FCC Part 15C
Measurement and Test Report

For

USA111 Inc

5885 Green Pointe Dr. Suite B, Groveport, Ohio, United States 43125

FCC ID: 2ADOV-X40

FCC Rule(s):	FCC Part 15C
Product Description:	Tablet PC
Tested Model:	X40
Report No.:	STR16028074I-3
Tested Date:	2016-02-29 to 2016-03-21
Issued Date:	2016-03-21
Tested By:	Leo Lee / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	USA111 Inc
Address of applicant:	5885 Green Pointe Dr. Suite B, Groveport, Ohio, United States 43125
Manufacturer:	Shenzhen Allland Networking Co., Ltd.
Address of manufacturer:	Fourth Floor, #B Building, Weiyulong Industrial Park, Xuegang North Road #16, Bantian Street, Longgang District, Shenzhen

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	IRULU
Model No.:	X40
Adding Model(s):	X41, X42, X43, X46, X47, X48, X49, W40, W41, W42, W43, W48, W49, W4A, W4Y, W4B, X30, L20, L21, Y37, W30Y, W31, W34
Rated Voltage:	Battery DC 3.7V
Power Adapter Model:	JHD-AP015E-050200AB-B I/P: AC 100-240V, 50/60Hz; O/P: DC 5V/2A
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 X40, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n(HT20) 2422-2452MHz for 802.11n(HT40)
RF Output Power:	8.50 dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Integral antenna
Antenna Gain:	1.0dBi
Lowest Internal Frequency	32.768KHz

1.2 Test Standards

The following report is prepared on behalf of the USA111 Inc 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 C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices, and ANSI C63.4-2014, 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 measurement guide KDB 558074 D01 v03r04 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd 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, 2437MHz, 2462MHz
TM2	802.11g	2412MHz, 2437MHz, 2462MHz
TM3	802.11n-HT20	2412MHz, 2437MHz, 2462MHz
TM4	802.11n-HT40	2422MHz, 2437MHz, 2452MHz

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB cable	0.72	Unshielded	With Ferrite

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

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Remark
Notebook	Lenovo	E10	/
Display	Dell	/	/
HDMI cable	/	/	/
TF card	Kingston	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB
Transmitter Spurious Emissions	Conducted	±0.42dB

1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2015-06-17	2016-06-16
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2015-06-17	2016-06-16
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2015-06-17	2016-06-16

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 2.1093	RF Exposure	Compliant
§ 15.203; § 15.247(b)(4)(i)	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	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)	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 an integral antenna, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

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

5.2 Test Procedure

According to the KDB 558074 D01 v03r04, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

5.3 Environmental Conditions

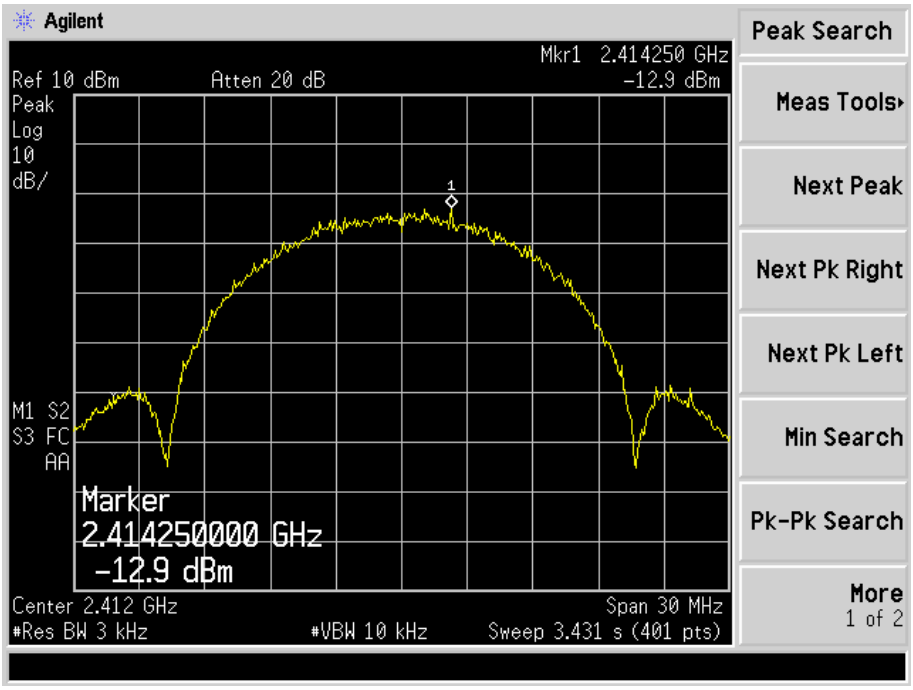
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.4 Summary of Test Results/Plots

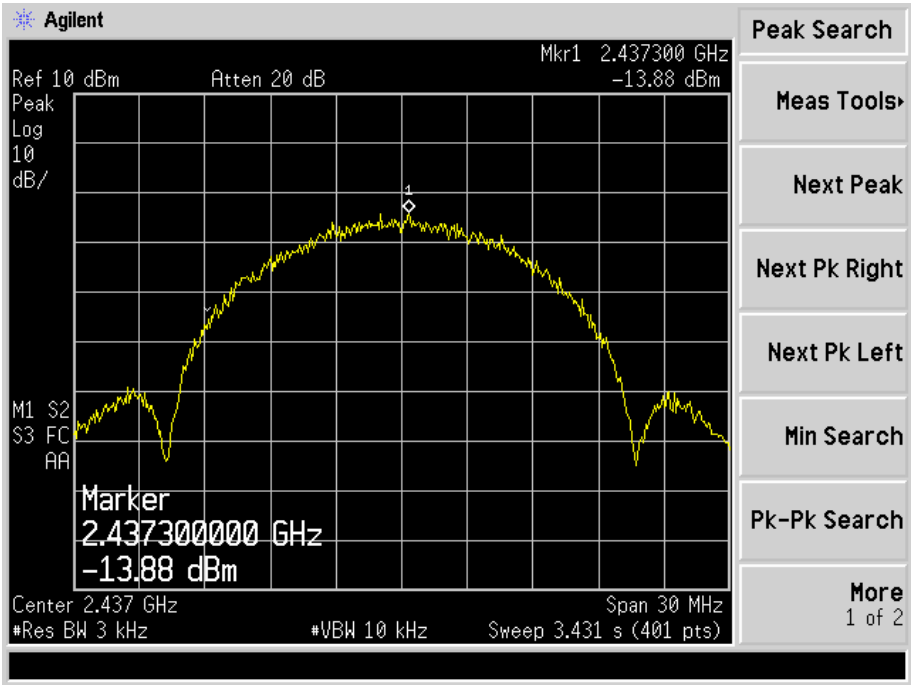
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-12.9	8
	2437	-13.88	8
	2462	-14.45	8
802.11g	2412	-19.79	8
	2437	-19.97	8
	2462	-17.67	8
802.11n HT20	2412	-19.43	8
	2437	-19.95	8
	2462	-18.77	8
802.11n HT40	2422	-22.73	8
	2437	-21.76	8
	2452	-22.66	8

Please refer to the following test plots:

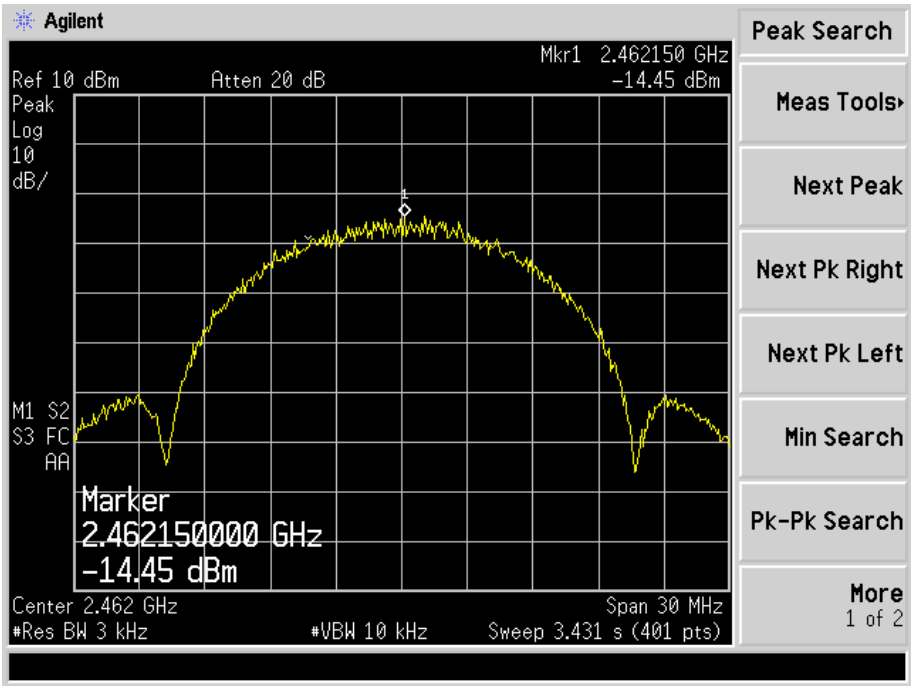
802.11b-Low Channel



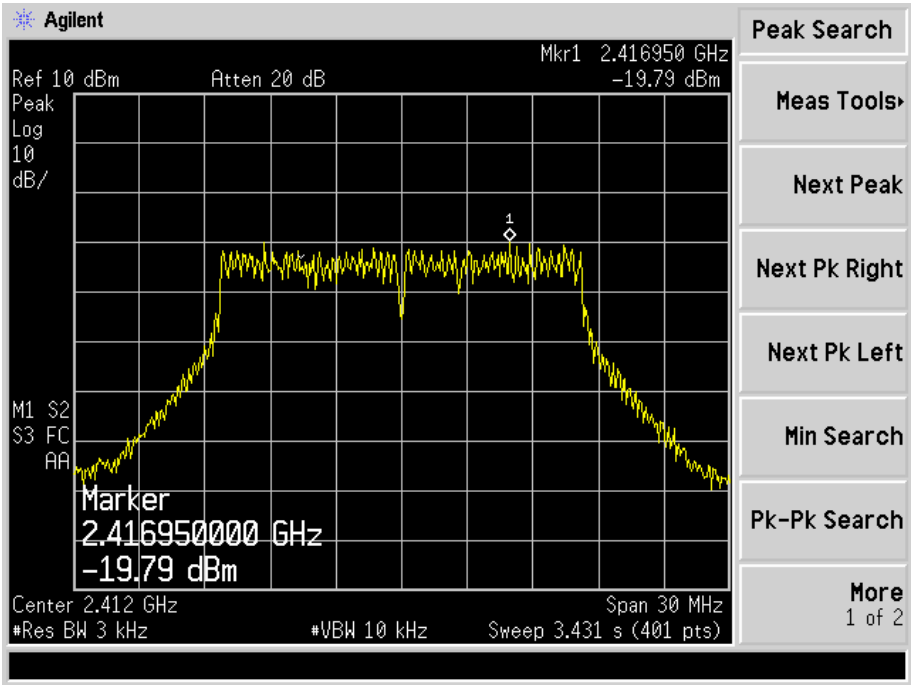
802.11b-Middle Channel



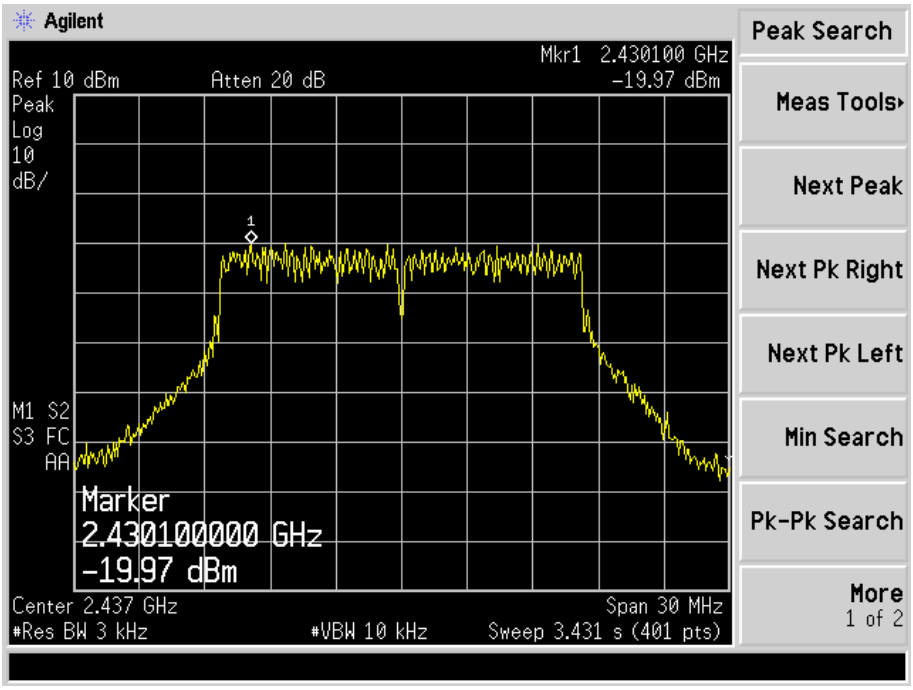
802.11b-High Channel



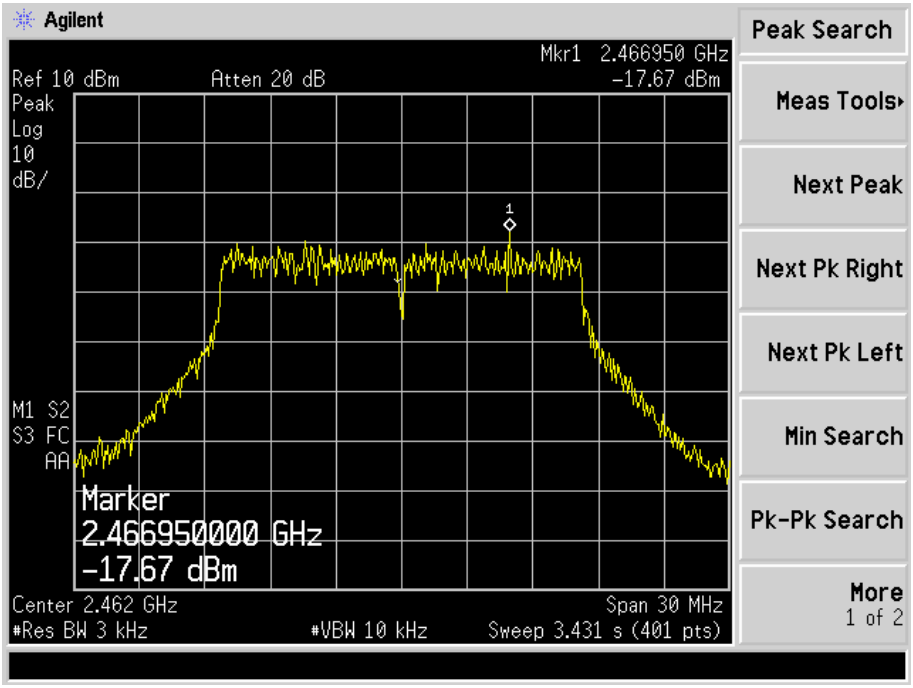
802.11g-Low Channel



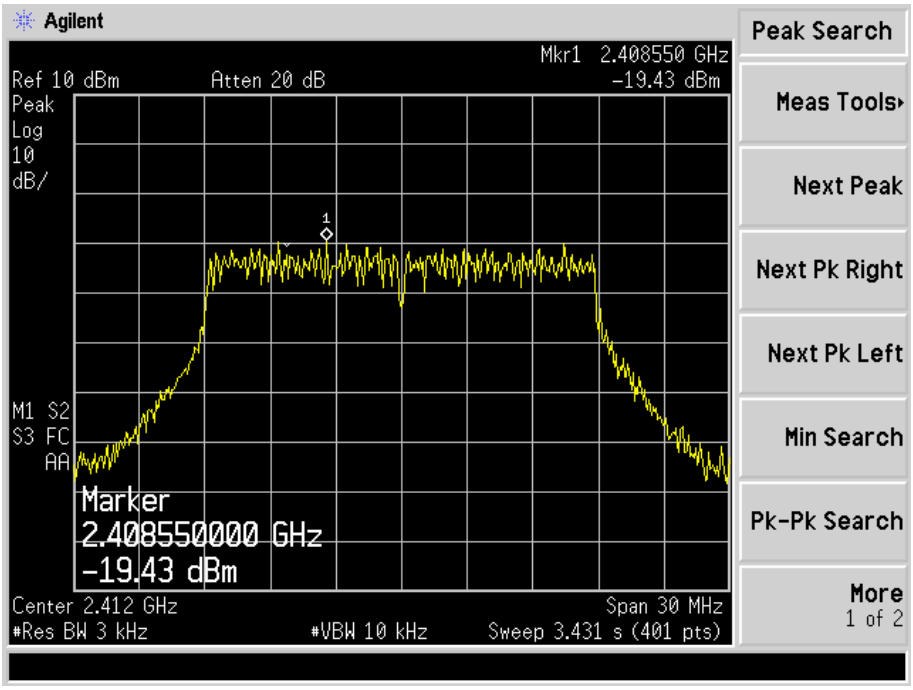
802.11g-Middle Channel



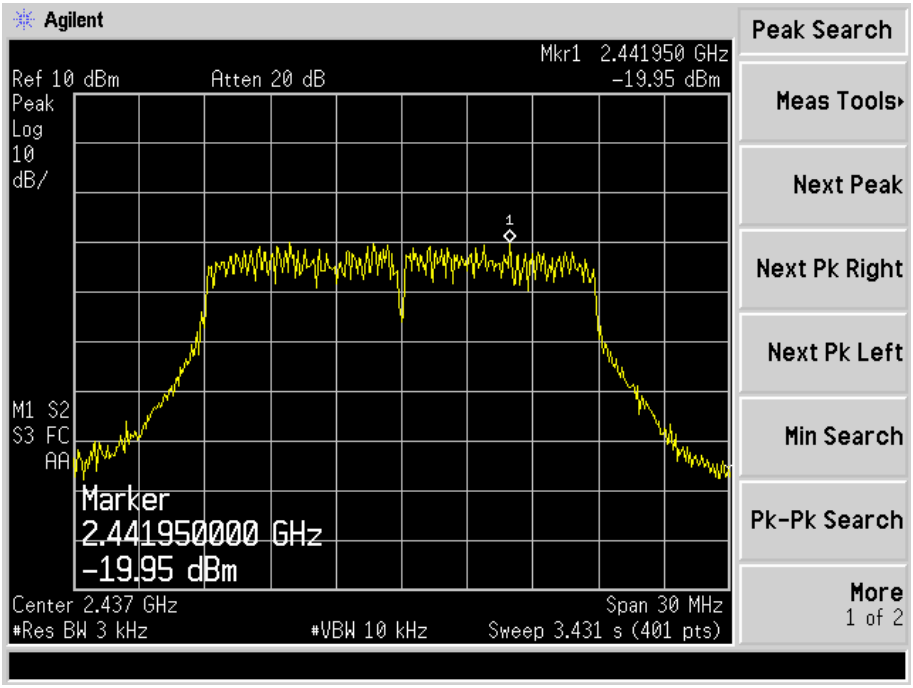
802.11g-High Channel



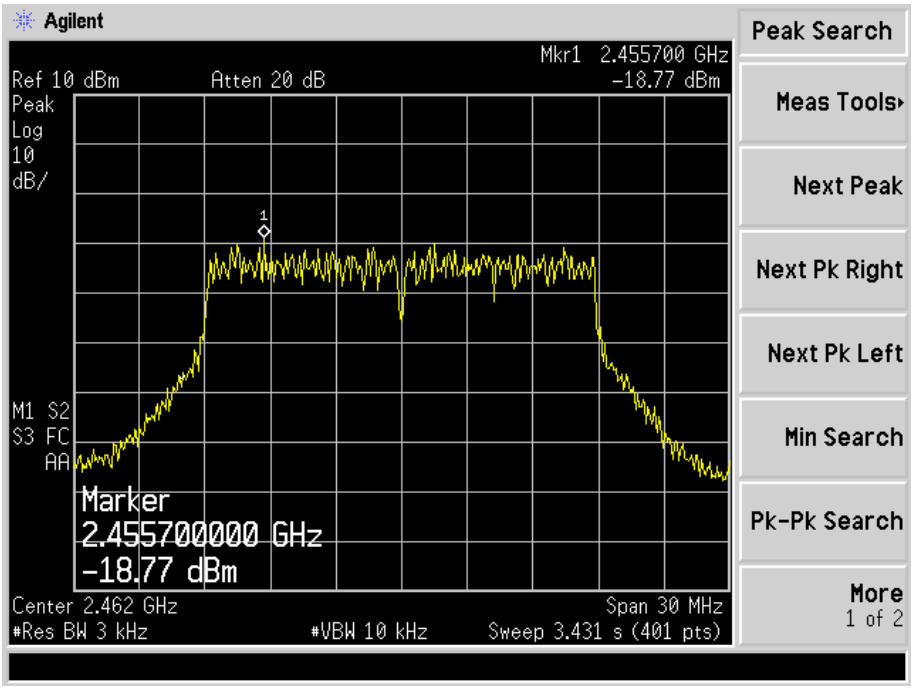
802.11n-HT20-Low Channel



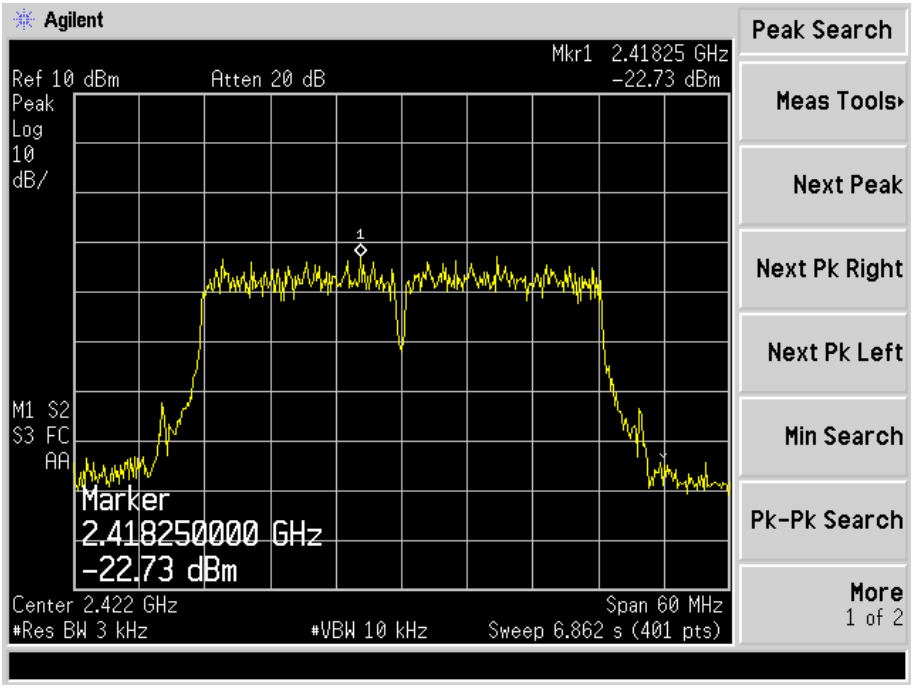
802.11n-HT20-Middle Channel



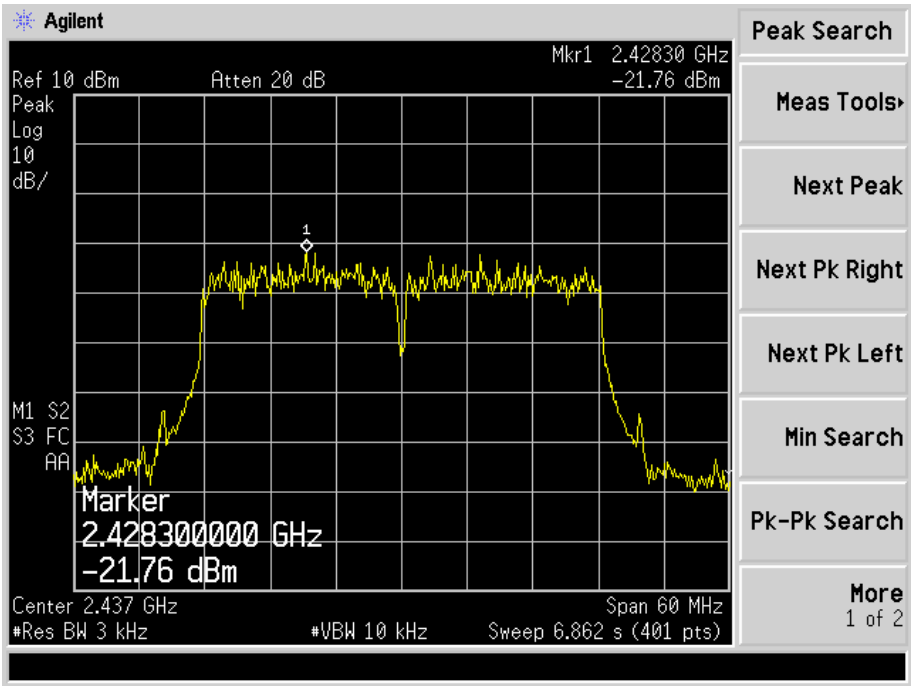
802.11n-HT20-High Channel



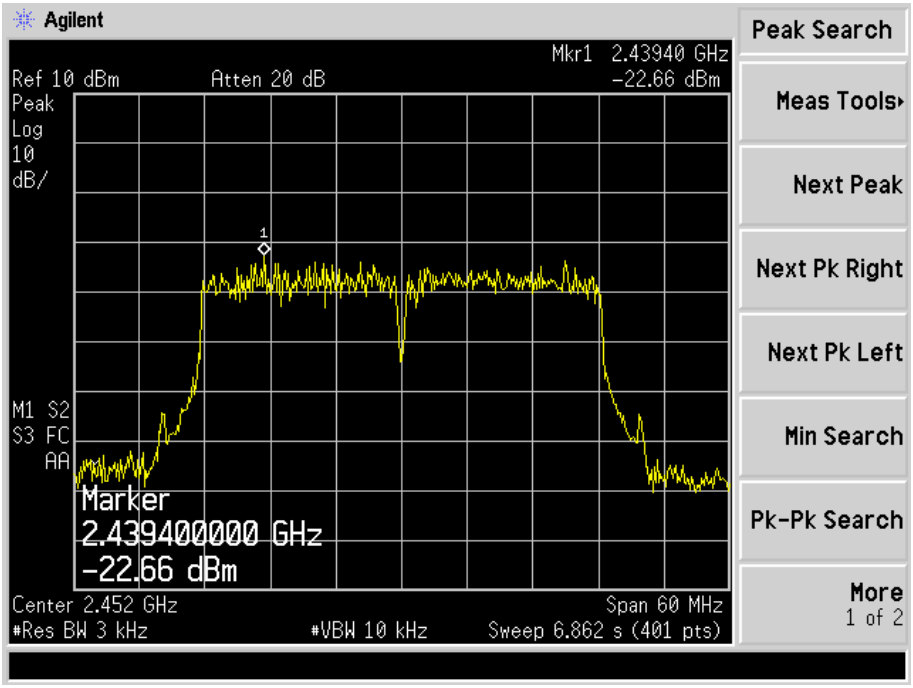
802.11n-HT40-Low Channel



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 Procedure

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 Environmental Conditions

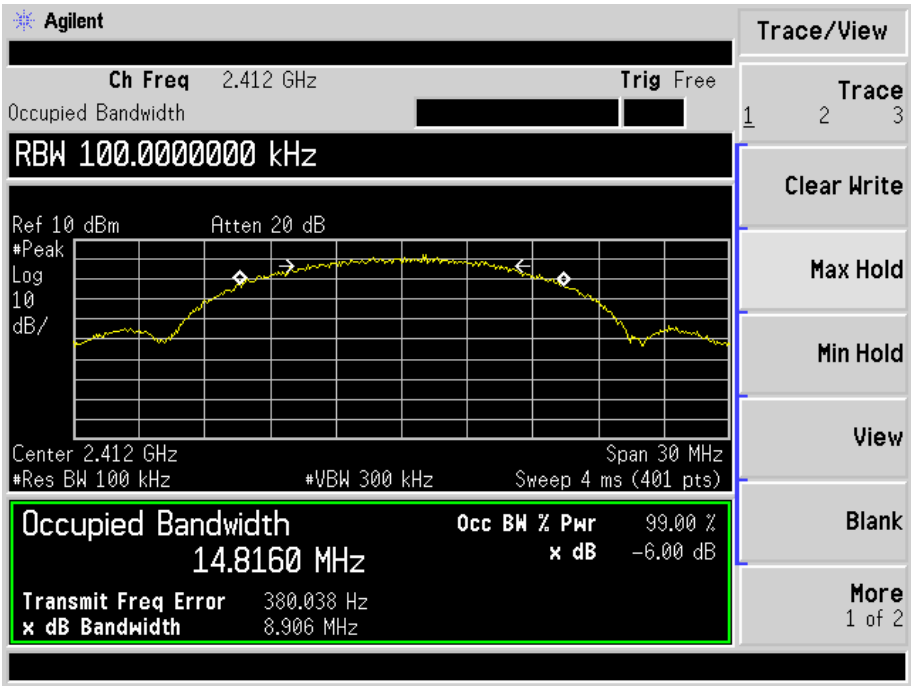
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.4 Summary of Test Results/Plots

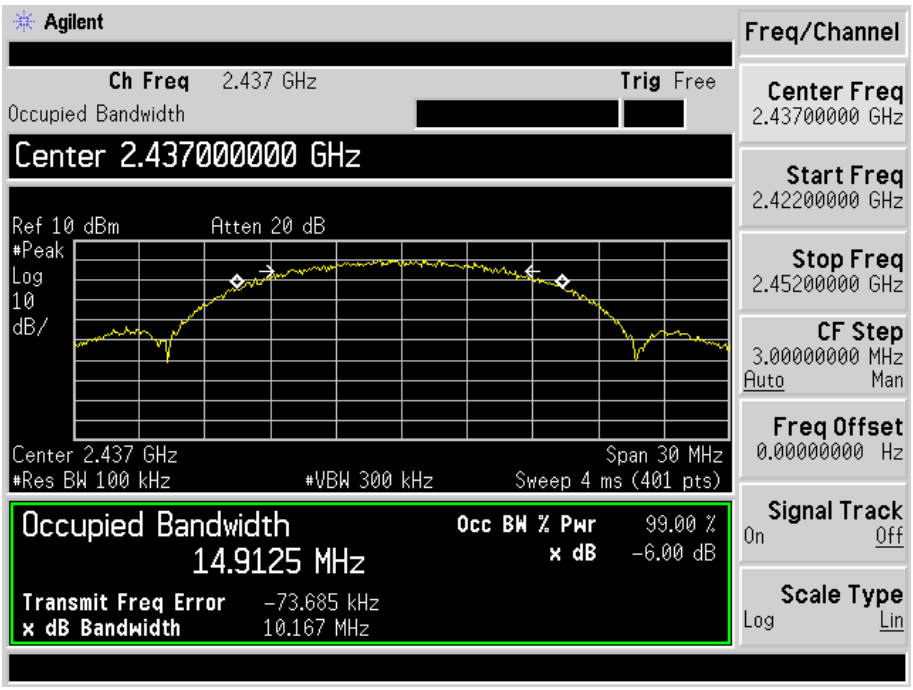
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
802.11b	2412	8906	14816.0	≥500
	2437	10167	14912.5	≥500
	2462	8709	14913.1	≥500
802.11g	2412	16465	16372.4	≥500
	2437	16488	16438.0	≥500
	2462	16472	16418.3	≥500
802.11n-HT20	2412	17389	17614.4	≥500
	2437	17680	17622.9	≥500
	2462	17661	17622.3	≥500
802.11n-HT40	2422	35560	35913.1	≥500
	2437	36056	35925.3	≥500
	2452	35367	35855.2	≥500

Please refer to the following test plots:

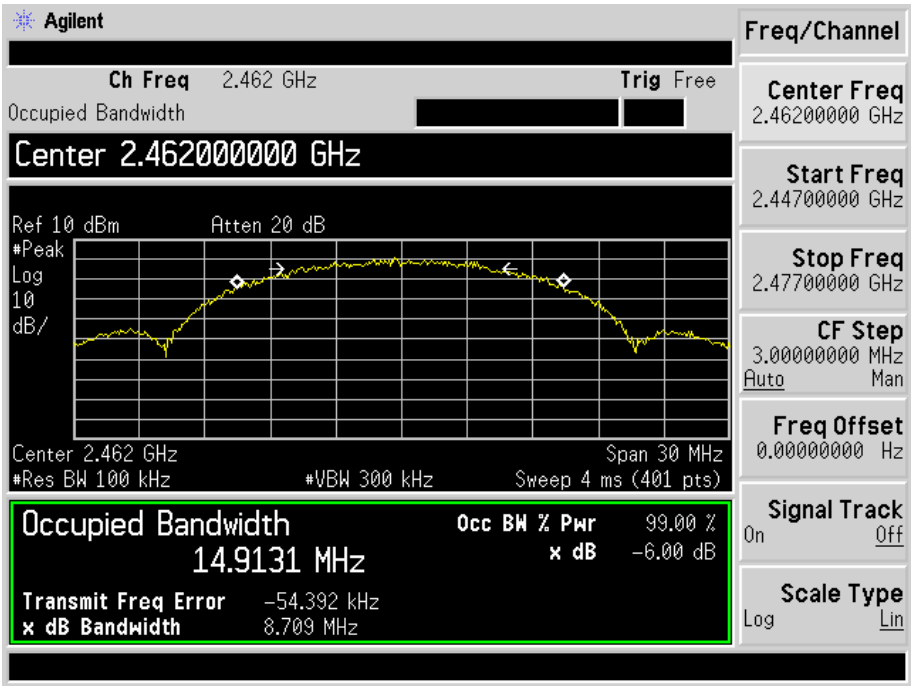
802.11b-Low Channel



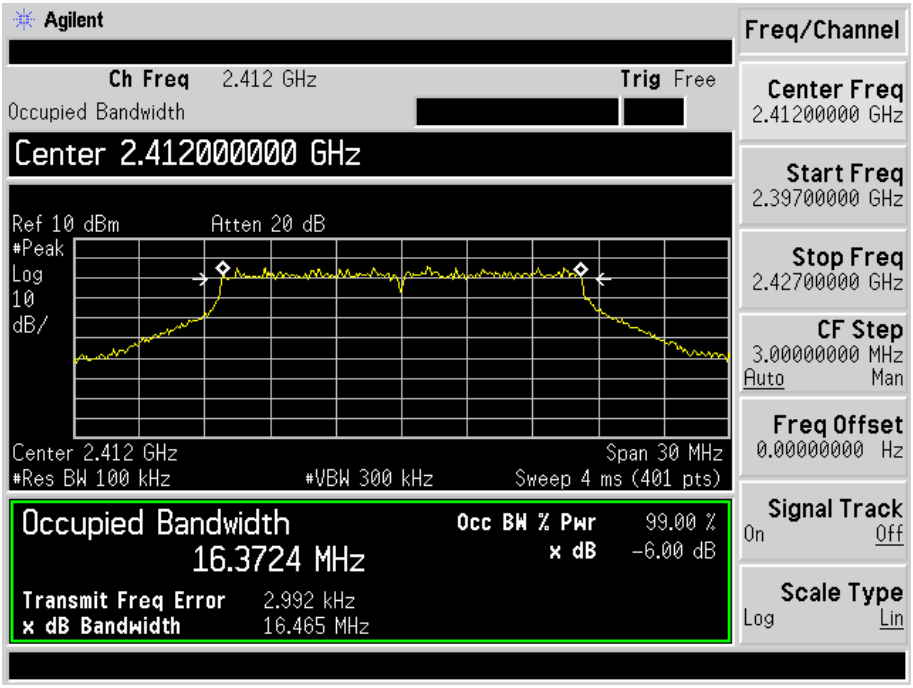
802.11b-Middle Channel



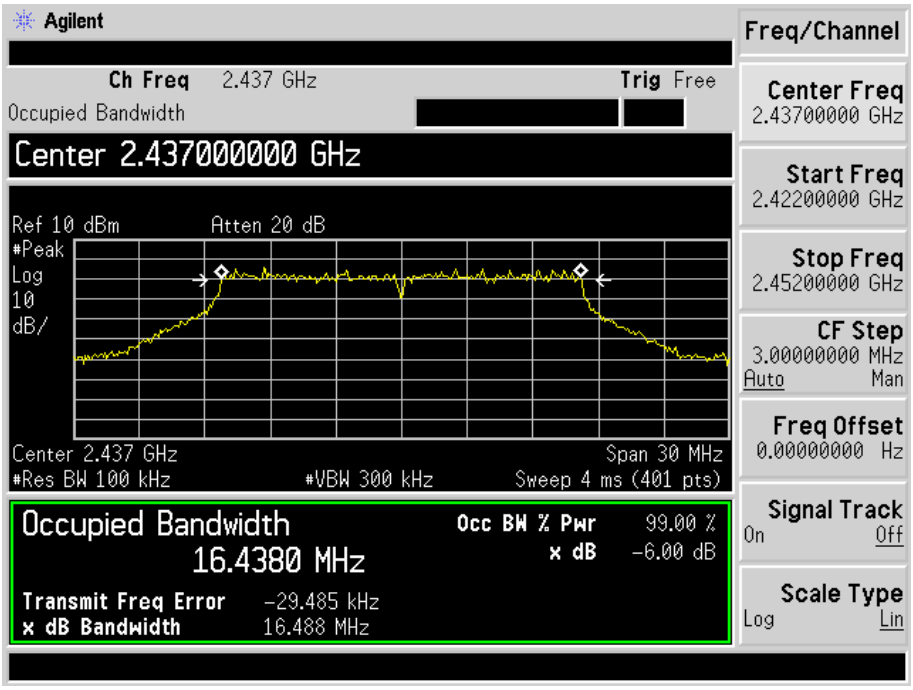
802.11b-High Channel



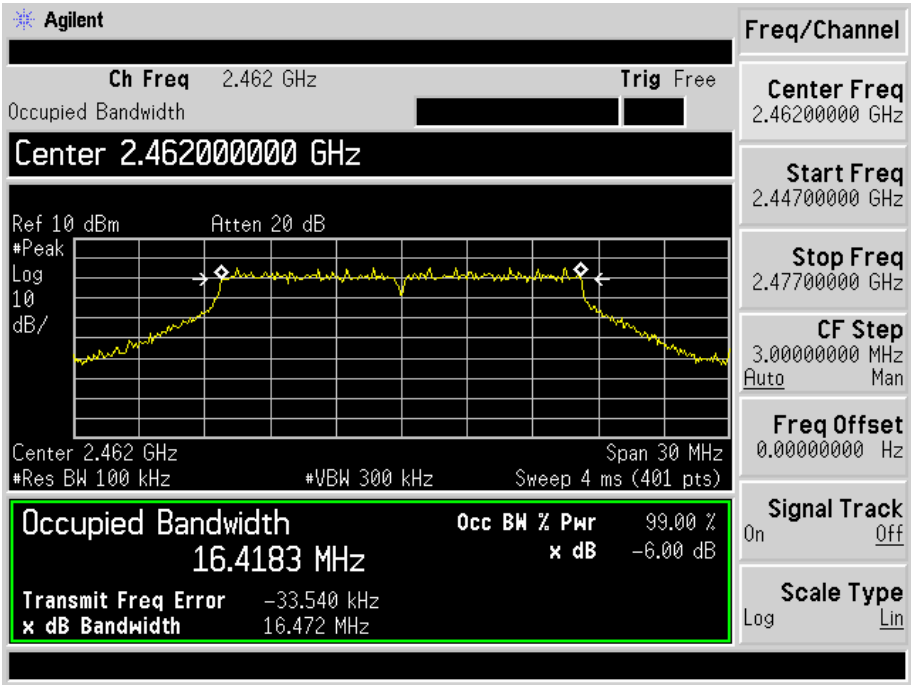
802.11g-Low Channel



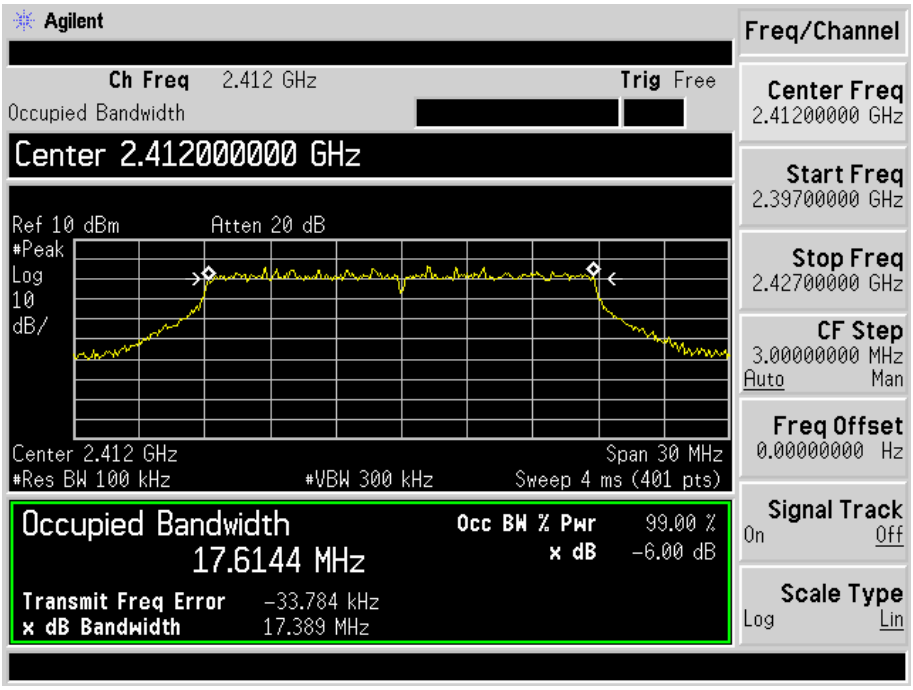
802.11g-Middle Channel



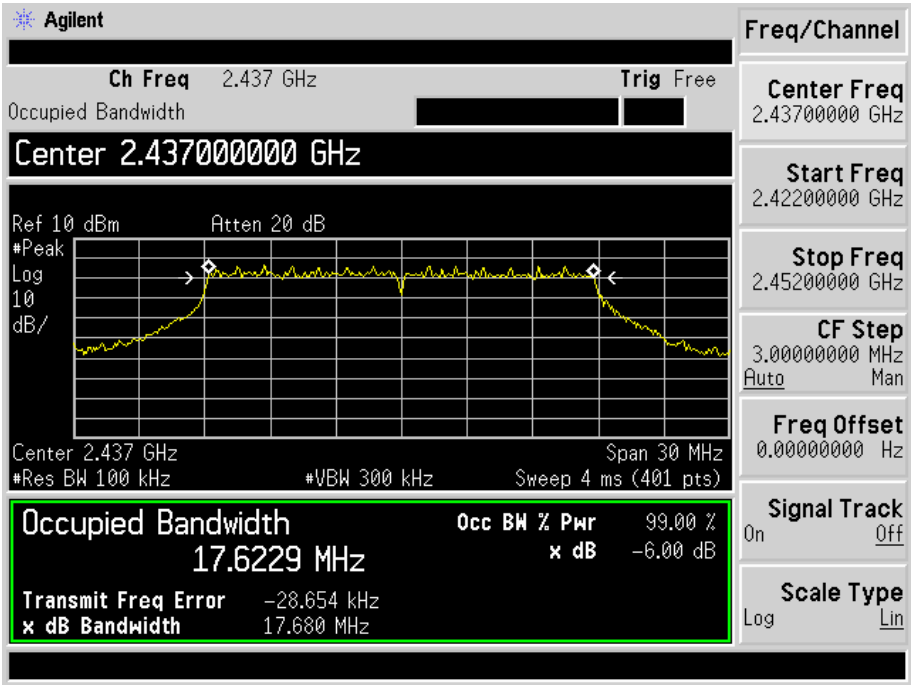
802.11g-High Channel



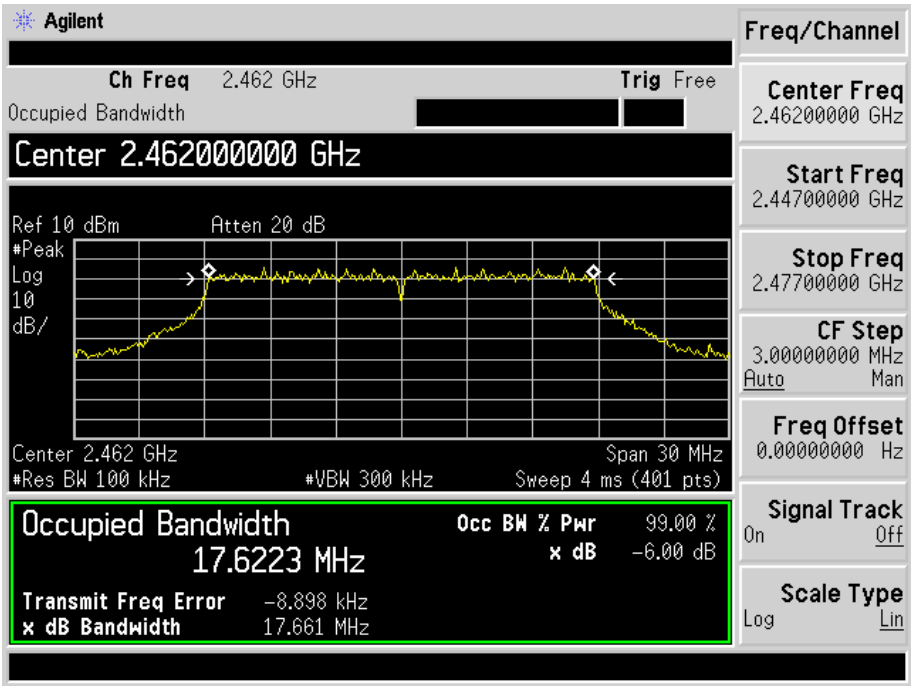
802.11n-HT20-Low Channel



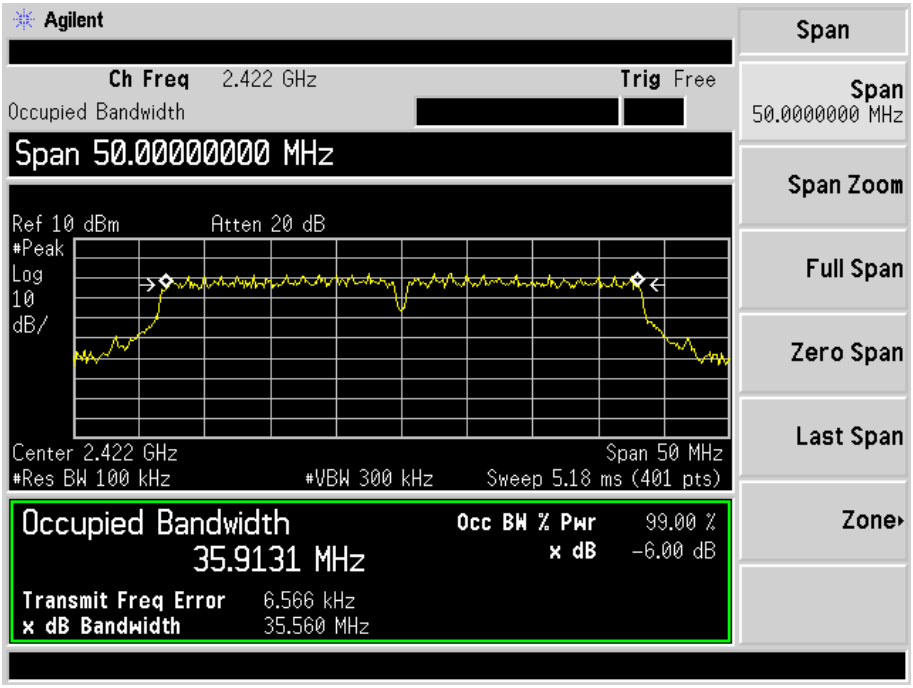
802.11n-HT20-Middle Channel



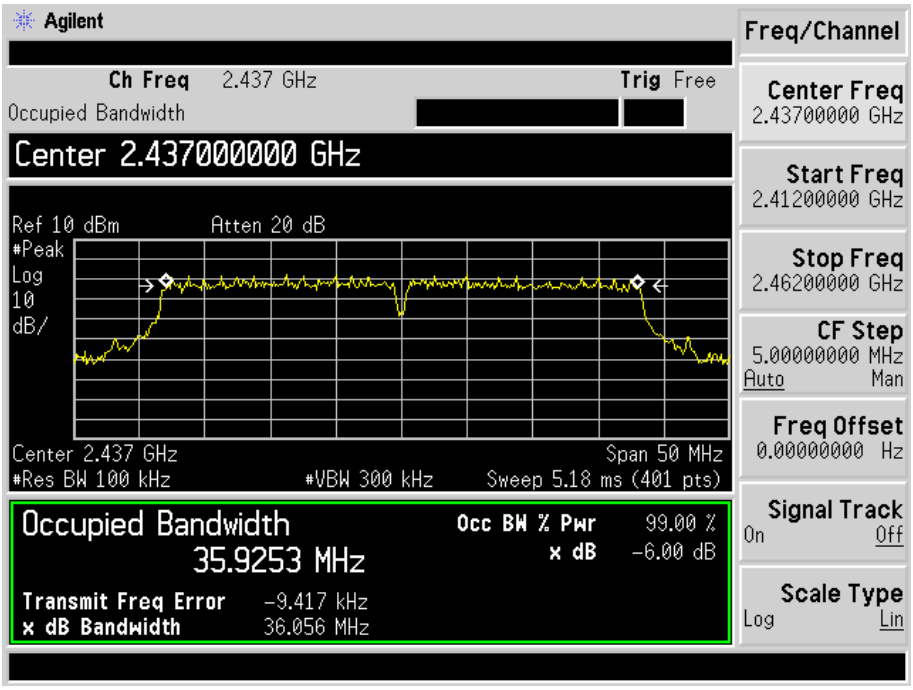
802.11n-HT20-High Channel



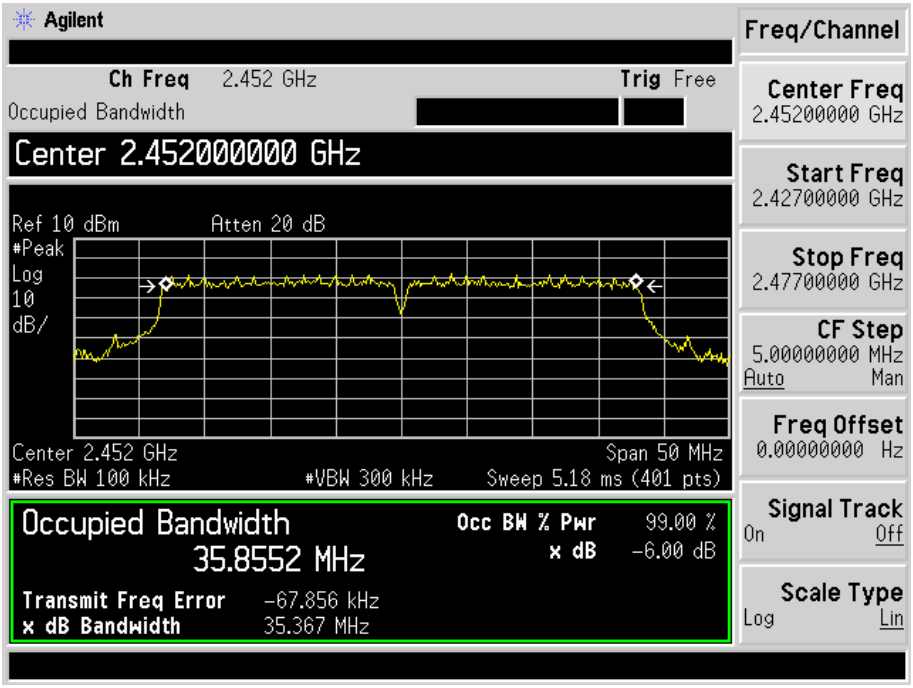
802.11n-HT40-Low Channel



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 Procedure

According to the KDB-558074 D01 v03r04, 9.2.2.2, when this option is exercised, the measured power is to be referenced to the OBW rather than the DTS bandwidth

a) Set span to at least 1.5 times the OBW.
b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
c) Set VBW ≥ 3 x RBW.
d) Number of points in sweep ≥ 2 × span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
e) Sweep time = auto.
f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
g) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

7.3 Environmental Conditions

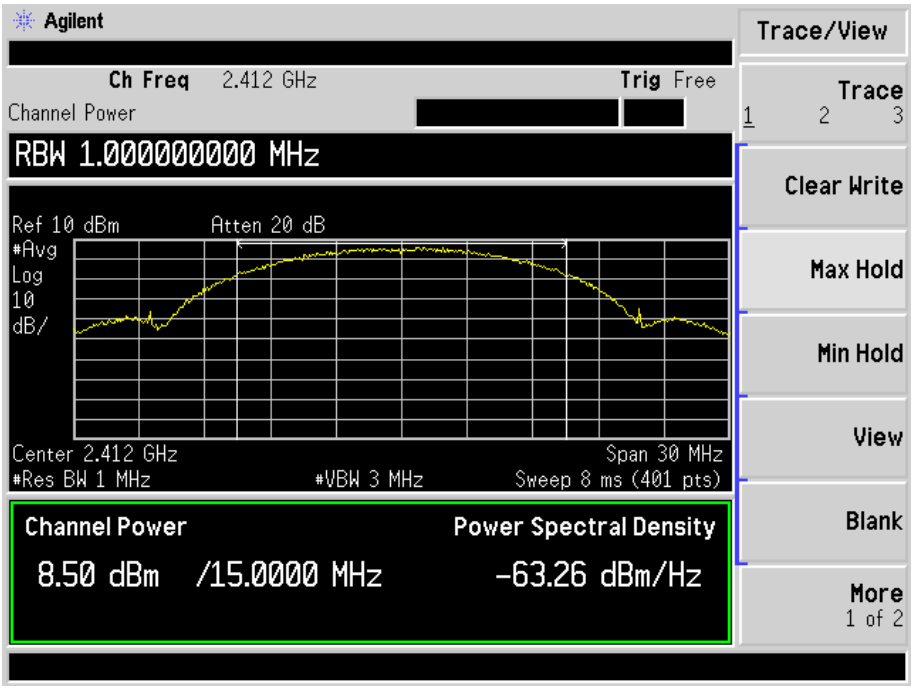
Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.4 Summary of Test Results/Plots

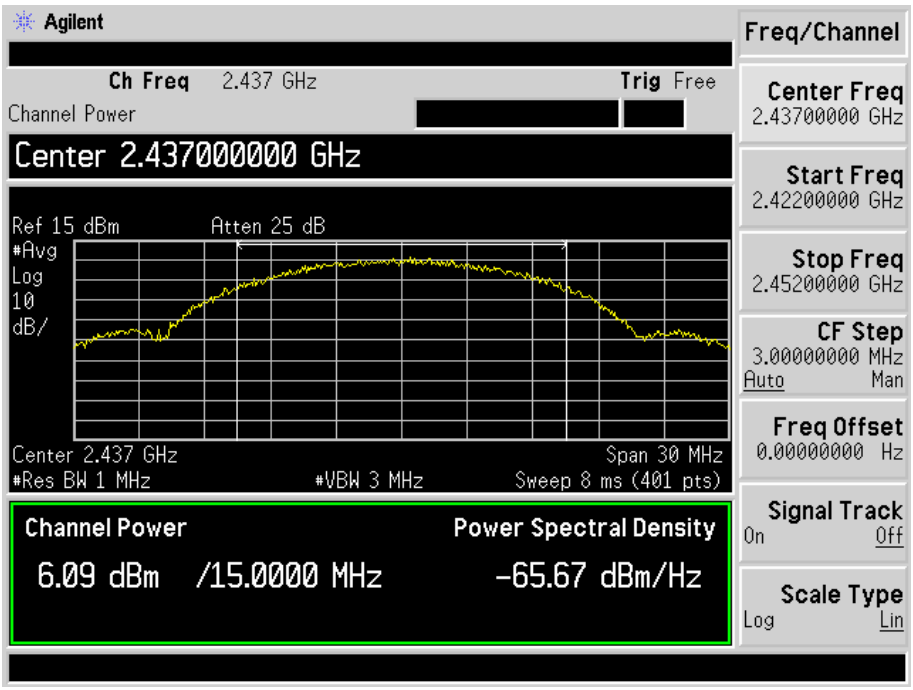
Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b _ 11Mbps	2412	8.50	7.08	1000
	2437	6.09	4.06	1000
	2462	8.06	6.40	1000
802.11g_54Mbps	2412	2.51	1.78	1000
	2437	3.05	2.02	1000
	2462	3.98	2.50	1000
802.11n HT20_MCS7	2412	4.40	2.75	1000
	2437	3.77	2.38	1000
	2462	3.53	2.25	1000
802.11n HT40_MCS7	2422	1.30	1.35	1000
	2437	2.26	1.68	1000
	2452	2.66	1.85	1000

Please refer to the following test plots:

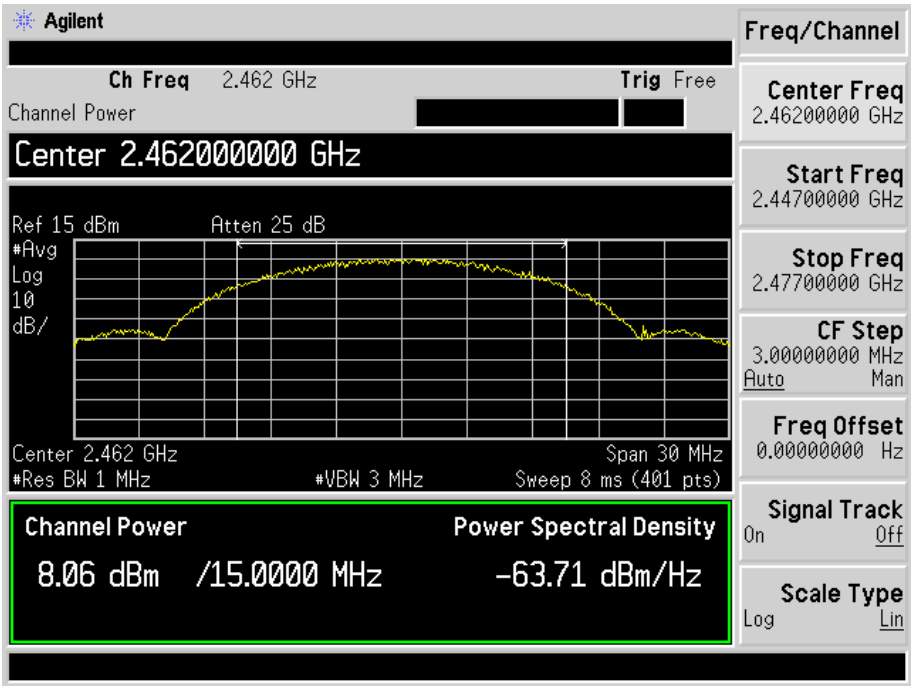
802.11b-11Mbps-Low Channel



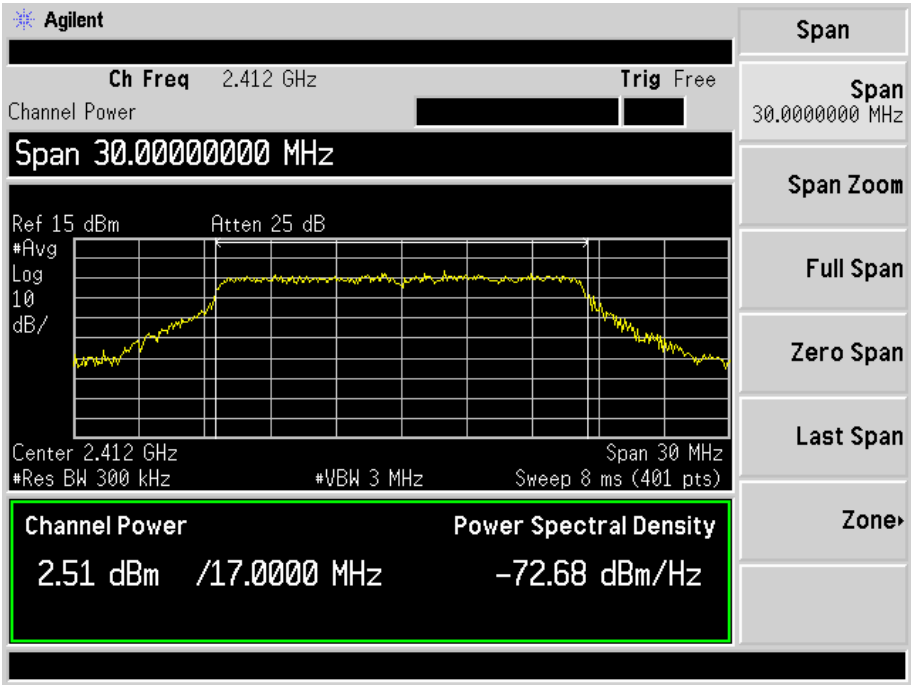
802.11b -11Mbps-Middle Channel



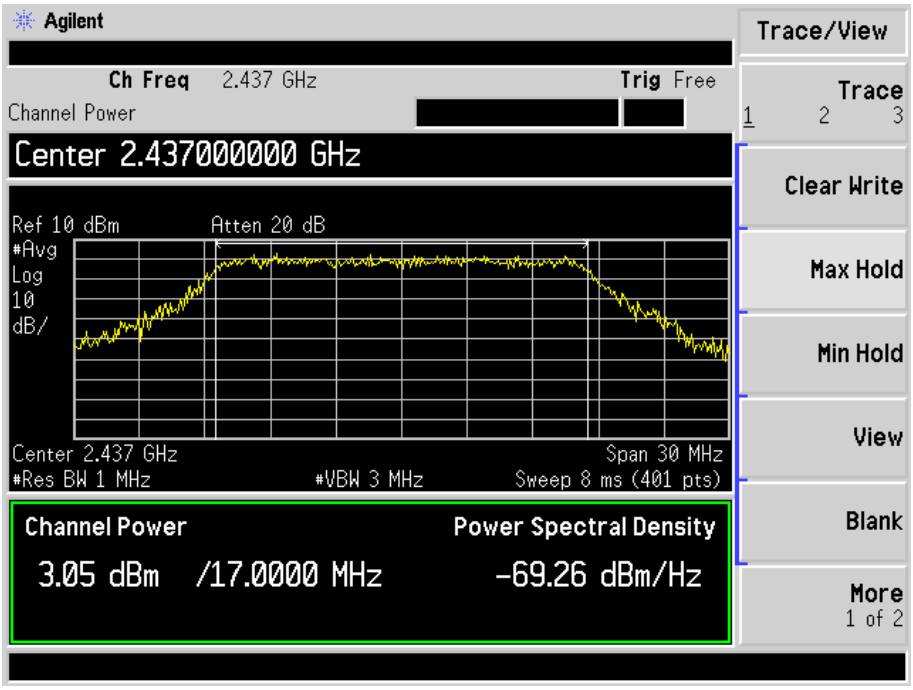
802.11b -11Mpbs-High Channel



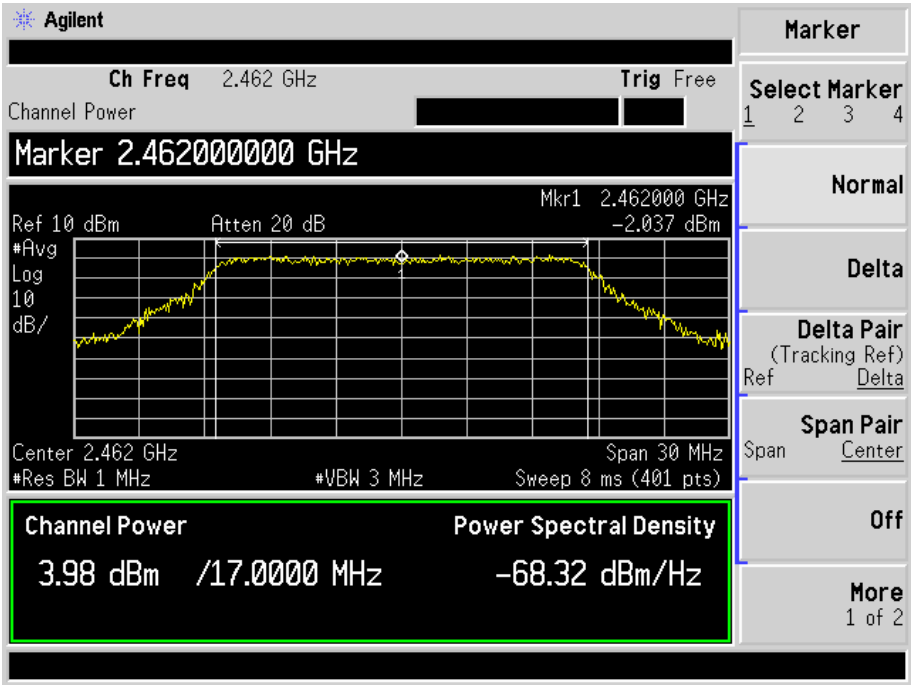
802.11g-54Mbps-Low Channel



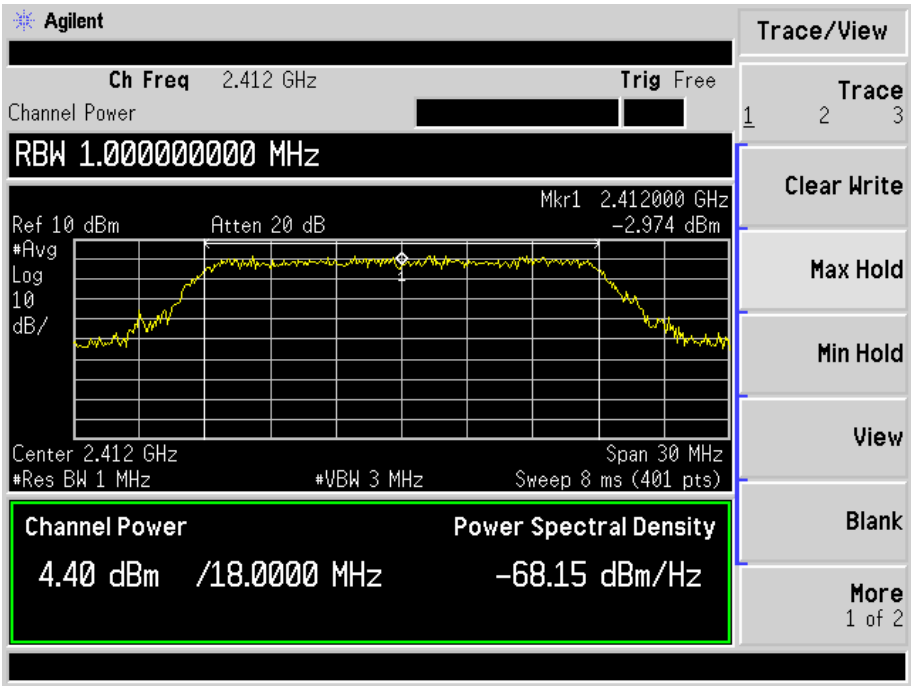
802.11g-54Mbps-Middle Channel



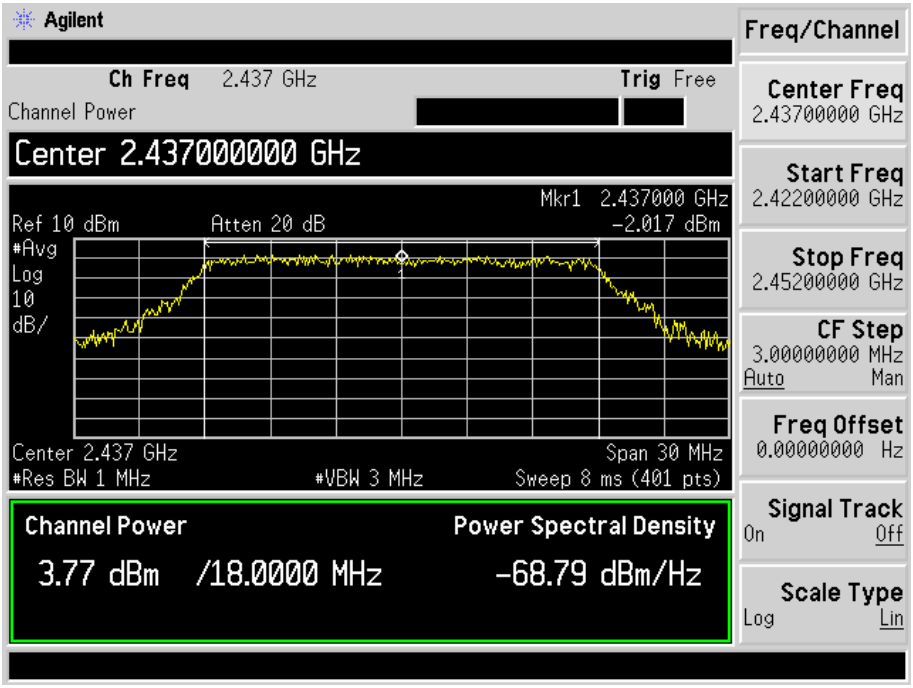
802.11g-54Mpbs-High Channel



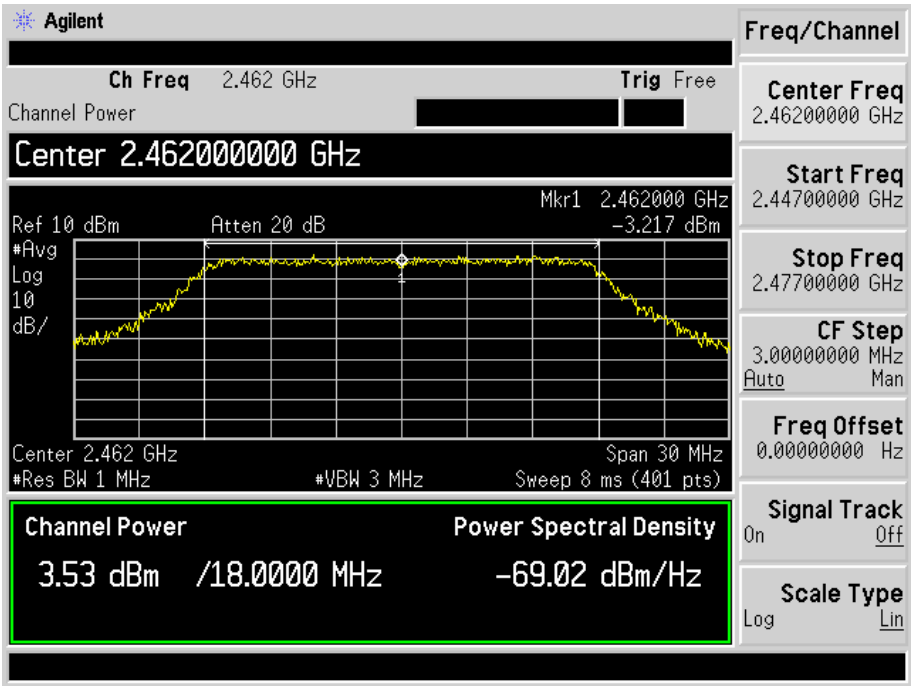
802.11n-HT20-MCS7-Low Channel



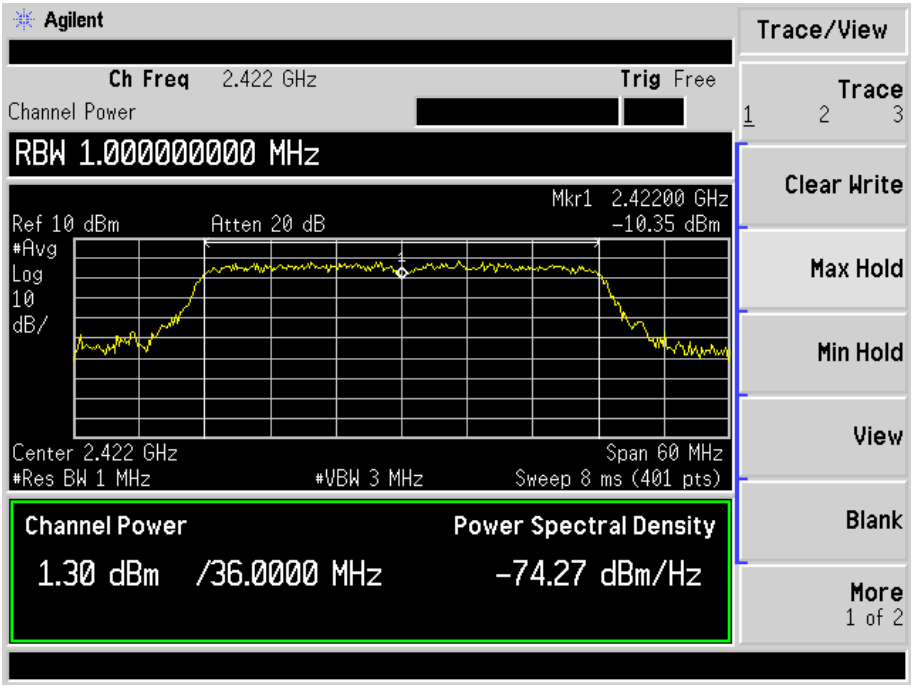
802.11n-HT20-MCS7-Middle Channel



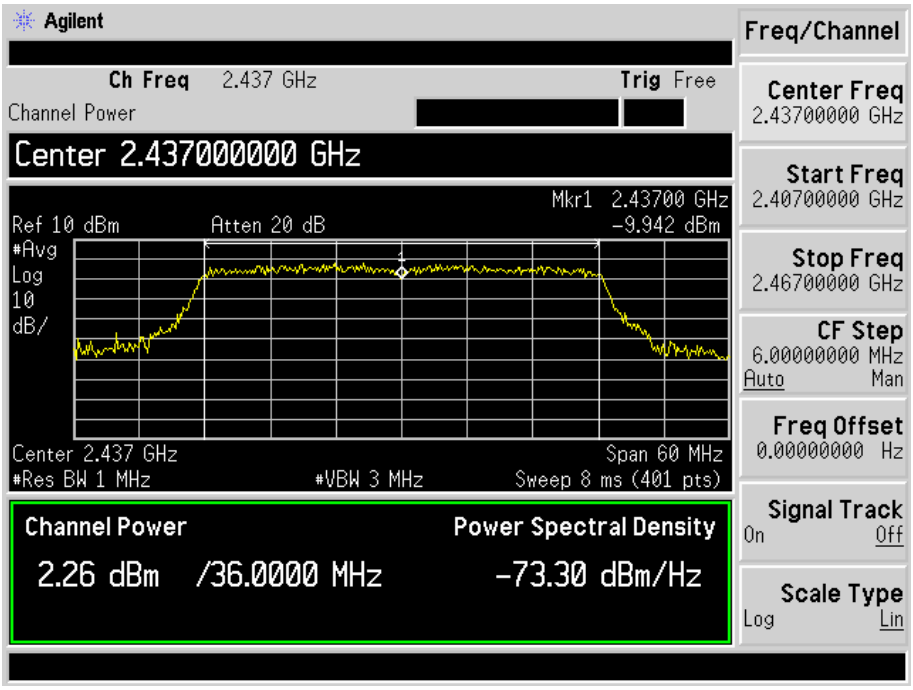
802.11n-HT20-MCS7-High Channel



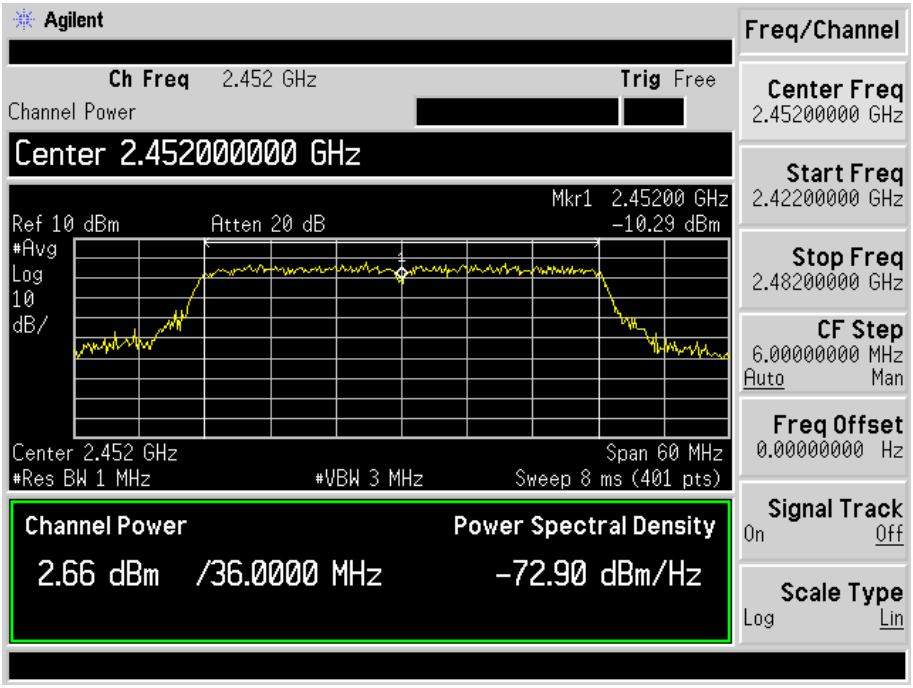
802.11n-HT40-MCS7-Low Channel



802.11n-HT40-MCS7-Middle Channel



802.11n-HT40-MCS7-High Channel



8. Field Strength of Spurious Emissions

8.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±5.10 dB.

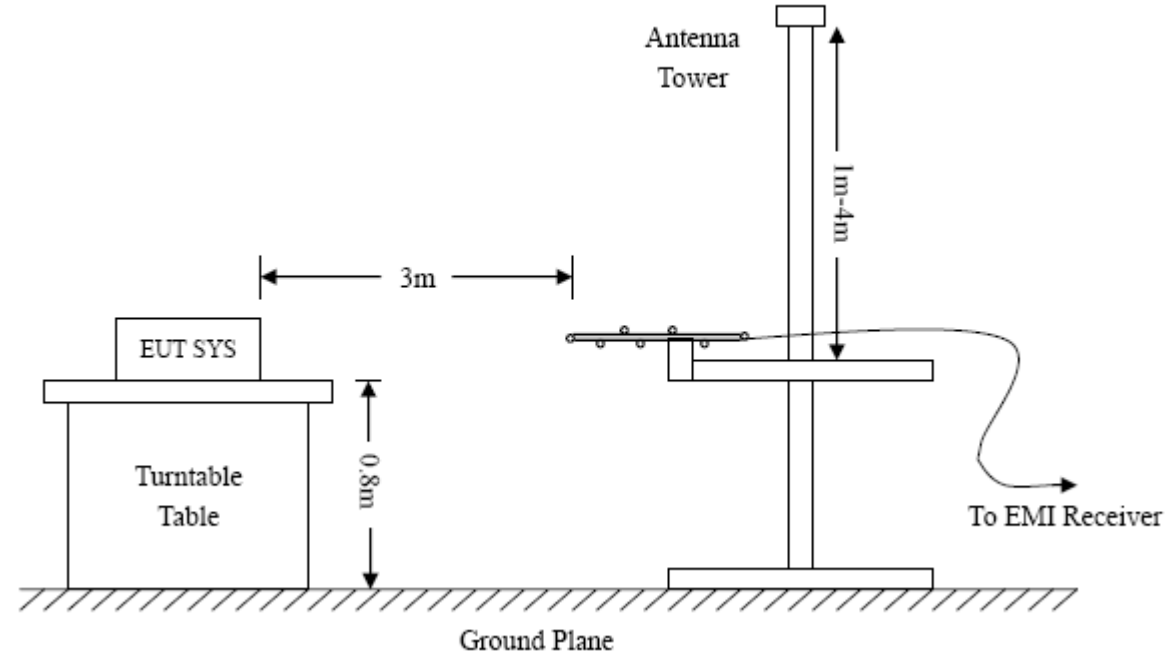
8.2 Standard Applicable

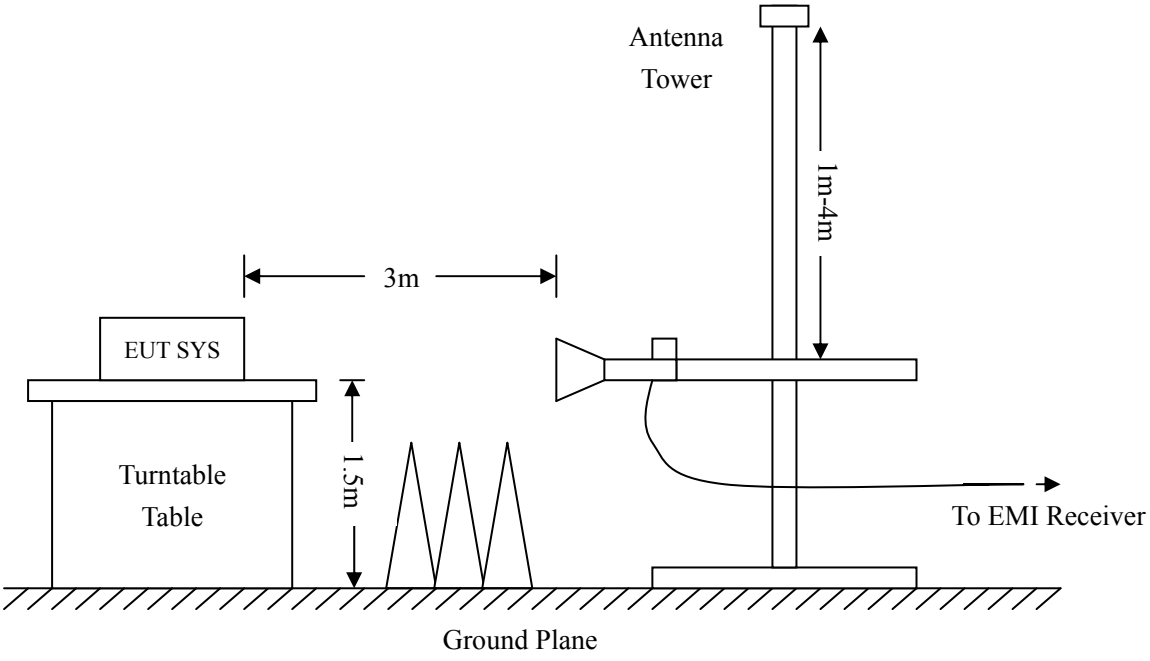
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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.

8.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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.





Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

8.4 Corrected Amplitude & Margin Calculation

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

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

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

Margin = Corr. Ampl. – FCC Part 15 Limit

8.5 Environmental Conditions

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

8.6 Summary of Test Results/Plots

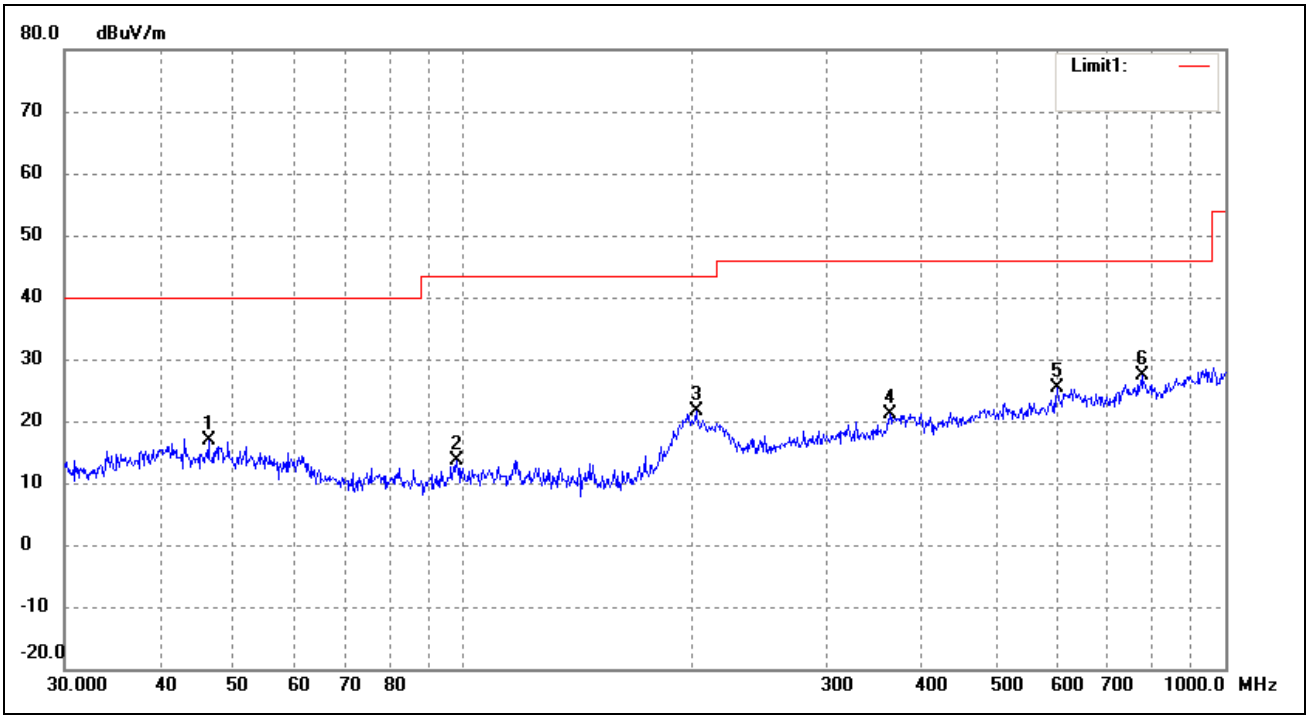
According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

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)

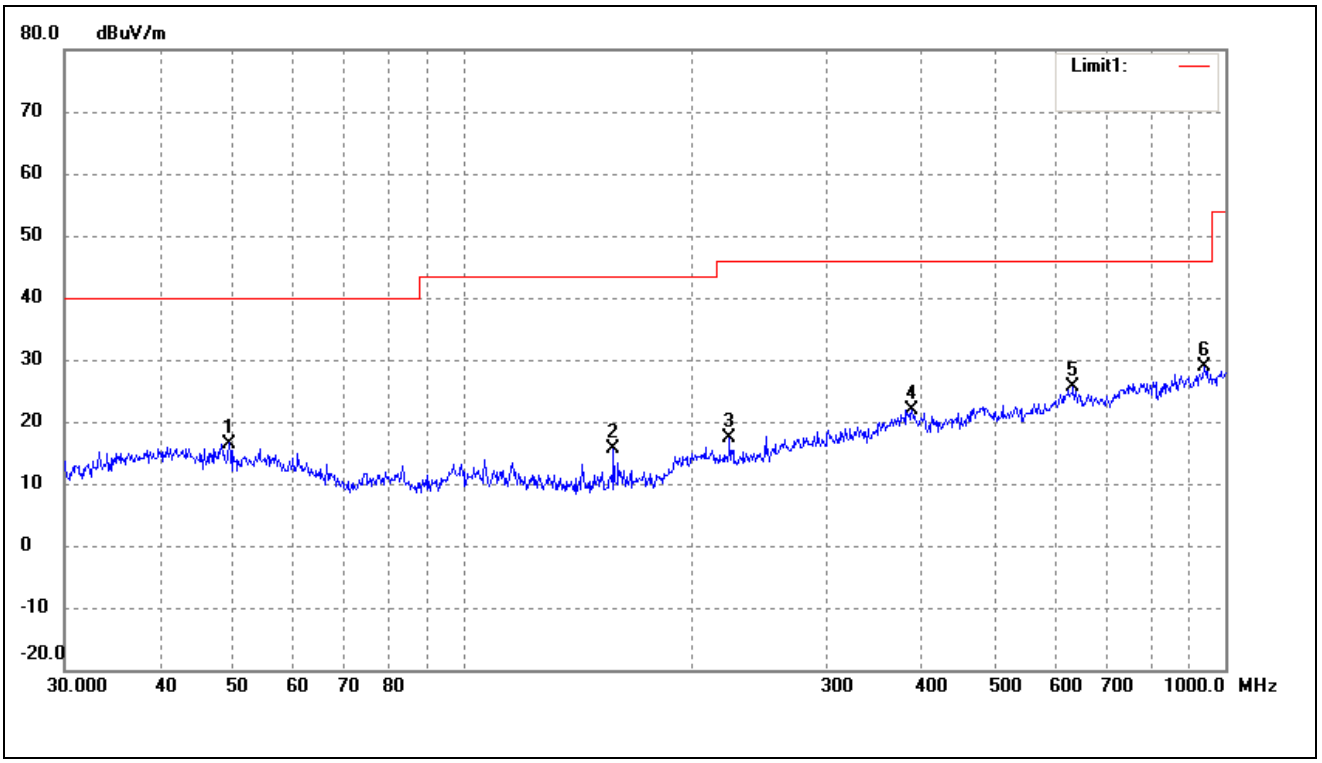
EUT: *Tablet PC*
Tested Model: *X40*
Operating Condition: *802.11b Transmitting Low Channel-2412MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	46.3402	25.04	-8.08	16.96	40.00	-23.04	254	100	peak
2	98.1419	24.90	-11.28	13.62	43.50	-29.88	113	100	peak
3	202.1005	30.34	-8.66	21.68	43.50	-21.82	284	100	peak
4	362.9845	24.23	-3.08	21.15	46.00	-24.85	254	100	peak
5	601.4265	25.40	-0.05	25.35	46.00	-20.65	113	100	peak
6	776.8778	24.73	2.73	27.46	46.00	-18.54	284	100	peak

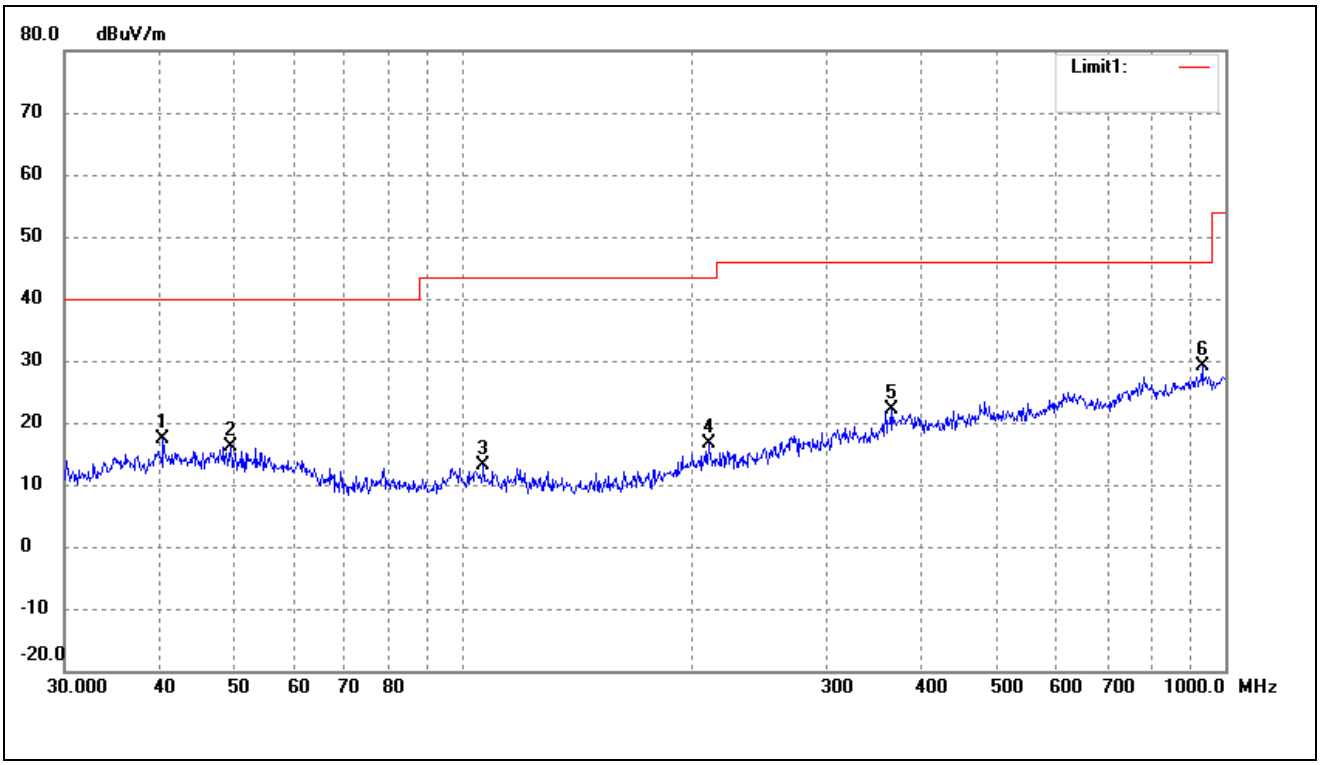
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	49.3594	24.78	-8.28	16.50	40.00	-23.50	114	100	peak
2	157.5589	28.02	-12.31	15.71	43.50	-27.79	270	100	peak
3	223.7334	26.04	-8.75	17.29	46.00	-28.71	360	100	peak
4	387.9920	24.40	-2.51	21.89	46.00	-24.11	114	100	peak
5	631.6884	24.69	0.93	25.62	46.00	-20.38	270	100	peak
6	938.8326	24.66	4.24	28.90	46.00	-17.10	360	100	peak

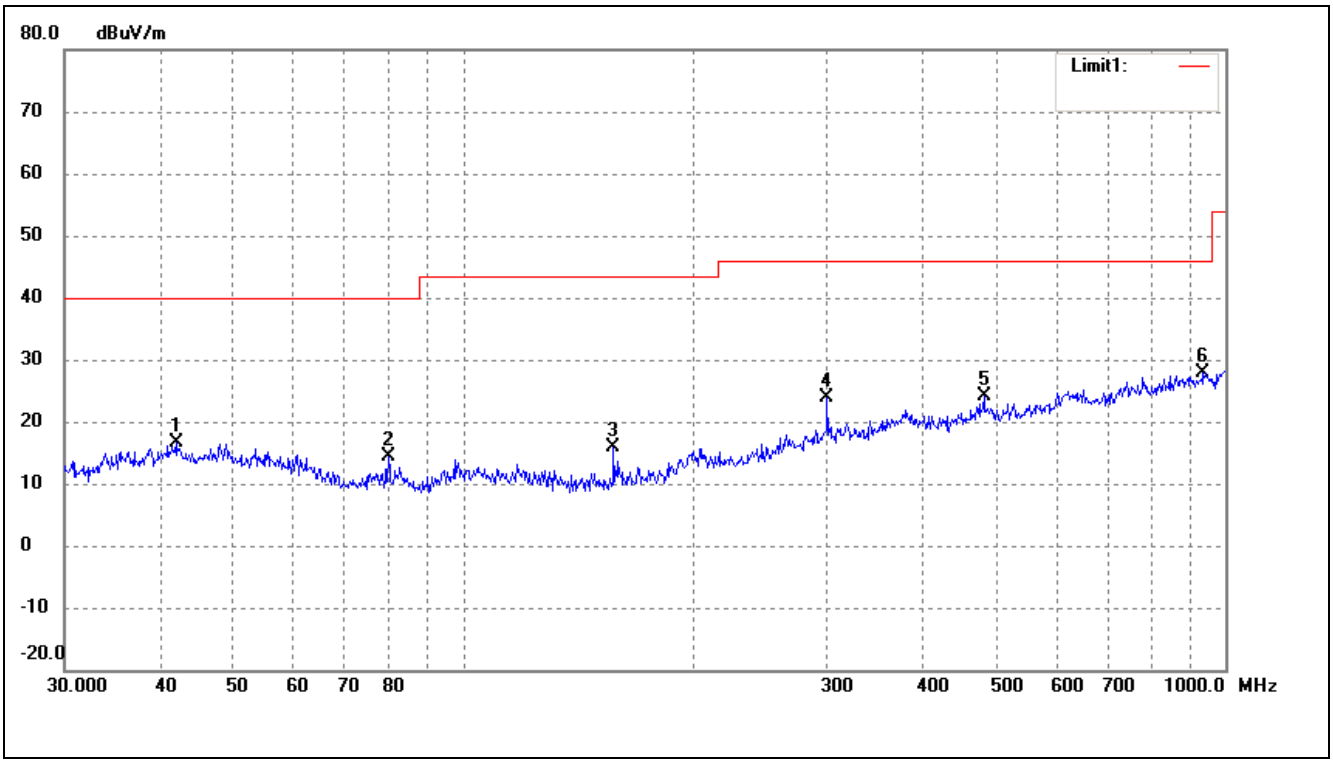
Operating Condition: *802.11b Transmitting Middle Channel-2437MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.4172	25.14	-7.70	17.44	40.00	-22.56	178	100	peak
2	49.5328	24.50	-8.29	16.21	40.00	-23.79	224	100	peak
3	106.3850	24.17	-11.07	13.10	43.50	-30.40	160	100	peak
4	210.0482	25.29	-8.74	16.55	43.50	-26.95	178	100	peak
5	364.2595	25.24	-3.00	22.24	46.00	-23.76	224	100	peak
6	932.2715	25.11	4.03	29.14	46.00	-16.86	160	100	peak

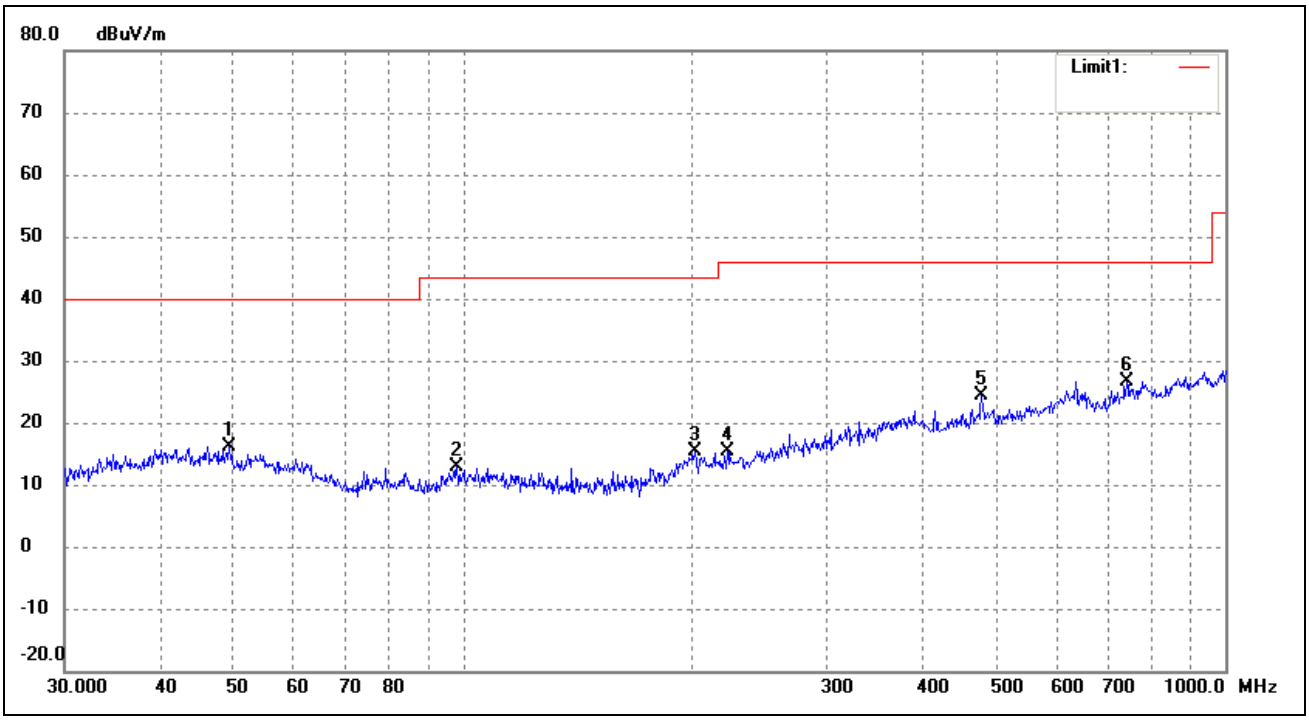
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.0066	24.44	-7.80	16.64	40.00	-23.36	256	100	peak
2	79.8003	26.31	-12.01	14.30	40.00	-25.70	360	100	peak
3	157.5589	28.11	-12.31	15.80	43.50	-27.70	360	100	peak
4	300.3673	29.49	-5.63	23.86	46.00	-22.14	256	100	peak
5	482.2156	25.38	-1.17	24.21	46.00	-21.79	360	100	peak
6	935.5463	23.78	4.13	27.91	46.00	-18.09	360	100	peak

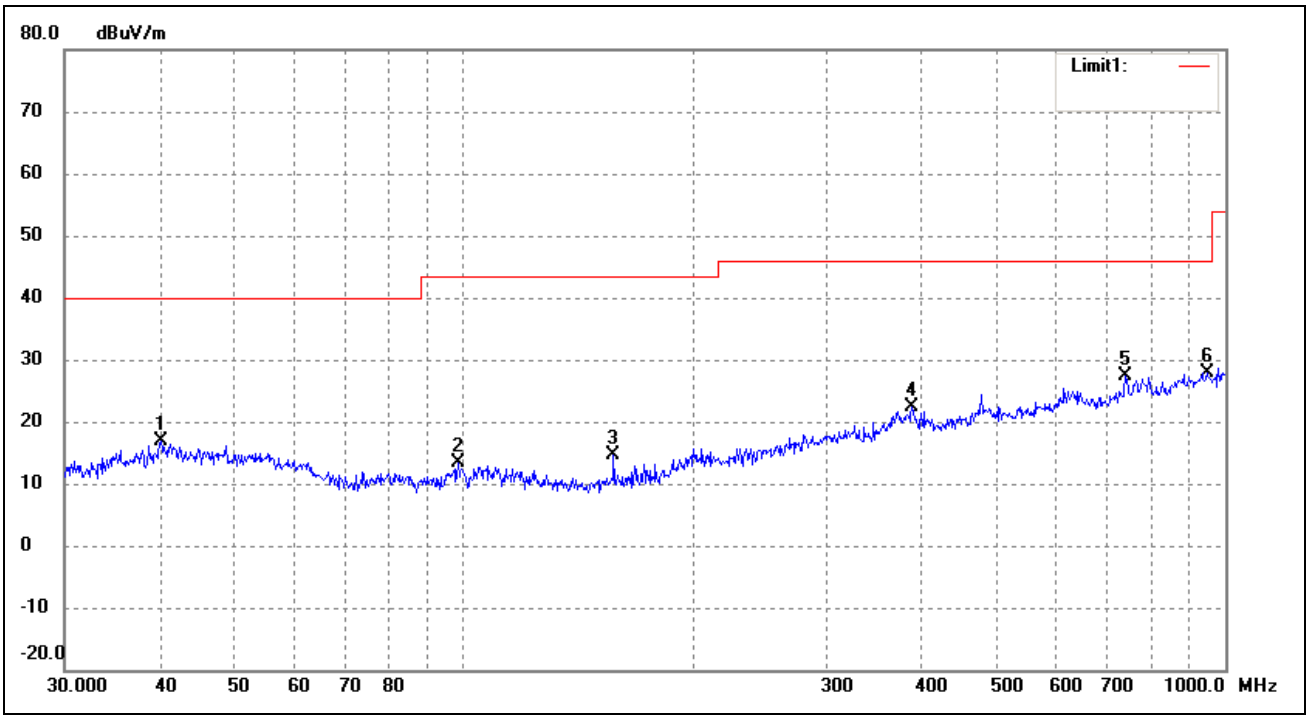
Operating Condition: *802.11b Transmitting High Channel-2462MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	49.3594	24.37	-8.28	16.09	40.00	-23.91	176	100	peak
2	98.1419	24.10	-11.28	12.82	43.50	-30.68	255	100	peak
3	201.3930	23.94	-8.66	15.28	43.50	-28.22	360	100	peak
4	222.1698	24.19	-8.78	15.41	46.00	-30.59	176	100	peak
5	478.8456	25.53	-1.13	24.40	46.00	-21.60	255	100	peak
6	742.2587	24.53	2.09	26.62	46.00	-19.38	360	100	peak

Test Specification: *Vertical*

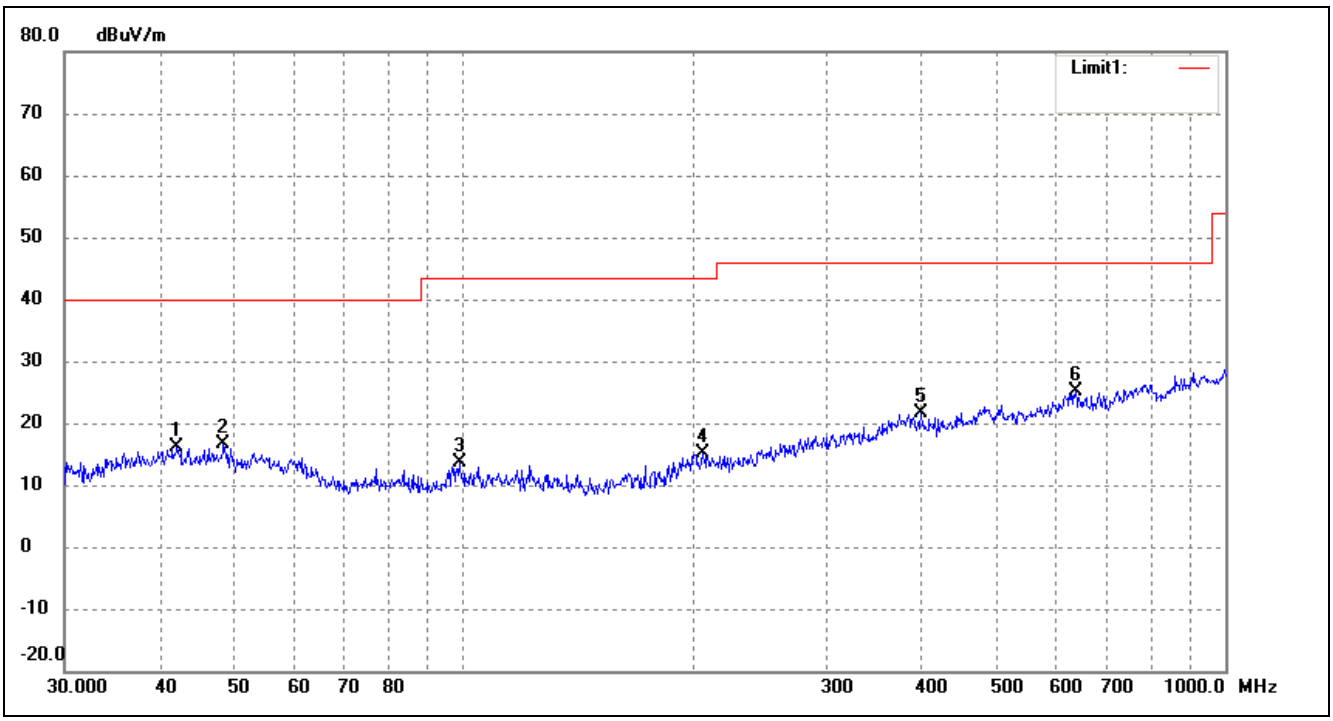


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.1347	24.61	-7.68	16.93	40.00	-23.07	360	100	peak
2	98.4866	24.59	-11.21	13.38	43.50	-30.12	225	100	peak
3	157.5589	26.89	-12.31	14.58	43.50	-28.92	160	100	peak
4	387.9920	24.96	-2.51	22.45	46.00	-23.55	360	100	peak
5	739.6605	25.16	2.10	27.26	46.00	-18.74	225	100	peak
6	945.4399	23.81	4.08	27.89	46.00	-18.11	160	100	peak

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

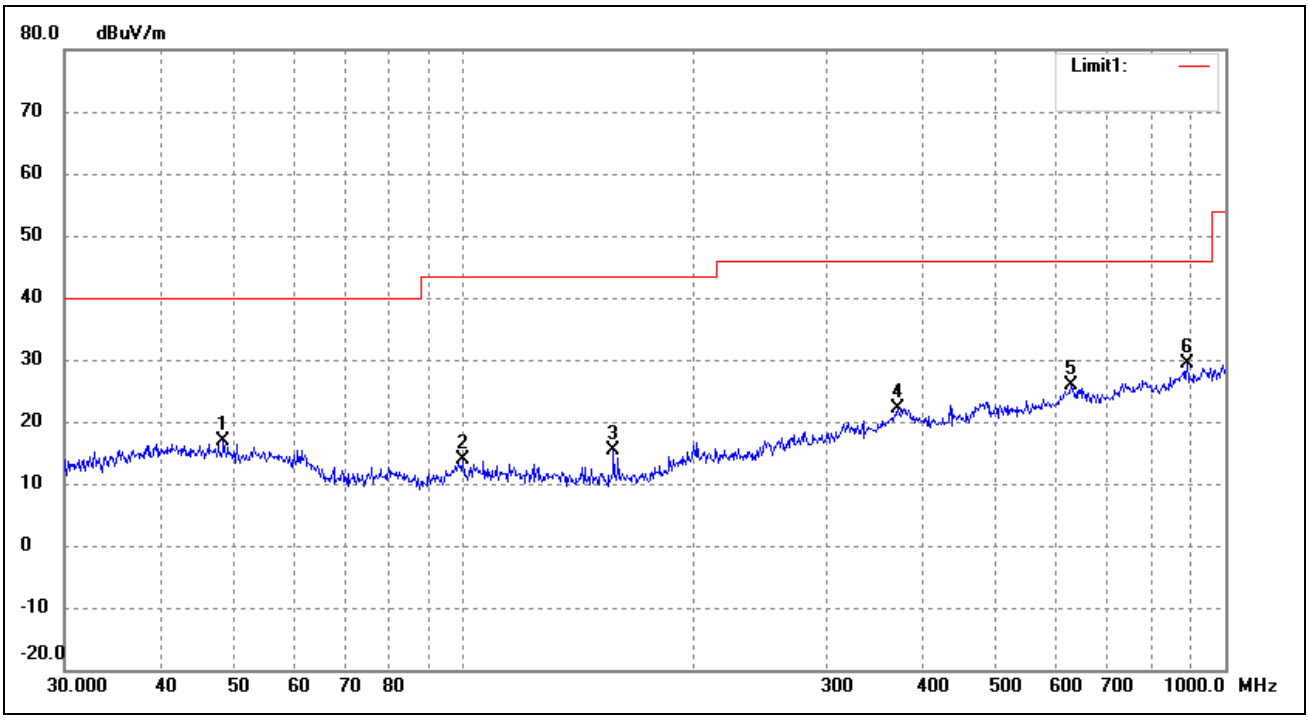
EUT: *Tablet PC*
Tested Model: *X40*
Operating Condition: *802.11g Transmitting Low Channel-2412MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.1542	23.85	-7.81	16.04	40.00	-23.96	174	100	peak
2	48.5016	24.86	-8.22	16.64	40.00	-23.36	160	100	peak
3	98.8326	24.83	-11.14	13.69	43.50	-29.81	320	100	peak
4	206.3976	23.94	-8.70	15.24	43.50	-28.26	174	100	peak
5	399.0302	24.81	-3.10	21.71	46.00	-24.29	160	100	peak
6	636.1340	24.28	0.82	25.10	46.00	-20.90	320	100	peak

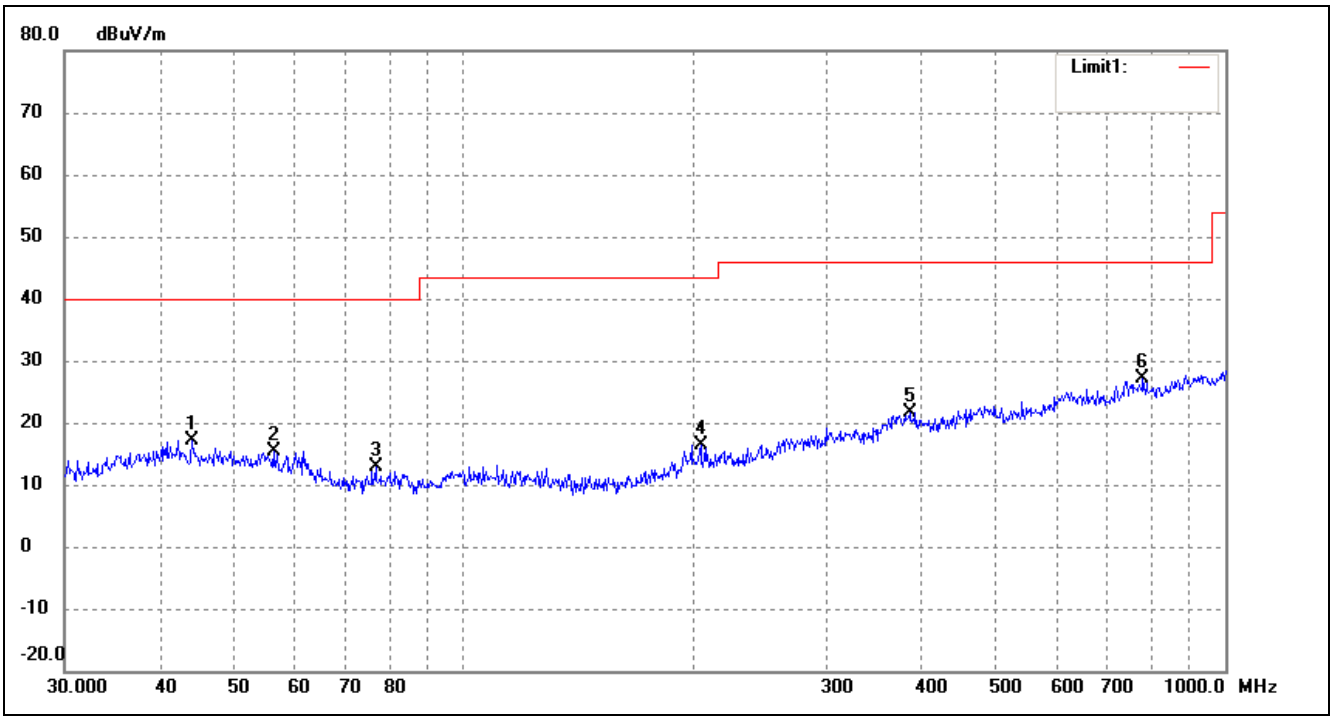
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	48.5016	25.17	-8.22	16.95	40.00	-23.05	177	100	peak
2	99.8777	24.71	-10.93	13.78	43.50	-29.72	90	100	peak
3	157.5589	27.61	-12.31	15.30	43.50	-28.20	336	100	peak
4	372.0045	24.72	-2.56	22.16	46.00	-23.84	177	100	peak
5	627.2738	24.85	1.05	25.90	46.00	-20.10	90	100	peak
6	890.7278	26.19	3.15	29.34	46.00	-16.66	336	100	peak

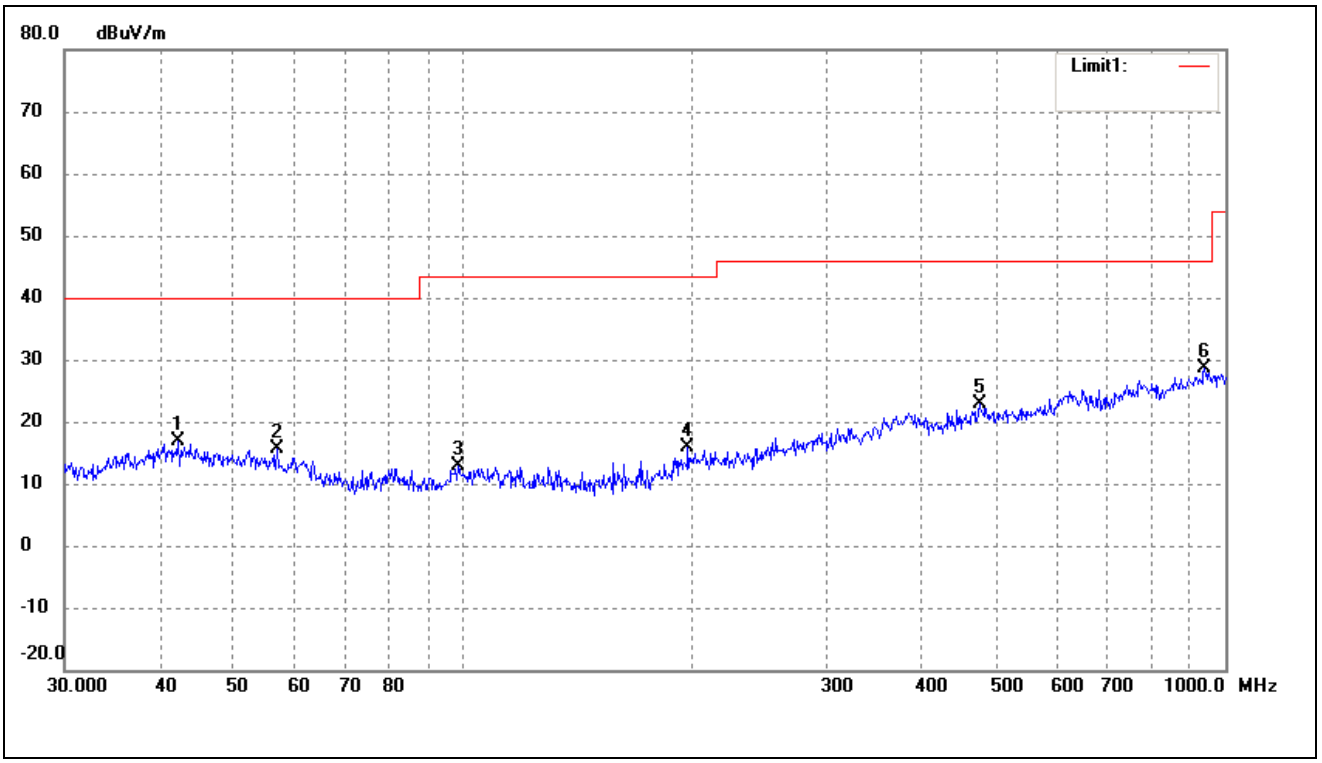
Operating Condition: *802.11g Transmitting Middle Channel-2437MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	44.1202	25.17	-7.94	17.23	40.00	-22.77	270	100	peak
2	56.3948	24.46	-9.13	15.33	40.00	-24.67	164	100	peak
3	76.7808	25.17	-12.26	12.91	40.00	-27.09	228	200	peak
4	204.9551	25.19	-8.69	16.50	43.50	-27.00	270	100	peak
5	385.2805	23.96	-2.38	21.58	46.00	-24.42	164	100	peak
6	779.6068	24.28	2.88	27.16	46.00	-18.84	228	100	peak

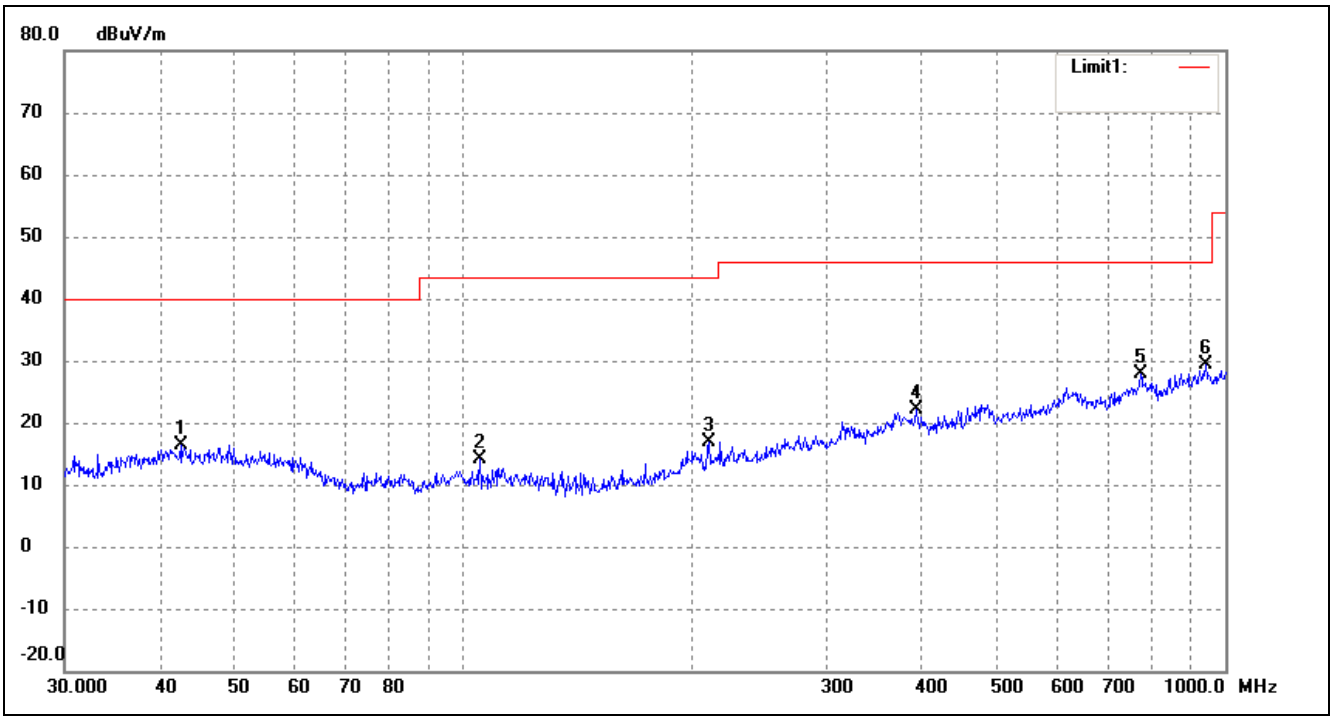
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.3022	24.65	-7.82	16.83	40.00	-23.17	360	100	peak
2	56.9912	24.83	-9.20	15.63	40.00	-24.37	255	100	peak
3	98.4866	24.06	-11.21	12.85	43.50	-30.65	270	100	peak
4	197.2001	24.95	-9.03	15.92	43.50	-27.58	360	100	peak
5	475.4991	24.39	-1.42	22.97	46.00	-23.03	255	100	peak
6	938.8326	24.34	4.24	28.58	46.00	-17.42	270	100	peak

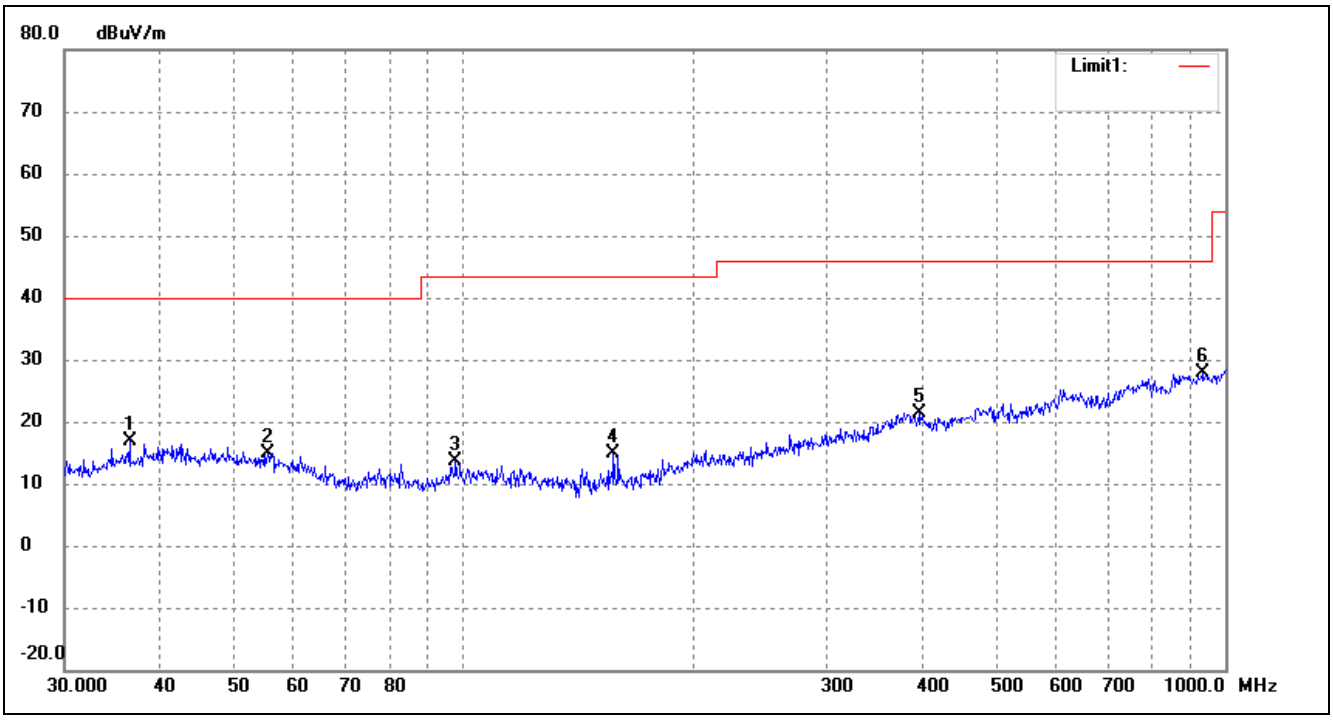
Operating Condition: *802.11g Transmitting High Channel-2462MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.6000	24.28	-7.84	16.44	40.00	-23.56	270	100	peak
2	105.2718	25.11	-11.04	14.07	43.50	-29.43	51	200	peak
3	210.0482	25.70	-8.74	16.96	43.50	-26.54	360	200	peak
4	393.4724	24.94	-2.80	22.14	46.00	-23.86	270	100	peak
5	774.1584	25.32	2.58	27.90	46.00	-18.10	51	100	peak
6	942.1305	25.23	4.19	29.42	46.00	-16.58	360	100	peak

Test Specification: *Vertical*

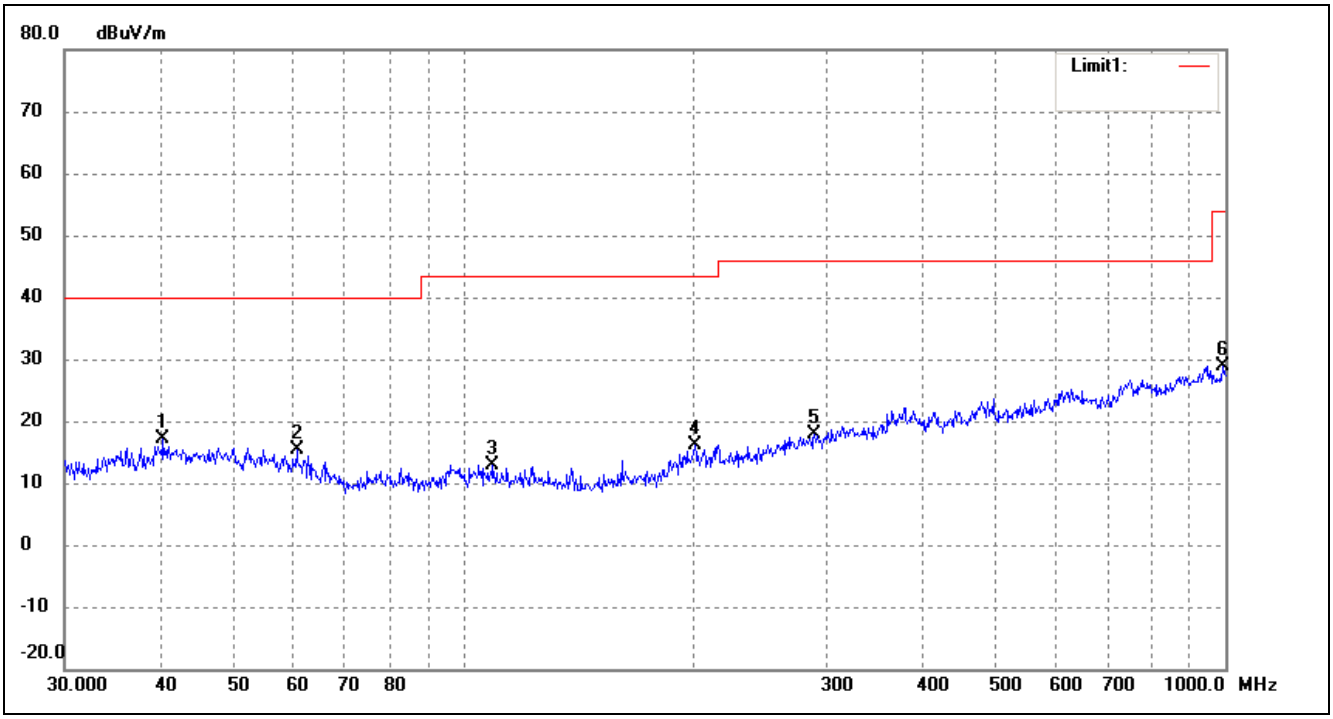


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	36.5092	25.51	-8.63	16.88	40.00	-23.12	360	100	peak
2	55.4147	23.98	-9.00	14.98	40.00	-25.02	180	100	peak
3	97.7983	25.03	-11.35	13.68	43.50	-29.82	225	100	peak
4	157.5589	27.15	-12.31	14.84	43.50	-28.66	360	100	peak
5	397.6334	24.41	-3.01	21.40	46.00	-24.60	180	100	peak
6	932.2715	23.74	4.03	27.77	46.00	-18.23	225	100	peak

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

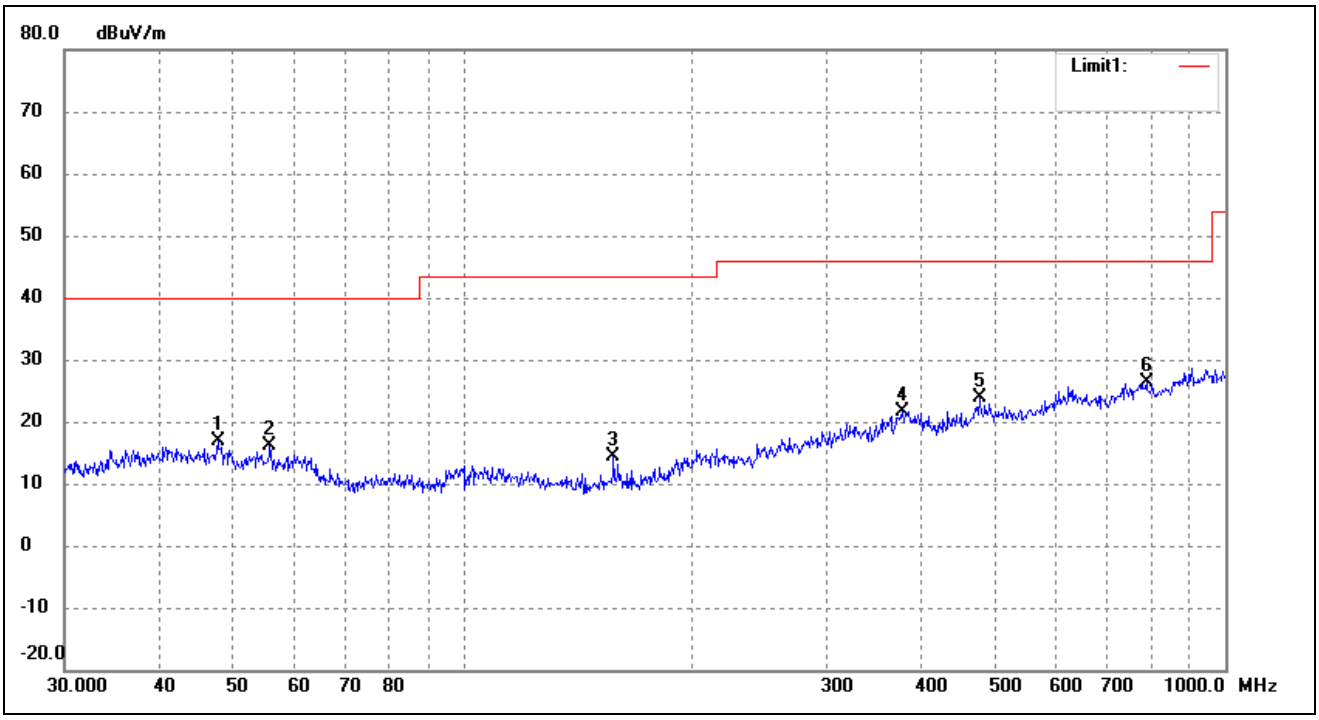
EUT: *Tablet PC*
Tested Model: *X40*
Operating Condition: *802.11n-HT20 Transmitting Low Channel-2412MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.4172	24.72	-7.70	17.02	40.00	-22.98	260	100	peak
2	60.4919	25.21	-9.74	15.47	40.00	-24.53	131	200	peak
3	109.4116	24.11	-11.15	12.96	43.50	-30.54	285	200	peak
4	201.3930	24.75	-8.66	16.09	43.50	-27.41	260	100	peak
5	289.0021	23.67	-5.90	17.77	46.00	-28.23	131	200	peak
6	993.0114	24.48	4.49	28.97	54.00	-25.03	285	200	peak

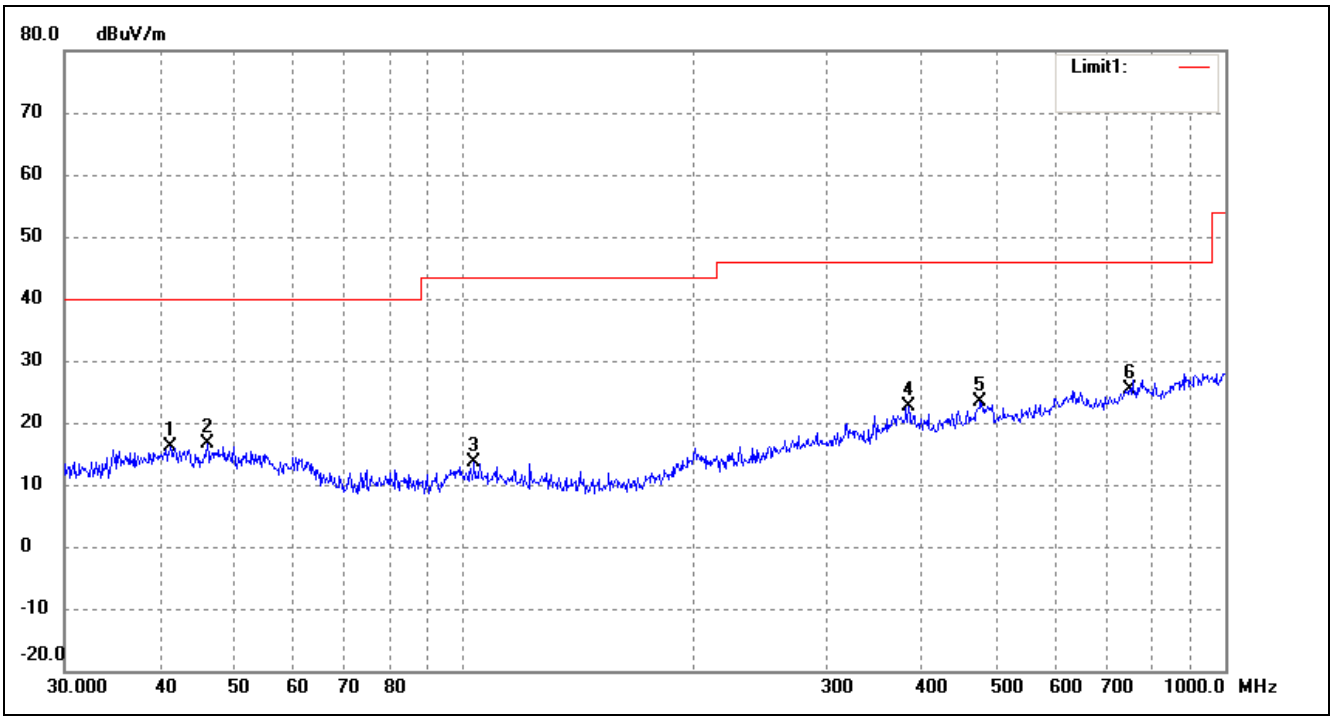
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	47.6586	24.93	-8.17	16.76	40.00	-23.24	155	100	peak
2	55.8047	25.30	-9.05	16.25	40.00	-23.75	197	100	peak
3	157.5589	26.61	-12.31	14.30	43.50	-29.20	310	100	peak
4	377.2591	23.94	-2.26	21.68	46.00	-24.32	155	100	peak
5	475.4991	25.28	-1.42	23.86	46.00	-22.14	197	100	peak
6	787.8513	23.83	2.51	26.34	46.00	-19.66	310	100	peak

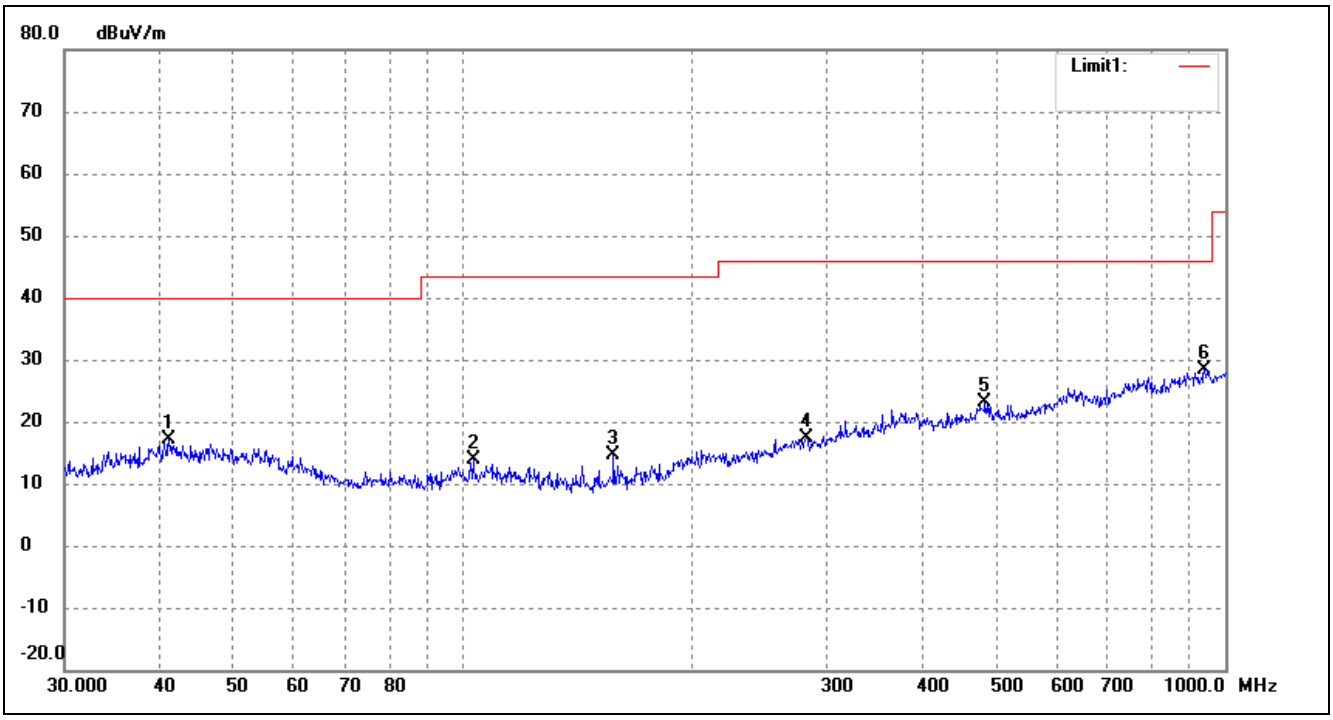
Operating Condition: *802.11n-HT20 Transmitting Middle Channel-2437MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	41.2765	23.86	-7.75	16.11	40.00	-23.89	274	100	peak
2	46.1780	24.81	-8.07	16.74	40.00	-23.26	116	100	peak
3	103.4421	24.51	-10.99	13.52	43.50	-29.98	82	100	peak
4	383.9318	24.96	-2.30	22.66	46.00	-23.34	274	100	peak
5	477.1694	24.60	-1.27	23.33	46.00	-22.67	116	100	peak
6	750.1083	23.37	1.95	25.32	46.00	-20.68	82	100	peak

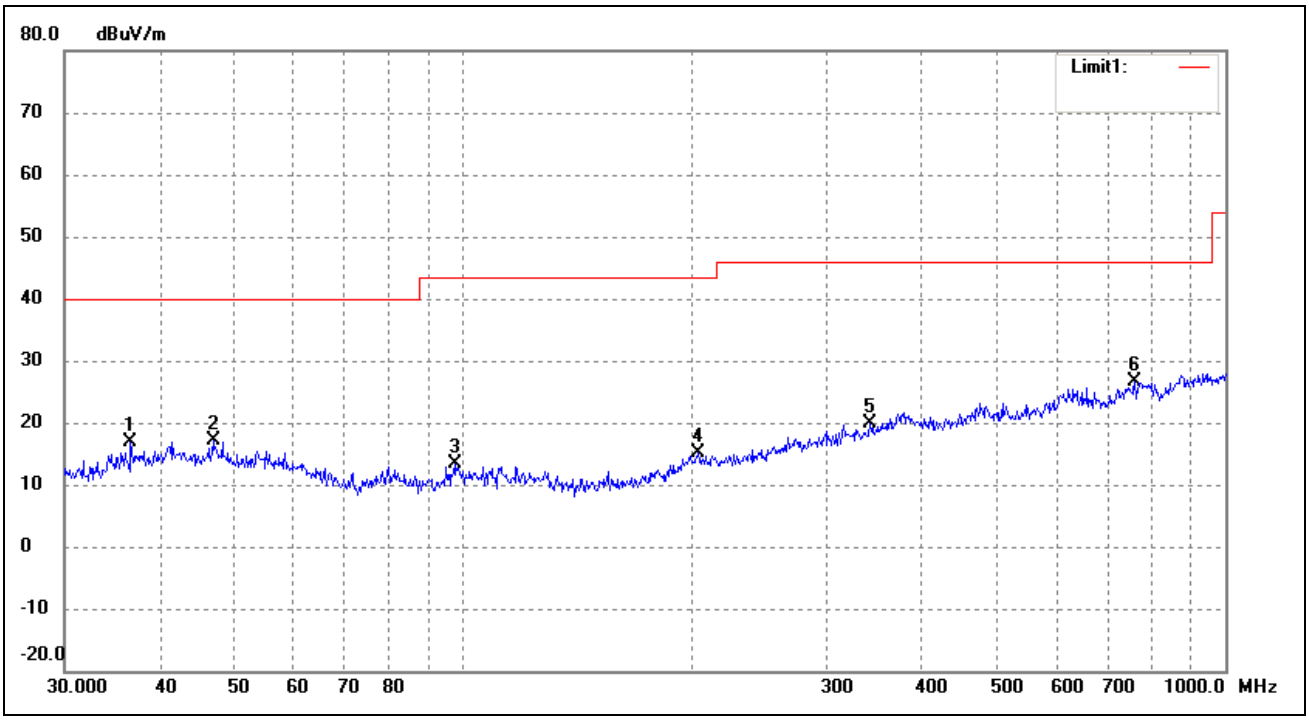
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	41.1320	24.93	-7.74	17.19	40.00	-22.81	264	100	peak
2	103.0800	24.84	-10.97	13.87	43.50	-29.63	110	100	peak
3	157.5589	27.04	-12.31	14.73	43.50	-28.77	136	100	peak
4	281.9946	23.44	-6.06	17.38	46.00	-28.62	264	100	peak
5	483.9094	24.51	-1.27	23.24	46.00	-22.76	110	100	peak
6	938.8326	24.22	4.24	28.46	46.00	-17.54	136	100	peak

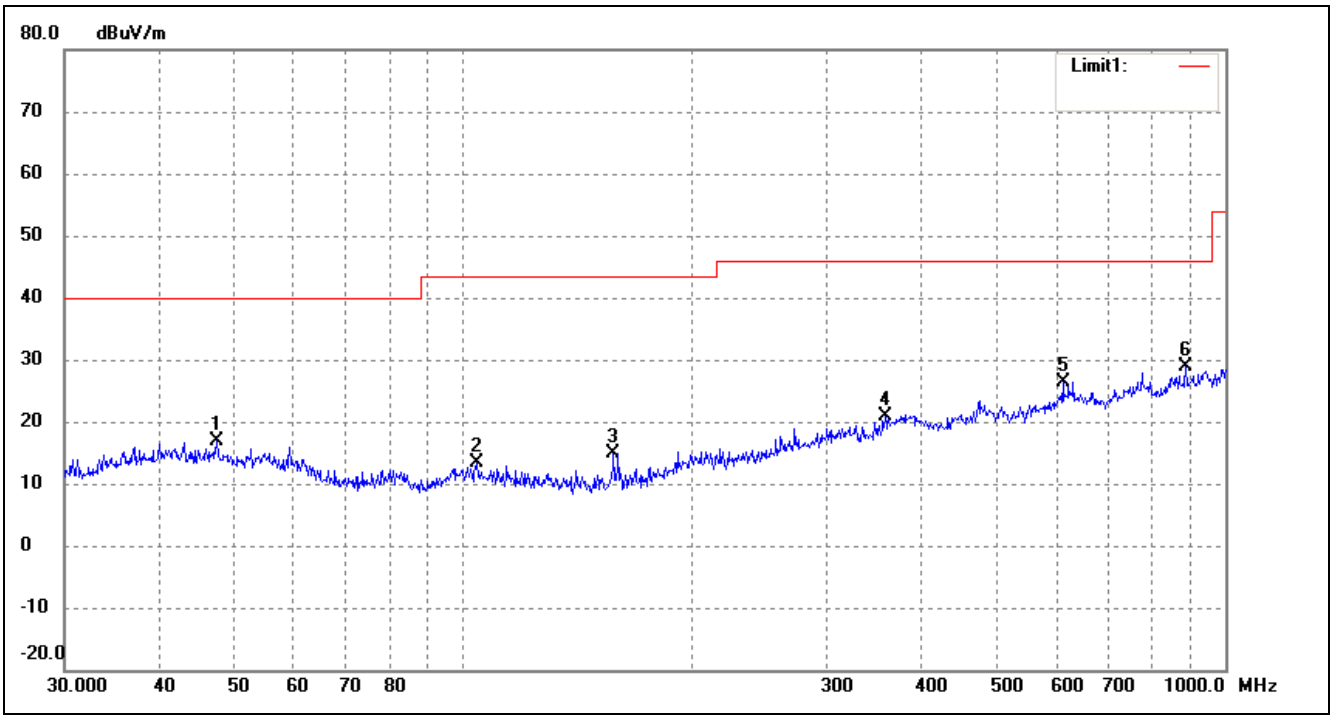
Operating Condition: *802.11n-HT20 Transmitting High Channel-2462MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	36.6375	25.59	-8.59	17.00	40.00	-23.00	360	100	peak
2	46.9948	25.23	-8.13	17.10	40.00	-22.90	112	100	peak
3	97.4560	24.82	-11.42	13.40	43.50	-30.10	180	200	peak
4	203.5228	23.86	-8.68	15.18	43.50	-28.32	360	100	peak
5	341.9787	24.70	-4.82	19.88	46.00	-26.12	112	100	peak
6	760.7036	24.85	1.84	26.69	46.00	-19.31	180	200	peak

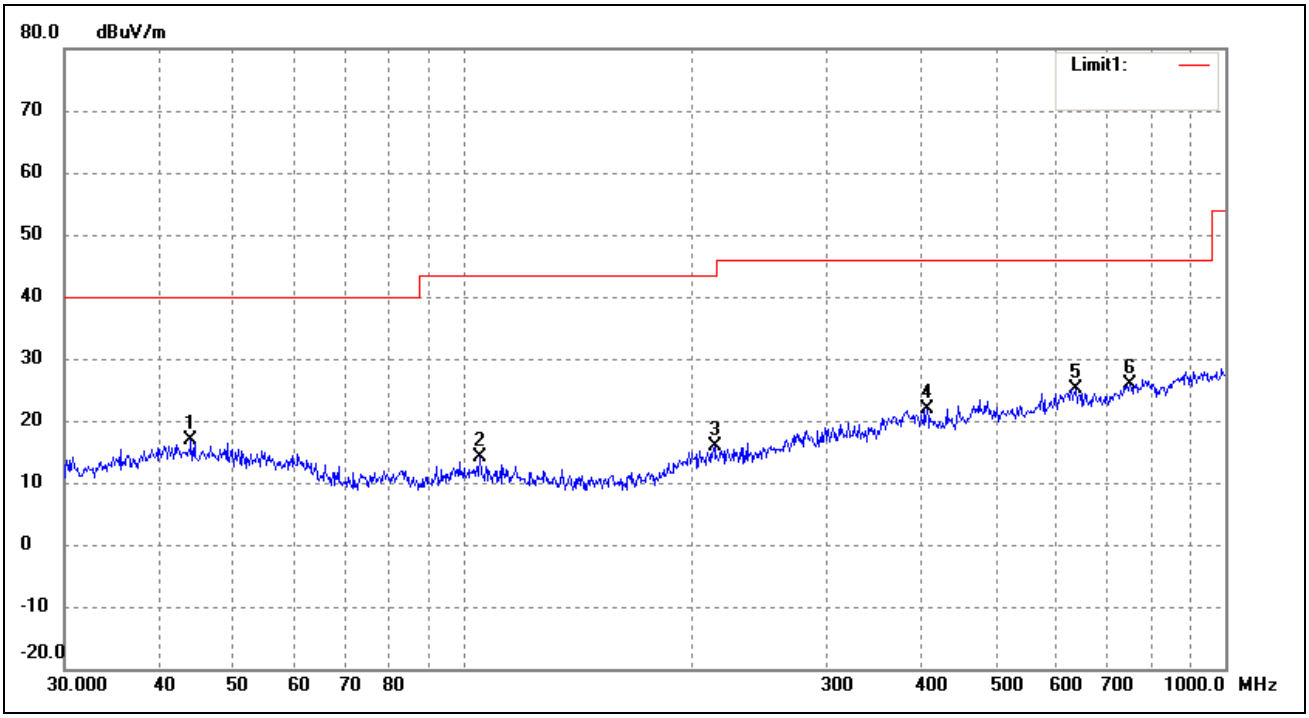
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	47.4918	25.01	-8.16	16.85	40.00	-23.15	267	100	peak
2	104.1701	24.47	-11.01	13.46	43.50	-30.04	116	100	peak
3	157.5589	27.27	-12.31	14.96	43.50	-28.54	360	100	peak
4	357.9287	24.19	-3.43	20.76	46.00	-25.24	267	100	peak
5	612.0642	25.81	0.68	26.49	46.00	-19.51	116	100	peak
6	887.6099	25.69	3.15	28.84	46.00	-17.16	360	100	peak

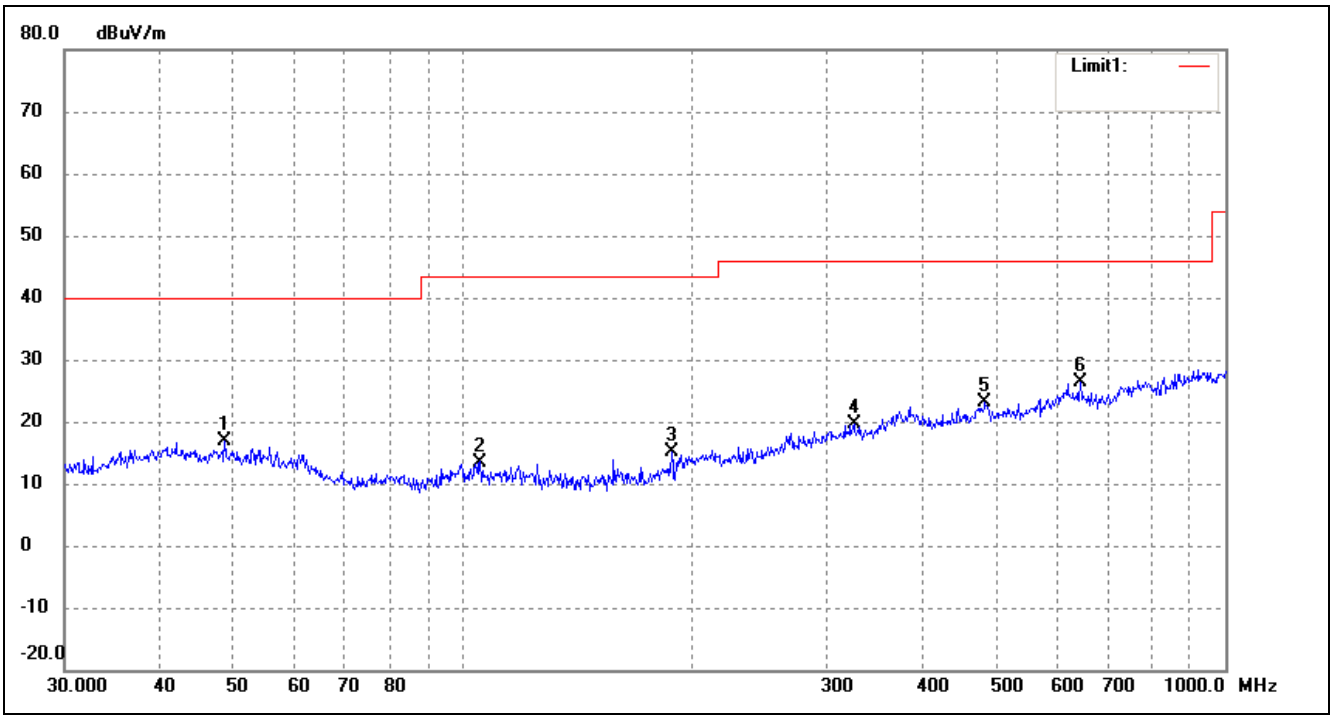
EUT: *Tablet PC*
Tested Model: *X40*
Operating Condition: *802.11n-HT40 Transmitting Low Channel-2422MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	43.9658	24.91	-7.93	16.98	40.00	-23.02	267	100	peak
2	105.2718	25.25	-11.04	14.21	43.50	-29.29	114	200	peak
3	213.7634	24.66	-8.77	15.89	43.50	-27.61	35	200	peak
4	406.0880	25.02	-3.25	21.77	46.00	-24.23	267	100	peak
5	636.1340	24.33	0.82	25.15	46.00	-20.85	114	200	peak
6	750.1083	23.82	1.95	25.77	46.00	-20.23	35	200	peak

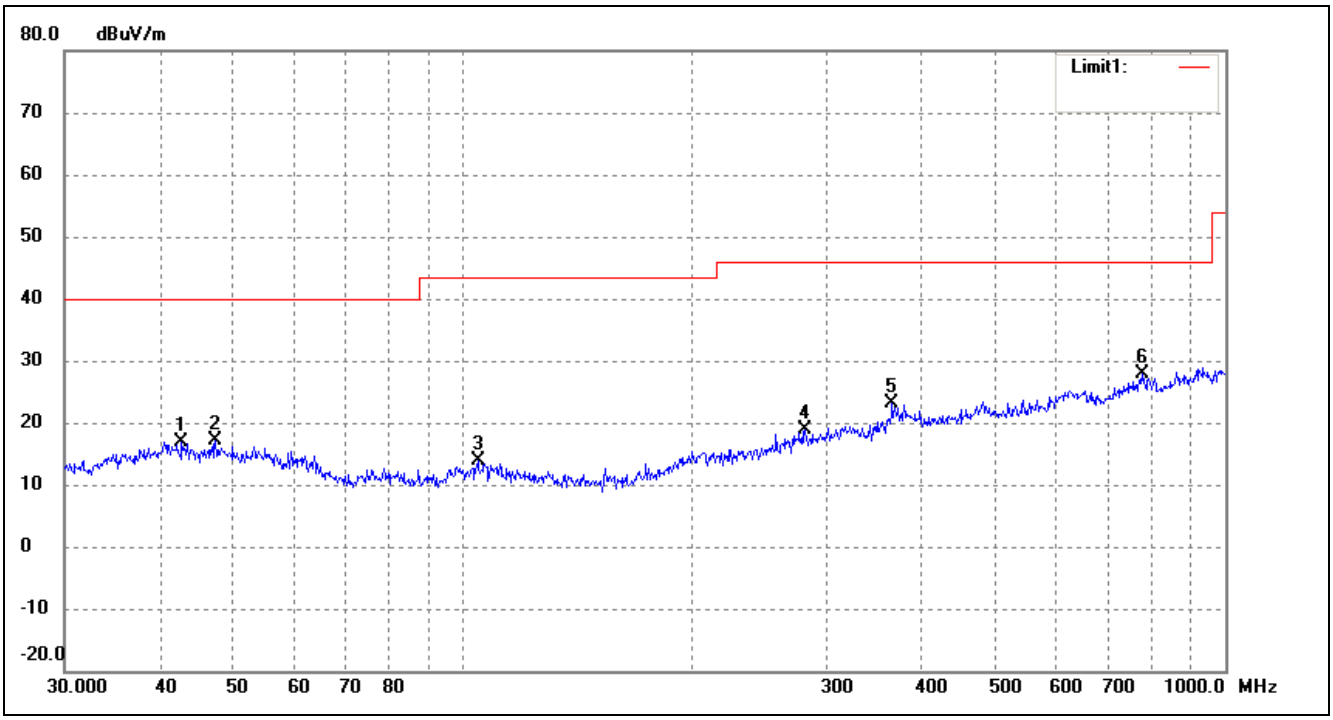
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	48.6719	25.06	-8.23	16.83	40.00	-23.17	360	100	peak
2	105.2718	24.54	-11.04	13.50	43.50	-30.00	258	100	peak
3	187.7530	25.45	-10.31	15.14	43.50	-28.36	347	100	peak
4	325.5958	24.36	-4.72	19.64	46.00	-26.36	360	100	peak
5	483.9094	24.30	-1.27	23.03	46.00	-22.97	258	100	peak
6	645.1195	25.67	0.61	26.28	46.00	-19.72	347	100	peak

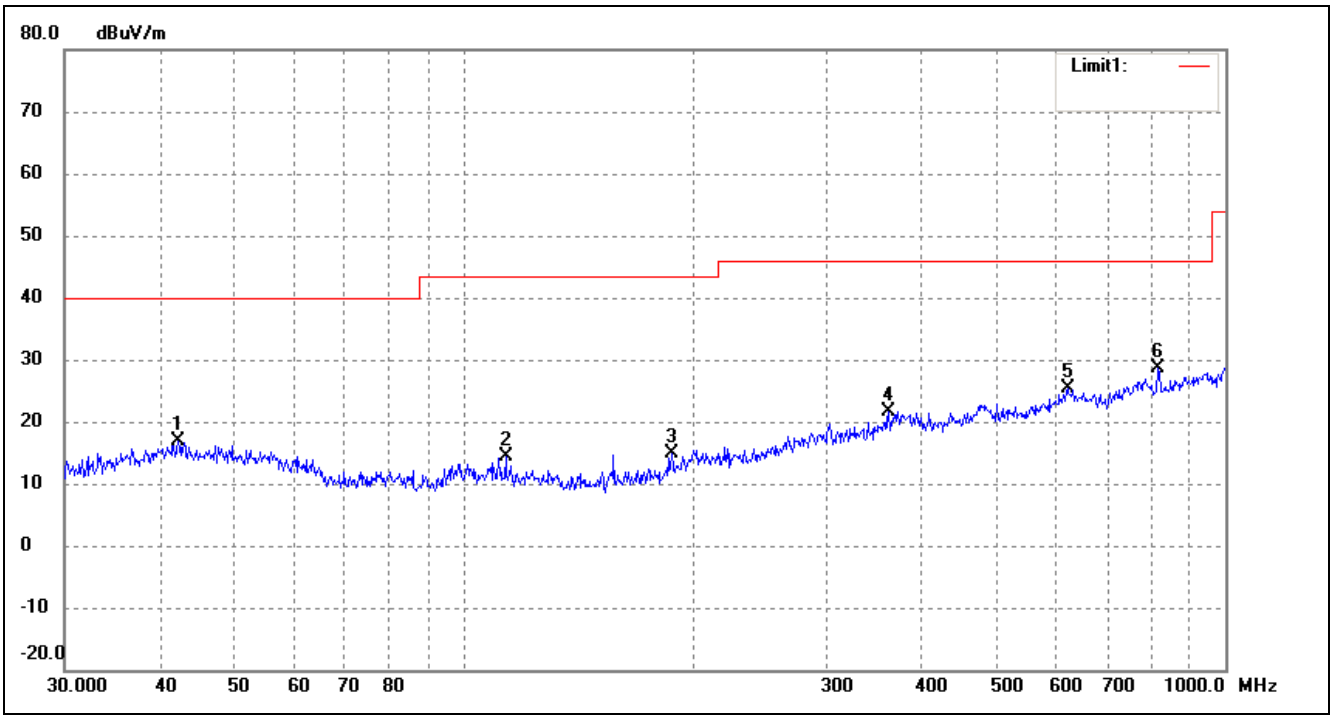
Operating Condition: *802.11n-HT40 Transmitting Middle Channel-2437MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.7496	24.82	-7.84	16.98	40.00	-23.02	251	100	peak
2	47.3255	25.33	-8.15	17.18	40.00	-22.82	167	100	peak
3	104.5361	24.83	-11.02	13.81	43.50	-29.69	44	100	peak
4	281.0075	25.06	-6.08	18.98	46.00	-27.02	251	100	peak
5	365.5391	26.00	-2.93	23.07	46.00	-22.93	167	100	peak
6	776.8778	25.15	2.73	27.88	46.00	-18.12	44	100	peak

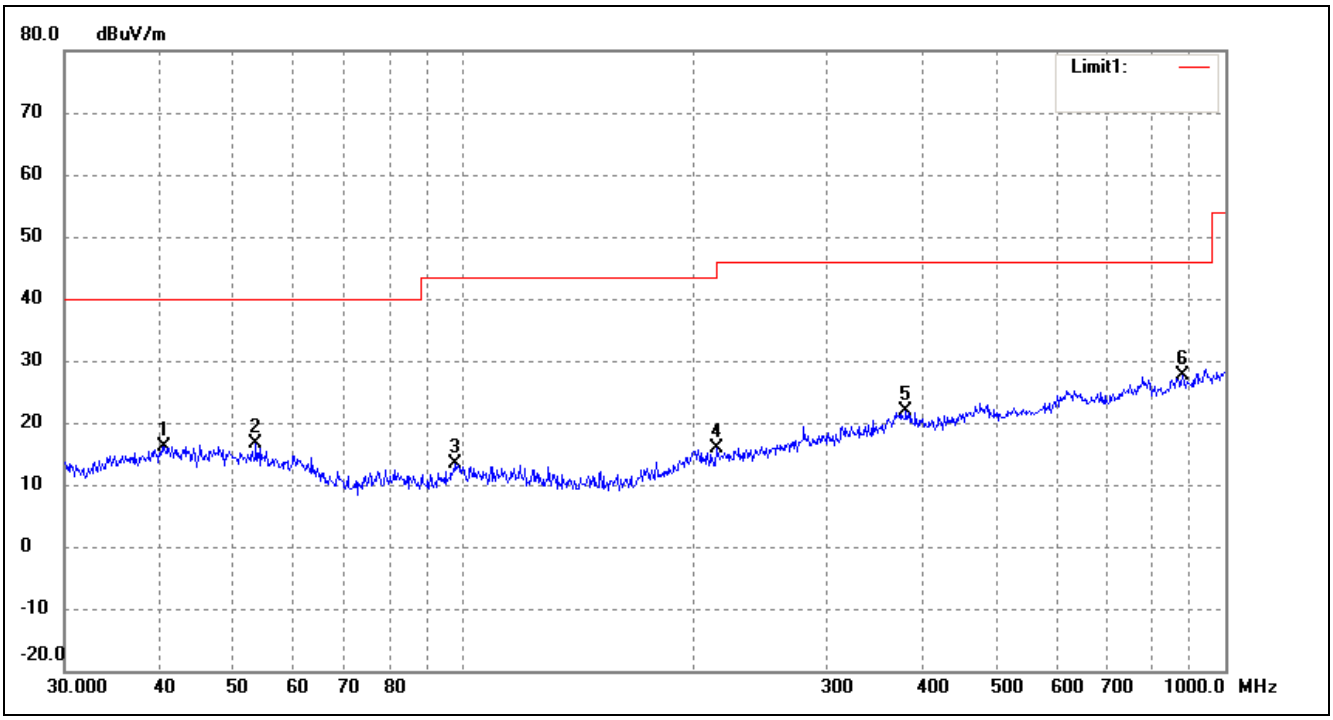
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.3022	24.62	-7.82	16.80	40.00	-23.20	47	100	peak
2	113.7143	25.74	-11.27	14.47	43.50	-29.03	264	100	peak
3	187.7530	25.24	-10.31	14.93	43.50	-28.57	225	100	peak
4	361.7139	24.80	-3.15	21.65	46.00	-24.35	47	100	peak
5	620.7096	24.24	1.21	25.45	46.00	-20.55	264	100	peak
6	815.9678	27.01	1.59	28.60	46.00	-17.40	225	100	peak

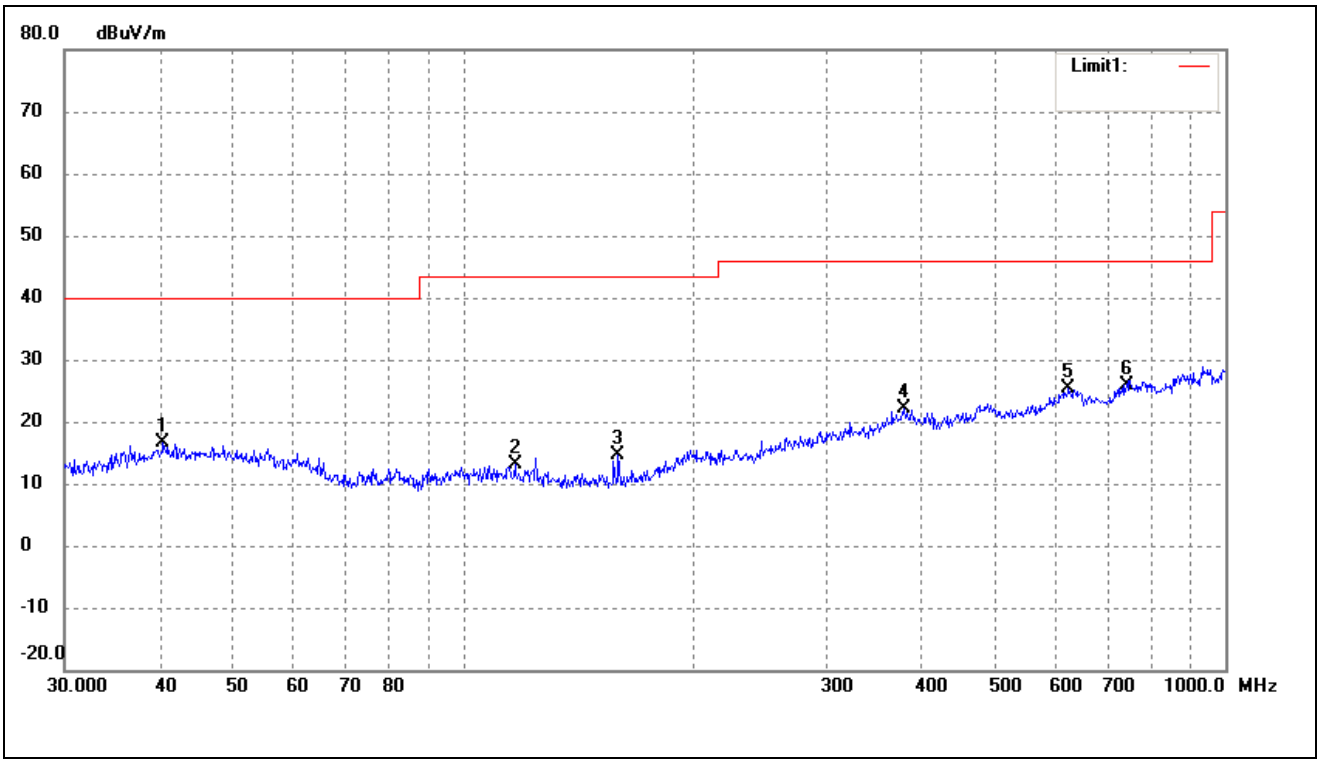
Operating Condition: *802.11n-HT40 Transmitting High Channel-2452MHz*
Comment: *DC 3.7V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.5591	23.90	-7.70	16.20	40.00	-23.80	360	100	peak
2	53.5052	25.36	-8.76	16.60	40.00	-23.40	287	100	peak
3	97.4560	24.85	-11.42	13.43	43.50	-30.07	168	100	peak
4	215.2678	24.63	-8.79	15.84	43.50	-27.66	360	100	peak
5	381.2487	24.02	-2.17	21.85	46.00	-24.15	287	100	peak
6	878.3214	24.59	3.12	27.71	46.00	-18.29	168	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.4172	24.24	-7.70	16.54	40.00	-23.46	78	100	peak
2	116.9495	24.49	-11.36	13.13	43.50	-30.37	136	100	peak
3	159.7844	26.88	-12.27	14.61	43.50	-28.89	284	100	peak
4	378.5843	24.19	-2.17	22.02	46.00	-23.98	78	100	peak
5	622.8900	24.19	1.16	25.35	46.00	-20.65	136	100	peak
6	742.2587	23.79	2.09	25.88	46.00	-20.12	284	100	peak

Spurious Emissions Above 1GHz

Test Mode: 802.11b

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824.000	56.13	-3.87	52.26	74	-21.74	H	PK
4824.000	39.18	-3.87	35.31	54	-18.69	H	AV
7236.000	44.95	1.14	46.09	74	-27.91	H	PK
7236.000	33.21	1.19	34.4	54	-19.6	H	AV
4824.000	53.84	-3.86	49.98	74	-24.02	V	PK
4824.000	44.53	-3.86	40.67	54	-13.33	V	AV
7236.000	45.66	1.1	46.76	74	-27.24	V	PK
7236.000	40.73	1.1	41.83	54	-12.17	V	AV
Middle Channel-2437MHz							
4874.000	51.85	-3.74	48.11	74	-25.89	H	PK
4874.000	42.61	-3.74	38.87	54	-15.13	H	AV
7311.000	44.82	1.47	46.29	74	-27.71	H	PK
7311.000	31.97	1.47	33.44	54	-20.56	H	AV
4874.000	56.14	-3.74	52.4	74	-21.6	V	PK
4874.000	43.52	-3.74	39.78	54	-14.22	V	AV
7311.000	55.79	1.47	57.26	74	-16.74	V	PK
7311.000	31.59	1.47	33.06	54	-20.94	V	AV
High Channel-2462MHz							
4924.000	56.91	-3.59	53.32	74	-20.68	H	PK
4924.000	46.37	-3.59	42.78	54	-11.22	H	AV
7386.000	42.98	1.79	44.77	74	-29.23	H	PK
7386.000	36.59	1.79	38.38	54	-15.62	H	AV
4924.000	51.62	-3.59	48.03	74	-25.97	V	PK
4924.000	41.93	-3.59	38.34	54	-15.66	V	AV
7386.000	44.92	1.79	46.71	74	-27.29	V	PK
7386.000	38.59	1.79	40.38	54	-13.62	V	AV

Test Mode: 802.11g

Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824.000	54	-3.87	50.13	74	-23.87	H	PK
4824.000	40.75	-3.87	36.88	54	-17.12	H	AV
7236.000	47.18	1.14	48.32	74	-25.68	H	PK
7236.000	34.73	1.19	35.92	54	-18.08	H	AV
4824.000	56.11	-3.86	52.25	74	-21.75	V	PK
4824.000	42.69	-3.86	38.83	54	-15.17	V	AV
7236.000	48.58	1.1	49.68	74	-24.32	V	PK
7236.000	35.95	1.1	37.05	54	-16.95	V	AV
Middle Channel-2437MHz							
4874.000	55.6	-3.74	51.86	74	-22.14	H	PK
4874.000	40.54	-3.74	36.8	54	-17.2	H	AV
7311.000	47.26	1.47	48.73	74	-25.27	H	PK
7311.000	34.44	1.47	35.91	54	-18.09	H	AV
4874.000	56.71	-3.74	52.97	74	-21.03	V	PK
4874.000	43.18	-3.74	39.44	54	-14.56	V	AV
7311.000	49.21	1.47	50.68	74	-23.32	V	PK
7311.000	35.77	1.47	37.24	54	-16.76	V	AV
High Channel-2462MHz							
4924.000	55.5	-3.59	51.91	74	-22.09	H	PK
4924.000	42.23	-3.59	38.64	54	-15.36	H	AV
7386.000	48.42	1.79	50.21	74	-23.79	H	PK
7386.000	34.4	1.79	36.19	54	-17.81	H	AV
4924.000	55.99	-3.59	52.4	74	-21.6	V	PK
4924.000	42.65	-3.59	39.06	54	-14.94	V	AV
7386.000	49.22	1.79	51.01	74	-22.99	V	PK
7386.000	35.54	1.79	37.33	54	-16.67	V	AV

Test Mode: 802.11n-HT20

Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824.000	51.85	-3.87	47.98	74	-26.02	H	PK
4824.000	42.61	-3.87	38.74	54	-15.26	H	AV
7236.000	44.82	1.14	45.96	74	-28.04	H	PK
7236.000	31.97	1.19	33.16	54	-20.84	H	AV
4824.000	56.14	-3.86	52.28	74	-21.72	V	PK
4824.000	43.52	-3.86	39.66	54	-14.34	V	AV
7236.000	55.79	1.1	56.89	74	-17.11	V	PK
7236.000	31.59	1.1	32.69	54	-21.31	V	AV
Middle Channel-2437MHz							
4874.000	53.9	-3.74	50.16	74	-23.84	H	PK
4874.000	43.23	-3.74	39.49	54	-14.51	H	AV
7311.000	48.31	1.47	49.78	74	-24.22	H	PK
7311.000	36.1	1.47	37.57	54	-16.43	H	AV
4874.000	55.7	-3.74	51.96	74	-22.04	V	PK
4874.000	41.48	-3.74	37.74	54	-16.26	V	AV
7311.000	48.55	1.47	50.02	74	-23.98	V	PK
7311.000	35.36	1.47	36.83	54	-17.17	V	AV
High Channel-2462MHz							
4924.000	56.13	-3.59	52.54	74	-21.46	H	PK
4924.000	39.18	-3.59	35.59	54	-18.41	H	AV
7386.000	44.95	1.79	46.74	74	-27.26	H	PK
7386.000	33.21	1.79	35	54	-19	H	AV
4924.000	53.84	-3.59	50.25	74	-23.75	V	PK
4924.000	44.53	-3.59	40.94	54	-13.06	V	AV
7386.000	45.66	1.79	47.45	74	-26.55	V	PK
7386.000	40.73	1.79	42.52	54	-11.48	V	AV

Test Mode: 802.11n-HT40

Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2422MHz							
4844.000	55.1	-3.9	51.2	74	-22.8	H	PK
4824.000	43.28	-3.9	39.38	54	-14.62	H	AV
7266.000	47.38	1.06	48.44	74	-25.56	H	PK
7266.000	35.27	1.06	36.33	54	-17.67	H	AV
4844.000	57.07	-3.9	53.17	74	-20.83	V	PK
4824.000	43.86	-3.9	39.96	54	-14.04	V	AV
7266.000	48.4	1.06	49.46	74	-24.54	V	PK
7266.000	35.33	1.06	36.39	54	-17.61	V	AV
Middle Channel-2437MHz							
4874.000	56.91	-3.74	53.17	74	-20.83	H	PK
4874.000	46.37	-3.74	42.63	54	-11.37	H	AV
7311.000	42.98	1.47	44.45	74	-29.55	H	PK
7311.000	36.59	1.47	38.06	54	-15.94	H	AV
4874.000	51.62	-3.74	47.88	74	-26.12	V	PK
4874.000	41.93	-3.74	38.19	54	-15.81	V	AV
7311.000	44.92	1.47	46.39	74	-27.61	V	PK
7311.000	38.59	1.47	40.06	54	-13.94	V	AV
High Channel-2452MHz							
4904.000	54.16	-3.63	50.53	74	-23.47	H	PK
4904.000	42.48	-3.63	38.85	54	-15.15	H	AV
7356.000	48.74	1.62	50.36	74	-23.64	H	PK
7356.000	33.1	1.62	34.72	54	-19.28	H	AV
4904.000	54.92	-3.63	51.29	74	-22.71	V	PK
4904.000	42.62	-3.63	38.99	54	-15.01	V	AV
7356.000	48.49	1.62	50.11	74	-23.89	V	PK
7356.000	35.2	1.62	36.82	54	-17.18	V	AV

Note: Testing is carried out with frequency rang 9kHz 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.
The measurements greater than 20dB below the limit from 9kHz to 30MHz.

9. Out of Band Emissions

9.1 Standard Applicable

According to §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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).

9.2 Test Procedure

According to the KDB 558074D01 v03r04, 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 v03r04, 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 ≥ 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.

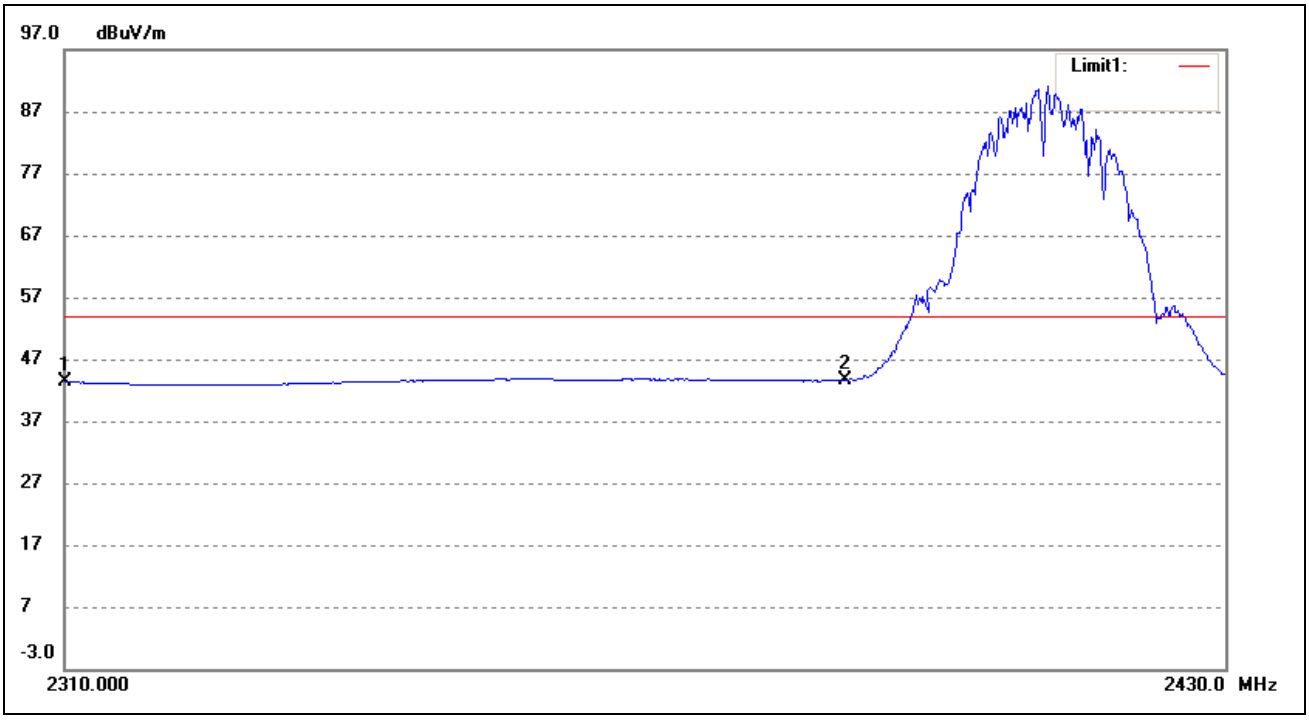
9.3 Environmental Conditions

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

9.4 Summary of Test Results/Plots

802.11b-Lowest Bandedge

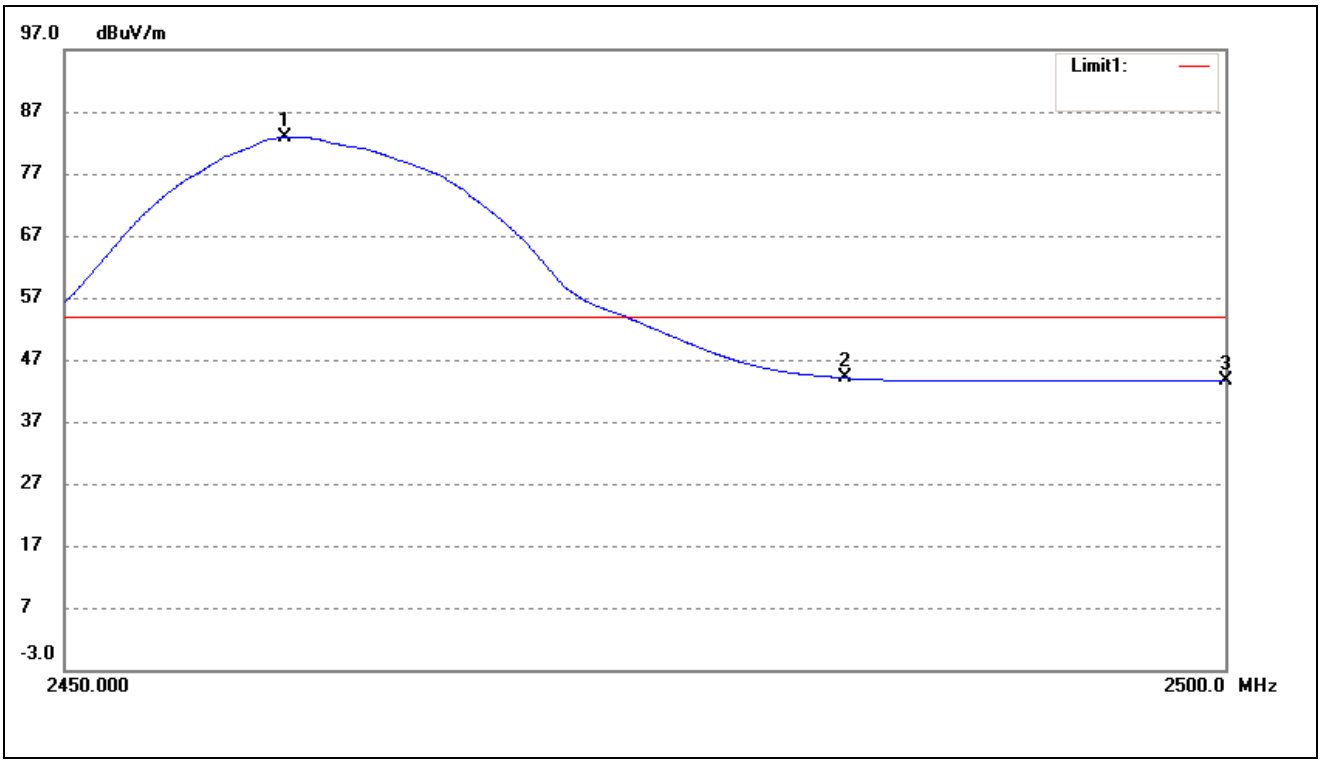
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	35.27	8.11	43.38	54.00	-10.62	Average Detector
	2310.000	47.57	8.11	55.68	74.00	-18.32	Peak Detector
2	2390.000	35.30	8.31	43.61	54.00	-10.39	Average Detector
	2390.000	47.70	8.31	56.01	74.00	-17.99	Peak Detector

802.11b-Highest Bandedge

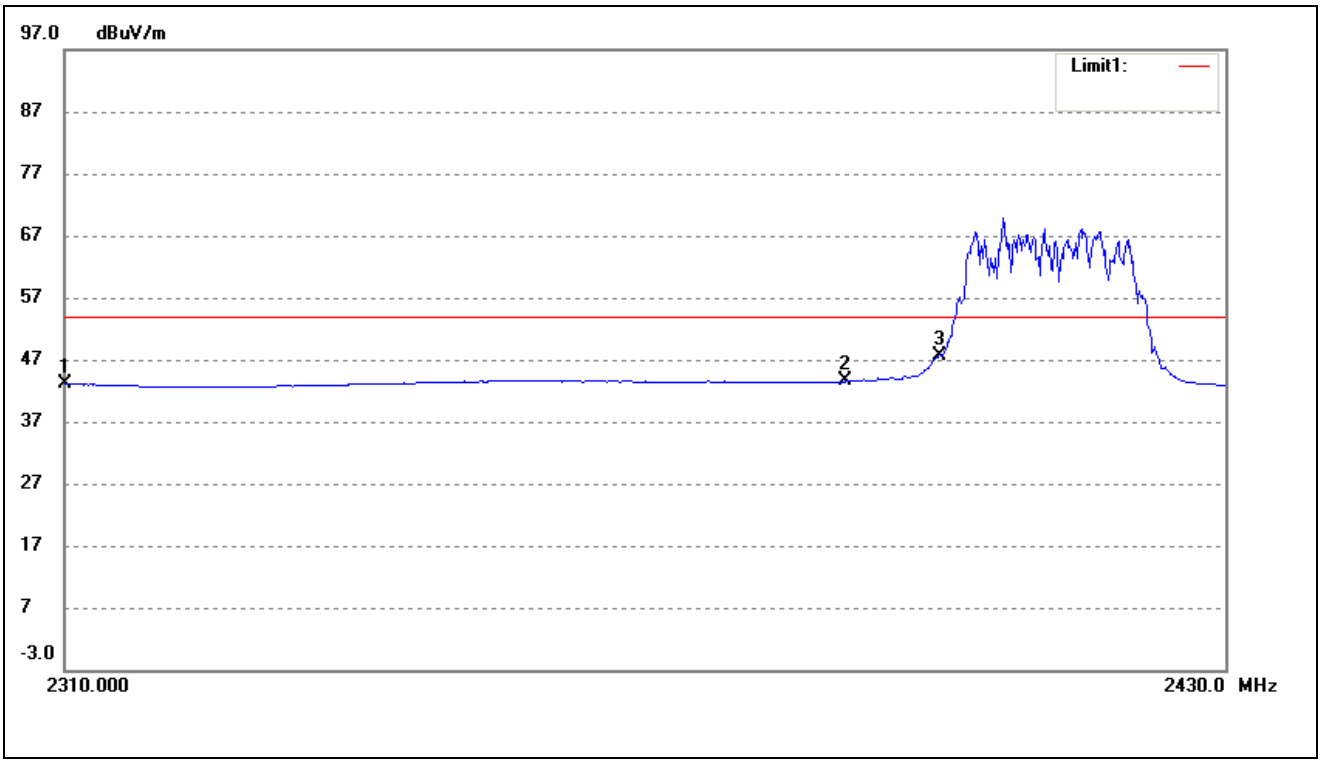
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2459.373	74.43	8.49	82.92	/	/	Average Detector
	2460.367	87.91	8.50	96.41	/	/	Peak Detector
2	2483.500	Delta = 43.62dBc		44.04	54.00	-9.96	Average Detector
	2483.500			55.68	74.00	-18.32	Peak Detector
3	2500.000	35.08	8.60	43.68	54.00	-10.32	Average Detector
	2500.000	47.24	8.60	55.84	74.00	-18.16	Peak Detector

802.11g-Lowest Bandedge

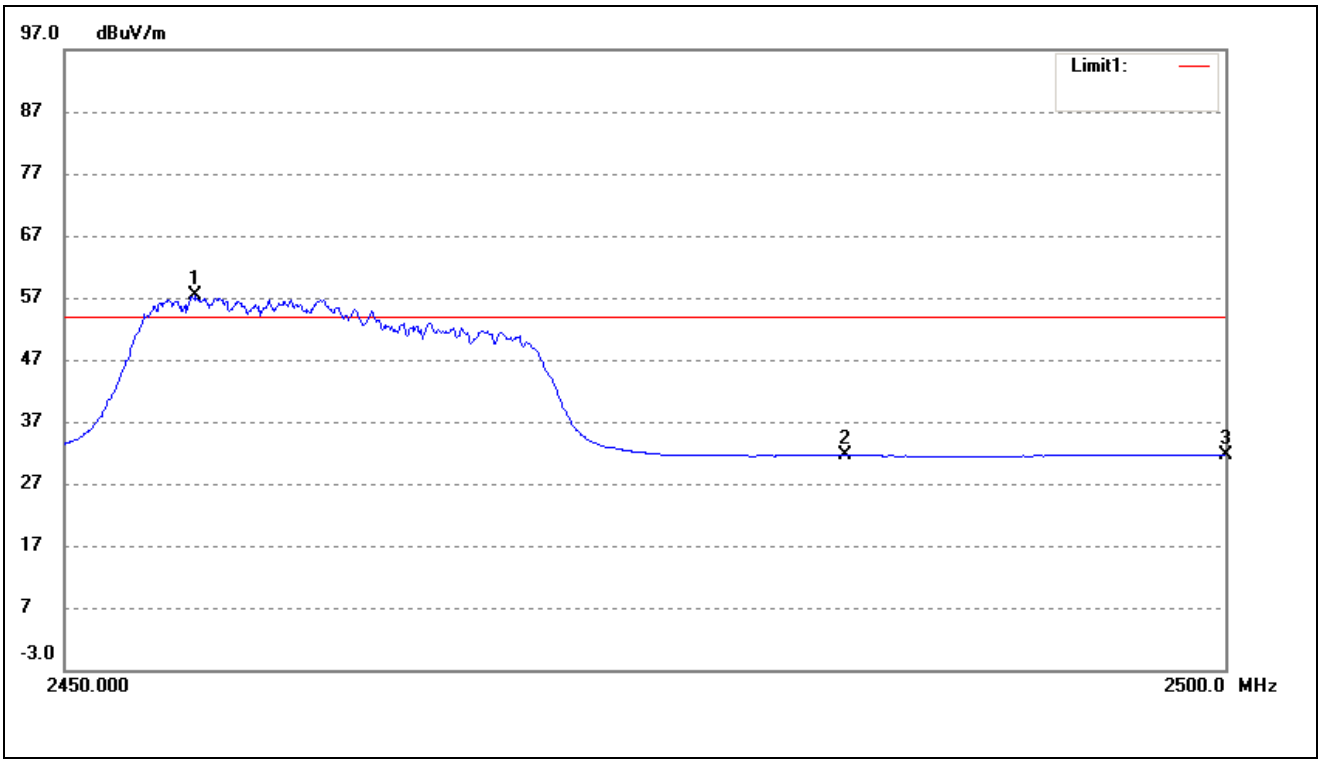
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	35.06	8.11	43.17	54.00	-10.83	Average Detector
	2310.000	47.83	8.11	55.94	74.00	-18.06	Peak Detector
2	2390.000	35.21	8.31	43.52	54.00	-10.48	Average Detector
	2390.000	47.23	8.31	55.54	74.00	-18.46	Peak Detector

802.11g-Highest Bandedge

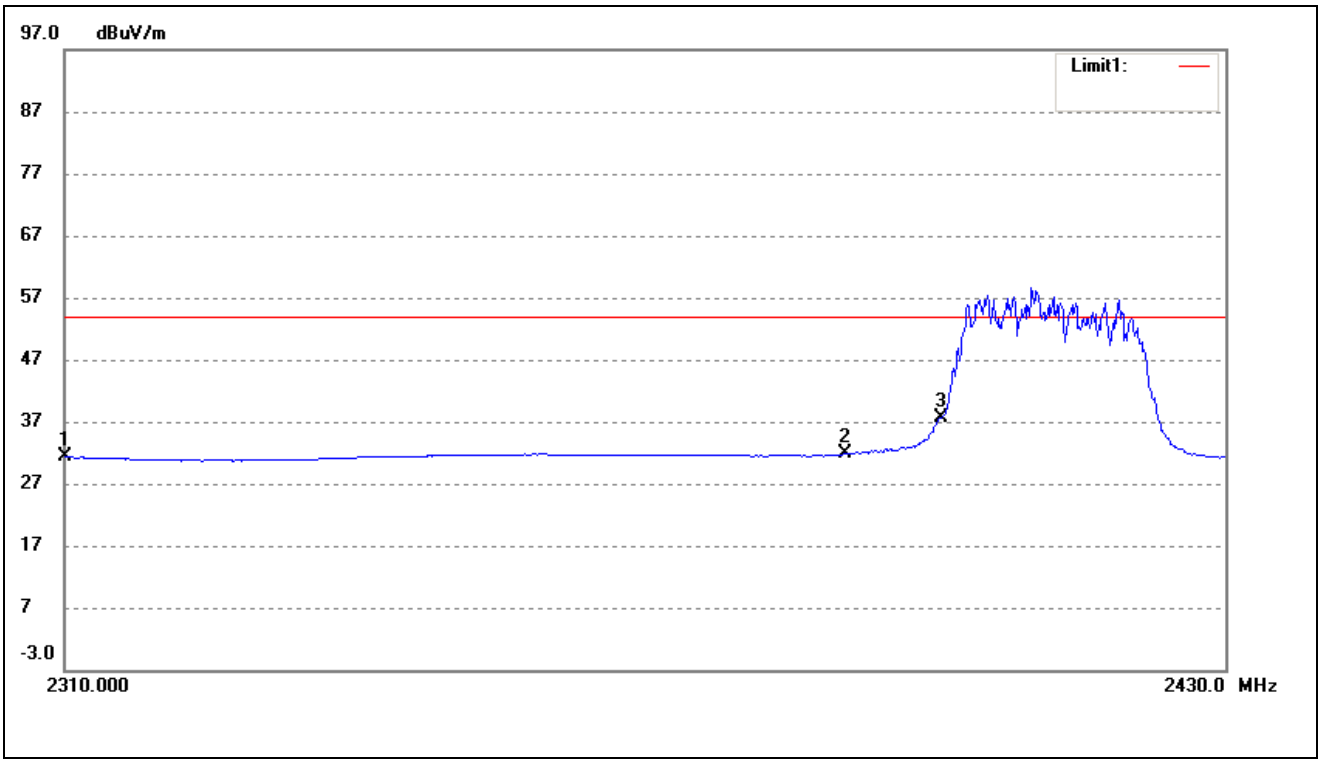
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2455.599	60.59	-3.31	57.28	/	/	Average Detector
	2455.748	95.49	-3.31	92.18	/	/	Peak Detector
2	2483.500	Delta = 40.17dBc		31.61	54.00	-22.39	Average Detector
	2483.500			55.68	74.00	-18.32	Peak Detector
3	2500.000	34.92	-3.20	31.72	54.00	-22.28	Average Detector
	2500.000	58.64	-3.20	55.44	74.00	-18.56	Peak Detector

802.11n-HT20-Lowest Bandedge

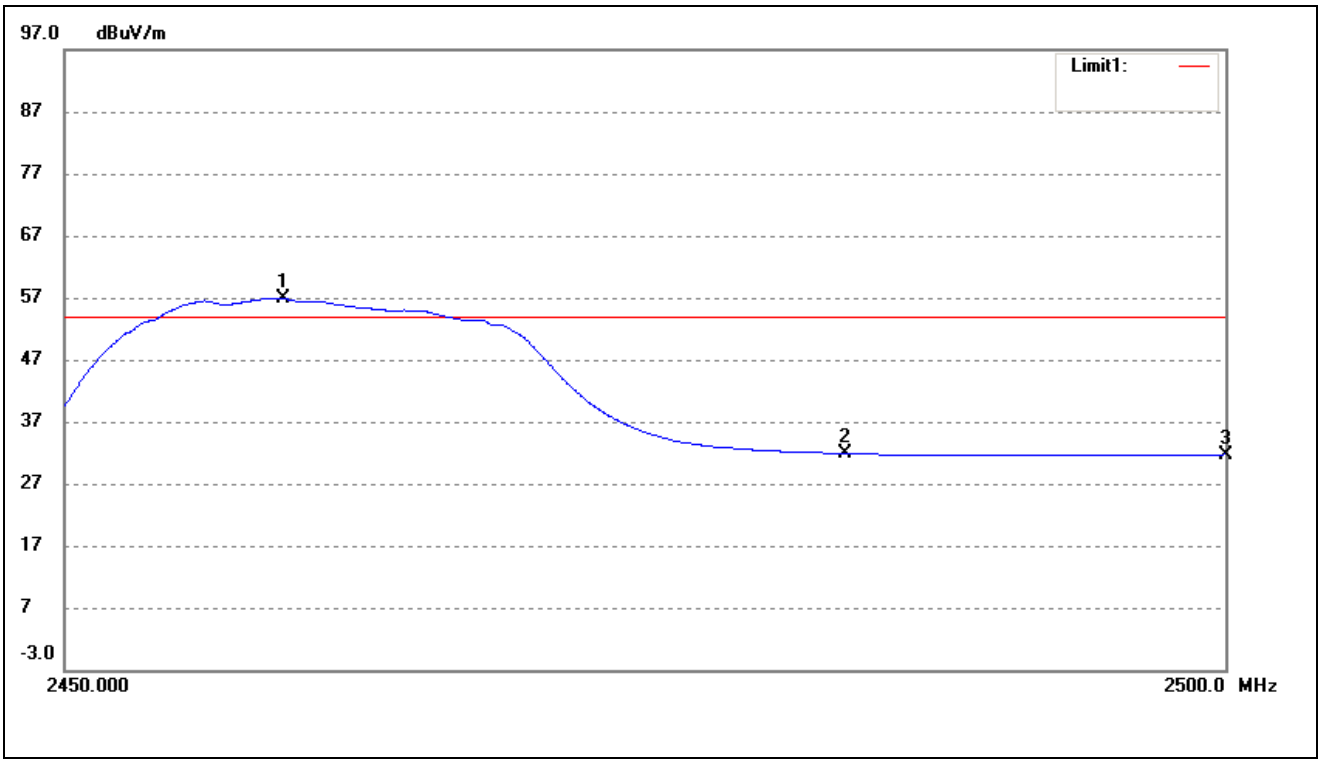
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	35.04	-3.69	31.35	54.00	-22.65	Average Detector
	2310.000	46.71	-3.69	43.02	74.00	-30.98	Peak Detector
2	2390.000	35.26	-3.49	31.77	54.00	-22.23	Average Detector
	2390.000	48.11	-3.49	44.62	74.00	-29.38	Peak Detector

802.11n-HT20-Highest Bandedge

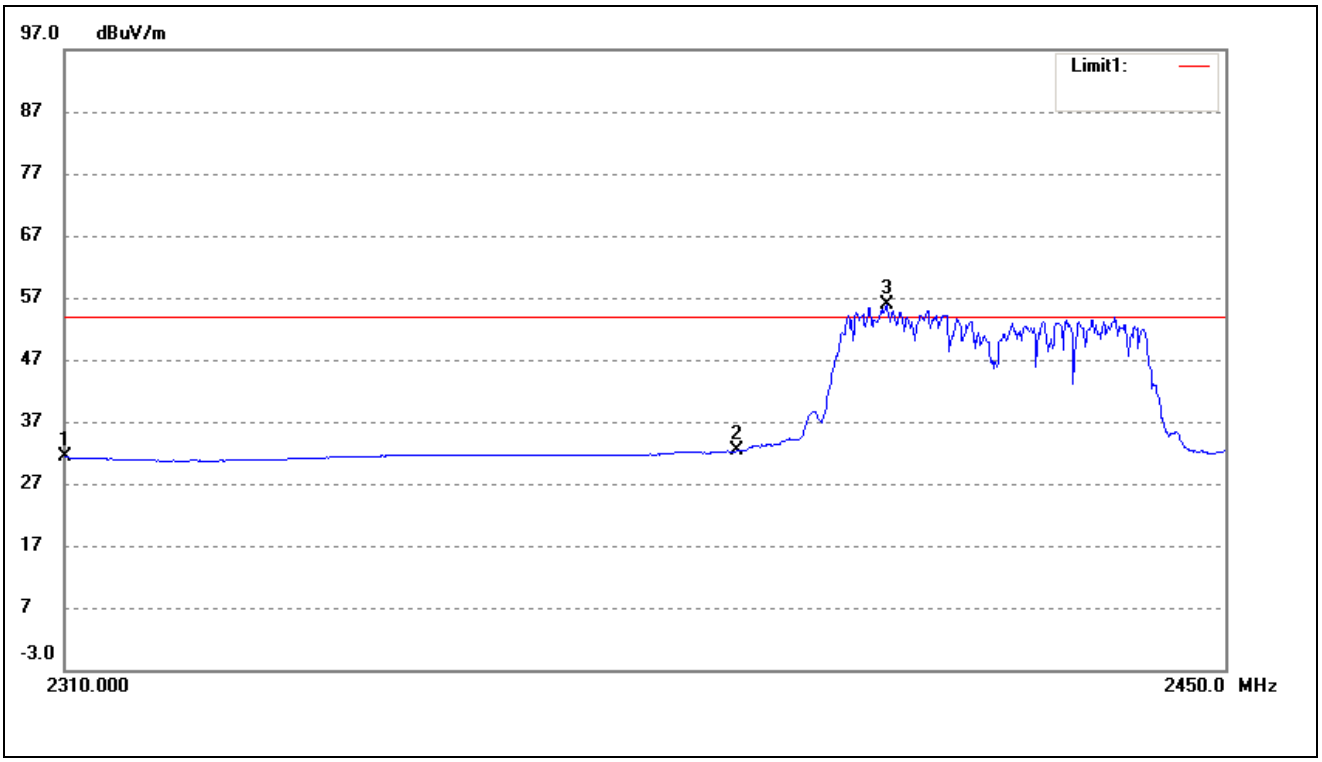
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2459.373	60.17	-3.31	56.86	/	/	Average Detector
	2454.905	86.09	-3.31	82.78	/	/	Peak Detector
2	2483.500	Delta = 40.24dBc		31.89	54.00	-22.11	Average Detector
	2483.500			44.55	74.00	-29.45	Peak Detector
3	2500.000	34.95	-3.20	31.75	54.00	-22.25	Average Detector
	2500.000	47.31	-3.20	44.11	74.00	-29.89	Peak Detector

802.11n-HT40-Lowest Bandedge

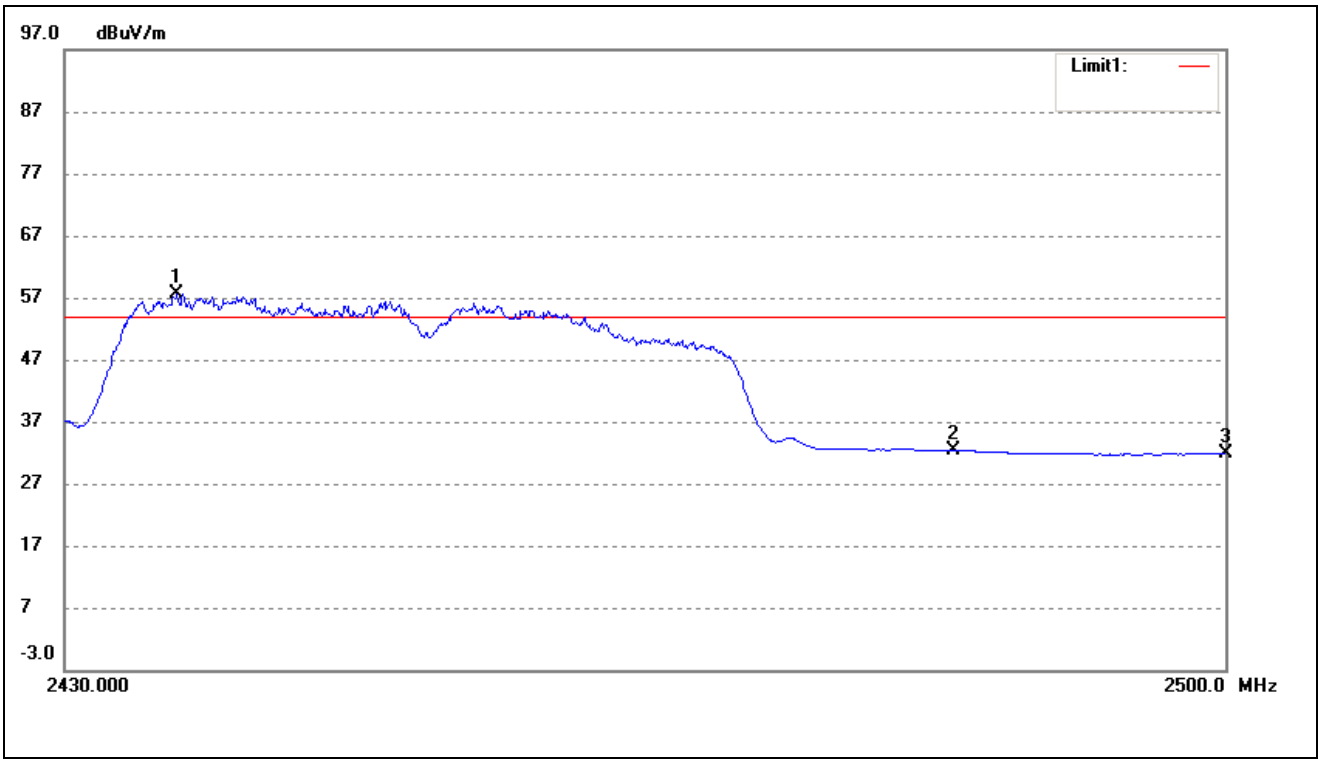
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	34.98	-3.69	31.29	54.00	-22.71	Average Detector
	2310.000	48.42	-3.69	44.73	74.00	-29.27	Peak Detector
2	2390.000	35.86	-3.49	32.37	54.00	-21.63	Average Detector
	2390.000	48.44	-3.49	44.95	74.00	-29.05	Peak Detector

802.11n-HT40-Highest Bandedge

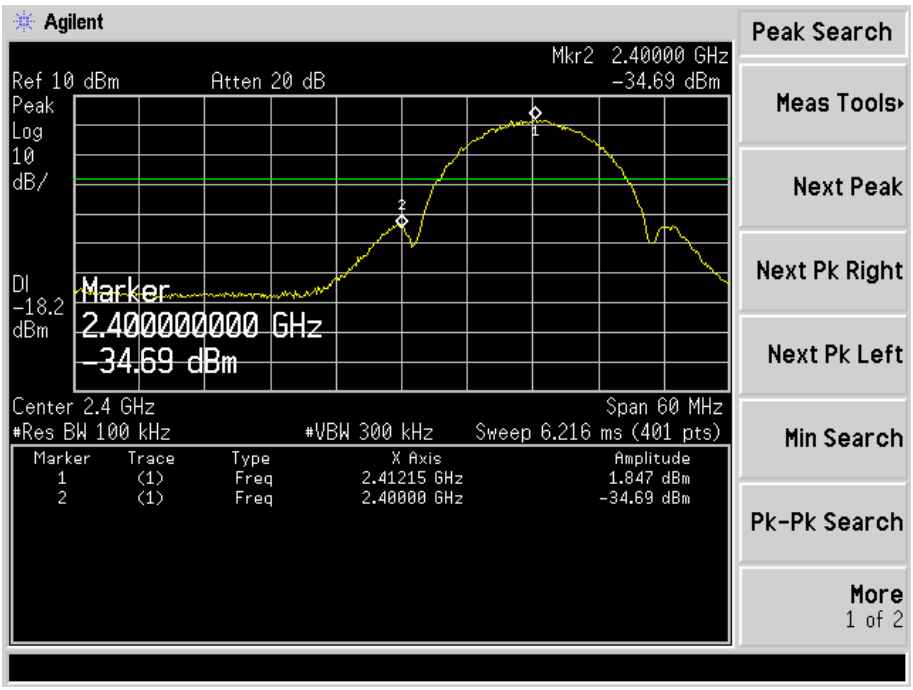
Vertical (Worst case)



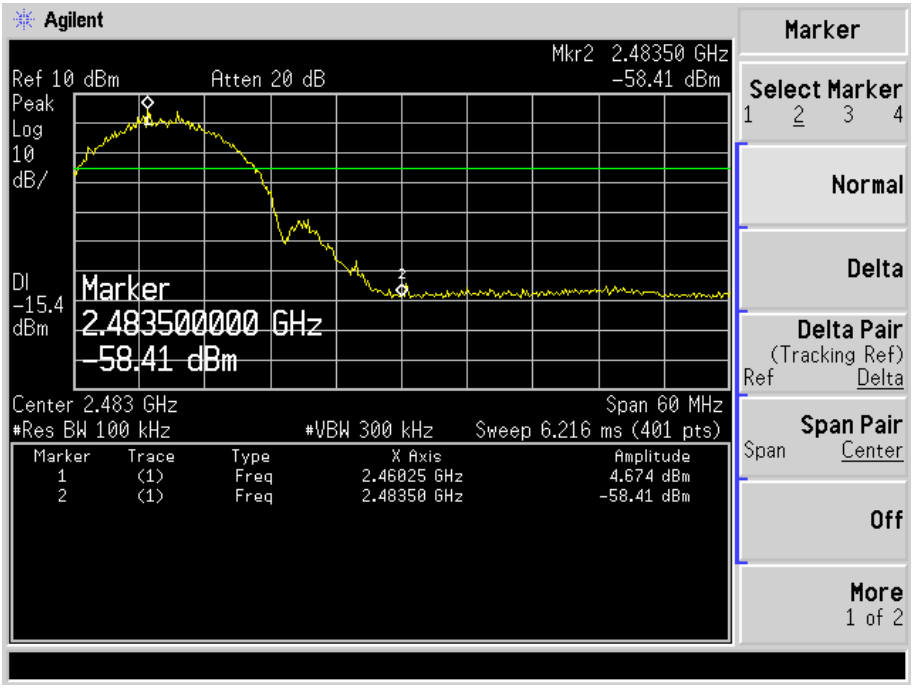
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2436.703	60.98	-3.37	57.61	/	/	Average Detector
	2437.603	85.20	-3.36	81.84	/	/	Peak Detector
2	2483.500	Delta = 41.55dBc		32.32	54.00	-21.68	Average Detector
	2483.500			47.87	74.00	-26.13	Peak Detector
3	2500.000	35.04	-3.20	31.84	54.00	-22.16	Average Detector
	2500.000	47.79	-3.20	44.59	74.00	-29.41	Peak Detector

Bandedge (Conducted)

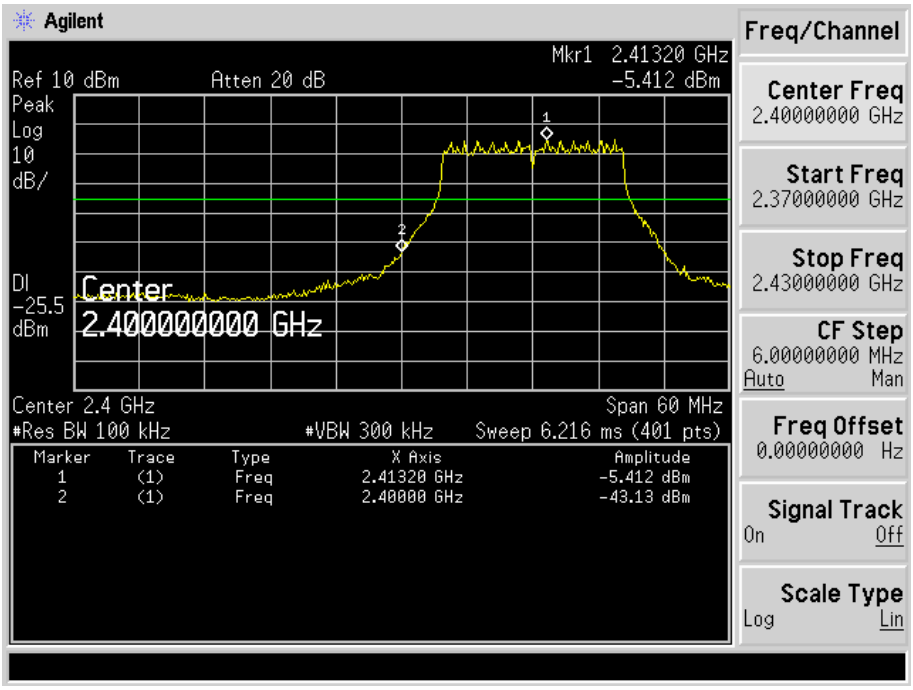
11b- Lowest Bandedge



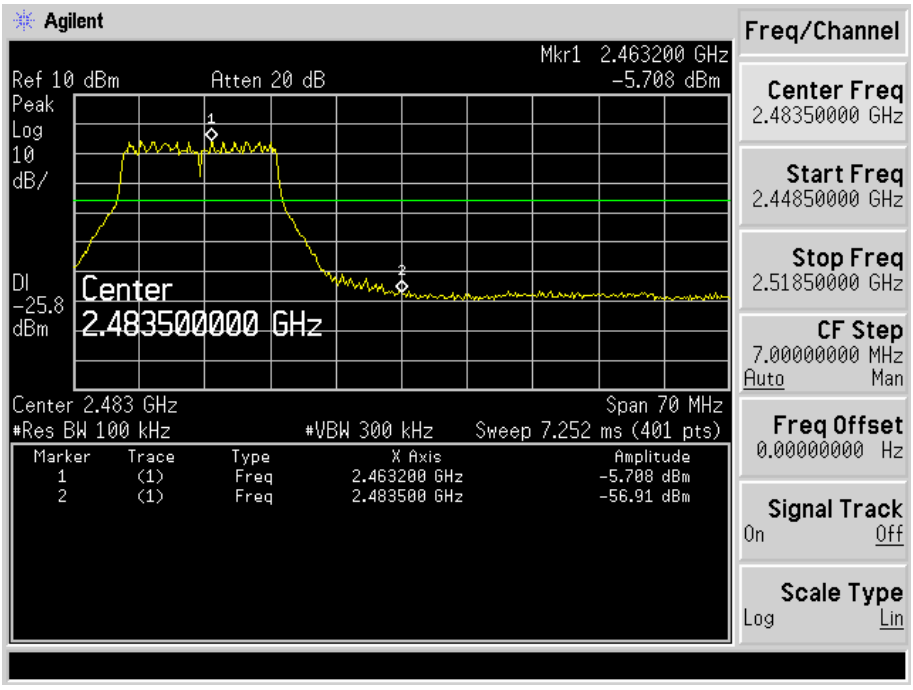
11b- Highest Bandedge



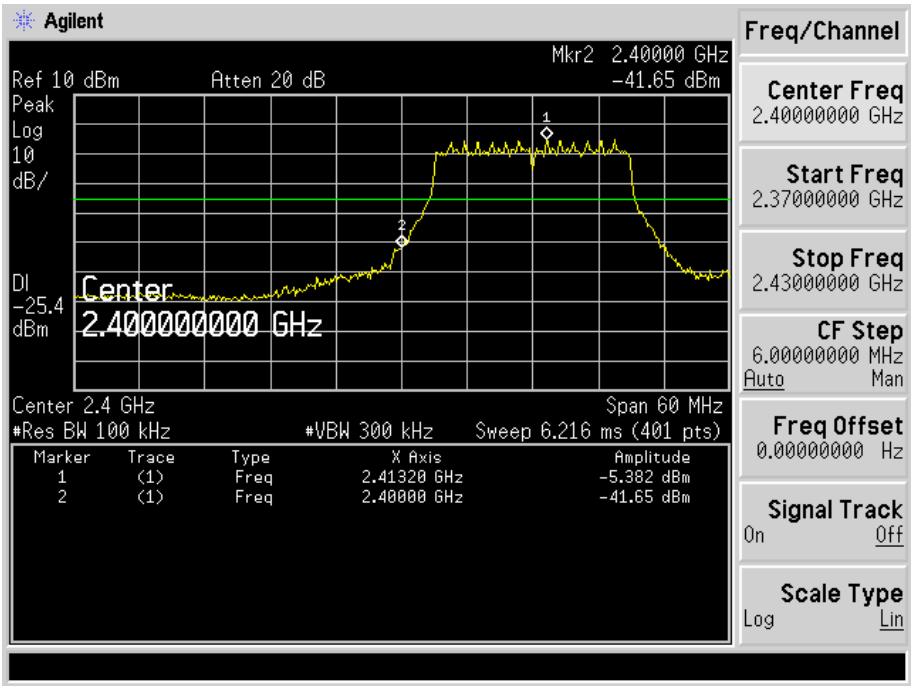
11g- Lowest Bandedge



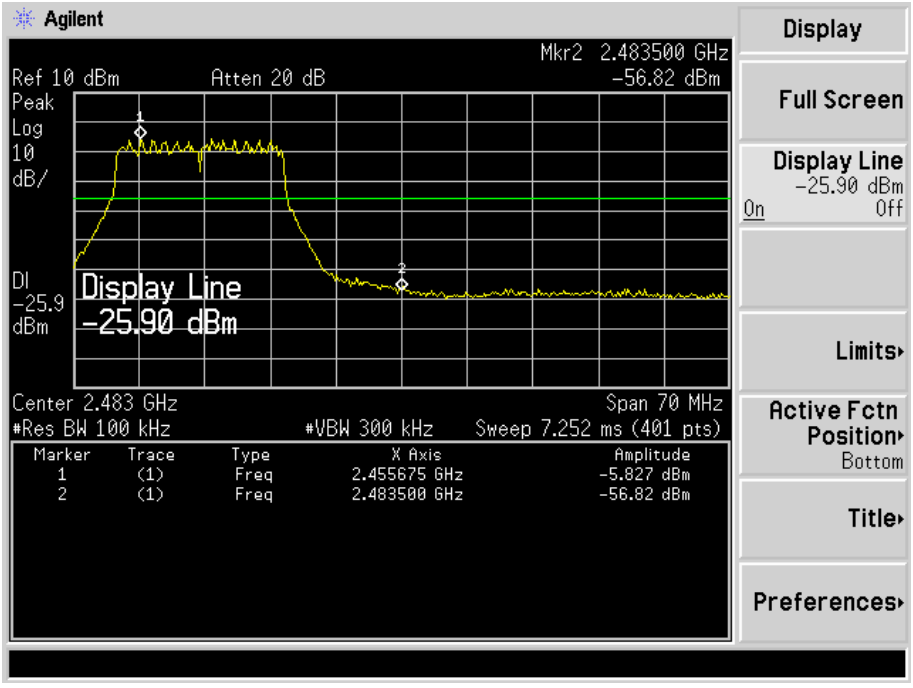
11g- Highest Bandedge



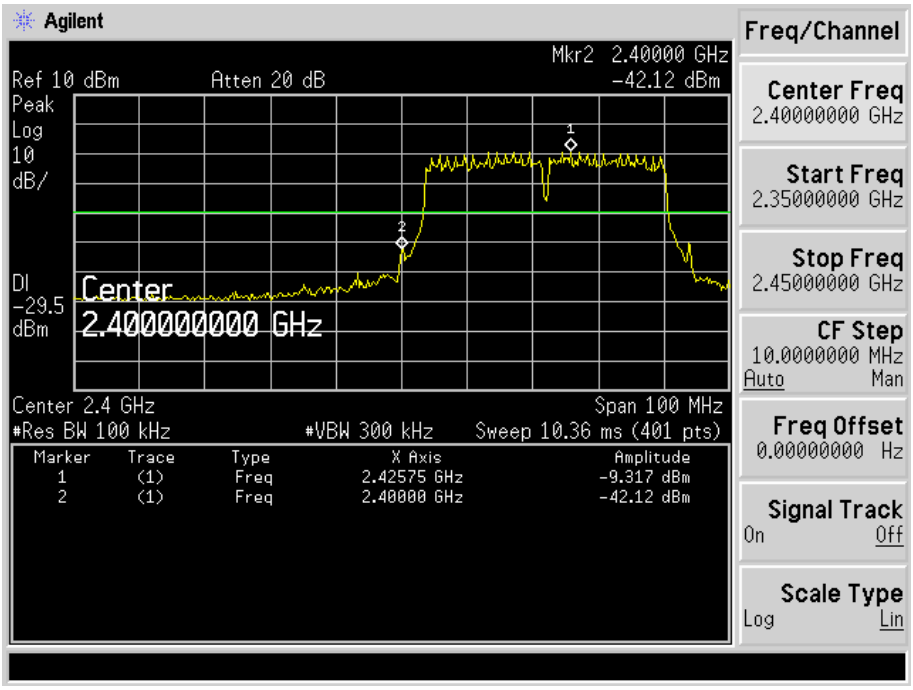
11n_HT20- Lowest Bandedge



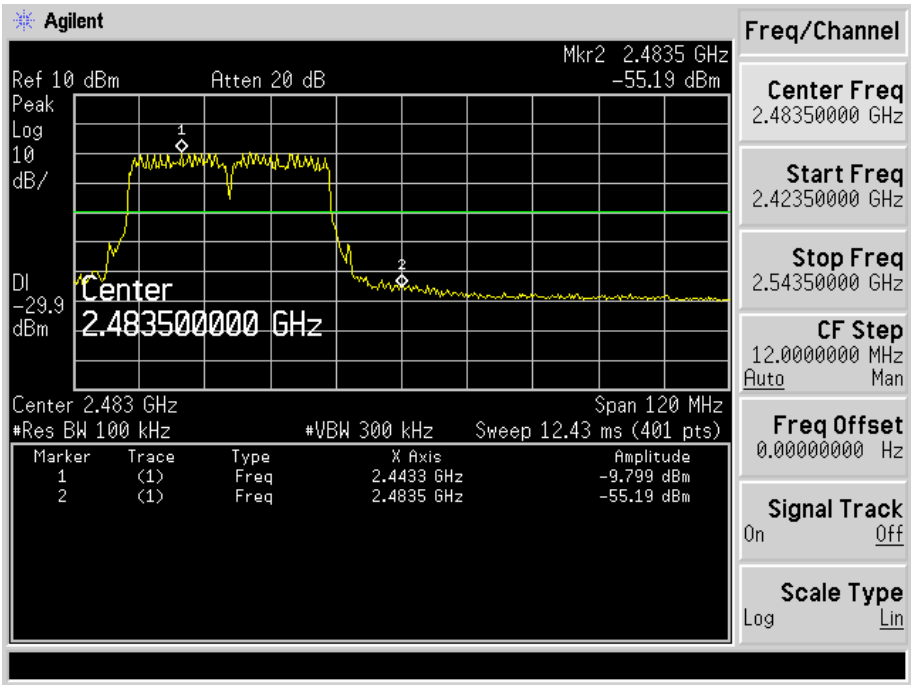
11n_HT20- Highest Bandedge



11n_HT40- Lowest Bandedge



11n_HT40- Highest Bandedge



10. Conducted Emissions

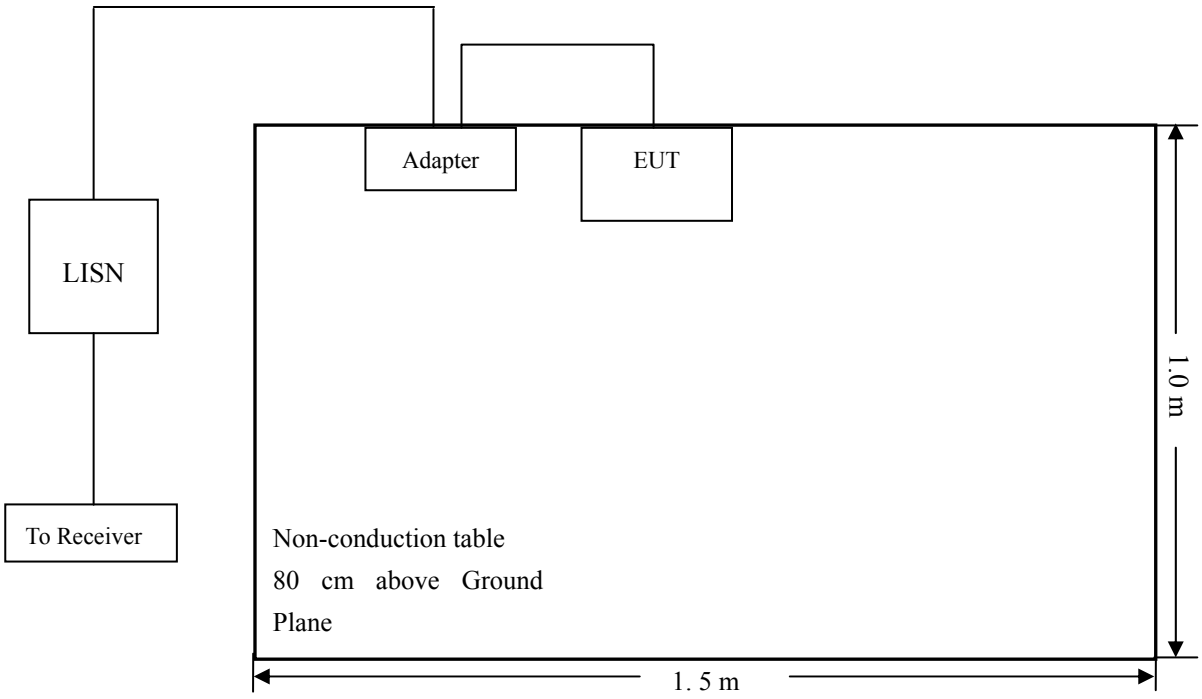
10.1 Measurement Uncertainty

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.

10.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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.

10.3 Basic Test Setup Block Diagram



10.4 Environmental Conditions

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

10.5 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

10.6 Summary of Test Results/Plots

According to the data in section 10.7, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin reading of:

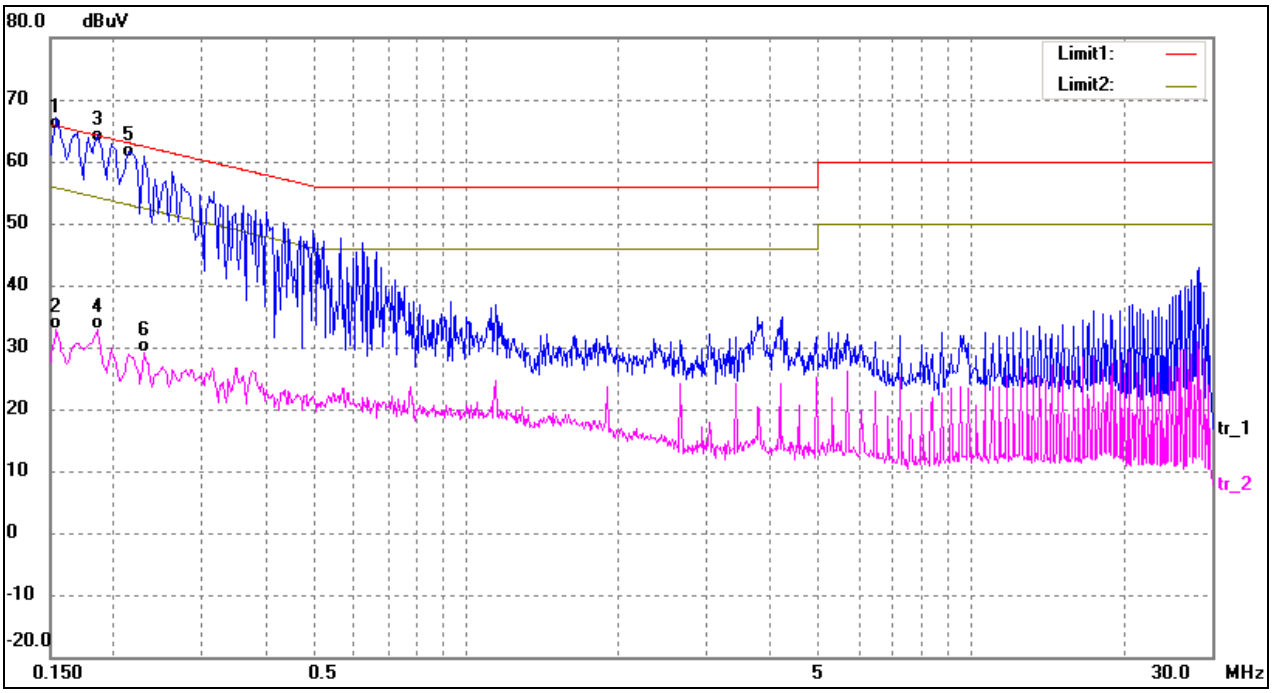
-0.55 dB at 0.1540 MHz in the **Neutral** mode**, QP** detector, **0.15-30MHz**

10.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

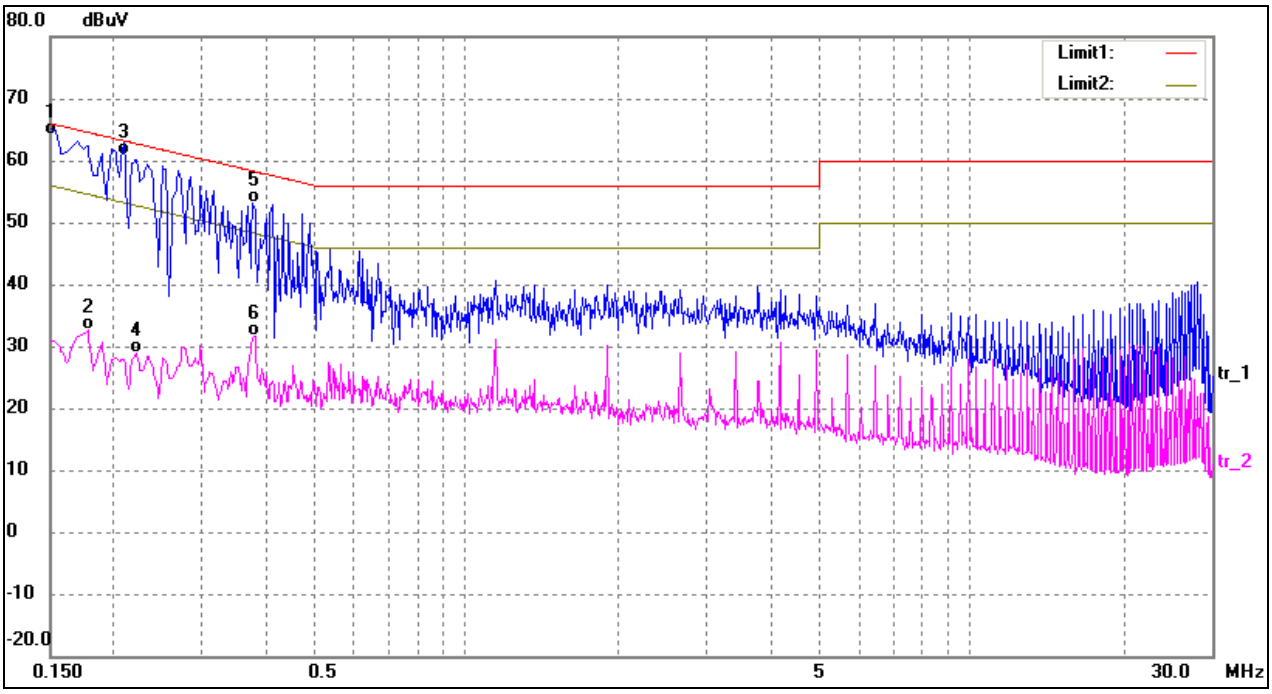
EUT: *Table PC*
Tested Model: *X40*
Operating Condition: *Transmitting*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1540	55.73	9.50	65.23	65.78	-0.55	QP
2	0.1540	23.42	9.50	32.92	55.78	-22.86	AVG
3	0.1860	53.60	9.50	63.10	64.21	-1.11	QP
4	0.1860	23.45	9.50	32.95	54.21	-21.26	AVG
5	0.2140	51.20	9.50	60.70	63.05	-2.35	QP
6	0.2300	19.64	9.50	29.15	52.45	-23.30	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1500	54.57	9.50	64.07	66.00	-1.93	QP
2	0.1780	23.02	9.50	32.52	54.58	-22.06	AVG
3	0.2100	51.44	9.50	60.94	63.21	-2.27	QP
4	0.2220	19.30	9.50	28.80	52.74	-23.94	AVG
5	0.3780	43.60	9.50	53.10	58.32	-5.22	QP
6	0.3820	22.08	9.50	31.60	48.24	-16.64	AVG

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