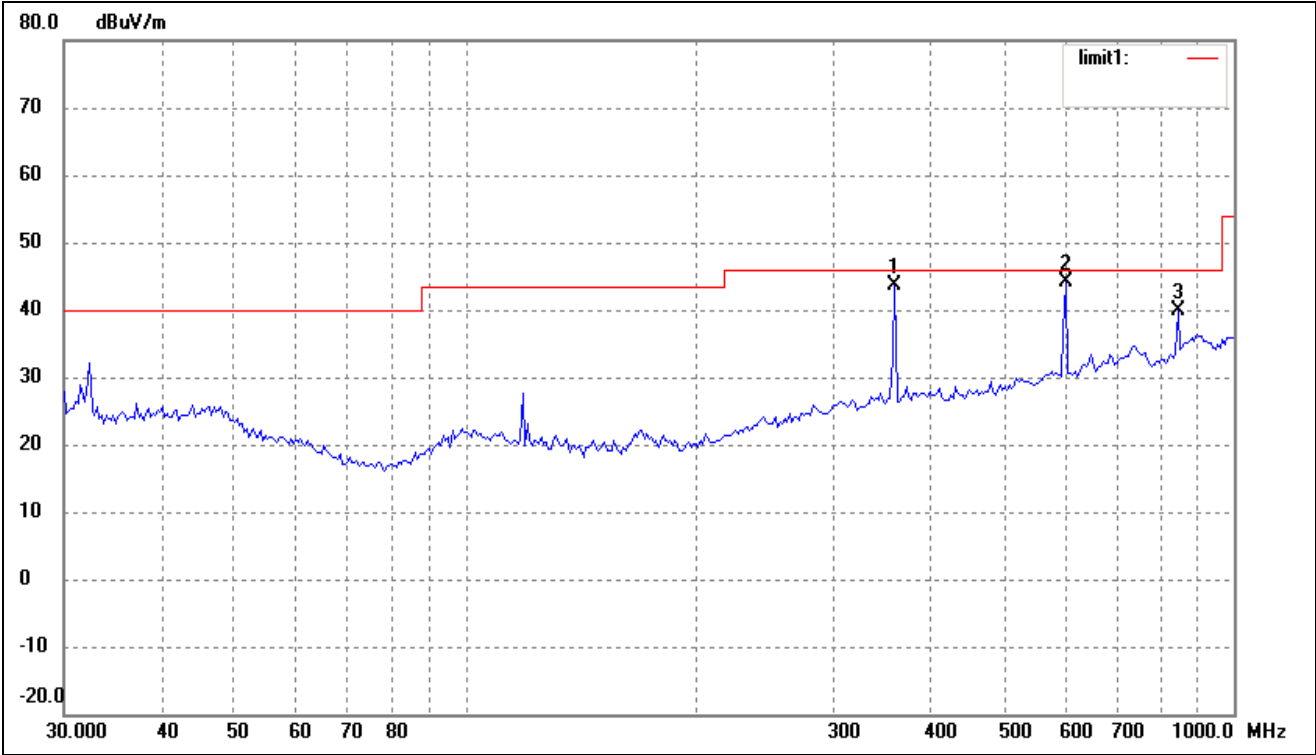
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	26.05	10.69	36.74	46.00	-9.26	251	100	peak
2	599.3213	23.54	14.76	38.30	46.00	-7.70	344	100	peak
3	744.8661	16.79	17.95	34.74	46.00	-11.26	120	100	peak

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



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	29.30	10.69	39.99	46.00	-6.01	231	100	peak
2	603.5392	22.92	14.62	37.54	46.00	-8.46	156	100	peak
3	845.0878	22.72	17.45	40.17	46.00	-5.83	203	100	QP

Vertical



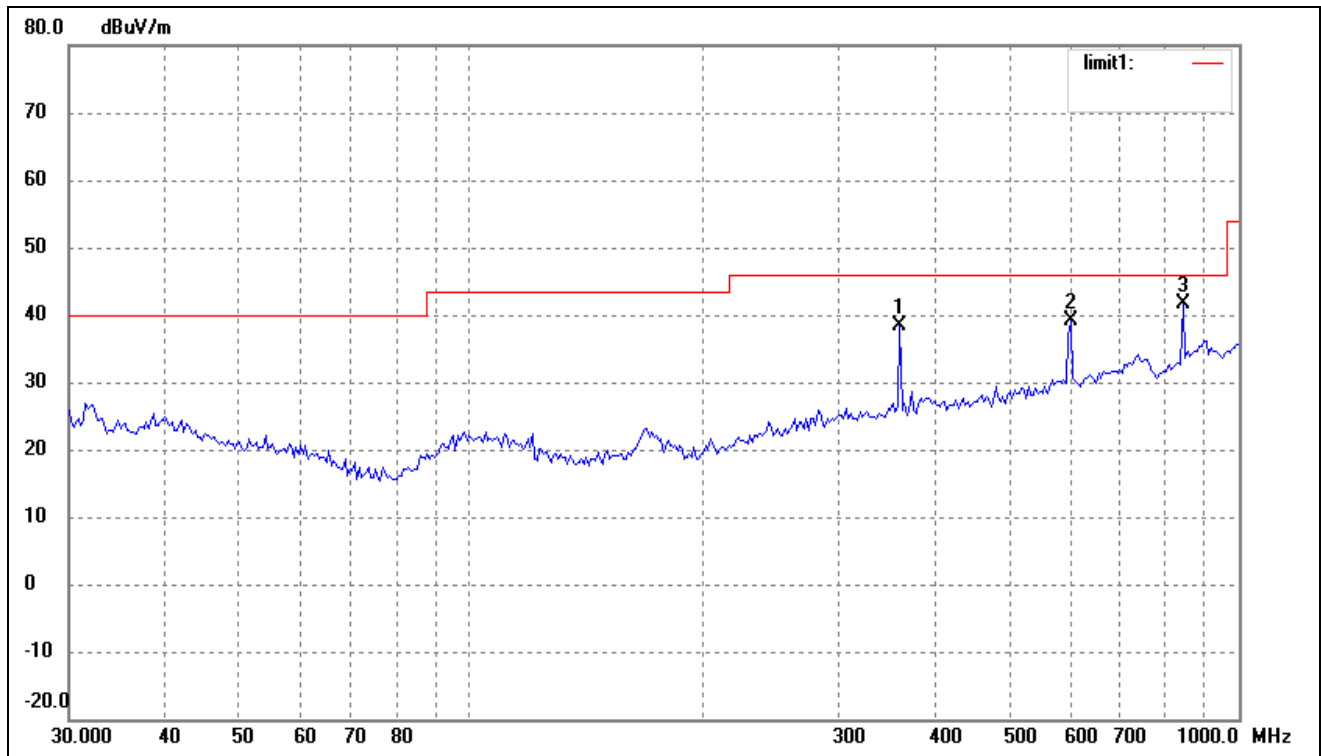
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	33.03	10.69	43.72	46.00	-2.28	137	100	QP
2	603.5392	29.42	14.62	44.04	46.00	-1.96	225	100	QP
3	845.0878	22.33	17.45	39.78	46.00	-6.22	200	100	peak

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11g) High Channel

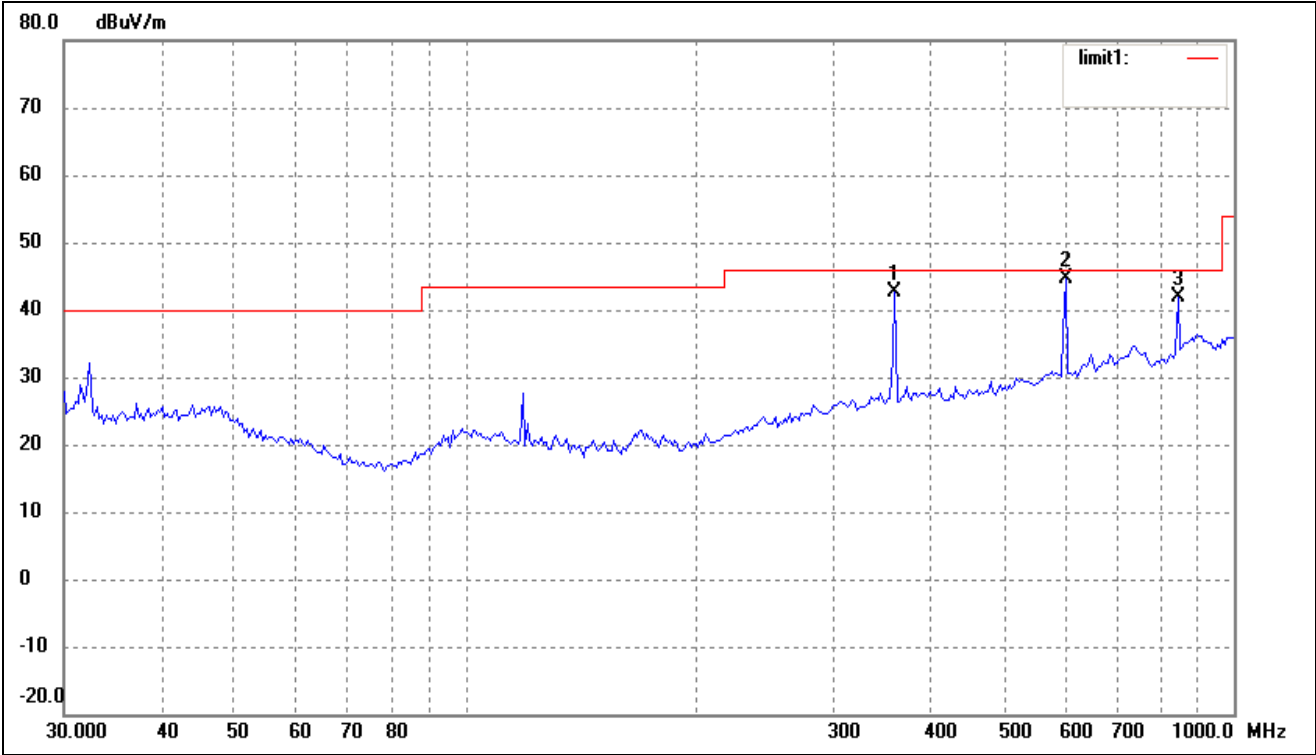
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	27.80	10.69	38.49	46.00	-7.51	341	100	peak
2	603.5392	24.42	14.62	39.04	46.00	-6.96	115	100	peak
3	845.0878	24.22	17.45	41.67	46.00	-4.33	200	100	QP

Vertical



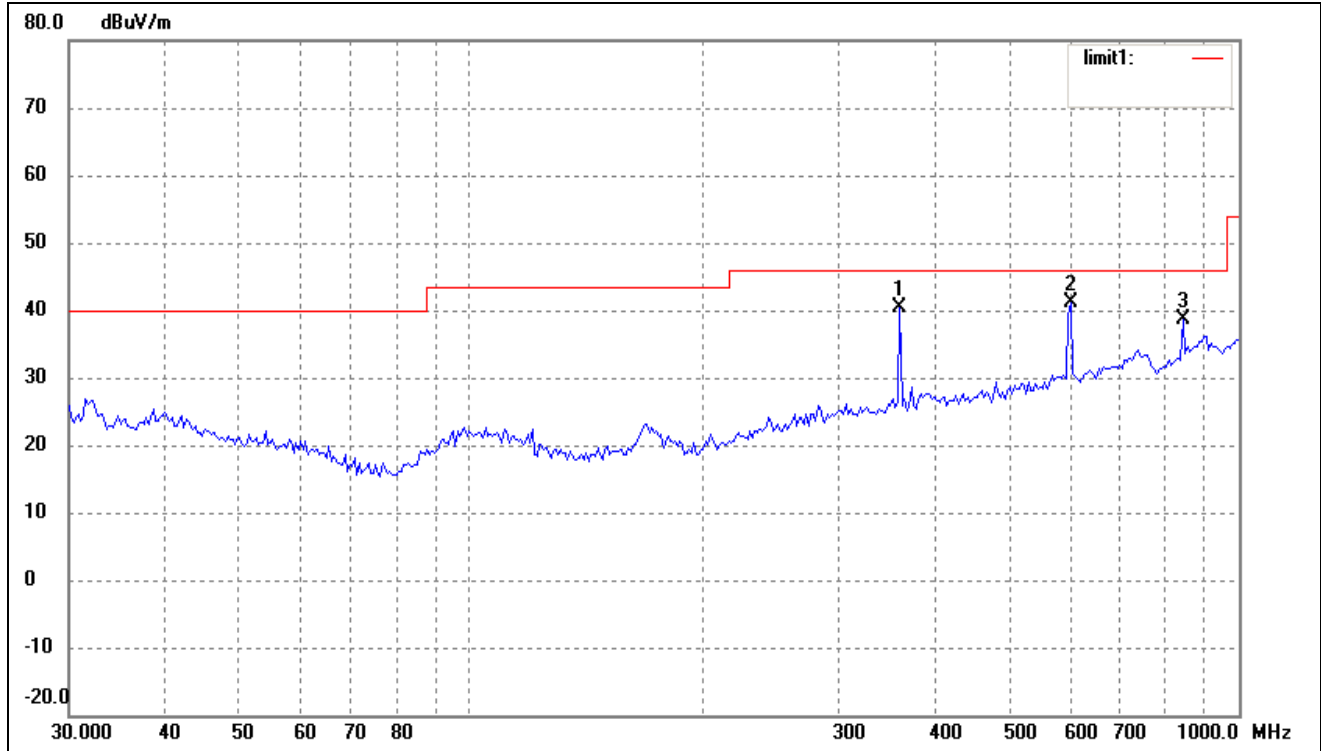
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.03	10.69	42.72	46.00	-3.28	124	100	QP
2	603.5392	29.92	14.62	44.54	46.00	-1.46	150	100	QP
3	845.0878	24.33	17.45	41.78	46.00	-4.22	220	100	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11n-HT20) Low Channel

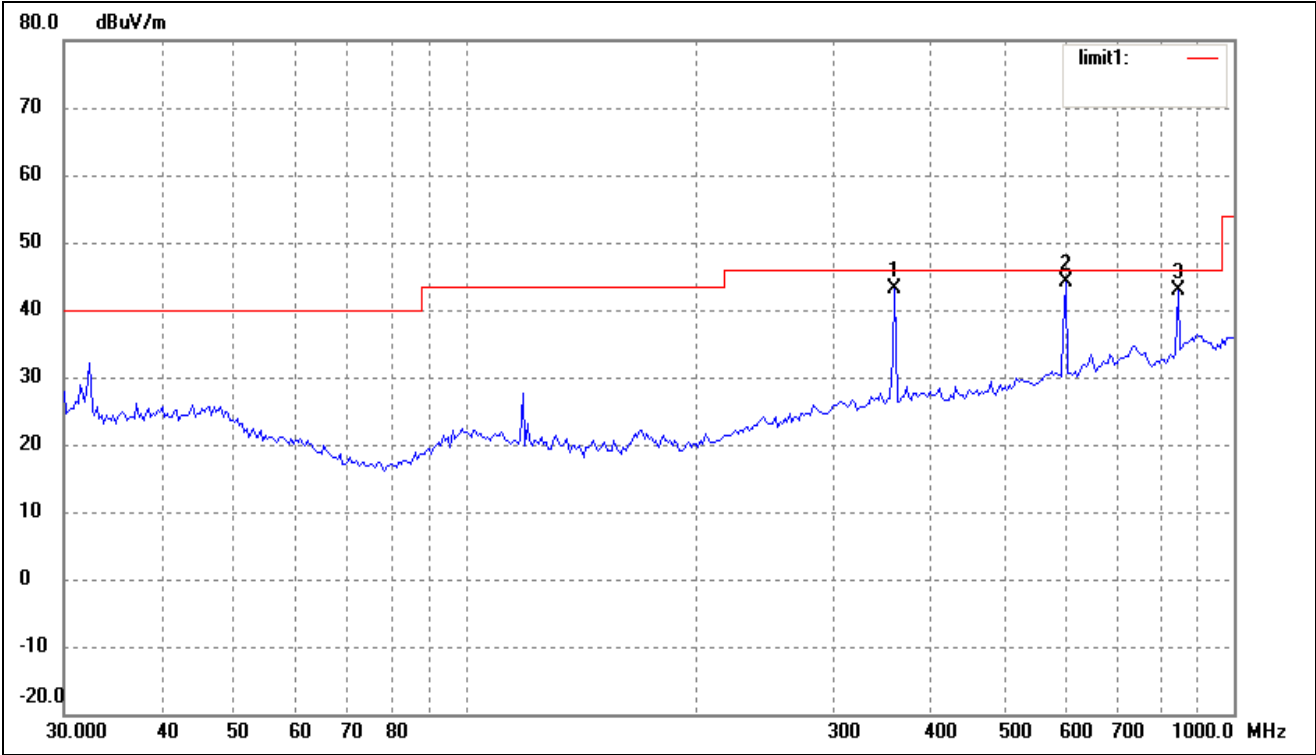
Comment:

Horizontal



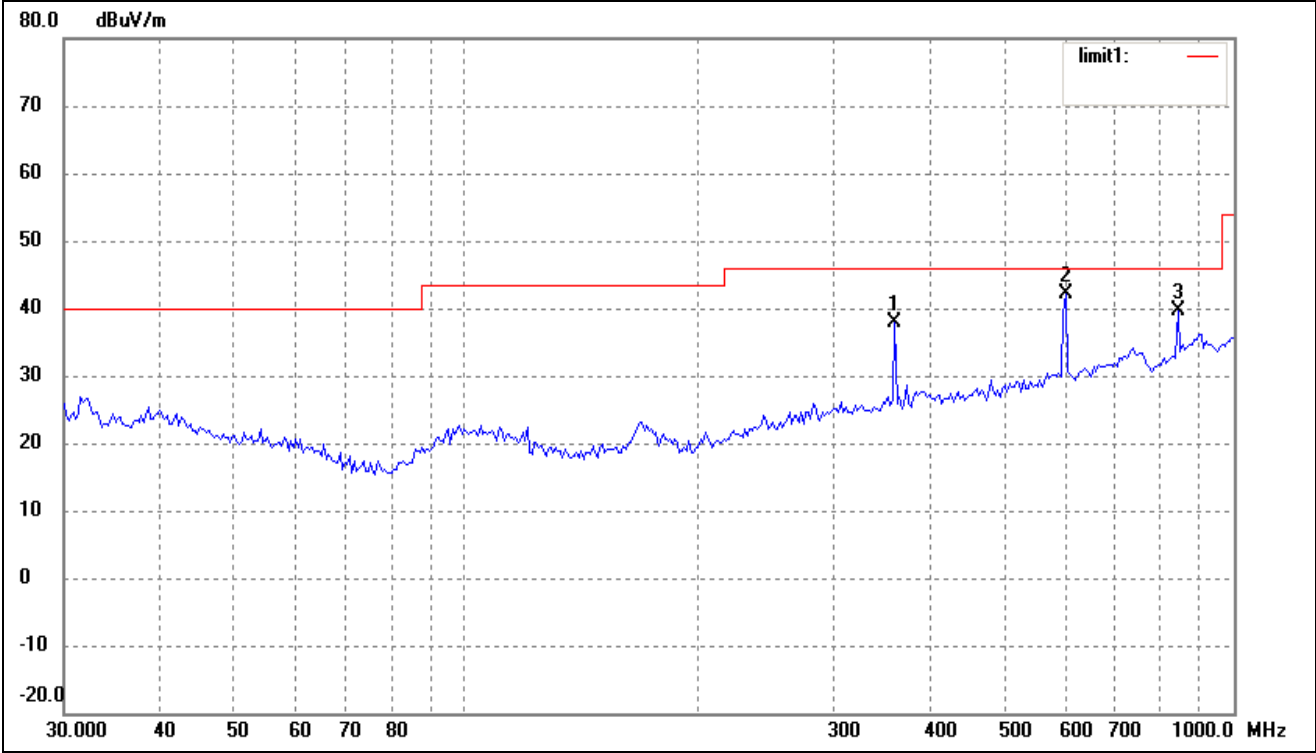
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	29.80	10.69	40.49	46.00	-5.51	227	100	QP
2	603.5392	26.42	14.62	41.04	46.00	-4.96	123	100	QP
3	845.0878	21.22	17.45	38.67	46.00	-7.33	203	100	peak

Vertical



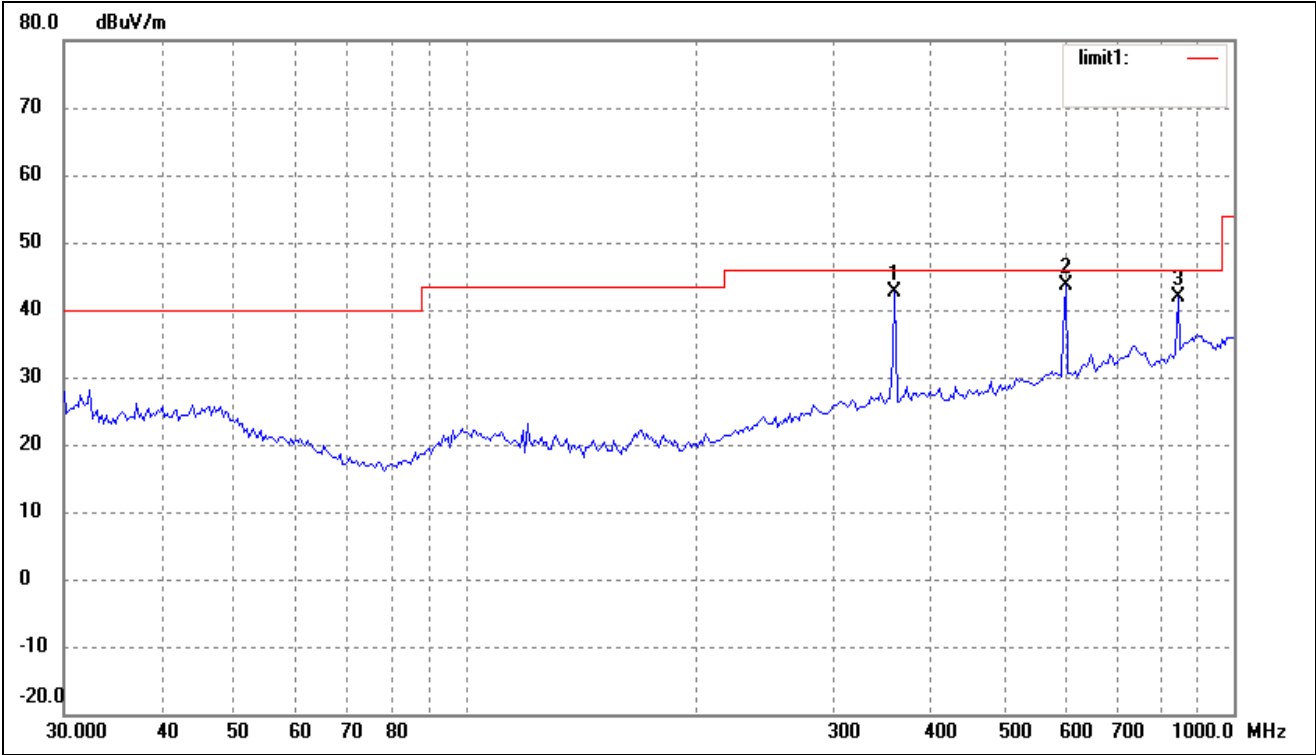
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.53	10.69	43.22	46.00	-2.78	164	100	QP
2	603.5392	29.42	14.62	44.04	46.00	-1.96	225	100	QP
3	845.0878	25.33	17.45	42.78	46.00	-3.22	341	100	QP

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



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	27.30	10.69	37.99	46.00	-8.01	254	100	peak
2	603.5392	27.42	14.62	42.04	46.00	-3.96	197	100	peak
3	845.0878	22.22	17.45	39.67	46.00	-6.33	203	100	peak

Vertical



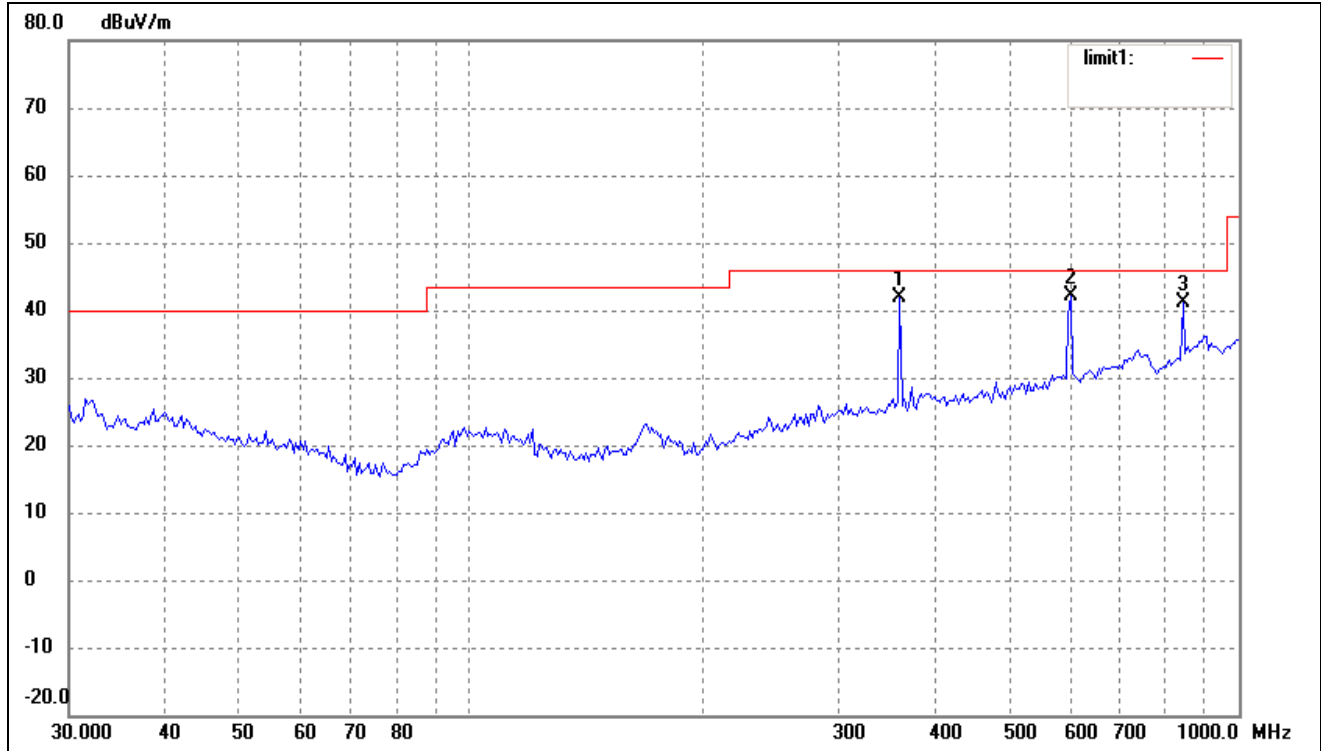
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.03	10.69	42.72	46.00	-3.28	115	100	QP
2	603.5392	28.92	14.62	43.54	46.00	-2.46	312	100	QP
3	845.0878	24.33	17.45	41.78	46.00	-4.22	226	100	QP

Spurious Emission From 30 MHz to 1 GHz

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

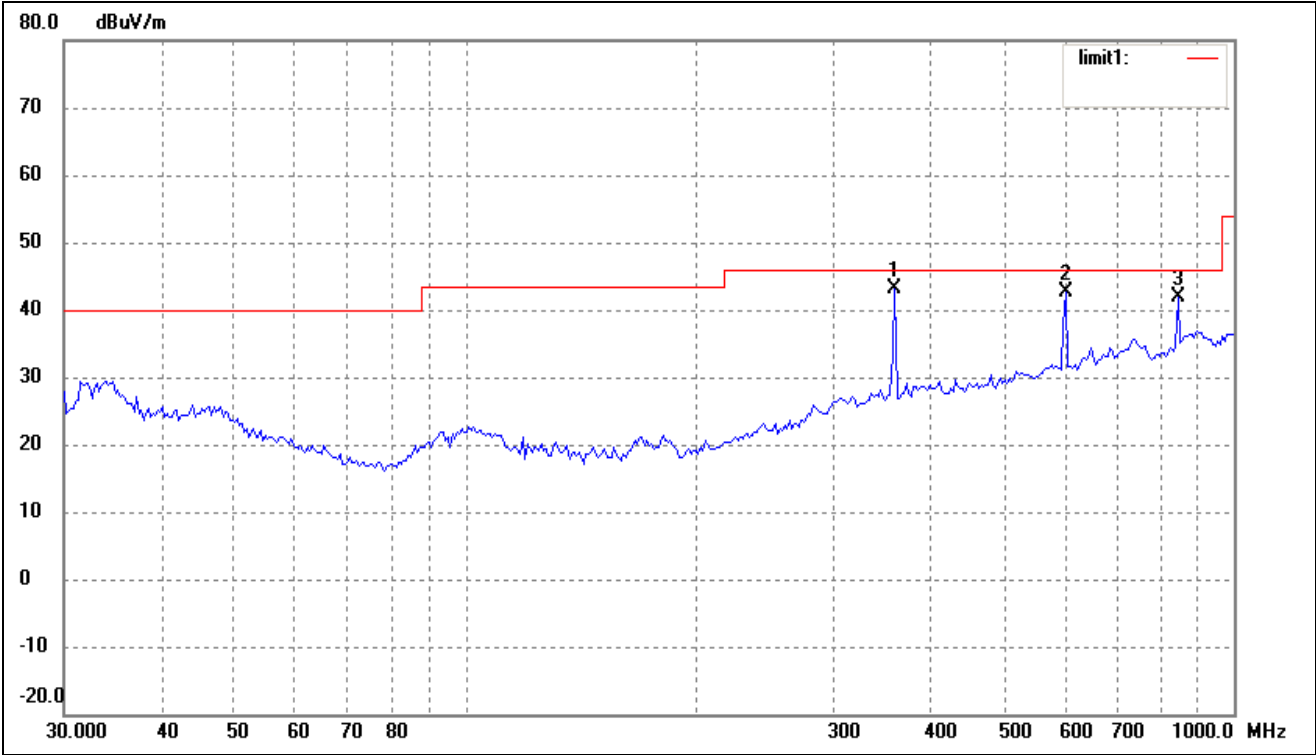
Comment:

Horizontal



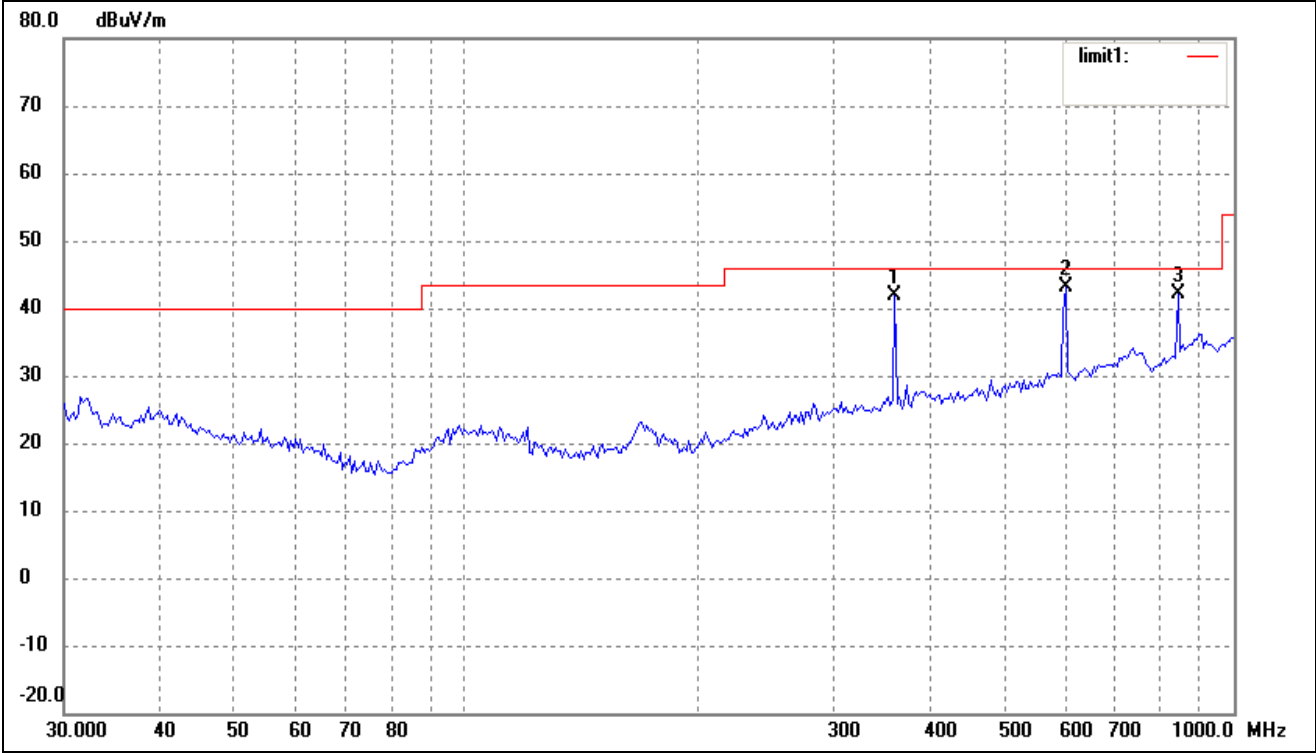
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	31.30	10.69	41.99	46.00	-4.01	36	100	QP
2	603.5392	27.42	14.62	42.04	46.00	-3.96	246	100	QP
3	845.0878	23.72	17.45	41.17	46.00	-4.83	118	100	QP

Vertical



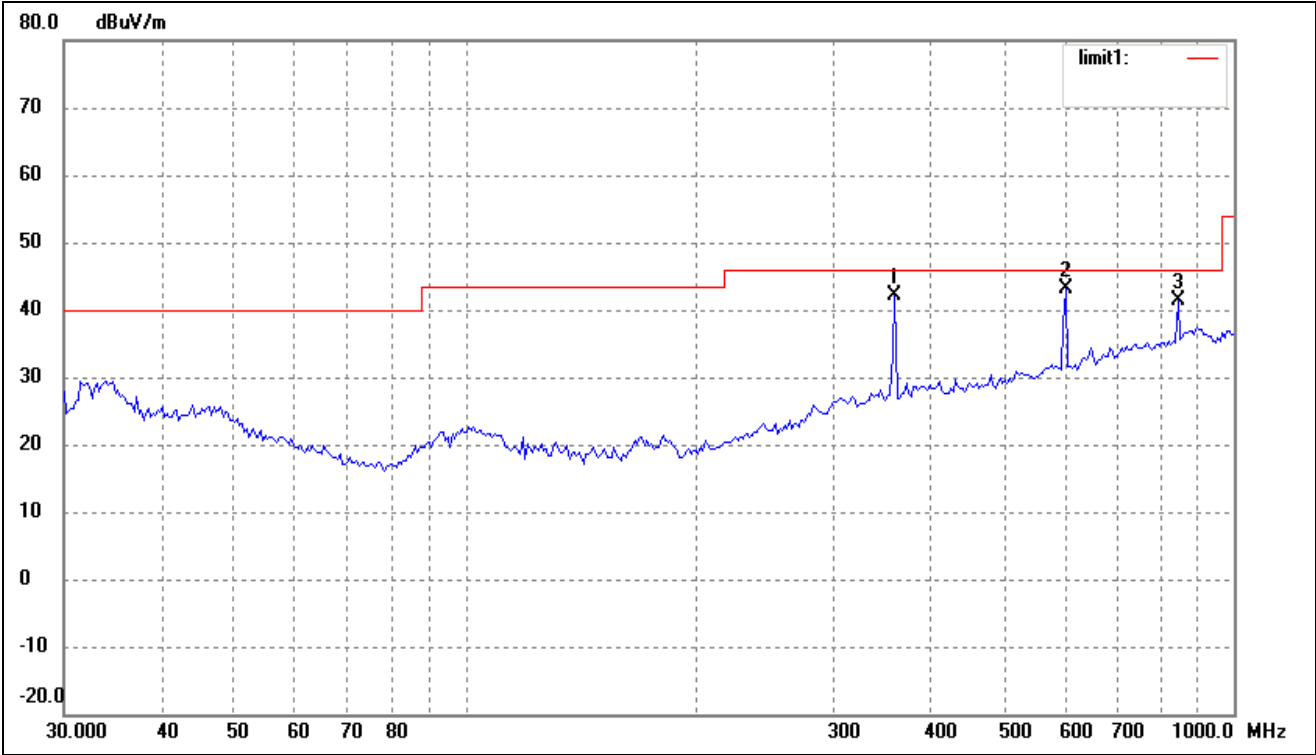
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.53	10.69	43.22	46.00	-2.78	241	100	QP
2	603.5392	27.92	14.62	42.54	46.00	-3.46	113	100	QP
3	845.0878	24.33	17.45	41.78	46.00	-4.22	226	100	QP

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



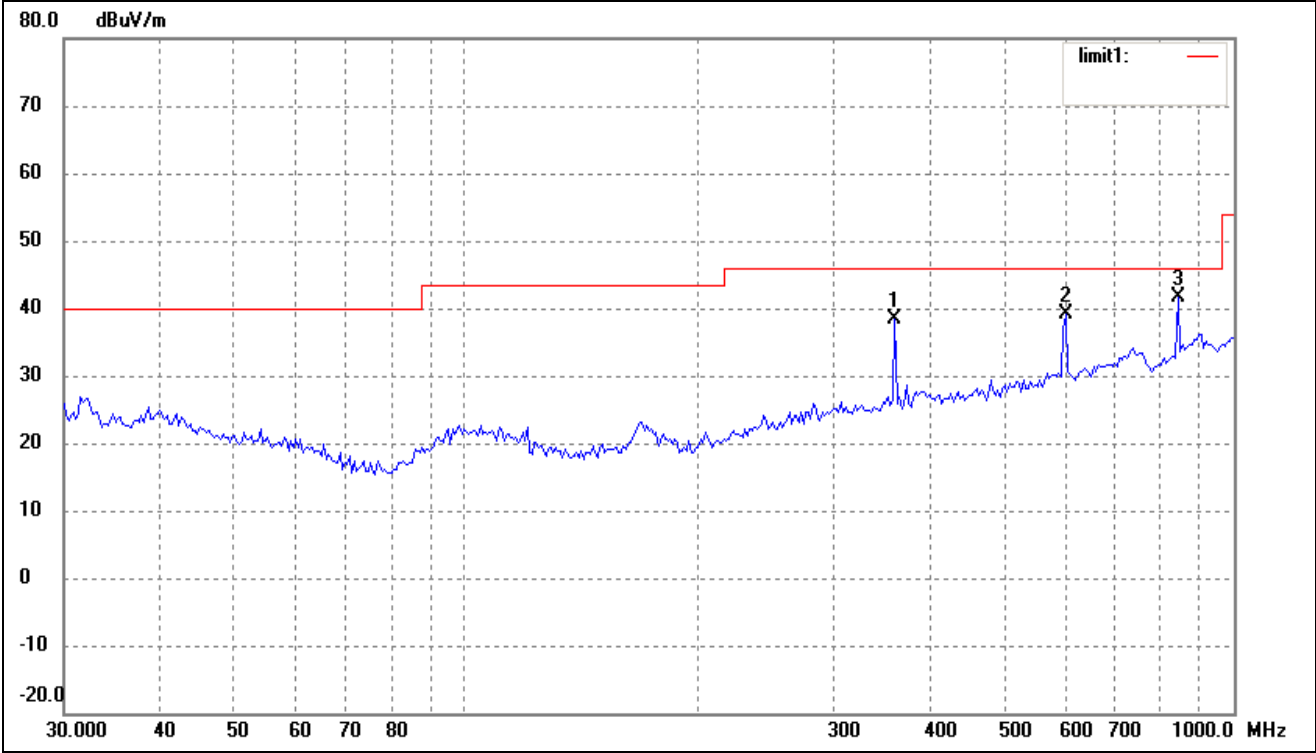
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	361.7139	31.30	10.69	41.99	46.00	-4.01	360	100	QP
2	603.5392	28.42	14.62	43.04	46.00	-2.96	360	100	QP
3	845.0878	24.72	17.45	42.17	46.00	-3.83	119	100	QP

Vertical



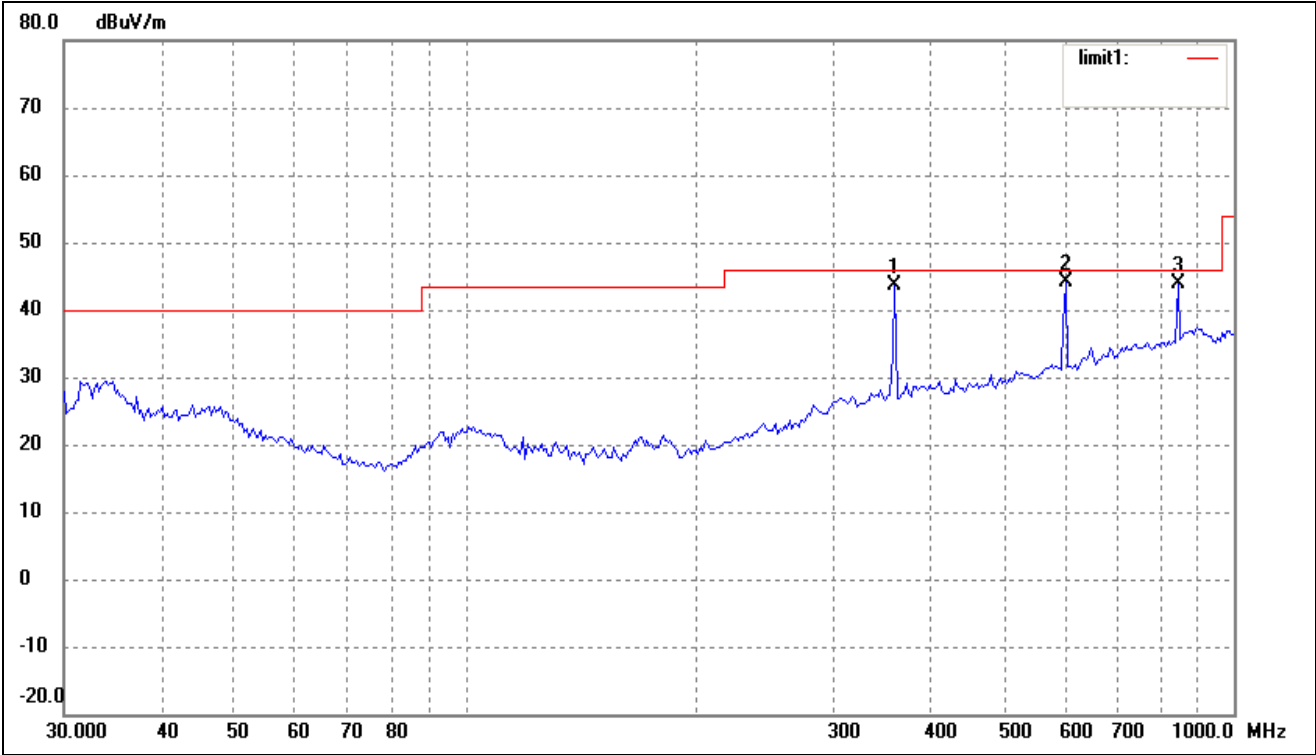
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	31.53	10.69	42.22	46.00	-3.78	345	100	QP
2	603.5392	28.42	14.62	43.04	46.00	-2.96	118	100	QP
3	845.0878	23.83	17.45	41.28	46.00	-4.72	204	100	QP

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



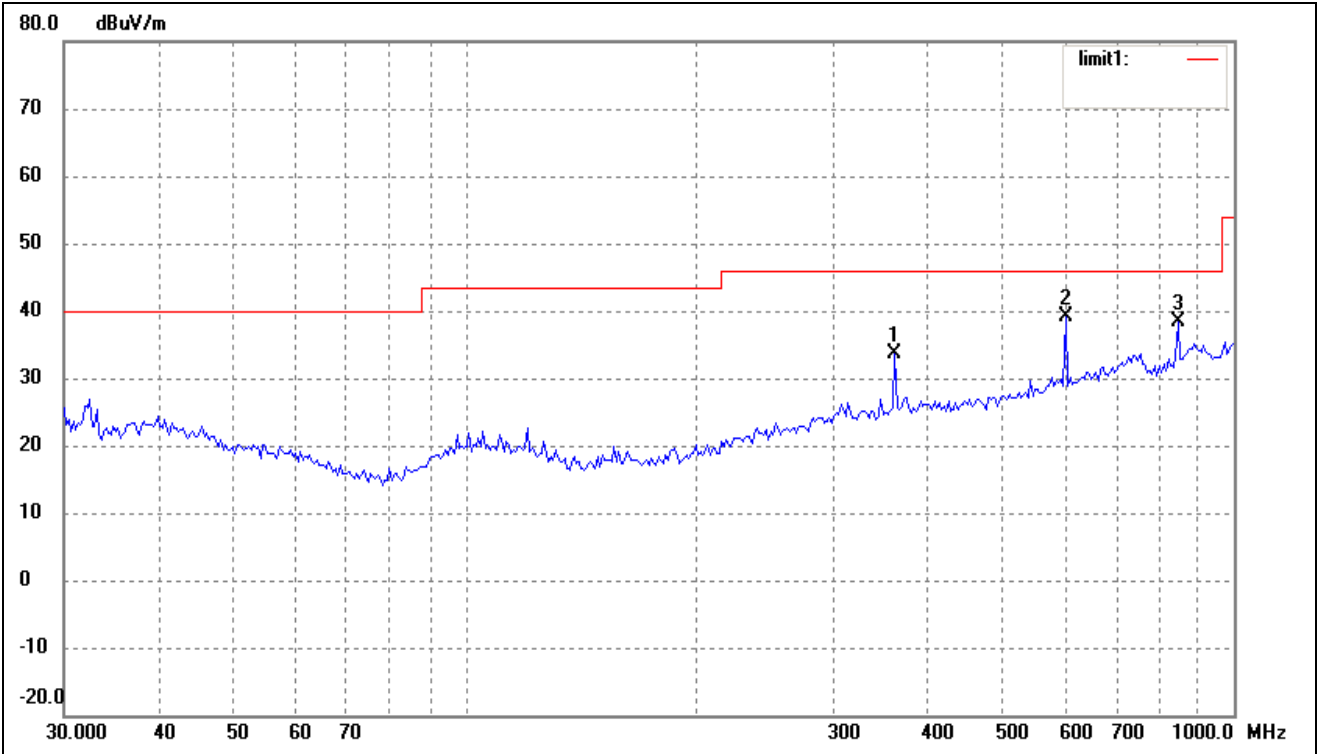
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	27.80	10.69	38.49	46.00	-7.51	154	100	peak
2	603.5392	24.42	14.62	39.04	46.00	-6.96	228	100	peak
3	845.0878	24.22	17.45	41.67	46.00	-4.33	106	100	QP

Vertical



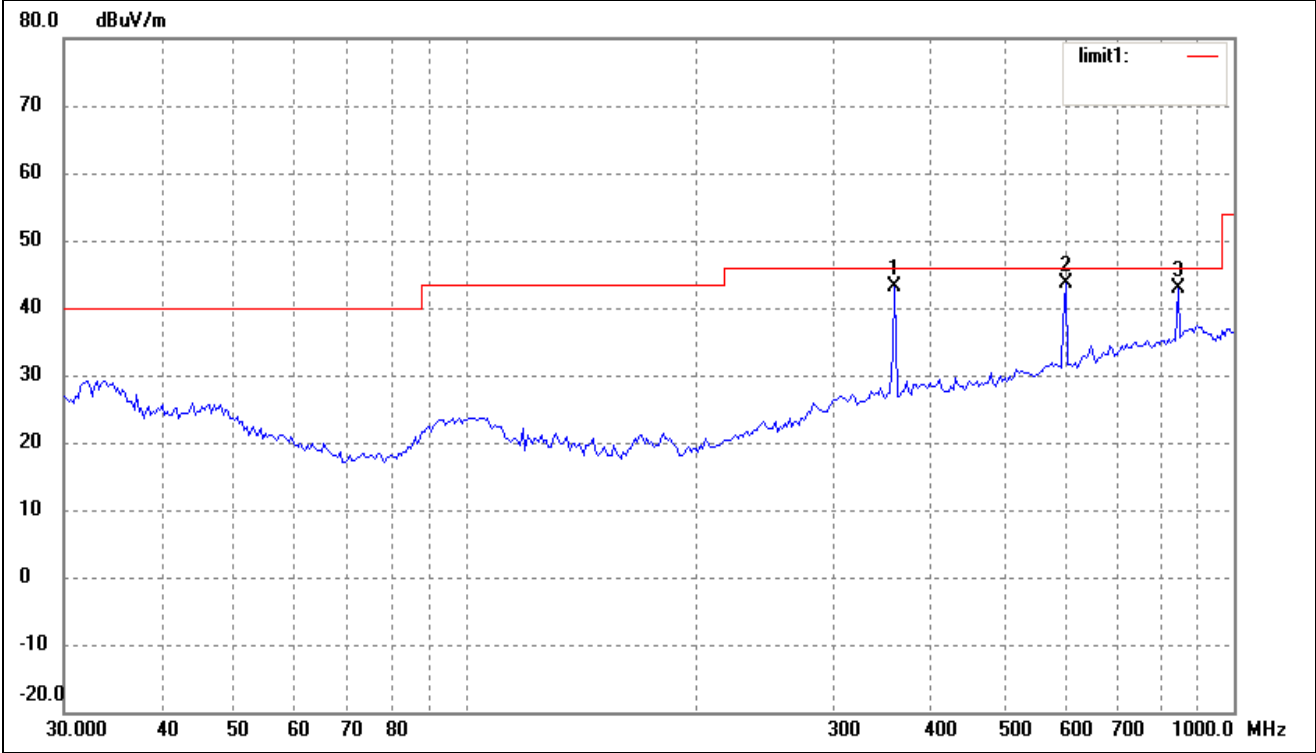
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	33.03	10.69	43.72	46.00	-2.28	135	100	QP
2	603.5392	29.42	14.62	44.04	46.00	-1.96	227	100	QP
3	845.0878	26.33	17.45	43.78	46.00	-2.22	103	100	QP

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



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	22.85	10.69	33.54	46.00	-12.46	152	100	peak
2	603.5392	24.41	14.62	39.03	46.00	-6.97	113	100	peak
3	845.0878	21.03	17.45	38.48	46.00	-7.52	62	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	361.7139	32.53	10.69	43.22	46.00	-2.78	234	100	QP
2	603.5392	28.92	14.62	43.54	46.00	-2.46	116	100	QP
3	845.0878	25.33	17.45	42.78	46.00	-3.22	227	100	QP

*Spurious Emission above 1GHz**Test Mode: Transmitting (802.11b)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)										
4824.0	PK	44.0	90	V	34.1	5.2	33.0	50.3	74	-23.7
4824.0	PK	43.1	270	H	34.1	5.2	33.0	49.4	74	-24.6
7236.0	PK	38.3	180	V	37.4	6.1	33.5	48.3	74	-25.7
7236.0	PK	37.6	45	H	37.4	6.1	33.5	47.6	74	-26.4
4824.0	AV	35.0	270	V	34.1	5.2	33.0	41.3	54	-12.7
4824.0	AV	34.0	90	H	34.1	5.2	33.0	40.3	54	-13.7
7236.0	AV	29.4	45	V	37.4	6.1	33.5	39.4	54	-14.6
7236.0	AV	29.6	60	H	37.4	6.1	33.5	39.6	54	-14.4
Middle Channel (2437MHz)										
4874.0	PK	44.7	45	V	34.1	5.2	33.0	51.0	74	-23.0
4874.0	PK	43.2	270	H	34.1	5.2	33.0	49.5	74	-24.5
7311.0	PK	38.1	45	V	37.4	6.1	33.5	48.1	74	-25.9
7311.0	PK	38.7	180	H	37.4	6.1	33.5	48.7	74	-25.3
4874.0	AV	34.0	270	V	34.1	5.2	33.0	40.3	54	-13.7
4874.0	AV	34.2	90	H	34.1	5.2	33.0	40.5	54	-13.5
7311.0	AV	29.8	60	V	37.4	6.1	33.5	39.8	54	-14.2
7311.0	AV	28.7	45	H	37.4	6.1	33.5	38.7	54	-15.3
High Channel (2462MHz)										
4924.0	PK	43.8	270	V	34.1	5.2	33.0	50.1	74	-23.9
4924.0	PK	42.2	45	H	34.1	5.2	33.0	48.5	74	-25.5
7386.0	PK	37.9	180	V	37.4	6.1	33.5	47.9	74	-26.1
7386.0	PK	39.3	45	H	37.4	6.1	33.5	49.3	74	-24.7
4924.0	AV	34.0	90	V	34.1	5.2	33.0	40.3	54	-13.7
4924.0	AV	34.9	270	H	34.1	5.2	33.0	41.2	54	-12.8
7386.0	AV	29.8	60	V	37.4	6.1	33.5	39.8	54	-14.2
7386.0	AV	28.6	60	H	37.4	6.1	33.5	38.6	54	-15.4

Note: Testing is carried out with frequency rang 30MHz 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.

*Spurious Emission Above 1GHz**Test Mode: Transmitting (802.11g)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (1G to 25GHz)										
4824.0	PK	43.9	90	V	34.1	5.2	33.0	50.2	74	-23.8
4824.0	PK	45.1	270	H	34.1	5.2	33.0	51.4	74	-22.6
7236.0	PK	39.8	180	V	37.4	6.1	33.5	49.8	74	-24.2
7236.0	PK	38.3	45	H	37.4	6.1	33.5	48.3	74	-25.7
4824.0	AV	34.0	270	V	34.1	5.2	33.0	40.3	54	-13.7
4824.0	AV	34.9	90	H	34.1	5.2	33.0	41.2	54	-12.8
7236.0	AV	28.8	45	V	37.4	6.1	33.5	38.8	54	-15.2
7236.0	AV	29.4	60	H	37.4	6.1	33.5	39.4	54	-14.6
Middle Channel (2437MHz)										
4874.0	PK	45.0	45	V	34.1	5.2	33.0	51.3	74	-22.7
4874.0	PK	43.9	270	H	34.1	5.2	33.0	50.2	74	-23.8
7311.0	PK	39.3	45	V	37.4	6.1	33.5	49.3	74	-24.7
7311.0	PK	40.2	180	H	37.4	6.1	33.5	50.2	74	-23.8
4874.0	AV	35.0	270	V	34.1	5.2	33.0	41.3	54	-12.7
4874.0	AV	33.9	90	H	34.1	5.2	33.0	40.2	54	-13.8
7311.0	AV	29.7	60	V	37.4	6.1	33.5	39.7	54	-14.3
7311.0	AV	28.6	45	H	37.4	6.1	33.5	38.6	54	-15.4
High Channel (2462MHz)										
4924.0	PK	45.1	270	V	34.1	5.2	33.0	51.4	74	-22.6
4924.0	PK	44.0	45	H	34.1	5.2	33.0	50.3	74	-23.7
7386.0	PK	39.6	180	V	37.4	6.1	33.5	49.6	74	-24.4
7386.0	PK	38.7	45	H	37.4	6.1	33.5	48.7	74	-25.3
4924.0	AV	35.0	90	V	34.1	5.2	33.0	41.3	54	-12.7
4924.0	AV	34.2	270	H	34.1	5.2	33.0	40.5	54	-13.5
7386.0	AV	29.7	60	V	37.4	6.1	33.5	39.7	54	-14.3
7386.0	AV	29.6	60	H	37.4	6.1	33.5	39.6	54	-14.4

Note: Testing is carried out with frequency rang 30MHz 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.

*Spurious Emission above 1GHz**Test Mode: Transmitting (802.11n-HT20)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)										
4824.0	PK	43.9	90	V	34.1	5.2	33.0	50.2	74	-23.8
4824.0	PK	44.7	270	H	34.1	5.2	33.0	51.0	74	-23.0
7236.0	PK	38.6	180	V	37.4	6.1	33.5	48.6	74	-25.4
7236.0	PK	39.3	45	H	37.4	6.1	33.5	49.3	74	-24.7
4824.0	AV	34.9	270	V	34.1	5.2	33.0	41.2	54	-12.8
4824.0	AV	34.3	90	H	34.1	5.2	33.0	40.6	54	-13.4
7236.0	AV	28.6	45	V	37.4	6.1	33.5	38.6	54	-15.4
7236.0	AV	29.0	60	H	37.4	6.1	33.5	39.0	54	-15.0
Middle Channel (2437MHz)										
4874.0	PK	44.0	45	V	34.1	5.2	33.0	50.3	74	-23.7
4874.0	PK	44.3	270	H	34.1	5.2	33.0	50.6	74	-23.4
7311.0	PK	41.0	45	V	37.4	6.1	33.5	51.0	74	-23.0
7311.0	PK	41.6	180	H	37.4	6.1	33.5	51.6	74	-22.4
4874.0	AV	36.0	270	V	34.1	5.2	33.0	42.3	54	-11.7
4874.0	AV	35.2	90	H	34.1	5.2	33.0	41.5	54	-12.5
7311.0	AV	30.3	60	V	37.4	6.1	33.5	40.3	54	-13.7
7311.0	AV	30.5	45	H	37.4	6.1	33.5	40.5	54	-13.5
High Channel (2462MHz)										
4924.0	PK	44.1	270	V	34.1	5.2	33.0	50.4	74	-23.6
4924.0	PK	43.4	45	H	34.1	5.2	33.0	49.7	74	-24.3
7386.0	PK	41.0	180	V	37.4	6.1	33.5	51.0	74	-23.0
7386.0	PK	38.7	45	H	37.4	6.1	33.5	48.7	74	-25.3
4924.0	AV	34.0	90	V	34.1	5.2	33.0	40.3	54	-13.7
4924.0	AV	33.5	270	H	34.1	5.2	33.0	39.8	54	-14.2
7386.0	AV	30.5	60	V	37.4	6.1	33.5	40.5	54	-13.5
7386.0	AV	28.6	60	H	37.4	6.1	33.5	38.6	54	-15.4

Note: Testing is carried out with frequency rang 30MHz 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.

*Spurious Emission Above 1GHz**Test Mode: Transmitting (802.11n-HT40)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)										
4844.0	PK	43.3	90	V	34.1	5.2	33.0	49.6	74	-24.4
4844.0	PK	44.0	270	H	34.1	5.2	33.0	50.3	74	-23.7
7246.0	PK	41.2	180	V	37.4	6.1	33.5	51.2	74	-22.8
7246.0	PK	38.6	45	H	37.4	6.1	33.5	48.6	74	-25.4
4844.0	AV	34.7	270	V	34.1	5.2	33.0	41.0	54	-13.0
4844.0	AV	34.2	90	H	34.1	5.2	33.0	40.5	54	-13.5
7246.0	AV	29.6	45	V	37.4	6.1	33.5	39.6	54	-14.4
7246.0	AV	29.8	60	H	37.4	6.1	33.5	39.8	54	-14.2
Middle Channel (2437MHz)										
4874.0	PK	43.9	45	V	34.1	5.2	33.0	50.2	74	-23.8
4874.0	PK	44.7	270	H	34.1	5.2	33.0	51.0	74	-23.0
7311.0	PK	40.3	45	V	37.4	6.1	33.5	50.3	74	-23.7
7311.0	PK	39.5	180	H	37.4	6.1	33.5	49.5	74	-24.5
4874.0	AV	34.8	270	V	34.1	5.2	33.0	41.1	54	-12.9
4874.0	AV	35.0	90	H	34.1	5.2	33.0	41.3	54	-12.7
7311.0	AV	30.6	60	V	37.4	6.1	33.5	40.6	54	-13.4
7311.0	AV	29.5	45	H	37.4	6.1	33.5	39.5	54	-14.5
High Channel (2452MHz)										
4904.0	PK	44.0	270	V	34.1	5.2	33.0	50.3	74	-23.7
4904.0	PK	43.2	45	H	34.1	5.2	33.0	49.5	74	-24.5
7356.0	PK	40.2	180	V	37.4	6.1	33.5	50.2	74	-23.8
7356.0	PK	40.1	45	H	37.4	6.1	33.5	50.1	74	-23.9
4904.0	AV	34.0	90	V	34.1	5.2	33.0	40.3	54	-13.7
4904.0	AV	33.7	270	H	34.1	5.2	33.0	40.0	54	-14.0
7356.0	AV	30.2	60	V	37.4	6.1	33.5	40.2	54	-13.8
7356.0	AV	29.6	60	H	37.4	6.1	33.5	39.6	54	-14.4

Note: Testing is carried out with frequency rang 30MHz 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.

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.

8.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2012-03-28	2013-03-27
Positioning Controller	C&C	CC-C-1F	N/A	2012-03-28	2013-03-27
RF Switch	EM	EMSW18	SW060023	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24

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 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.

8.4 Environmental Conditions

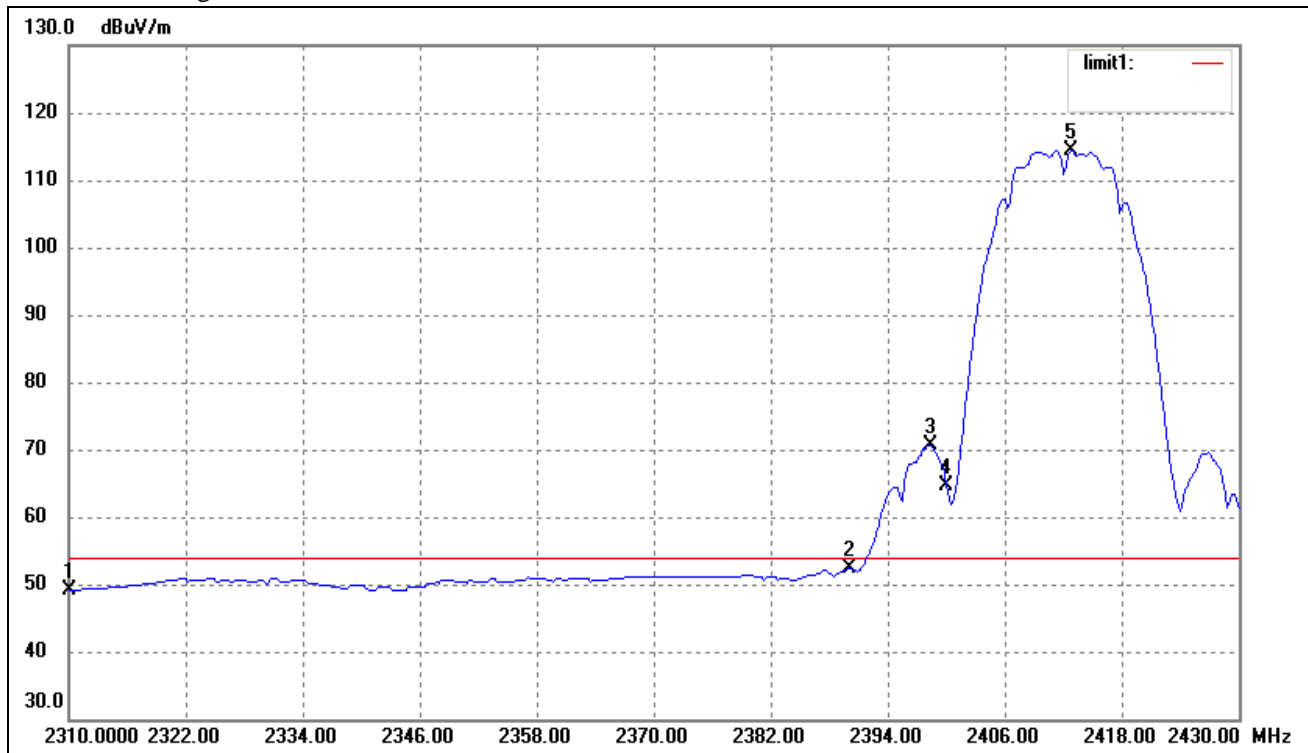
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

8.5 Summary of Test Results/Plots

Test mode	Frequency MHz	Limit dBuV /dB	Result
802.11b	2310.00	<54dBuV	Pass
	2390.00	<54dBuV	Pass
	2398.32	>20dB	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuV	Pass
	2500.00	<54dBuV	Pass
802.11g	2310.00	<54dBuV	Pass
	2390.00	<54dBuV	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuV	Pass
	2500.00	<54dBuV	Pass
802.11n-HT20	2310.00	<54dBuV	Pass
	2390.00	<54dBuV	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuV	Pass
	2500.00	<54dBuV	Pass
802.11n-HT40	2310.00	<54dBuV	Pass
	2390.00	<54dBuV	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuV	Pass
	2500.00	<54dBuV	Pass

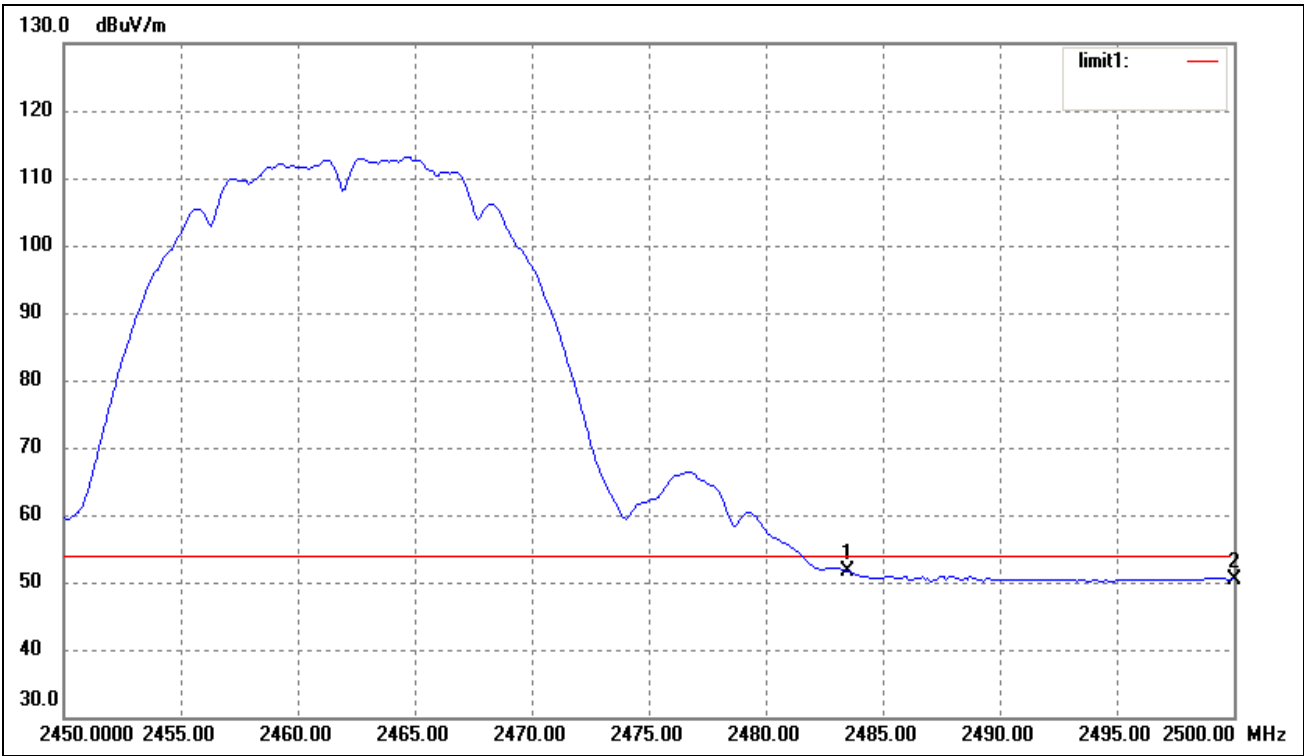
Antenna 1: 15dBi**For 802.11b**

Lowest Bandedge



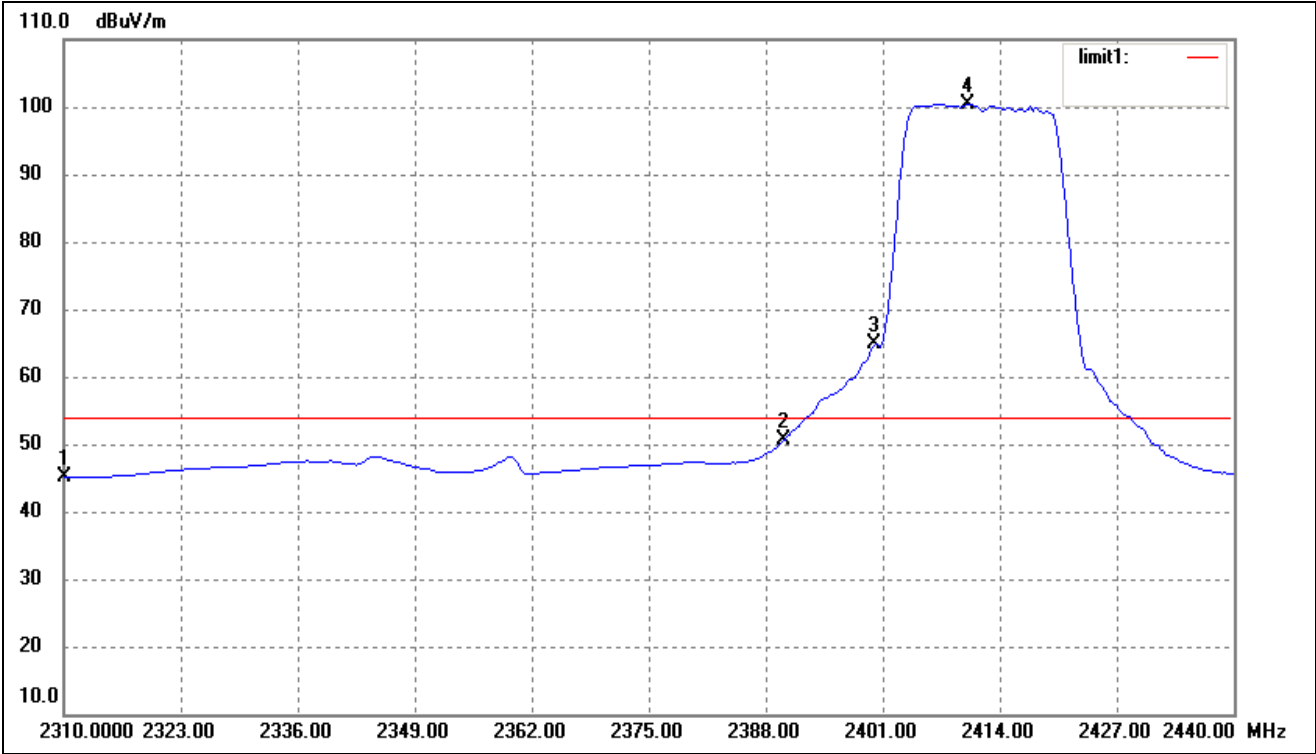
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	12.76	36.35	49.11	54.00	-4.89	Average Detector
	2310.000	22.29	36.35	58.64	74.00	-15.36	Peak Detector
2	2390.000	15.76	36.54	52.30	54.00	-1.70	Average Detector
	2390.000	23.83	36.54	60.37	74.00	-13.63	Peak Detector
3	2398.320	34.08	36.57	70.65	/	/	Average Detector
4	2400.000	28.00	36.57	64.57	/	/	Average Detector
5	2412.720	77.75	36.60	114.35	/	/	Average Detector

For 802.11b
Highest Bandedge



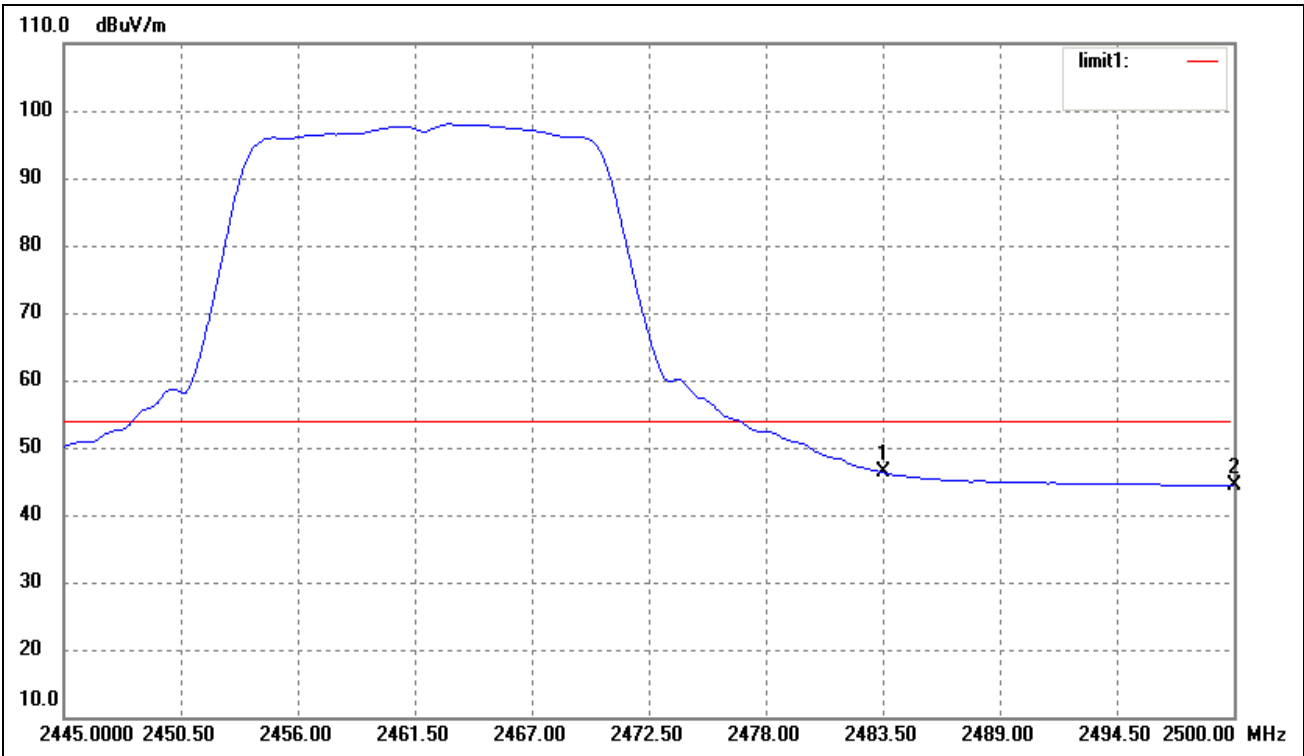
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	14.85	36.77	51.62	54.00	-2.38	Average Detector
	2483.500	23.53	36.77	60.30	74.00	-13.7	Peak Detector
2	2500.000	13.65	36.82	50.47	54.00	-3.53	Average Detector
	2500.000	23.75	36.82	60.57	74.00	-13.43	Peak Detector

For 802.11g
Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	13.34	31.70	45.04	54.00	-8.96	Average Detector
	2310.000	22.69	31.70	54.39	74.00	-19.61	Peak Detector
2	2390.000	19.00	31.71	50.71	54.00	-3.29	Average Detector
	2390.000	28.49	31.71	60.20	74.00	-13.8	Peak Detector
3	2400.000	33.06	31.71	64.77	/	/	Average Detector
4	2410.360	68.58	31.71	100.29	/	/	Average Detector

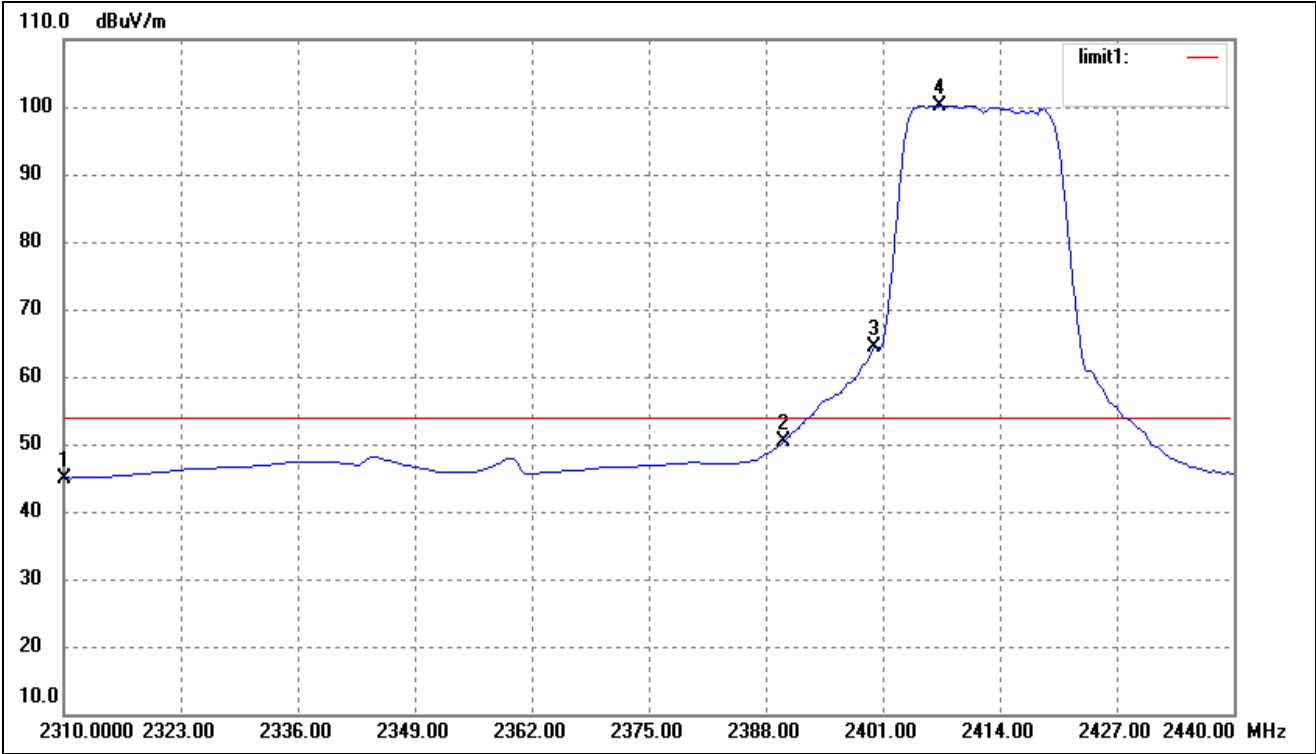
For 802.11g
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	14.56	31.71	46.27	54.00	-7.73	Average Detector
	2483.500	25.49	31.71	57.20	74.00	-16.8	Peak Detector
2	2500.000	12.66	31.72	44.38	54.00	-9.62	Average Detector
	2500.000	23.38	31.72	55.10	74.00	-18.9	Peak Detector

For 802.11n-HT20

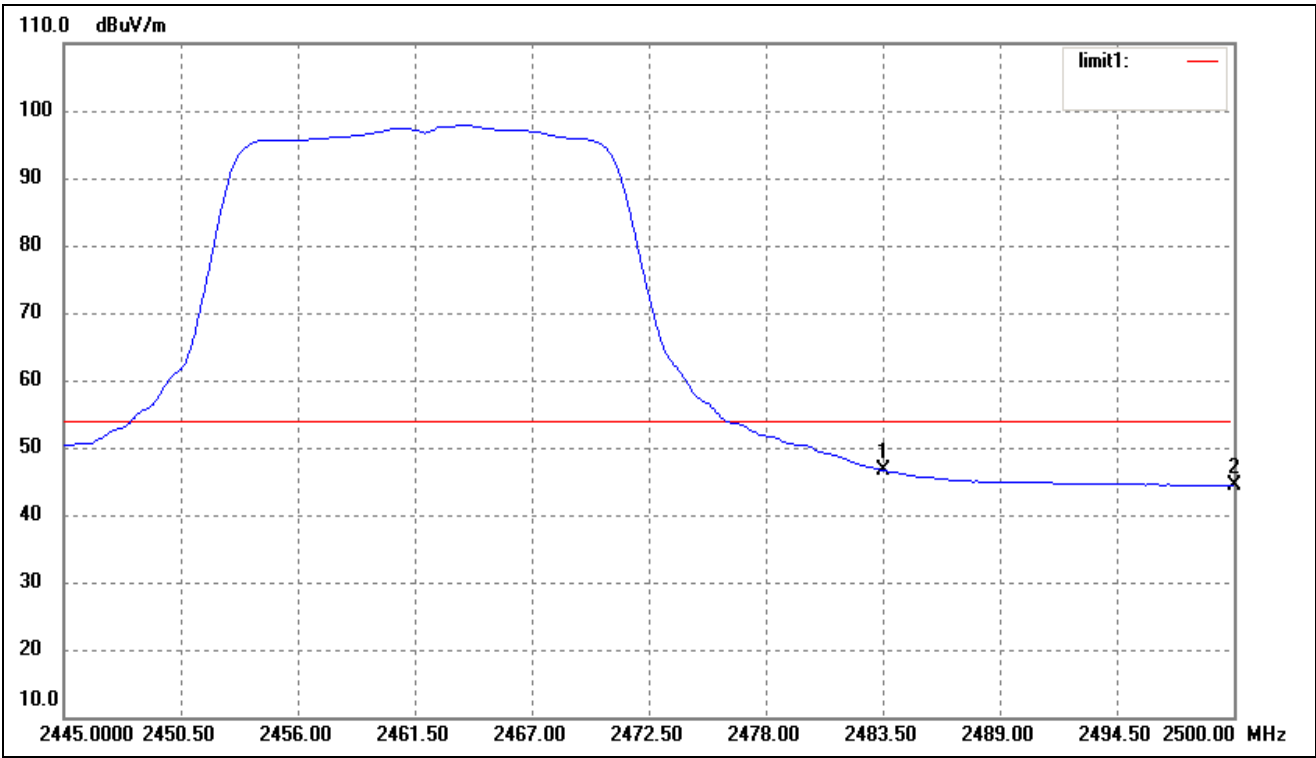
Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	13.30	31.70	45.00	54.00	-9	Average Detector
	2310.000	23.51	31.70	55.21	74.00	-18.79	Peak Detector
2	2390.000	18.75	31.71	50.46	54.00	-3.54	Average Detector
	2390.000	28.63	31.71	60.34	74.00	-13.66	Peak Detector
3	2400.000	32.78	31.71	64.49	/	/	Average Detector
4	2407.240	68.51	31.71	100.22	/	/	Average Detector

For 802.11n-HT20

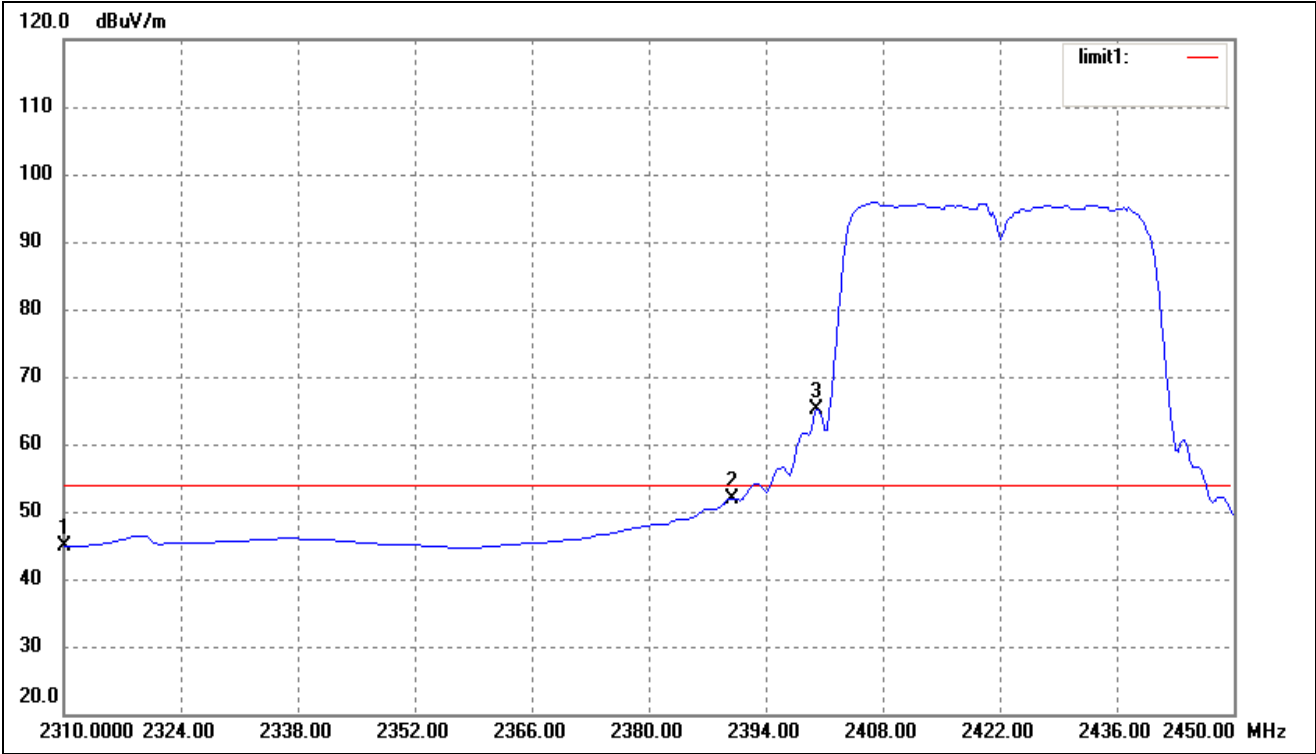
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	14.90	31.71	46.61	54.00	-7.39	Average Detector
	2483.500	24.64	31.71	56.35	74.00	-17.65	Peak Detector
2	2500.000	12.61	31.72	44.33	54.00	-9.67	Average Detector
	2500.000	22.80	31.72	54.52	74.00	-19.48	Peak Detector

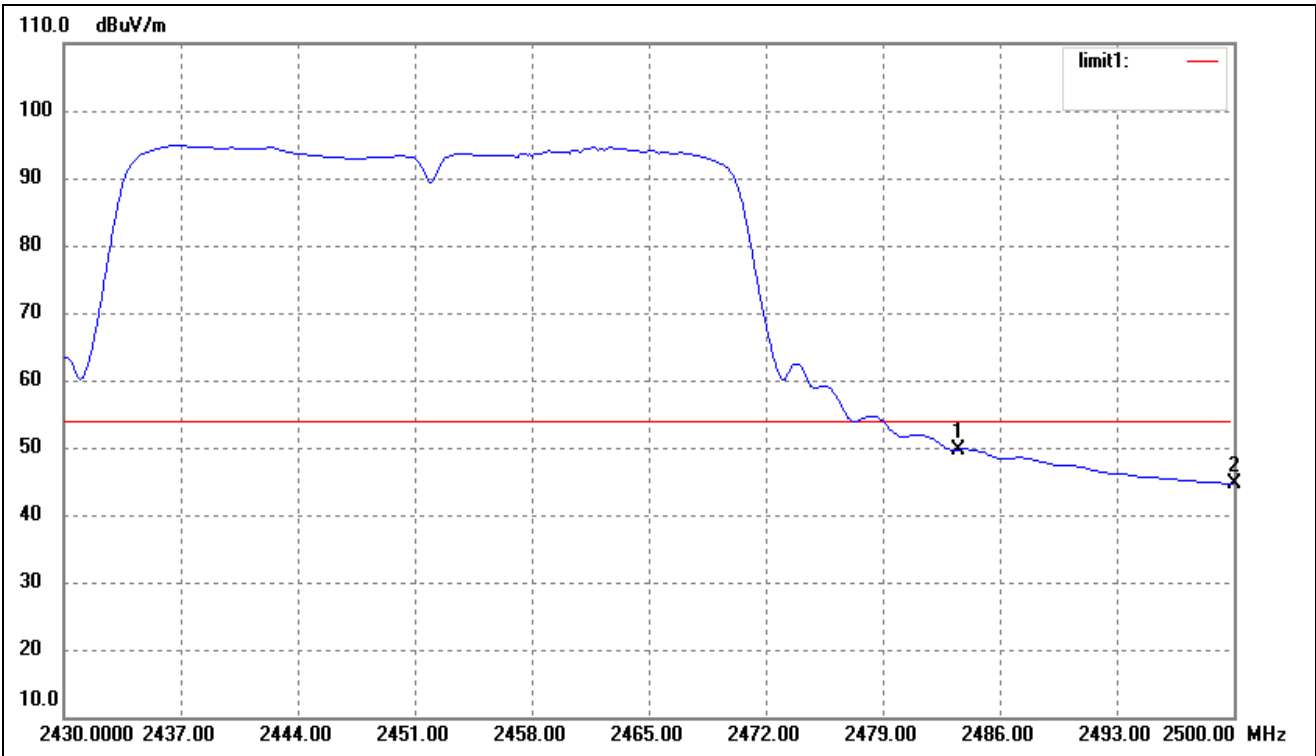
For 802.11n-HT40

Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	13.06	31.70	44.76	54.00	-9.24	Average Detector
	2310.000	23.50	31.70	55.20	74.00	-18.80	Peak Detector
2	2390.000	20.24	31.71	51.95	54.00	-2.05	Average Detector
	2390.000	21.49	31.71	53.20	74.00	-20.80	Peak Detector
3	2400.000	33.38	31.71	65.09	/	/	Average Detector
4					/	/	Average Detector

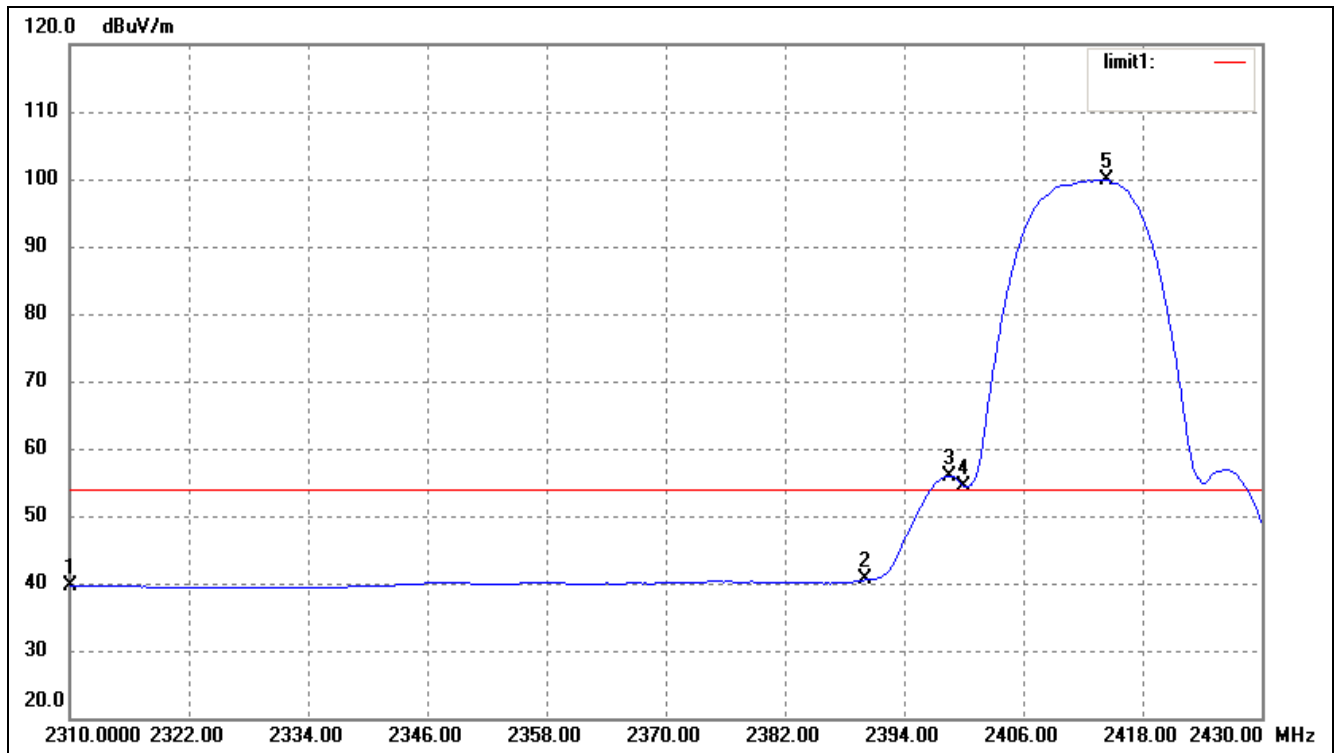
For 802.11n-HT40
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	18.00	31.71	49.71	54.00	-4.29	Average Detector
	2483.500	27.16	31.71	58.87	74.00	-15.13	Peak Detector
2	2500.000	12.93	31.72	44.65	54.00	-9.35	Average Detector
	2500.000	23.59	31.72	55.31	74.00	-18.69	Peak Detector

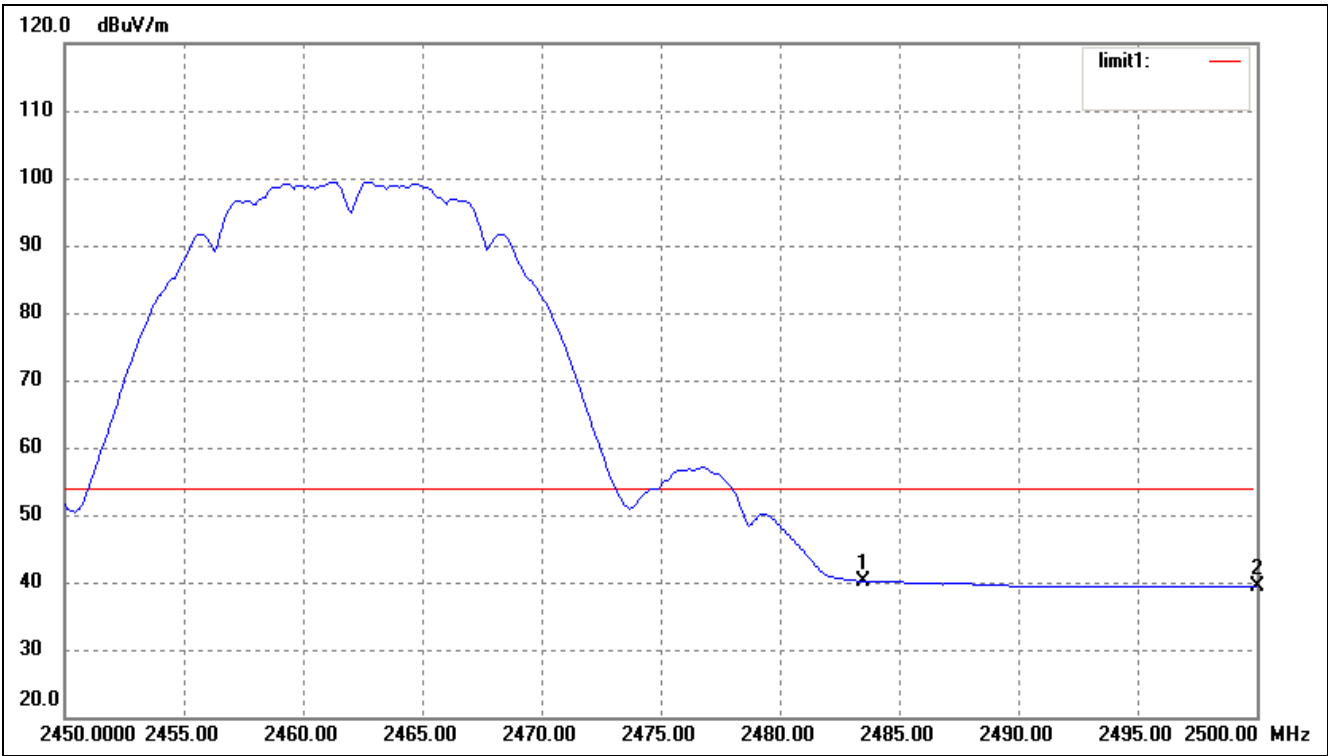
Antenna 2: 8dBi**For 802.11b**

Lowest Bandedge



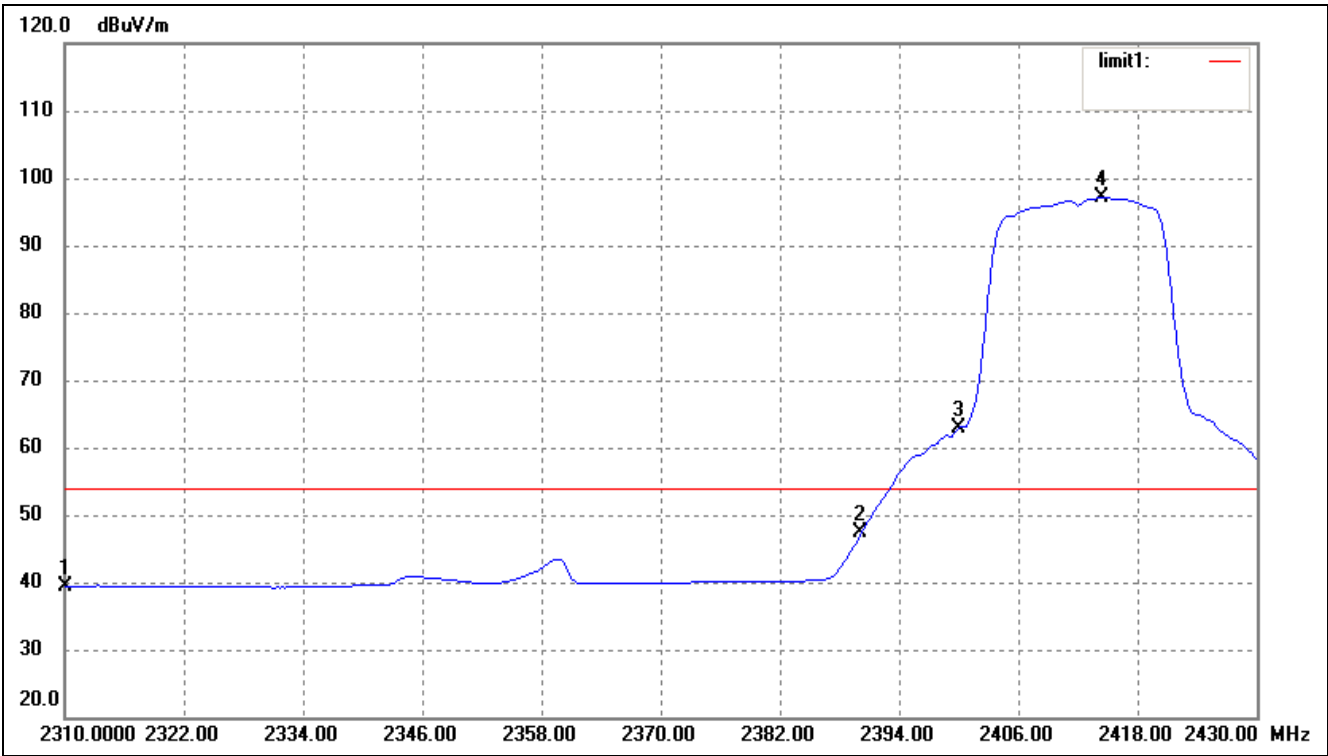
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	44.19	-4.65	39.54	54.00	-14.46	Average Detector
	2310.000	54.22	-4.65	49.57	74.00	-23.87	Peak Detector
2	2390.000	45.01	-4.46	40.55	54.00	-13.45	Average Detector
	2390.000	56.80	-4.46	52.34	74.00	-21.6	Peak Detector
3	2398.560	60.64	-4.43	56.21	/	/	Average Detector
4	2400.000	59.11	-4.43	54.68	/	/	Average Detector
5	2414.400	104.12	-4.40	99.72	/	/	Average Detector

For 802.11b
Highest Bandedge



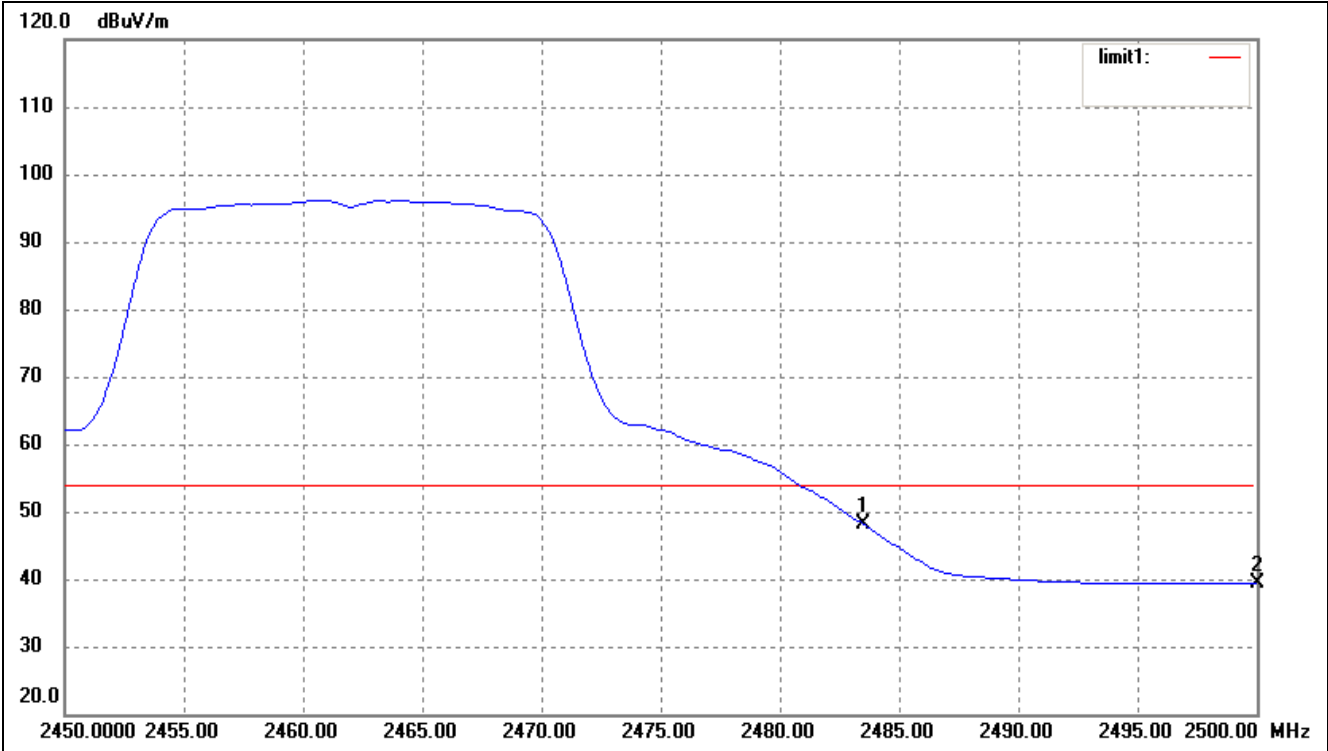
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	44.39	-4.23	40.16	54.00	-13.84	Average Detector
	2483.500	54.57	-4.23	50.34	74.00	-23.66	Peak Detector
2	2500.000	43.51	-4.18	39.33	54.00	-14.67	Average Detector
	2500.000	46.70	-4.18	42.52	74.00	-31.48	Peak Detector

For 802.11g
Lowest Bandedge



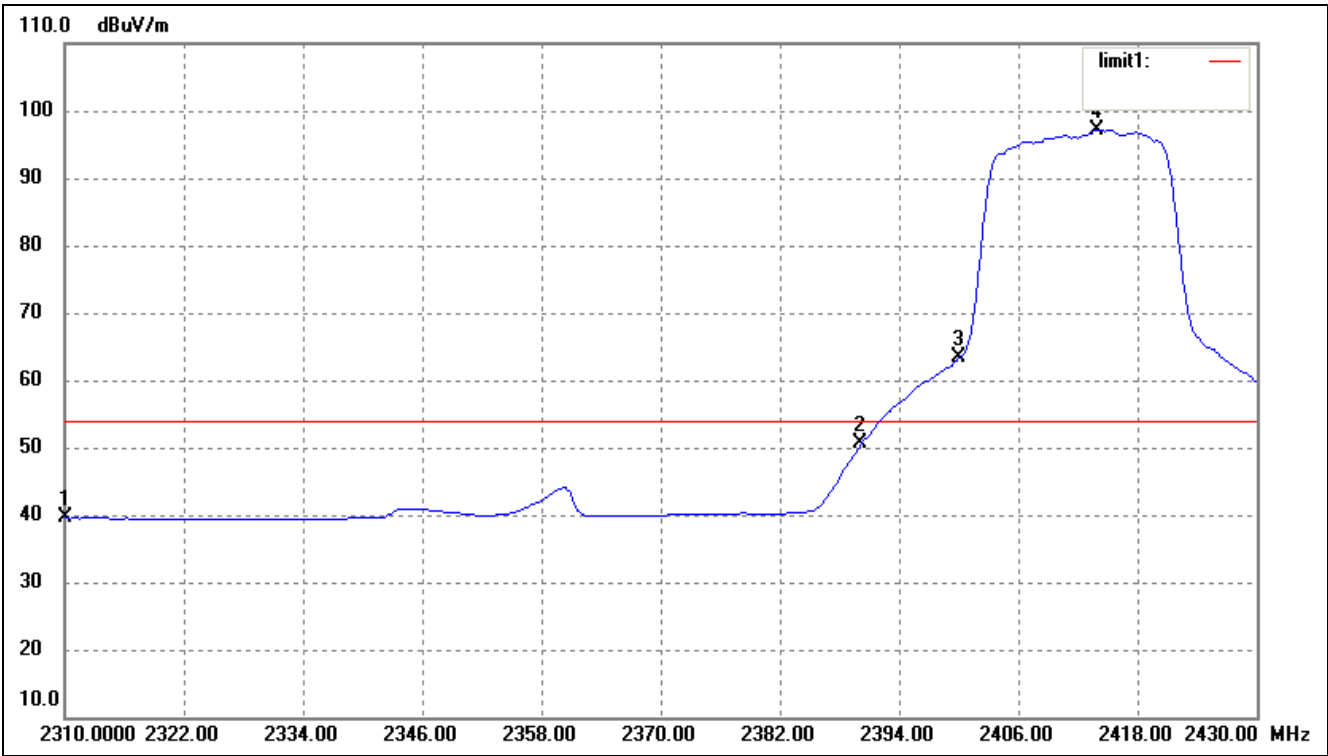
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	44.10	-4.65	39.45	54.00	-14.55	Average Detector
	2310.000	54.85	-4.65	50.2	74.00	-23.80	Peak Detector
2	2390.000	51.74	-4.46	47.28	54.00	-6.72	Average Detector
	2390.000	63.13	-4.46	58.67	74.00	-15.33	Peak Detector
3	2400.000	67.34	-4.43	62.91	/	/	Average Detector
4	2414.400	101.49	-4.40	97.09	/	/	Average Detector

Highest Bandedge



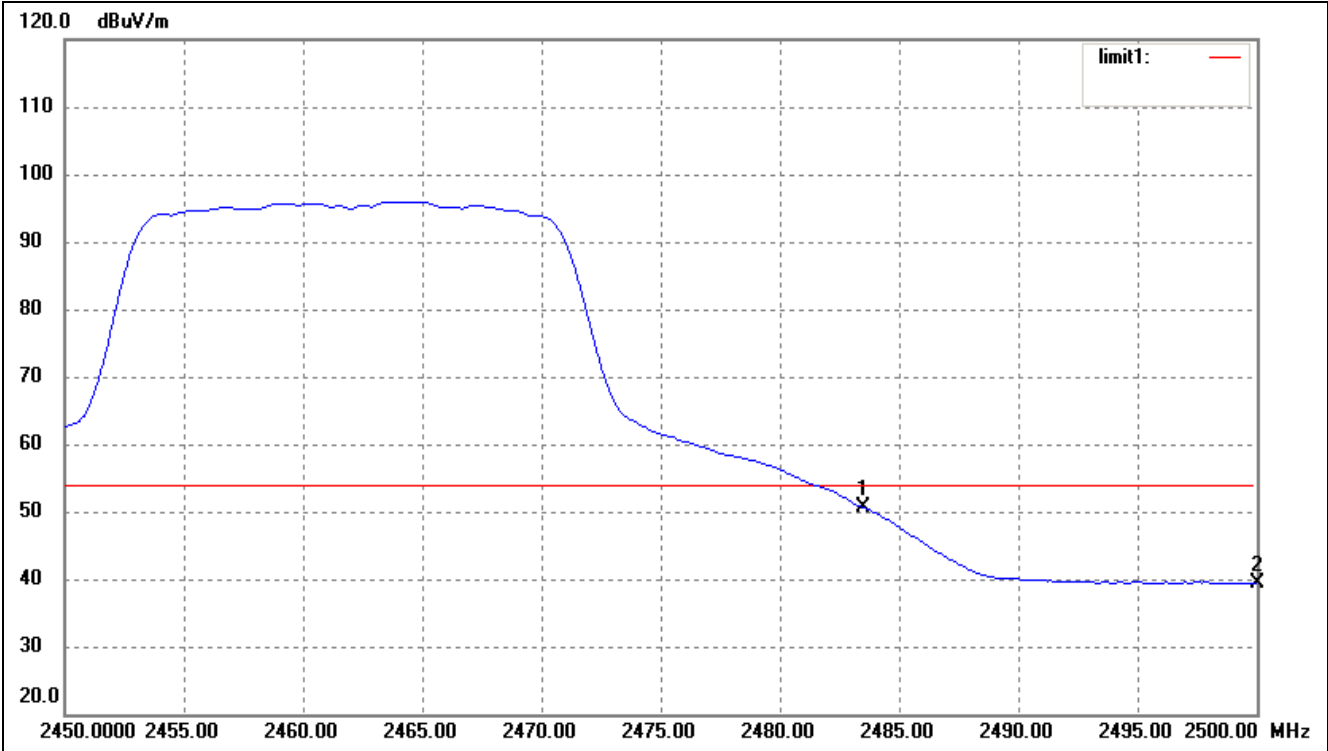
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	52.30	-4.23	48.07	54.00	-5.93	Average Detector
	2483.500	64.43	-4.23	60.2	74.00	-13.80	Peak Detector
2	2500.000	43.54	-4.18	39.36	54.00	-14.64	Average Detector
	2500.000	55.48	-4.18	51.30	74.00	-22.70	Peak Detector

For 802.11n-HT20
Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	44.16	-4.65	39.51	54.00	-14.49	Average Detector
	2310.000	45.85	-4.65	41.20	74.00	-32.80	Peak Detector
2	2390.000	55.02	-4.46	50.56	54.00	-3.44	Average Detector
	2390.000	64.87	-4.46	60.41	74.00	-13.59	Peak Detector
3	2400.000	67.78	-4.43	63.35	/	/	Average Detector
4	2413.920	101.48	-4.40	97.08	/	/	Average Detector

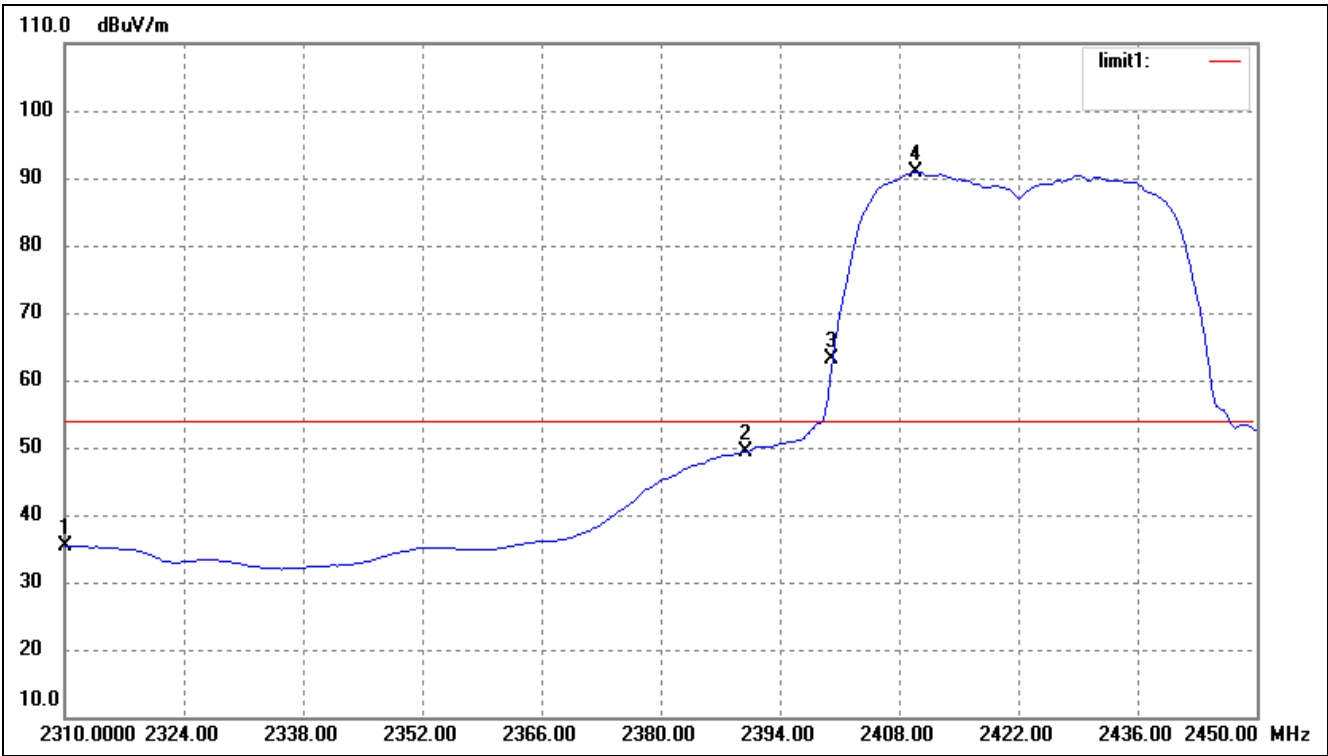
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	54.77	-4.23	50.54	54.00	-3.46	Average Detector
	2483.500	64.75	-4.23	60.52	74.00	-13.48	Peak Detector
2	2500.000	43.56	-4.18	39.38	54.00	-14.62	Average Detector
	2500.000	45.50	-4.18	41.32	74.00	-32.68	Peak Detector

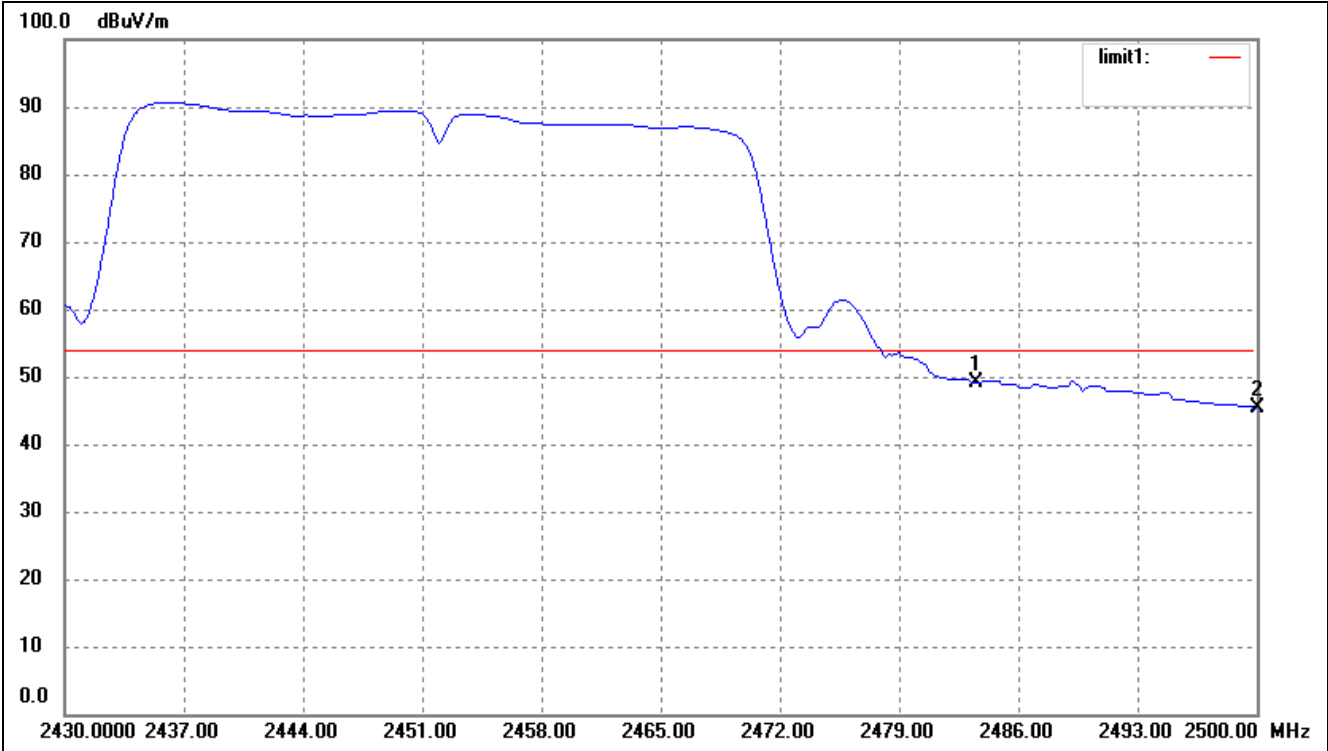
For 802.11n-HT40

Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	40.23	-4.76	35.47	54.00	-18.53	Average Detector
	2310.000	50.88	-4.76	46.12	74.00	-27.88	Peak Detector
2	2390.000	53.88	-4.51	49.37	54.00	-4.63	Average Detector
	2390.000	63.27	-4.51	58.76	74.00	-15.24	Peak Detector
3	2400.000	67.68	-4.48	63.20	/	/	Average Detector
4	2409.960	95.44	-4.44	91.00	/	/	Average Detector

Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	53.34	-4.23	49.11	54.00	-4.89	Average Detector
	2483.500	64.10	-4.23	59.87	74.00	-14.13	Peak Detector
2	2500.000	49.68	-4.18	45.50	54.00	-8.50	Average Detector
	2500.000	60.59	-4.18	56.41	74.00	-17.59	Peak Detector

9. CONDUCTED EMISSION

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	2012-03-28	2013-03-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2012-03-28	2013-03-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2012-03-28	2013-03-27

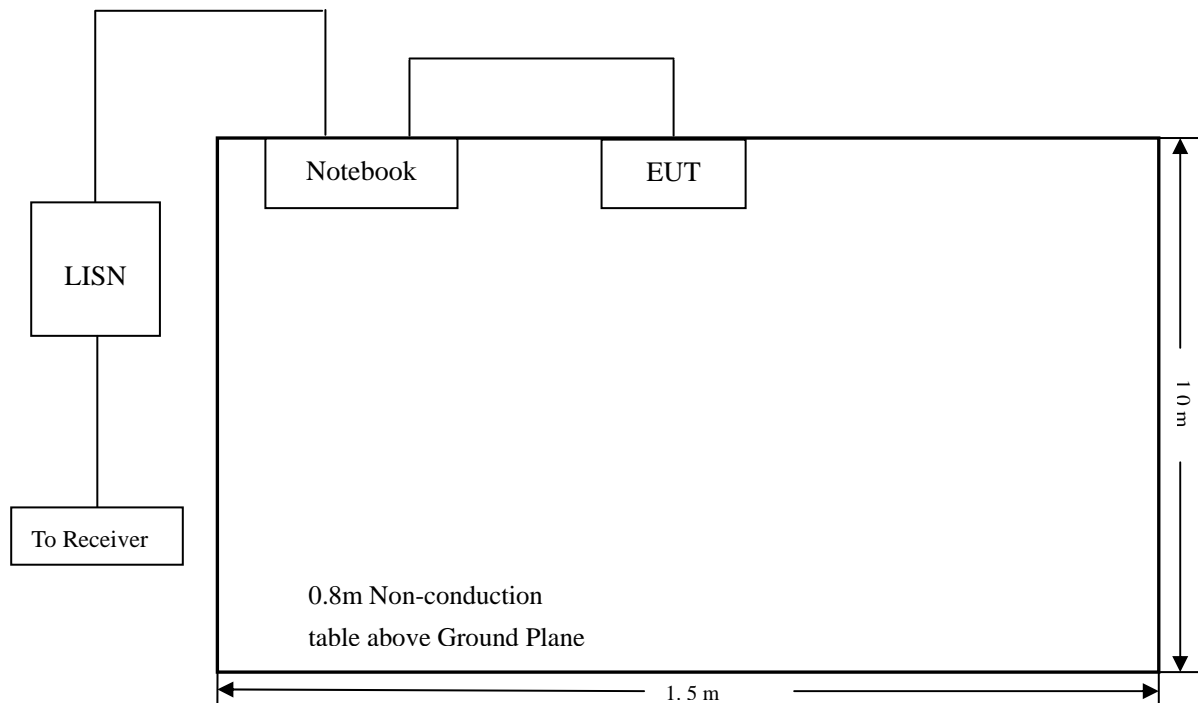
9.3 Test Procedure

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:	20° C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

9.6 Summary of Test Results/Plots

According to the data in section 9.7, the EUT complied with the FCC 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-7.38dBμV at 0.498 MHz in the Neutral mode, Average detector, 0.15-30MHz Operating with antenna 1

-3.22dBμV at 0.510 MHz in the Line mode, Average detector, 0.15-30MHz Operating with antenna 2

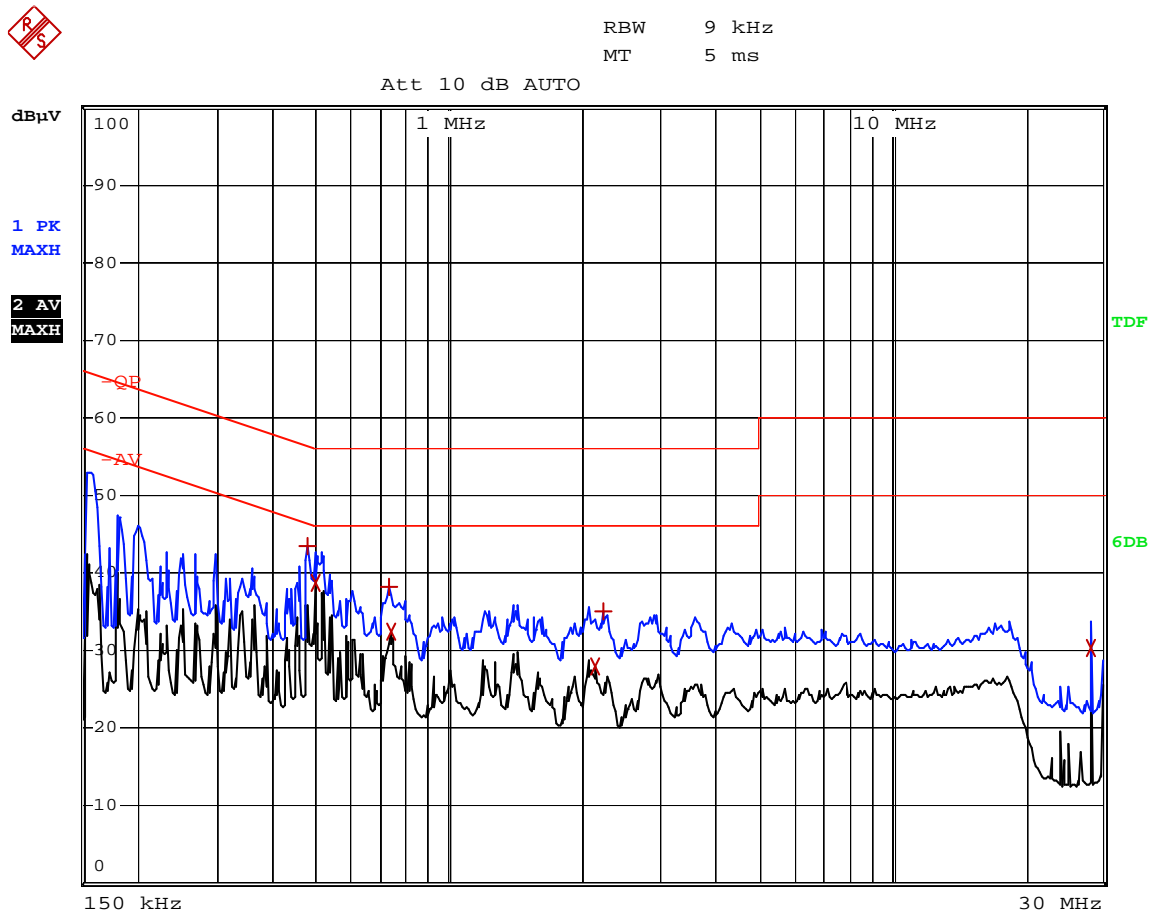
9.7 Conducted Emissions Test Data

Antenna 1: 15dBi

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Pk	Line/Neutral	dBμV	dB
0.498	38.65	Ave	Neutral	46.03	-7.38
0.182	44.38	Ave	Line	54.39	-10.01
0.158	52.80	Pk	Line	65.57	-12.77
0.478	43.53	Pk	Neutral	56.37	-12.84
0.742	32.29	Ave	Neutral	46.00	-13.71
0.730	38.22	Pk	Neutral	56.00	-17.78
0.714	28.03	Ave	Line	46.00	-17.97
2.150	27.85	Ave	Neutral	46.00	-18.15
28.003	31.00	Ave	Line	50.00	-19.00
28.03	30.27	Ave	Neutral	50.00	-19.73
0.594	36.04	Pk	Line	56.00	-19.96
2.242	34.97	Pk	Neutral	56.00	-21.03

Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: Top Catcher CC Tactical
M/N: AWUHN2408
Operating Condition: Operating with antenna 1
Test Specification: N
Comment: AC 120V/60Hz/USB 5V



Plot of Conducted Emissions Test Data

Conducted Disturbance

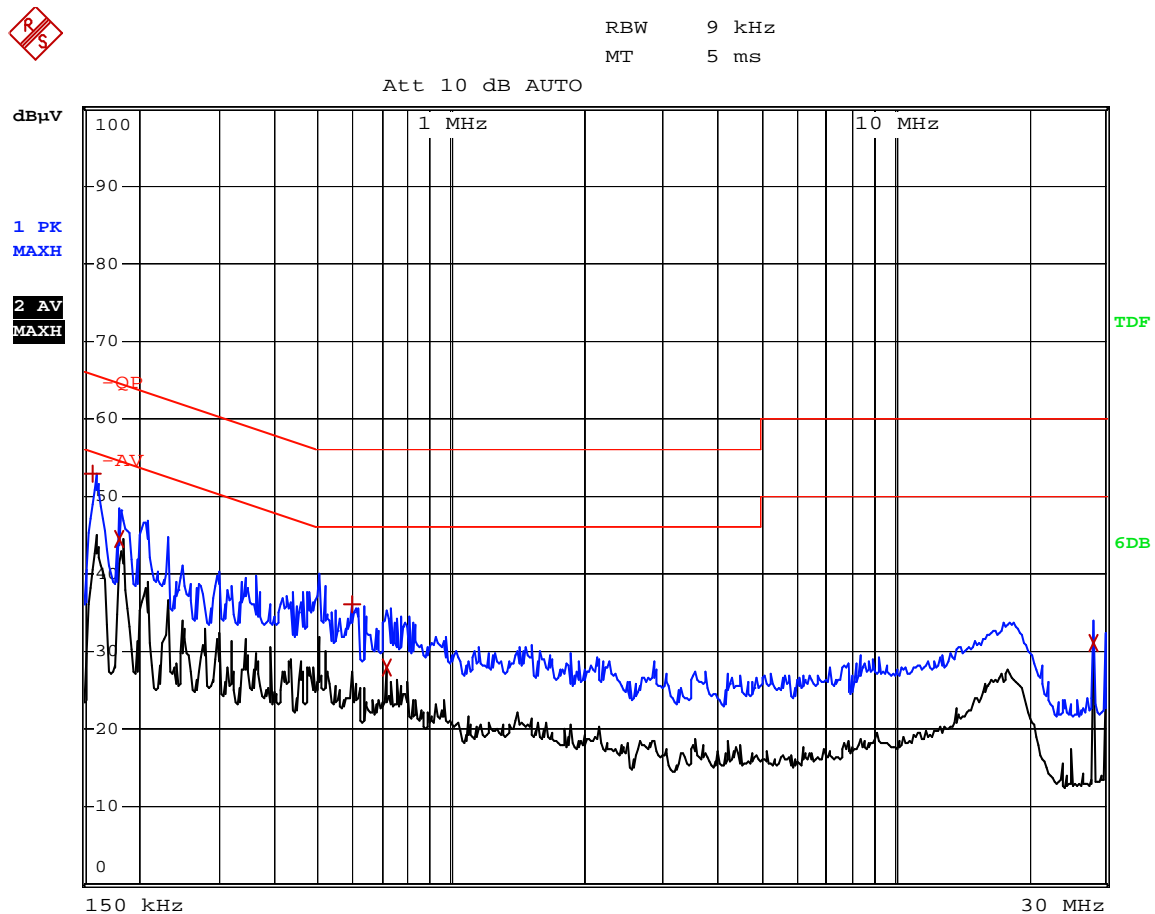
EUT: Top Catcher CC Tactical

M/N: AWUHN2408

Operating Condition: Operating with antenna 1

Test Specification: L

Comment: AC 120V/60Hz/USB 5V

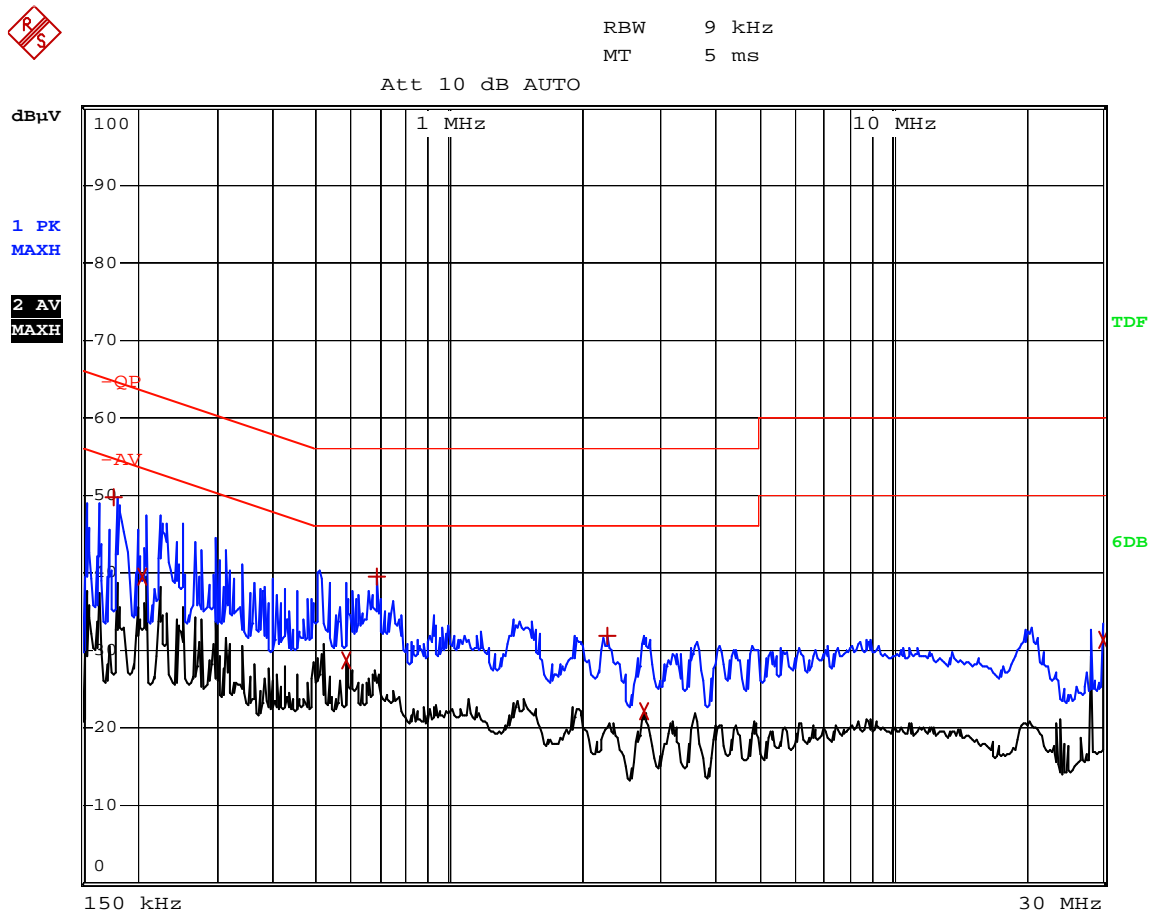


Antenna 2: 8dBi

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dB μ V	QP/Ave/Pk	Line/Neutral	dB μ V	dB
0.510	42.78	Ave	Line	46.00	-3.22
0.606	37.50	Ave	Line	46.00	-8.50
0.510	46.68	Pk	Line	56.00	-9.32
2.718	33.17	Ave	Line	46.00	-12.83
0.598	42.12	Pk	Line	56.00	-13.88
0.206	39.38	Ave	Neutral	53.37	-13.99
0.178	49.67	Pk	Neutral	64.58	-14.91
0.686	39.52	Pk	Neutral	56.00	-16.48
2.754	39.07	Pk	Line	56.00	-16.93
0.582	28.81	Ave	Neutral	46.00	-17.19
30.000	31.45	Ave	Neutral	50.00	-18.55
8.226	29.30	Ave	Line	50.00	-20.70
2.774	22.15	Ave	Neutral	46.00	-23.85
2.286	31.97	Pk	Neutral	56.00	-24.03
19.994	35.85	Pk	Line	60.00	-24.15

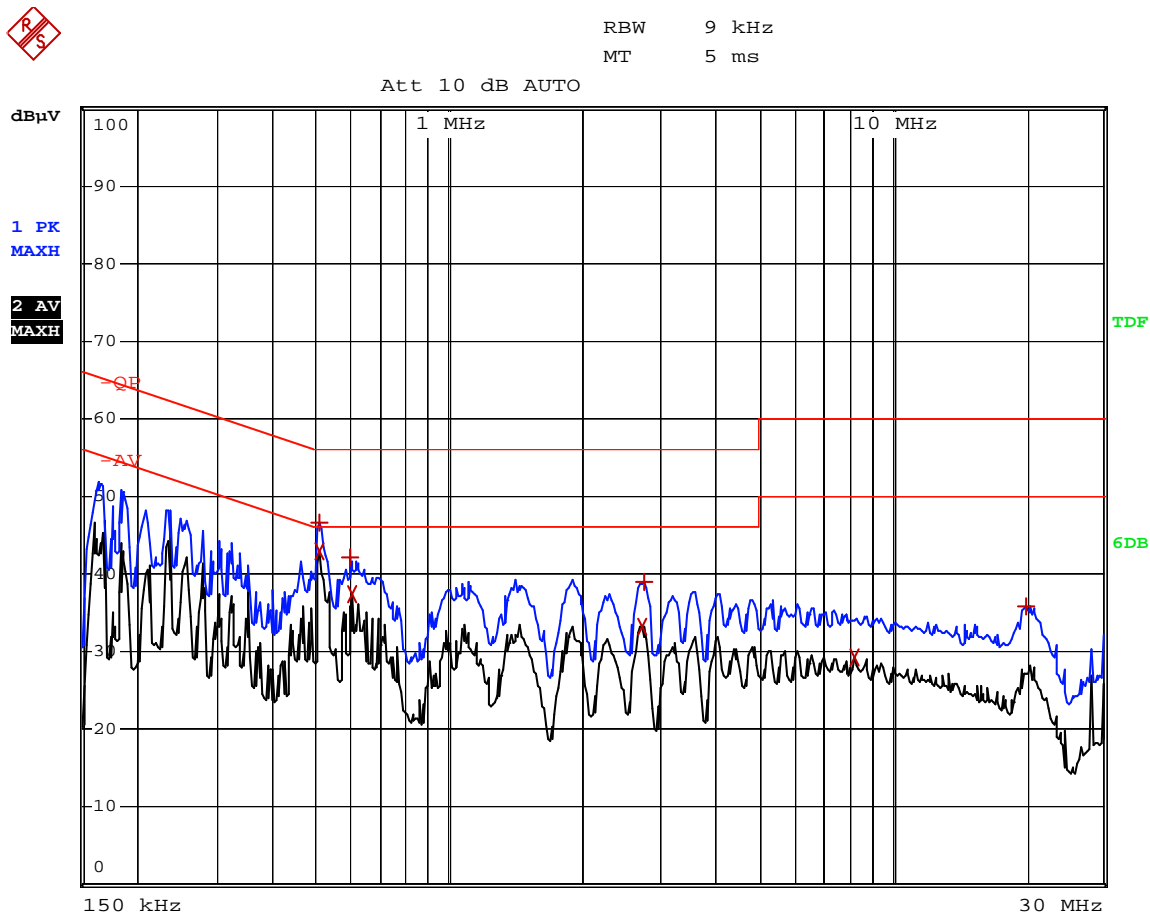
Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: Top Catcher CC Tactical
M/N: AWUHN2408
Operating Condition: Operating with antenna 2
Test Specification: N
Comment: AC 120V/60Hz/USB 5V



Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: Top Catcher CC Tactical
M/N: AWUHN2408
Operating Condition: Operating with antenna 2
Test Specification: L
Comment: AC 120V/60Hz/USB 5V



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