FCC Part 15C
Measurement and Test Report

For

Shenzhen Wisky Technology Co., LTD.

5th Floor, W2-A Building, Hi-tech Park South 1st Road, Nanshan District,

Shenzhen

FCC ID: Y5KW032I

FCC Rules:	FCC Part 15C
Product Description:	Entertainment Tablet
Tested Model:	W032I
Report No.:	STR1308408I-2
Tested Date:	2013-08-27 to 2013-09-07
Issued Date:	2013-09-08
Tested By:	Silin Chen / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shenzhen Wisky Technology Co., LTD.
Address of applicant:	5th Floor, W2-A Building, Hi-tech Park South 1st Road, Nanshan District, Shenzhen
Manufacturer:	Shenzhen Wisky Technology Co., LTD.
Address of manufacturer:	5th Floor, W2-A Building, Hi-tech Park South 1st Road, Nanshan District, Shenzhen

General Description of EUT	
Product Name:	Entertainment Tablet
Trade Name:	/
Model No.:	W032I
Rated Voltage:	DC 3.7V
Power Adaptor:	Model:FY0502000
	Input 100-240V, 50/60Hz, Output DC 5V
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2472MHz
RF Output Power:	14.97dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels	13
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	1.86dBi
Lowest Internal Frequency	32.768kHz
Device Category:	Portable Device

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Wisky Technology Co., LTD. in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

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

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

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. The public notice KDB 558074 D01 V02 for digital transmission systems shall be performed also.

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 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

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB Cable	1.0	Shielded	With Ferrite
DC Cable	1.2	Unshielded	Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Earphone	1.0	Unshielded	Without Ferrite

2. SUMMARY OF TEST RESULTS

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

N/A: not applicable

3. RF Exposure

3.1 Standard Applicable

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

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the SAR 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 a 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 Equipment List and Details

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

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

5.3 Test Procedure

According to the KDB 558074 D01 v03r01, the test method of power spectral density as below:

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.4 Environmental Conditions

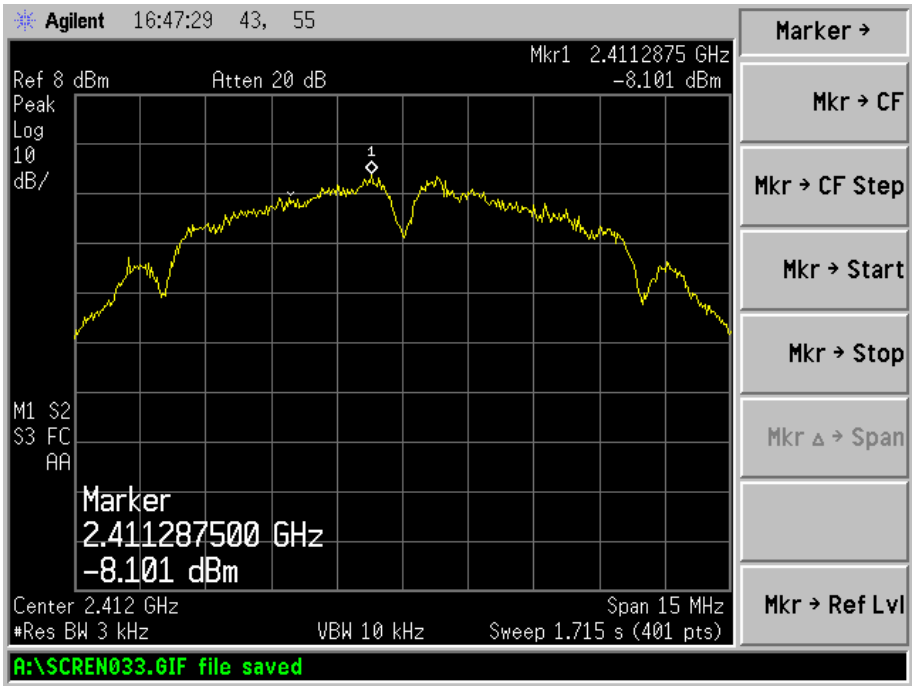
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

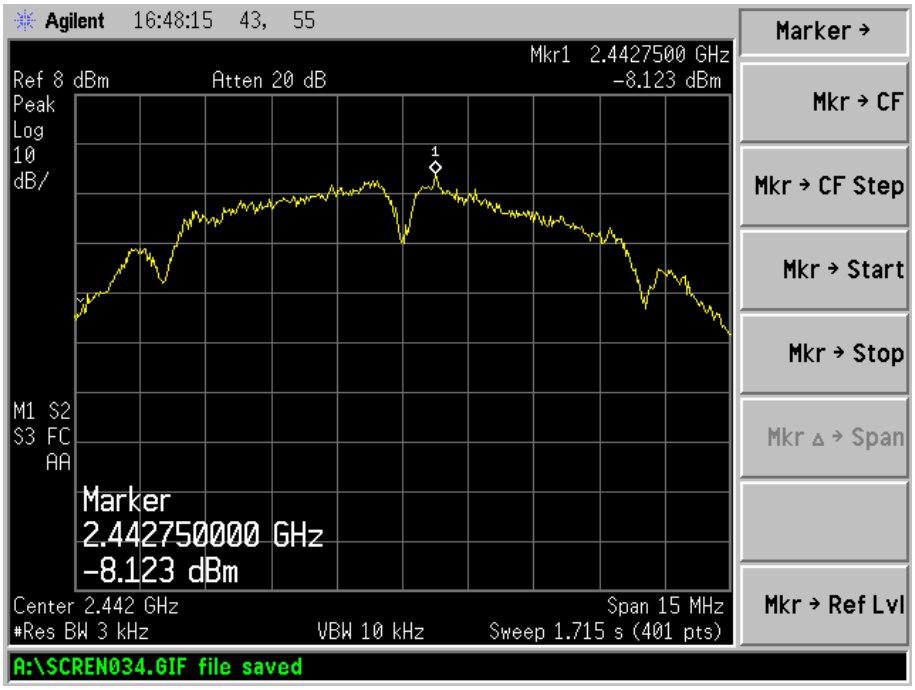
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-8.101	8
	2442	-8.123	8
	2472	-9.618	8
802.11g	2412	-14.44	8
	2442	-14.12	8
	2472	-14.75	8
802.11n HT20	2412	-12.77	8
	2442	-13.77	8
	2472	-14.84	8

Please refer to the following test plots:

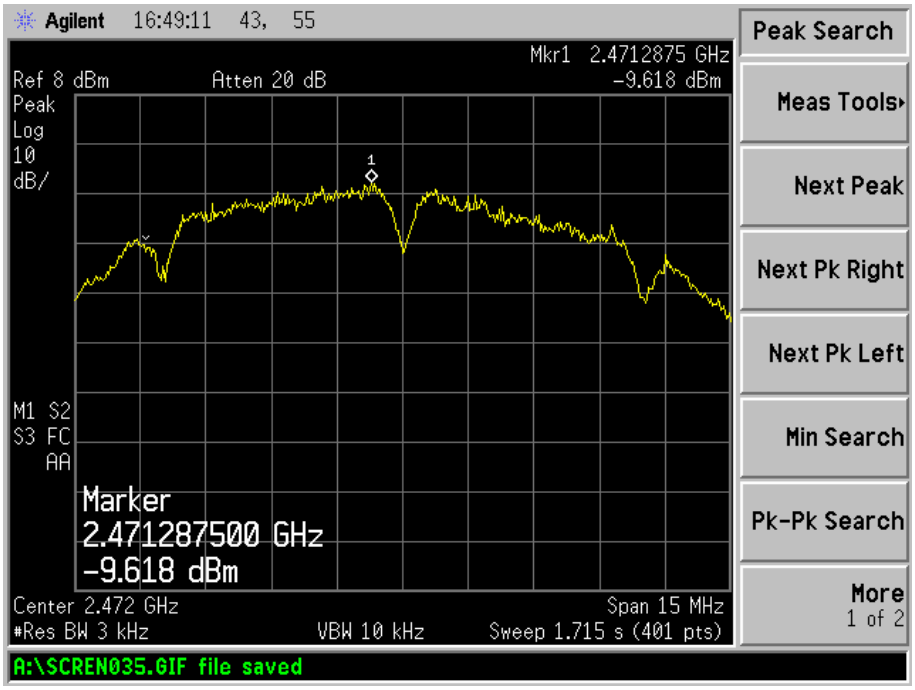
802.11b-Low Channel



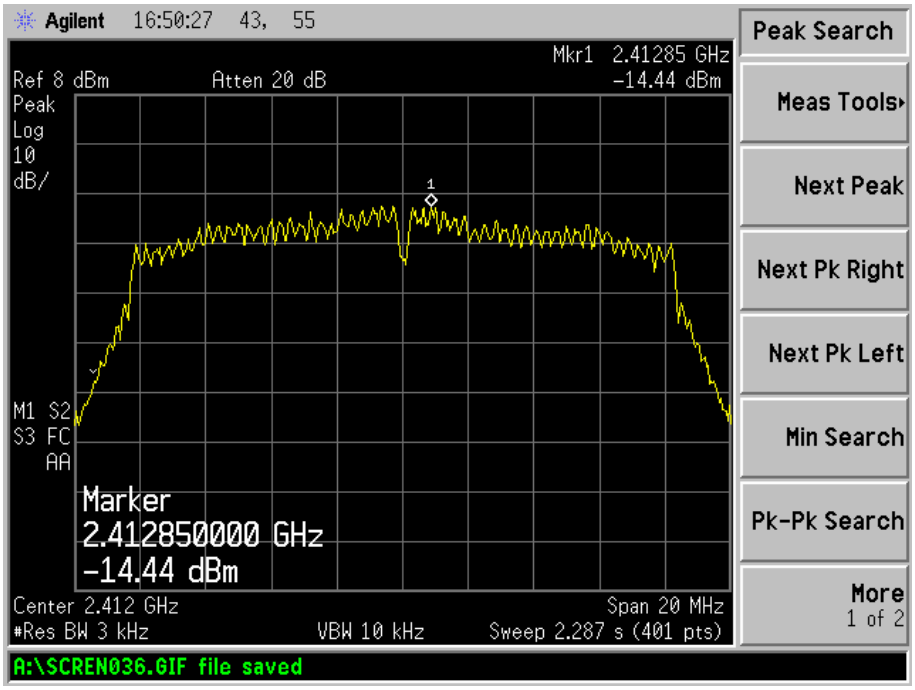
802.11b-Middle Channel



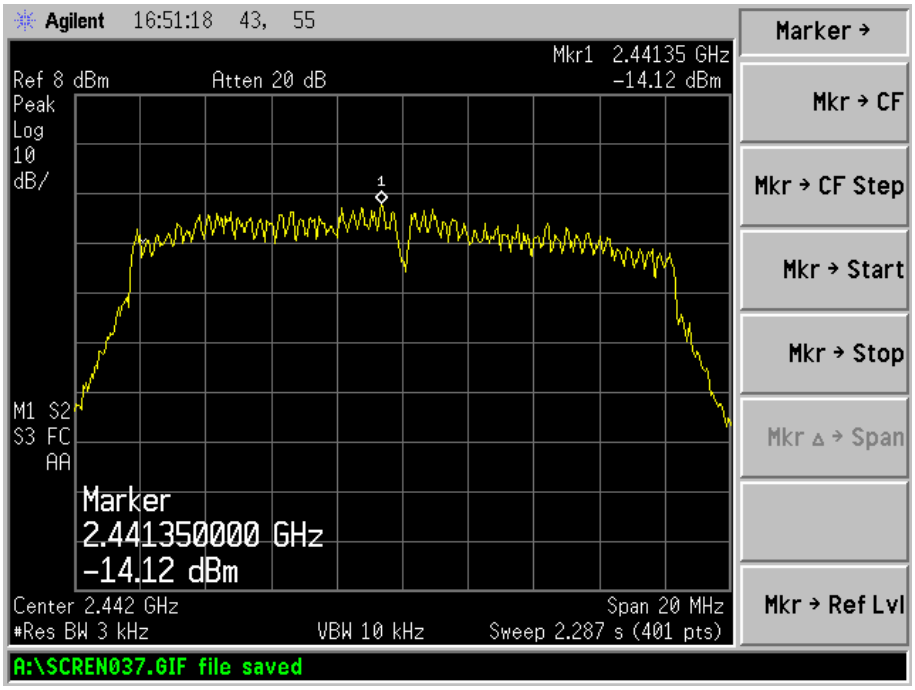
802.11b-High Channel



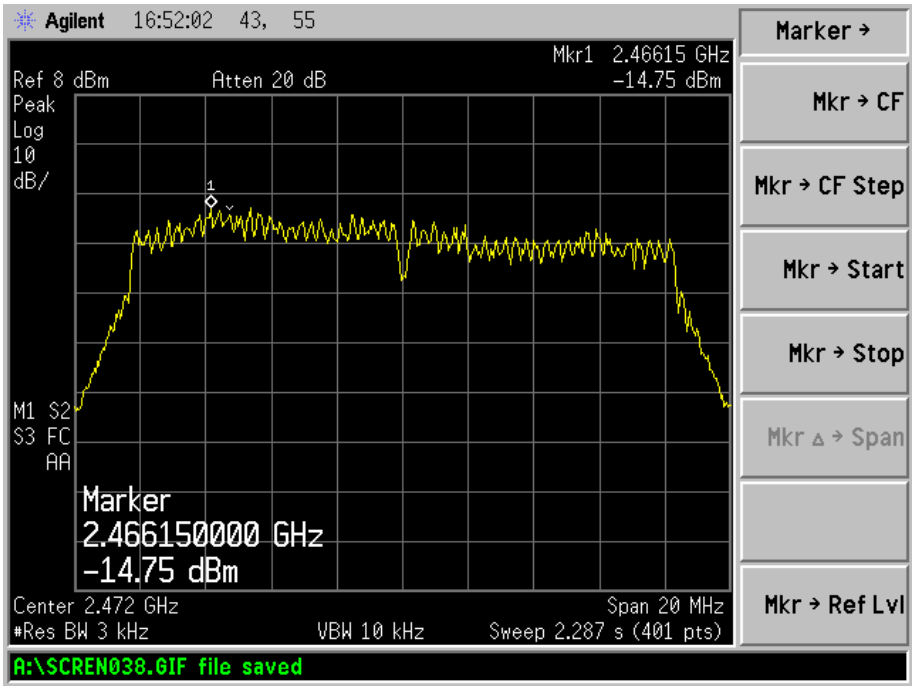
802.11g-Low Channel



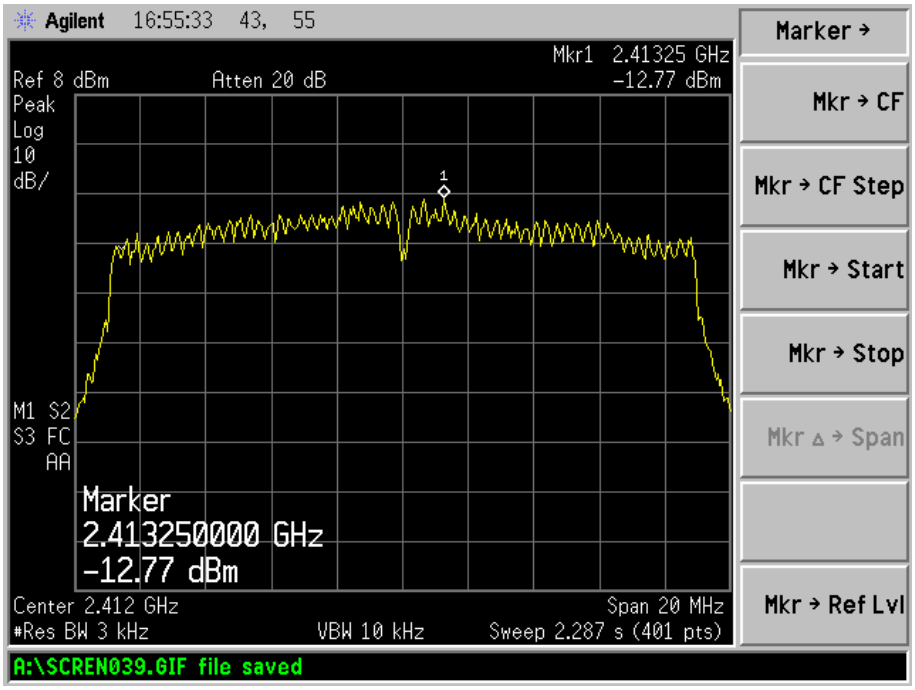
802.11g-Middle Channel



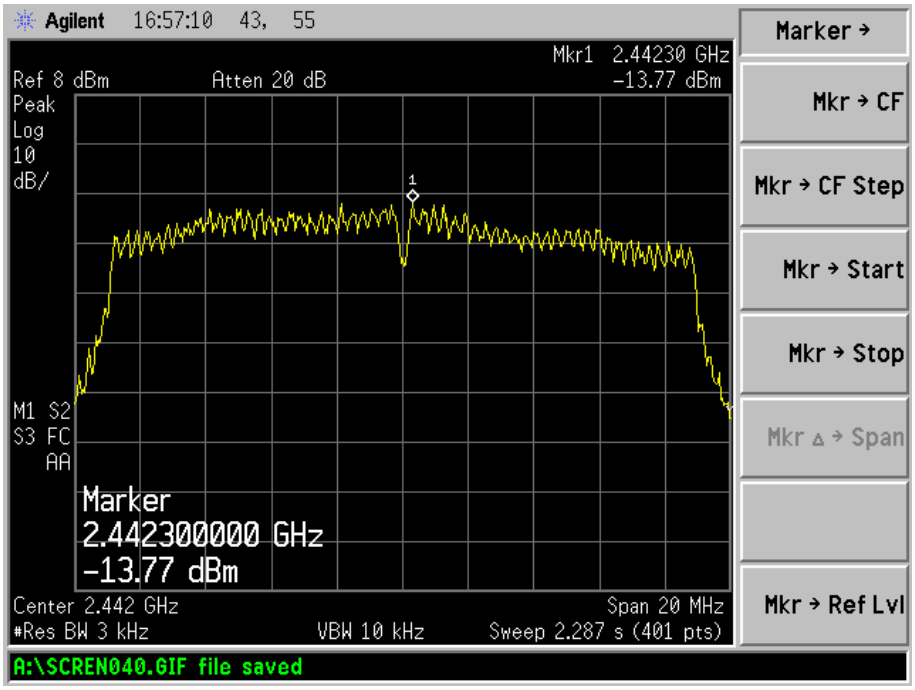
802.11g-High Channel



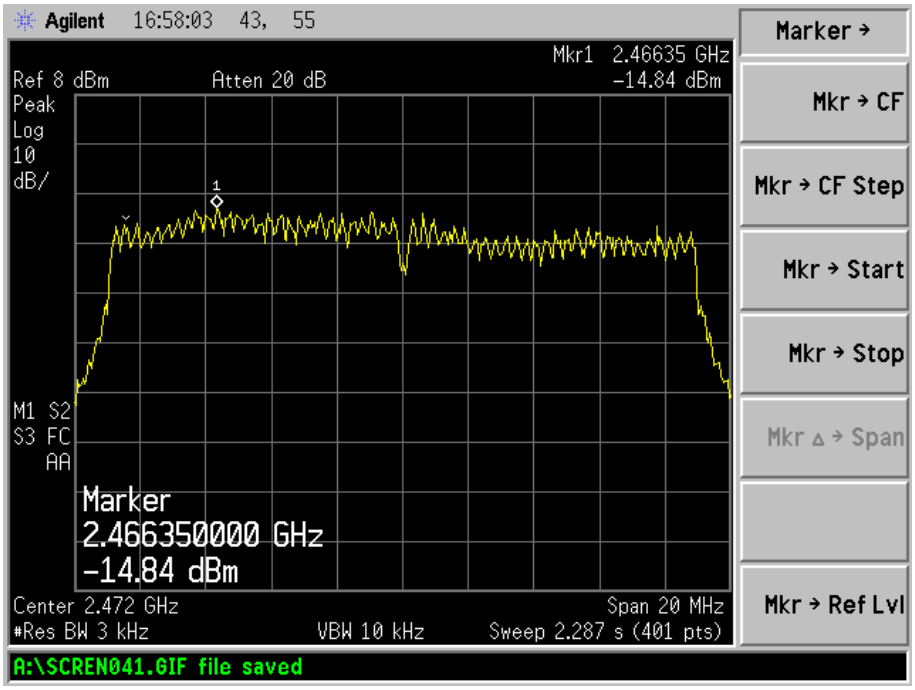
802.11n-HT20-Low Channel



802.11n-HT20-Middle Channel



802.11n-HT20-High Channel



6. 6dB Bandwidth

6.1 Standard Applicable

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

6.2 Test Equipment List and Details

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

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

6.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set RBW = 100 kHz.
3. Set the video bandwidth (VBW) ≥ 3XRBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.4 Environmental Conditions

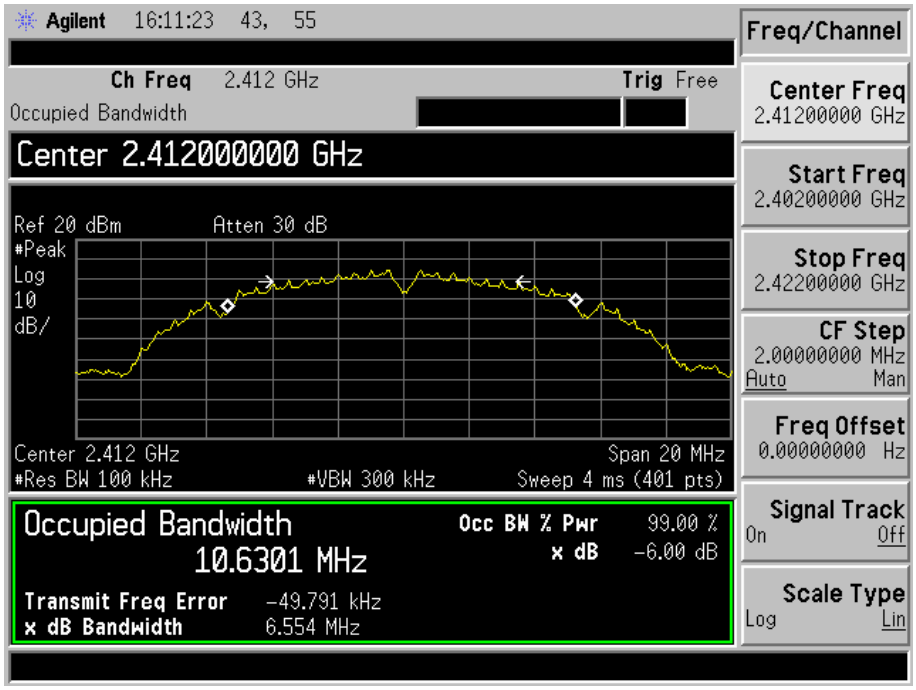
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.5 Summary of Test Results/Plots

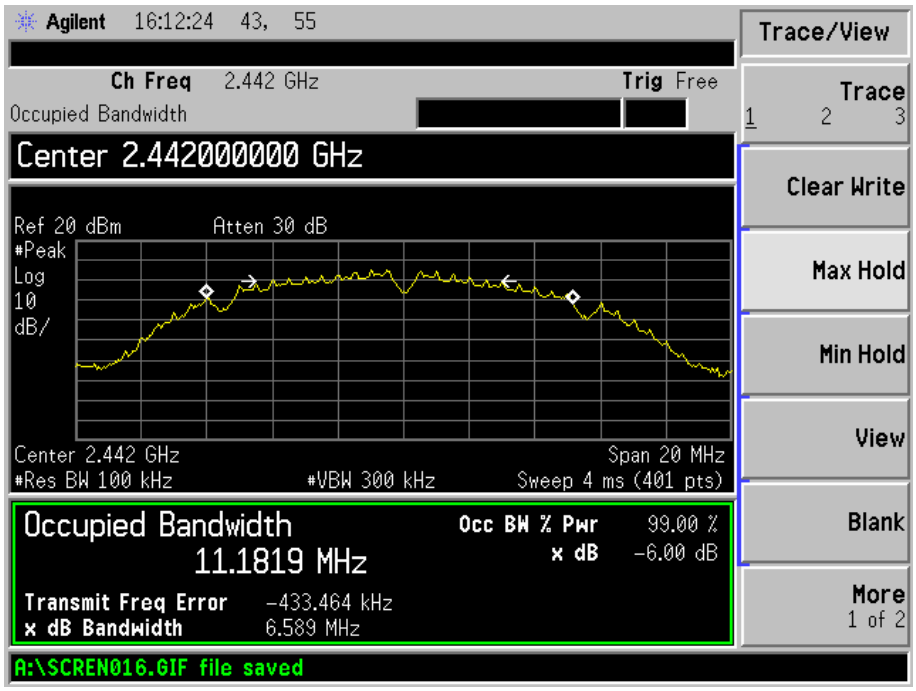
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	6554	500
	2442	6589	500
	2472	7110	500
802.11g	2412	12483	500
	2442	12365	500
	2472	15329	500
802.11n-HT20	2412	12808	500
	2442	12617	500
	2472	15932	500

Please refer to the following test plots:

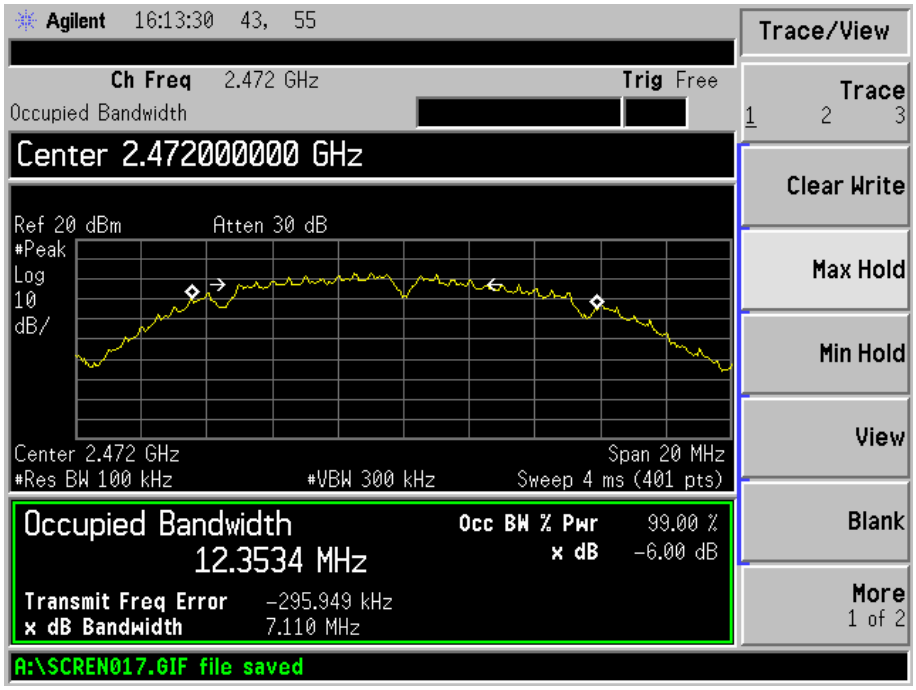
802.11b-Low Channel



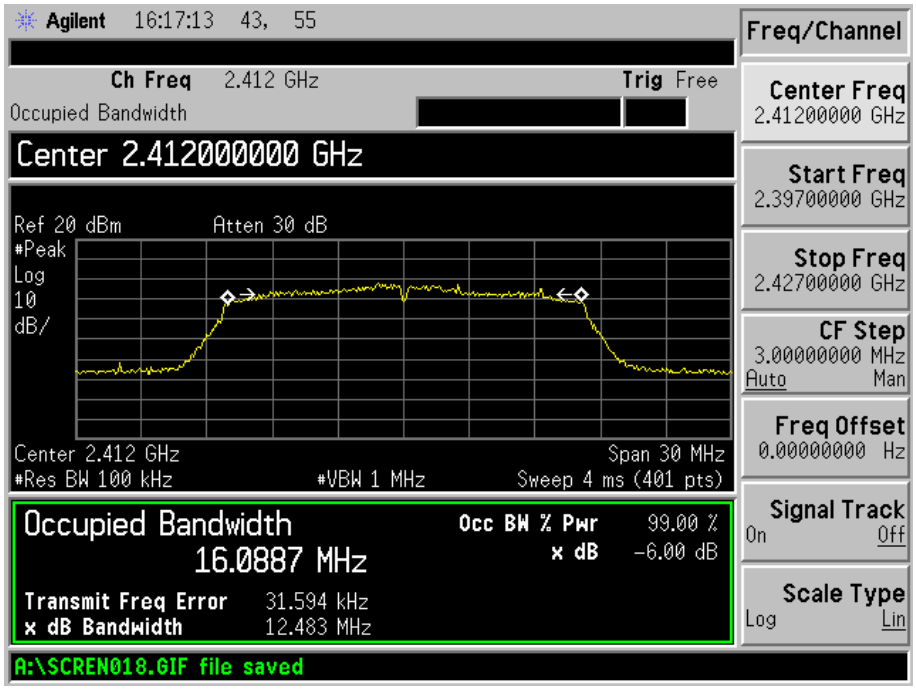
802.11b-Middle Channel



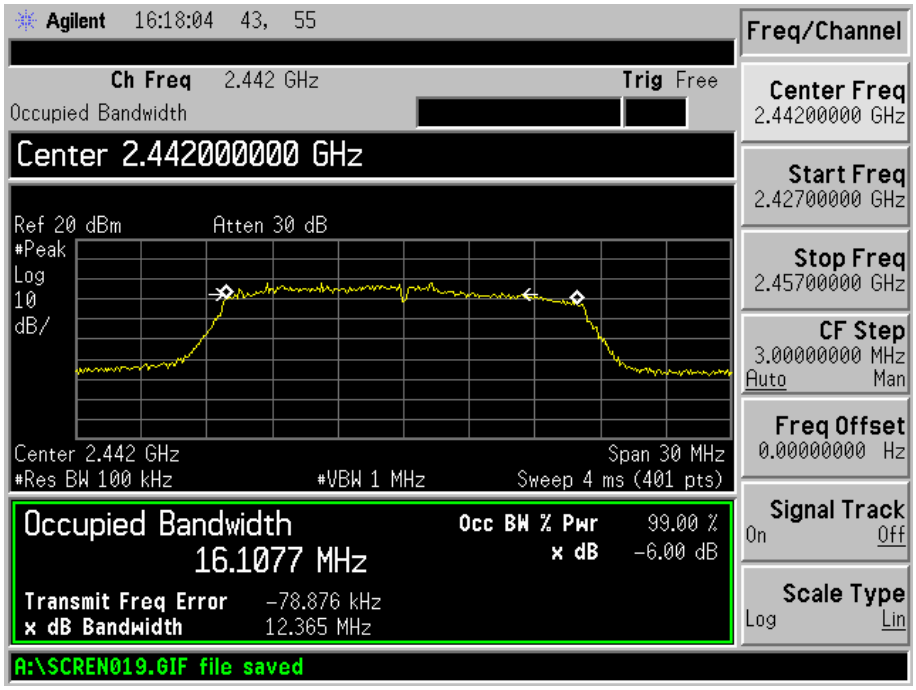
802.11b-High Channel



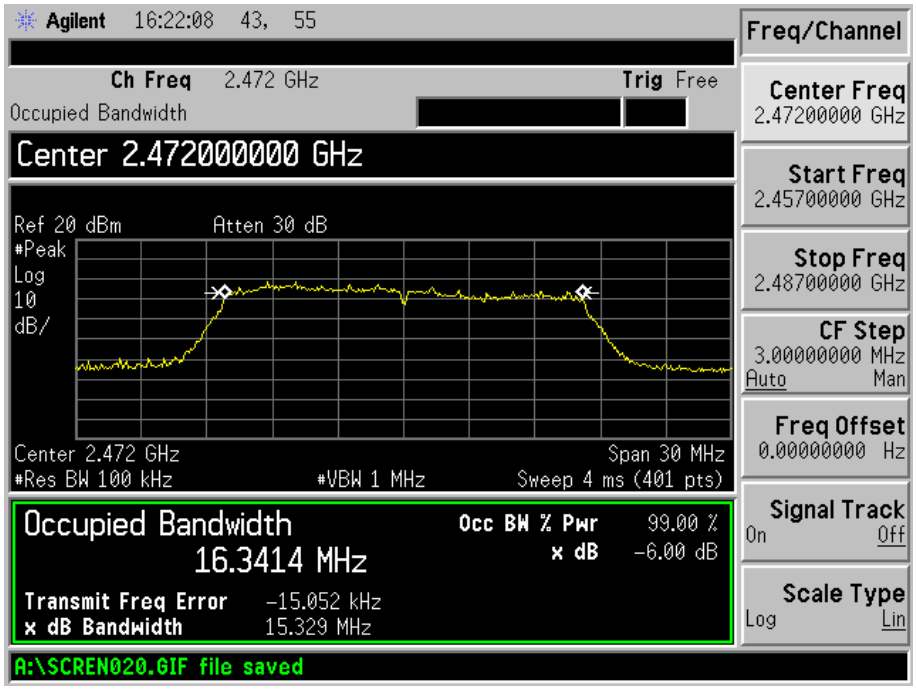
802.11g-Low Channel



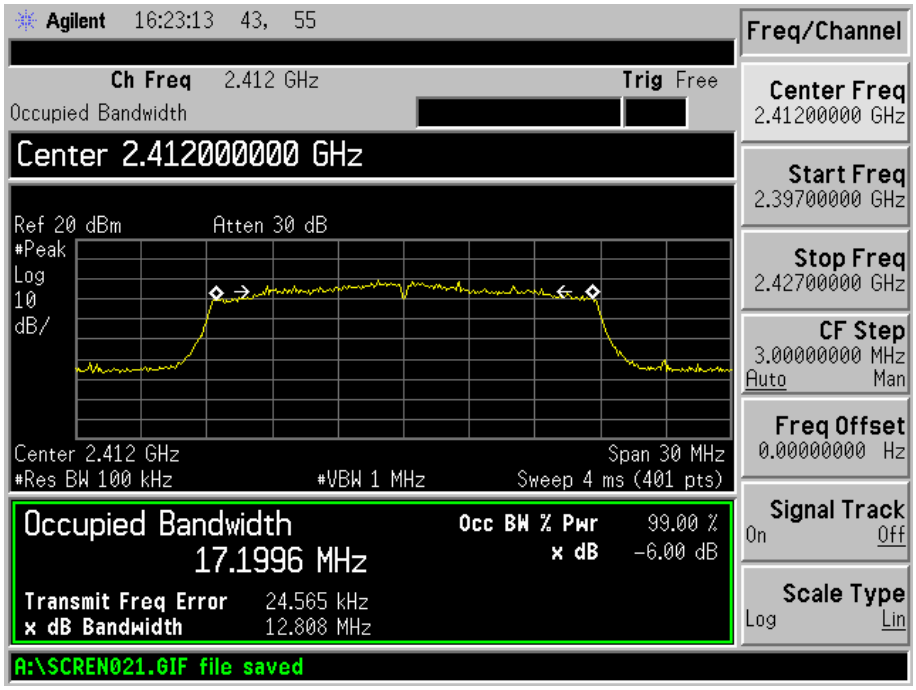
802.11g-Middle Channel



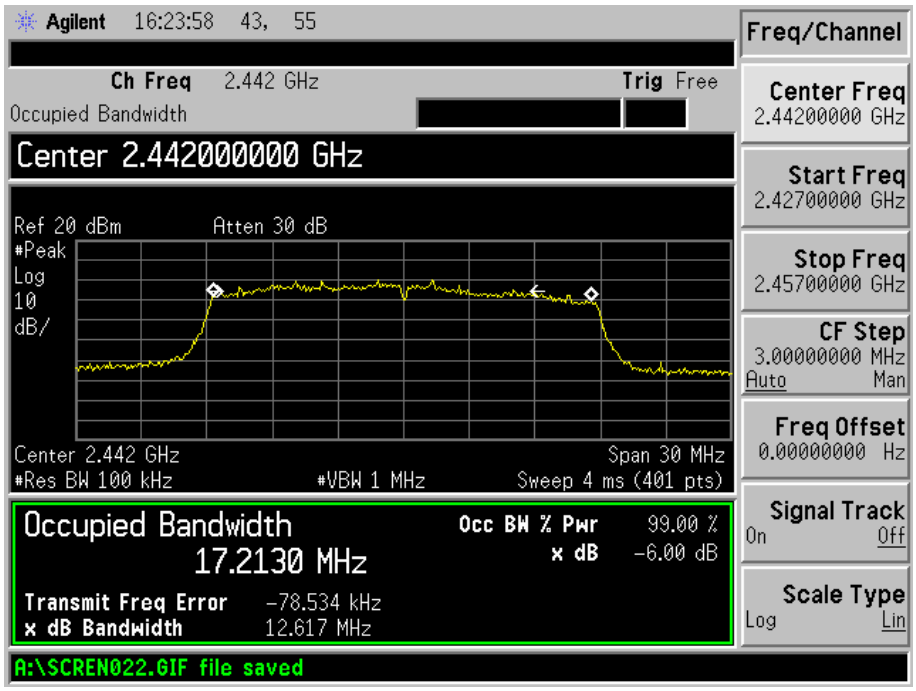
802.11g-High Channel



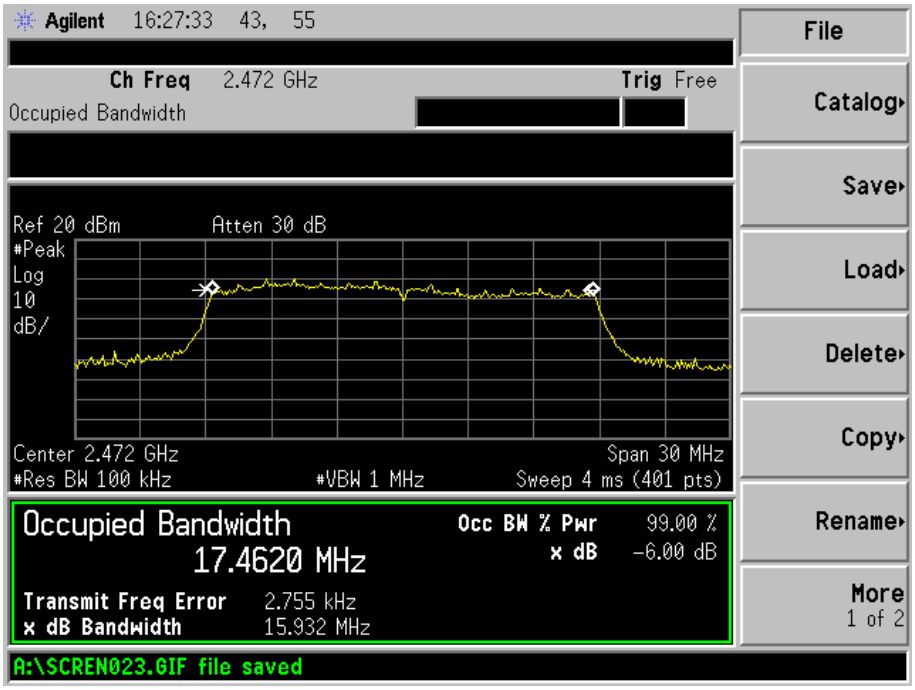
802.11n-HT20-Low Channel



802.11n-HT20-Middle Channel



802.11n-HT20-High Channel



7. RF Output Power

7.1 Standard Applicable

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

7.2 Test Equipment List and Details

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

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

7.3 Test Procedure

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

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

7.4 Environmental Conditions

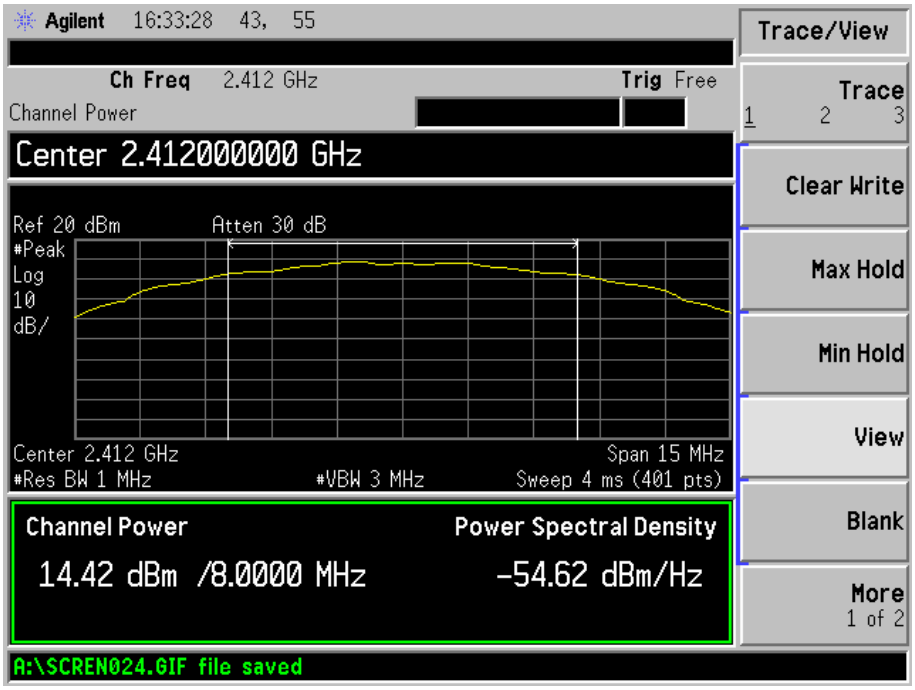
Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

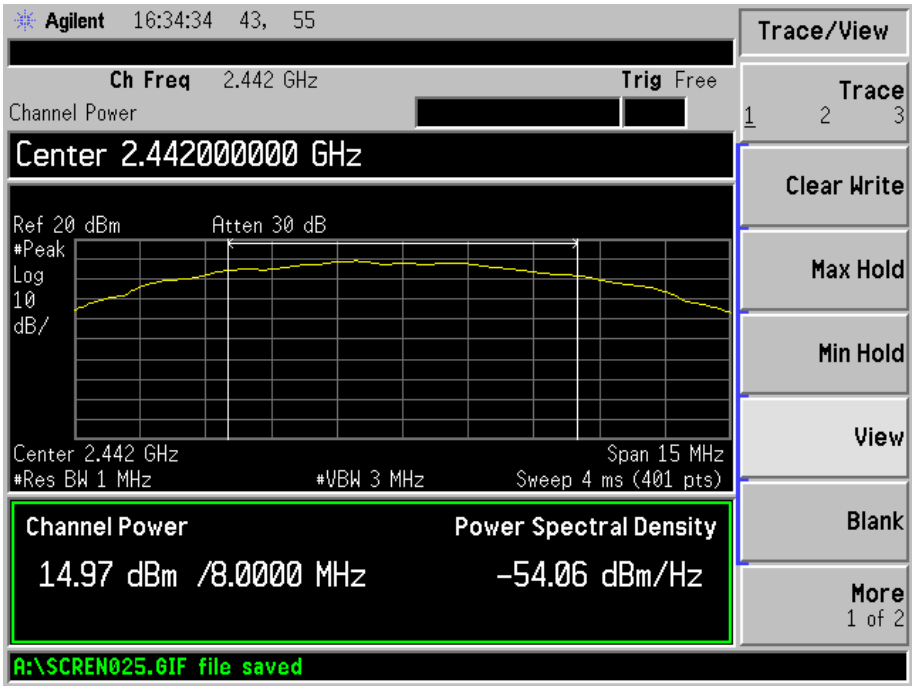
Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b_1Mbps	2412	14.42	27.67	1000
	2442	14.97	31.41	1000
	2472	13.77	23.82	1000
802.11g_6Mbps	2412	13.97	24.94	1000
	2442	13.71	23.50	1000
	2472	13.44	22.08	1000
802.11n HT20_MCS0	2412	14.63	29.04	1000
	2442	14.46	27.92	1000
	2472	13.61	22.96	1000

Please refer to the following test plots:

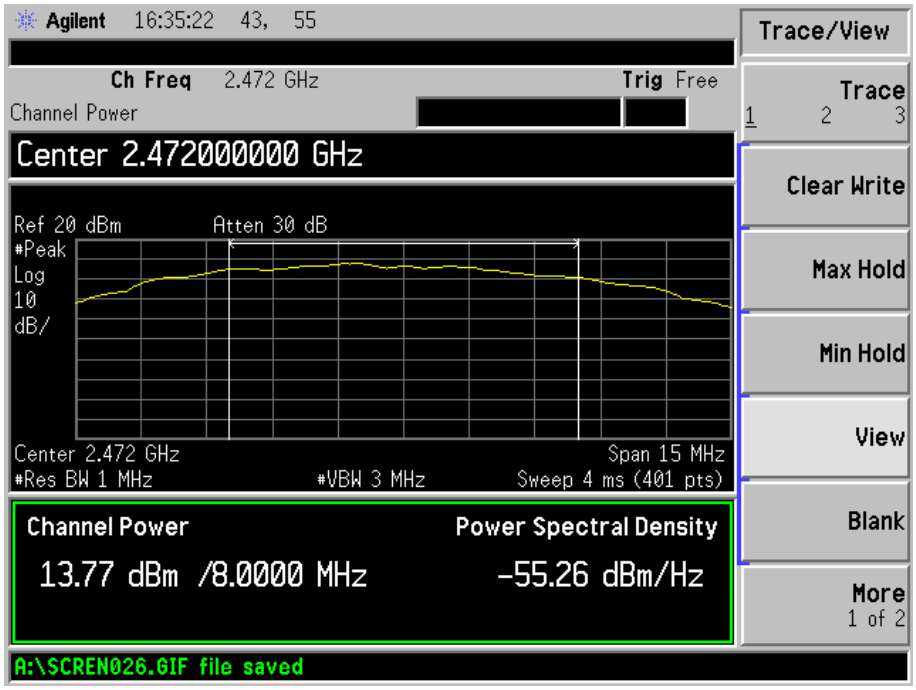
802.11b-1Mbps-Low Channel



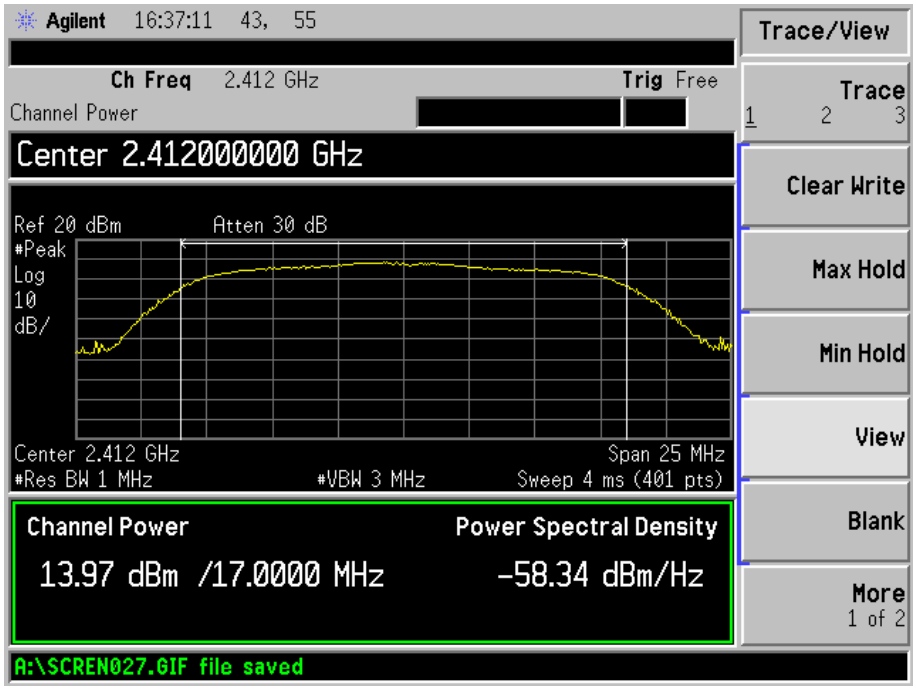
802.11b -1Mbps-Middle Channel



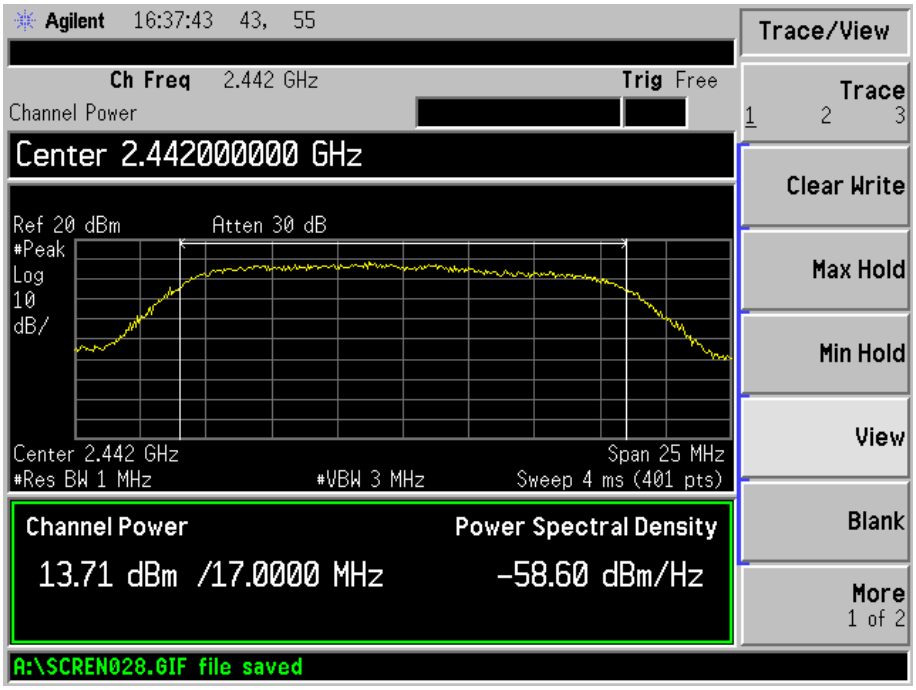
802.11b -1Mpbs-High Channel



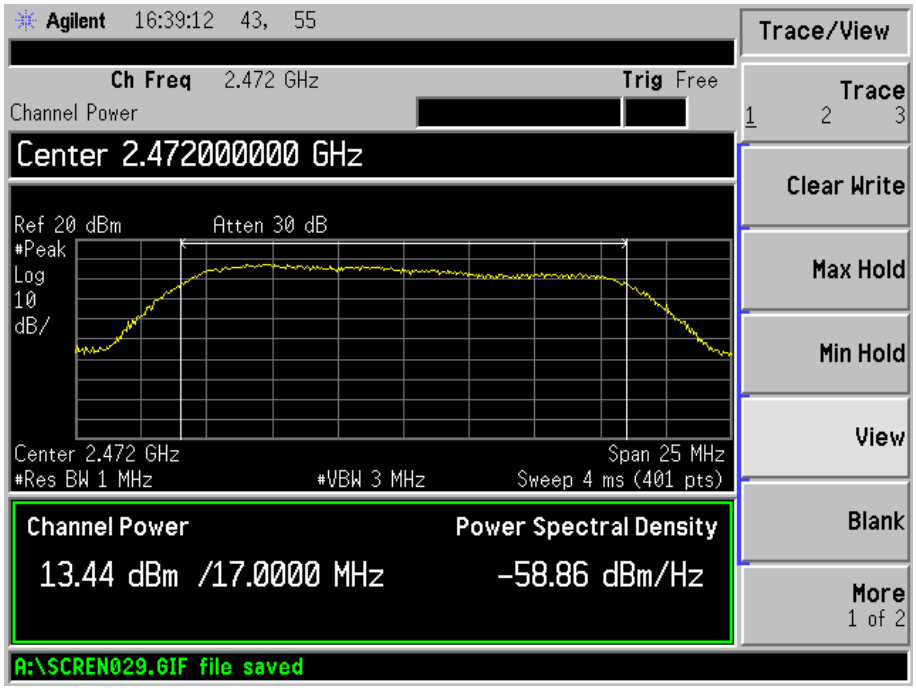
802.11g-6Mbps-Low Channel



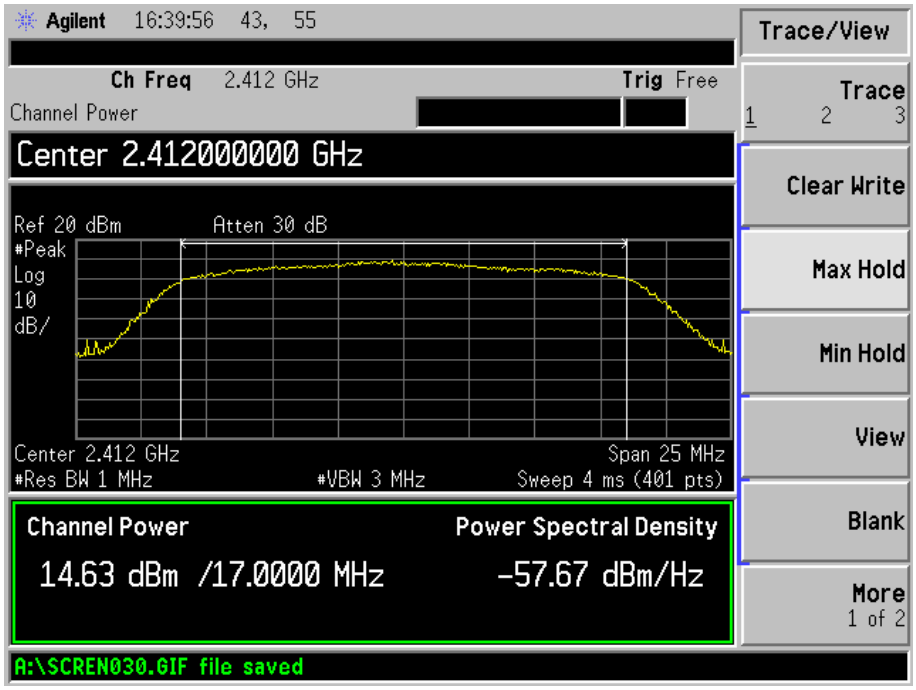
802.11g-6Mbps-Middle Channel



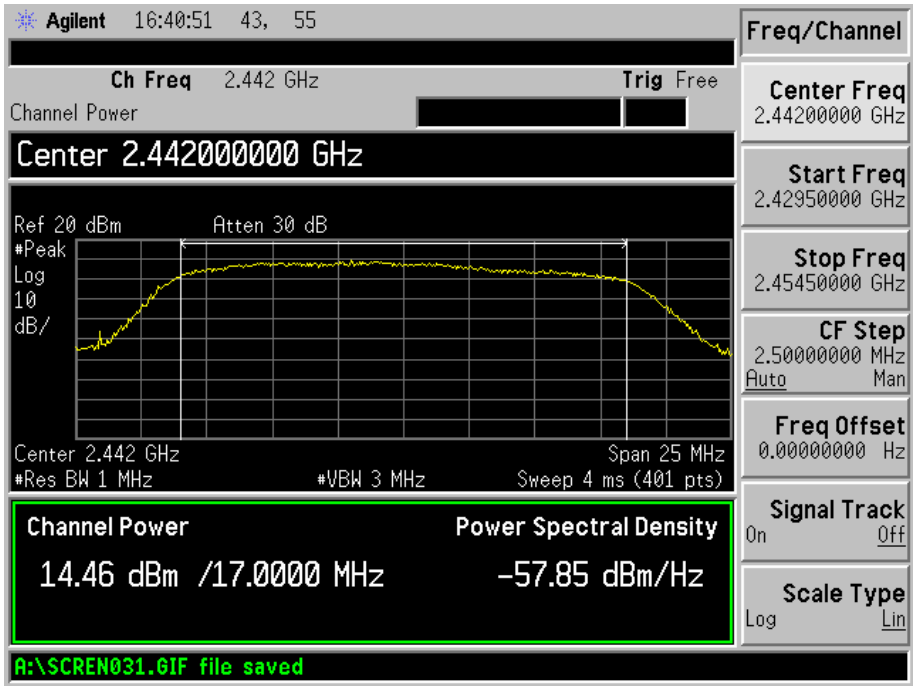
802.11g-6Mpbs-High Channel



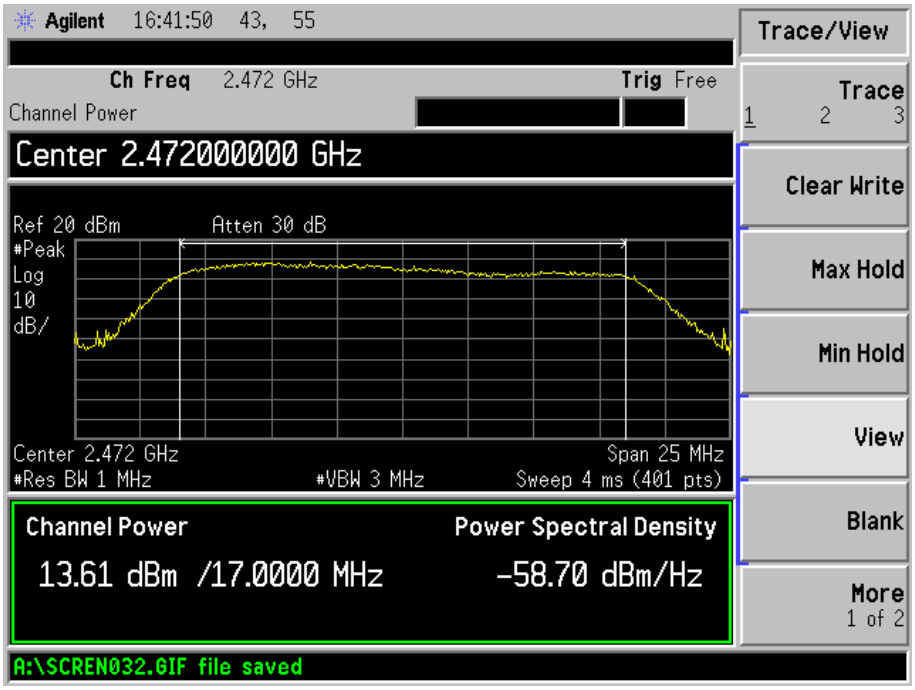
802.11n-HT20-MCS0-Low Channel



802.11n-HT20-MCS0-Middle Channel



802.11n-HT20-MCS0-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.

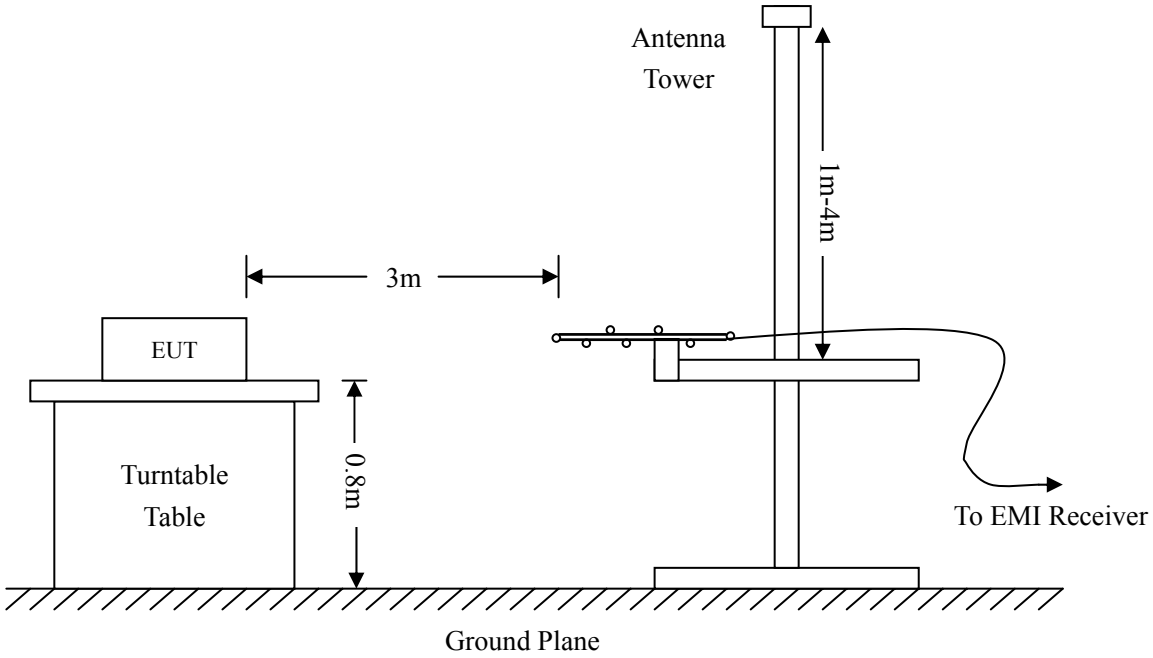
8.3 Test Equipment List and Details

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

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

8.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



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

8.5 Corrected Amplitude & Margin Calculation

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

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

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

Margin = Corr. Ampl. – FCC Part 15 Limit

8.6 Environmental Conditions

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

8.7 Summary of Test Results/Plots

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

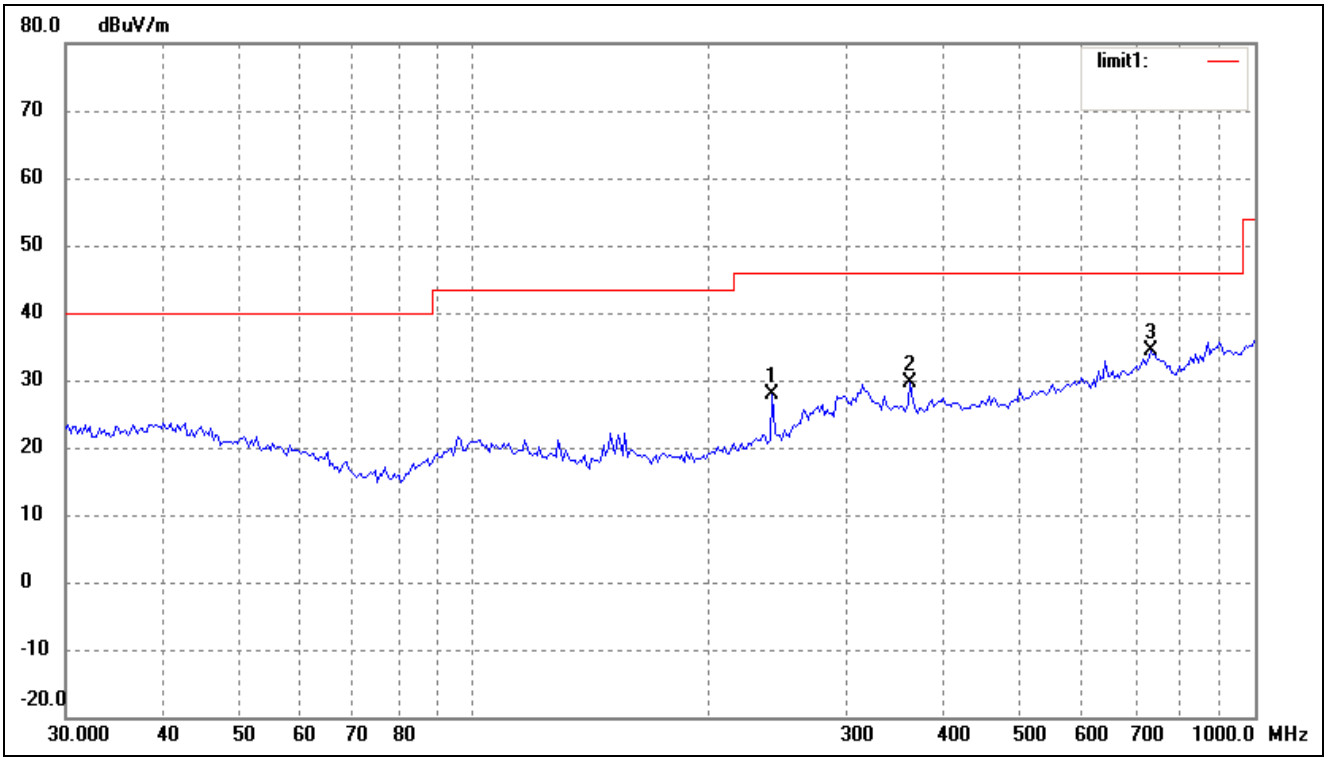
-9.64 dB at **4824.000 MHz** in the **Vertical** polarization for **802.11b Low Channel** , **9kHz** to **25 GHz**, **3 Meters**

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

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

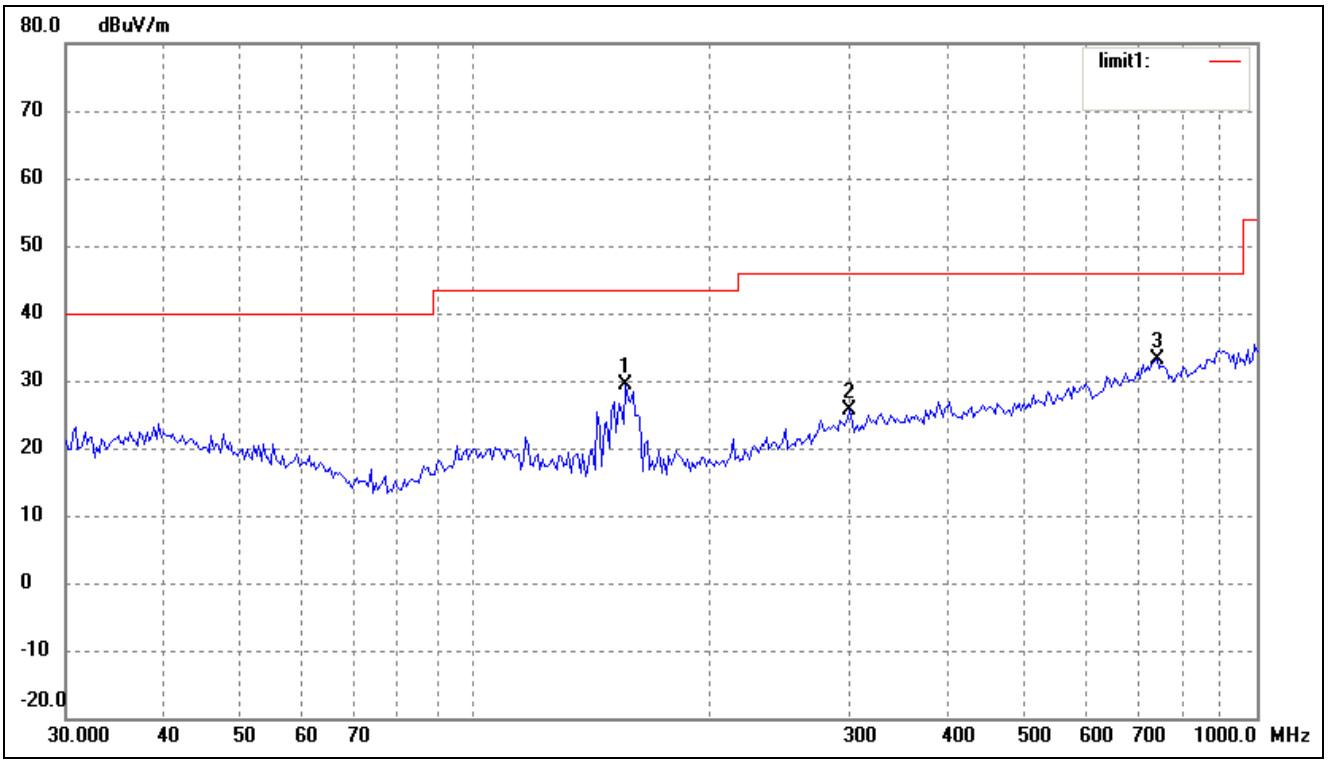
EUT: *Entertainment Tablet*
Tested Model: *W032I*
Operating Condition: *802.11b Transmitting Low Channel-2412MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	240.8304	20.96	7.02	27.98	46.00	-18.02	113	100	peak
2	361.7139	18.82	10.69	29.51	46.00	-16.49	113	100	peak
3	734.4913	16.74	17.68	34.42	46.00	-11.58	113	100	peak

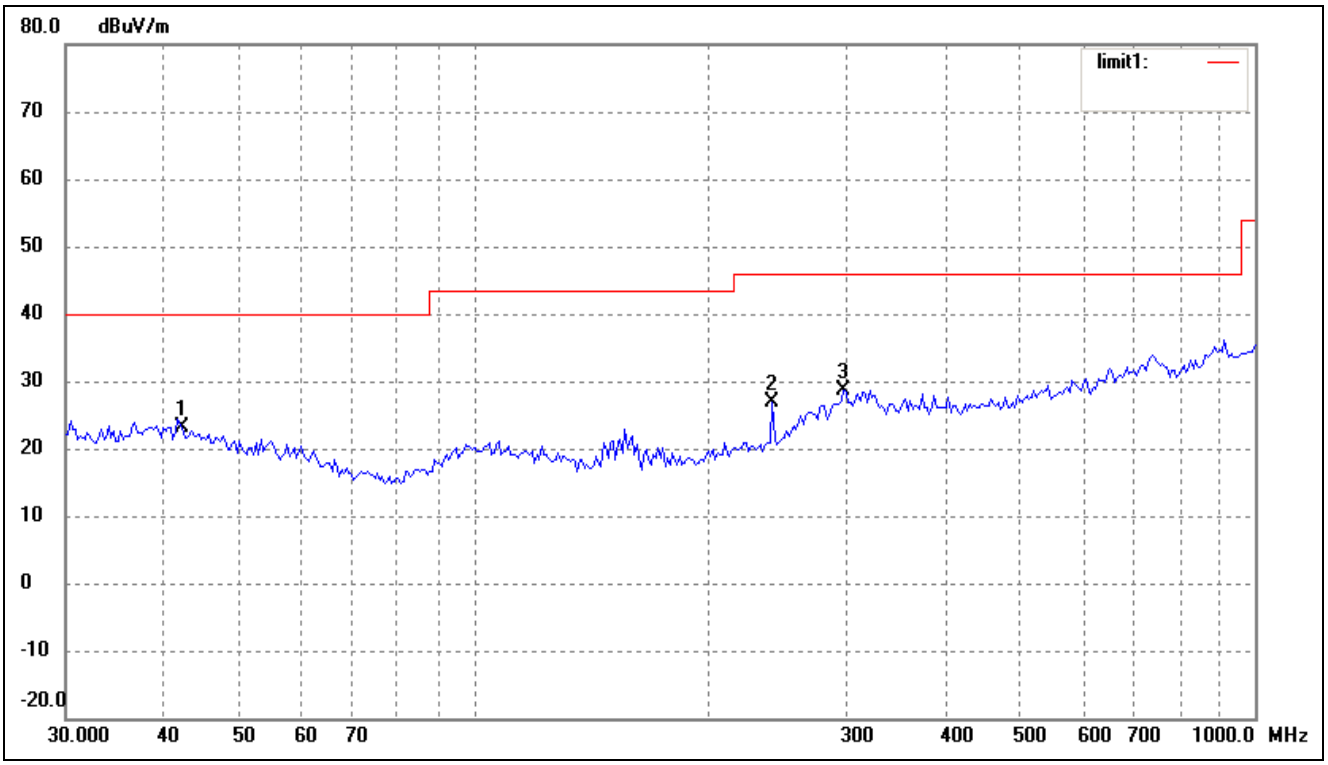
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	155.9101	25.69	3.61	29.30	43.50	-14.20	0	100	peak
2	301.4224	15.36	10.20	25.56	46.00	-20.44	0	100	peak
3	744.8661	15.09	17.95	33.04	46.00	-12.96	0	100	peak

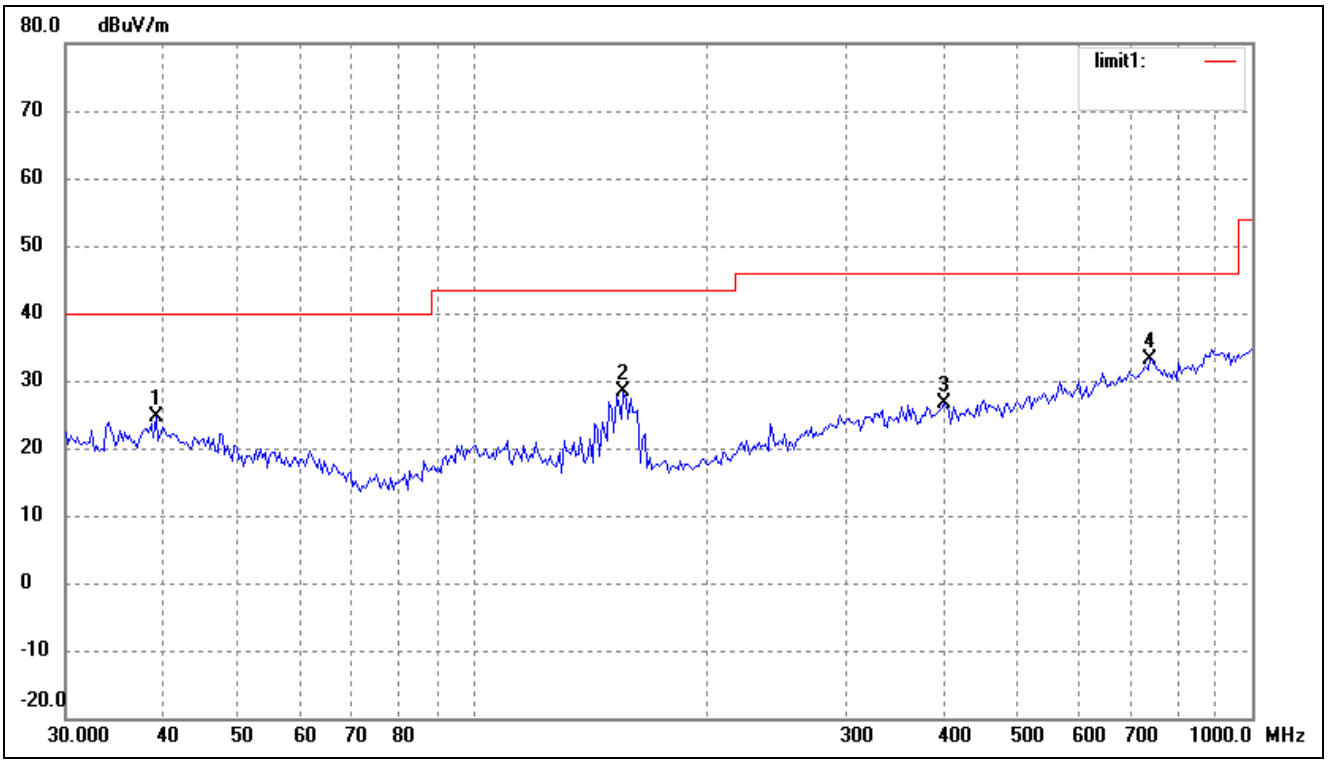
Operating Condition: *802.11b Transmitting Middle Channel-2442MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.3022	14.10	8.98	23.08	40.00	-16.92	111	100	peak
2	240.8304	19.93	7.02	26.95	46.00	-19.05	111	100	peak
3	297.2241	18.55	10.04	28.59	46.00	-17.41	111	100	peak

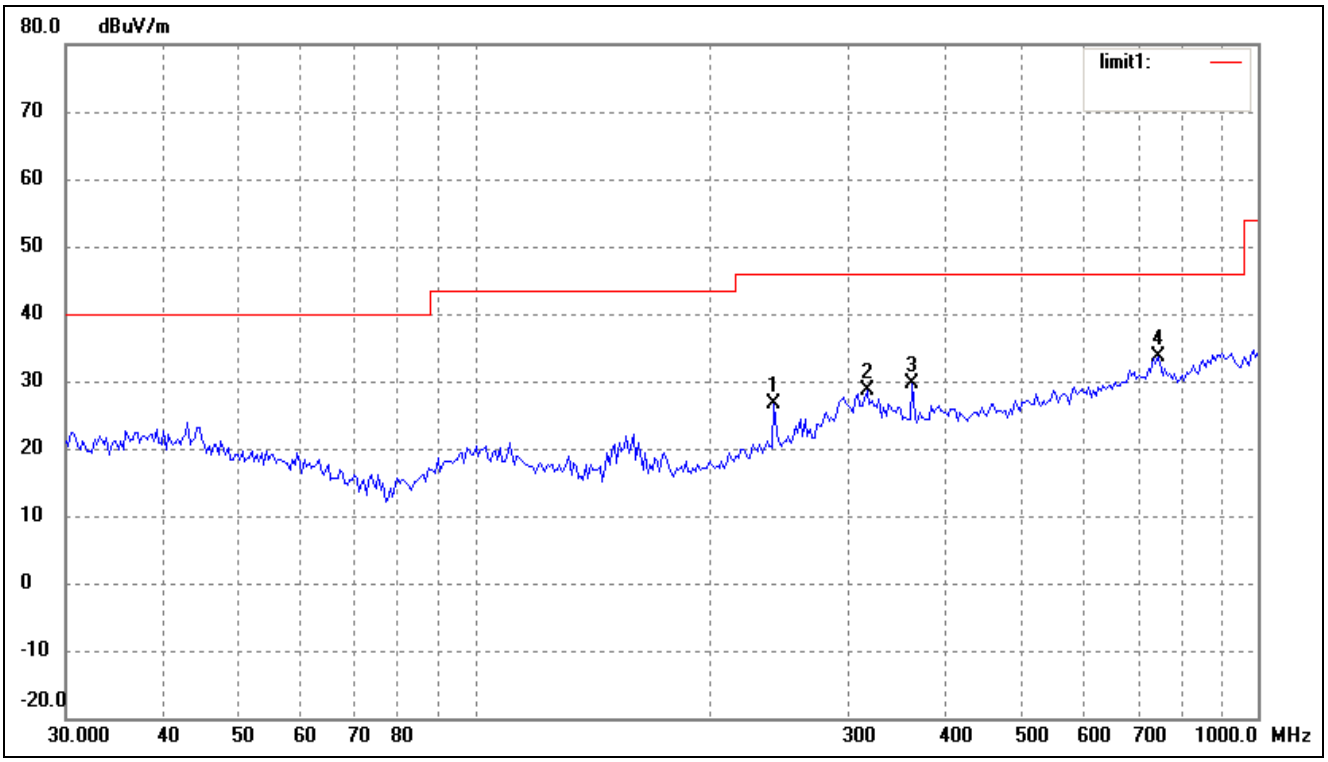
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	39.1616	14.97	9.54	24.51	40.00	-15.49	12	100	peak
2	155.9101	24.74	3.61	28.35	43.50	-15.15	12	100	peak
3	401.8385	15.10	11.47	26.57	46.00	-19.43	12	100	peak
4	739.6605	15.12	18.07	33.19	46.00	-12.81	12	100	peak

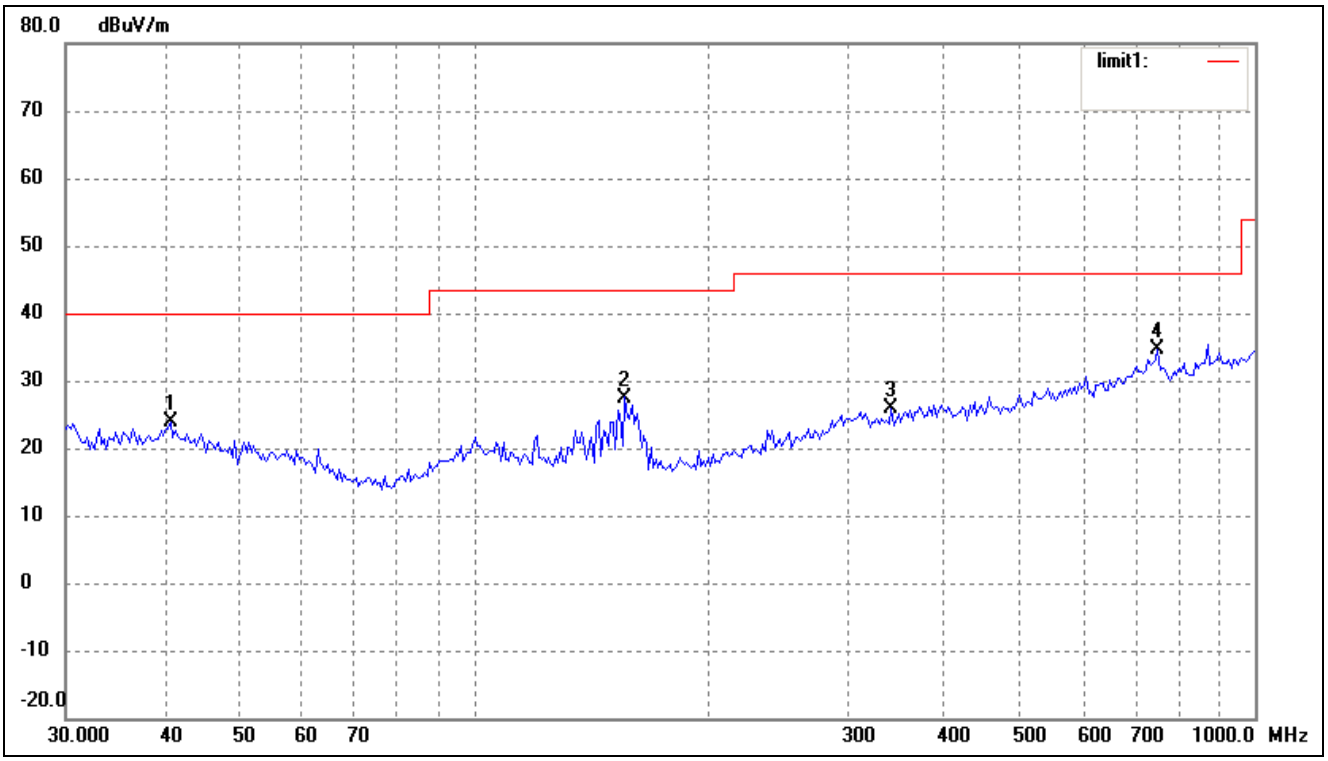
Operating Condition: *802.11b Transmitting High Channel-2472MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	240.8304	19.49	7.02	26.51	46.00	-19.49	0	100	peak
2	316.5890	18.10	10.44	28.54	46.00	-17.46	0	100	peak
3	361.7139	18.95	10.69	29.64	46.00	-16.36	0	100	peak
4	744.8661	15.61	17.95	33.56	46.00	-12.44	0	100	peak

Test Specification: *Vertical*

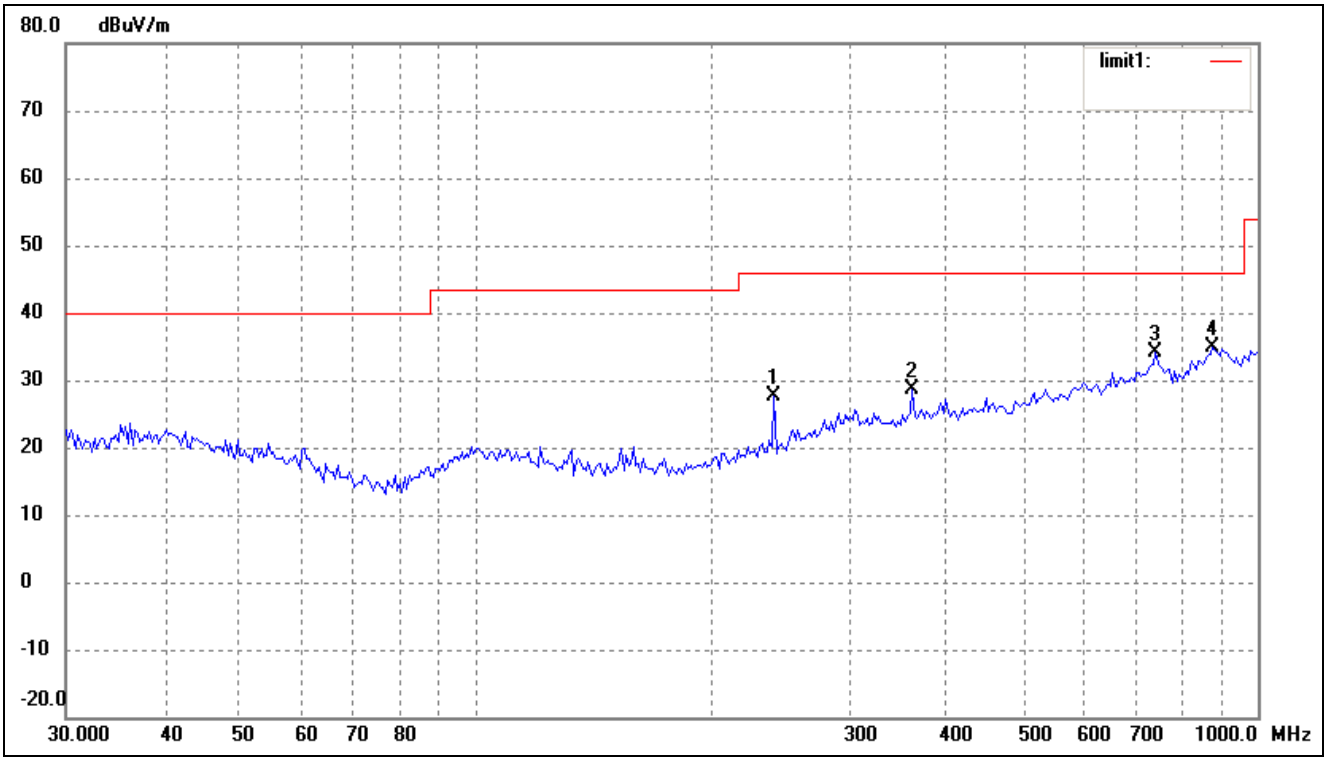


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.8446	14.40	9.42	23.82	40.00	-16.18	111	100	peak
2	155.9101	23.89	3.61	27.50	43.50	-16.00	111	100	peak
3	341.9787	15.63	10.16	25.79	46.00	-20.21	111	100	peak
4	750.1083	16.82	17.78	34.60	46.00	-11.40	111	100	peak

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

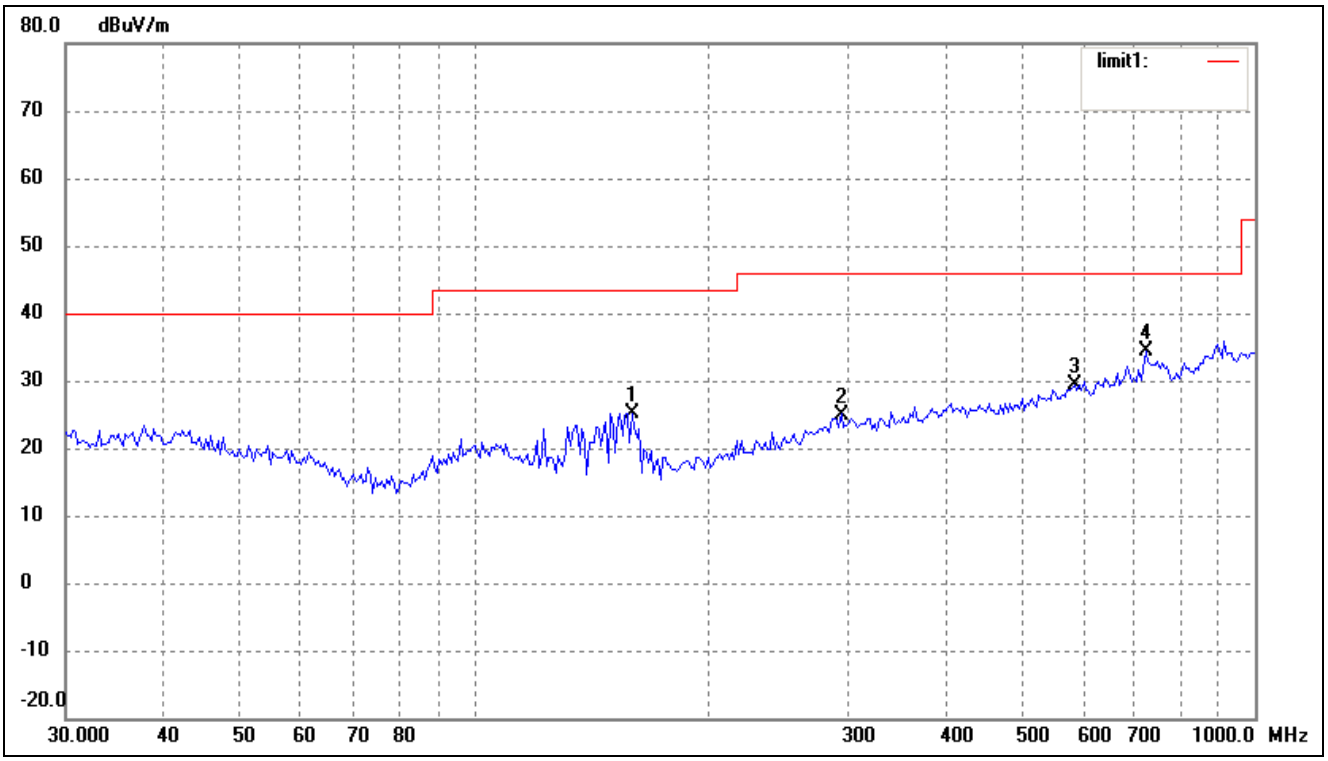
EUT: *Entertainment Tablet*
Tested Model: *W032I*
Operating Condition: *802.11g Transmitting Low Channel-2412MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	240.8304	20.71	7.02	27.73	46.00	-18.27	160	100	peak
2	361.7139	18.06	10.69	28.75	46.00	-17.25	160	100	peak
3	739.6605	16.11	18.07	34.18	46.00	-11.82	160	100	peak
4	875.2470	15.98	18.80	34.78	46.00	-11.22	160	100	peak

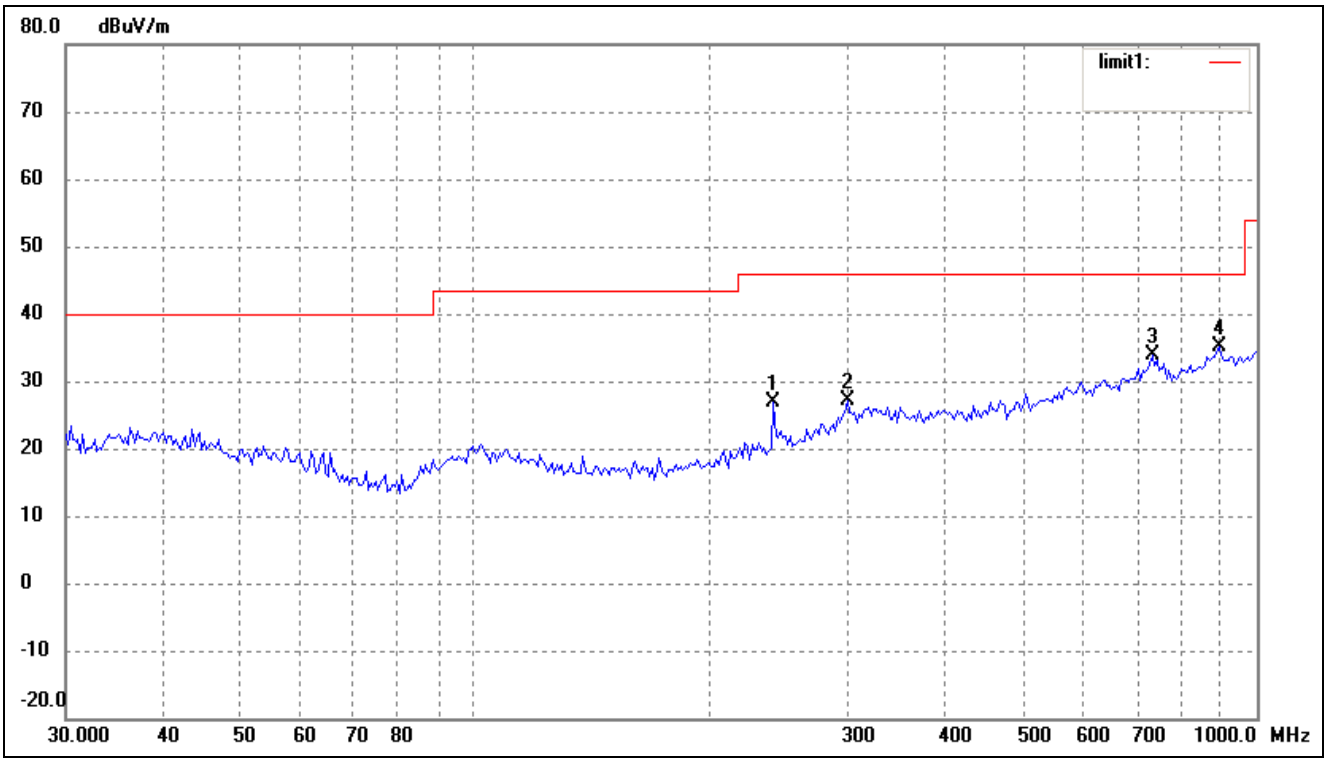
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	159.2251	21.58	3.65	25.23	43.50	-18.27	177	100	peak
2	295.1469	15.05	9.95	25.00	46.00	-21.00	177	100	peak
3	586.8437	15.02	14.39	29.41	46.00	-16.59	177	100	peak
4	724.2611	17.33	16.93	34.26	46.00	-11.74	177	100	peak

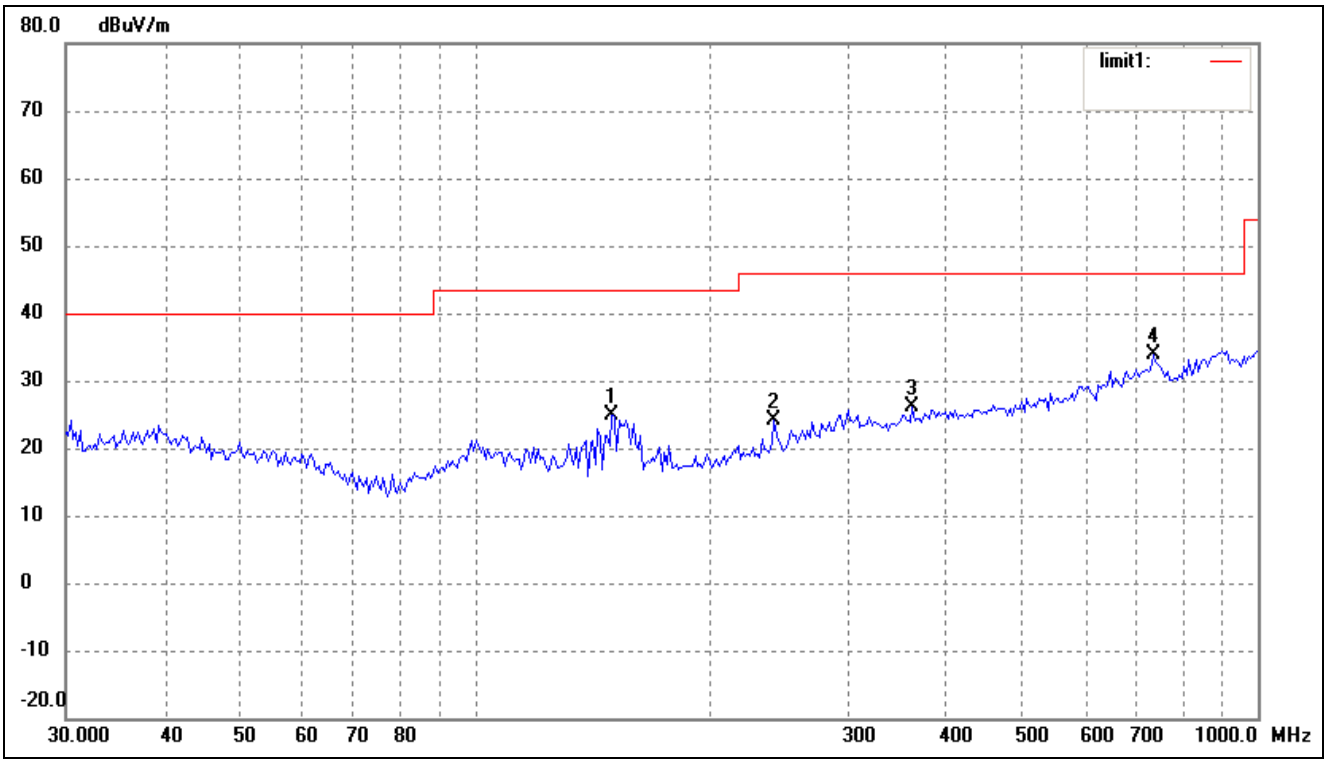
Operating Condition: *802.11g Transmitting Middle Channel-2442MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	240.8304	19.77	7.02	26.79	46.00	-19.21	228	200	peak
2	299.3158	16.92	10.15	27.07	46.00	-18.93	228	200	peak
3	734.4913	16.12	17.68	33.80	46.00	-12.20	228	200	peak
4	893.8567	15.80	19.27	35.07	46.00	-10.93	228	200	peak

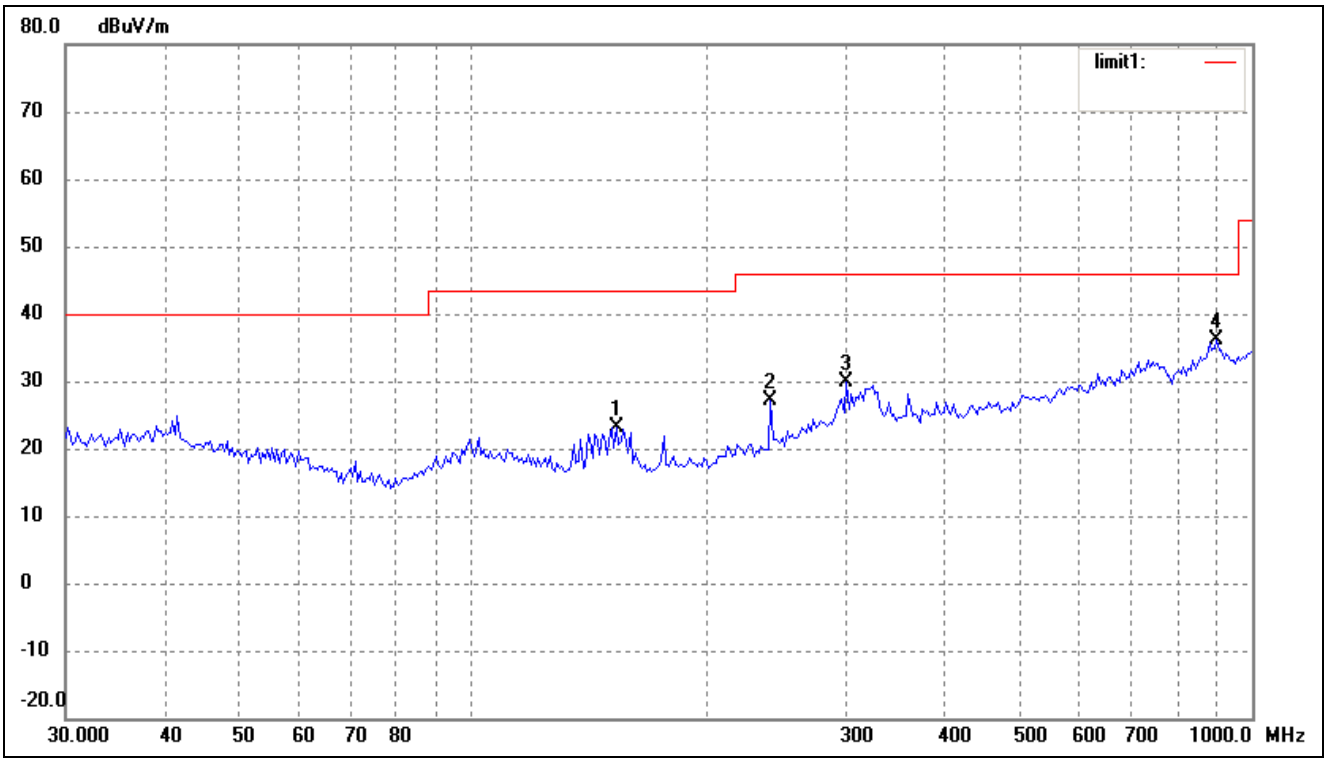
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	149.4857	21.35	3.55	24.90	43.50	-18.60	180	100	peak
2	240.8304	17.02	7.02	24.04	46.00	-21.96	180	100	peak
3	361.7139	15.37	10.69	26.06	46.00	-19.94	180	100	peak
4	734.4913	16.14	17.68	33.82	46.00	-12.18	180	100	peak

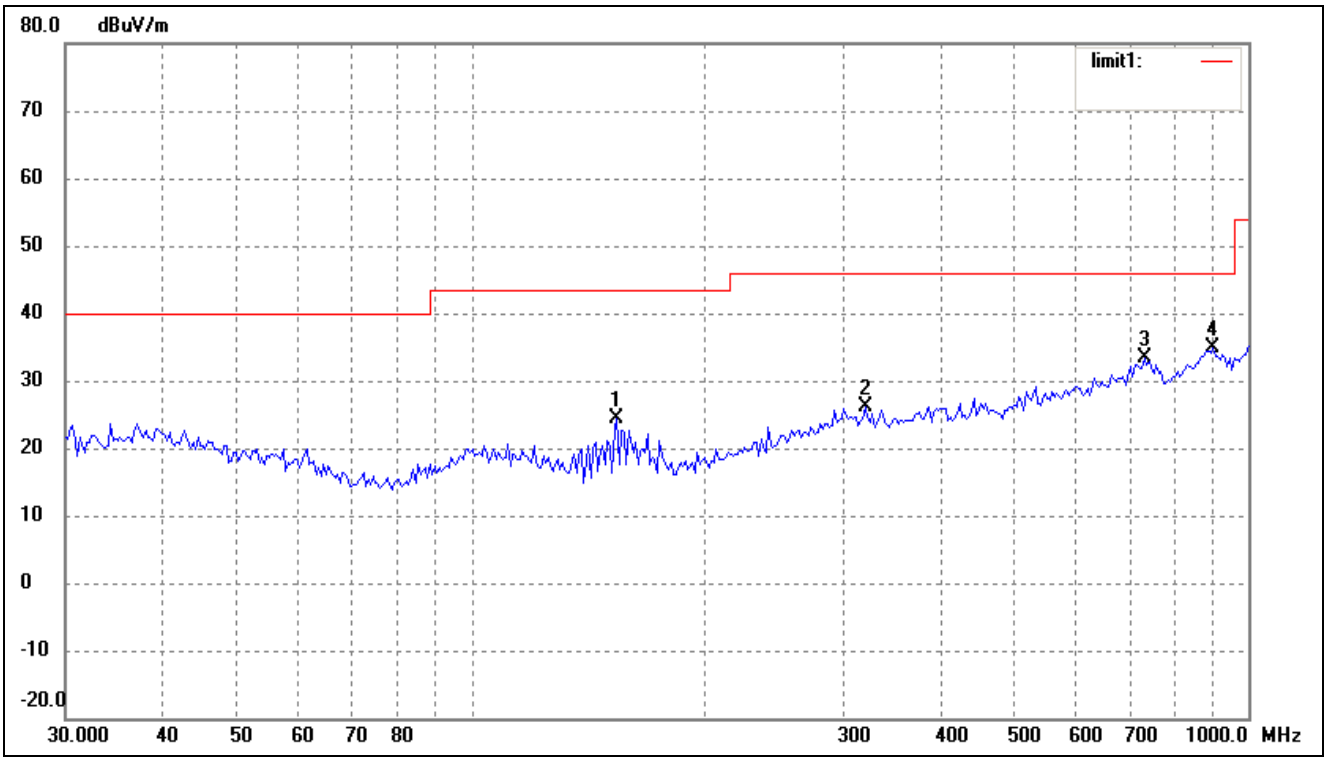
Operating Condition: *802.11g Transmitting High Channel-2472MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	152.6641	19.62	3.58	23.20	43.50	-20.30	360	100	peak
2	240.8304	20.13	7.02	27.15	46.00	-18.85	360	100	peak
3	301.4224	19.75	10.20	29.95	46.00	-16.05	360	100	peak
4	900.1474	16.77	19.38	36.15	46.00	-9.85	360	100	peak

Test Specification: *Vertical*

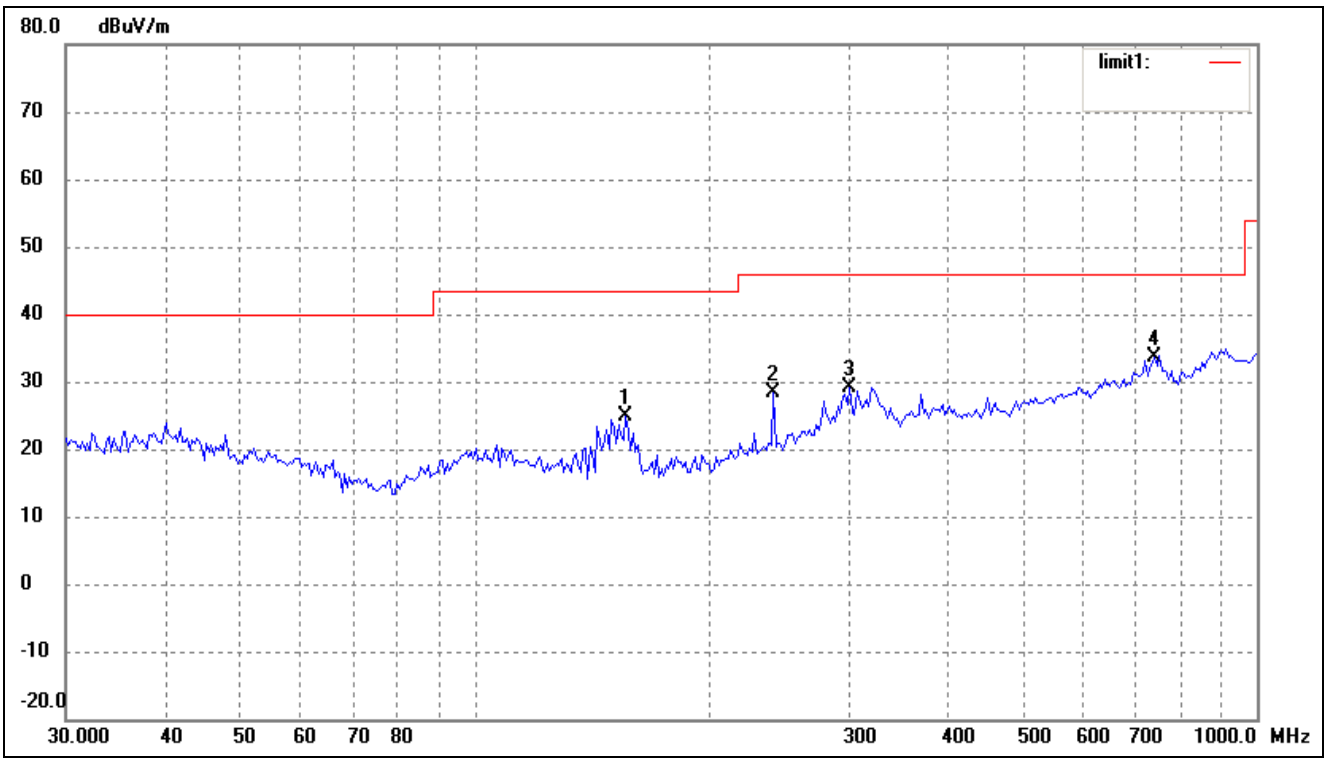


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	153.7385	20.75	3.59	24.34	43.50	-19.16	360	100	peak
2	321.0608	15.57	10.46	26.03	46.00	-19.97	360	100	peak
3	734.4913	15.73	17.68	33.41	46.00	-12.59	360	100	peak
4	900.1474	15.51	19.38	34.89	46.00	-11.11	360	100	peak

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

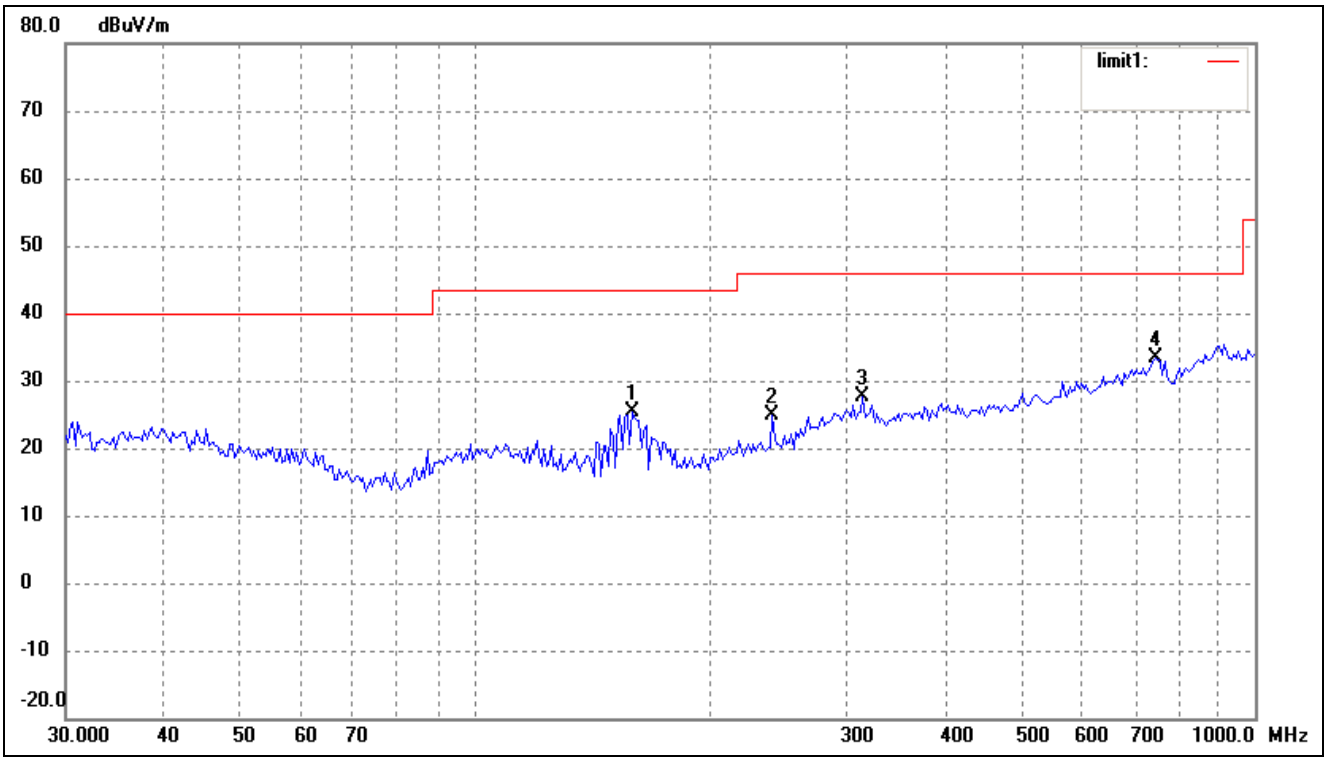
EUT: *Entertainment Tablet*
Tested Model: *W032I*
Operating Condition: *802.11n-HT20 Transmitting Low Channel-2412MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	155.9101	21.18	3.61	24.79	43.50	-18.71	260	100	peak
2	240.8304	21.35	7.02	28.37	46.00	-17.63	260	100	peak
3	301.4224	18.94	10.20	29.14	46.00	-16.86	260	100	peak
4	739.6605	15.53	18.07	33.60	46.00	-12.40	260	100	peak

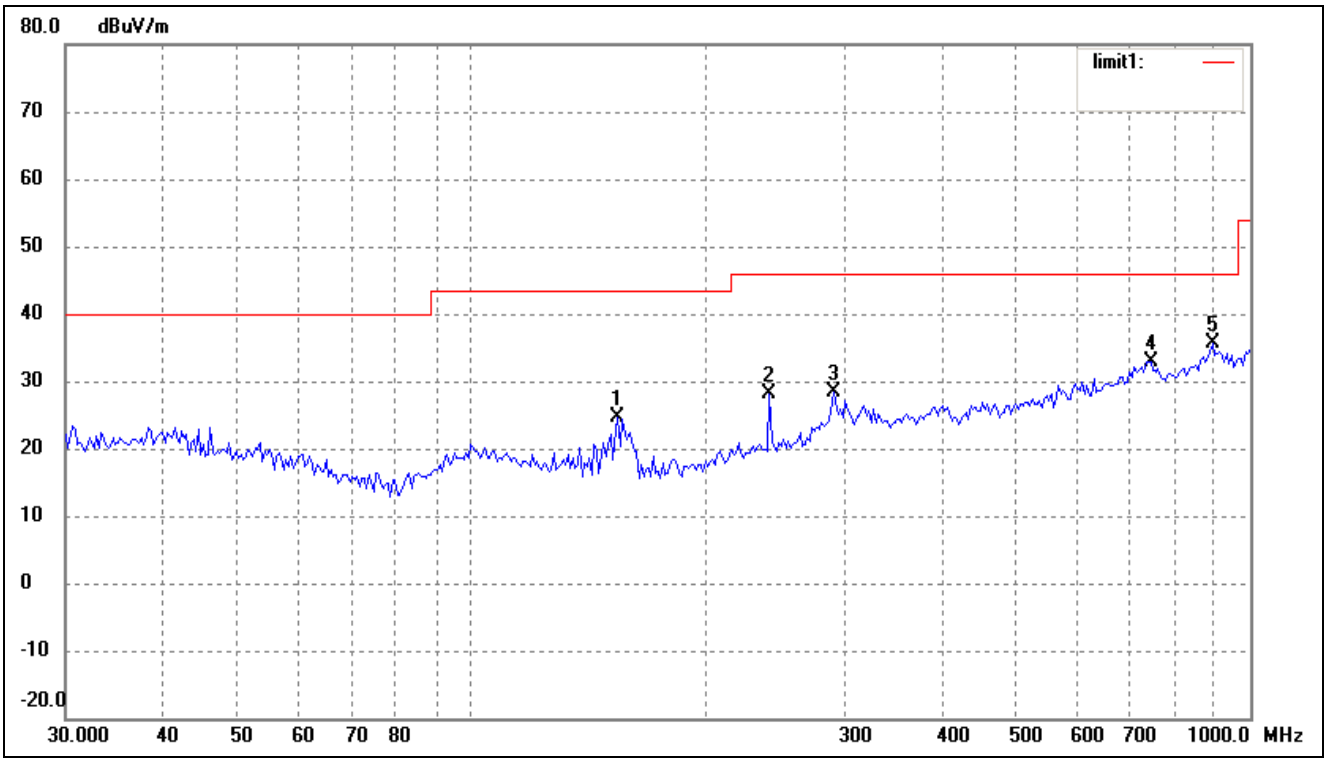
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	159.2251	21.83	3.65	25.48	43.50	-18.02	197	100	peak
2	240.8304	17.78	7.02	24.80	46.00	-21.20	197	100	peak
3	314.3765	17.19	10.40	27.59	46.00	-18.41	197	100	peak
4	744.8661	15.38	17.95	33.33	46.00	-12.67	197	100	peak

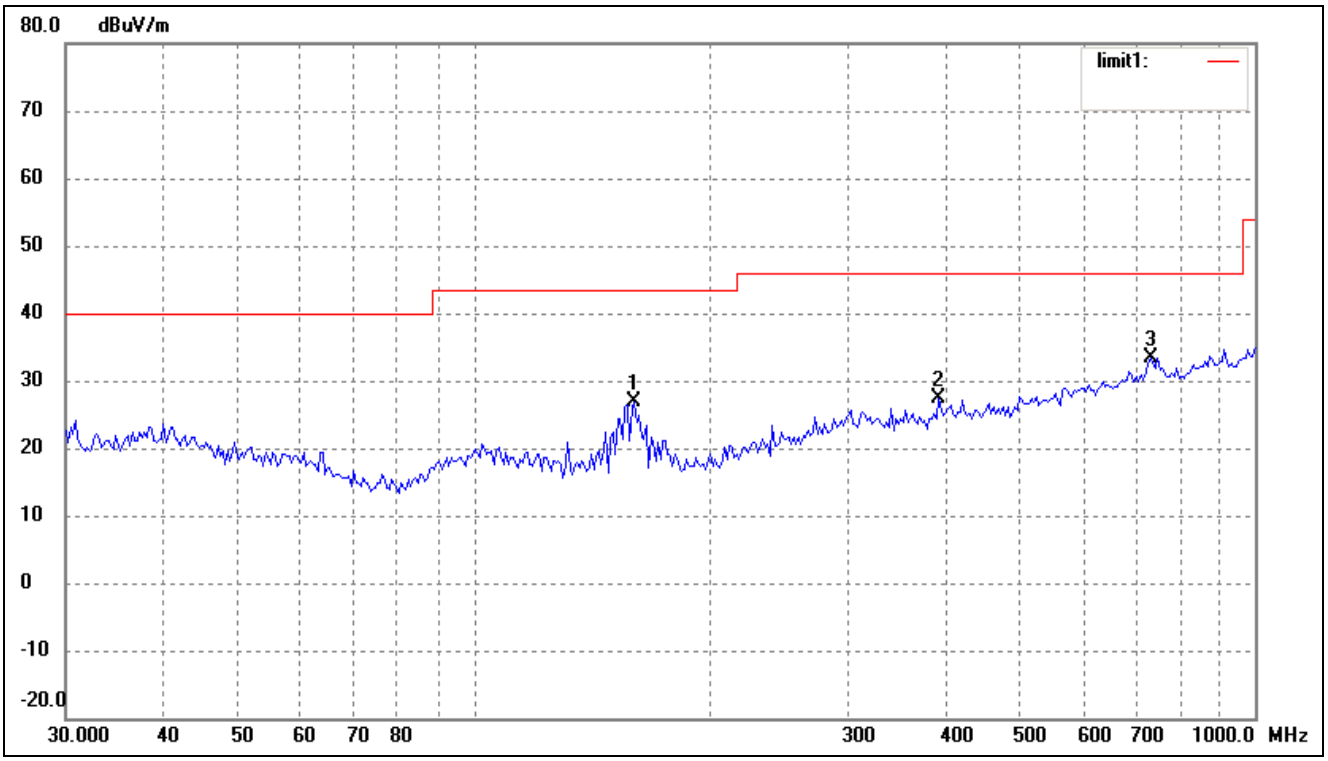
Operating Condition: *802.11n-HT20 Transmitting Middle Channel-2442MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	153.7385	20.92	3.59	24.51	43.50	-18.99	116	100	peak
2	240.8304	21.16	7.02	28.18	46.00	-17.82	116	100	peak
3	291.0360	18.60	9.77	28.37	46.00	-17.63	116	100	peak
4	744.8661	15.04	17.95	32.99	46.00	-13.01	116	100	peak

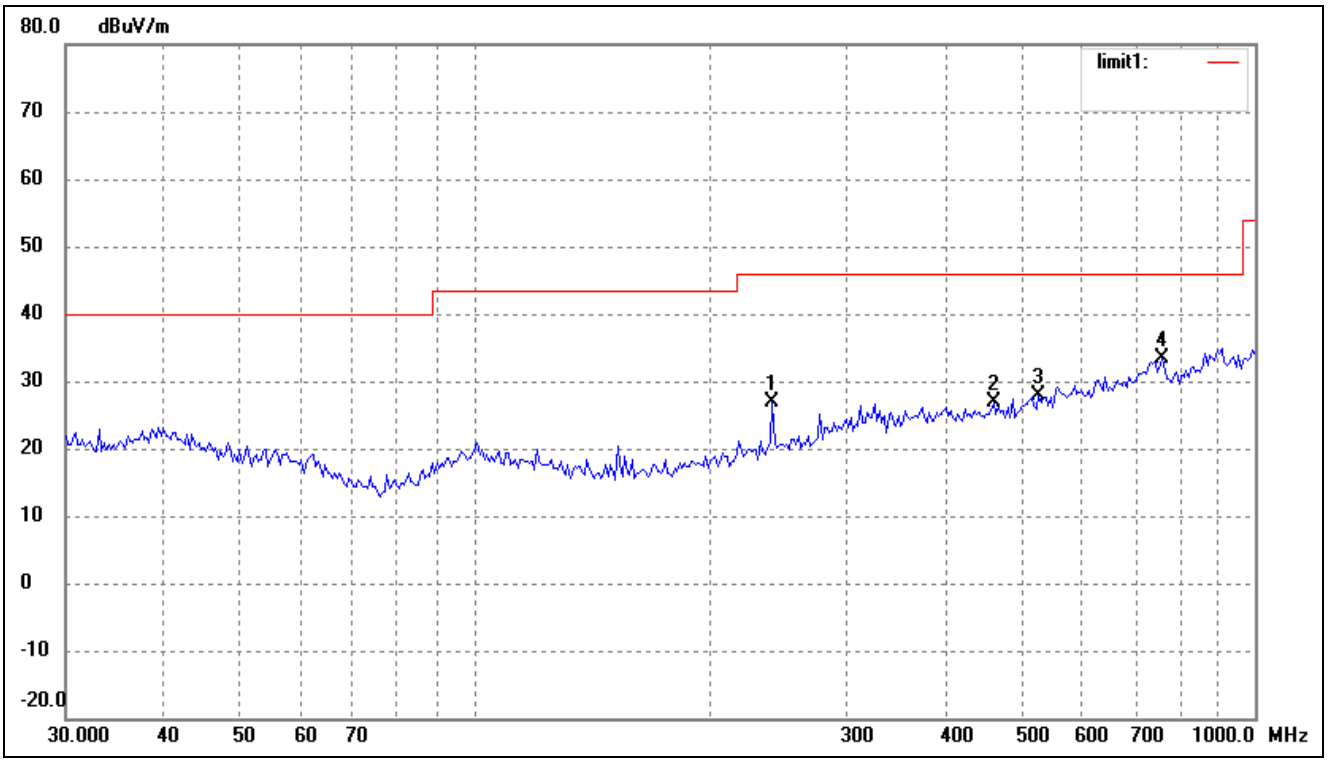
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	23.29	3.65	26.94	43.50	-16.56	110	100	peak
2	393.4724	16.22	11.24	27.46	46.00	-18.54	110	100	peak
3	734.4913	15.61	17.68	33.29	46.00	-12.71	110	100	peak

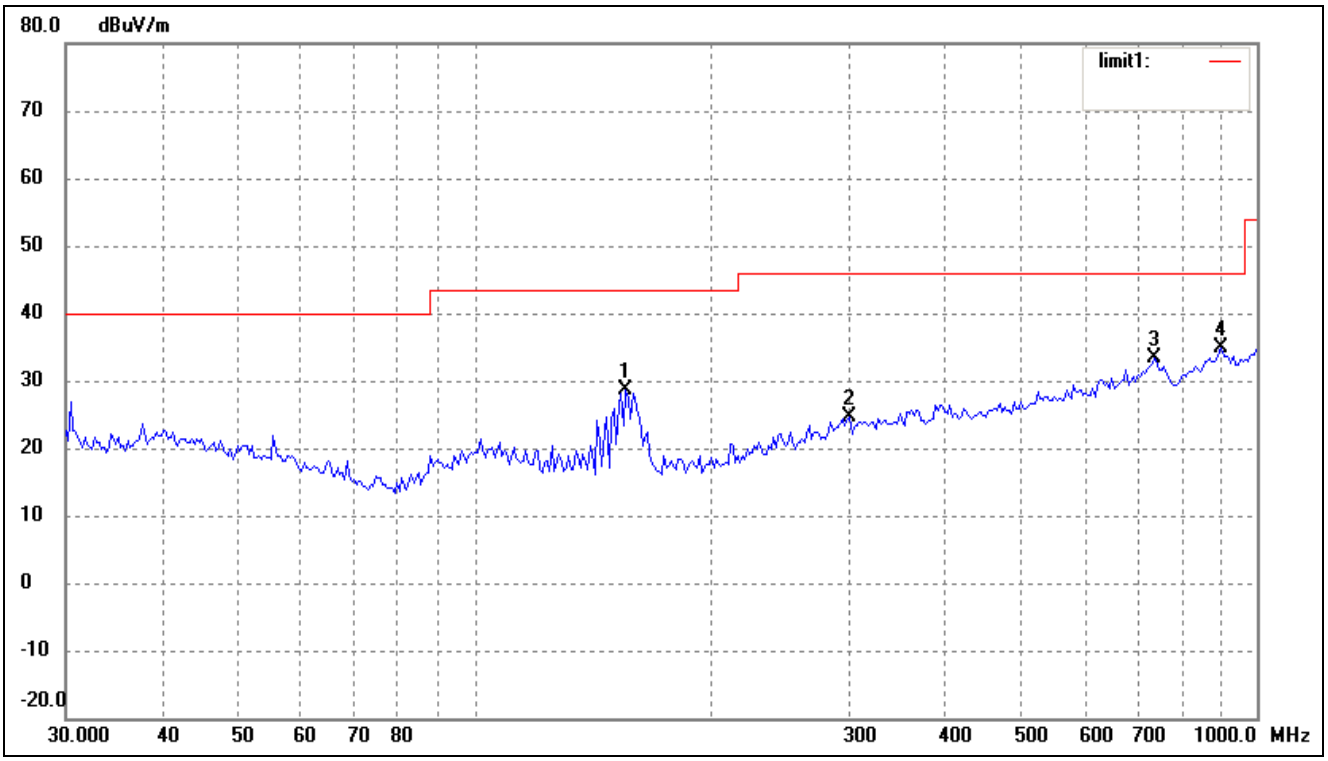
Operating Condition: *802.11n-HT20 Transmitting High Channel-2472MHz*
Comment: *DC3.7V Lithium Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	240.8304	19.83	7.02	26.85	46.00	-19.15	112	100	peak
2	462.3455	15.17	11.74	26.91	46.00	-19.09	112	100	peak
3	528.2458	14.88	12.97	27.85	46.00	-18.15	112	100	peak
4	760.7036	16.31	17.15	33.46	46.00	-12.54	112	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	155.9101	24.91	3.61	28.52	43.50	-14.98	116	100	peak
2	301.4224	14.47	10.20	24.67	46.00	-21.33	116	100	peak
3	739.6605	15.37	18.07	33.44	46.00	-12.56	116	100	peak
4	900.1474	15.53	19.38	34.91	46.00	-11.09	116	100	peak

Spurious Emissions Above 1GHz

Test Mode: 802.11b

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824.000	65.96	-3.88	62.08	74.00	-11.92	H	PK
4824.000	48.24	-3.88	44.36	54.00	-9.64	H	AV
7236.000	49.61	1.14	50.75	74.00	-23.25	H	PK
7236.000	38.46	1.14	39.60	54.00	-14.40	H	AV
4824.000	65.80	-3.88	61.92	74.00	-12.08	V	PK
4824.000	48.16	-3.88	44.28	54.00	-9.72	V	AV
7236.000	51.58	1.14	52.72	74.00	-21.28	V	PK
7236.000	38.83	1.14	39.97	54.00	-14.03	V	AV
Middle Channel-2442MHz							
4884.000	57.27	-3.75	53.52	74.00	-20.48	H	PK
4884.000	44.57	-3.75	40.82	54.00	-13.18	H	AV
7326.000	46.80	1.47	48.27	74.00	-25.73	H	PK
7326.000	35.72	1.47	37.19	54.00	-16.81	H	AV
4884.000	60.00	-3.75	56.25	74.00	-17.75	V	PK
4884.000	48.08	-3.75	44.33	54.00	-9.67	V	AV
7326.000	50.07	1.47	51.54	74.00	-22.46	V	PK
7326.000	37.35	1.47	38.82	54.00	-15.18	V	AV
High Channel-2472MHz							
4944.000	48.01	-3.59	44.42	74.00	-29.58	H	PK
4944.000	35.63	-3.59	32.04	54.00	-21.96	H	AV
7416.000	44.87	1.79	46.66	74.00	-27.34	H	PK
7416.000	33.83	1.79	35.62	54.00	-18.37	H	AV
4944.000	49.84	-3.59	46.25	74.00	-27.75	V	PK
4944.000	35.32	-3.59	31.73	54.00	-22.27	V	AV
7416.000	45.25	1.79	47.04	74.00	-26.96	V	PK
7416.000	33.84	1.79	35.63	54.00	-18.37	V	AV

Test Mode: 802.11g

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4821.757	52.90	-3.88	49.02	74.00	-24.98	H	PK
4821.757	39.21	-3.88	35.33	54.00	-18.67	H	AV
7236.000	46.55	1.14	47.69	74.00	-26.31	H	PK
7245.810	34.70	1.14	35.84	54.00	-18.16	H	AV
4821.757	63.46	-3.88	59.58	74.00	-14.42	V	PK
4821.757	45.14	-3.88	41.26	54.00	-12.74	V	AV
7245.810	49.50	1.14	50.64	74.00	-23.36	V	PK
7245.810	36.81	1.14	37.95	54.00	-16.05	V	AV
Middle Channel-2442MHz							
4884.000	50.24	-3.75	46.49	74.00	-27.51	H	PK
4884.000	37.76	-3.75	34.01	54.00	-19.99	H	AV
7326.000	46.56	1.47	48.03	74.00	-25.97	H	PK
7326.000	35.26	1.47	36.73	54.00	-17.27	H	AV
4884.000	61.97	-3.75	58.22	74.00	-15.78	V	PK
4884.000	45.46	-3.75	41.71	54.00	-12.29	V	AV
7326.000	48.23	1.47	49.70	74.00	-24.30	V	PK
7326.000	35.81	1.47	37.28	54.00	-16.72	V	AV
High Channel-2472MHz							
4944.000	38.81	-3.59	35.22	54.00	-18.78	H	PK
4944.000	54.26	-3.59	50.67	74.00	-23.33	H	AV
7416.000	46.94	1.79	48.73	74.00	-25.27	H	PK
7416.000	35.46	1.79	37.25	54.00	-16.75	H	AV
4944.000	52.31	-3.59	48.72	74.00	-25.28	V	PK
4944.000	37.29	-3.59	33.70	54.00	-20.30	V	AV
7416.000	47.16	1.79	48.95	74.00	-25.05	V	PK
7416.000	35.60	1.79	37.39	54.00	-16.61	V	AV

Test Mode: 802.11n-HT20

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824.000	57.33	-3.88	53.45	74.00	-20.55	H	PK
4824.000	46.00	-3.88	42.12	54.00	-11.88	H	AV
7236.000	46.08	1.14	47.22	74.00	-26.78	H	PK
7236.000	40.55	1.14	41.69	54.00	-12.31	H	AV
4824.000	58.74	-3.88	54.86	74.00	-19.14	V	PK
4824.000	45.15	-3.88	41.27	54.00	-12.73	V	AV
7236.000	47.27	1.14	48.41	74.00	-25.59	V	PK
7236.000	42.98	1.14	44.12	54.00	-9.88	V	AV
Middle Channel-2442MHz							
4884.000	57.27	-3.75	53.52	74.00	-20.48	H	PK
4884.000	44.57	-3.75	40.82	54.00	-13.18	H	AV
7326.000	46.80	1.47	48.27	74.00	-25.73	H	PK
7326.000	40.48	1.47	41.95	54.00	-12.05	H	AV
4884.000	60.00	-3.75	56.25	74.00	-17.75	V	PK
4884.000	48.08	-3.75	44.33	54.00	-9.67	V	AV
7326.000	50.07	1.47	51.54	74.00	-22.46	V	PK
7326.000	40.89	1.47	42.36	54.00	-11.64	V	AV
High Channel-2472MHz							
4944.000	53.59	-3.59	50.00	74.00	-24.00	H	PK
4944.000	44.75	-3.59	41.16	54.00	-12.84	H	AV
7416.000	45.50	1.79	47.29	74.00	-26.71	H	PK
7416.000	40.57	1.79	42.36	54.00	-11.64	H	AV
4944.000	53.88	-3.59	50.29	74.00	-23.71	V	PK
4944.000	44.59	-3.59	41.00	54.00	-13.00	V	AV
7416.000	48.20	1.79	49.99	74.00	-24.01	V	PK
7416.000	39.46	1.79	41.25	54.00	-12.75	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 5th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
The measurements greater than 20dB below the limit from 9kHz to 30MHz and the data is not report.

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 Equipment List and Details

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

9.3 Test Procedure

According to the KDB 558074 D01 v03r01, the band-edge radiated test method as follows:

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

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

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

1. Set start frequency to DTS channel edge frequency.
2. Set stop frequency so as to encompass the spectrum to be examined.
3. Set RBW = 100 kHz.
4. Set VBW ≥ 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.

9.4 Environmental Conditions

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

9.5 Summary of Test Results/Plots

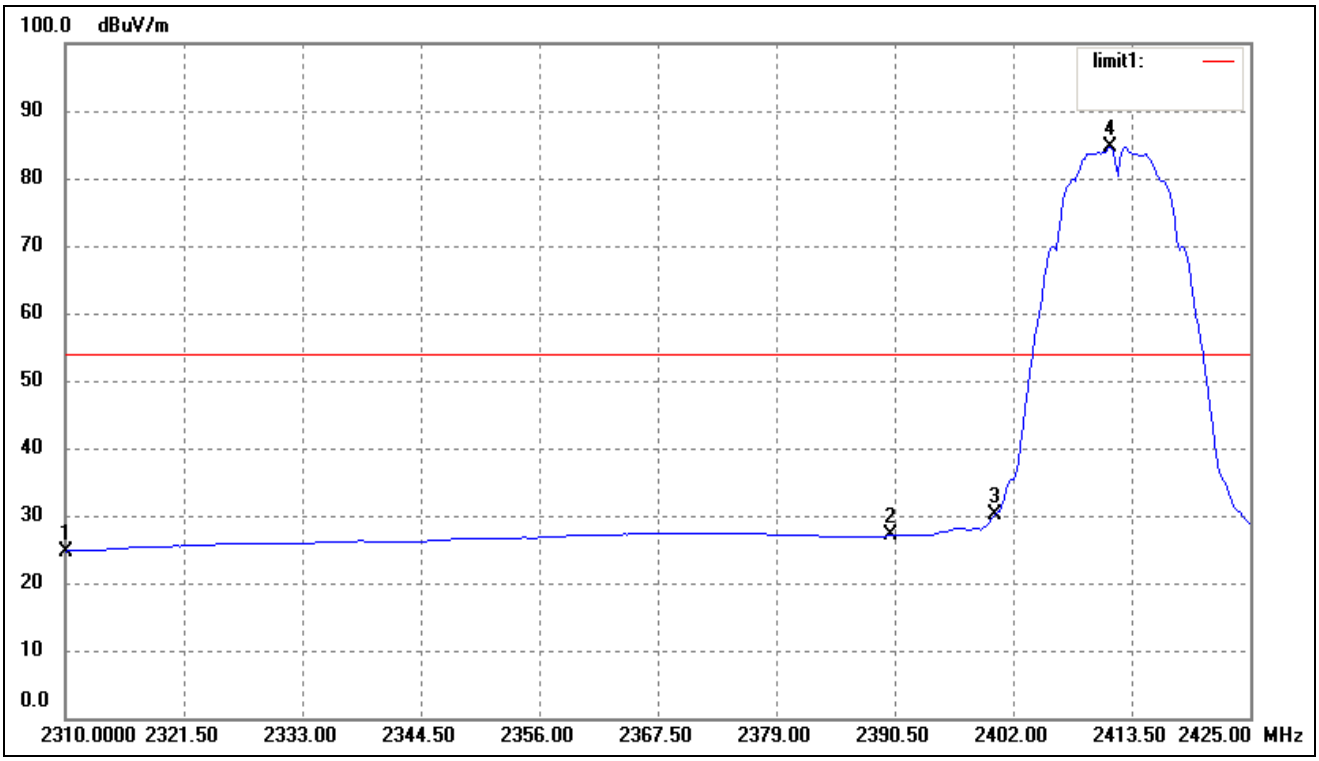
Test Mode	Test Frequency MHz	Limit dBuV / dBc	Result
802.11b	2310.000	<54 dBuV	Pass
	2390.000	<54 dBuV	Pass
	2400.000	> 20dBc	Pass
	2483.500	<54 dBuV	Pass
	2500.000	<54 dBuV	Pass
802.11g	2310.000	<54 dBuV	Pass
	2390.000	<54 dBuV	Pass
	2400.000	> 20dBc	Pass
	2483.500	<54 dBuV	Pass
	2500.000	<54 dBuV	Pass
802.11n-HT20	2310.000	<54 dBuV	Pass
	2390.000	<54 dBuV	Pass
	2400.000	> 20dBc	Pass
	2483.500	<54 dBuV	Pass
	2500.000	<54 dBuV	Pass

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

Please refer to the test plots as below.

802.11b-Lowest Bandedge

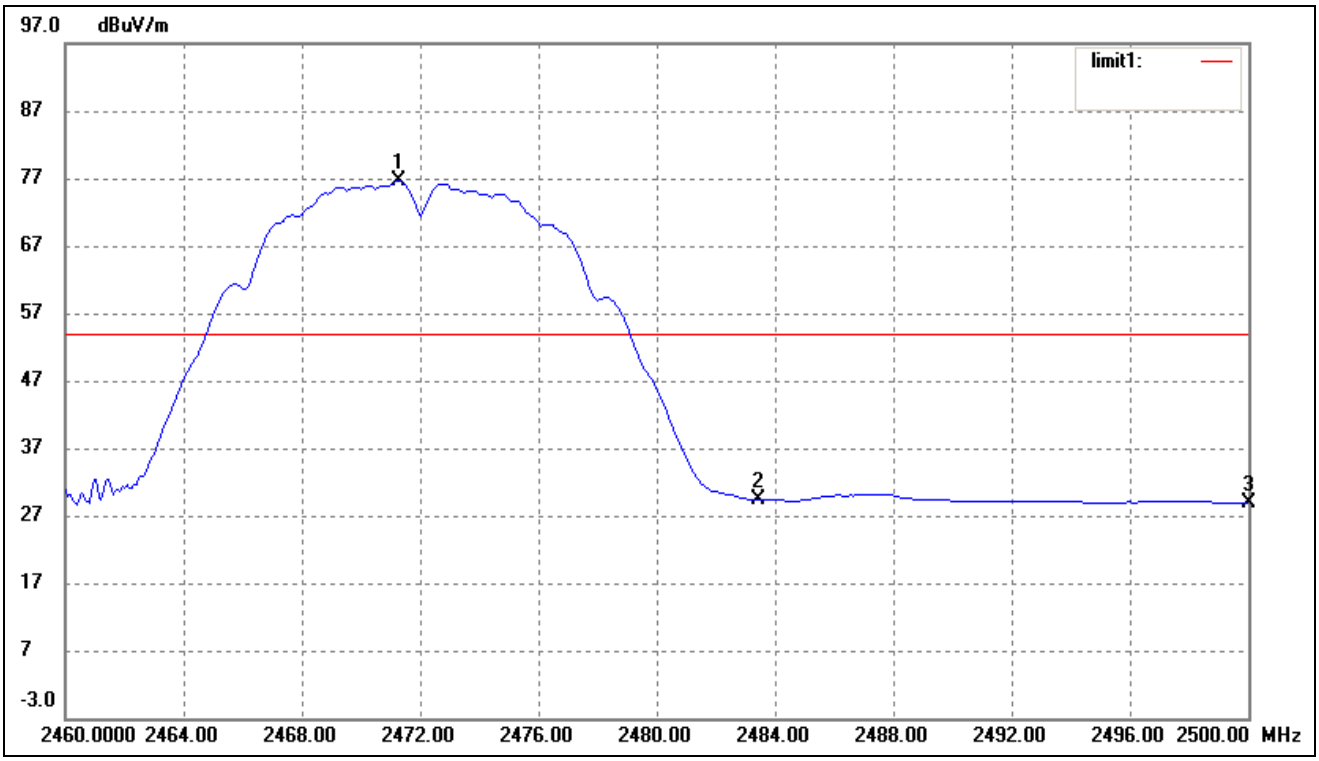
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	28.44	-3.71	24.73	54.00	-29.27	Average Detector
	2310.000	41.89	-3.71	38.18	74.00	-35.82	Peak Detector
2	2390.000	30.61	-3.54	27.07	54.00	-26.93	Average Detector
	2390.000	43.83	-3.54	40.29	74.00	-33.71	Peak Detector
3	2400.000	33.53	-3.51	30.02	Delta =54.57 dBc		Average Detector
4	2411.430	88.07	-3.48	84.59			Average Detector

802.11b-Highest Bandedge

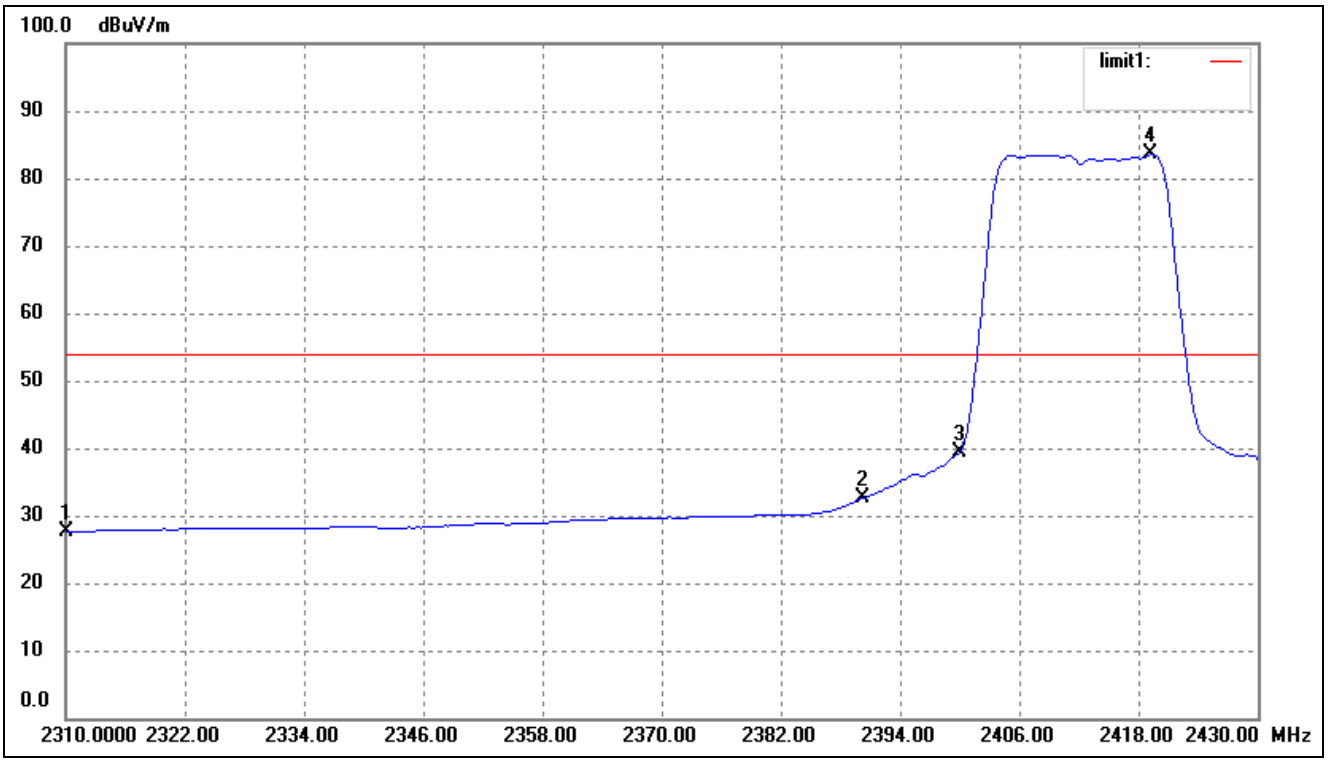
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2471.280	79.86	-3.35	76.51	/	/	Average Detector
	2471.280	91.61	-3.35	88.26	/	/	Peak Detector
2	2483.500	Delta =50.49 dBc		26.02	54.00	-27.98	Average Detector
	2483.500			37.77	74.00	-36.23	Peak Detector
3	2500.000	32.19	-3.28	28.91	54.00	-25.09	Average Detector
	2500.000	44.68	-3.28	41.40	74.00	-32.60	Peak Detector

802.11g-Lowest Bandedge

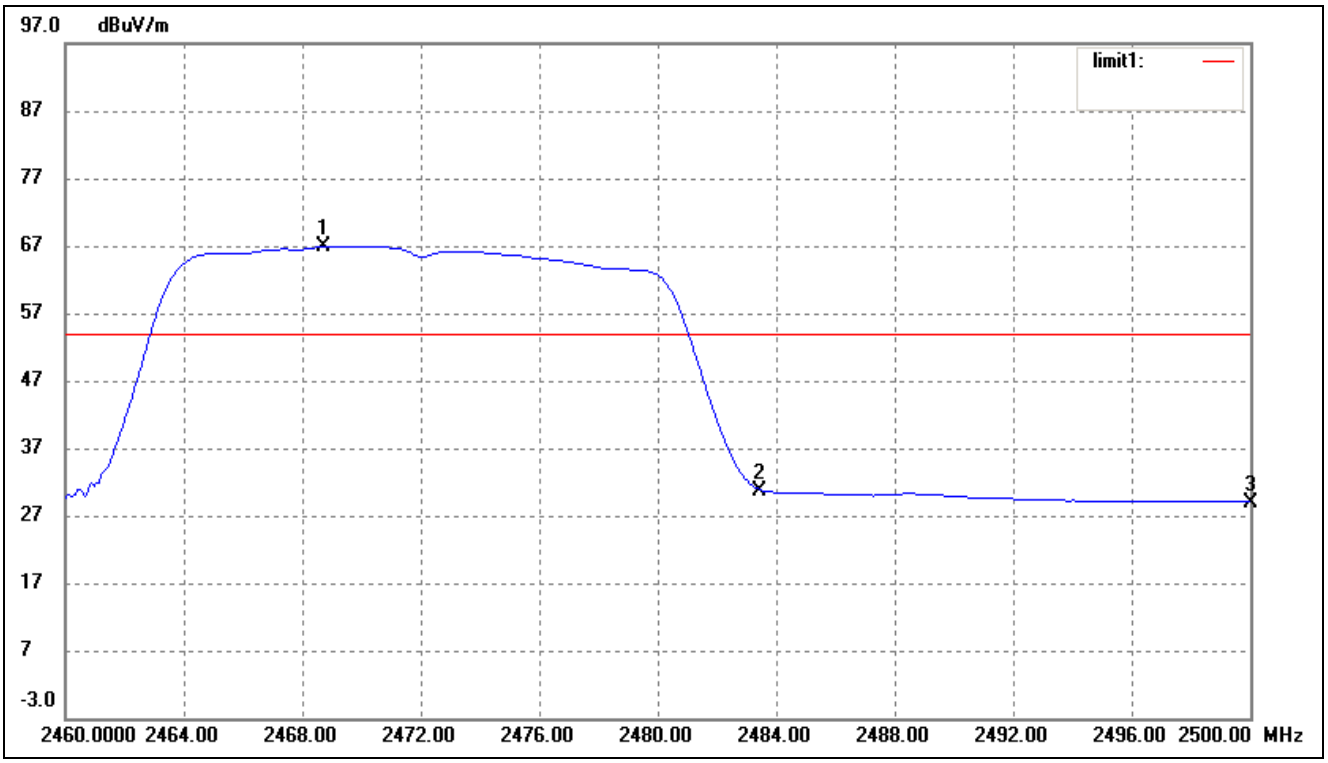
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.26	-3.71	27.55	54.00	-26.45	Average Detector
	2310.000	44.37	-3.71	40.66	74.00	-33.34	Peak Detector
2	2390.000	36.11	-3.54	32.57	54.00	-21.43	Average Detector
	2390.000	52.47	-3.54	48.93	74.00	-25.07	Peak Detector
3	2400.000	42.95	-3.51	39.44	Delta =44.0 dBc		Average Detector
4	2419.200	86.99	-3.46	83.53			Average Detector

802.11g-Highest Bandedge

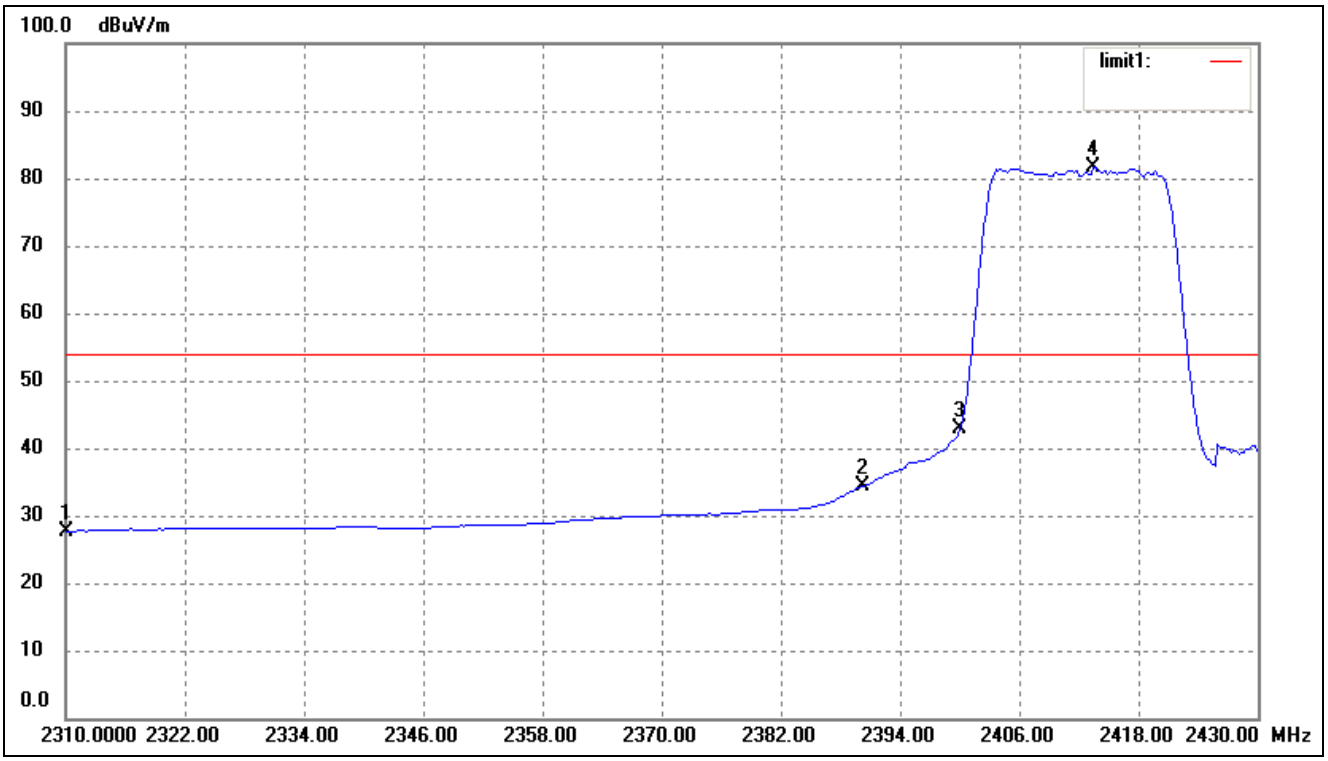
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
2	2468.720	70.18	-3.35	66.83	/	/	Average Detector
	2468.720	83.91	-3.35	80.56	/	/	Peak Detector
1	2483.500	Delta = 40.58 dBc		26.25	54.00	-27.75	Average Detector
	2483.500			39.98	74.00	-34.02	Peak Detector
3	2500.000	32.28	-3.28	29.00	54.00	-25.00	Average Detector
	2500.000	48.54	-3.28	45.26	74.00	-28.74	Peak Detector

802.11n-HT20-Lowest Bandedge

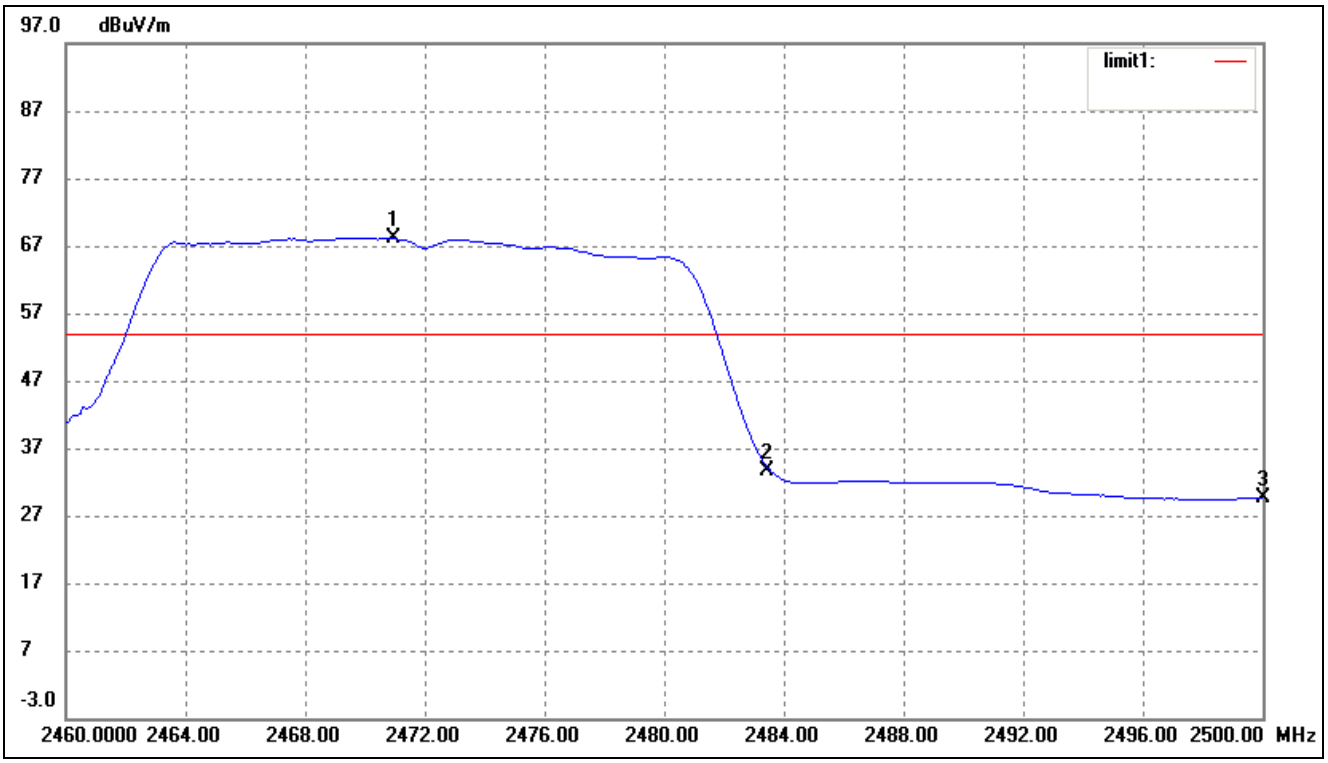
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.34	-3.71	27.63	54.00	-26.37	Average Detector
	2310.000	47.97	-3.71	44.26	74.00	-29.74	Peak Detector
2	2390.000	37.91	-3.54	34.37	54.00	-19.63	Average Detector
	2390.000	54.	-3.54	51.26	74.00	-22.74	Peak Detector
3	2400.000	46.29	-3.51	42.78	Delta =38.81 dBc		Average Detector
4	2413.440	85.07	-3.48	81.59			Average Detector

802.11n-HT20-Highest Bandedge

Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2470.960	71.47	-3.35	68.12	/	/	Average Detector
	2470.960	84.94	-3.35	81.59	/	/	Peak Detector
2	2483.500	Delta = 40.05 dBc		28.07	54.00	-25.93	Average Detector
	2483.500			41.54	74.00	-32.46	Peak Detector
3	2500.000	32.84	-3.28	29.56	54.00	-24.44	Average Detector
	2500.000	48.54	-3.28	45.26	74.00	-28.74	Peak Detector

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.

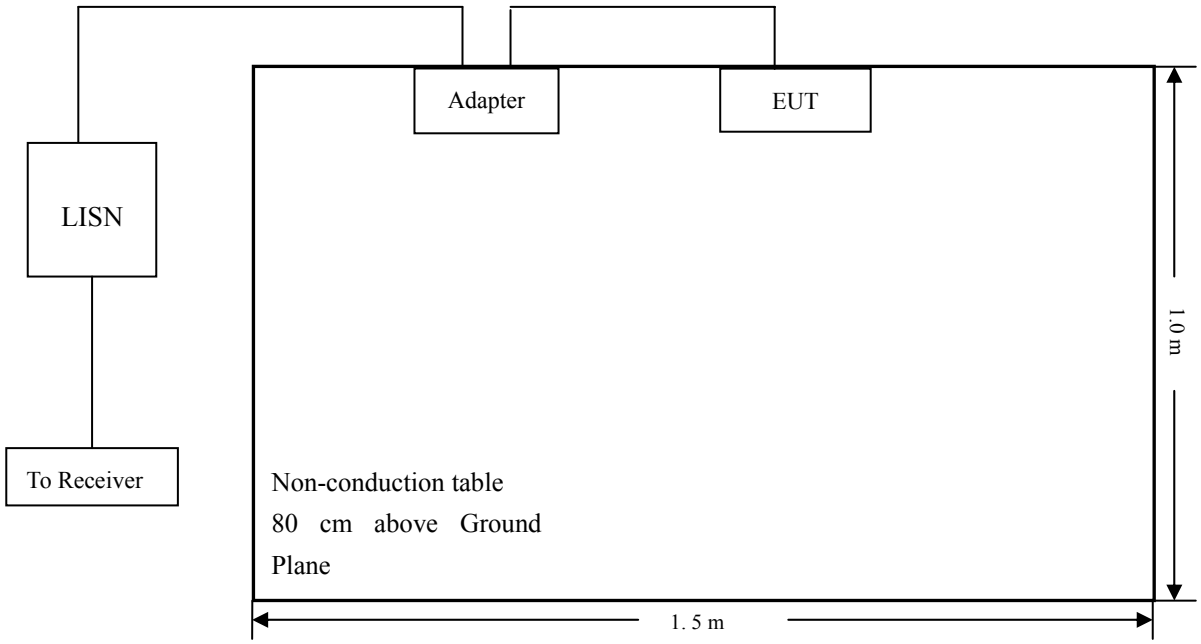
10.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

10.3 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.

10.4 Basic Test Setup Block Diagram



10.5 Environmental Conditions

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

10.6 Test Receiver Setup

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

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

10.7 Summary of Test Results/Plots

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

-13.81 dB at 23.978 MHz in the **Line** mode**, Ave** detector, **0.15-30MHz**

10.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

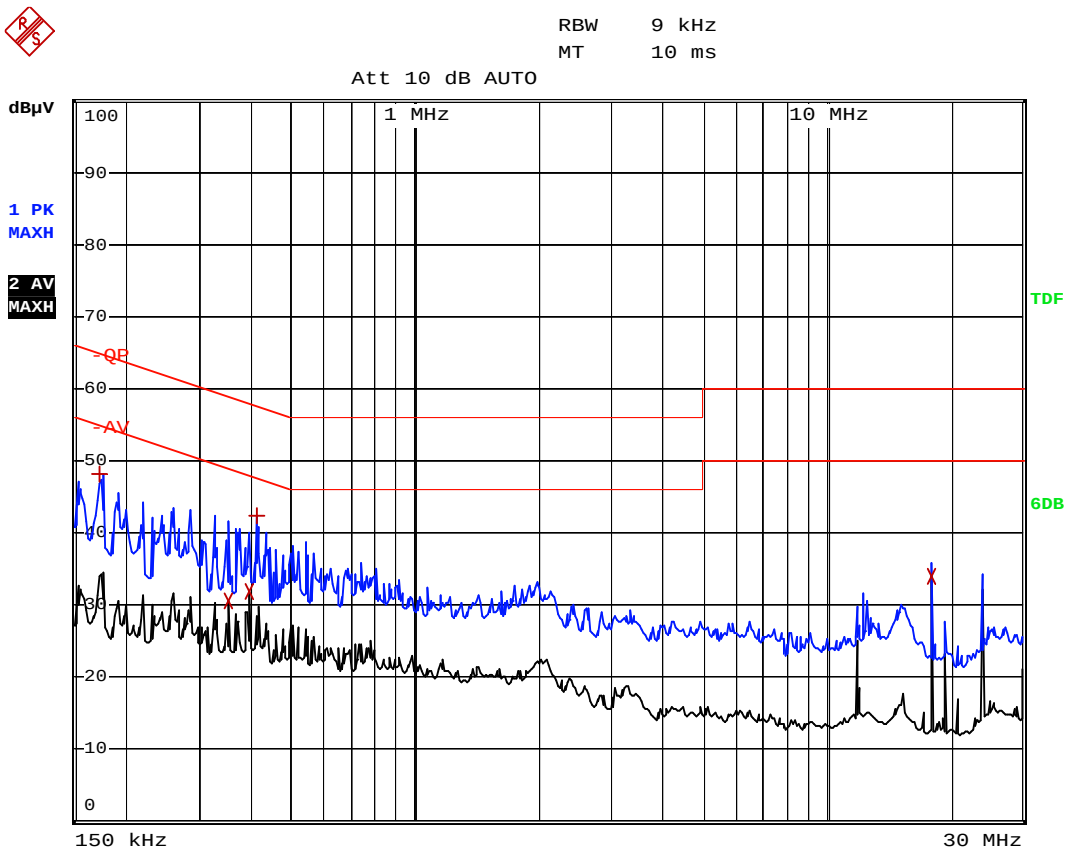
EUT: *Entertainment Tablet*

Tested Model: *W032I*

Operating Condition: *Charging &BT Transmitting*

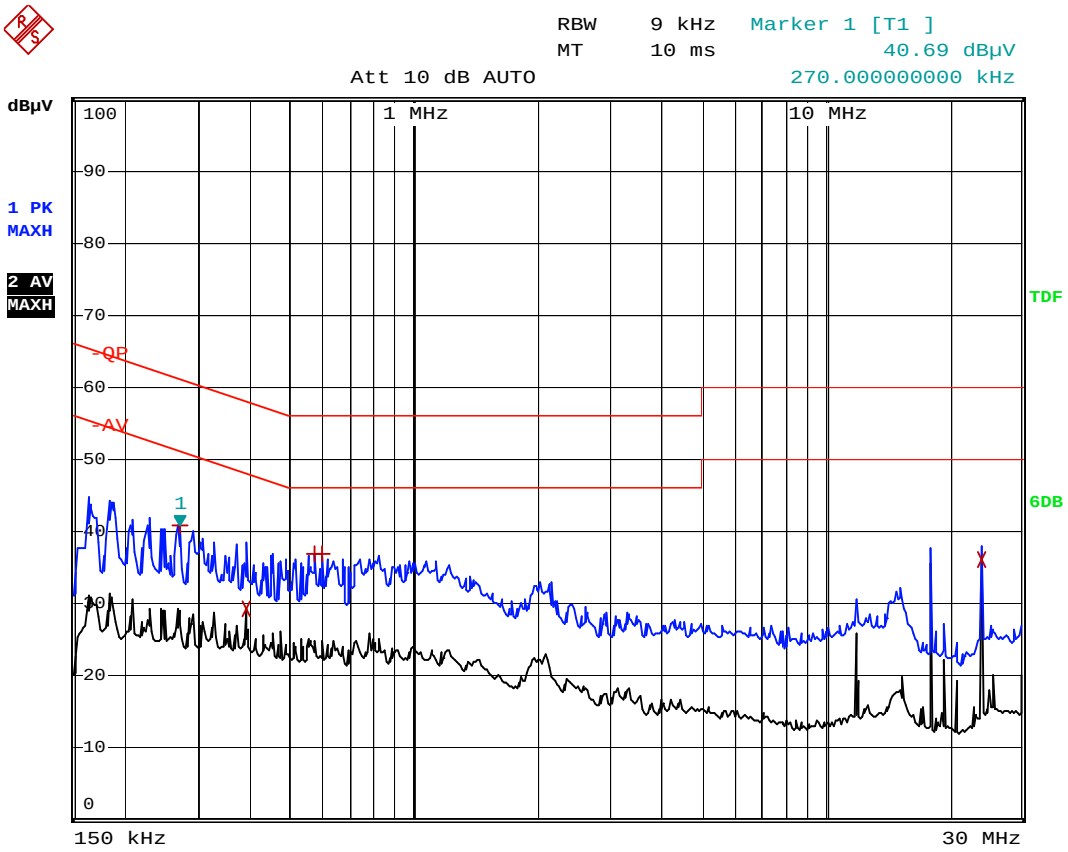
Comment: *Input AC 120V/60Hz, Output DC 5V*

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	174 kHz	48.03	-16.73
2 Average	350 kHz	30.49	-18.47
2 Average	394 kHz	31.94	-16.03
1 Max Peak	410 kHz	42.39	-15.25
2 Average	17.986 MHz	34.06	-15.93

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)

Trace1:	-QP			
Trace2:	-AV			
Trace3:	---			
TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	270 kHz	40.68	-20.43
2	Average	390 kHz	29.20	-18.85
1	Max Peak	574 kHz	36.84	-19.15
1	Max Peak	594 kHz	36.90	-19.09
2	Average	23.978 MHz	36.18	-13.81

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