

FCC Part 15C Measurement and Test Report

For

Abocom Systems Inc

No.77, Yu-Yih Rd, Chu-Nan, Miao-Lih Count 35059, Taiwan R.O.C

FCC ID: MQ4A08S

FCC Rule(s): FCC Part 15C

Product Description: Android TV Dongle

Tested Model: A08S

Report No.: STR14048157I-1

Tested Date: 2014-04-10 to 2014-05-14

Issued Date: 2014-05-14

Tested By: Lebron Wang/ Engineer

Reviewed By: Lahm Peng / EMC Manager

Approved & Authorized By: Jandy so / PSQ Manager

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Abocom Systems Inc
Address of applicant: No.77, Yu-Yih Rd, Chu-Nan, Miao-Lih Count 35059,
Taiwan R.O.C.
Manufacturer: Abocom Systems Inc
Address of manufacturer: No.77, Yu-Yih Rd, Chu-Nan, Miao-Lih Count 35059,
Taiwan R.O.C.

General Description of EUT	
Product Name:	Android TV Dongle
Trade Name:	/
Model No.:	A08S
Adding Model(s):	/
Rated Voltage:	Adapter: DC 5V
Power Adapter Model:	STC-B0502000-Z Input :100-240V Output: DC 5V /2A
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2472MHz for 802.11b/g/n-HT20 2422-2462MHz for 802.11n-HT40
RF Output Power:	7.76 dBm(Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	13 for 802.11b/g/n-HT20 9 for 802.11n-HT40
Channel Separation:	5MHz
Type of Antenna:	Integral
Antenna Gain:	2dBi
Lowest Internal Frequency	40MHz

1.2 Test Standards

The following report is prepared on behalf of the Abocom Systems 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 C63.4-2003, 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 V03 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, 2442MHz, 2472MHz
TM2	802.11g	2412MHz, 2442MHz, 2472MHz
TM3	802.11n-HT20	2412MHz, 2442MHz, 2472MHz
TM4	802.11n-HT40	2422MHz, 2442MHz, 2462MHz

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

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
HDMI Cable	0.8	Unshielded	Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Display	DELL	IN1920C	Q40G18N-700-1B ZA
Notebook	Lenovo	E23	EB12648265

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
§ 15.207(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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2014-05-07	2015-05-06
Attenuator	ATTEN	ATS100-4-20	/	2014-05-07	2015-05-06

5.3 Test Procedure

According to the KDB 558074 D01 V03, the test method of power spectral density as below:

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set analyzer center frequency to DTS channel center frequency.
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW ≥ 3 kHz.
5. Set the VBW $\geq 3 \times$ RBW.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.4 Environmental Conditions

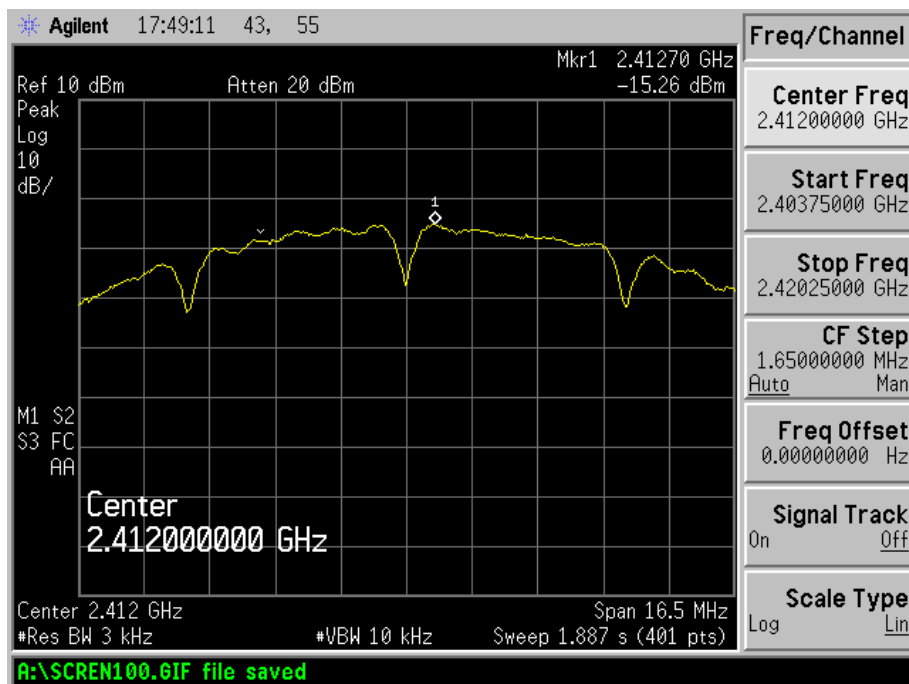
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

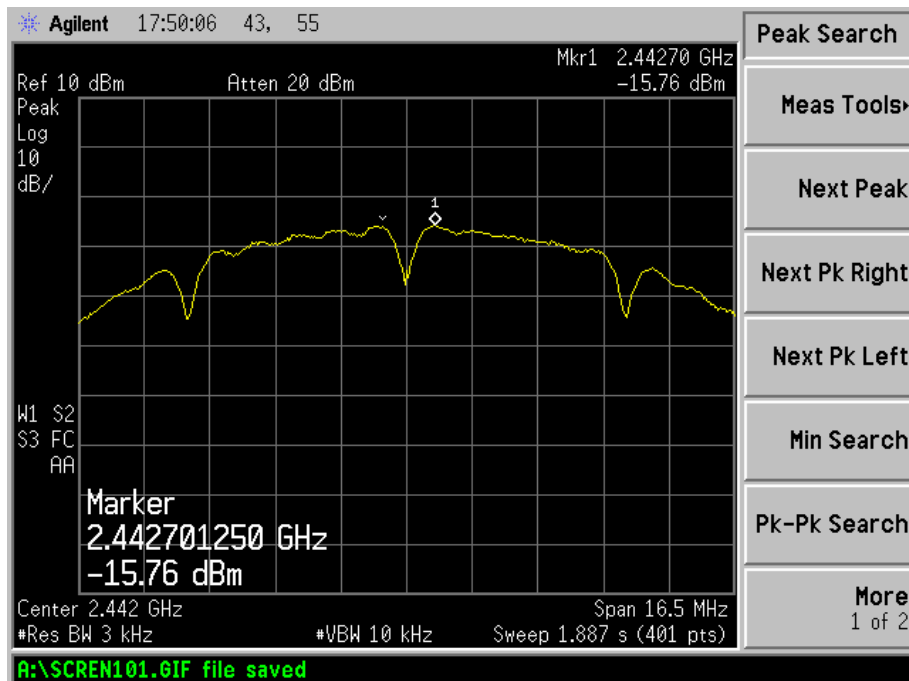
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-15.26	8
	2442	-15.76	8
	2472	-16.29	8
802.11g	2412	-17.25	8
	2442	-16.73	8
	2472	-17.90	8
802.11n HT20	2412	-17.53	8
	2442	-15.66	8
	2472	-16.83	8
802.11n HT40	2422	-19.11	8
	2442	-16.71	8
	2462	-18.95	8

Please refer to the following test plots:

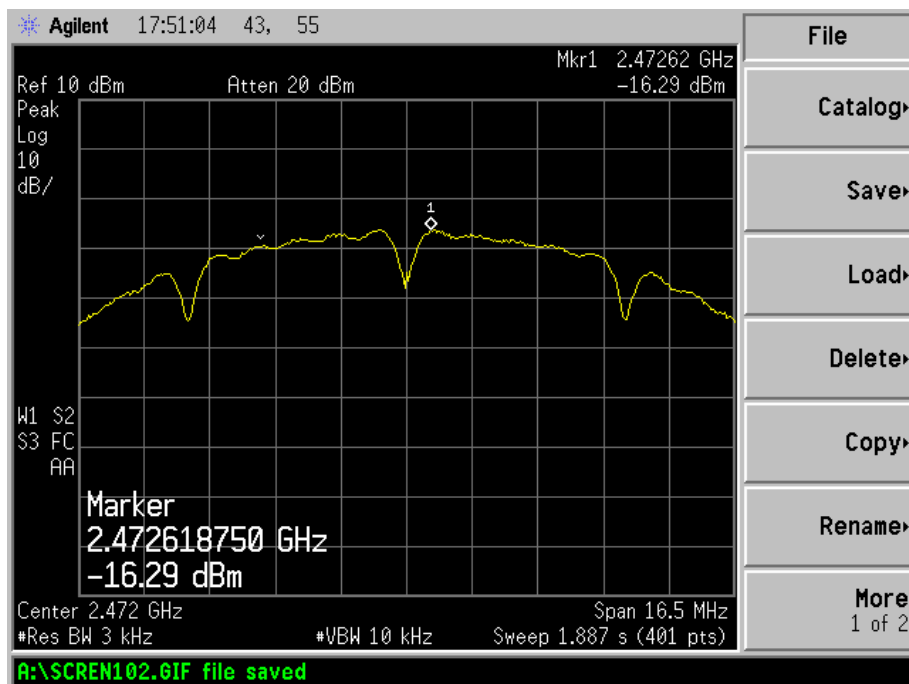
802.11b-Low Channel



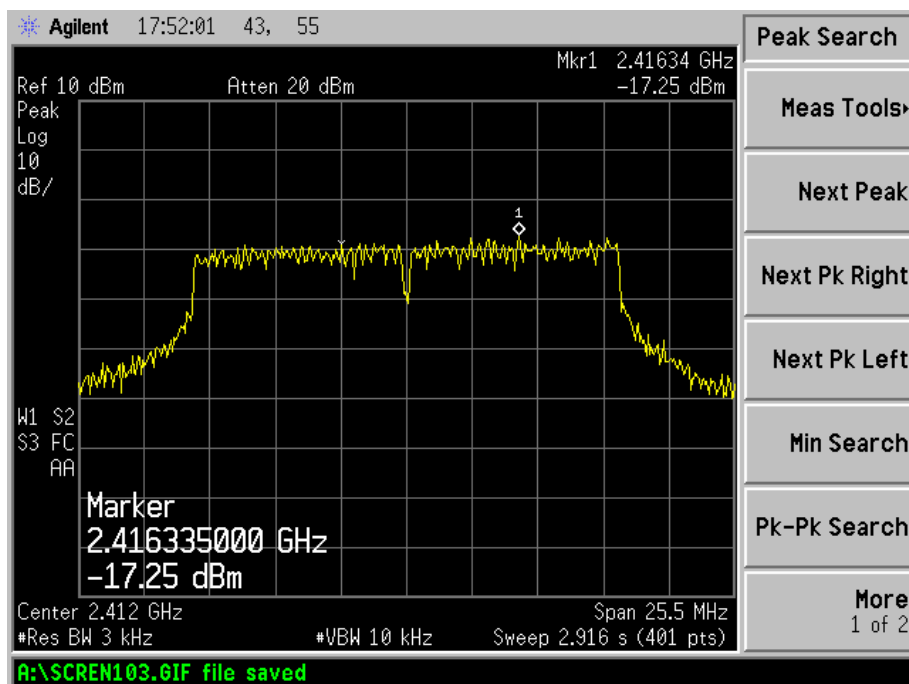
802.11b-Middle Channel



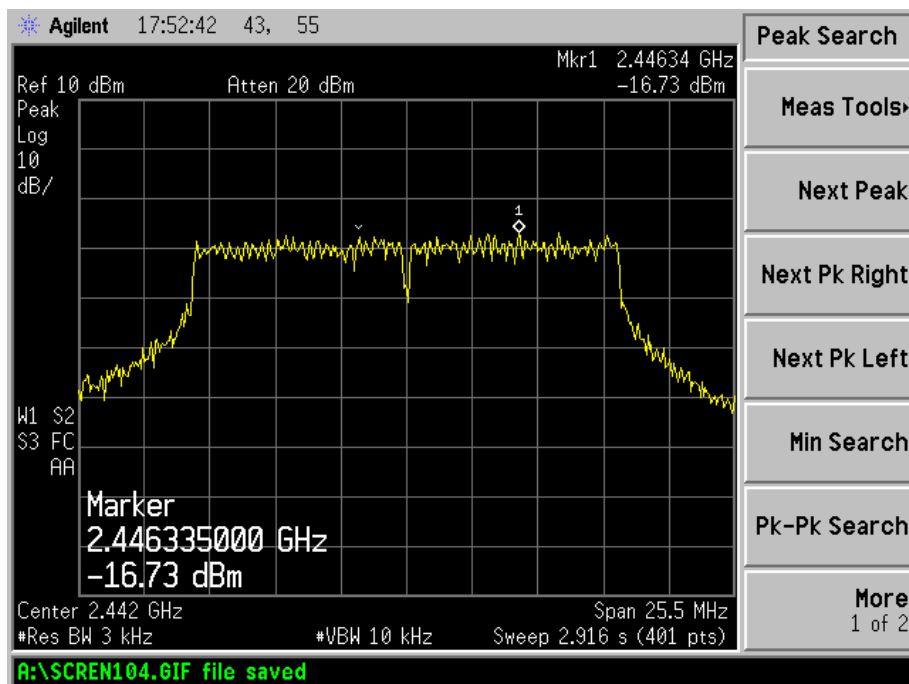
802.11b-High Channel



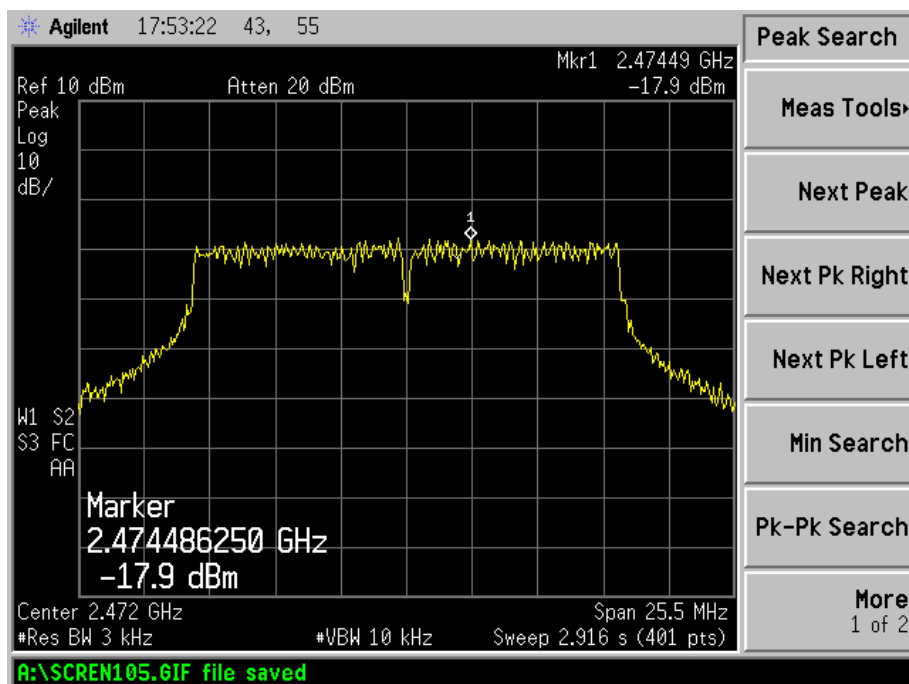
802.11g-Low Channel



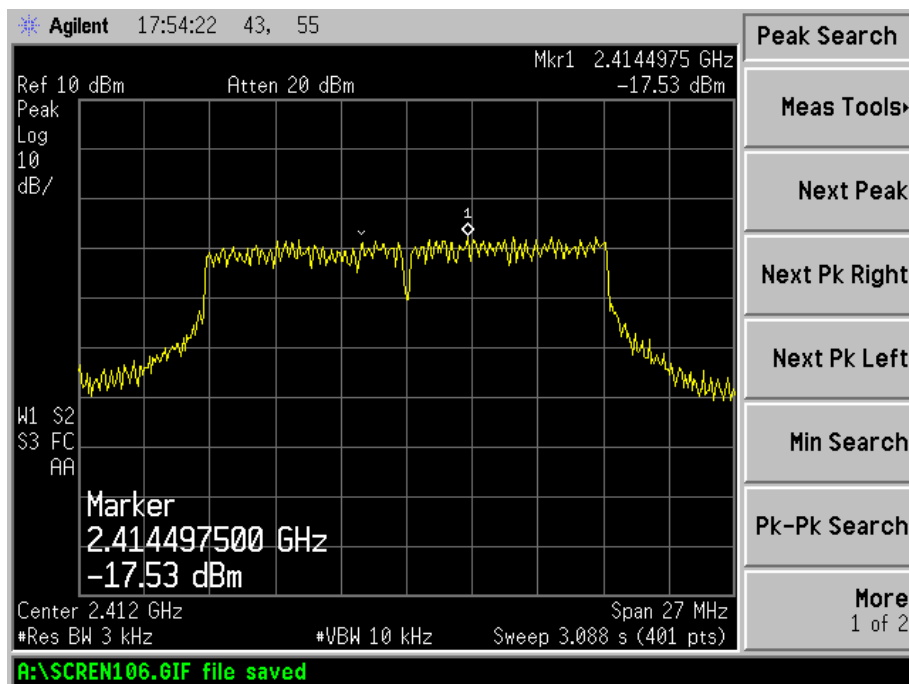
802.11g-Middle Channel



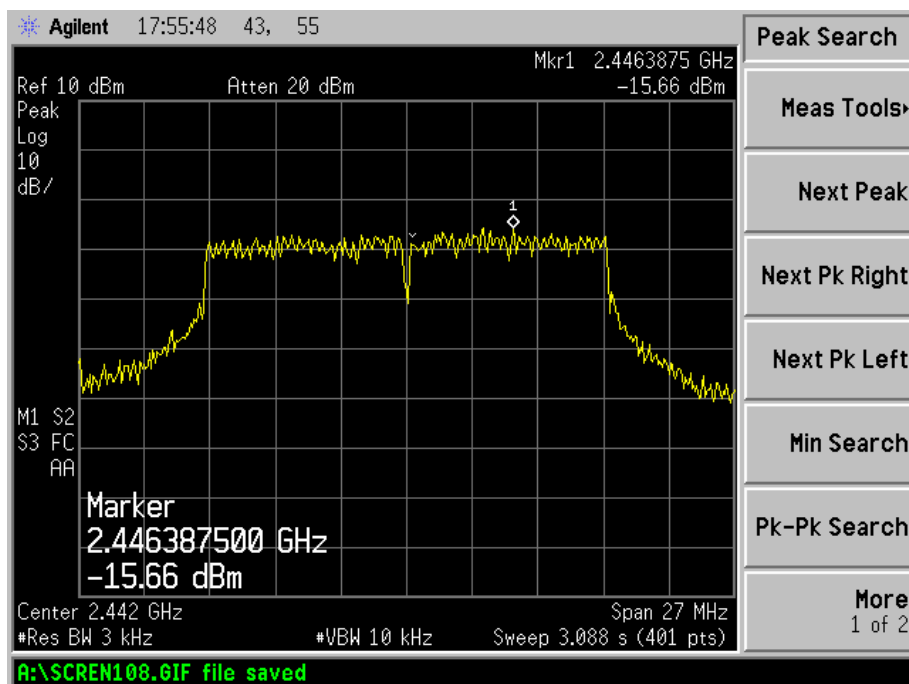
802.11g-High Channel



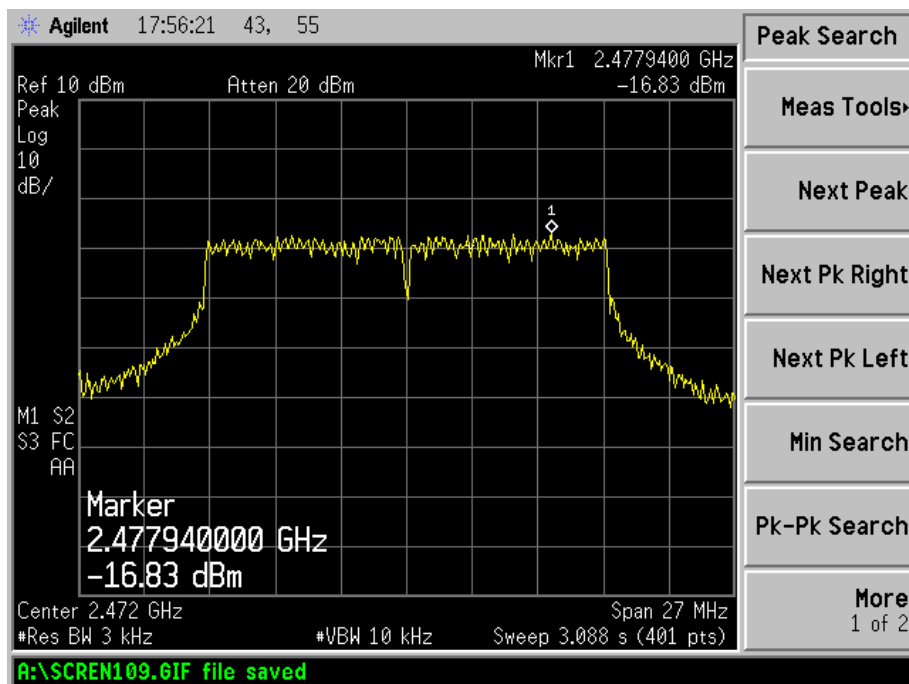
802.11n-HT20-Low Channel



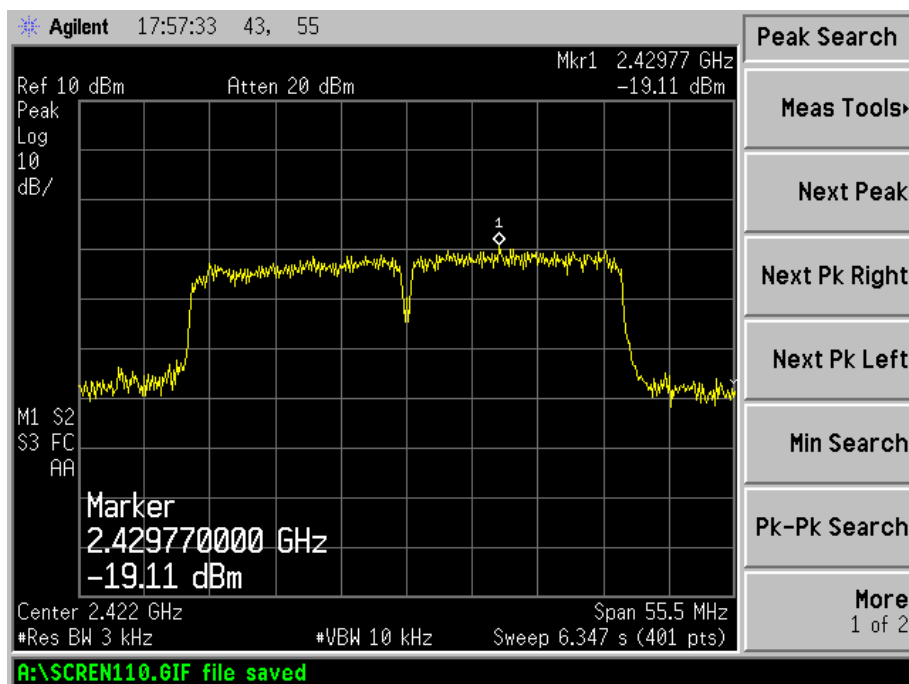
802.11n-HT20-Middle Channel



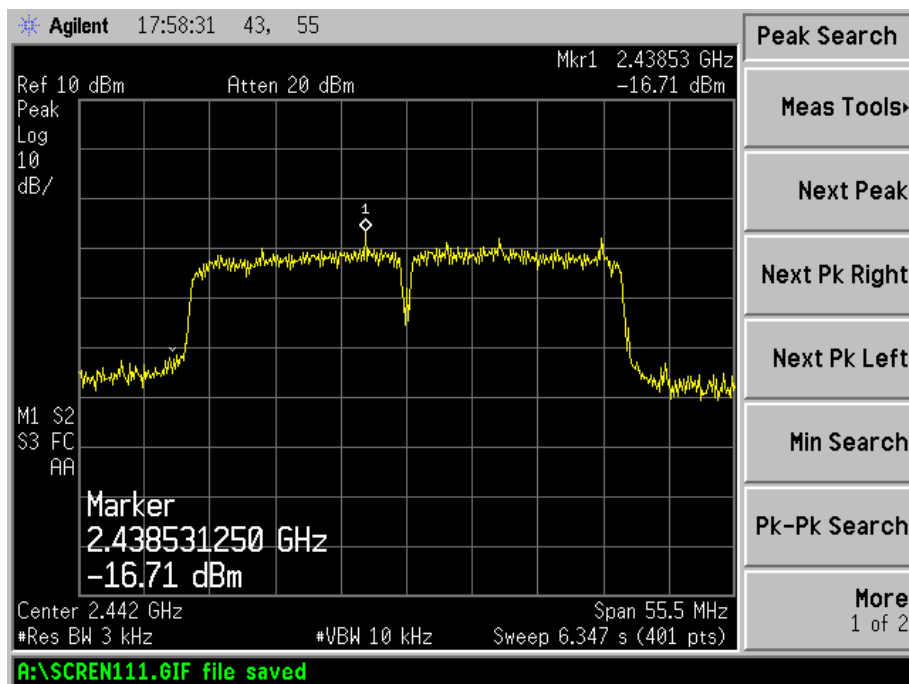
802.11n-HT20-High Channel



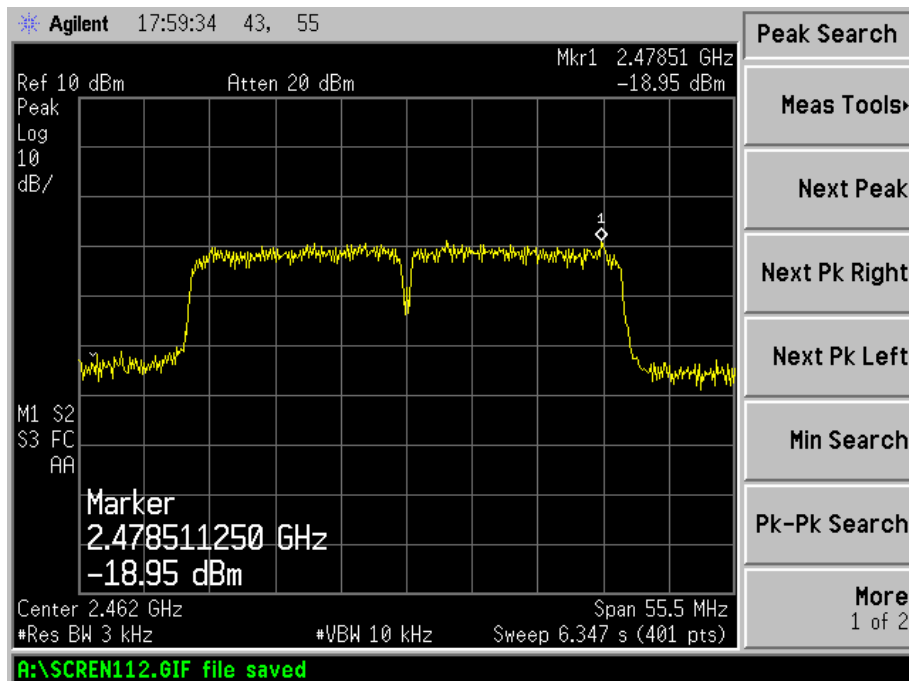
802.11n-HT40-Low Channel



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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2014-05-07	2015-05-06
Attenuator	ATTEN	ATS100-4-20	/	2014-05-07	2015-05-06

6.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
3. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission..

6.4 Environmental Conditions

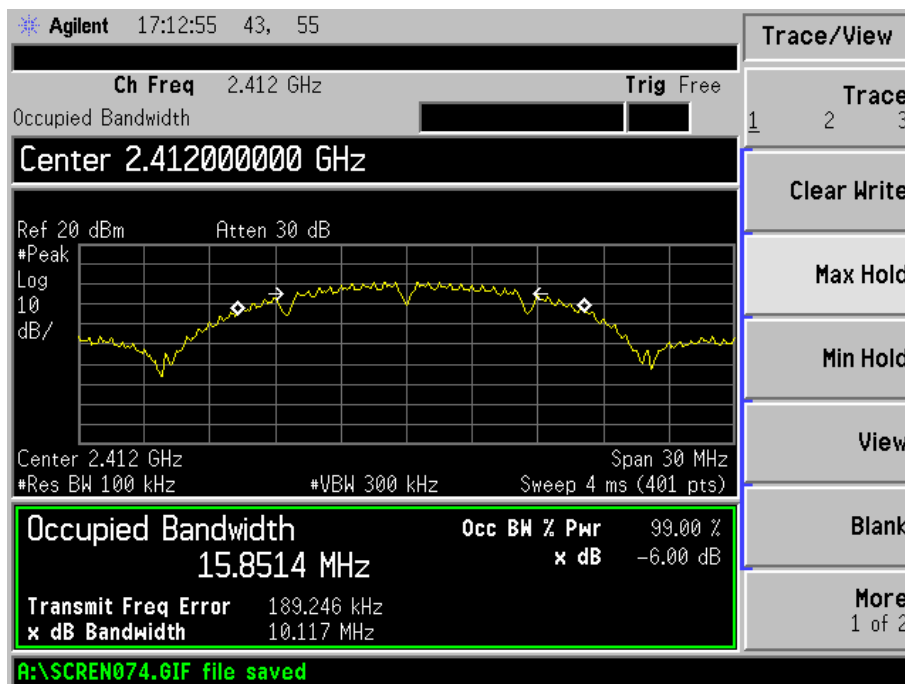
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.5 Summary of Test Results/Plots

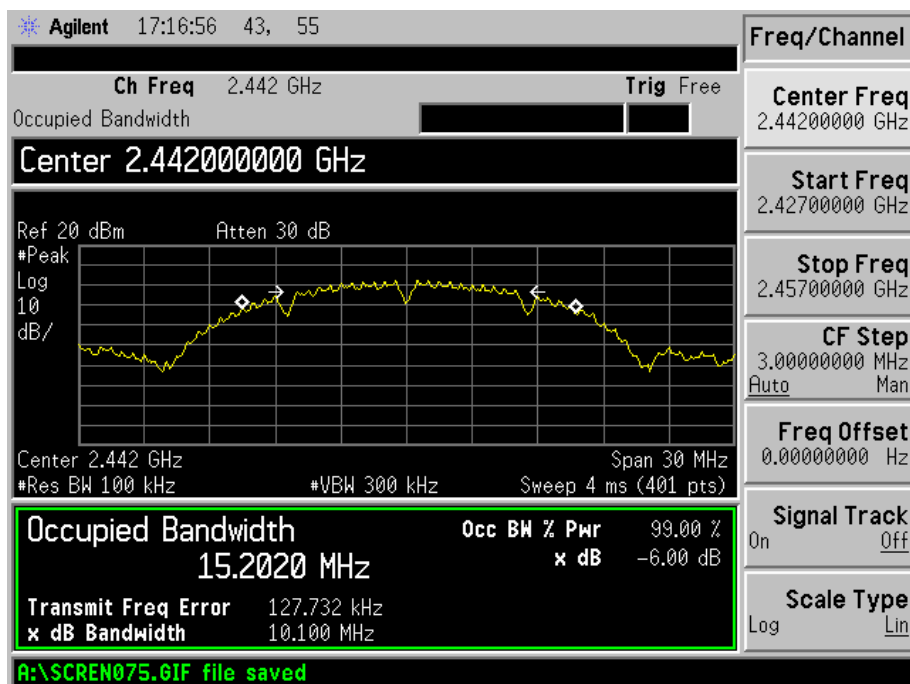
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
802.11b	2412	10117	15851.4	500
	2442	10100	15202.0	500
	2472	10061	14650.9	500
802.11g	2412	16524	16537.1	500
	2442	16561	16503.9	500
	2472	16571	16499.1	500
802.11n-HT20	2412	17772	17709.4	500
	2442	17821	17683.0	500
	2472	17814	17685.6	500
802.11n-HT40	2422	36193	36094.1	500
	2442	36217	36122.6	500
	2462	36245	36191.5	500

Please refer to the following test plots:

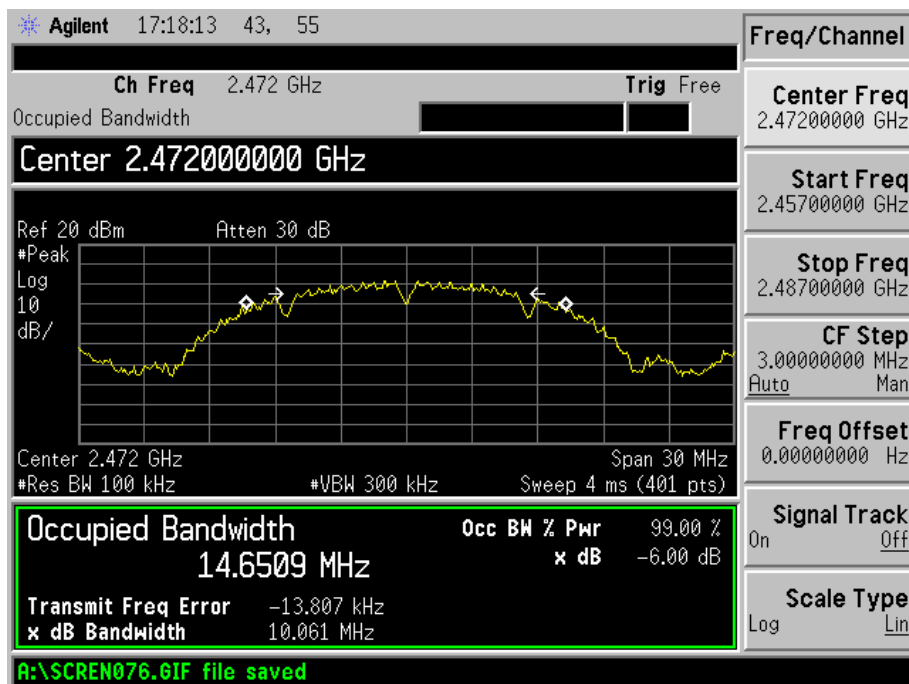
802.11b-Low Channel



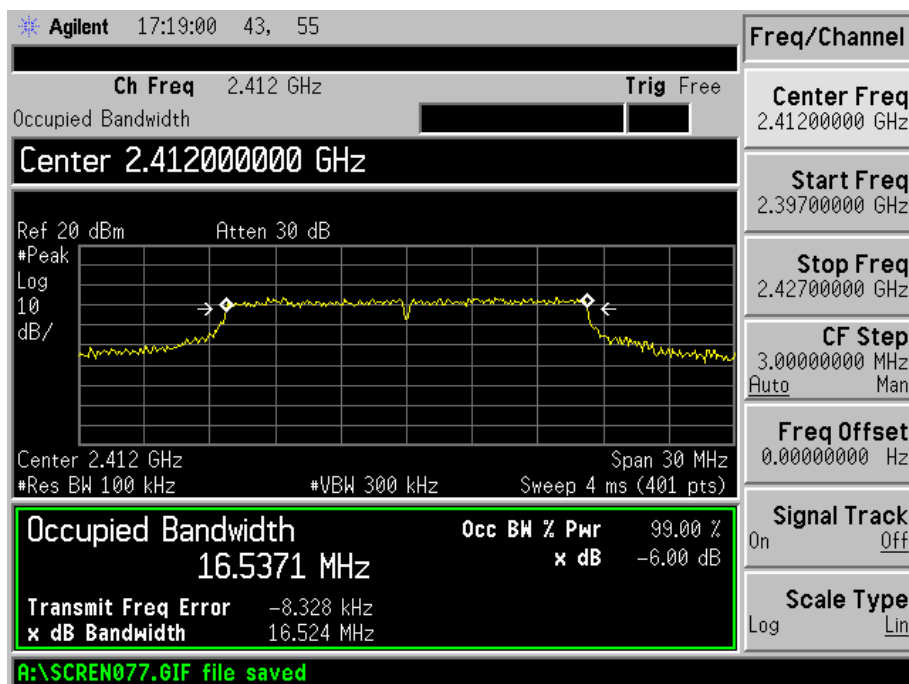
802.11b-Middle Channel



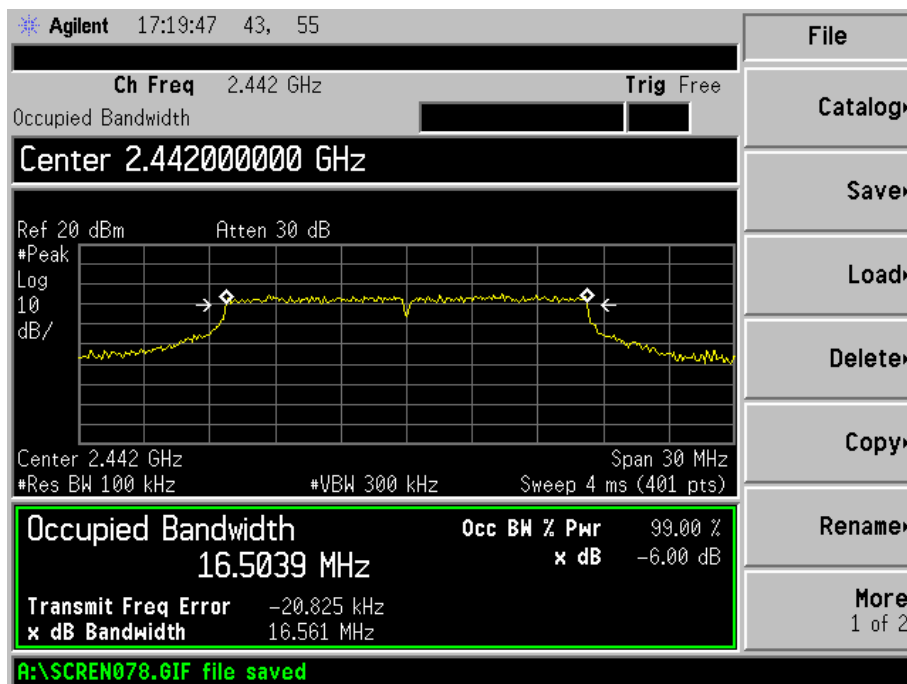
802.11b-High Channel



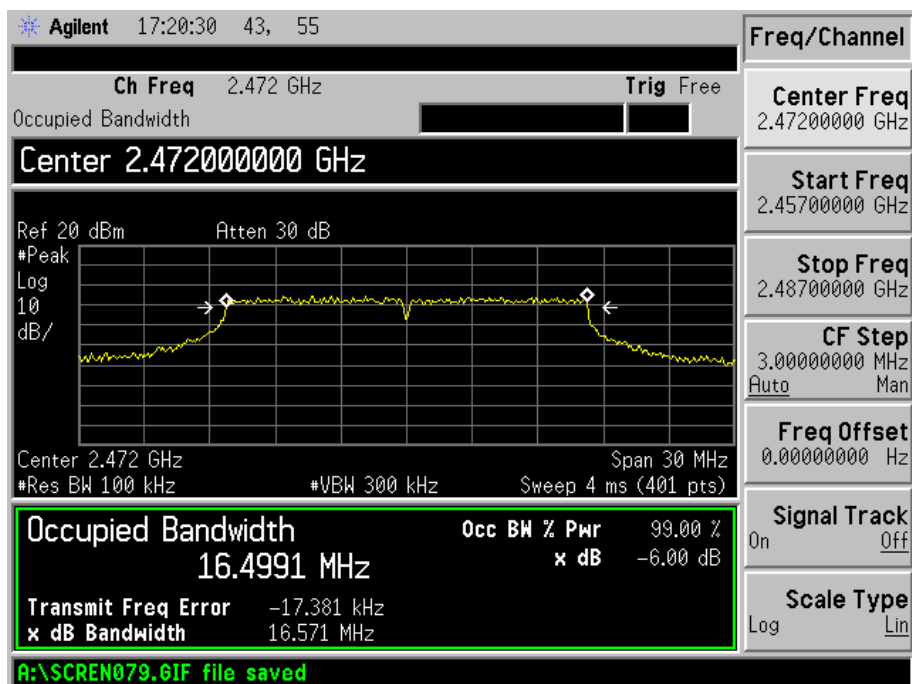
802.11g-Low Channel



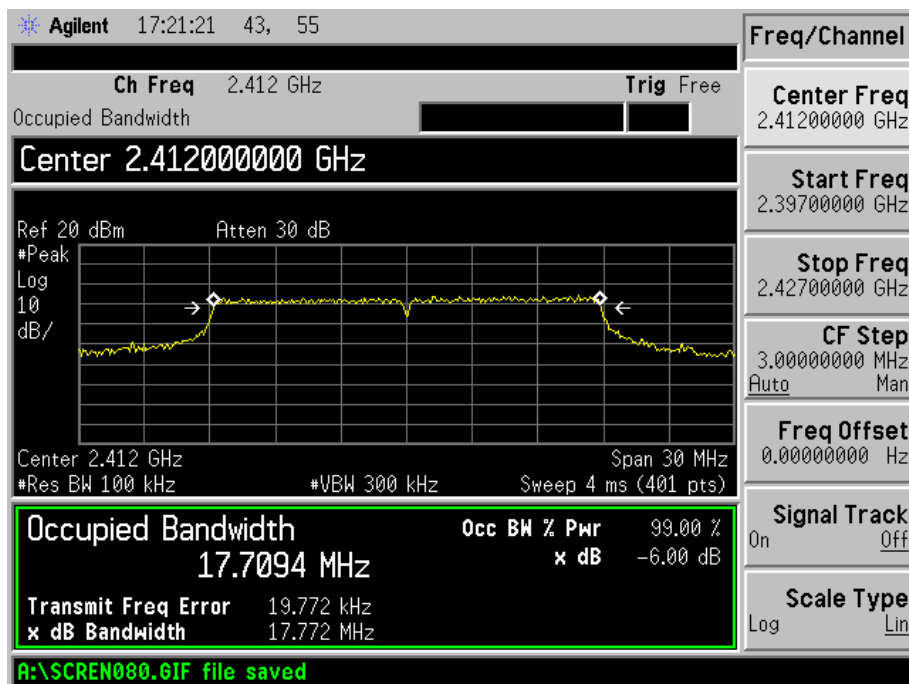
802.11g-Middle Channel



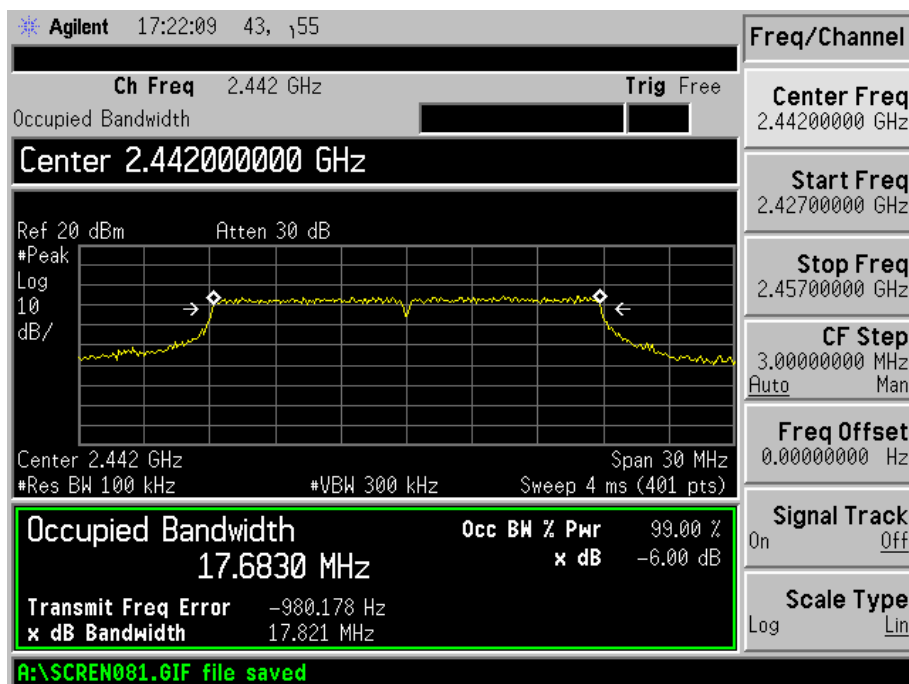
802.11g-High Channel



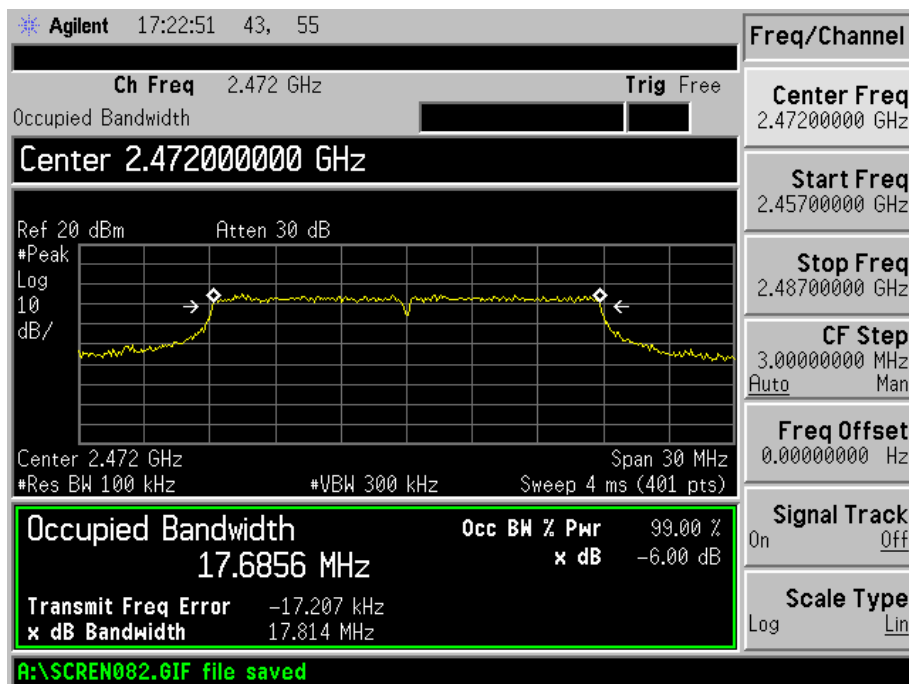
802.11n-HT20-Low Channel



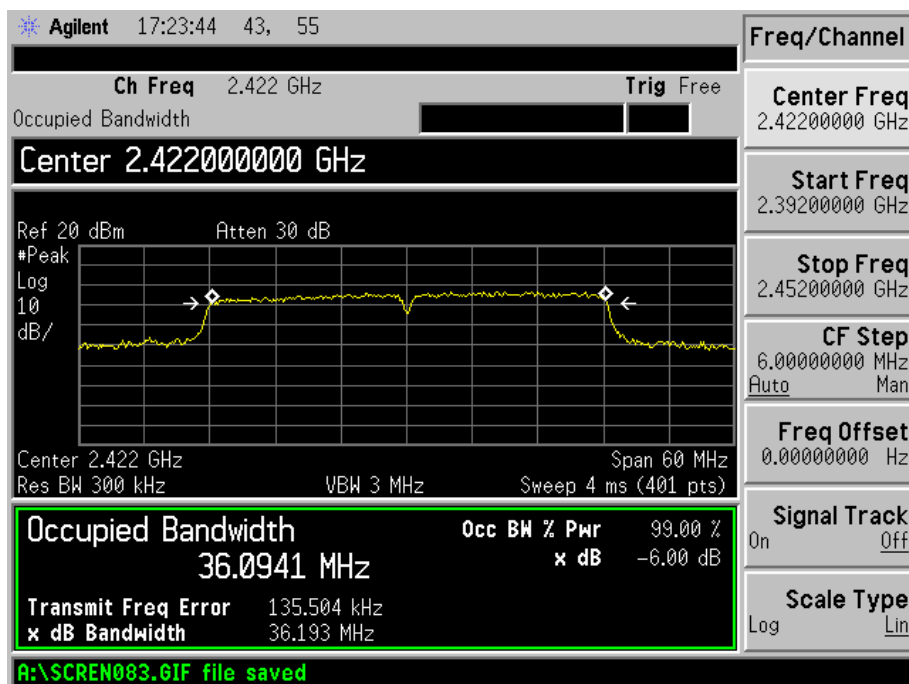
802.11n-HT20-Middle Channel



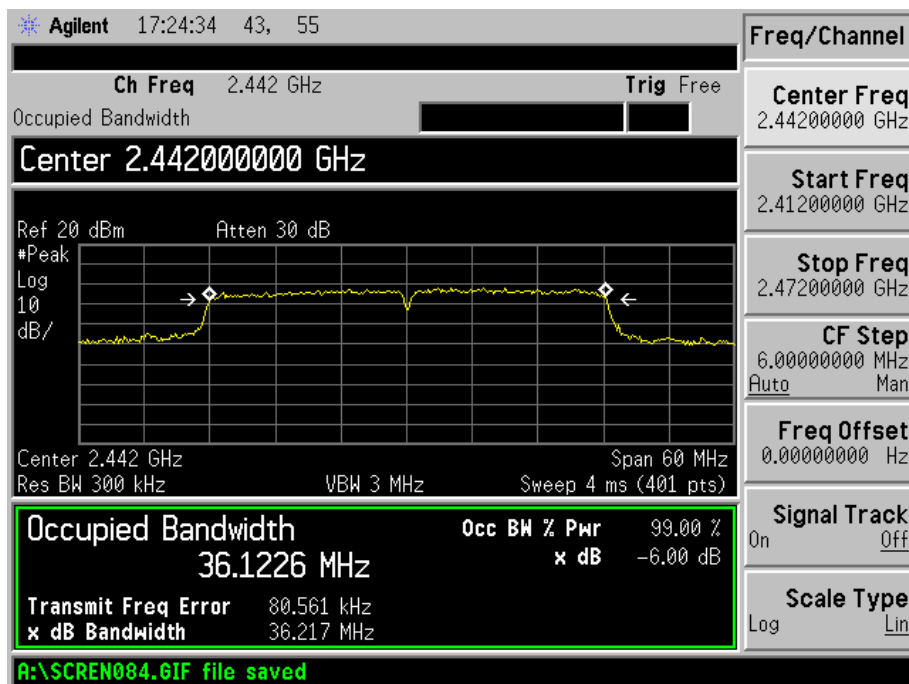
802.11n-HT20-High Channel



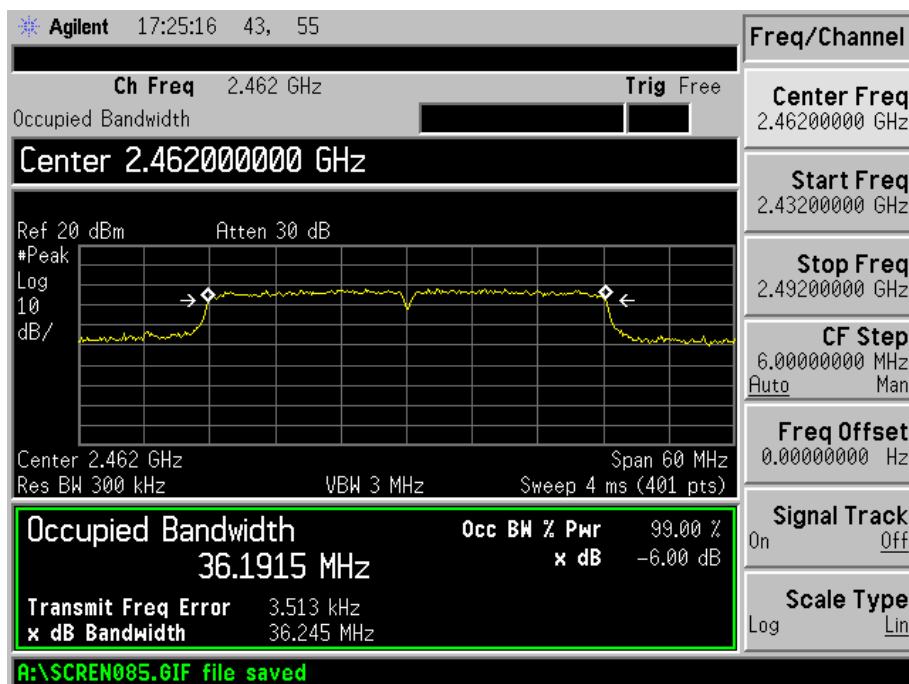
802.11n-HT40-Low Channel



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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2014-05-07	2015-05-06
Attenuator	ATTEN	ATS100-4-20	/	2014-05-07	2015-05-06

7.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 D01 V03 (2013), 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 = maximum available (at least 1 MHz).
2. Set the VBW = 3 x RBW or maximum available setting (must be $\geq$ RBW).
3. Set the span to fully encompass the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the spectrum analyzer's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some analyzers, this may require a manual override to ensure use of peak detector).

7.4 Environmental Conditions

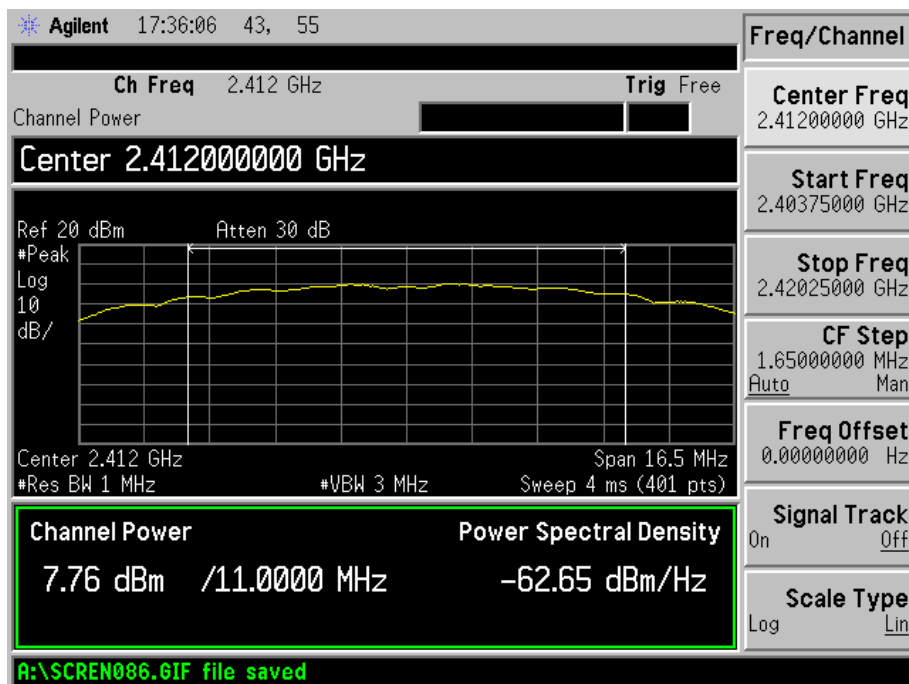
Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

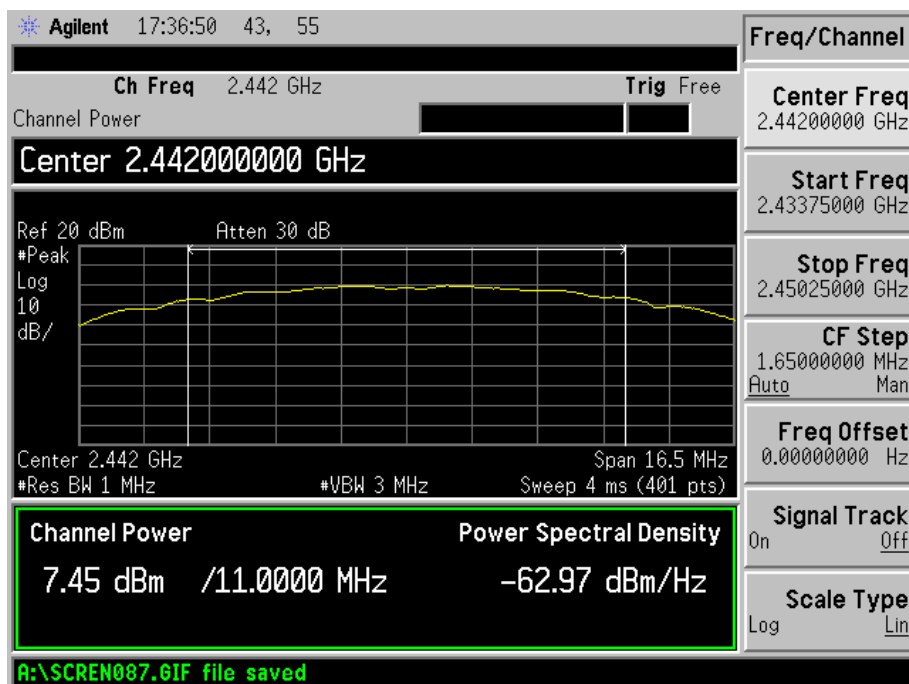
Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b_11Mbps	2412	7.76	5.970	1000
	2442	7.45	5.559	1000
	2472	7.48	5.598	1000
802.11g_54Mbps	2412	6.71	4.688	1000
	2442	7.38	5.470	1000
	2472	7.19	5.236	1000
802.11n HT20_MCS7	2412	6.65	4.624	1000
	2442	7.18	5.224	1000
	2472	7.27	5.333	1000
802.11n HT40_MCS7	2422	7.34	5.420	1000
	2442	7.54	5.675	1000
	2462	7.15	5.188	1000

Please refer to the following test plots:

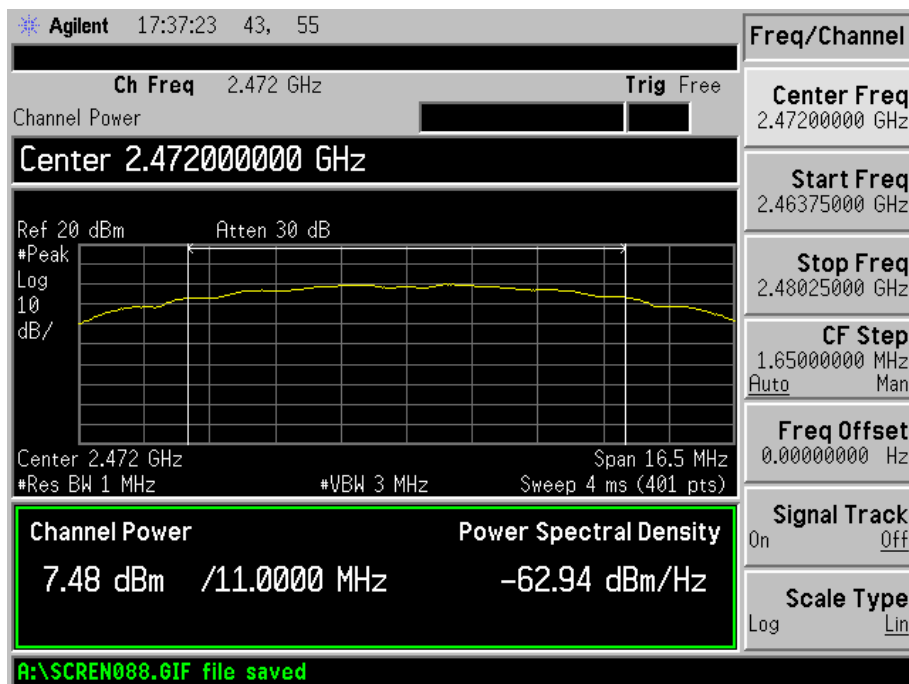
802.11b-Low Channel



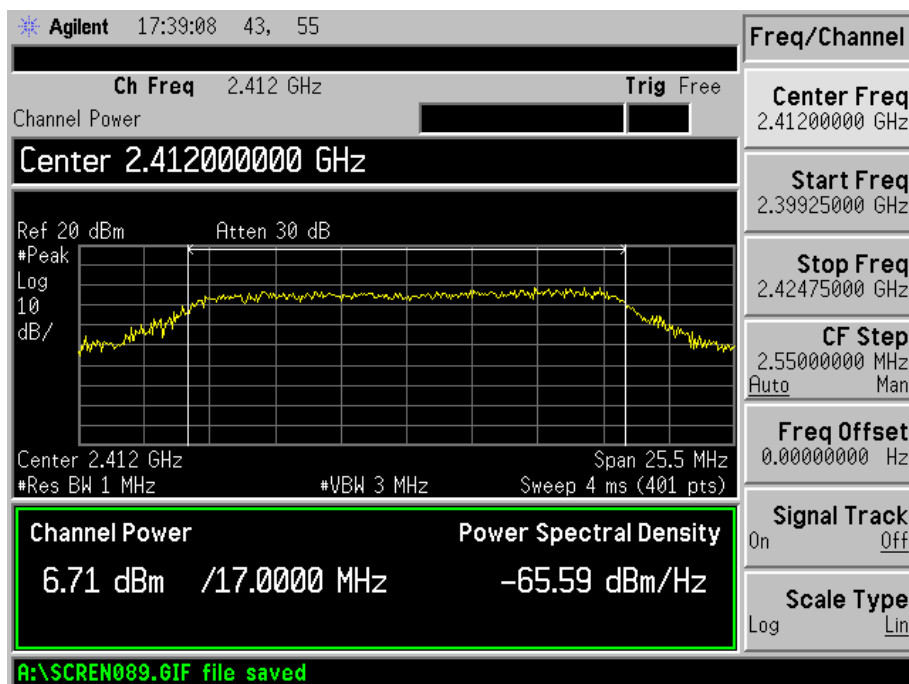
802.11b-Middle Channel



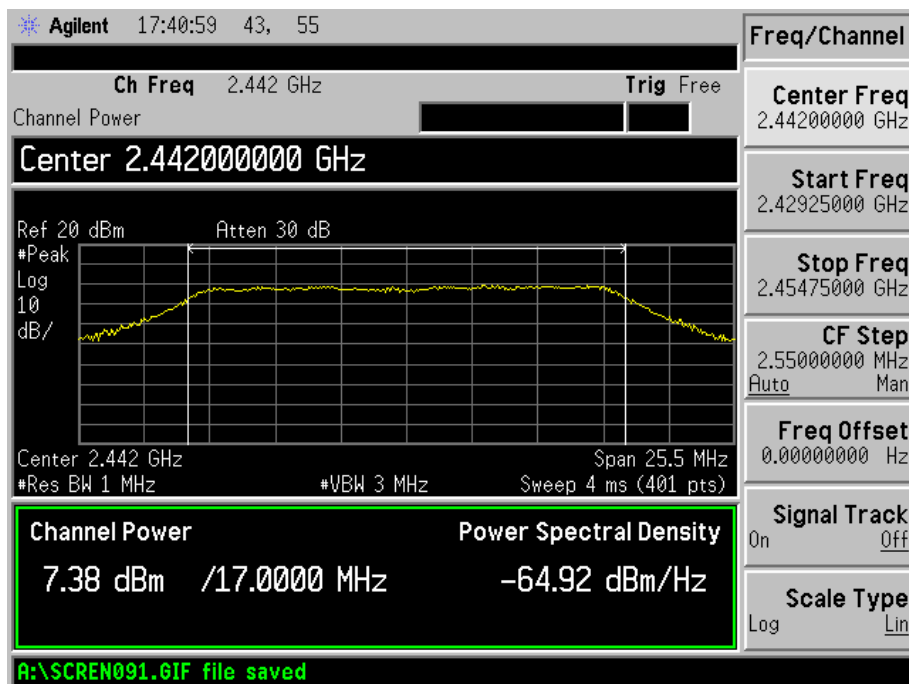
802.11b-High Channel



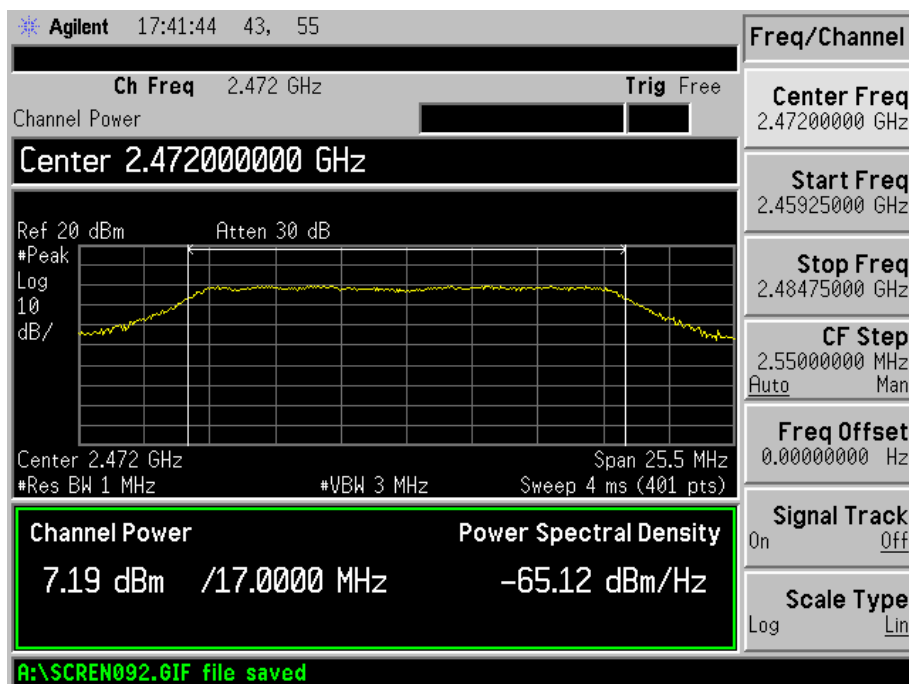
802.11g-Low Channel



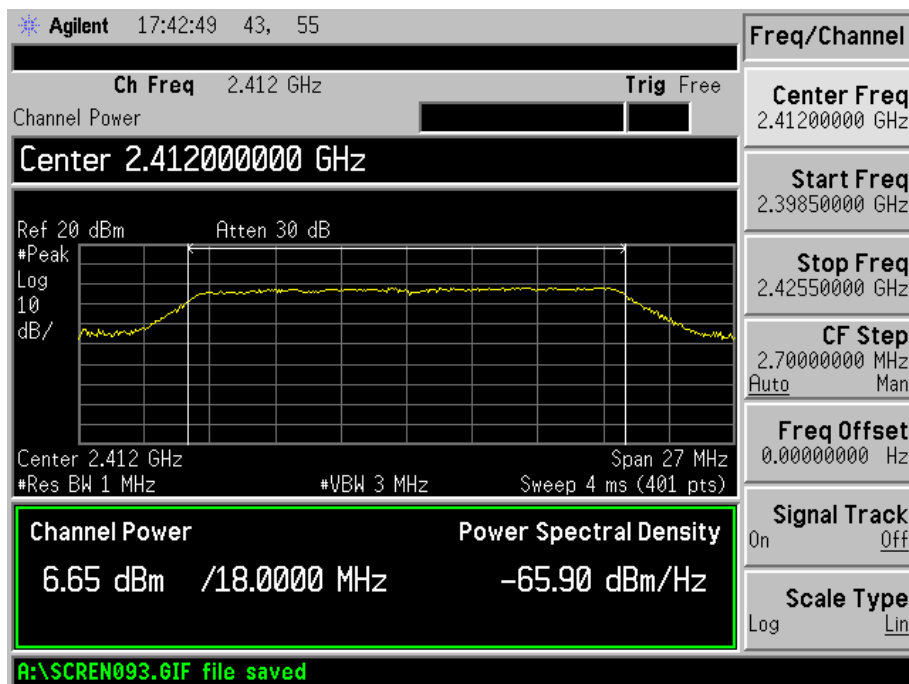
802.11g-Middle Channel



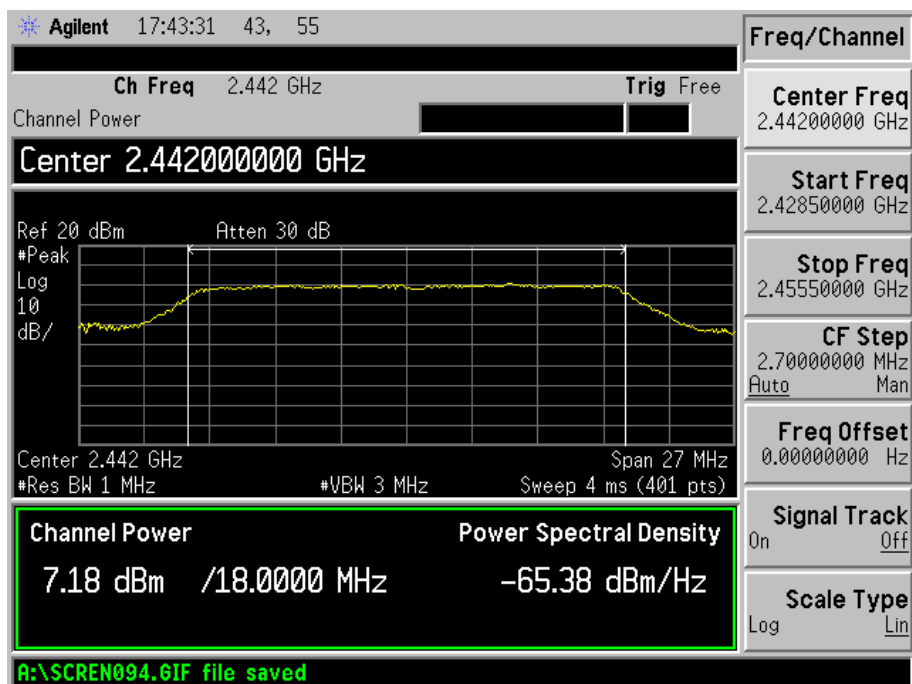
802.11g-High Channel



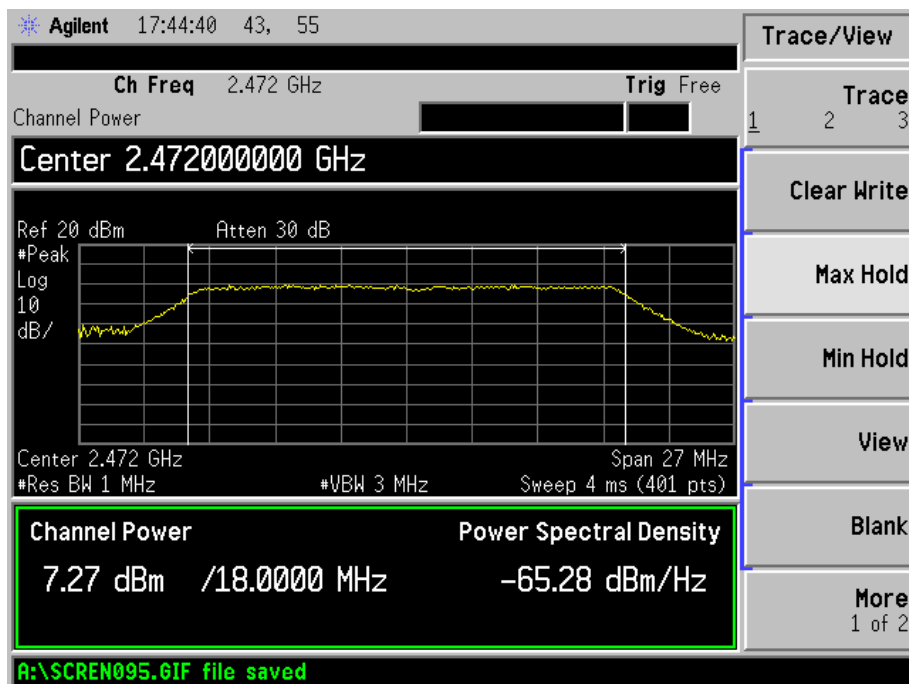
802.11n-HT20-Low Channel



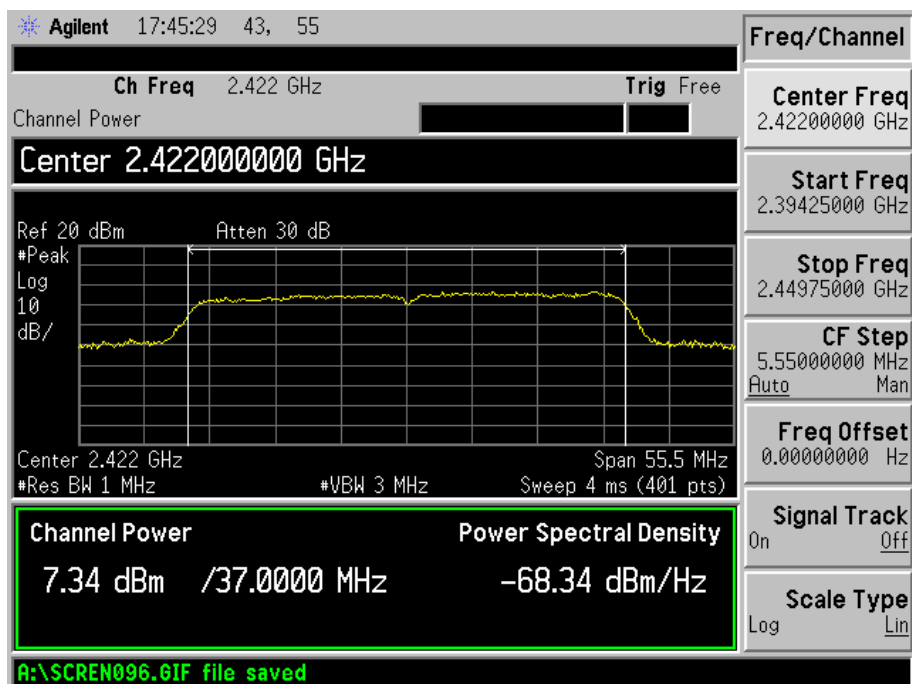
802.11n-HT20-Middle Channel



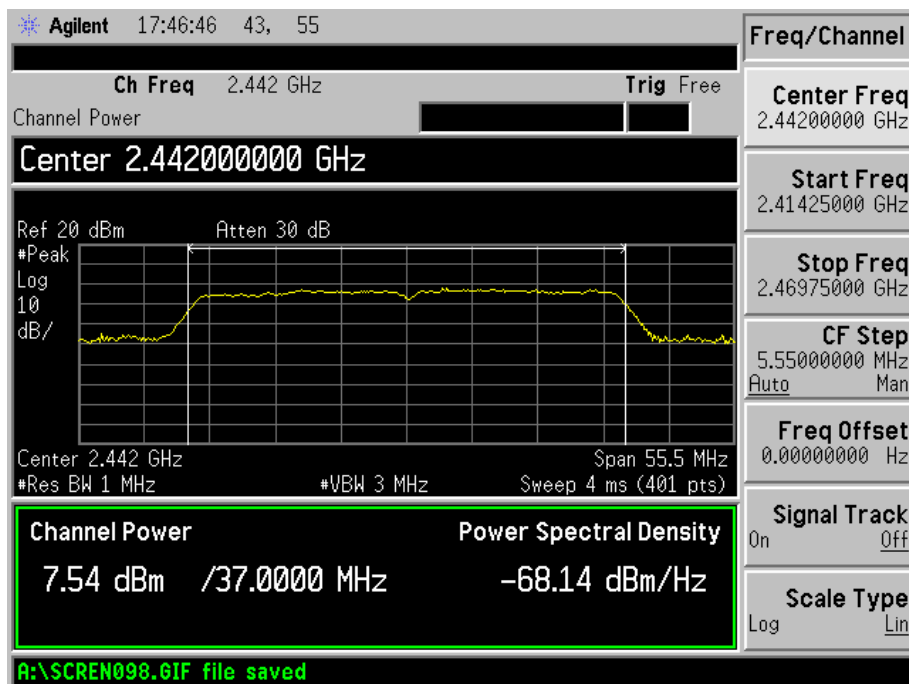
802.11n-HT20-High Channel



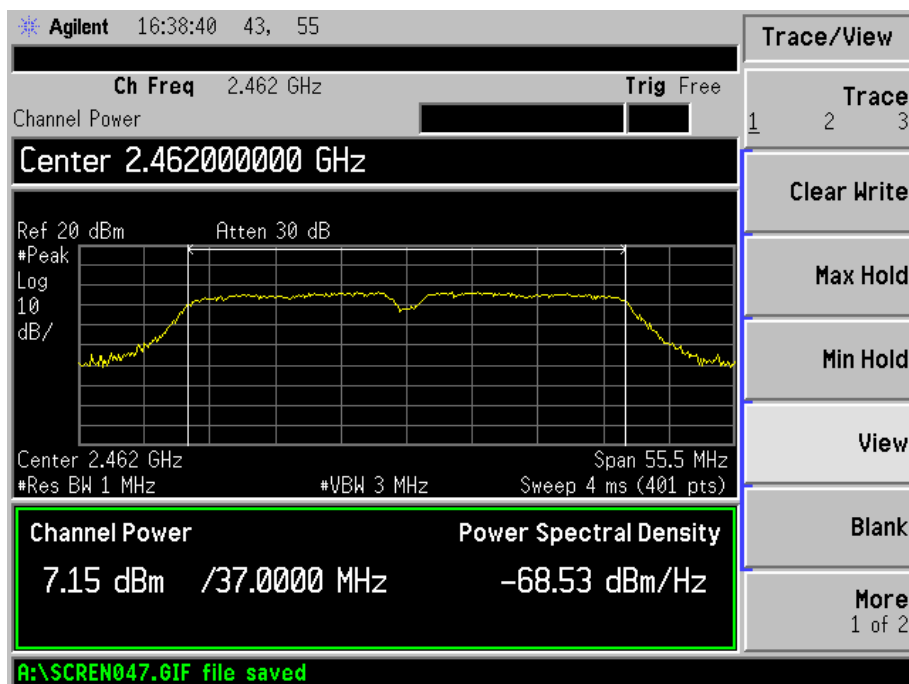
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



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

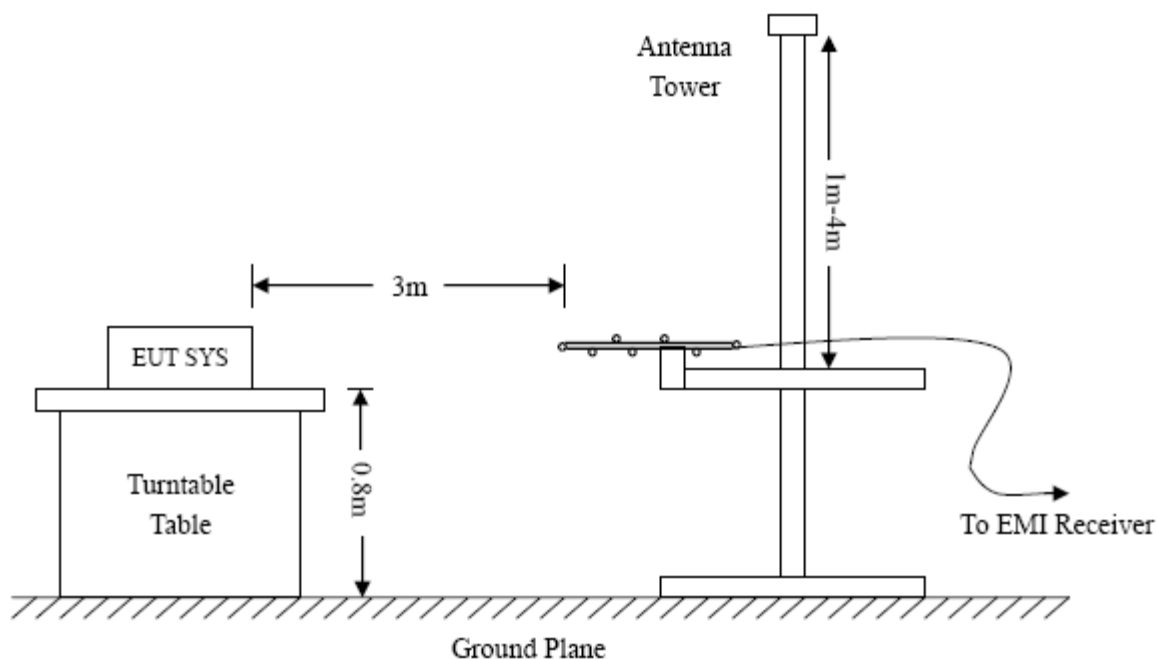
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-07	2015-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-07	2015-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-07	2015-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-07	2015-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-04-20	2015-04-19
Horn Antenna	ETS	3117	00086197	2014-04-20	2015-04-19
Horn Antenna	ETS	3116B	00088203	2014-04-20	2015-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-04-20	2015-04-19

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

RBW=10KHz,

VBW =30KHz

Sweep time= Auto

Trace = max hold

Detector function = peak

Frequency :30MHz-1GHz

RBW=120KHz,

VBW=300KHz

Sweep time= Auto

Trace = max hold

Detector function = peak, QP

Frequency :Above 1GHz

RBW=1MHz,

VBW=3MHz(Peak), 10Hz(AV)

Sweep time= Auto

Trace = max hold

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:

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

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

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

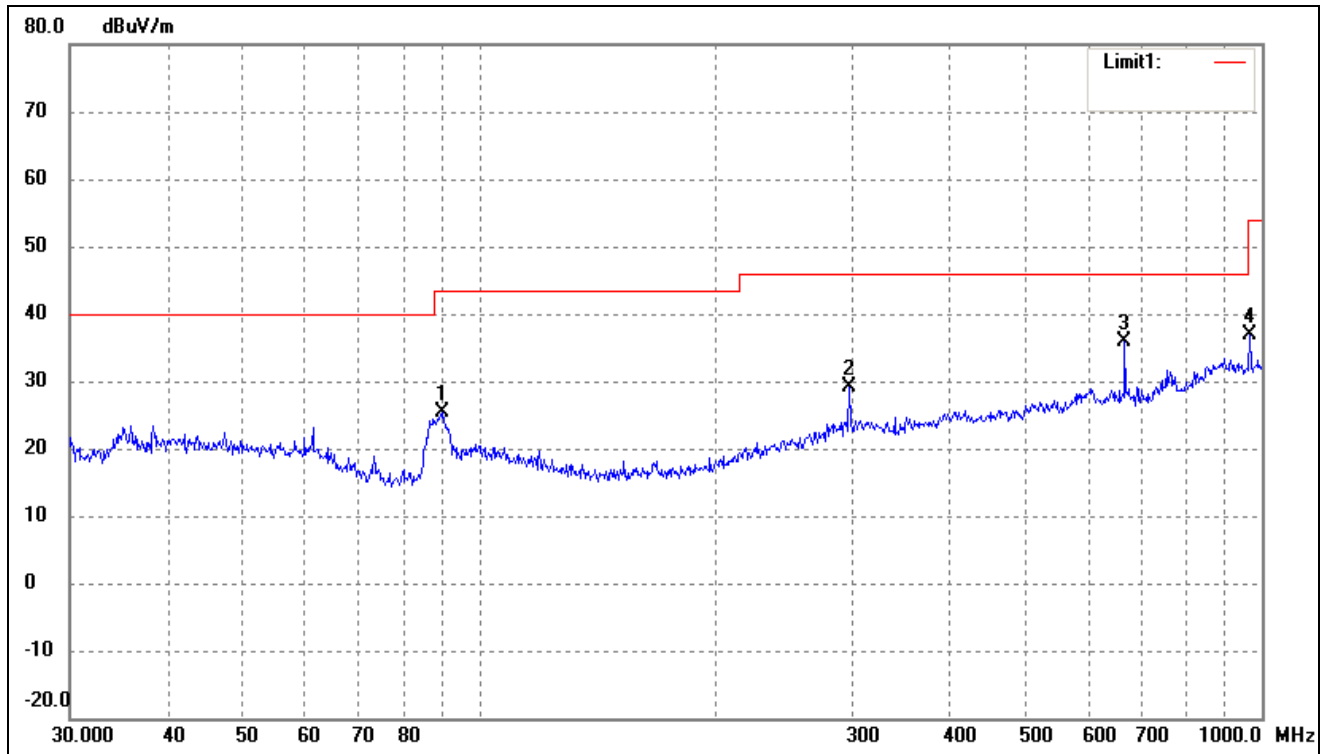
8.6 Environmental Conditions

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

8.7 Summary of Test Results/Plots

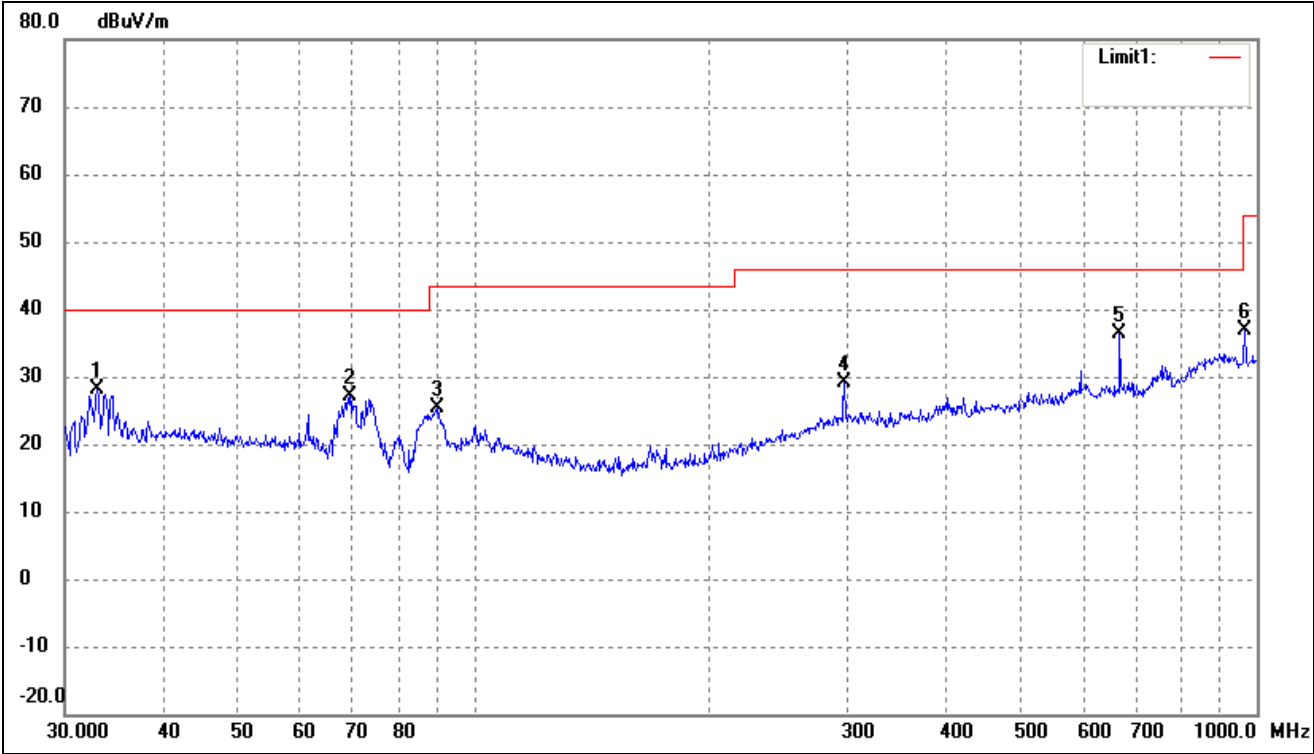
According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

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: *Android TV Dongle*Tested Model: *A08S*Operating Condition: *802.11b Transmitting Low Channel-2412MHz*Comment: *DC 5V*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	89.9047	21.89	3.60	25.49	43.50	-18.01	254	100	peak
2	297.2241	19.97	9.06	29.03	46.00	-16.97	113	100	peak
3	668.1423	23.81	12.19	36.00	46.00	-10.00	284	100	peak
4	965.5421	20.44	16.44	36.88	54.00	-17.12	360	100	peak

Test Specification: Vertical

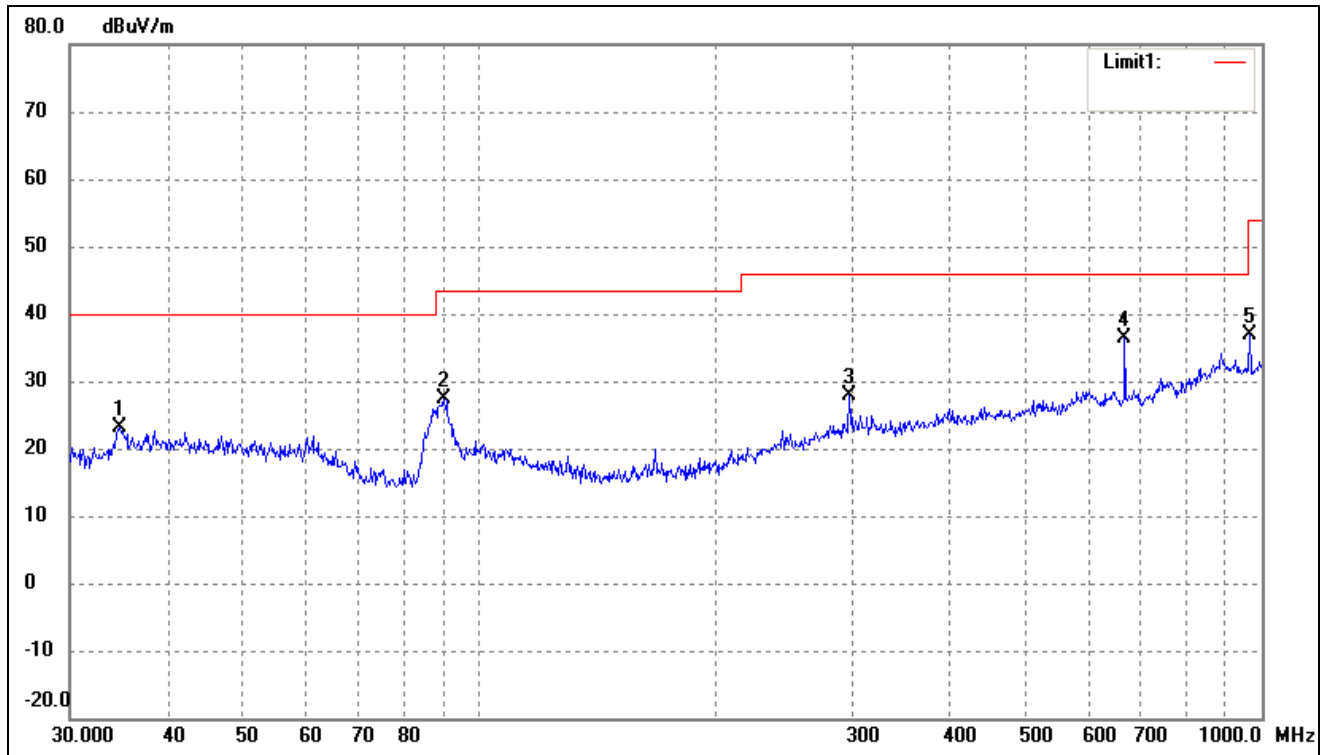


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.9791	20.06	8.09	28.15	40.00	-11.85	114	100	peak
2	69.3568	24.80	2.40	27.20	40.00	-12.80	270	100	peak
3	89.9047	21.89	3.60	25.49	43.50	-18.01	360	100	peak
4	297.2241	19.97	9.06	29.03	46.00	-16.97	178	100	Peak
5	668.1423	23.80	12.60	36.40	46.00	-9.60	125	100	peak
6	965.5421	20.44	16.44	36.88	54.00	-17.12	116	100	peak

Operating Condition: 802.11b Transmitting Middle Channel-2442MHz

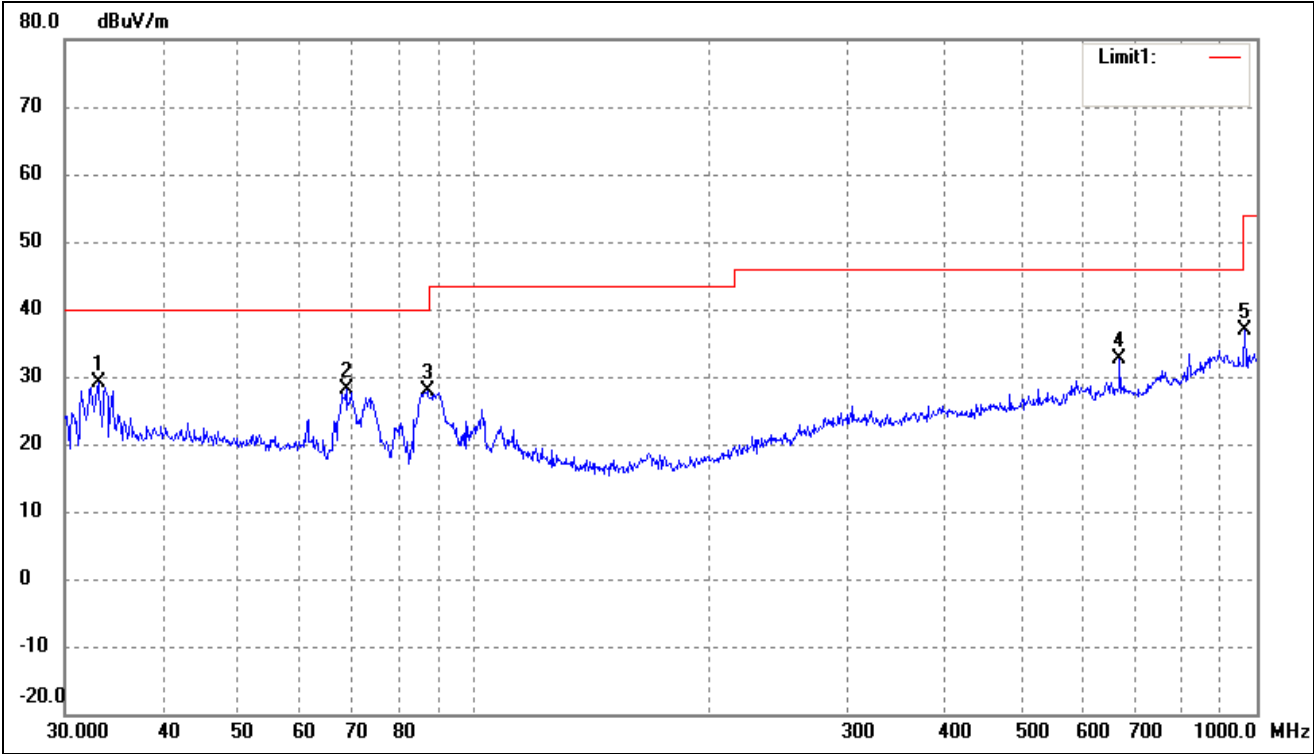
Comment: DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	34.7602	17.21	5.83	23.04	40.00	-16.96	178	100	peak
2	90.2205	23.73	3.68	27.41	43.50	-16.09	224	100	peak
3	297.2241	18.84	9.06	27.90	46.00	-18.10	160	100	peak
4	668.1423	24.24	12.19	36.43	46.00	-9.57	185	100	peak
5	965.5421	20.48	16.44	36.92	54.00	-17.08	290	100	peak

Test Specification: Vertical

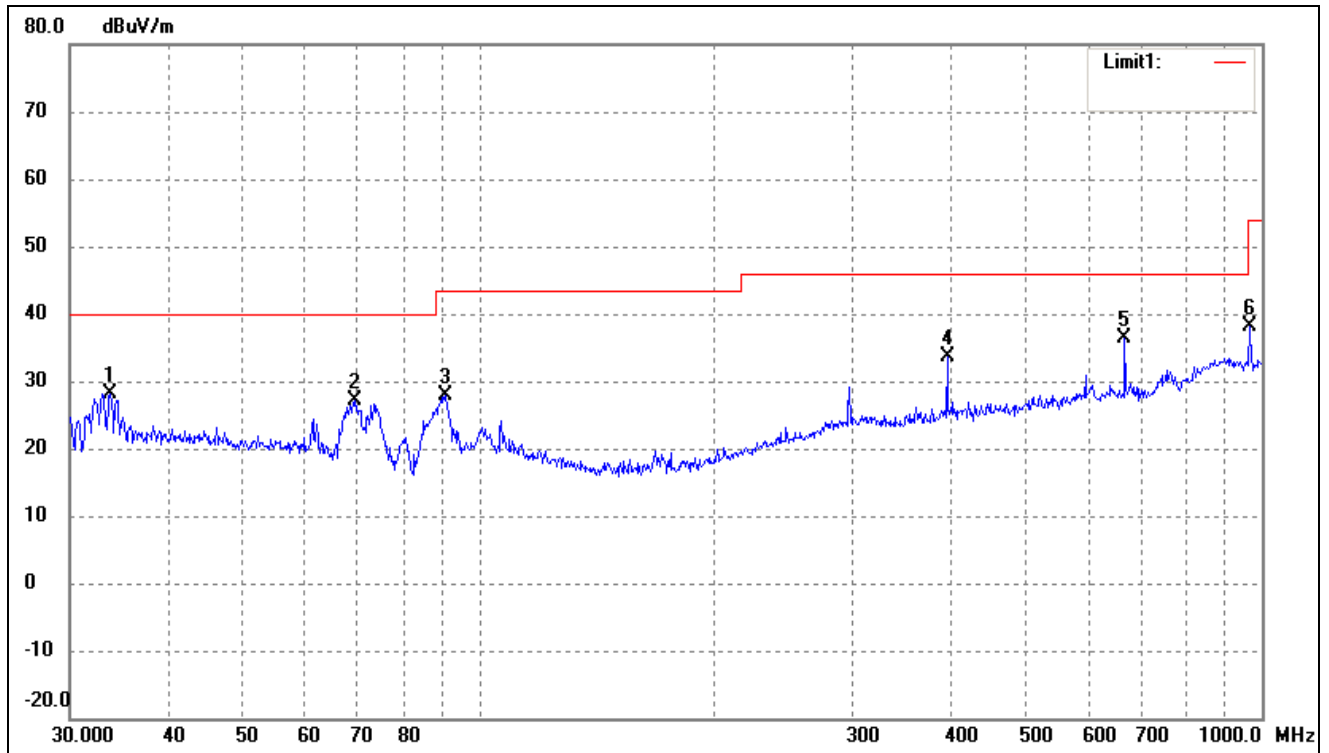


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	21.01	8.10	29.11	40.00	-10.89	256	100	peak
2	68.6310	25.43	2.63	28.06	40.00	-11.94	360	100	peak
3	87.1117	25.00	2.86	27.86	40.00	-12.14	165	100	peak
4	668.1423	20.13	12.60	32.73	46.00	-13.27	178	100	peak
5	965.5421	20.36	16.44	36.80	54.00	-17.20	360	100	peak

Operating Condition: 802.11b Transmitting High Channel-2472MHz

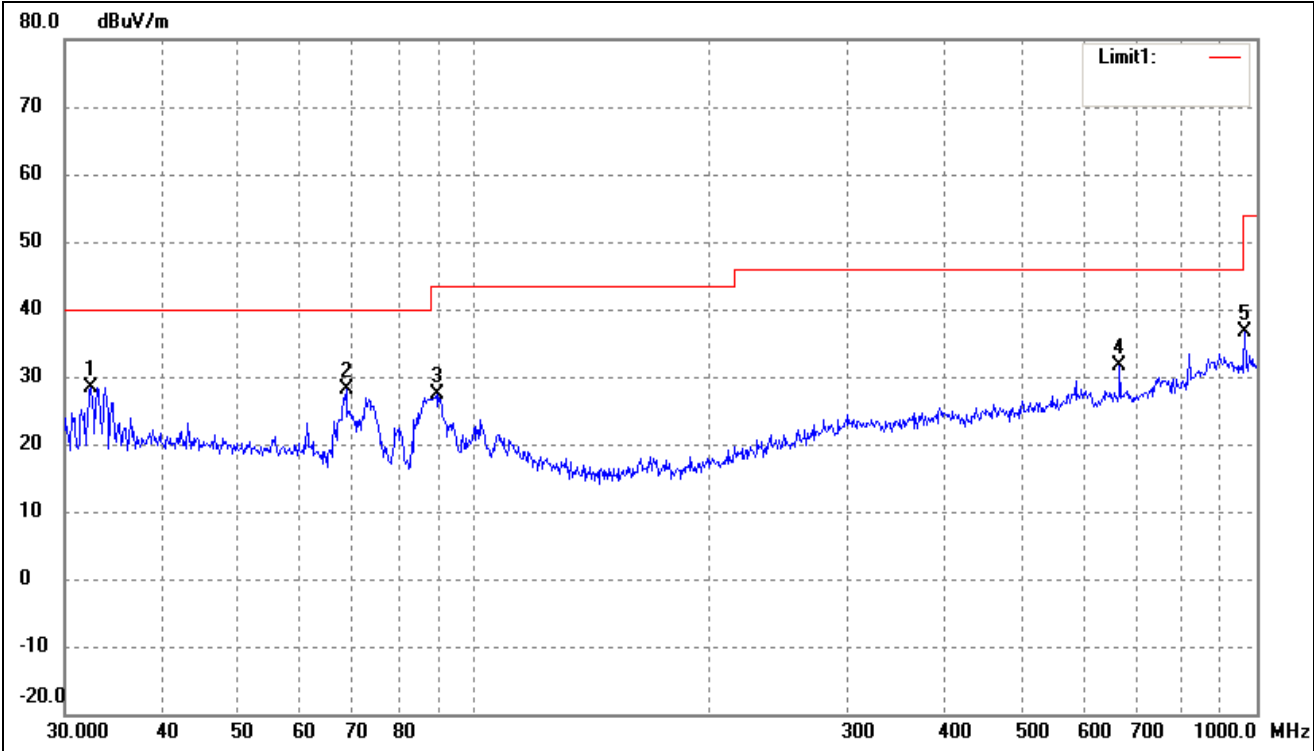
Comment: DC 5V

Test Specification: Horizontal

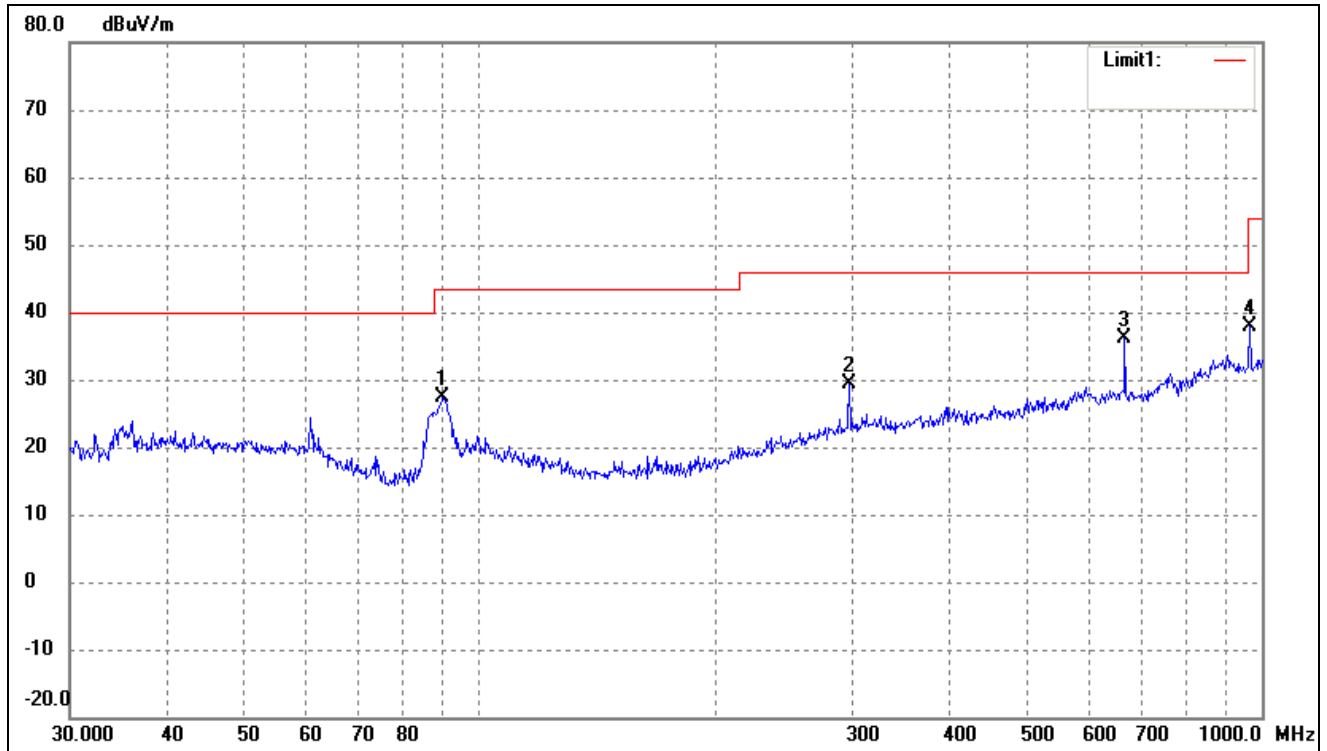


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	33.7986	22.61	5.59	28.20	40.00	-11.80	176	100	peak
2	69.3568	24.80	2.40	27.20	40.00	-12.80	255	100	peak
3	90.5374	24.04	3.75	27.79	43.50	-15.71	360	100	peak
4	396.2415	23.56	9.95	33.51	46.00	-12.49	178	100	peak
5	668.1423	24.21	12.19	36.40	46.00	-9.60	168	100	peak
6	965.5421	21.57	16.44	38.01	54.00	-15.99	178	100	peak

Test Specification: Vertical

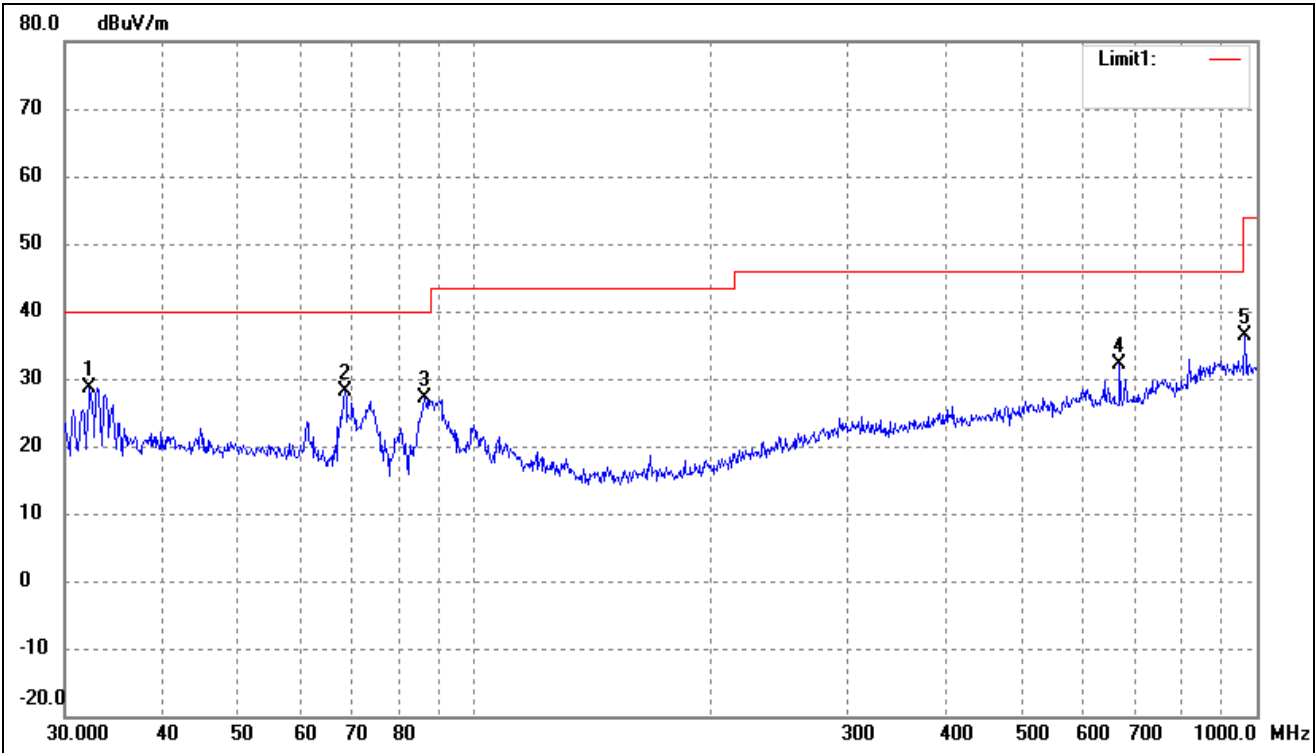


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.4059	20.34	8.00	28.34	40.00	-11.66	360	100	peak
2	68.6310	25.43	2.63	28.06	40.00	-11.94	225	100	peak
3	89.5900	23.88	3.51	27.39	43.50	-16.11	160	100	peak
4	668.1423	19.14	12.60	31.74	46.00	-14.26	165	100	peak
5	965.5421	20.29	16.44	36.73	54.00	-17.27	310	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)EUT: *Android TV Dongle*Tested Model: *A08S*Operating Condition: *802.11g Transmitting Low Channel-2412MHz*Comment: *USB DC 5V*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	89.9047	23.84	3.60	27.44	43.50	-16.06	174	100	peak
2	297.2241	20.26	9.06	29.32	46.00	-16.68	160	100	peak
3	668.1423	24.06	12.19	36.25	46.00	-9.75	320	100	peak
4	965.5421	21.51	16.44	37.95	54.00	-16.05	360	100	peak

Test Specification: Vertical

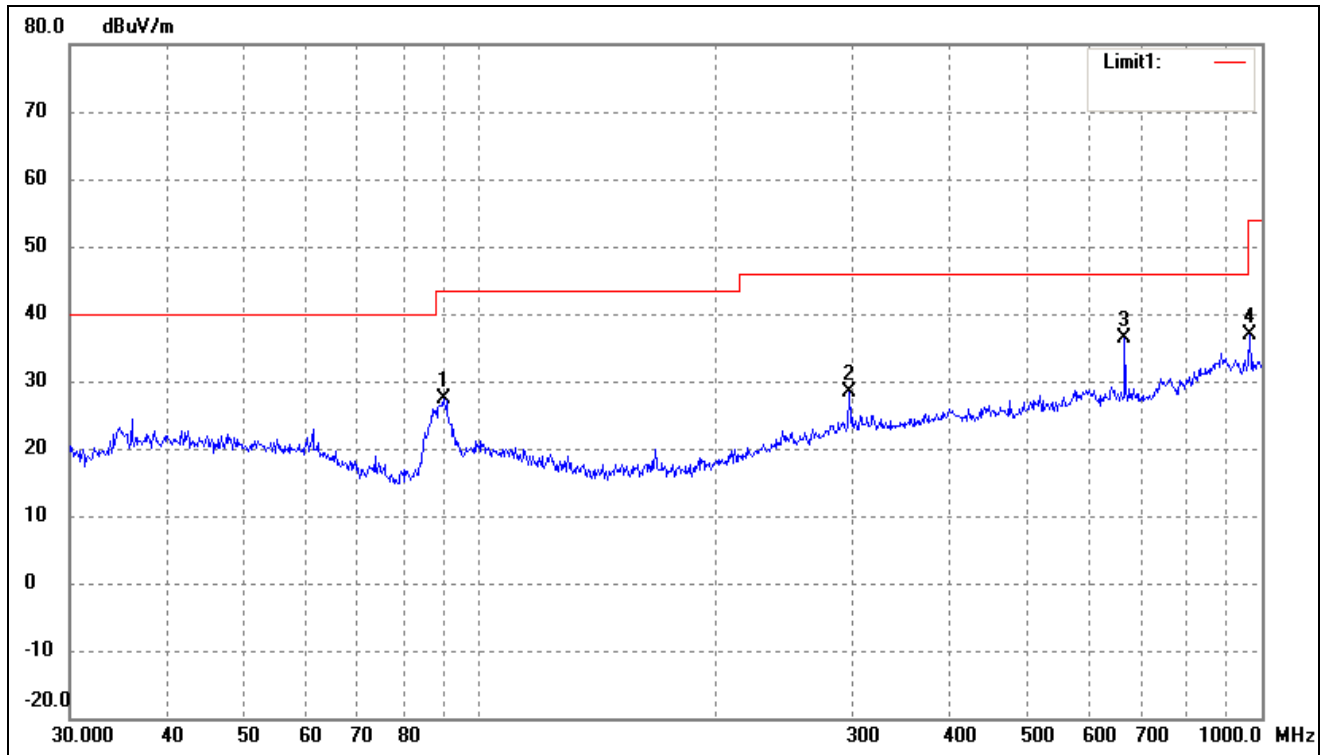


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.2925	20.55	7.98	28.53	40.00	-11.47	177	100	peak
2	68.3908	25.49	2.70	28.19	40.00	-11.81	90	100	peak
3	86.5029	24.52	2.70	27.22	40.00	-12.78	336	100	peak
4	668.1423	19.41	12.60	32.01	46.00	-13.99	178	100	peak
5	965.5421	20.06	16.44	36.50	54.00	-17.50	360	100	peak

Operating Condition: 802.11g Transmitting Middle Channel-2442MHz

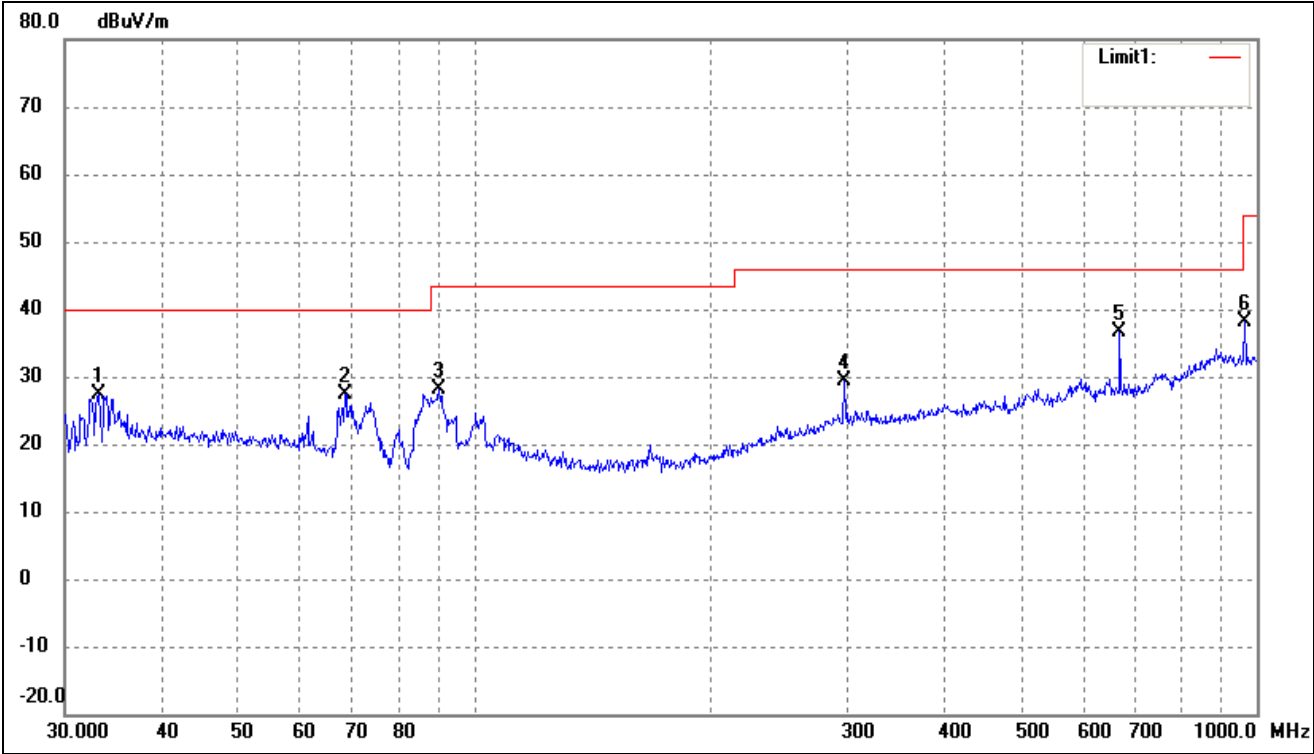
Comment: USB DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	90.2205	23.73	3.68	27.41	43.50	-16.09	270	100	peak
2	297.2241	19.29	9.06	28.35	46.00	-17.65	164	100	peak
3	668.1423	24.27	12.19	36.46	46.00	-9.54	228	200	peak
4	965.5421	20.48	16.44	36.92	54.00	-17.08	130	200	peak

Test Specification: Vertical

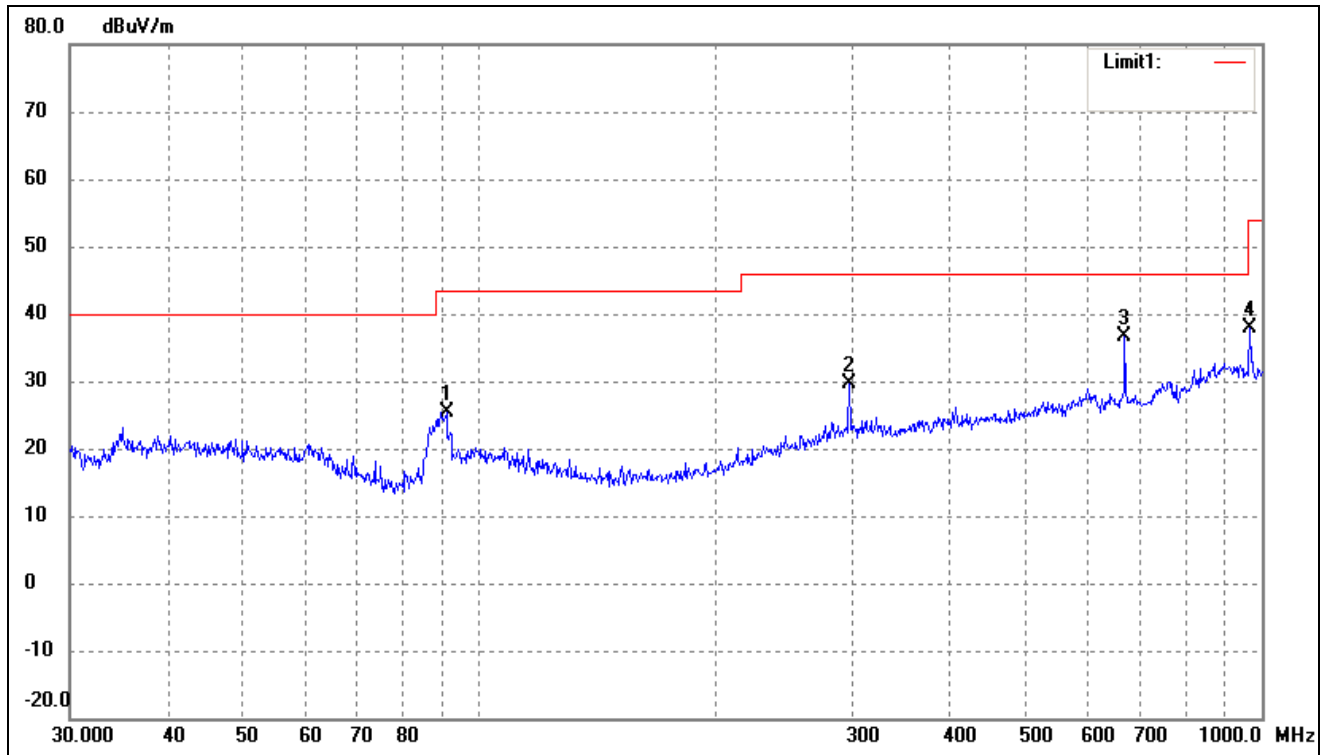


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	19.24	8.10	27.34	40.00	-12.66	360	100	peak
2	68.3908	24.72	2.70	27.42	40.00	-12.58	255	100	peak
3	90.2205	24.44	3.68	28.12	43.50	-15.38	270	100	peak
4	297.2241	20.34	9.06	29.40	46.00	-16.60	178	100	peak
5	668.1423	24.01	12.60	36.61	46.00	-9.39	165	100	peak
6	965.5421	21.75	16.44	38.19	54.00	-15.81	180	100	peak

Operating Condition: 802.11g Transmitting High Channel-2472MHz

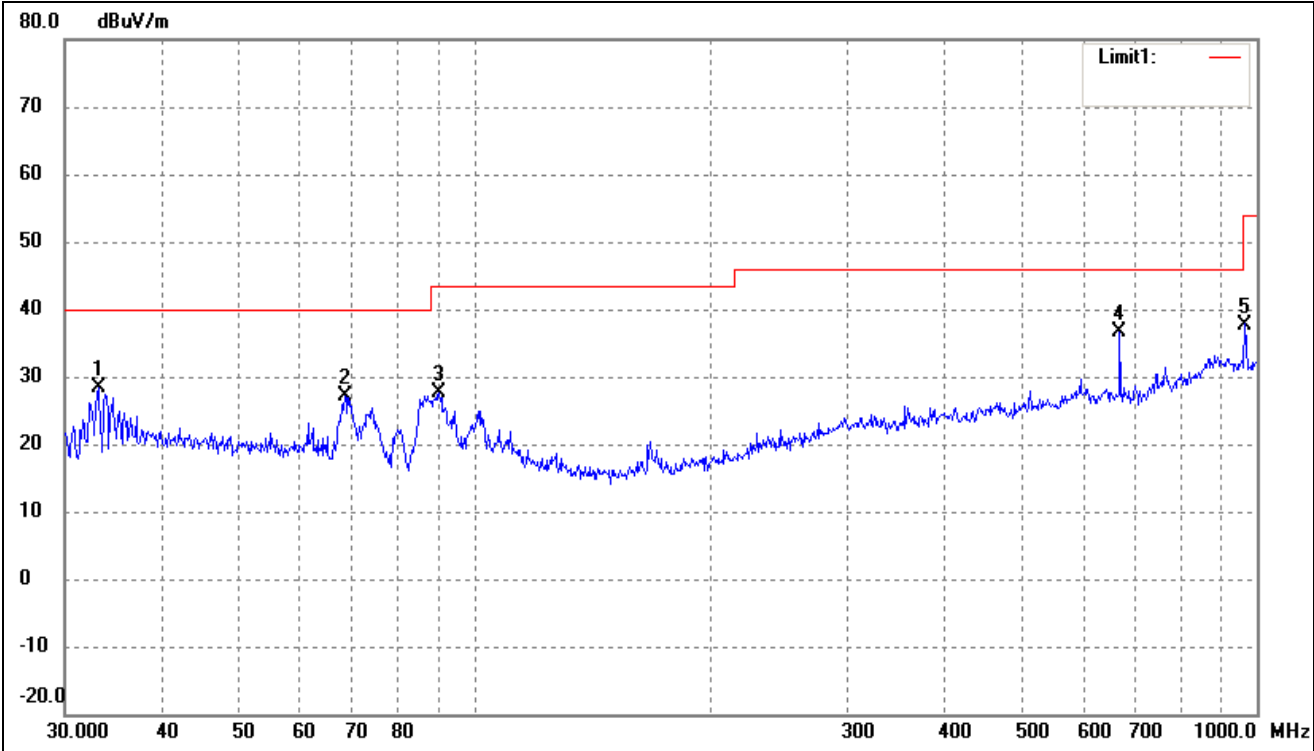
Comment: USB DC 5V

Test Specification: Horizontal

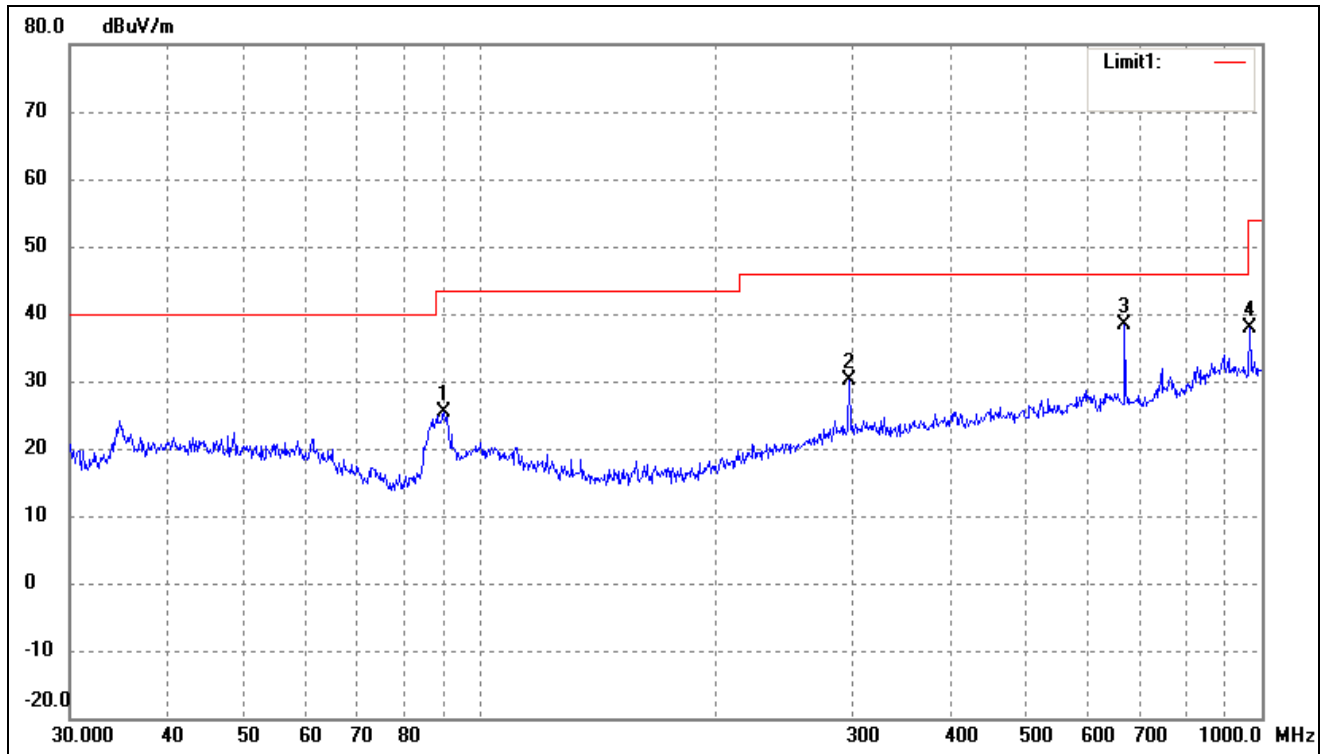


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	90.8554	21.58	3.83	25.41	43.50	-18.09	270	100	peak
2	297.2241	20.64	9.06	29.70	46.00	-16.30	51	200	peak
3	668.1423	24.55	12.19	36.74	46.00	-9.26	360	200	peak
4	965.5421	21.43	16.44	37.87	54.00	-16.13	360	100	peak

Test Specification: Vertical

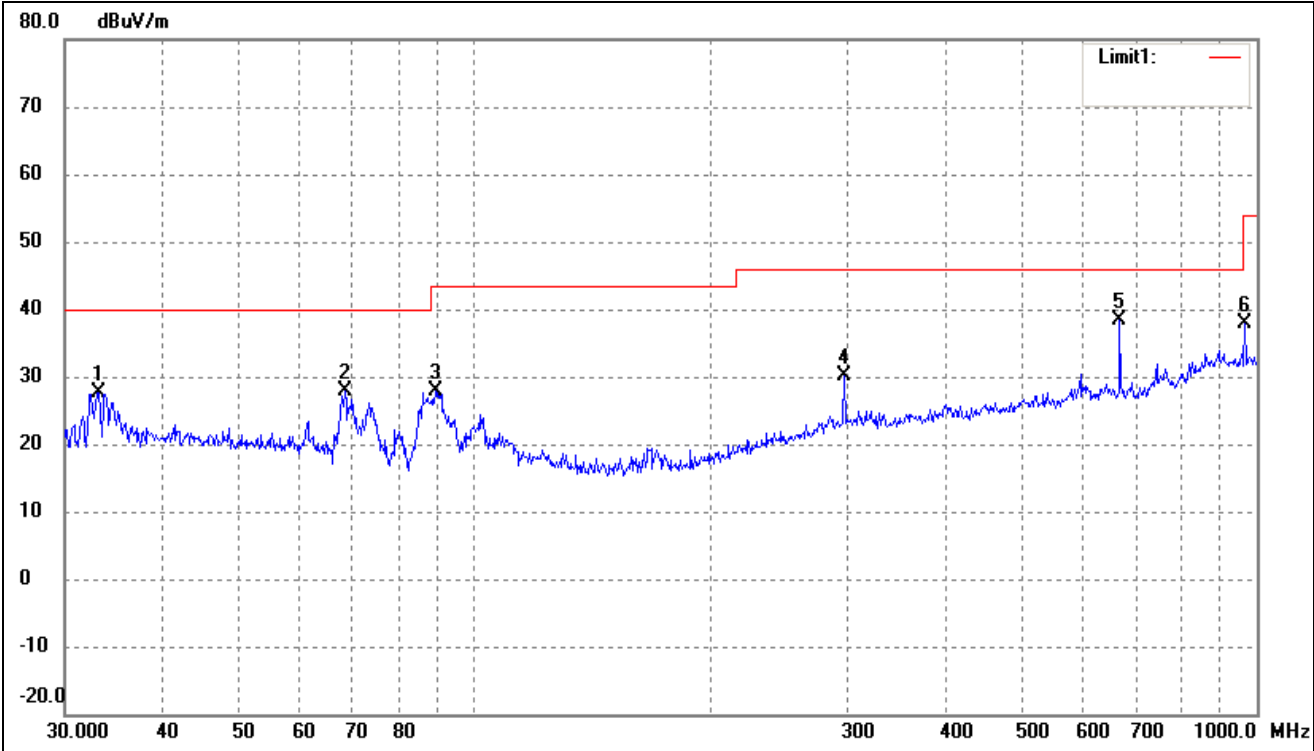


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	20.34	8.10	28.44	40.00	-11.56	360	100	peak
2	68.3908	24.47	2.70	27.17	40.00	-12.83	180	100	peak
3	90.2205	23.86	3.68	27.54	43.50	-15.96	225	100	peak
4	668.1423	23.99	12.60	36.59	46.00	-9.41	123	100	peak
5	965.5421	21.31	16.44	37.75	54.00	-16.25	67	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)EUT: *Android TV Dongle*Tested Model: *A08S*Operating Condition: *802.11n-HT20 Transmitting Low Channel-2412MHz*Comment: *USB DC 5V*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	90.2205	21.65	3.68	25.33	43.50	-18.17	260	100	peak
2	297.2241	21.10	9.06	30.16	46.00	-15.84	131	200	peak
3	668.1423	26.11	12.19	38.30	46.00	-7.70	285	200	peak
4	965.5421	21.53	16.44	37.97	54.00	-16.03	224	100	peak

Test Specification: Vertical

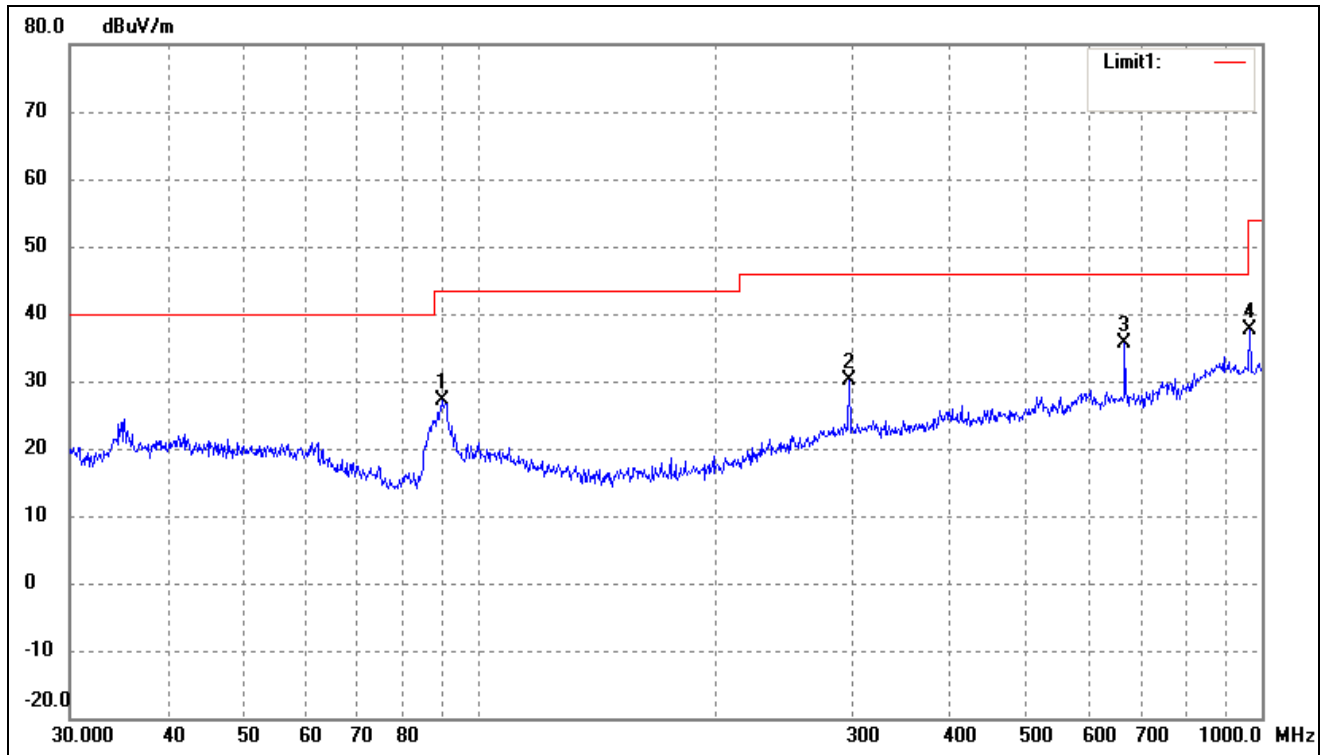


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.2112	19.62	8.12	27.74	40.00	-12.26	155	100	peak
2	68.3908	25.29	2.70	27.99	40.00	-12.01	197	100	peak
3	89.2764	24.38	3.43	27.81	43.50	-15.69	310	100	peak
4	297.2241	21.10	9.06	30.16	46.00	-15.84	229	100	peak
5	668.1423	25.70	12.60	38.30	46.00	-7.70	185	100	peak
6	965.5421	21.53	16.44	37.97	54.00	-16.03	130	100	peak

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

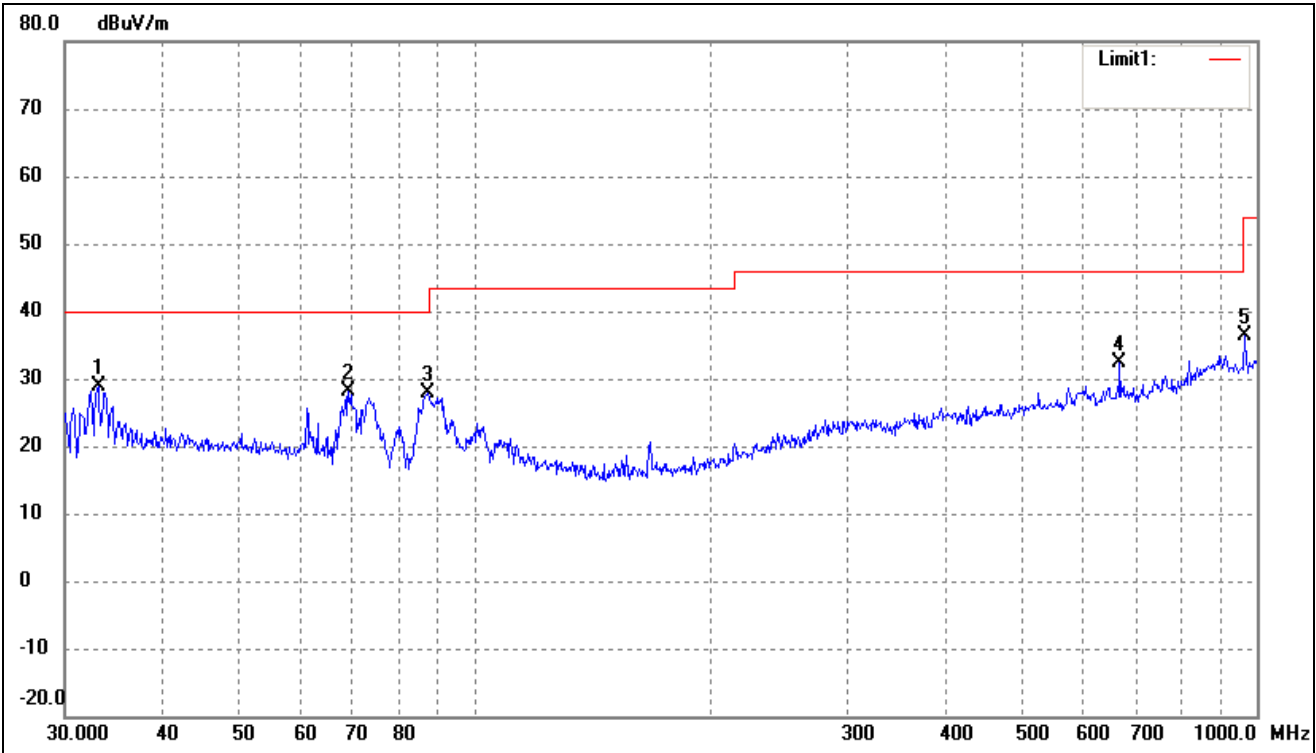
Comment: USB DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	89.9047	23.52	3.60	27.12	43.50	-16.38	274	100	peak
2	297.2241	21.01	9.06	30.07	46.00	-15.93	116	100	peak
3	668.1423	23.40	12.19	35.59	46.00	-10.41	82	100	peak
4	965.5421	21.16	16.44	37.60	54.00	-16.40	134	100	peak

Test Specification: Vertical

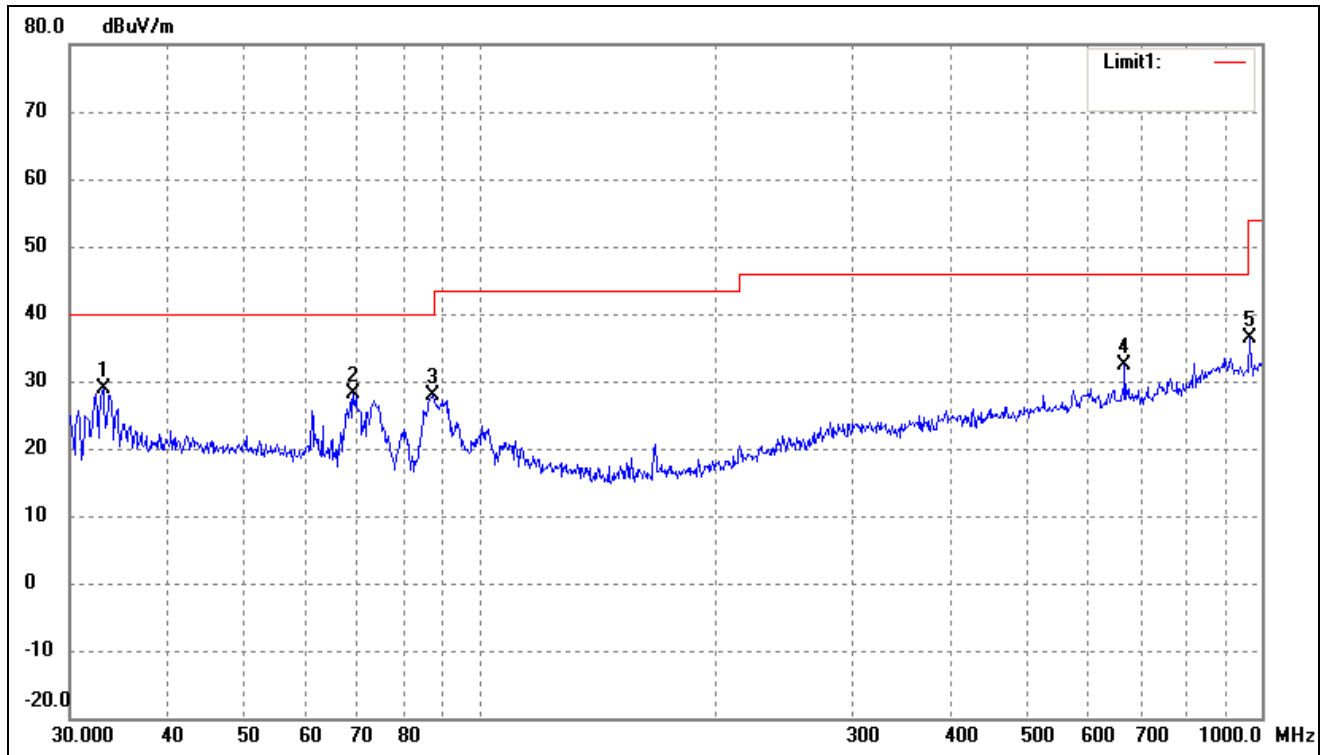


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	20.76	8.10	28.86	40.00	-11.14	264	100	peak
2	69.1141	25.56	2.47	28.03	40.00	-11.97	110	100	peak
3	87.4177	24.83	2.94	27.77	40.00	-12.23	136	100	peak
4	668.1423	19.76	12.60	32.36	46.00	-13.64	187	100	peak
5	965.5421	19.97	16.44	36.41	54.00	-17.59	90	100	peak

Operating Condition: 802.11n-HT20 Transmitting High Channel-2472MHz

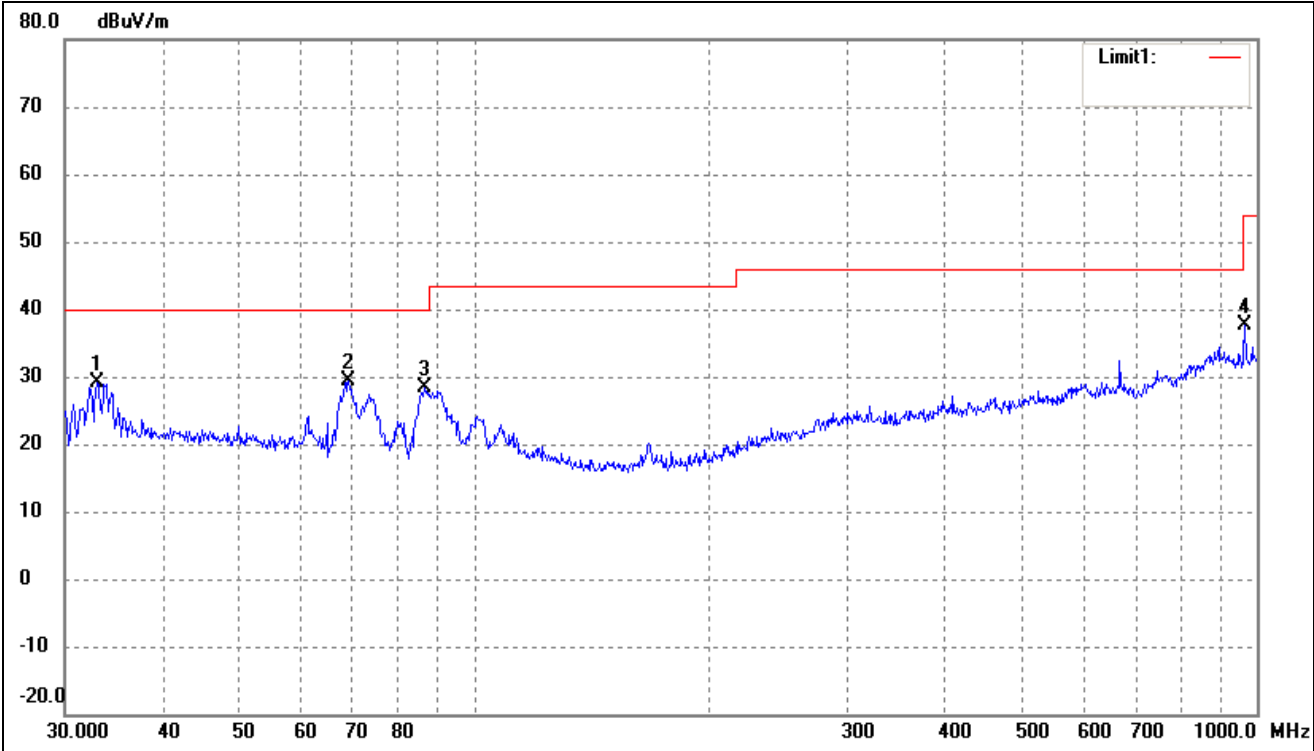
Comment: USB DC 5V

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	33.0950	20.76	8.10	28.86	40.00	-11.14	360	100	peak
2	69.1141	25.56	2.47	28.03	40.00	-11.97	112	100	peak
3	87.4177	24.83	2.94	27.77	40.00	-12.23	180	200	peak
4	668.1423	19.76	12.60	32.36	46.00	-13.64	252	100	peak
5	965.5421	19.97	16.44	36.41	54.00	-17.59	270	200	peak

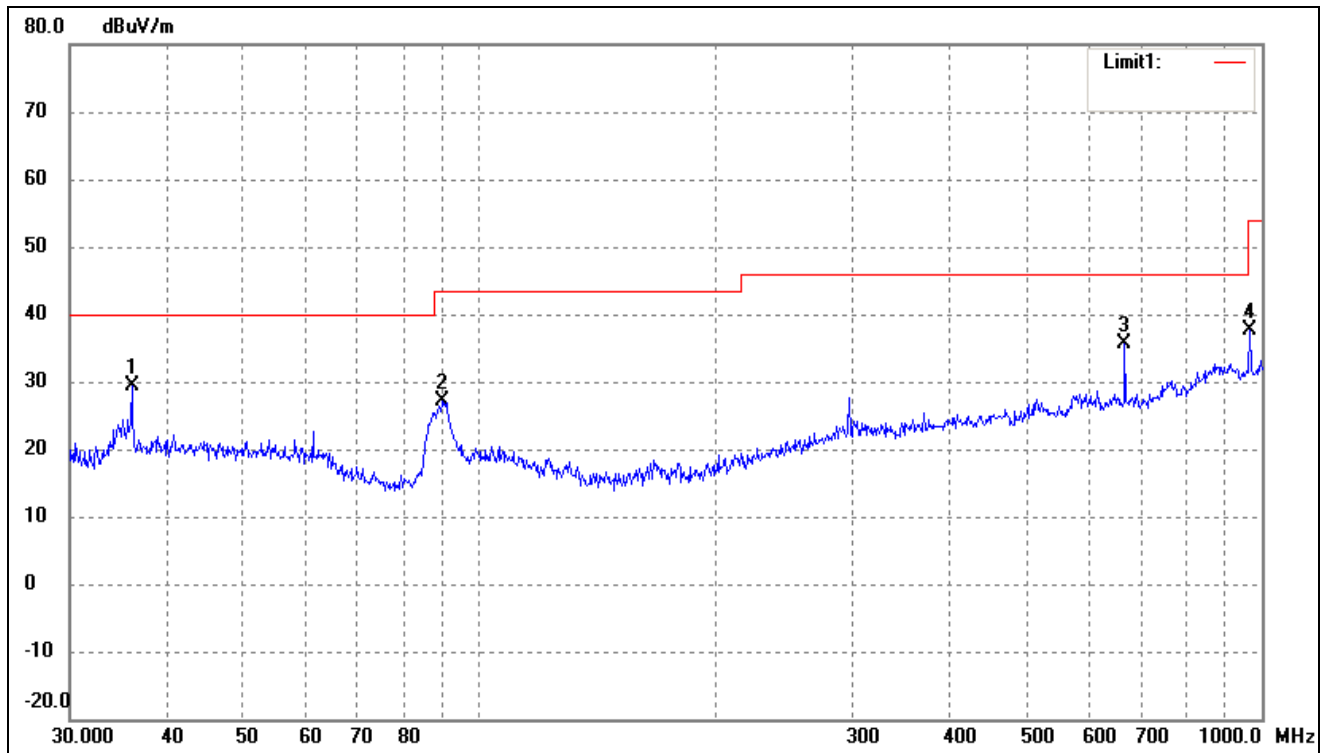
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.9791	21.13	8.09	29.22	40.00	-10.78	267	100	peak
2	69.1141	26.82	2.47	29.29	40.00	-10.71	116	100	peak
3	86.5029	25.67	2.70	28.37	40.00	-11.63	360	100	peak
4	965.5421	21.07	16.44	37.51	54.00	-16.49	228	100	peak

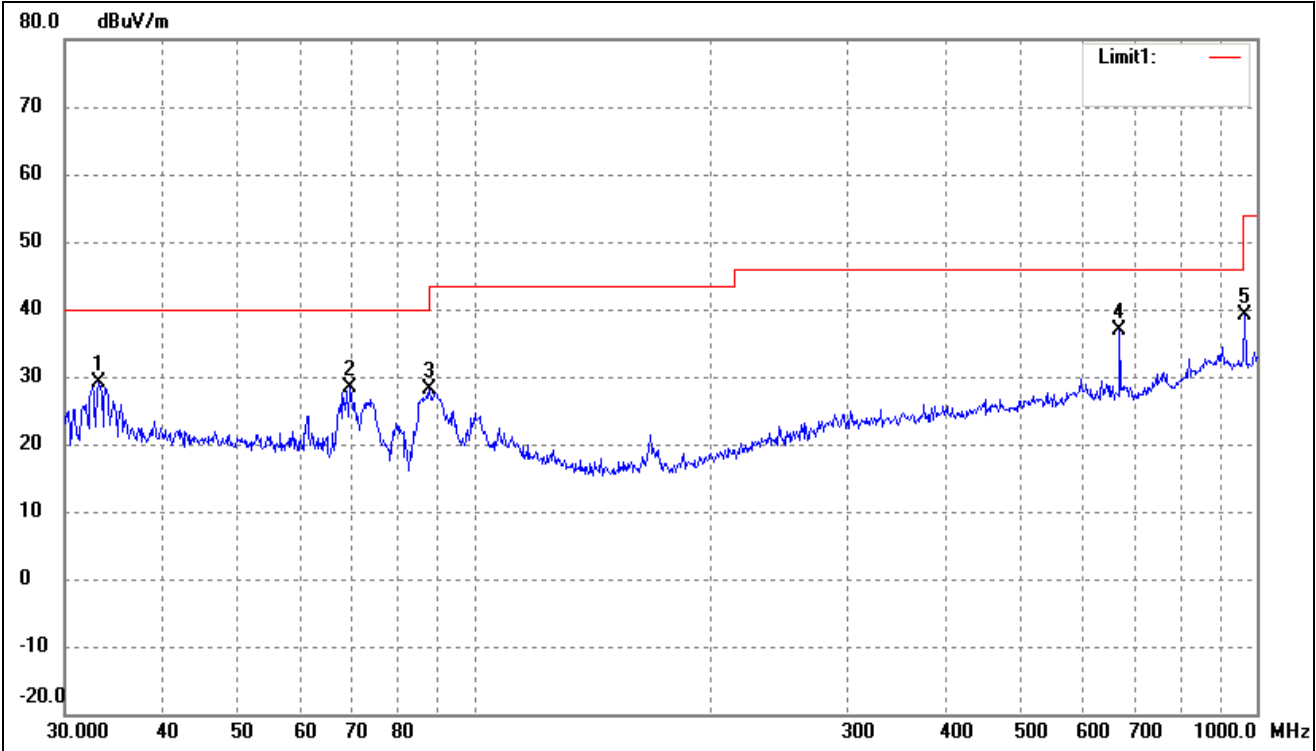
EUT: Android TV Dongle
 Tested Model: A08S
 Operating Condition: 802.11n-HT40 Transmitting Low Channel-2422MHz
 Comment: USB DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	36.0007	23.24	6.16	29.40	40.00	-10.60	267	100	peak
2	89.9047	23.45	3.60	27.05	43.50	-16.45	114	200	peak
3	668.1423	23.45	12.19	35.64	46.00	-10.36	35	200	peak
4	965.5421	21.23	16.44	37.67	54.00	-16.33	178	100	peak

Test Specification: Vertical

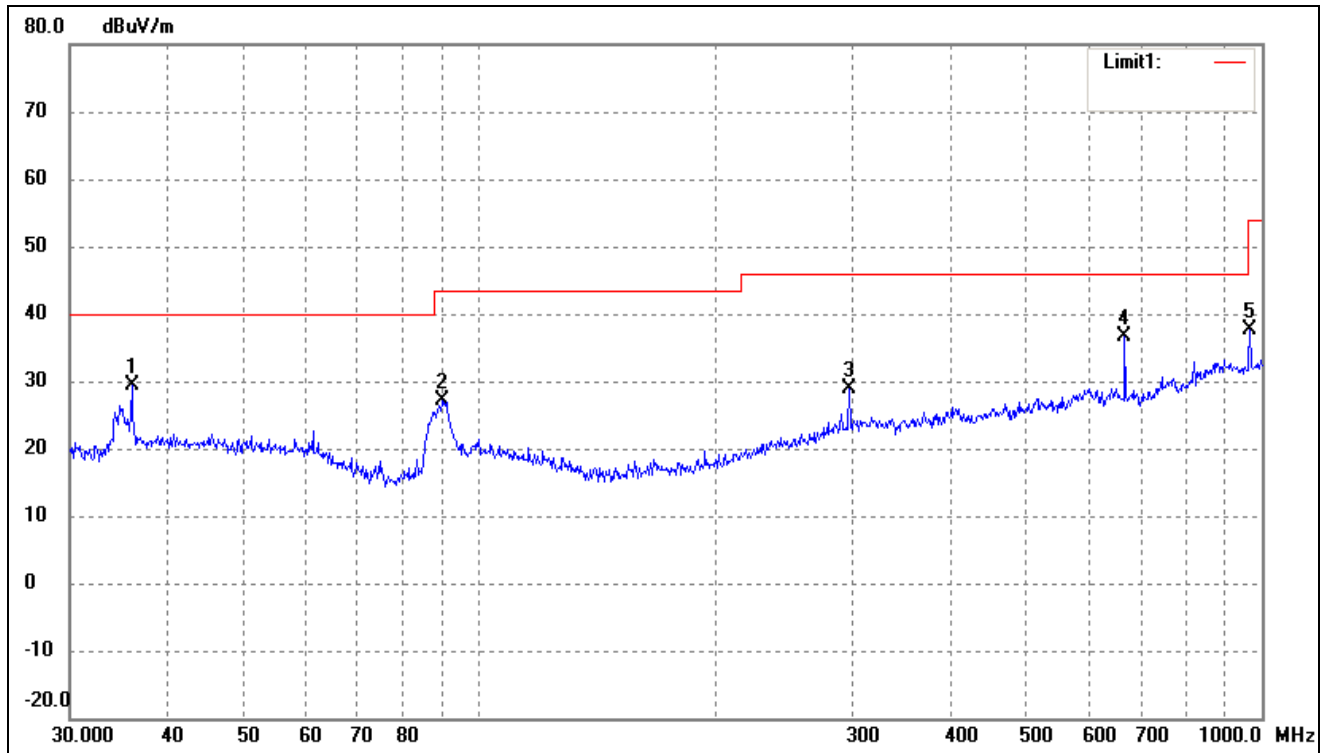


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.2112	20.95	8.12	29.07	40.00	-10.93	360	100	peak
2	69.3568	25.96	2.40	28.36	40.00	-11.64	258	100	peak
3	87.7248	25.00	3.02	28.02	40.00	-11.98	347	100	peak
4	668.1423	24.33	12.60	36.93	46.00	-9.07	270	100	peak
5	965.5421	22.58	16.44	39.02	54.00	-14.98	90	100	peak

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

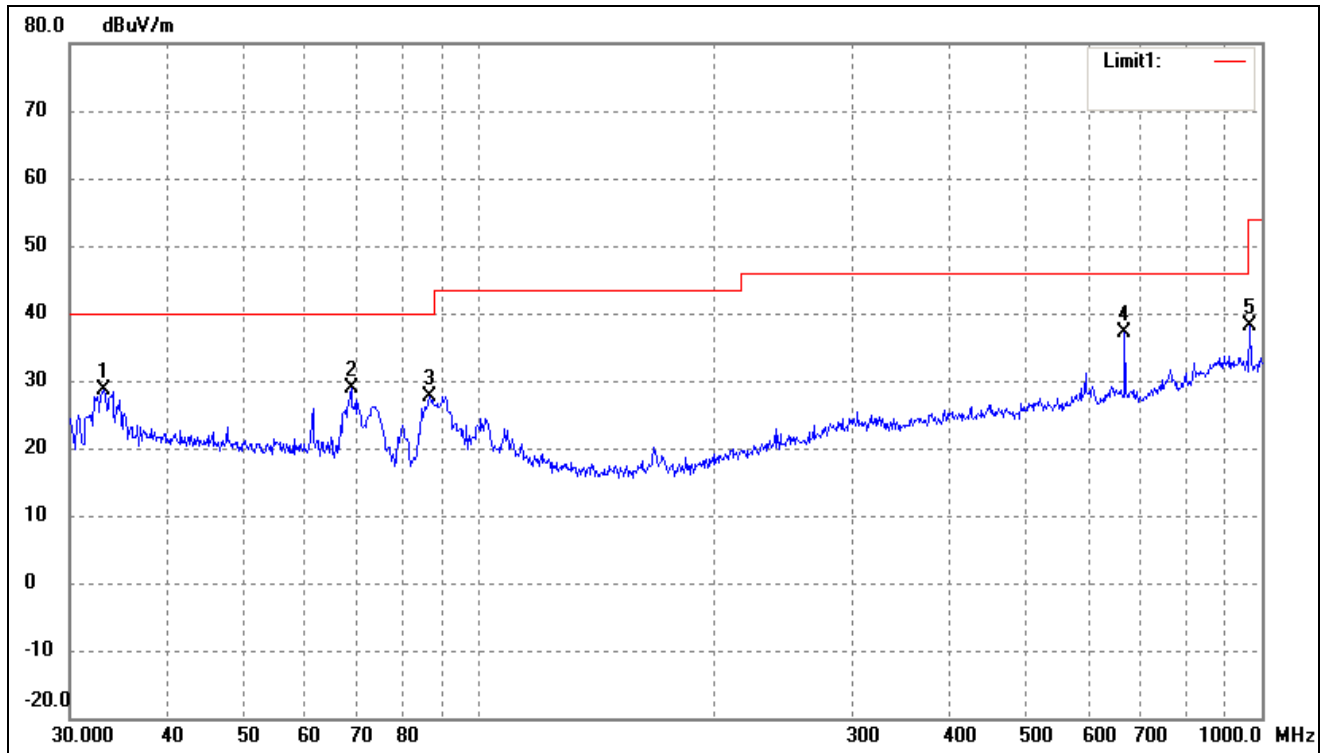
Comment: USB DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	36.0007	23.24	6.16	29.40	40.00	-10.60	251	100	peak
2	89.9047	23.45	3.60	27.05	43.50	-16.45	167	100	peak
3	297.2241	19.89	9.06	28.95	46.00	-17.05	144	100	peak
4	668.1423	24.50	12.19	36.69	46.00	-9.31	155	100	peak
5	965.5421	21.23	16.44	37.67	54.00	-16.33	130	100	peak

Test Specification: Vertical

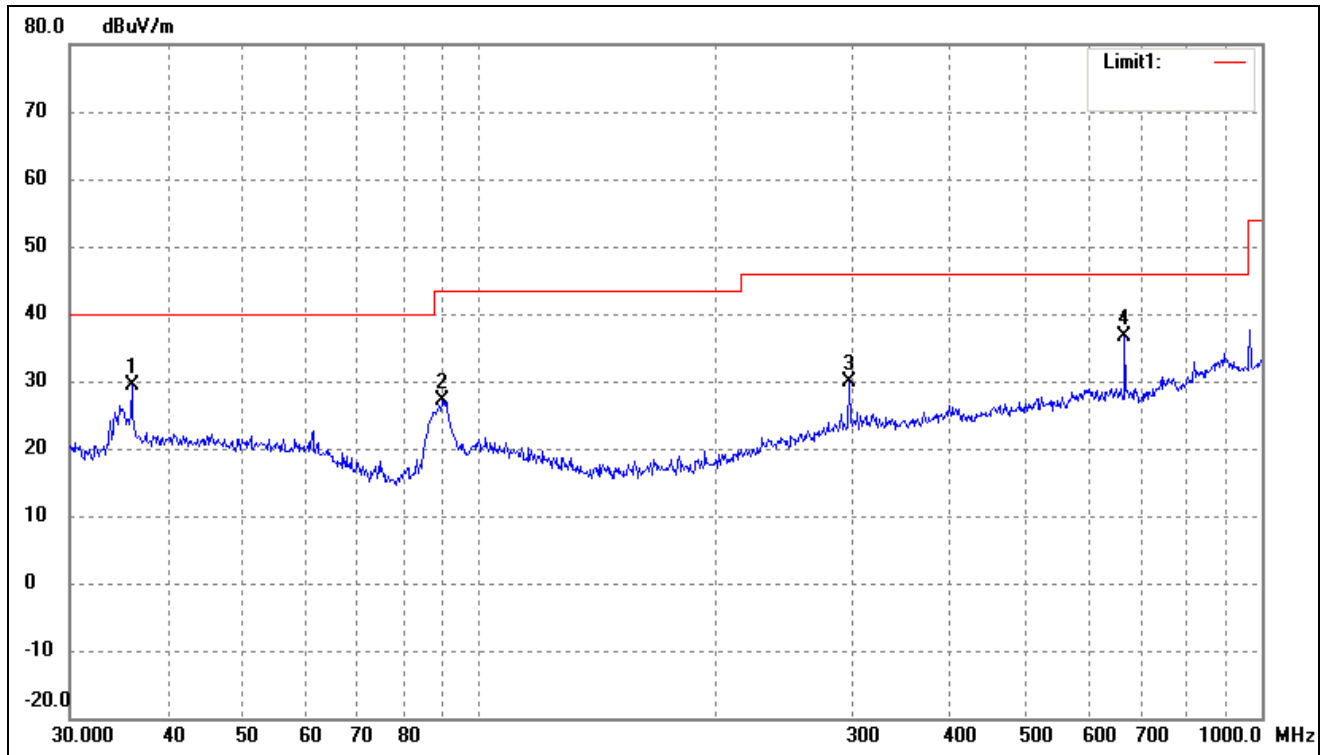


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	20.54	8.10	28.64	40.00	-11.36	47	100	peak
2	68.6310	26.30	2.63	28.93	40.00	-11.07	264	100	peak
3	86.5029	24.91	2.70	27.61	40.00	-12.39	225	100	peak
4	668.1423	24.41	12.60	37.01	46.00	-8.99	180	100	peak
5	965.5421	21.63	16.44	38.07	54.00	-15.93	315	100	peak

Operating Condition: 802.11n-HT40 Transmitting High Channel-2462MHz

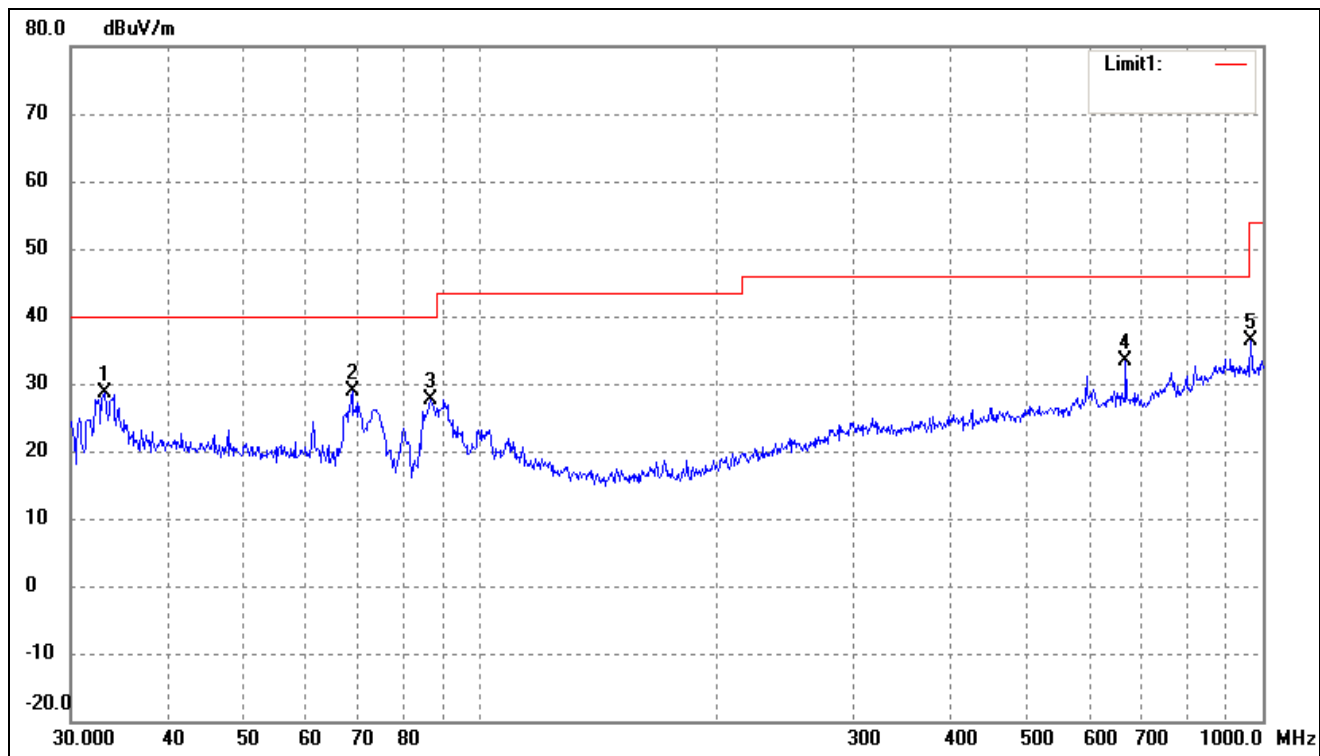
Comment: USB DC 5V

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	36.0007	23.24	6.16	29.40	40.00	-10.60	360	100	peak
2	89.9047	23.45	3.60	27.05	43.50	-16.45	287	100	peak
3	297.2241	20.94	9.06	30.00	46.00	-16.00	168	100	peak
4	668.1423	24.50	12.19	36.69	46.00	-9.31	122	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	33.0950	20.54	8.10	28.64	40.00	-11.36	78	100	peak
2	68.6310	26.30	2.63	28.93	40.00	-11.07	136	100	peak
3	86.5029	24.91	2.70	27.61	40.00	-12.39	284	100	peak
4	668.1423	20.70	12.60	33.30	46.00	-12.70	60	100	peak
5	965.5421	20.03	16.44	36.47	54.00	-17.53	330	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	54.09	0.57	54.66	74.00	-19.34	H	PK
4824	38.84	0.57	39.41	54.00	-14.59	H	AV
7236	46.30	3.69	49.99	74.00	-24.01	H	PK
7236	34.98	3.69	38.67	54.00	-15.33	H	AV
4824	57.31	0.57	57.88	74.00	-16.12	V	PK
4824	40.50	0.57	41.07	54.00	-12.93	V	AV
7236	49.11	3.69	52.80	74.00	-21.20	V	PK
7236	37.44	3.69	41.13	54.00	-12.87	V	AV
Middle Channel-2442MHz							
4884	54.74	0.66	55.40	74.00	-18.60	H	PK
4884	39.99	0.66	40.65	54.00	-13.35	H	AV
7326	47.77	3.76	51.53	74.00	-22.47	H	PK
7326	33.10	3.76	36.86	54.00	-17.14	H	AV
4884	53.97	0.66	54.63	74.00	-19.37	V	PK
4884	40.89	0.66	41.55	54.00	-12.45	V	AV
7326	47.98	3.76	51.74	74.00	-22.26	V	PK
7326	34.08	3.76	37.84	54.00	-16.16	V	AV
High Channel-2472MHz							
4944	55.82	0.74	56.56	74.00	-17.44	H	PK
4944	41.76	0.74	42.50	54.00	-11.50	H	AV
7416	46.38	3.83	50.21	74.00	-23.79	H	PK
7416	34.83	3.83	38.66	54.00	-15.34	H	AV
4944	54.94	0.74	55.68	74.00	-18.32	V	PK
4944	42.04	0.74	42.78	54.00	-11.22	V	AV
7416	47.99	3.83	51.82	74.00	-22.18	V	PK
7416	35.18	3.83	39.01	54.00	-14.99	V	AV

Test Mode: 802.11g

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	55.50	0.57	56.07	74.00	-17.93	H	PK
4824	42.23	0.57	42.80	54.00	-11.20	H	AV
7236	48.42	3.69	52.11	74.00	-21.89	H	PK
7236	34.40	3.69	38.09	54.00	-15.91	H	AV
4824	55.99	0.57	56.56	74.00	-17.44	V	PK
4824	42.65	0.57	43.22	54.00	-10.78	V	AV
7236	49.22	3.69	52.91	74.00	-21.09	V	PK
7236	35.54	3.69	39.23	54.00	-14.77	V	AV
Middle Channel-2442MHz							
4884	55.10	0.66	55.76	74.00	-18.24	H	PK
4884	43.28	0.66	43.94	54.00	-10.06	H	AV
7326	47.38	3.76	51.14	74.00	-22.86	H	PK
7326	35.27	3.76	39.03	54.00	-14.97	H	AV
4884	57.07	0.66	57.73	74.00	-16.27	V	PK
4884	43.86	0.66	44.52	54.00	-9.48	V	AV
7326	48.40	3.76	52.16	74.00	-21.84	V	PK
7326	35.33	3.76	39.09	54.00	-14.91	V	AV
High Channel-2472MHz							
4944	54.00	0.74	54.74	74.00	-19.26	H	PK
4944	40.75	0.74	41.49	54.00	-12.51	H	AV
7416	47.18	3.83	51.01	74.00	-22.99	H	PK
7416	34.73	3.83	38.56	54.00	-15.44	H	AV
4944	56.11	0.74	56.85	74.00	-17.15	V	PK
4944	42.69	0.74	43.43	54.00	-10.57	V	AV
7416	48.58	3.83	52.41	74.00	-21.59	V	PK
7416	35.95	3.83	39.78	54.00	-14.22	V	AV

Test Mode: 802.11n-HT20

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	55.60	0.57	56.17	74.00	-17.83	H	PK
4824	40.54	0.57	41.11	54.00	-12.89	H	AV
7236	47.26	3.69	50.95	74.00	-23.05	H	PK
7236	34.44	3.69	38.13	54.00	-15.87	H	AV
4824	56.71	0.57	57.28	74.00	-16.72	V	PK
4824	43.18	0.57	43.75	54.00	-10.25	V	AV
7236	49.21	3.69	52.90	74.00	-21.10	V	PK
7236	35.77	3.69	39.46	54.00	-14.54	V	AV
Middle Channel-2442MHz							
4884	54.16	0.66	54.82	74.00	-19.18	H	PK
4884	42.48	0.66	43.14	54.00	-10.86	H	AV
7326	48.74	3.76	52.50	74.00	-21.50	H	PK
7326	33.10	3.76	36.86	54.00	-17.14	H	AV
4884	54.92	0.66	55.58	74.00	-18.42	V	PK
4884	42.62	0.66	43.28	54.00	-10.72	V	AV
7326	48.49	3.76	52.25	74.00	-21.75	V	PK
7326	35.20	3.76	38.96	54.00	-15.04	V	AV
High Channel-2472MHz							
4944	53.90	0.74	54.64	74.00	-19.36	H	PK
4944	43.23	0.74	43.97	54.00	-10.03	H	AV
7416	48.31	3.83	52.14	74.00	-21.86	H	PK
7416	36.10	3.83	39.93	54.00	-14.07	H	AV
4944	55.70	0.74	56.44	74.00	-17.56	V	PK
4944	41.48	0.74	42.22	54.00	-11.78	V	AV
7416	48.55	3.83	52.38	74.00	-21.62	V	PK
7416	35.36	3.83	39.19	54.00	-14.81	V	AV

Test Mode: 802.11n-HT40

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2422MHz							
4844	53.25	0.60	53.85	74.00	-20.15	H	PK
4844	38.25	0.60	38.85	54.00	-15.15	H	AV
7266	46.48	3.72	50.20	74.00	-23.80	H	PK
7266	32.56	3.72	36.28	54.00	-17.72	H	AV
4844	54.22	0.60	54.82	74.00	-19.18	V	PK
4844	39.42	0.60	40.02	54.00	-13.98	V	AV
7266	48.81	3.72	52.53	74.00	-21.47	V	PK
7266	34.78	3.72	38.50	54.00	-15.50	V	AV
Middle Channel-2442MHz							
4884	52.53	0.66	53.19	74.00	-20.81	H	PK
4884	37.88	0.66	38.54	54.00	-15.46	H	AV
7326	44.88	3.76	48.64	74.00	-25.36	H	PK
7326	32.03	3.76	35.79	54.00	-18.21	H	AV
4884	53.74	0.66	54.40	74.00	-19.60	V	PK
4884	39.95	0.66	40.61	54.00	-13.39	V	AV
7326	45.78	3.76	49.54	74.00	-24.46	V	PK
7326	34.00	3.76	37.76	54.00	-16.24	V	AV
High Channel-2462MHz							
4924	52.65	0.72	53.37	74.00	-20.63	H	PK
4924	39.37	0.72	40.09	54.00	-13.91	H	AV
7386	45.63	3.81	49.44	74.00	-24.56	H	PK
7386	30.73	3.81	34.54	54.00	-19.46	H	AV
4924	54.84	0.72	55.56	74.00	-18.44	V	PK
4924	40.83	0.72	41.55	54.00	-12.45	V	AV
7386	48.18	3.81	51.99	74.00	-22.01	V	PK
7386	35.12	3.81	38.93	54.00	-15.07	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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-07	2015-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-07	2015-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-07	2015-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-07	2015-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-04-20	2015-04-19
Horn Antenna	ETS	3117	00086197	2014-04-20	2015-04-19

9.3 Test Procedure

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

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)

RBW = 1MHz, VBW = 1MHz for peak value measured

RBW = 1MHz, VBW = 10Hz for average value measured

Sweep = auto; Detector function = peak/average; Trace = max hold

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

According to the KDB 558074 D01 V03, the conducted spurious emissions test method as follows:

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

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

9.4 Environmental Conditions

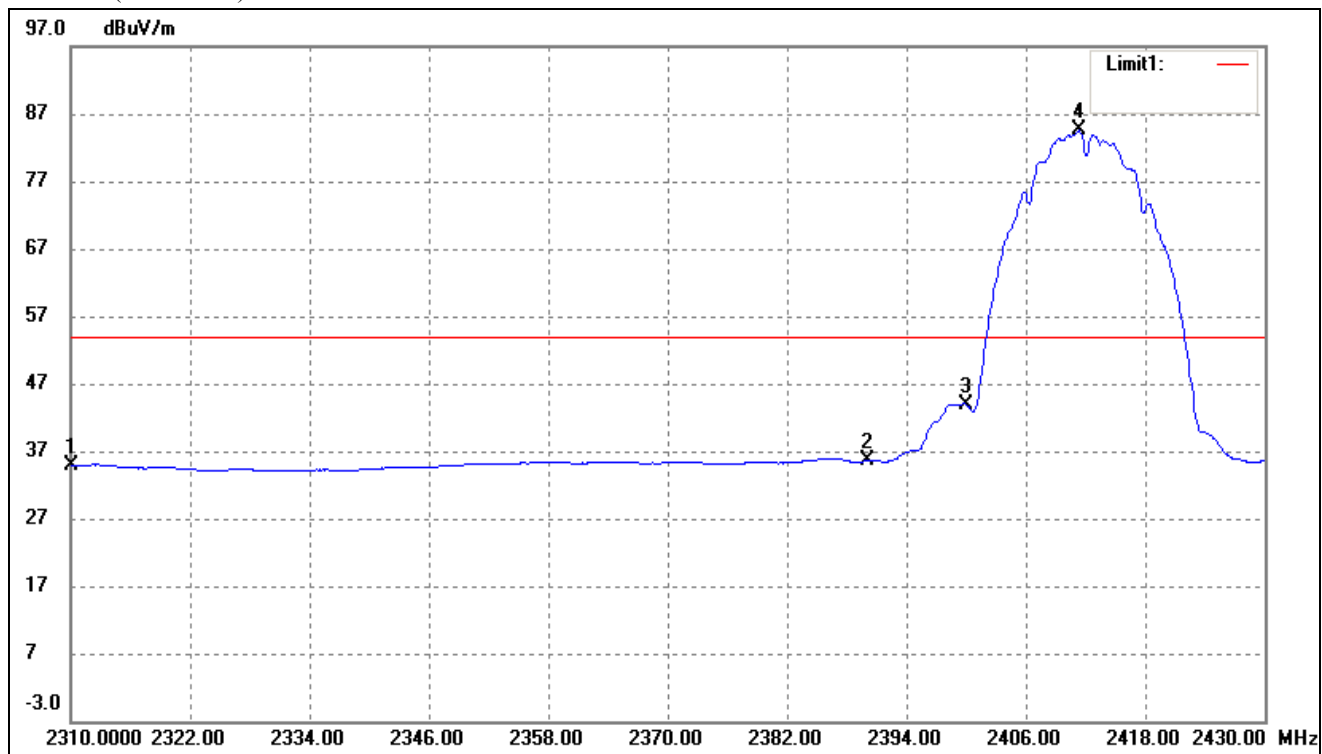
Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.5 Summary of Test Results/Plots

Please refer to the test plots as below.

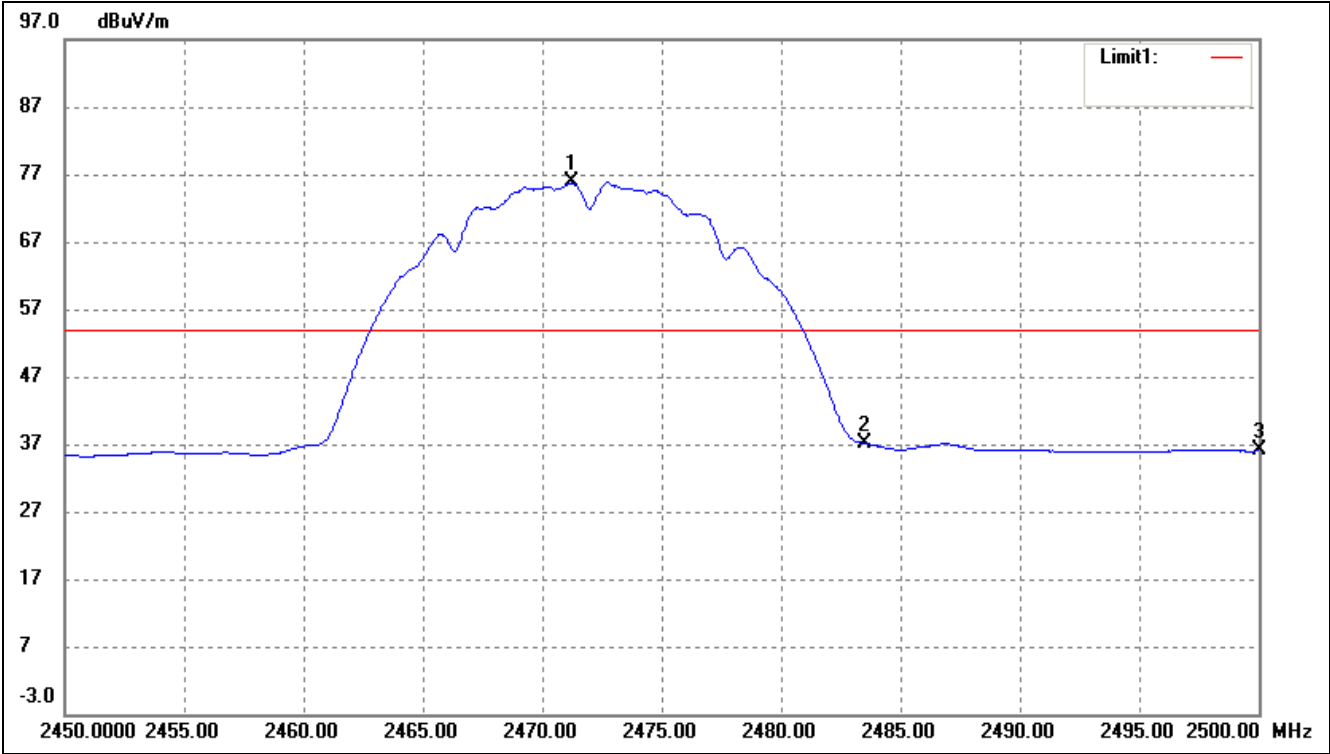
802.11b-Lowest Bandedge

Vertical (Worst case)



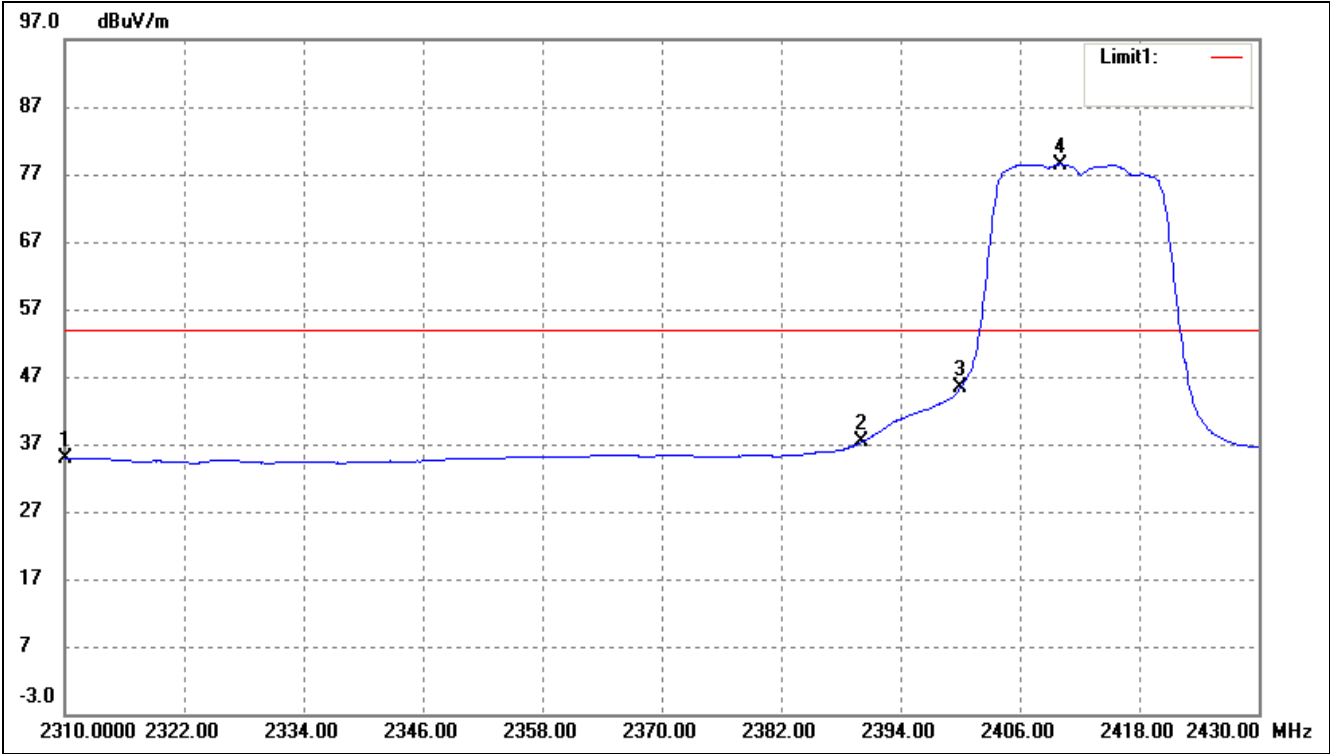
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	18.59	16.34	34.93	54.00	-19.07	Average Detector
	2310.000	31.16	16.34	47.50	74.00	-26.50	Peak Detector
2	2390.000	18.55	17.03	35.58	54.00	-18.42	Average Detector
	2390.000	30.92	17.03	47.95	74.00	-26.05	Peak Detector
3	2400.000	26.76	17.11	43.87	Delta=40.64dBc		Average Detector
	2411.280	67.32	17.19	84.51			Peak 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	2471.200	58.14	17.65	75.79	/	/	Average Detector
	2471.200	67.23	17.65	84.88	/	/	Peak Detector
2	2483.500	Delta = 45.59dBc		30.20	54.00	-23.80	Average Detector
	2483.500			39.29	74.00	-34.71	Peak Detector
3	2500.000	18.16	17.86	36.02	54.00	-17.98	Average Detector
	2500.000	30.95	17.86	48.81	74.00	-25.19	Peak Detector

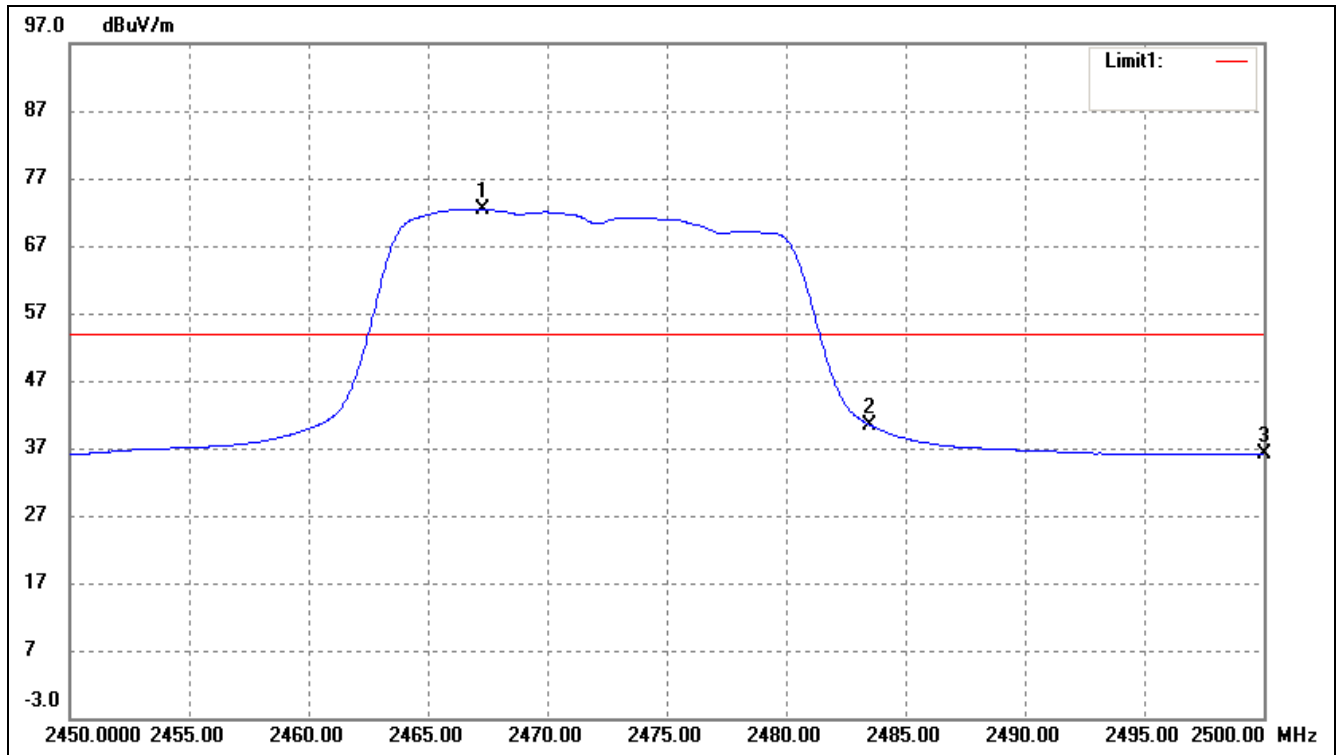
802.11g-Lowest Bandedge
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	18.52	16.34	34.86	54.00	-19.14	Average Detector
	2310.000	30.35	16.34	46.69	74.00	-27.31	Peak Detector
2	2390.000	20.24	17.03	37.27	54.00	-16.73	Average Detector
	2390.000	35.23	17.03	52.26	74.00	-21.74	Peak Detector
3	2400.000	28.24	17.11	45.35	Delta=33.15dBc		Average Detector
	2410.080	61.31	17.19	78.50			Peak Detector

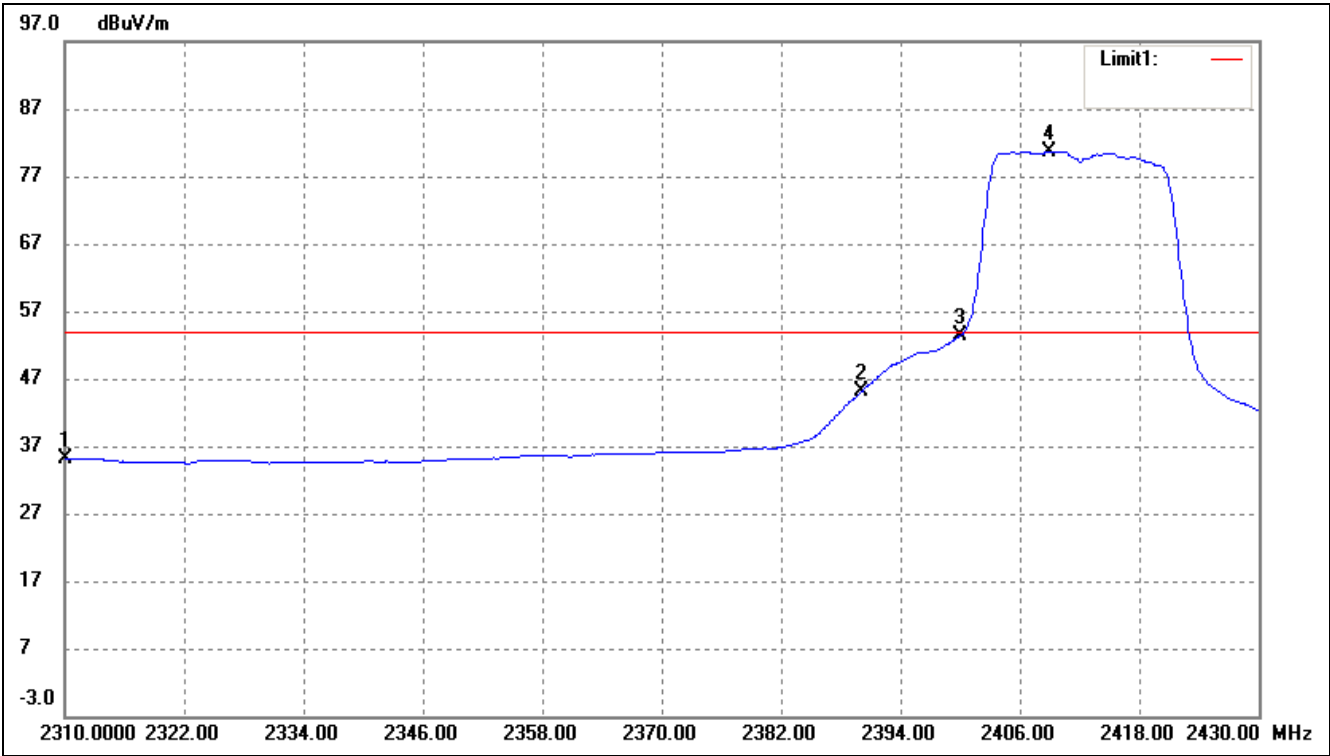
802.11g-Highest Bandedge

Vertical (Worst case)



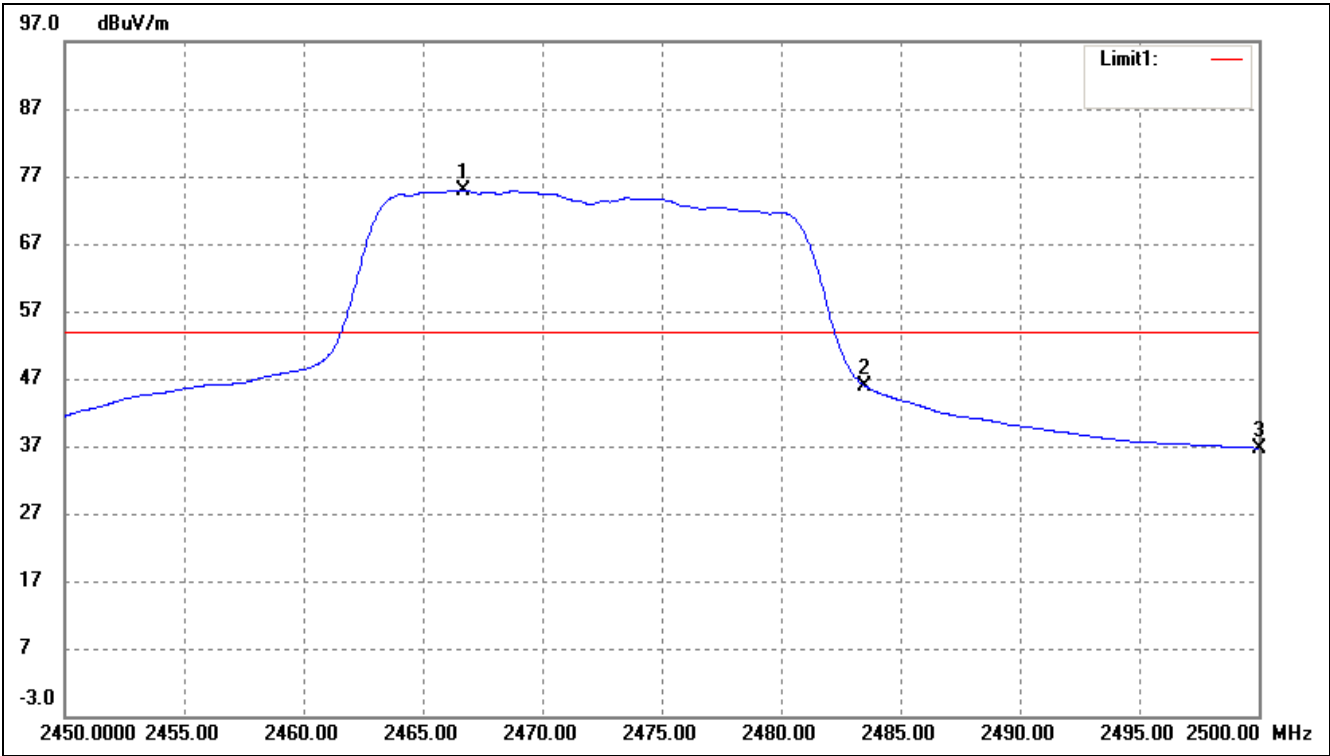
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2	2467.300	54.80	17.60	72.40	/	/	Average Detector
	2467.300	67.46	17.60	85.06	/	/	Peak Detector
1	2483.500	Delta = 44.48dBc		27.92	54.00	-26.08	Average Detector
	2483.500			40.58	74.00	-33.42	Peak Detector
3	2500.000	18.19	17.86	36.05	54.00	-17.95	Average Detector
	2500.000	43.83	-3.28	40.55	74.00	-33.45	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	18.67	16.34	35.01	54.00	-18.99	Average Detector
	2310.000	30.12	16.34	46.46	74.00	-27.54	Peak Detector
2	2390.000	28.06	17.03	45.09	54.00	-8.91	Average Detector
	2390.000	51.71	17.03	68.74	74.00	-5.26	Peak Detector
3	2400.000	36.32	17.11	53.43	Delta=27.31dBc		Average Detector
	2408.880	63.57	17.17	80.74			Peak Detector

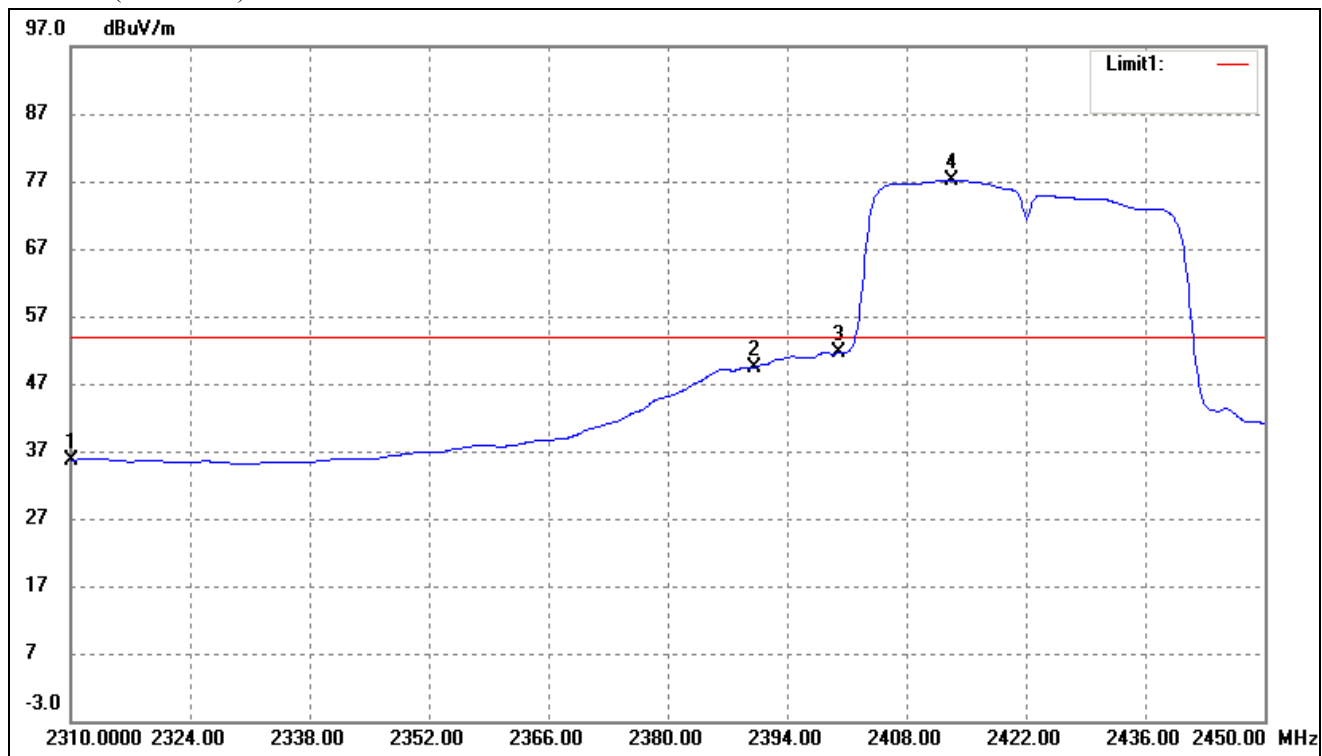
802.11n-HT20-Highest Bandedge
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2466.700	57.32	17.60	74.92	/	/	Average Detector
	2466.250	68.36	17.60	85.96	/	/	Peak Detector
2	2483.500	Delta = 45.09dBc		29.83	54.00	-24.17	Average Detector
	2483.500			40.87	74.00	-33.13	Peak Detector
3	2500.000	18.81	17.86	36.67	54.00	-17.33	Average Detector
	2500.000	30.86	17.86	48.72	74.00	-25.28	Peak Detector

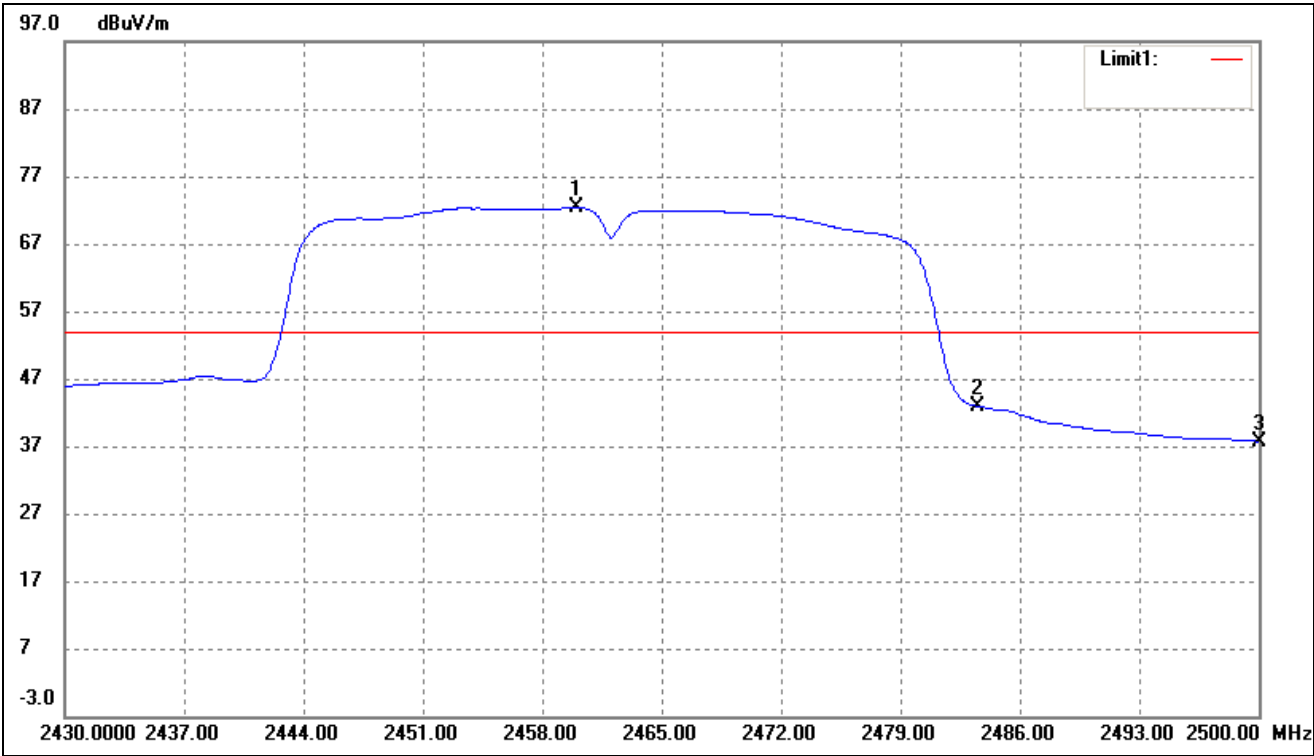
802.11n-HT40-Lowest Bandedge

Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	19.39	16.34	35.73	54.00	-18.27	Average Detector
	2310.000	31.78	16.34	48.12	74.00	-25.88	Peak Detector
2	2390.000	32.35	17.03	49.38	54.00	-4.62	Average Detector
	2390.000	47.86	17.03	64.89	74.00	-9.11	Peak Detector
3	2400.000	34.47	17.11	51.58	Delta=25.55dBc		Average Detector
	2413.320	59.92	17.21	77.13			Peak Detector

802.11n-HT40-Highest Bandedge
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2460.030	54.79	17.56	72.35	/	/	Average Detector
	2459.610	65.70	17.55	83.25	/	/	Peak Detector
2	2483.500	Delta = 46.21dBc		26.14	54.00	-27.86	Average Detector
	2483.500			37.04	74.00	-36.96	Peak Detector
3	2500.000	19.80	17.86	37.66	54.00	-16.34	Average Detector
	2500.000	33.96	17.86	51.82	74.00	-22.18	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	2014-05-07	2015-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-07	2015-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-07	2015-05-06

10.3 Test Procedure

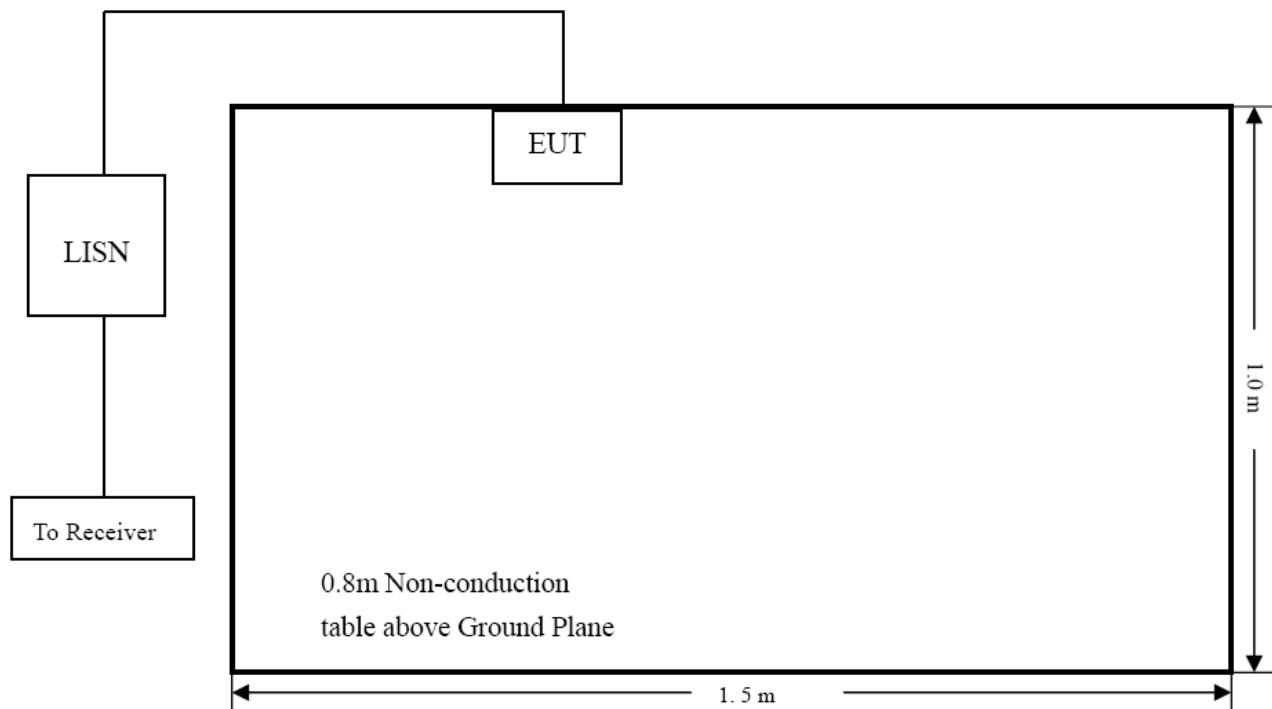
The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

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.

Note: Base on the calibrated result, for the impedance characteristic and insertion loss, the effect shall be ignored from the placed multiple outlet power strip between the device and LISN.

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:

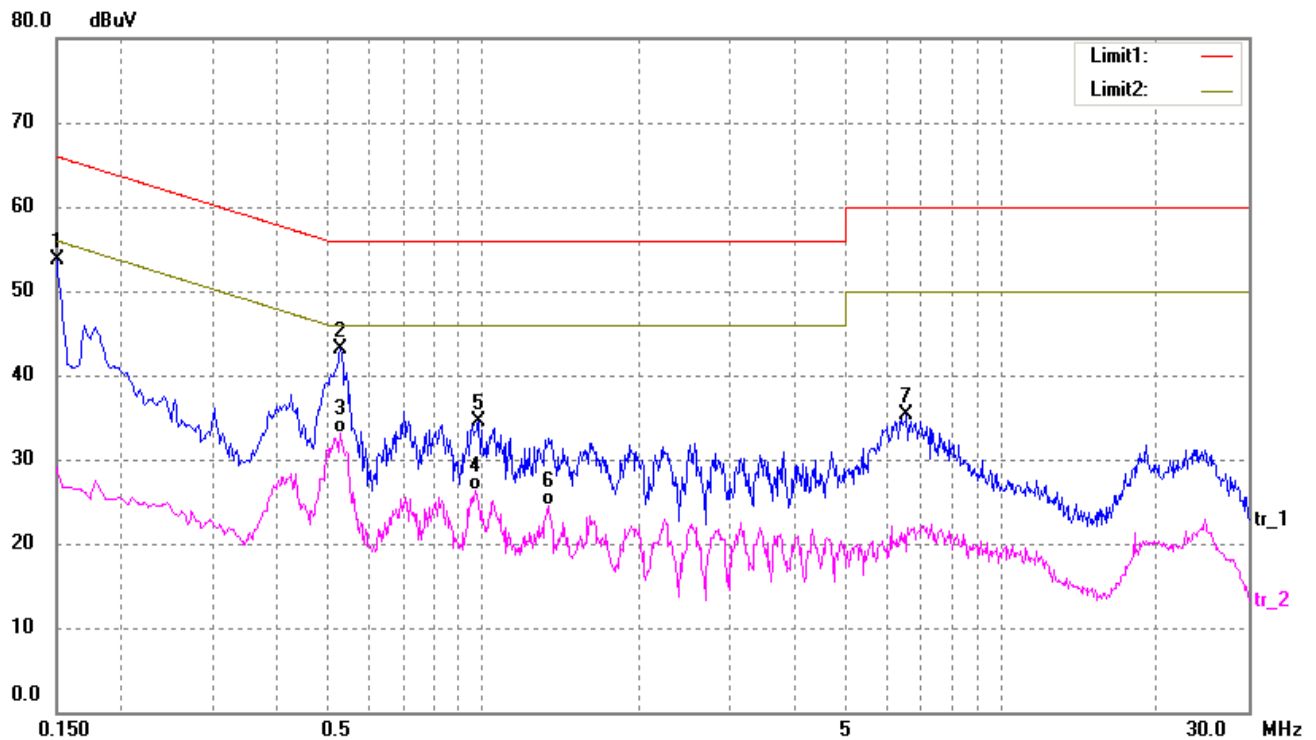
-6.38 dB at 0.5260 MHz in the Line mode, Peak detector, 0.15-30MHz

10.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

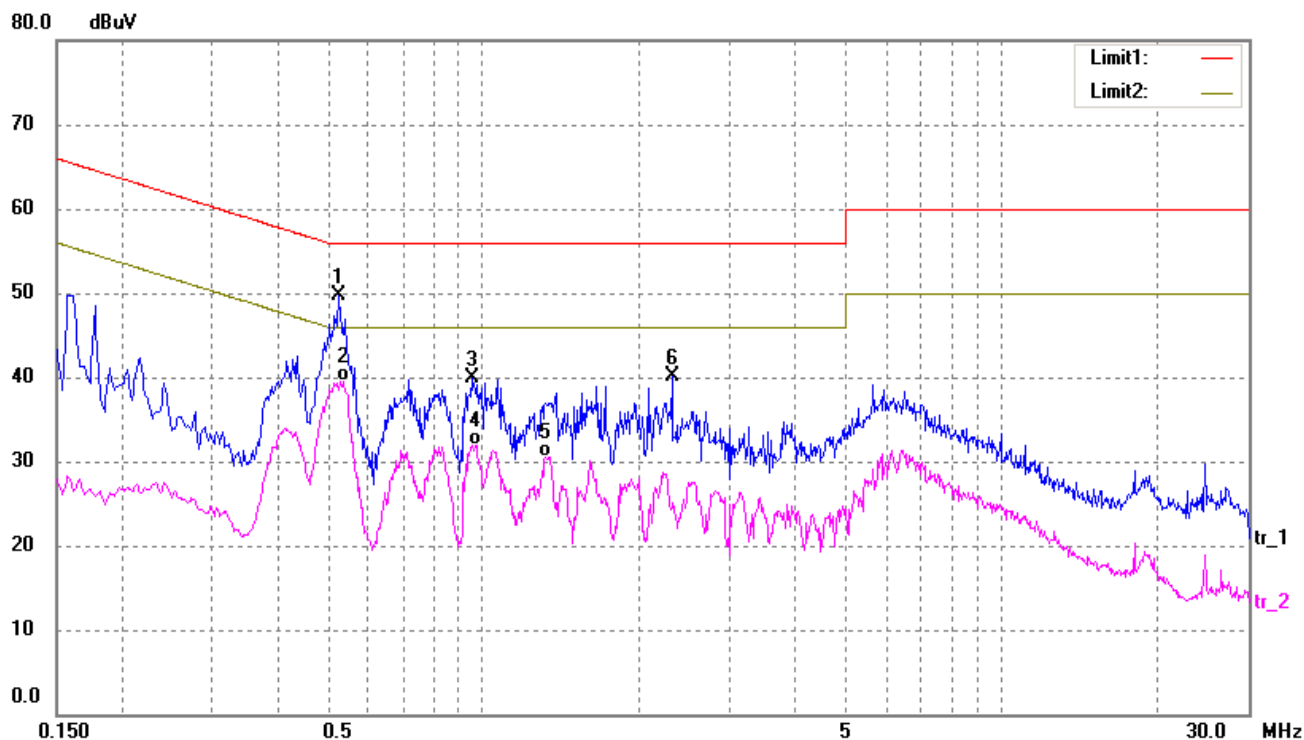
EUT: Android TV Dongle
 Tested Model: A08S
 Operating Condition: Transmitting(Wi-Fi)
 Comment: AC 120V/60Hz; Adapter Dc 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	44.20	9.50	53.70	66.00	-12.30	peak
2	0.5300	33.57	9.53	43.10	56.00	-12.90	peak
3	0.5300	23.52	9.53	33.05	46.00	-12.95	AVG
4	0.9660	16.38	9.97	26.35	46.00	-19.65	AVG
5	0.9820	24.45	9.98	34.43	56.00	-21.57	peak
6	1.3340	14.53	10.00	24.53	46.00	-21.47	AVG
7	6.5580	25.36	10.00	35.36	60.00	-24.64	peak

Test Specification: Live



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.5260	40.09	9.53	49.62	56.00	-6.38	peak
2	0.5380	29.97	9.54	39.51	46.00	-6.49	AVG
3	0.9500	30.04	9.95	39.99	56.00	-16.01	peak
4	0.9700	21.97	9.97	31.94	46.00	-14.06	AVG
5	1.3220	20.53	10.00	30.53	46.00	-15.47	AVG
6	2.3180	30.05	10.00	40.05	56.00	-15.95	peak

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