

FCC Part 15C Measurement and Test Report

For

Abocom Systems Inc

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

FCC ID: MQ4-MBR-1100

FCC Rule(s):	<u>FCC Part 15C</u>
Product Description:	<u>Android TV Dongle</u>
Tested Model:	<u>MBR-1100</u>
Report No.:	<u>STR14078217I-1</u>
Tested Date:	<u>2014-07-23 to 2014-08-27</u>
Issued Date:	<u>2014-08-27</u>
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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 County
 35059, Taiwan R.O.C.
 Manufacturer: Abocom Systems Inc
 Address of manufacturer: No.77, Yu-Yih Rd., Chu-Nan, Miao-Lih County
 35059, Taiwan R.O.C.

General Description of EUT	
Product Name:	Android TV Dongle
Trade Name:	/
Model No.:	MBR-1100
Adding Model(s):	XMP-6200
Rated Voltage:	DC5.35V adapter
Power Adapter Model:	PSAI10R-050Q
<i>Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model MBR-1100, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n(HT20;HT40)
Frequency Range:	2412-2472MHz for 802.11b/g/n(HT20) 2422-2462MHz for 802.11n(HT40)
RF Output Power:	7.79dBm (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:	SMA Reverse
Antenna Gain:	2dBi
Internal Lowest frequency:	32.768kHz

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 measurement guide KDB 558074 D01 V03r02 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	Shielded	With Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
HDMI Cable	1.2	Shielded	Without Ferrite
RJ45	2.0	Unshielded	Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
USB flash disk	SONY	8G	/
TF Card	Kingston	4G	/
Mouse	DELL	N889	/

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 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	2014-05-28	2015-05-27
Attenuator	ATTEN	ATS100-4-20	/	2014-05-28	2015-05-27

5.3 Test Procedure

According to the KDB 558074 D01 V03r02, the test method of power spectral density as below:

3

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

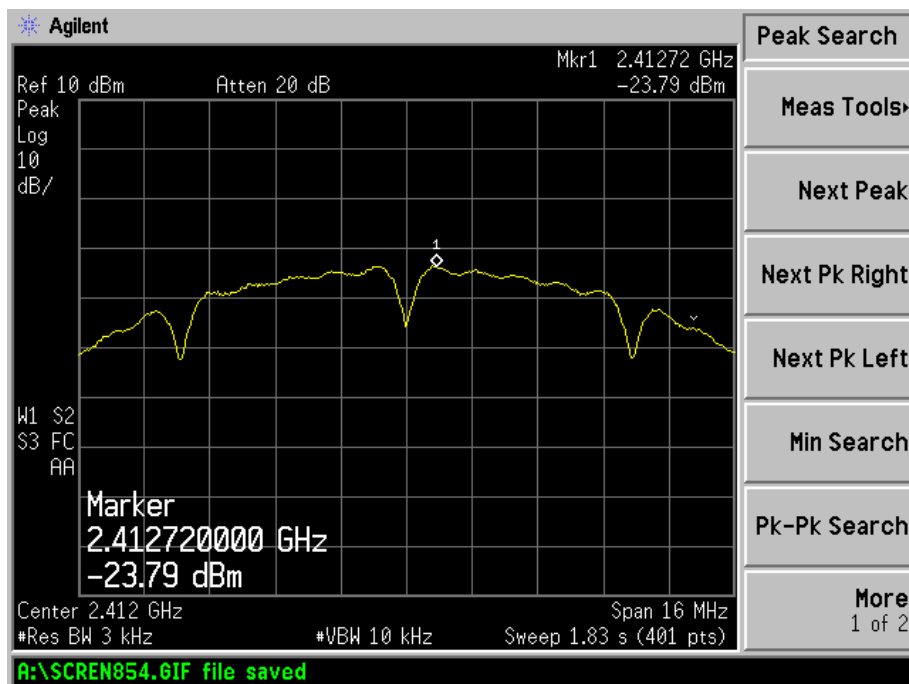
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

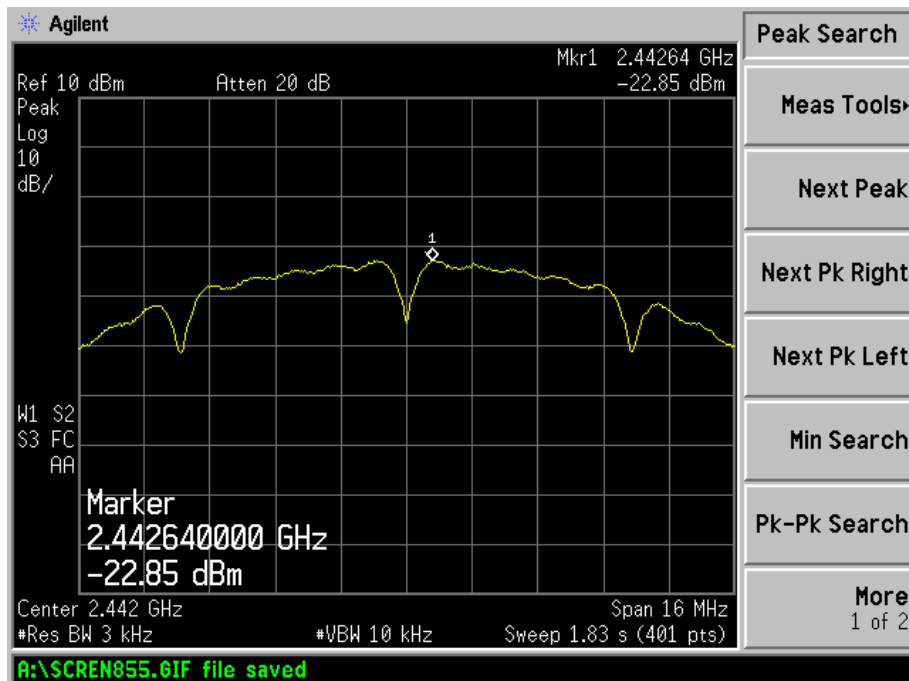
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-23.79	8
	2442	-22.85	8
	2472	-20.52	8
802.11g	2412	-26.20	8
	2442	-25.66	8
	2472	-25.62	8
802.11n HT20	2412	-22.33	8
	2442	-22.45	8
	2472	-21.37	8
802.11n HT40	2422	-25.67	8
	2442	-25.43	8
	2462	-25.07	8

Please refer to the following test plots:

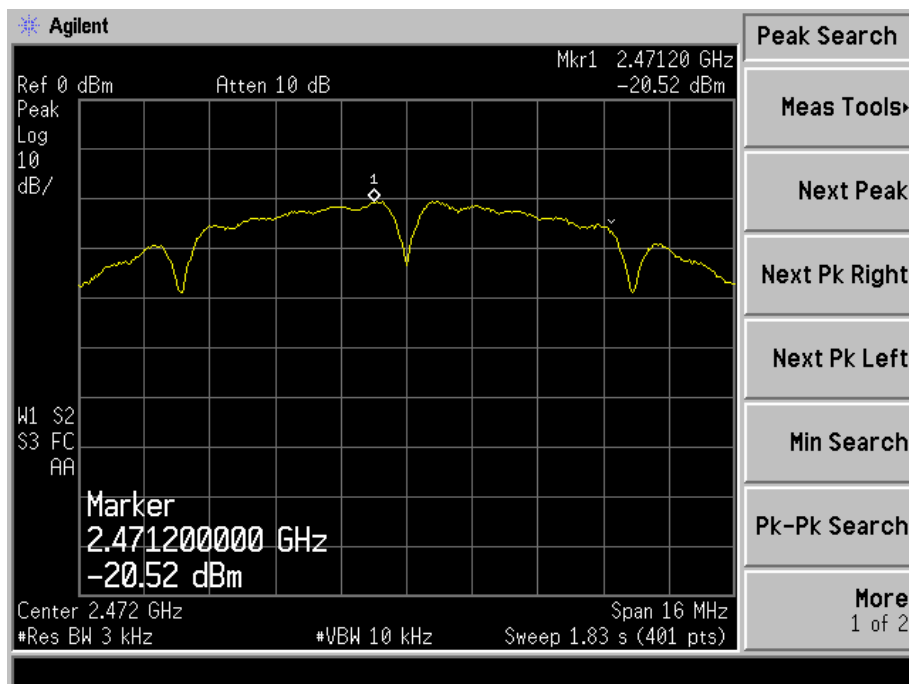
802.11b-Low Channel



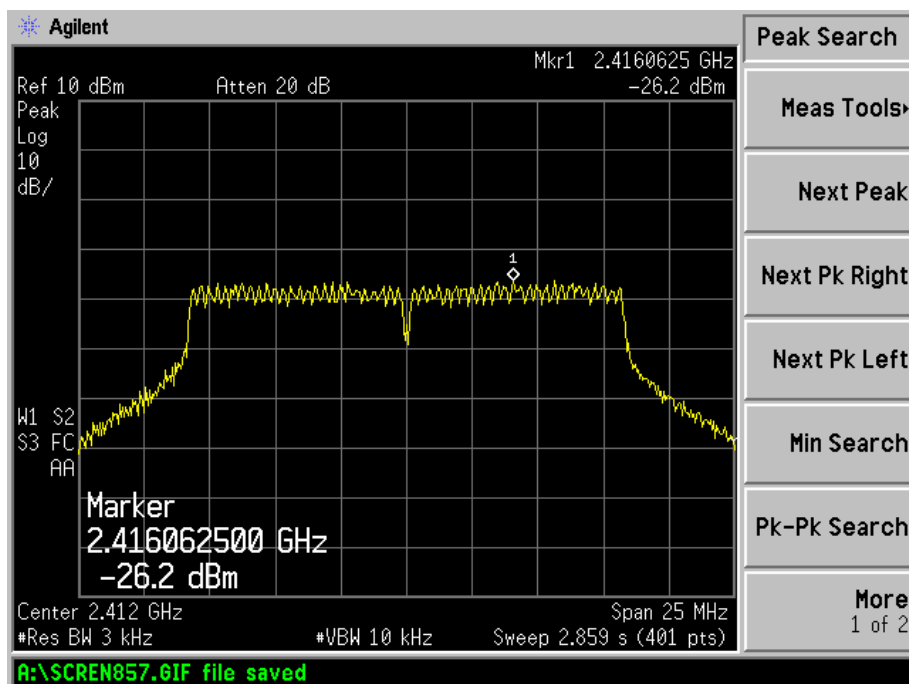
802.11b-Middle Channel



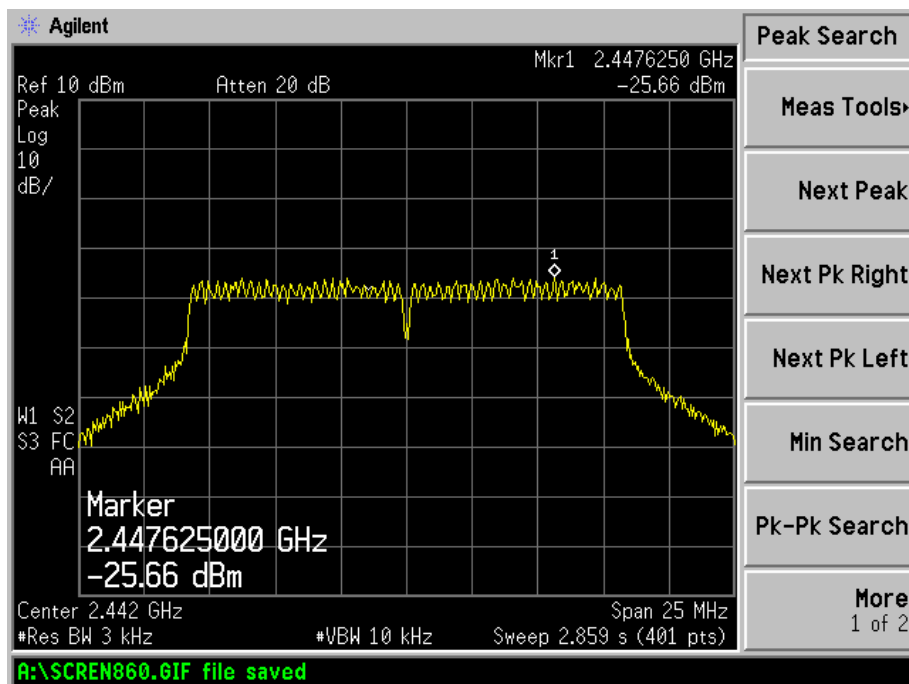
802.11b-High Channel



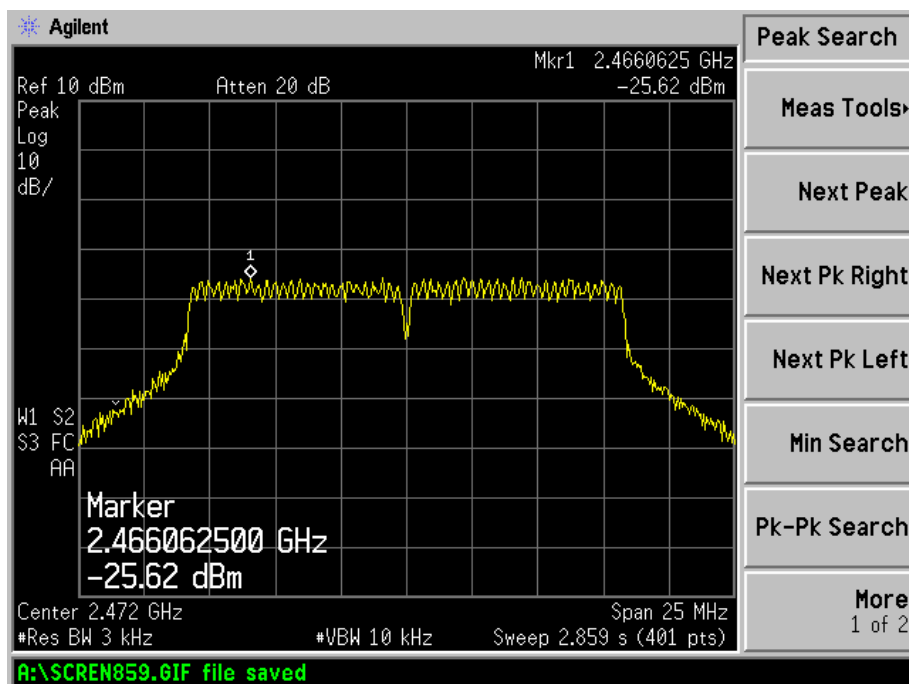
802.11g-Low Channel



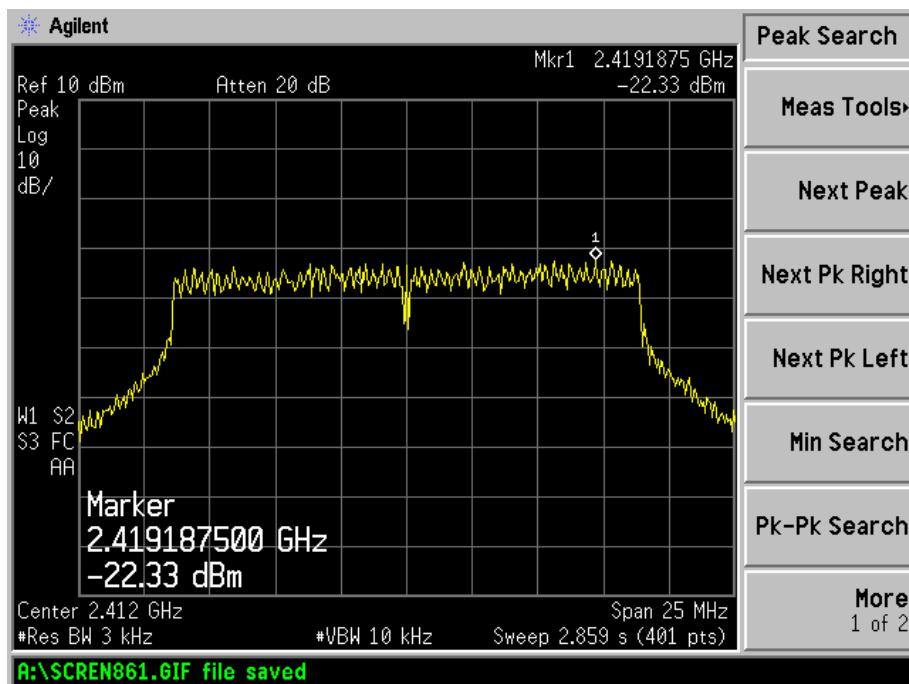
802.11g-Middle Channel



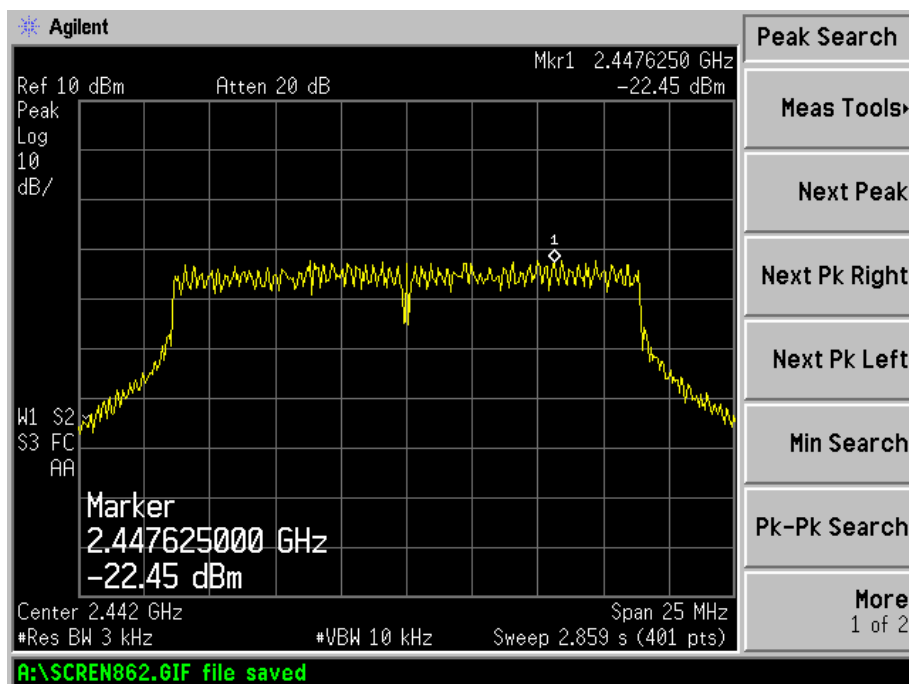
802.11g-High Channel



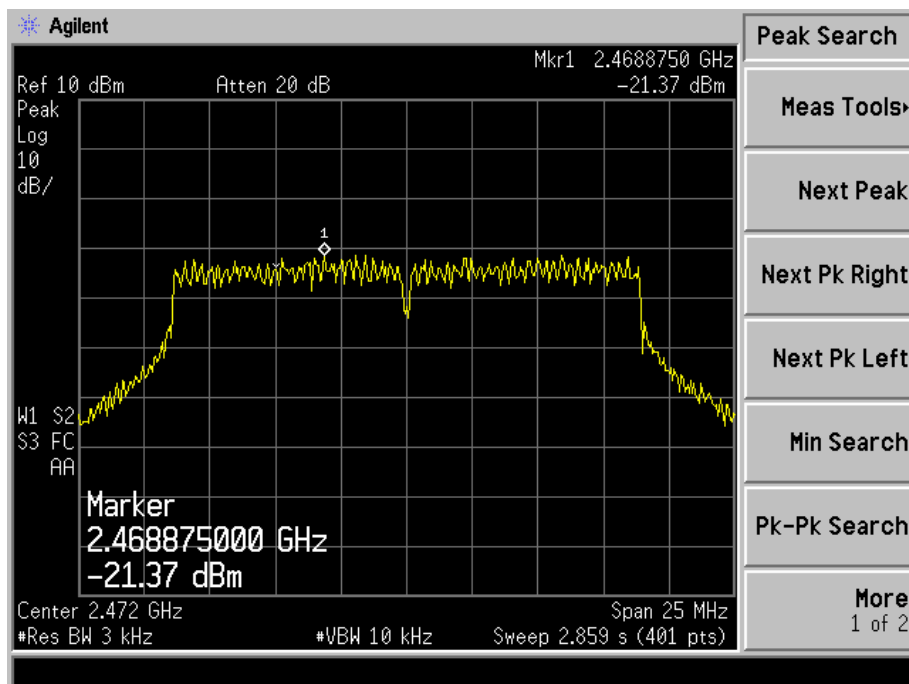
802.11n-HT20-Low Channel



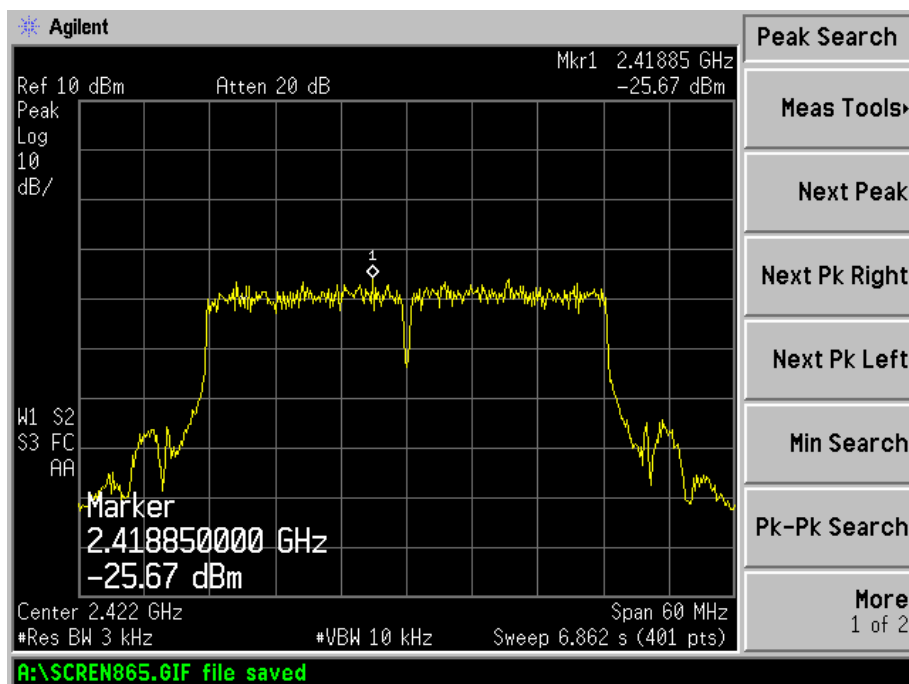
802.11n-HT20-Middle Channel



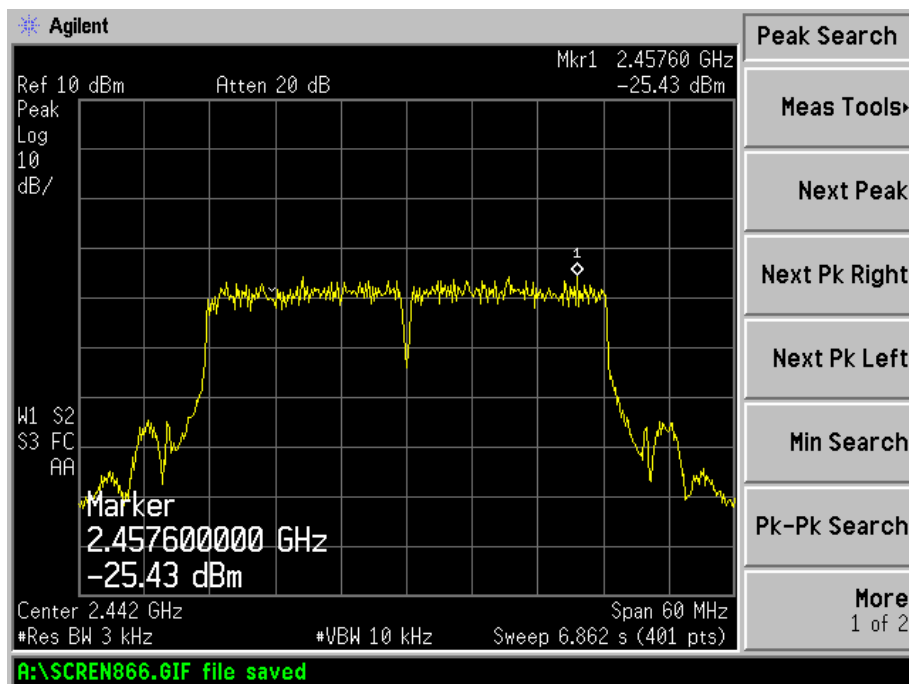
802.11n-HT20-High Channel



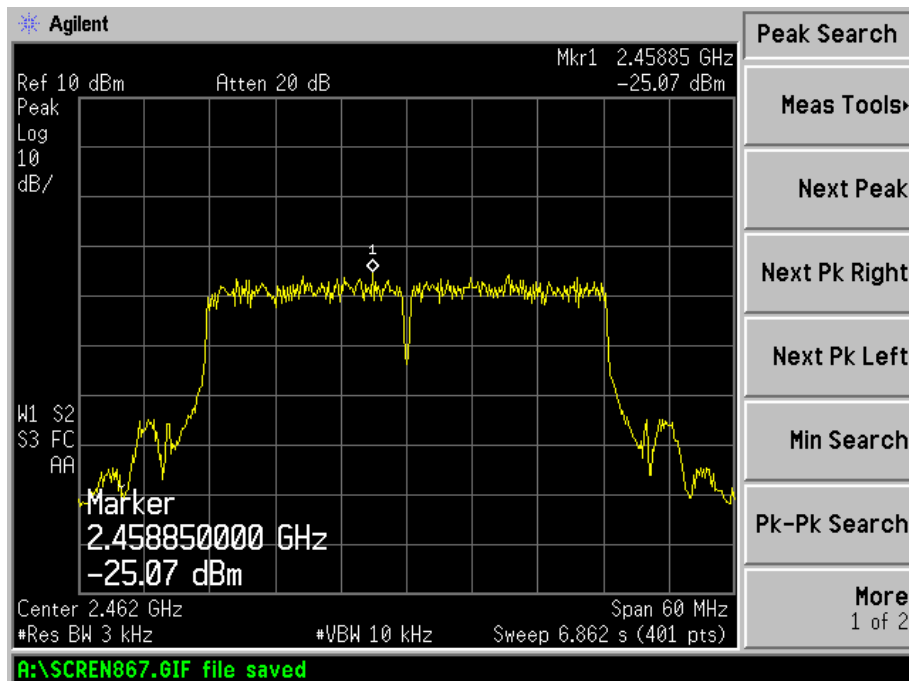
802.11n-HT40-Low Channel



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	2014-05-28	2015-05-27
Attenuator	ATTEN	ATS100-4-20	/	2014-05-28	2015-05-27

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

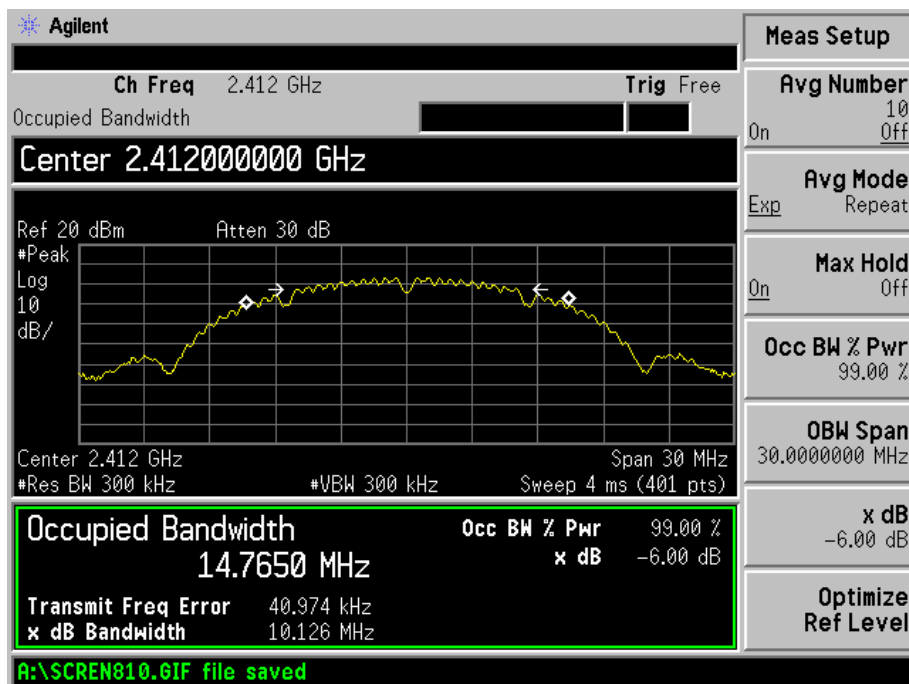
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.5 Summary of Test Results/Plots

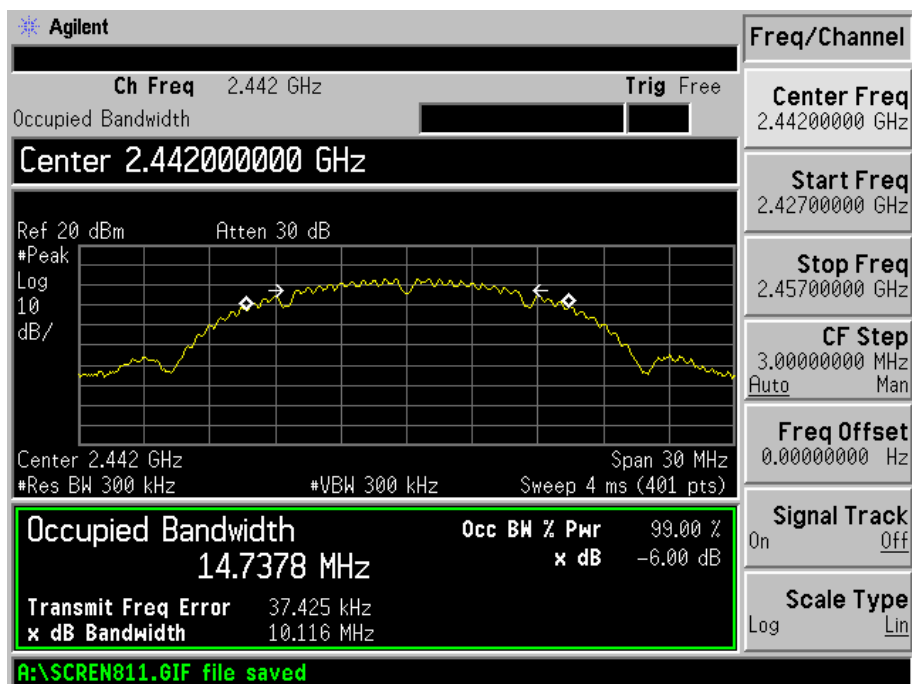
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
802.11b	2412	10126	14765.0	500
	2442	10116	14737.8	500
	2472	10109	14746.9	500
802.11g	2412	16602	16997.7	500
	2442	16563	16964.1	500
	2472	16472	16952.1	500
802.11n-HT20	2412	17872	17956.9	500
	2442	17912	17949.1	500
	2472	17835	17907.9	500
802.11n-HT40	2422	36469	36078.9	500
	2442	36527	36151.2	500
	2462	36487	36090.7	500

Please refer to the following test plots:

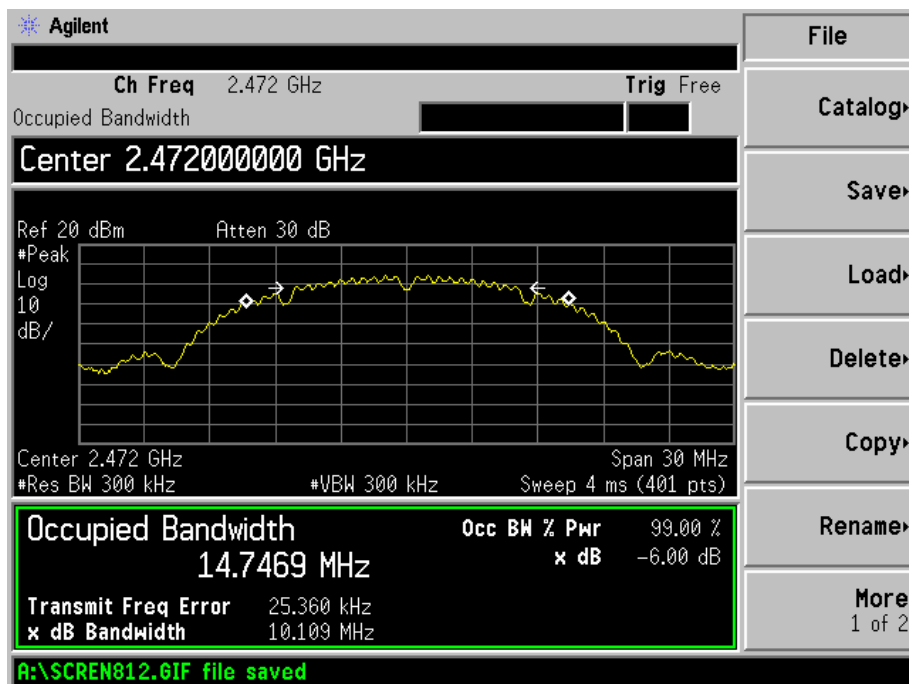
802.11b-Low Channel



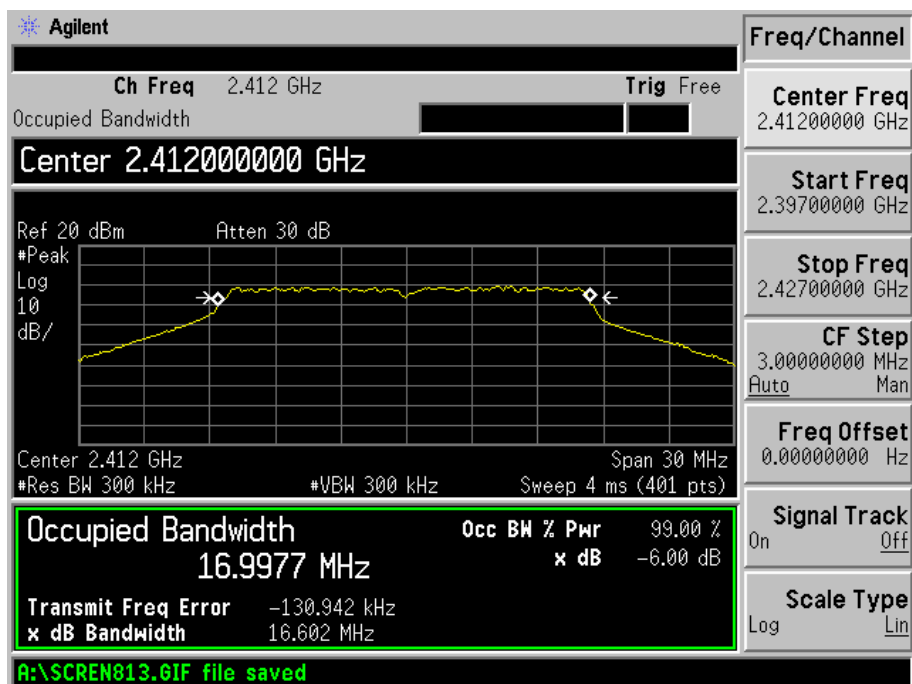
802.11b-Middle Channel



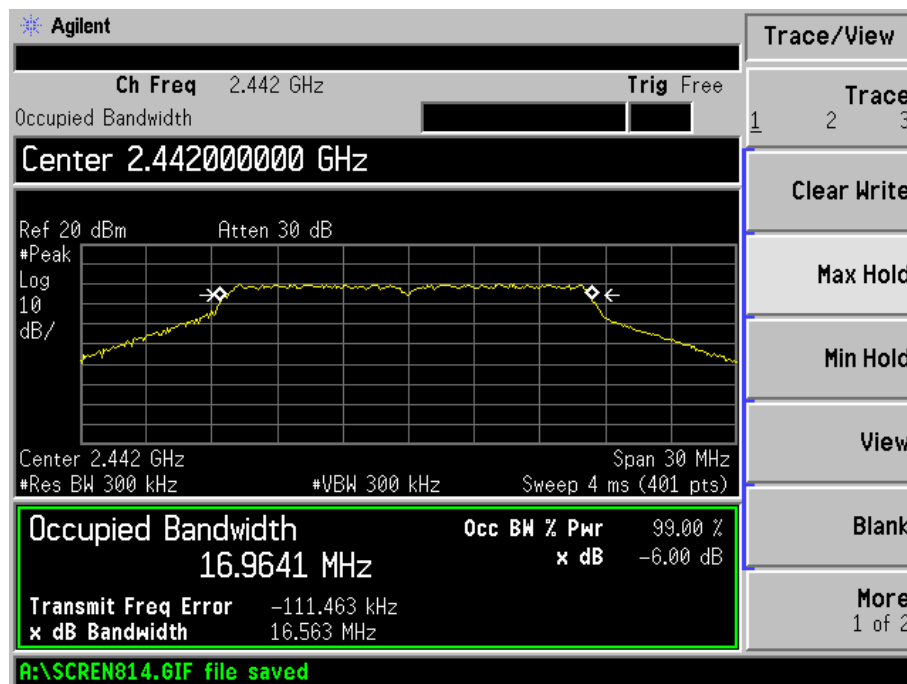
802.11b-High Channel



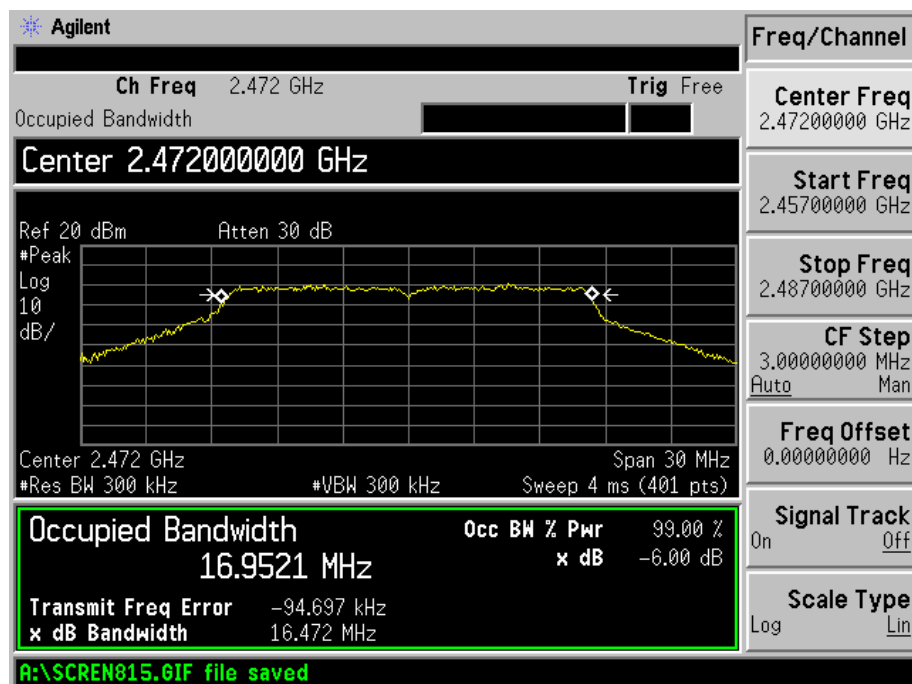
802.11g-Low Channel



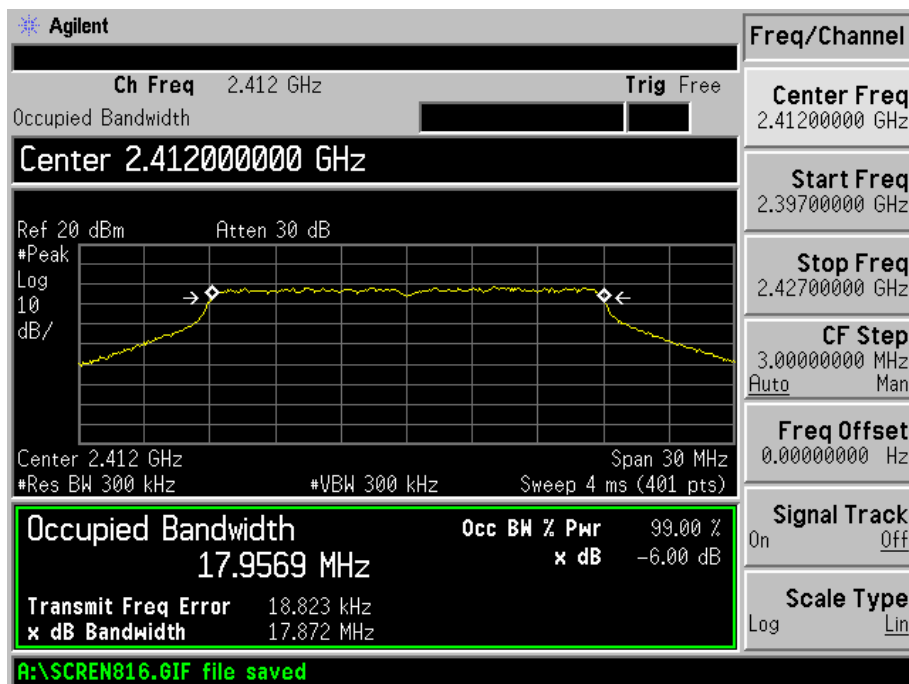
802.11g-Middle Channel



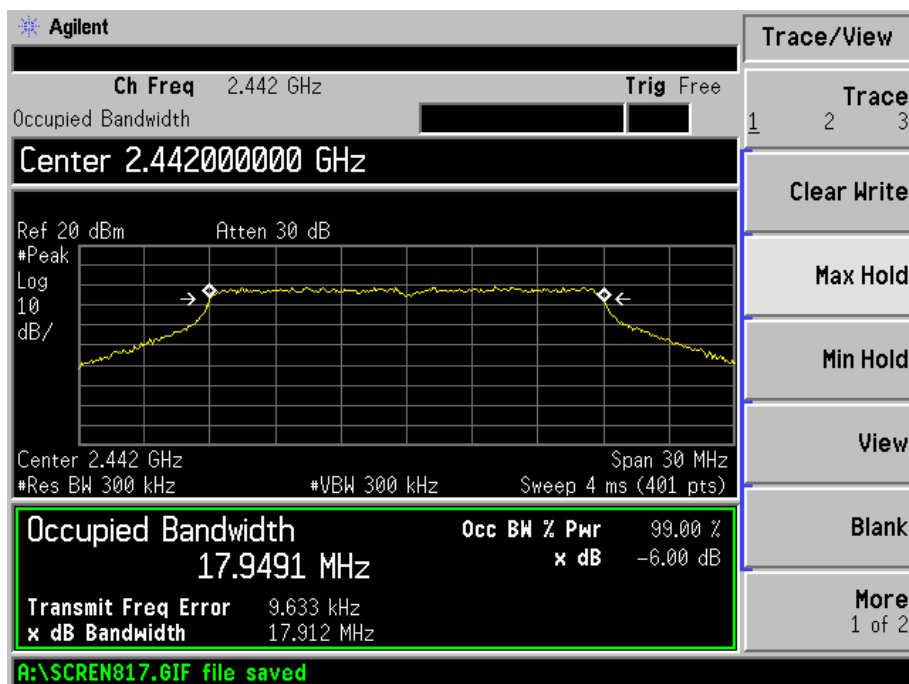
802.11g-High Channel



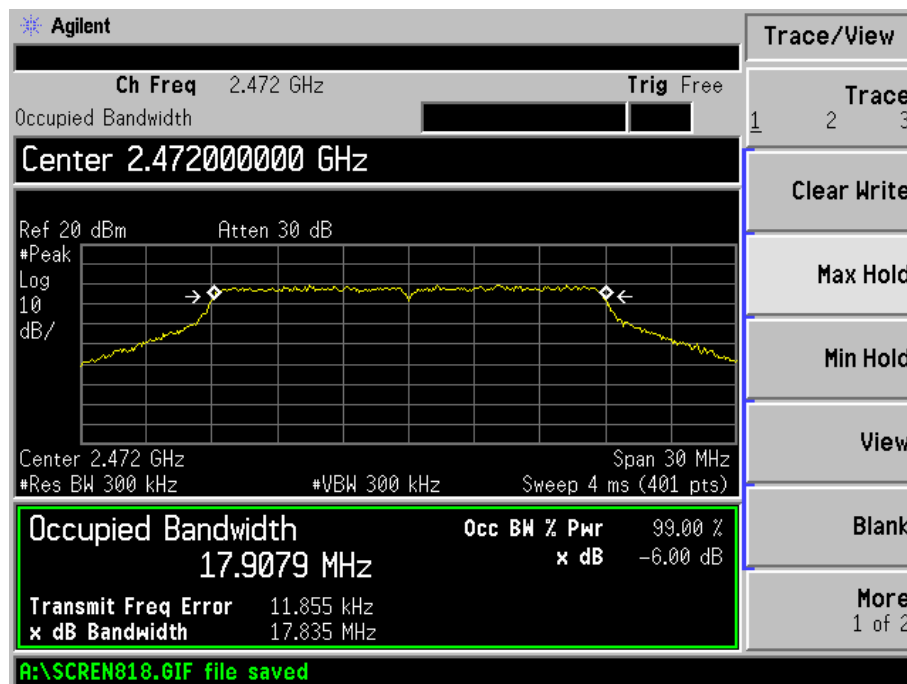
802.11n-HT20-Low Channel



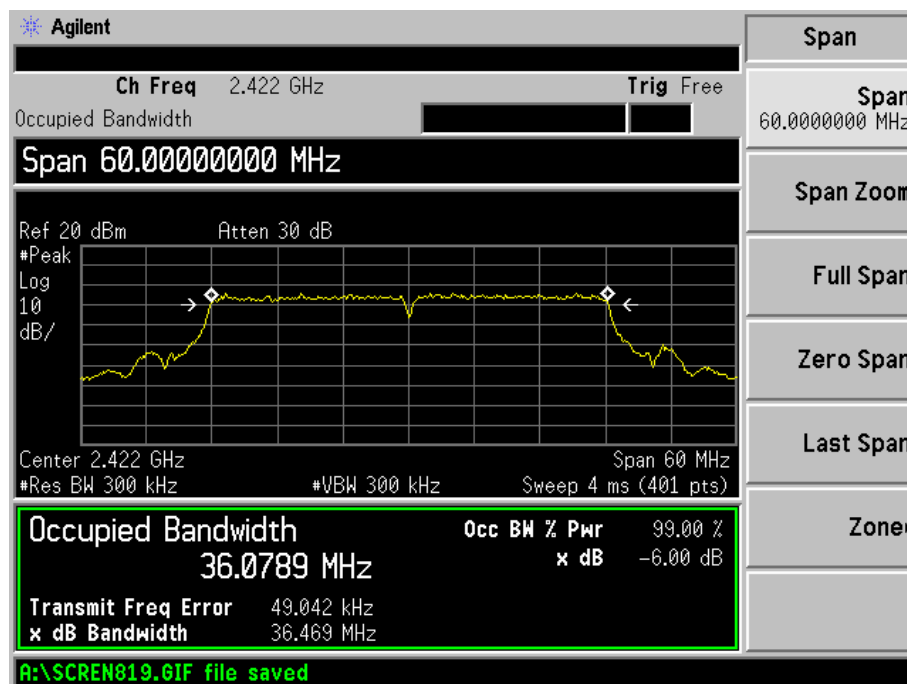
802.11n-HT20-Middle Channel



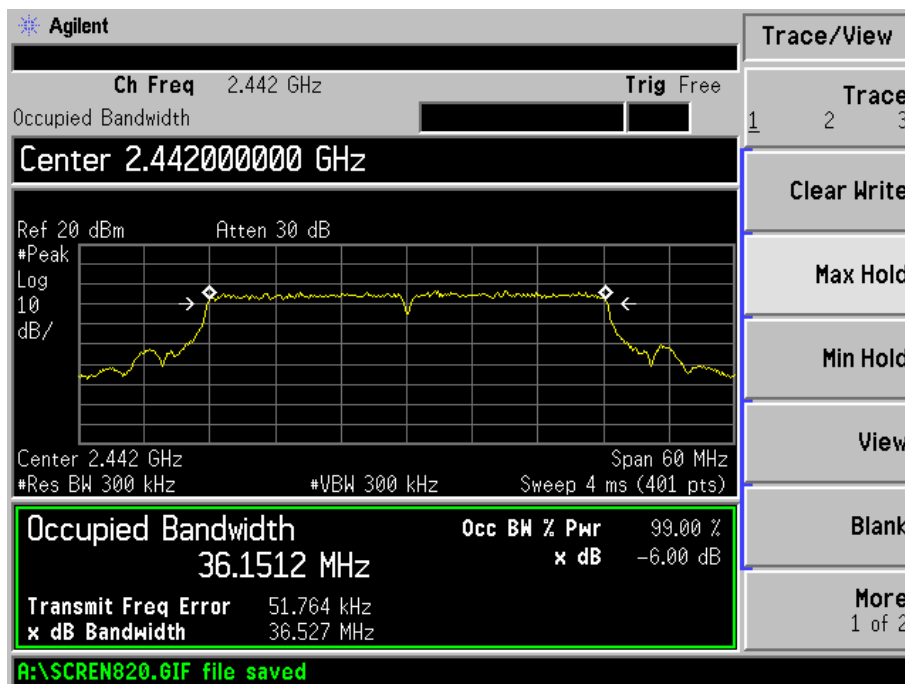
802.11n-HT20-High Channel



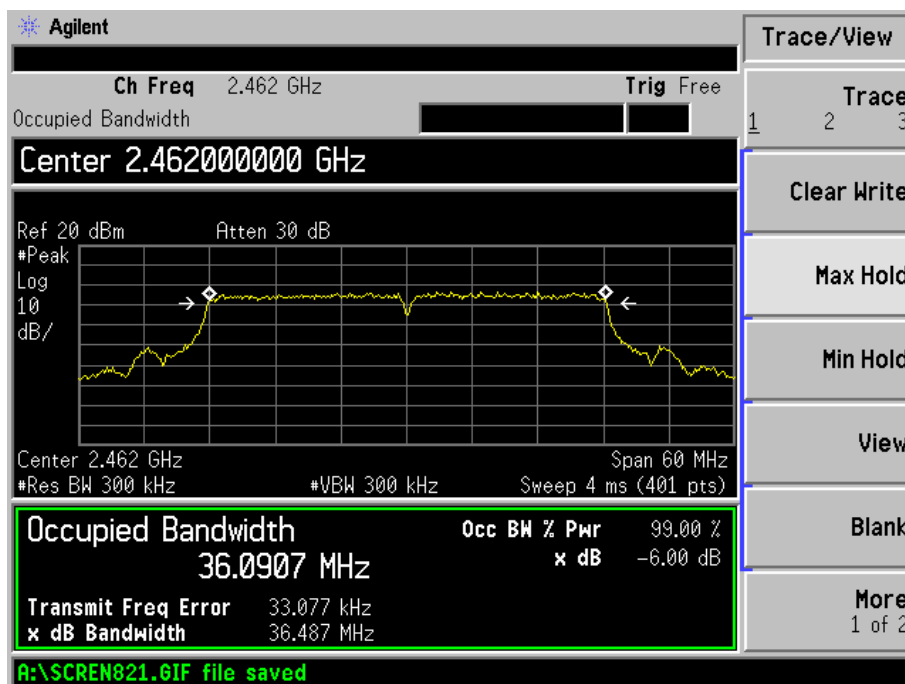
802.11n-HT40-Low Channel



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	2014-05-28	2015-05-27
Attenuator	ATTEN	ATS100-4-20	/	2014-05-28	2015-05-27

7.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 D01 V03r02, 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

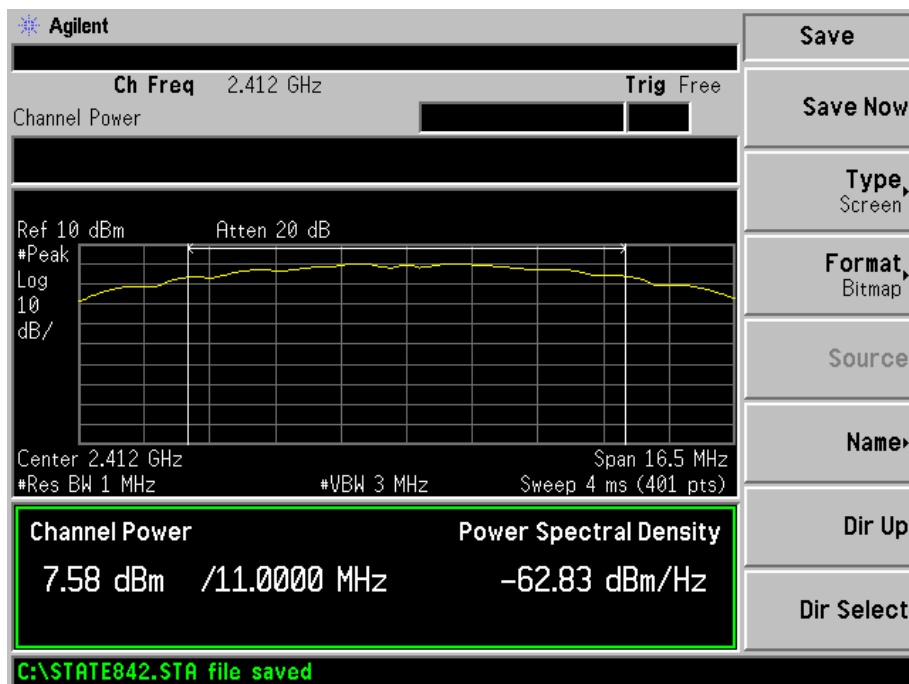
Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

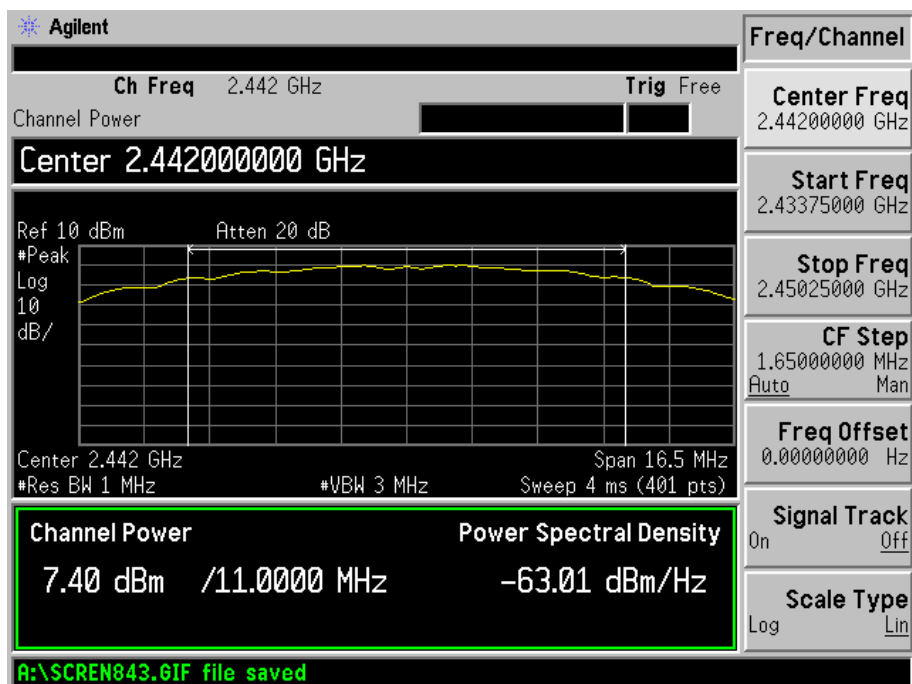
Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b_11Mbps	2412	7.58	5.73	1000
	2442	7.40	5.50	1000
	2472	7.79	6.01	1000
802.11g_54Mbps	2412	6.79	4.78	1000
	2442	6.48	4.45	1000
	2472	6.87	4.86	1000
802.11n HT20_MCS7	2412	6.94	4.94	1000
	2442	6.37	4.34	1000
	2472	7.38	5.47	1000
802.11n HT40_MCS7	2422	6.50	4.47	1000
	2434	6.78	4.76	1000
	2462	6.75	4.73	1000

Please refer to the following test plots:

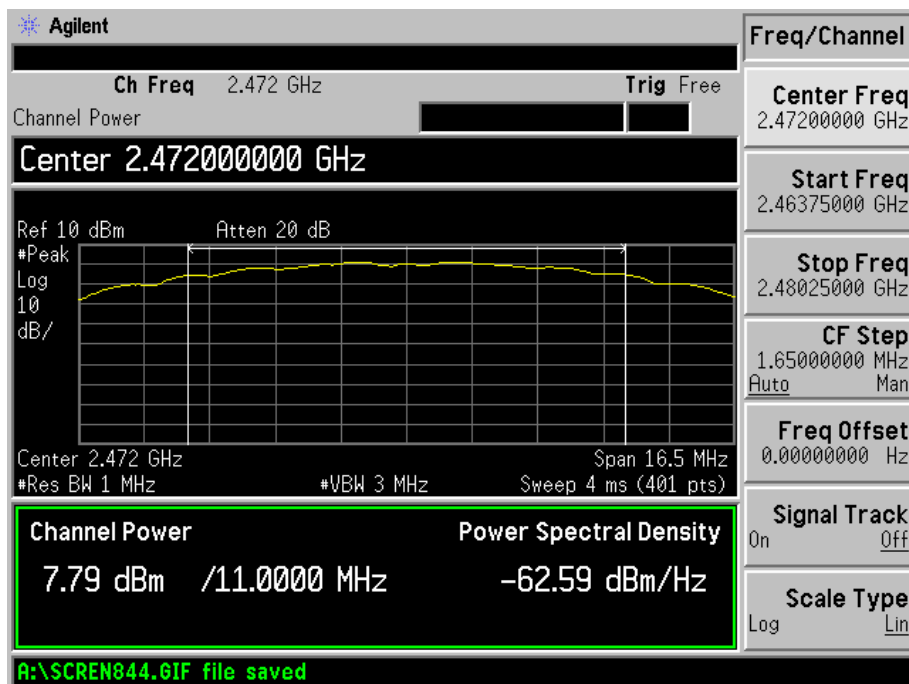
802.11b-Low Channel



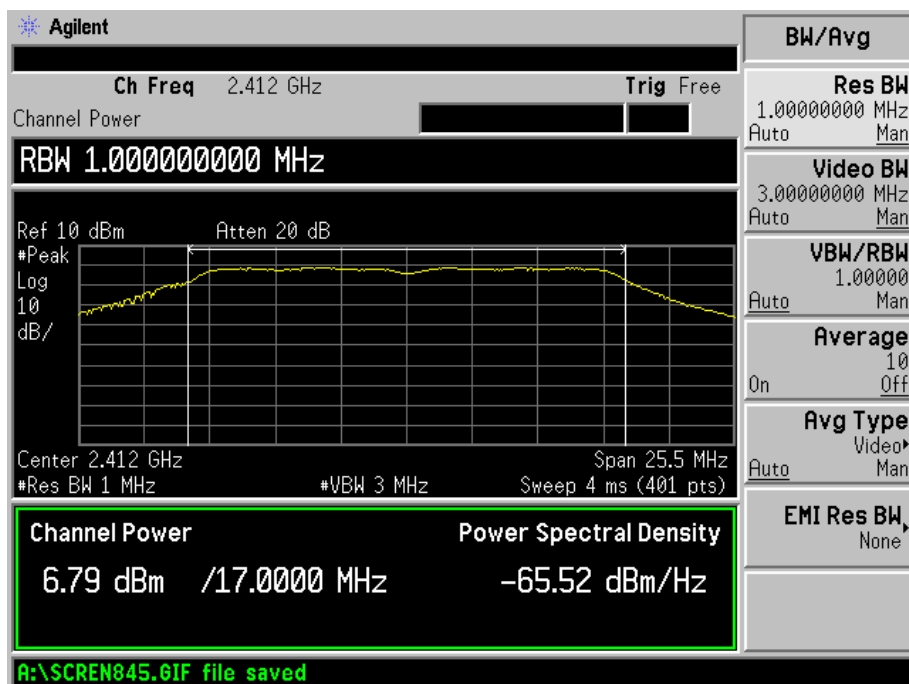
802.11b-Middle Channel



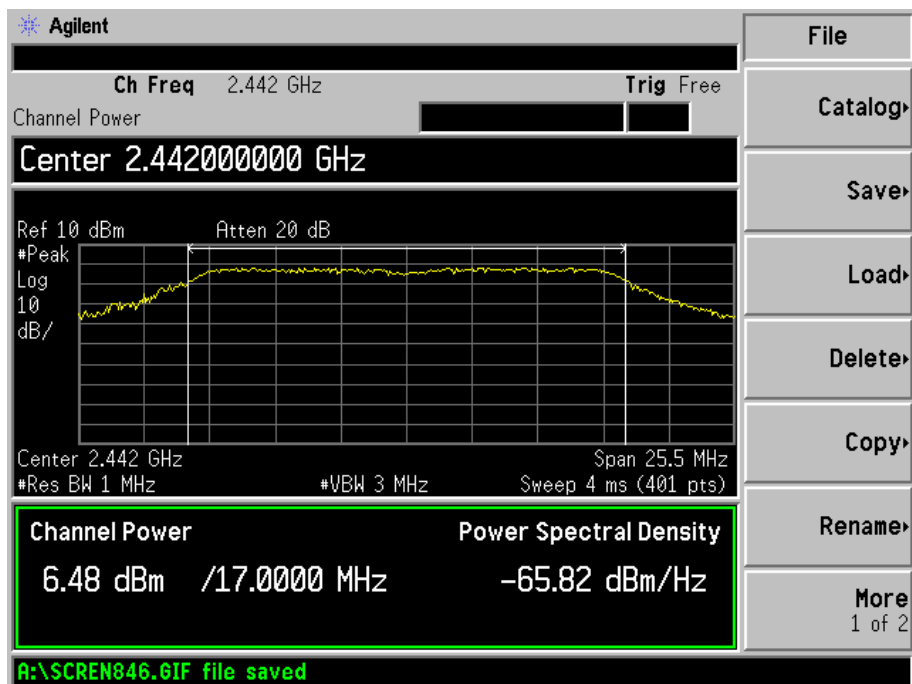
802.11b-High Channel



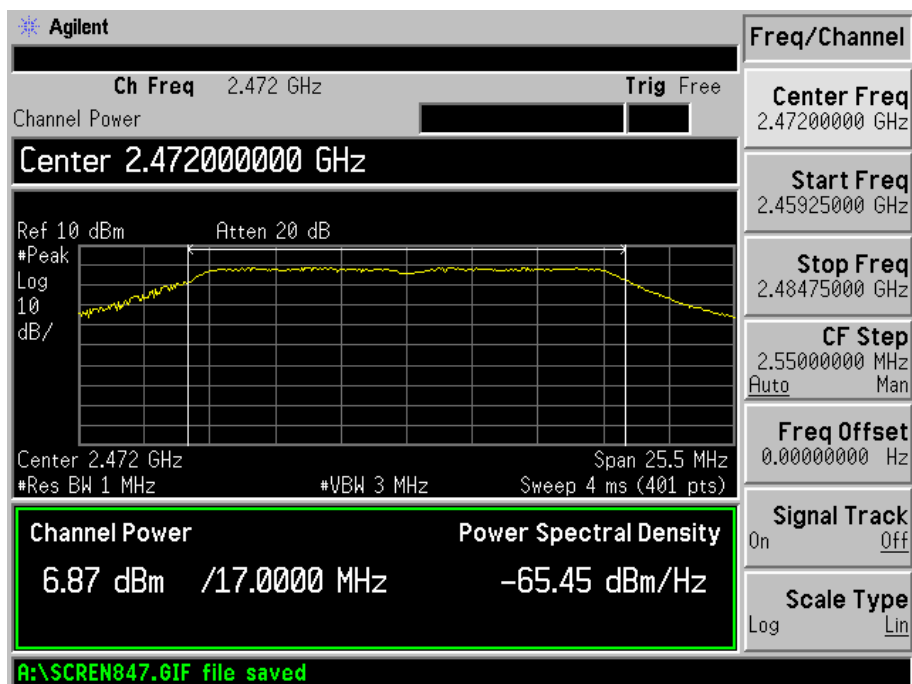
802.11g-Low Channel



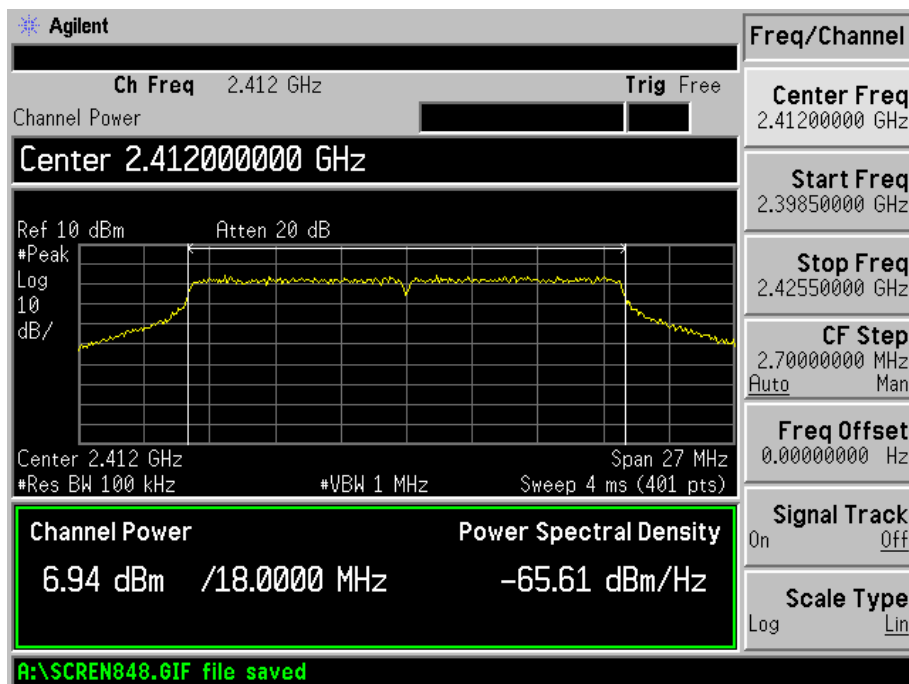
802.11g-Middle Channel



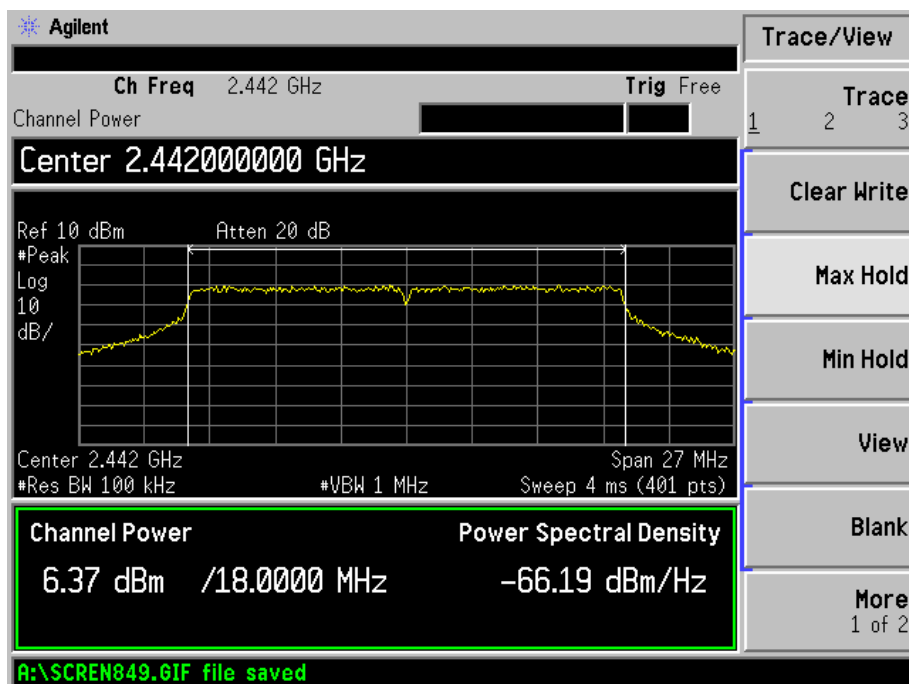
802.11g-High Channel



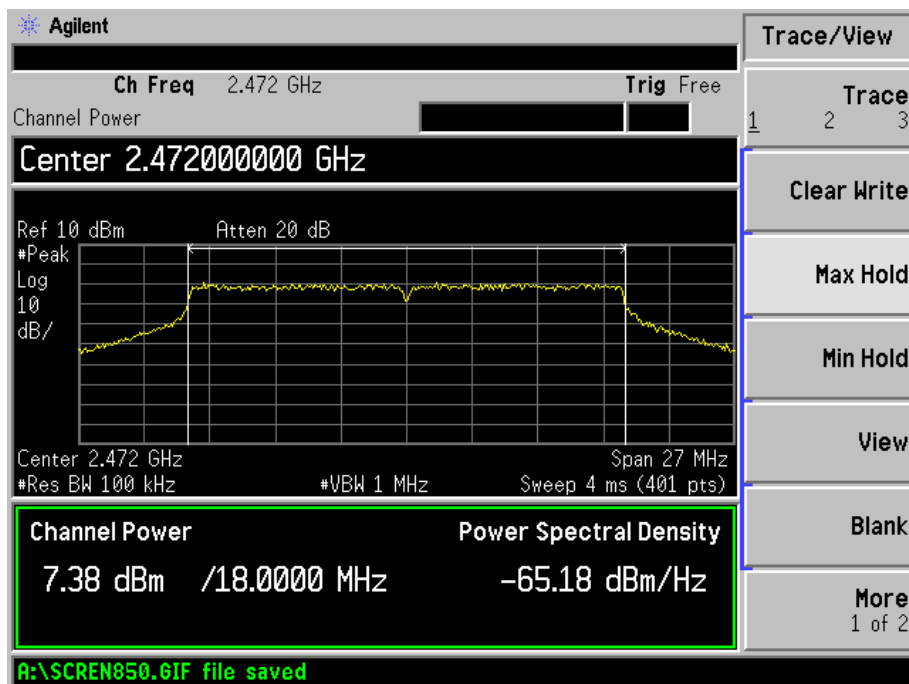
802.11n-HT20-Low Channel



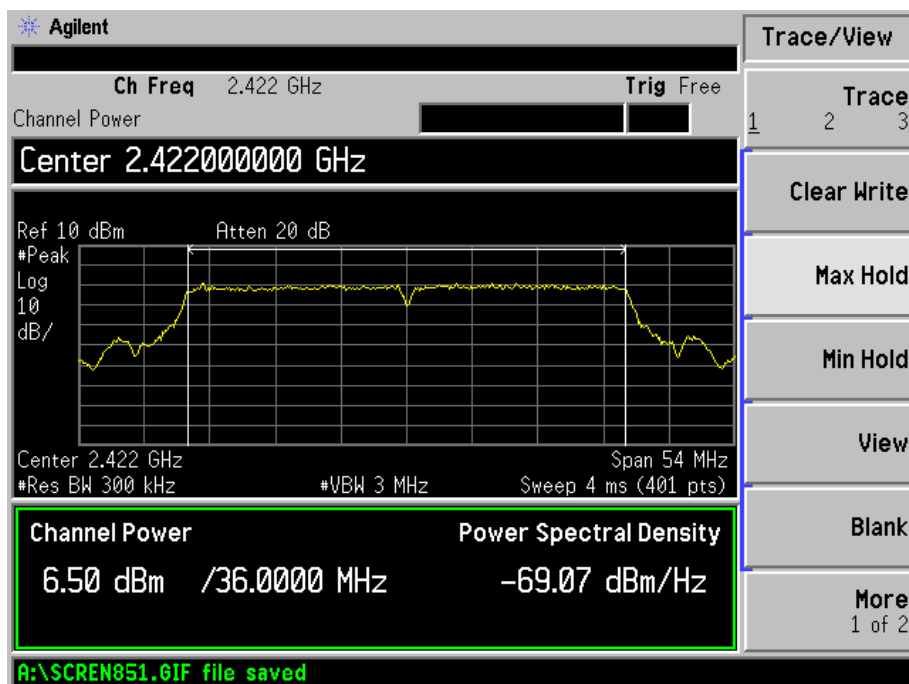
802.11n-HT20-Middle Channel



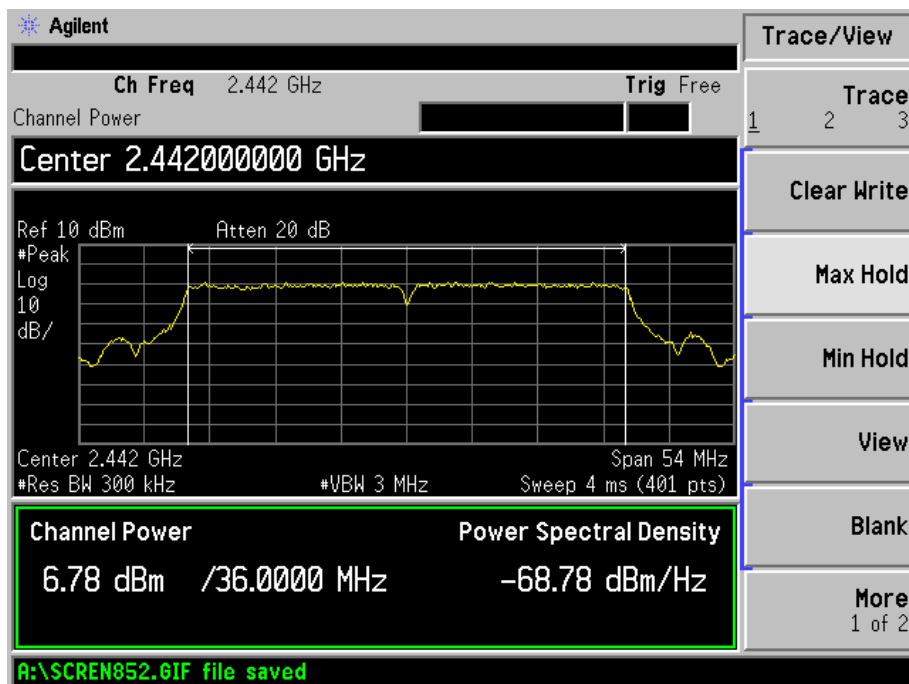
802.11n-HT20-High Channel



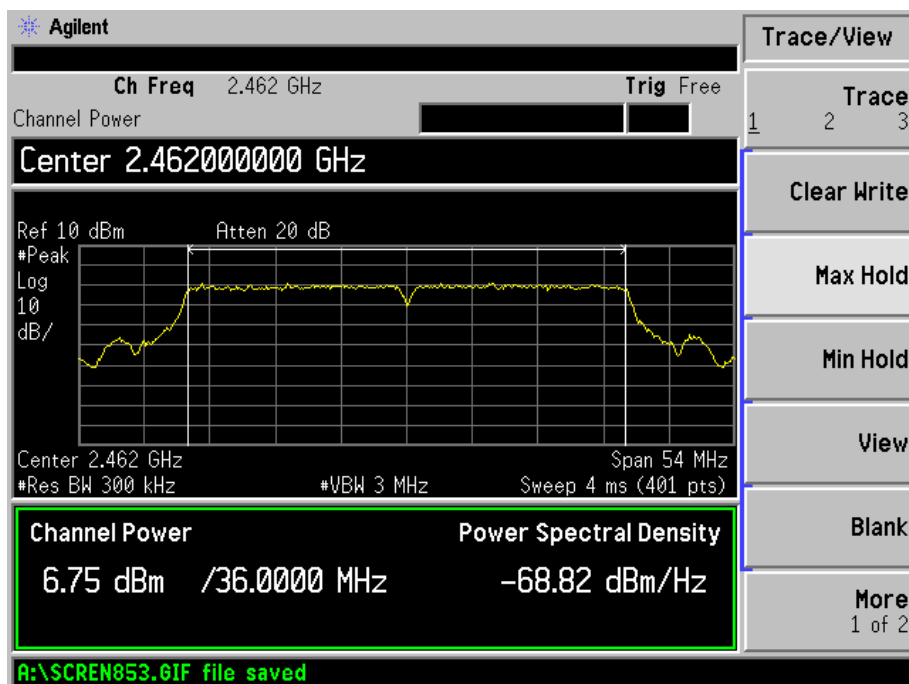
802.11n-HT40-Low Channel



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

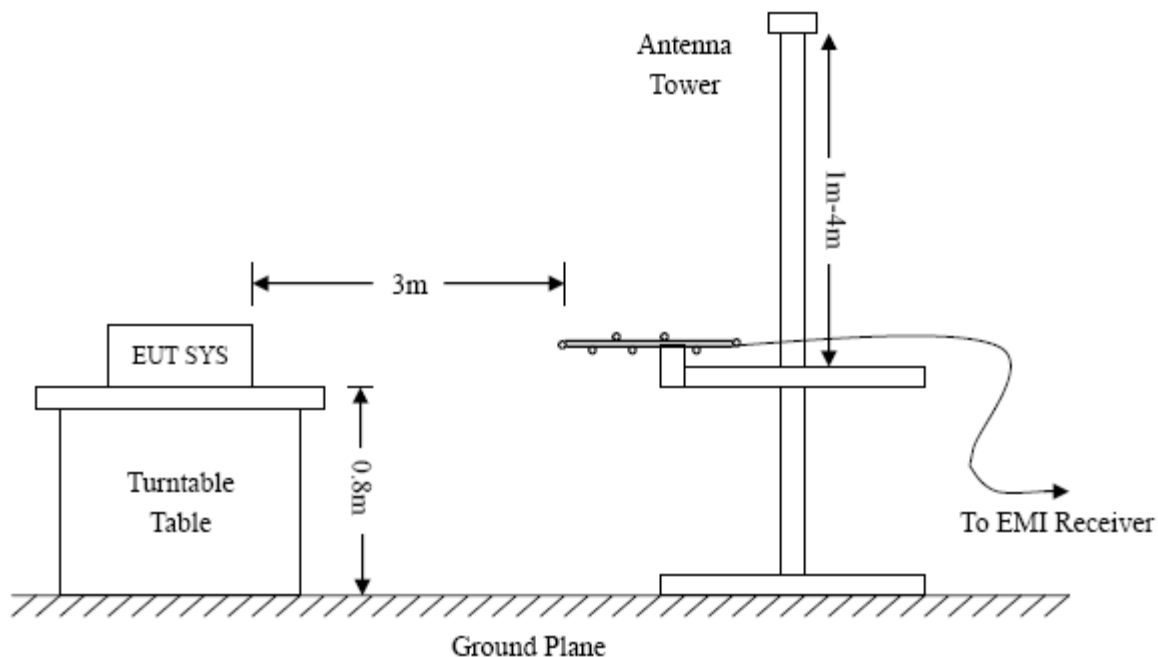
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23
Horn Antenna	ETS	3116B	00088203	2014-05-24	2015-05-23
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-24	2015-05-23

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:

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

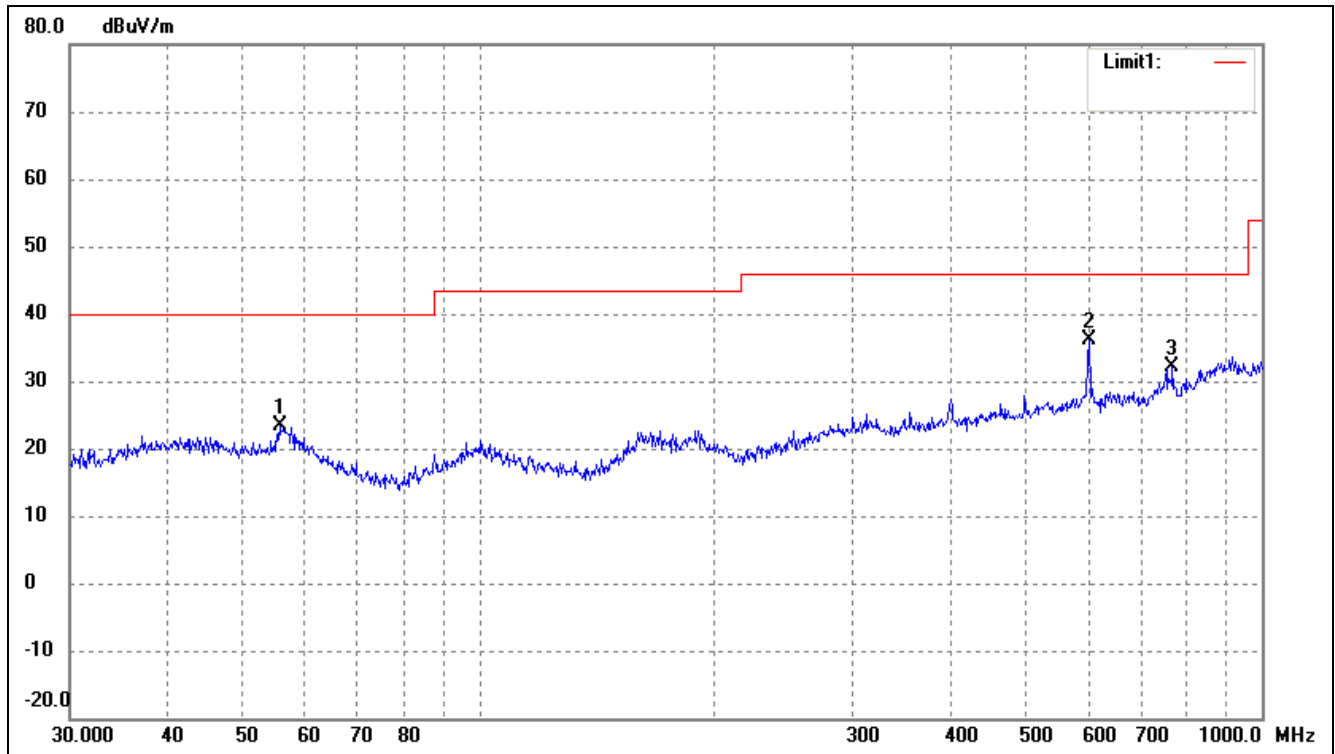
8.6 Environmental Conditions

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

8.7 Summary of Test Results/Plots

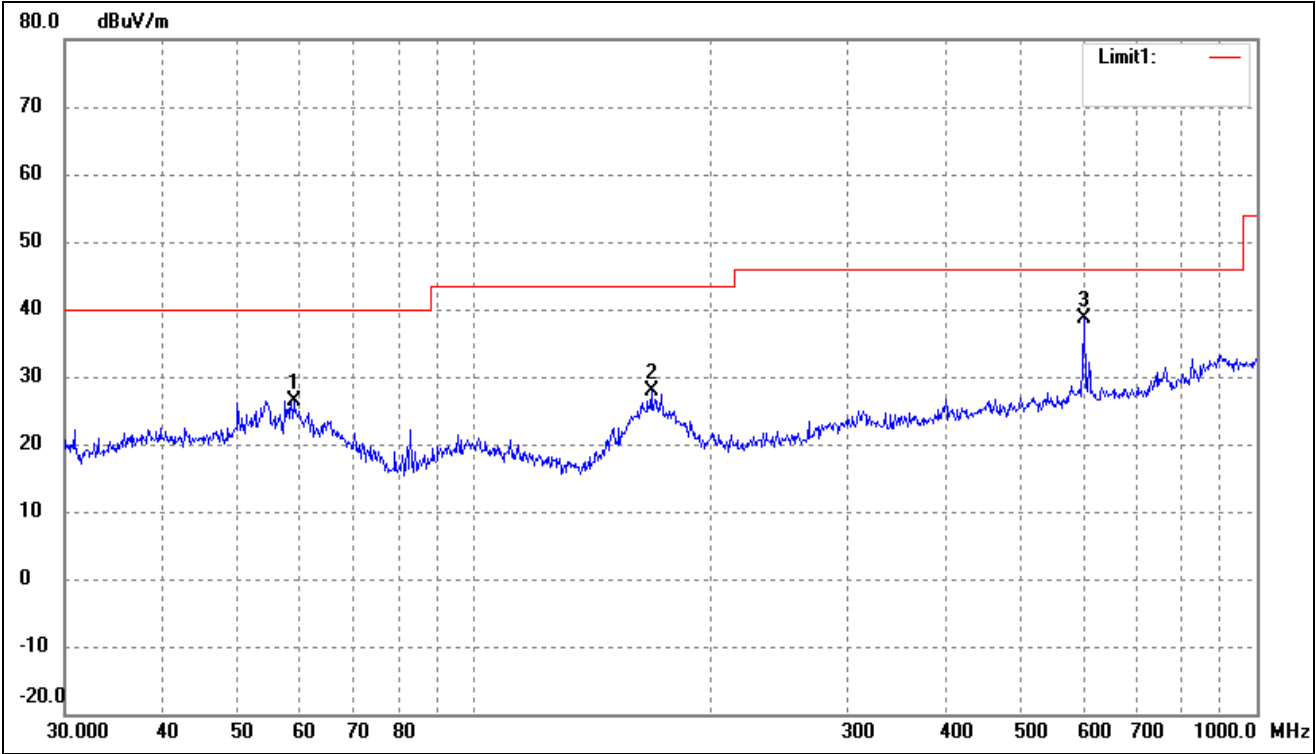
According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

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: *MBR-1100*Operating Condition: *802.11b Transmitting Low Channel-2412MHz*Comment: *Adapter:DC5.35V*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	55.6094	17.50	5.77	23.27	40.00	-16.73	214	100	peak
2	601.4265	22.95	13.22	36.17	46.00	-9.83	121	200	peak
3	768.7482	17.90	14.15	32.05	46.00	-13.95	28	100	peak

Test Specification: Vertical

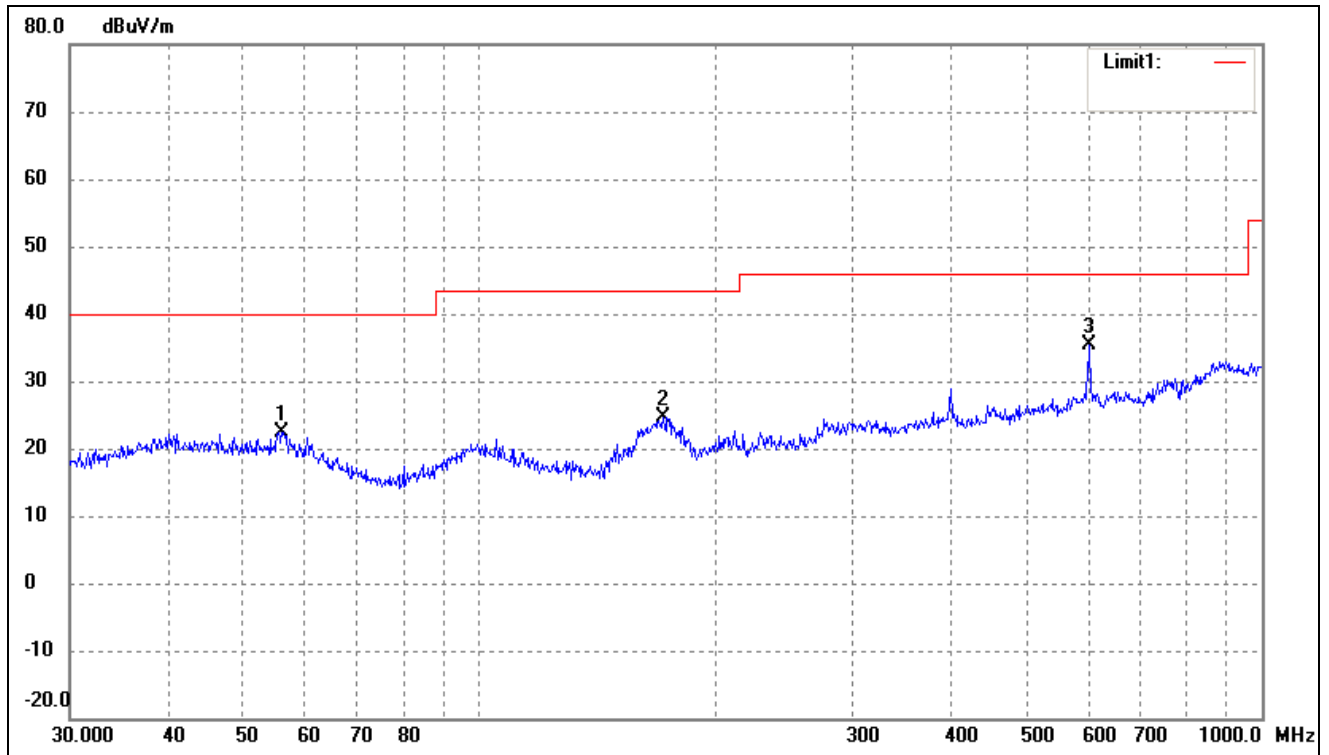


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	58.8185	20.99	5.49	26.48	40.00	-13.52	118	100	peak
2	168.4138	25.15	2.67	27.82	43.50	-15.68	27	100	peak
3	601.4265	25.36	13.22	38.58	46.00	-7.42	301	100	peak

Operating Condition: 802.11b Transmitting Middle Channel-2442MHz

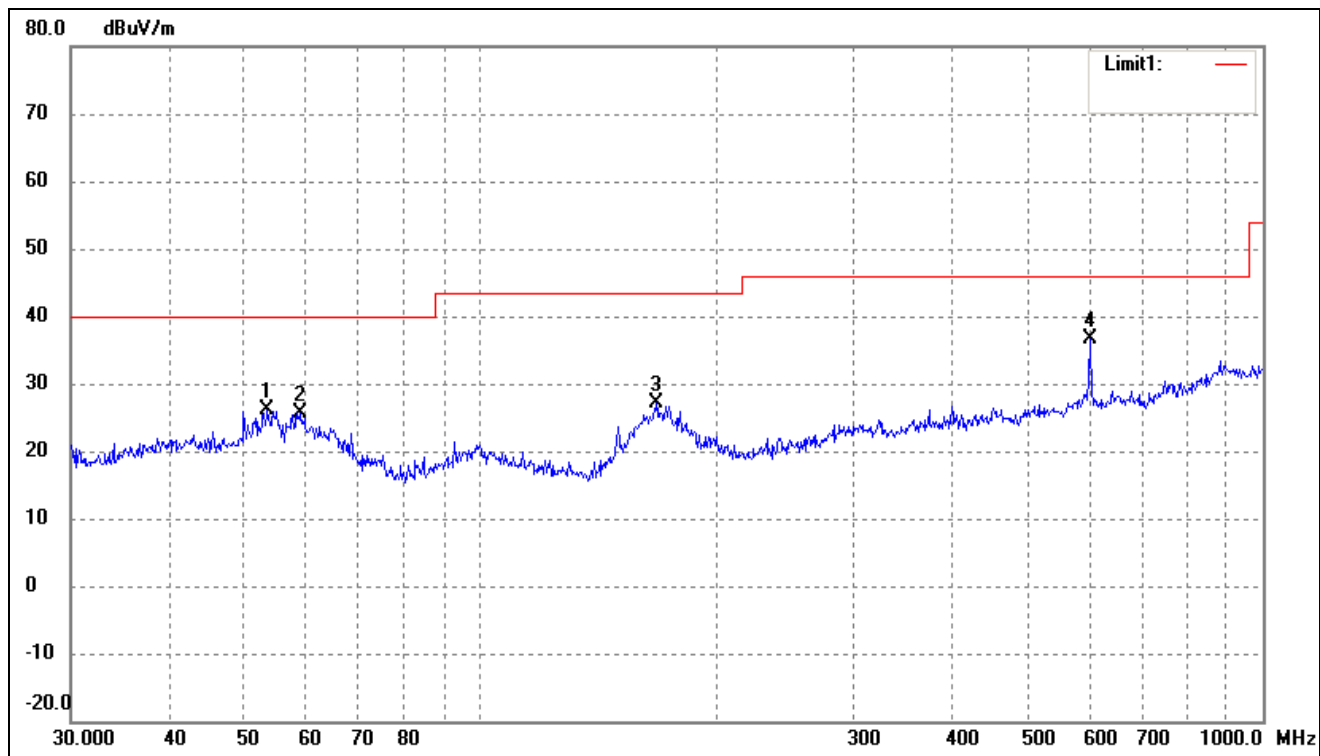
Comment: Adapter:DC5.35V

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	56.0007	16.76	5.73	22.49	40.00	-17.51	121	100	peak
2	171.9946	22.05	2.70	24.75	43.50	-18.75	24	100	peak
3	601.4265	22.20	13.22	35.42	46.00	-10.58	189	100	peak

Test Specification: Vertical

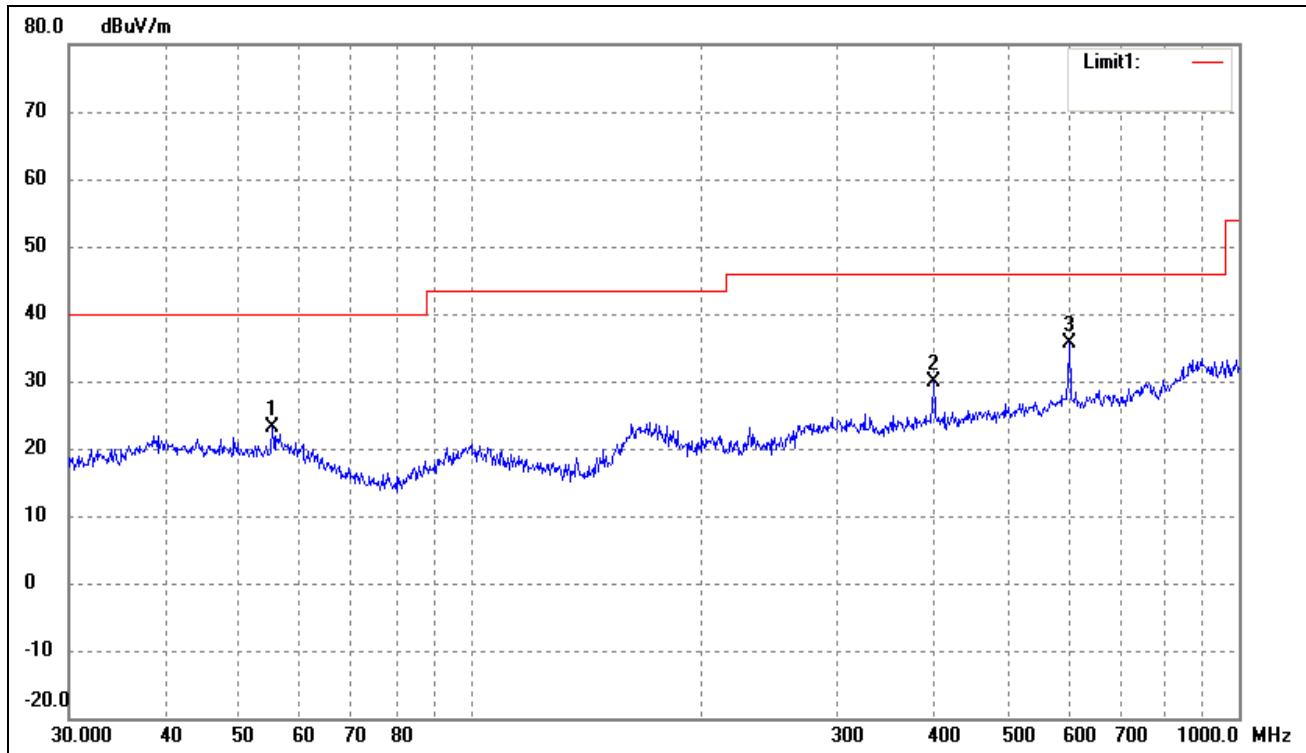


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	53.5052	20.13	5.95	26.08	40.00	-13.92	256	100	peak
2	59.0251	20.22	5.47	25.69	40.00	-14.31	345	100	peak
3	167.8243	24.49	2.67	27.16	43.50	-16.34	14	100	peak
4	601.4265	23.52	13.22	36.74	46.00	-9.26	254	100	peak

Operating Condition: 802.11b Transmitting High Channel-2472MHz

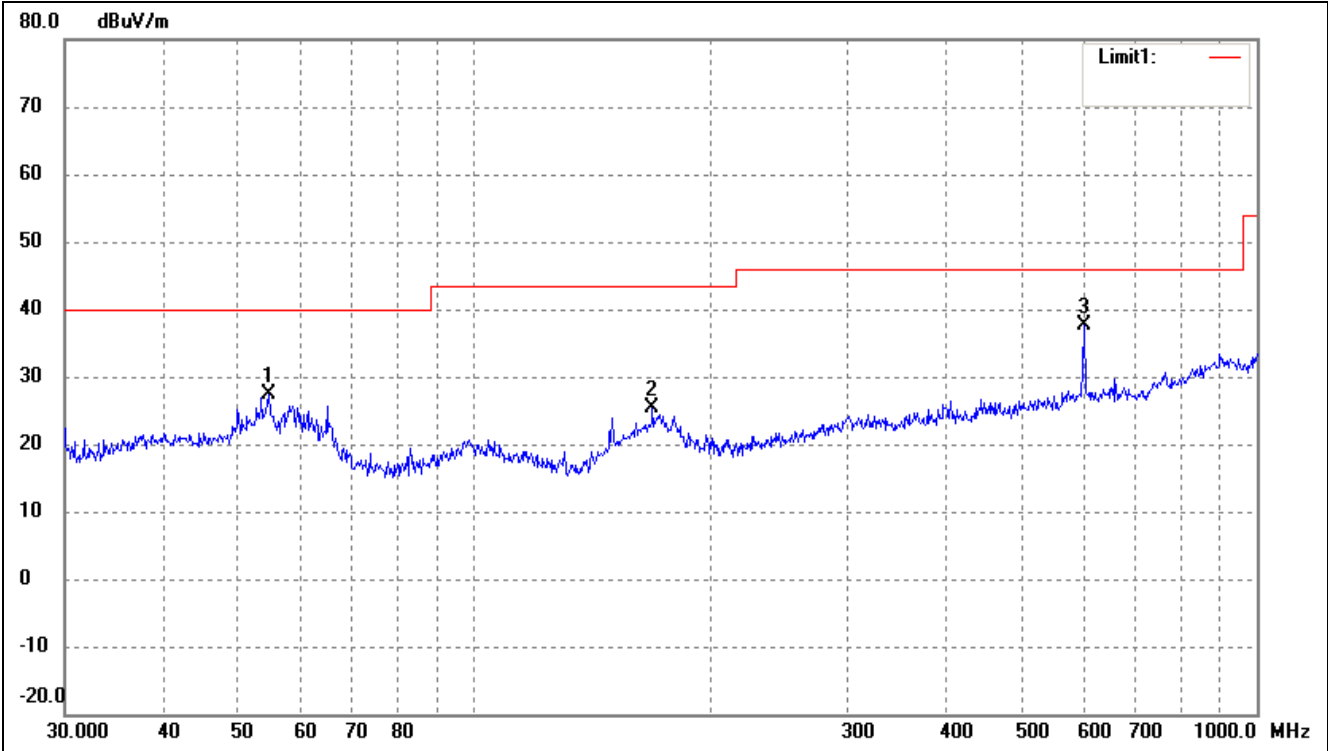
Comment: Adapter:DC5.35V

Test Specification: Horizontal

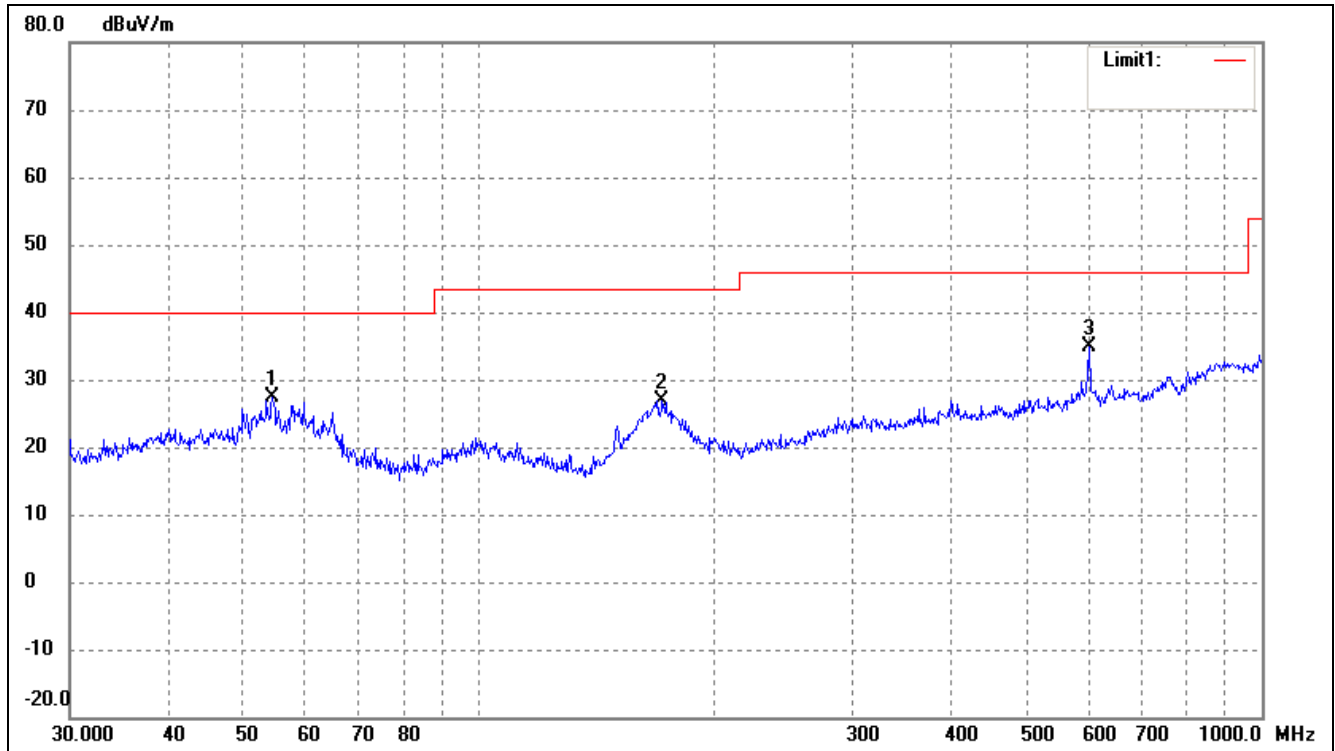


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.2207	17.43	5.80	23.23	40.00	-16.77	176	100	peak
2	400.4319	19.75	10.12	29.87	46.00	-16.13	255	100	peak
3	601.4265	22.34	13.22	35.56	46.00	-10.44	360	100	peak

Test Specification: Vertical

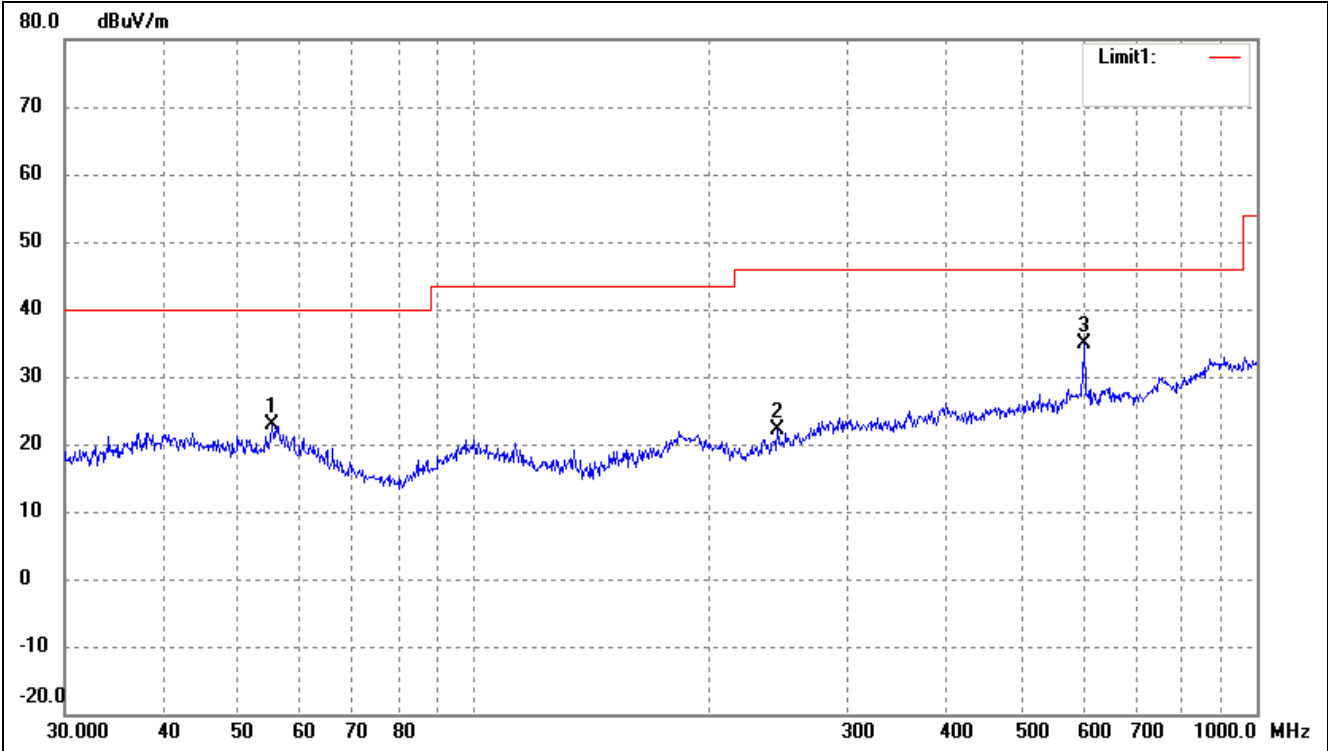


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	54.6429	21.64	5.85	27.49	40.00	-12.51	31	100	peak
2	169.0054	22.58	2.68	25.26	43.50	-18.24	221	100	peak
3	601.4265	24.33	13.22	37.55	46.00	-8.45	160	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)EUT: *Android TV Dongle*Tested Model: *MBR-1100*Operating Condition: *802.11g Transmitting Low Channel-2412MHz*Comment: *Adapter: DC 5.35V*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	54.4516	21.59	5.87	27.46	40.00	-12.54	174	100	peak
2	171.3926	24.27	2.69	26.96	43.50	-16.54	160	100	peak
3	601.4265	21.58	13.22	34.80	46.00	-11.20	320	100	peak

Test Specification: Vertical

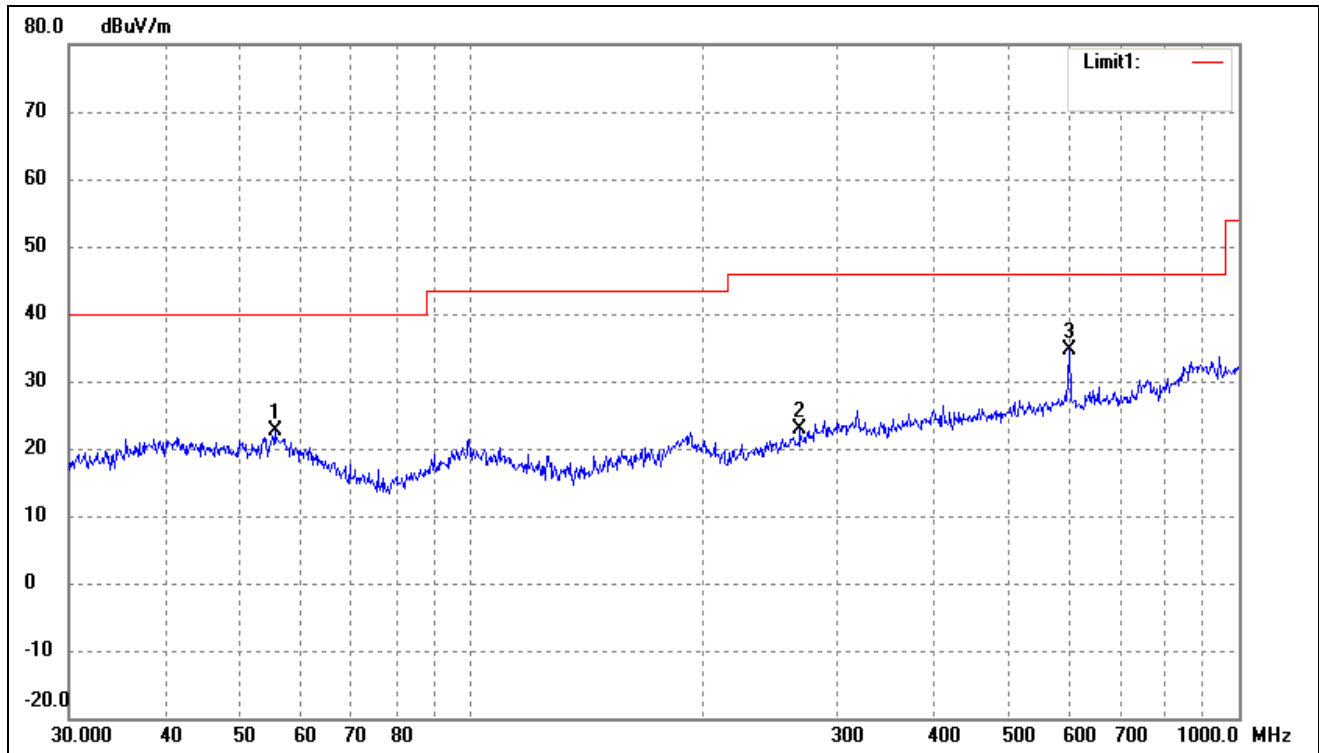


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	55.2207	17.15	5.80	22.95	40.00	-17.05	189	100	peak
2	244.2321	15.53	6.49	22.02	46.00	-23.98	14	100	peak
3	601.4265	21.55	13.22	34.77	46.00	-11.23	33	100	peak

Operating Condition: 802.11g Transmitting Middle Channel-2442MHz

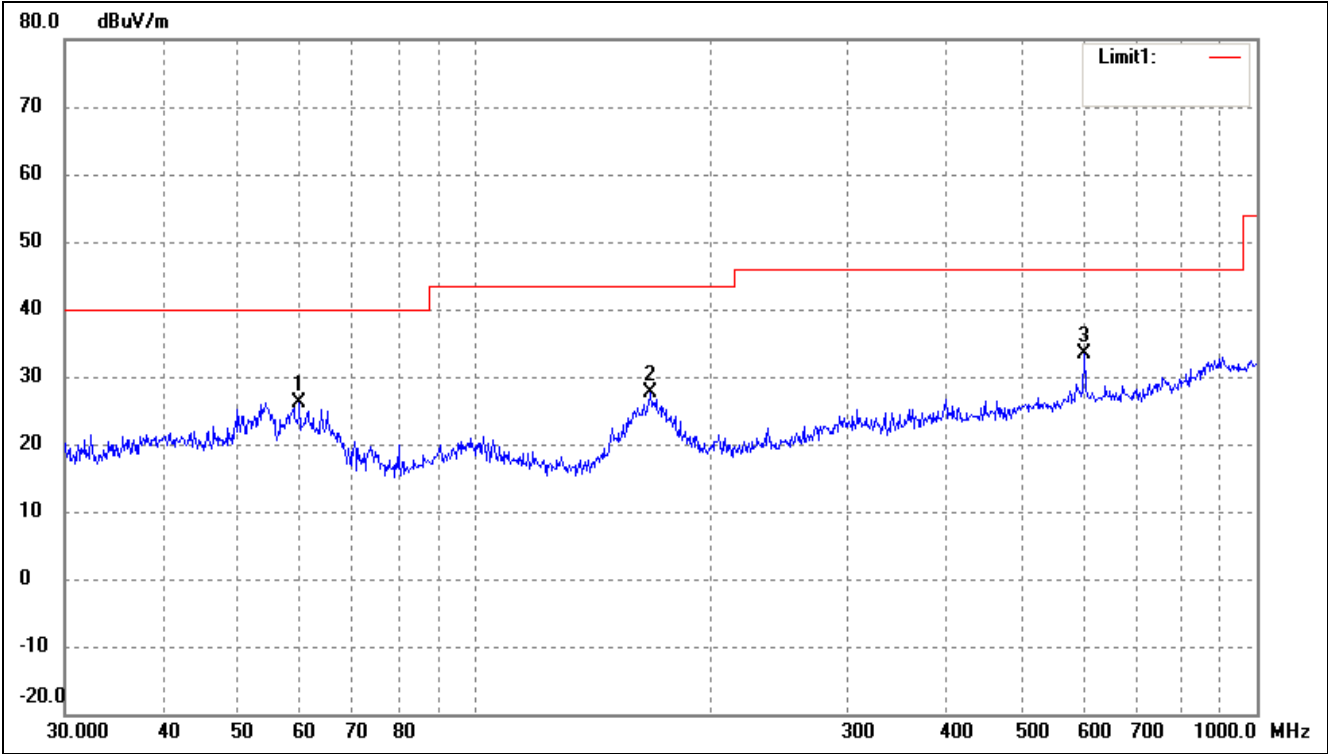
Comment: Adapter: DC 5.35V

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	55.6094	16.86	5.77	22.63	40.00	-17.37	270	100	peak
2	268.4853	15.19	7.61	22.80	46.00	-23.20	164	100	peak
3	601.4265	21.36	13.22	34.58	46.00	-11.42	228	200	peak

Test Specification: Vertical

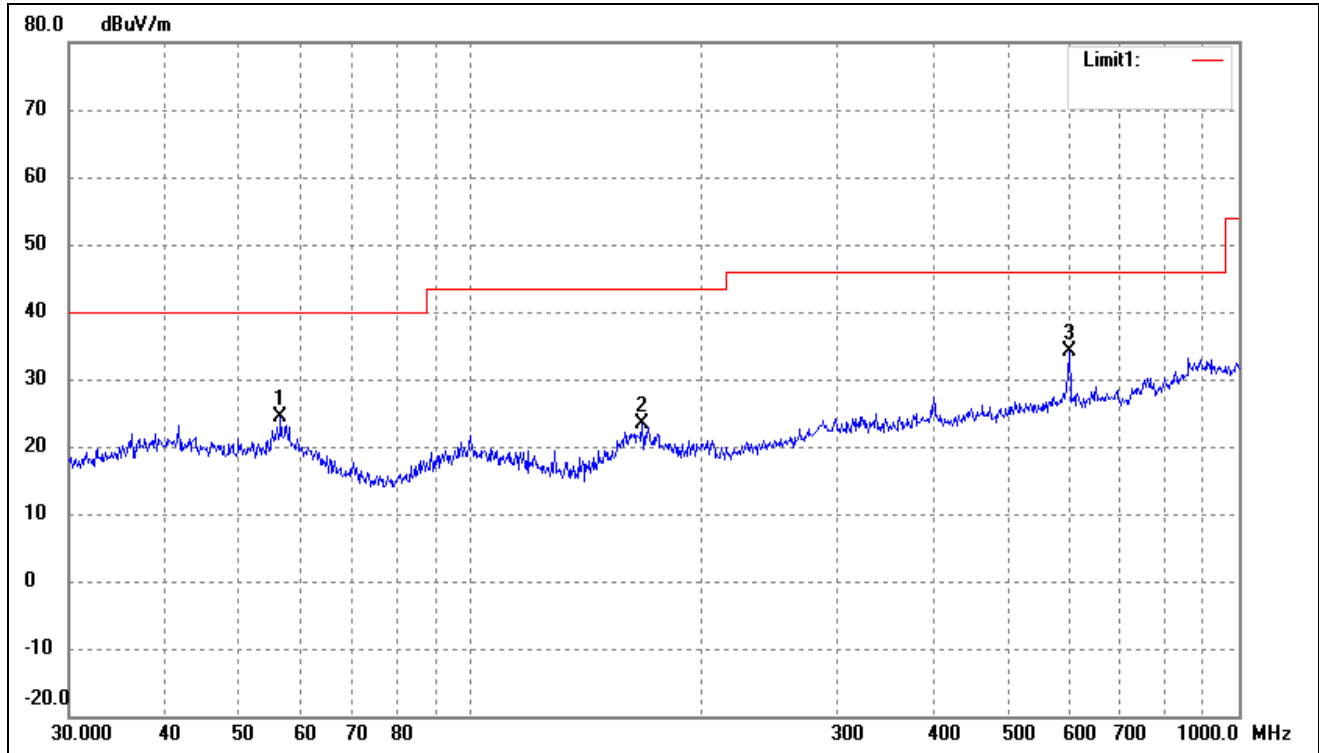


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	59.8588	20.81	5.39	26.20	40.00	-13.80	360	100	peak
2	167.8243	24.92	2.67	27.59	43.50	-15.91	255	100	peak
3	601.4265	20.16	13.22	33.38	46.00	-12.62	270	100	peak

Operating Condition: 802.11g Transmitting High Channel-2472MHz

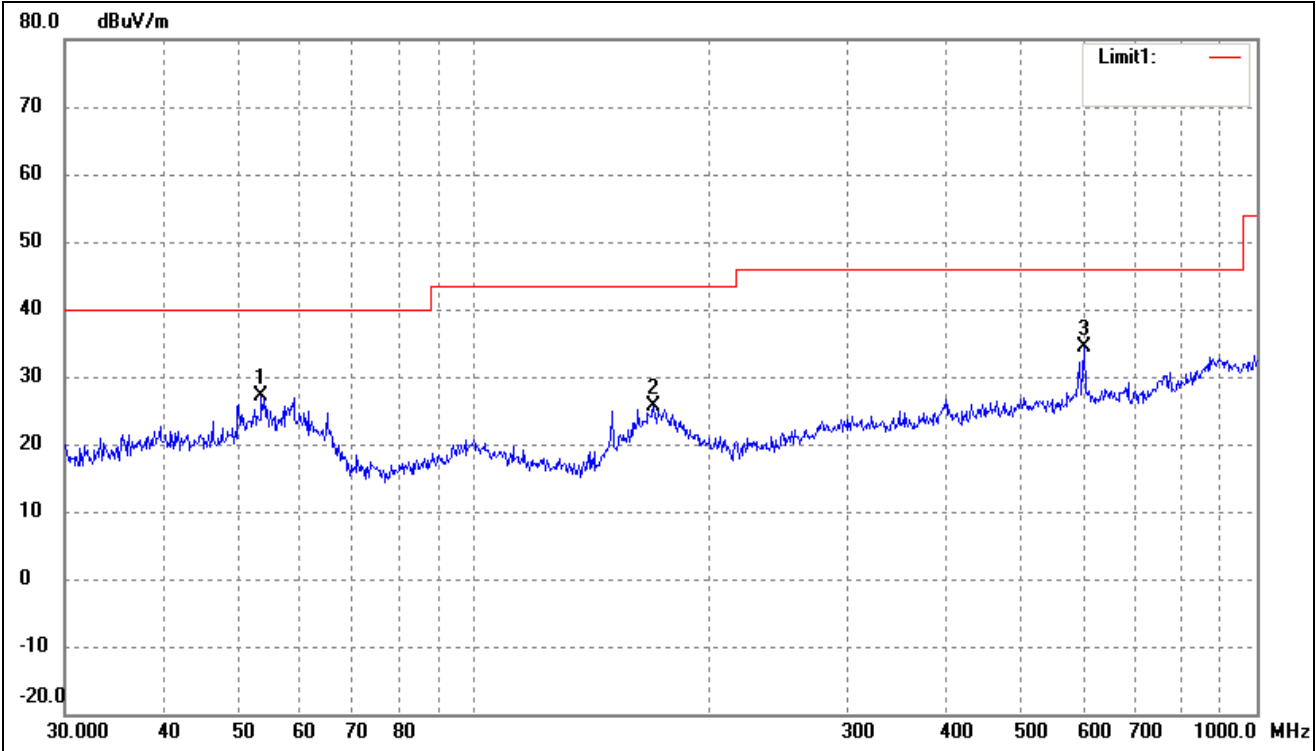
Comment: Adapter: DC 5.35V

Test Specification: Horizontal

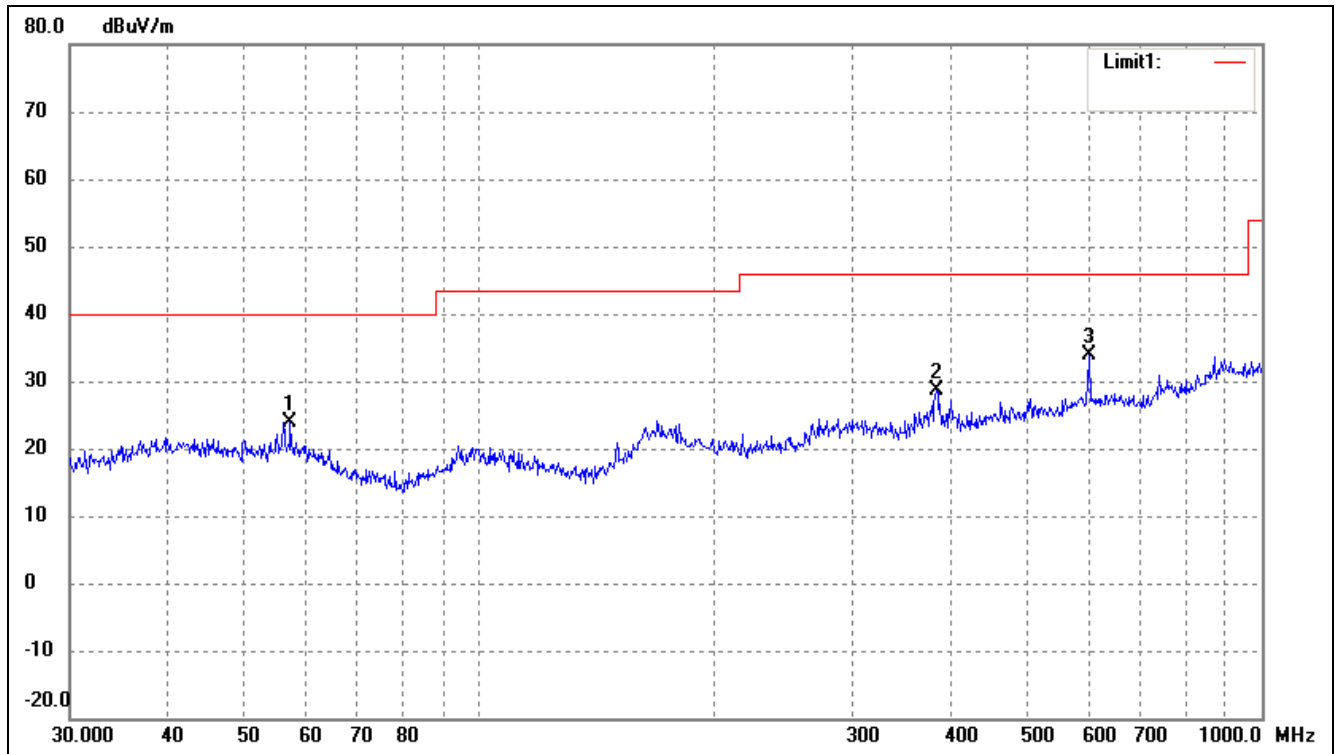


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	56.5929	18.75	5.68	24.43	40.00	-15.57	270	100	peak
2	167.2368	20.66	2.66	23.32	43.50	-20.18	51	200	peak
3	601.4265	20.84	13.22	34.06	46.00	-11.94	360	200	peak

Test Specification: Vertical

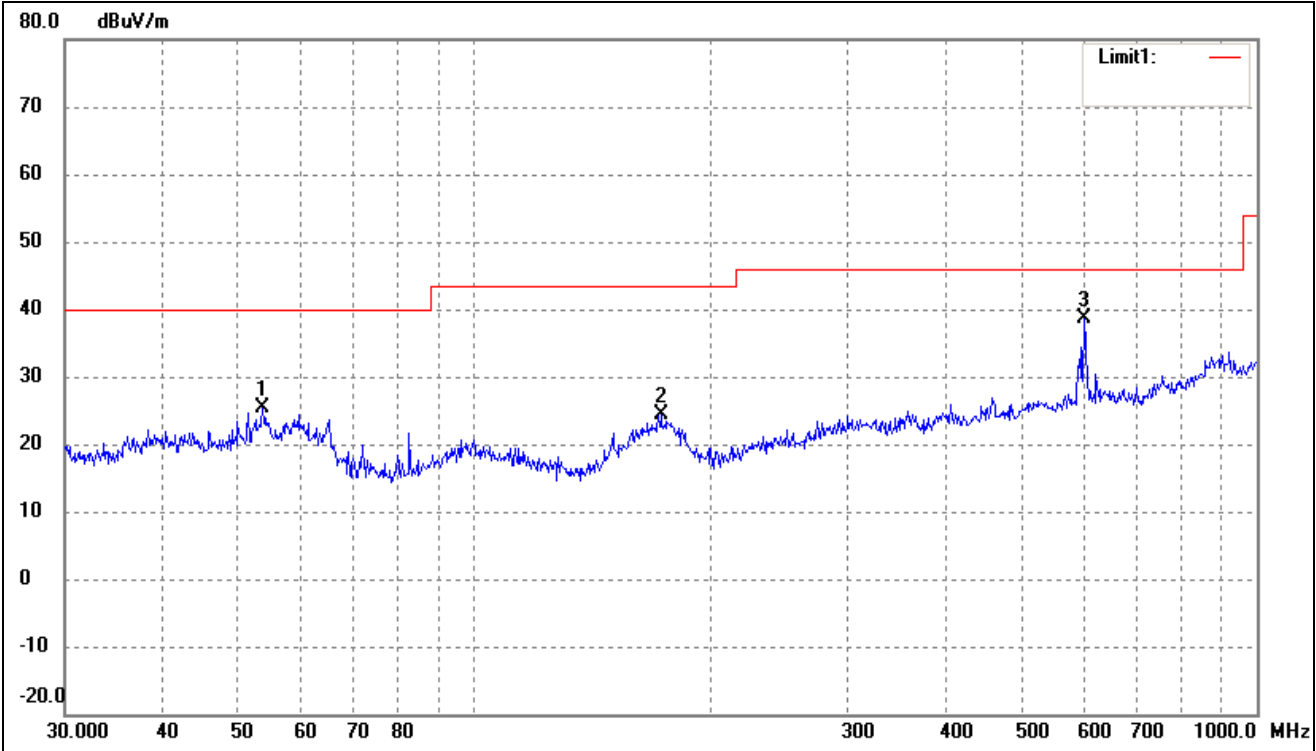


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	53.5052	21.06	5.95	27.01	40.00	-12.99	34	100	peak
2	169.5990	22.93	2.68	25.61	43.50	-17.89	145	100	peak
3	601.4265	21.16	13.22	34.38	46.00	-11.62	221	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)EUT: *Android TV Dongle*Tested Model: *MBR-1100*Operating Condition: *802.11n-HT20 Transmitting Low Channel-2412MHz*Comment: *Adapter:DC5.35V*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	57.3923	18.29	5.60	23.89	40.00	-16.11	260	100	peak
2	383.9318	19.27	9.38	28.65	46.00	-17.35	131	200	peak
3	601.4265	20.62	13.22	33.84	46.00	-12.16	285	200	peak

Test Specification: Vertical

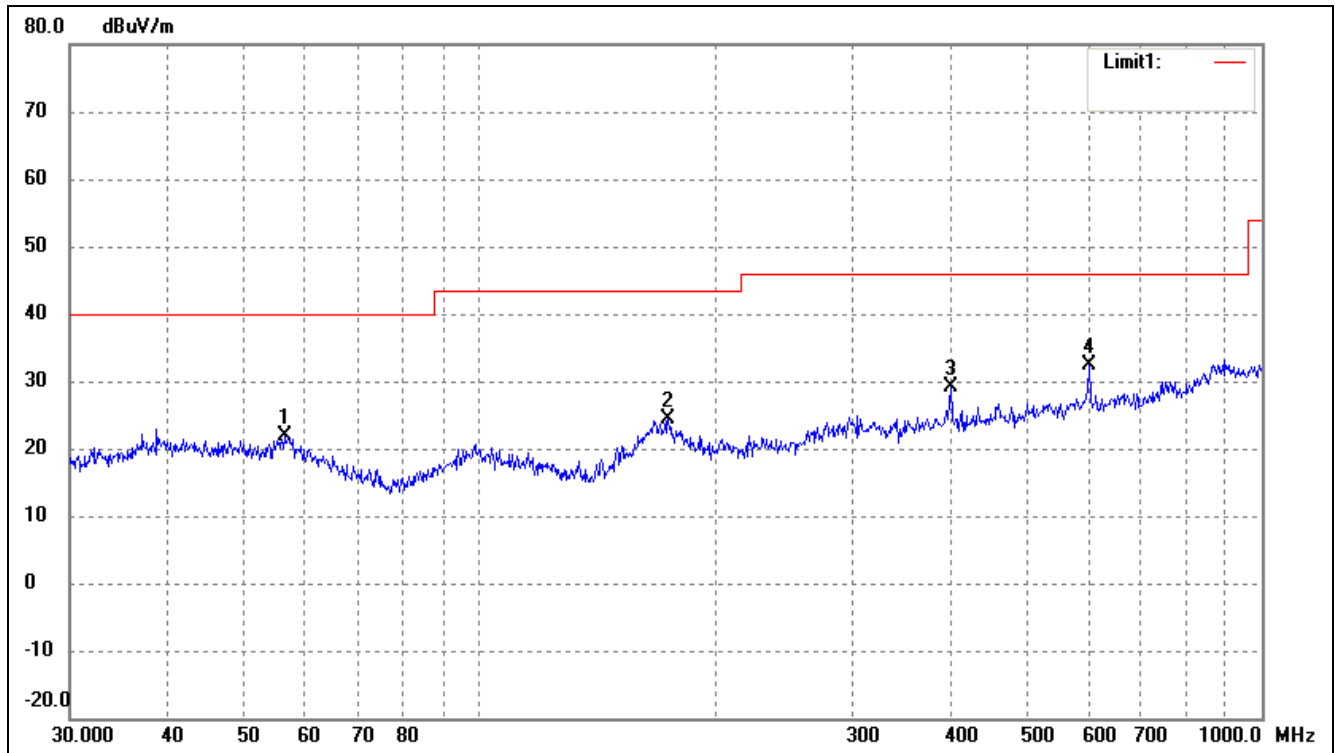


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	53.6932	19.42	5.94	25.36	40.00	-14.64	155	100	peak
2	173.2051	21.61	2.70	24.31	43.50	-19.19	197	100	peak
3	601.4265	25.31	13.22	38.53	46.00	-7.47	310	100	peak

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

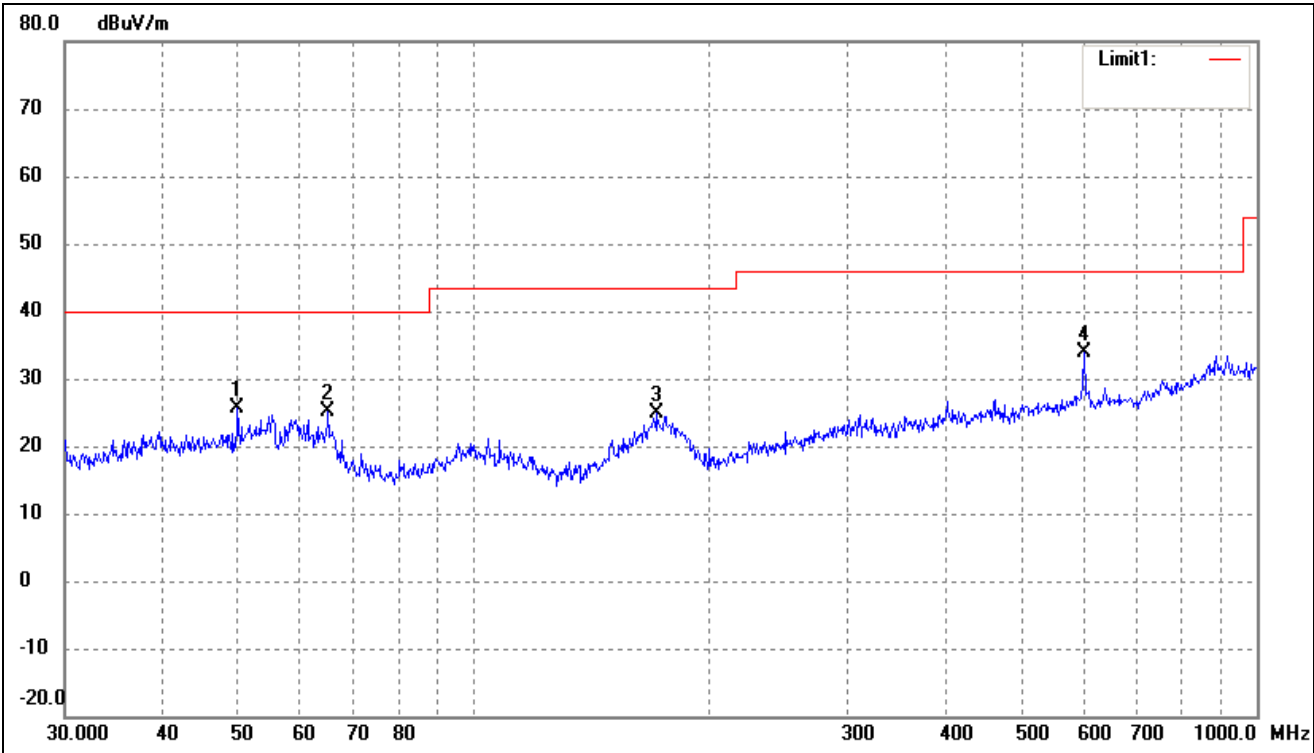
Comment: Adapter:DC5.35V

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	56.3948	16.20	5.69	21.89	40.00	-18.11	27	100	peak
2	174.4241	21.57	2.71	24.28	43.50	-19.22	16	100	peak
3	400.4319	19.04	10.12	29.16	46.00	-16.84	48	100	peak
4	601.4265	19.16	13.22	32.38	46.00	-13.62	134	100	peak

Test Specification: Vertical

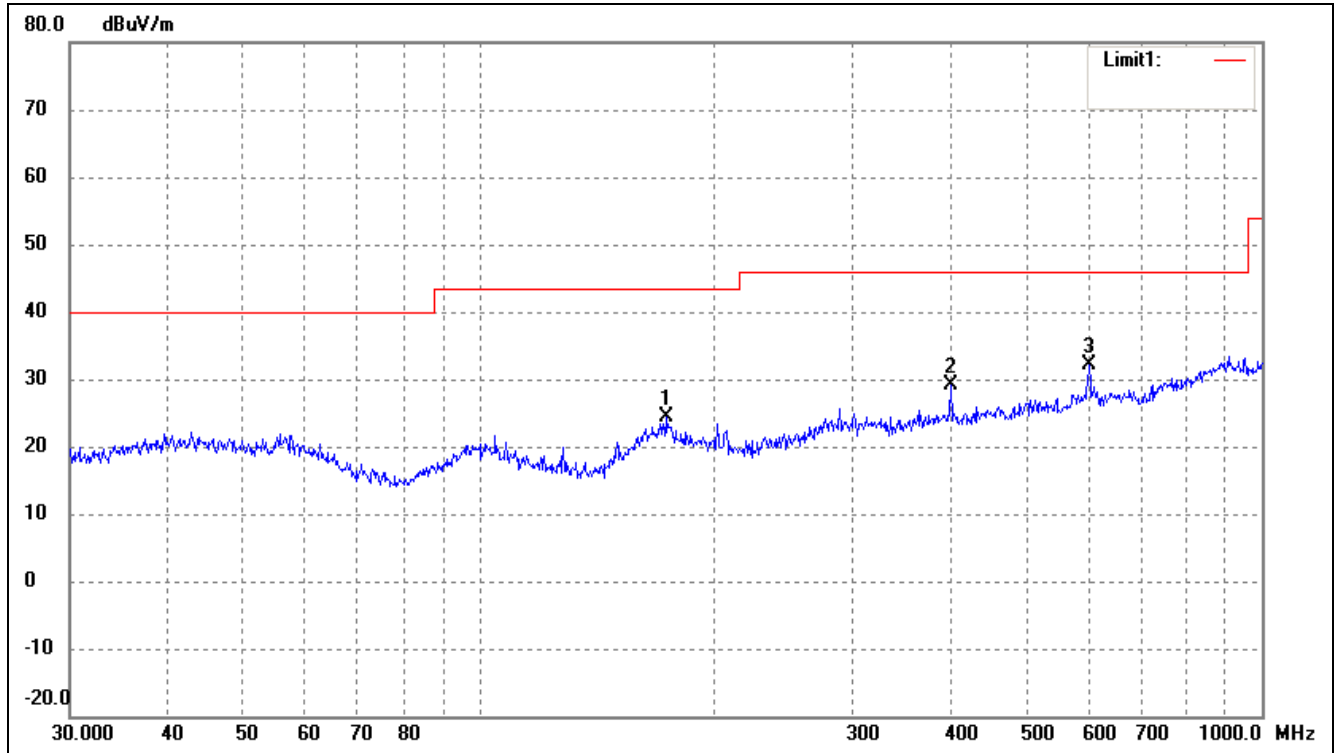


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	49.8814	19.21	6.30	25.51	40.00	-14.49	264	100	peak
2	65.1145	21.33	3.74	25.07	40.00	-14.93	189	100	peak
3	171.3926	22.25	2.69	24.94	43.50	-18.56	13	100	peak
4	601.4265	20.76	13.22	33.98	46.00	-12.02	78	100	peak

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

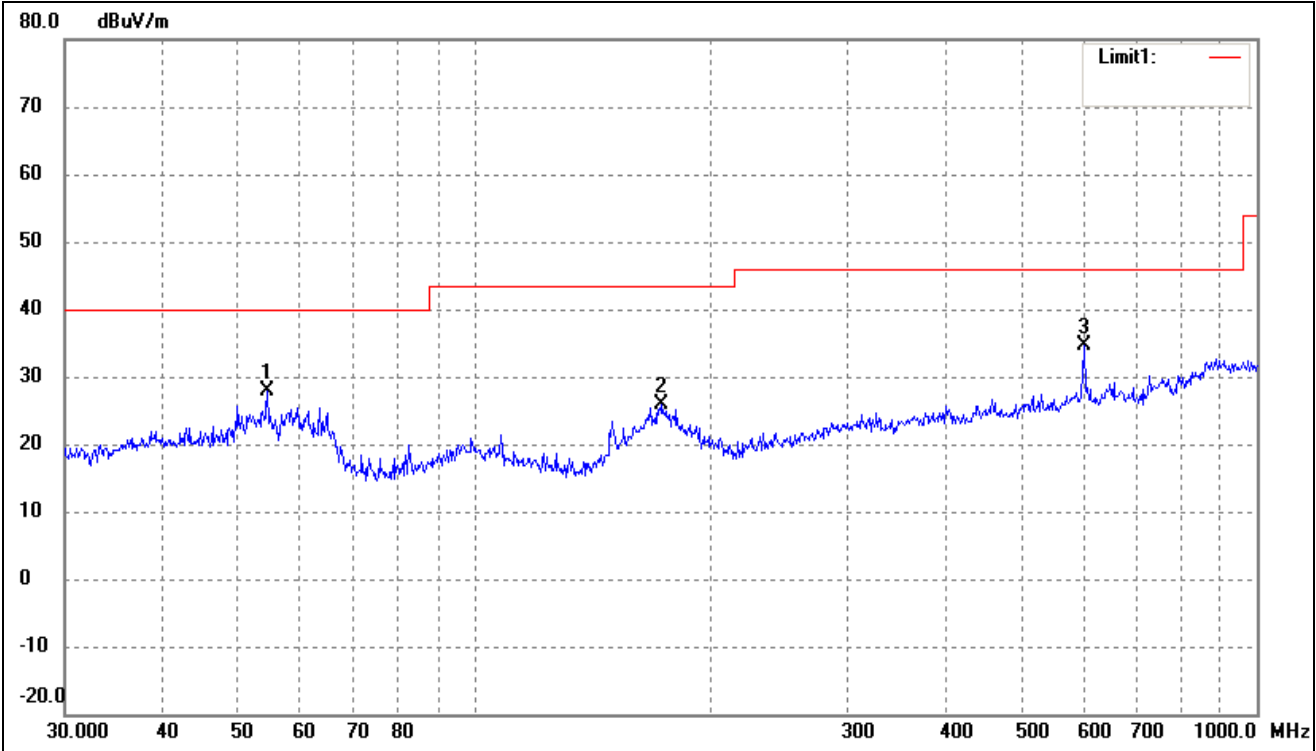
Comment: Adapter:DC5.35V

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	173.2051	21.77	2.70	24.47	43.50	-19.03	36	100	peak
2	400.4319	19.08	10.12	29.20	46.00	-16.80	11	100	peak
3	601.4265	18.94	13.22	32.16	46.00	-13.84	187	200	peak

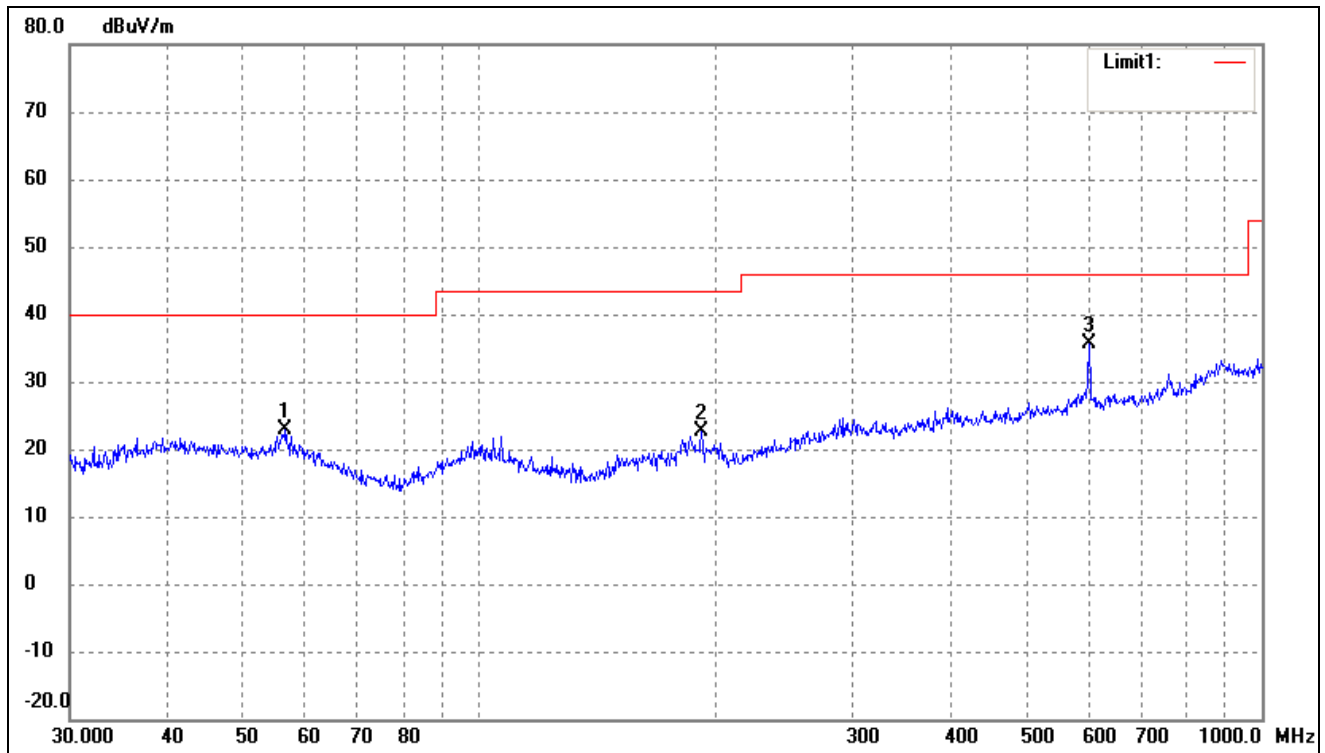
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	54.4516	21.90	5.87	27.77	40.00	-12.23	267	100	peak
2	173.8135	23.19	2.71	25.90	43.50	-17.60	145	100	peak
3	601.4265	21.44	13.22	34.66	46.00	-11.34	354	100	peak

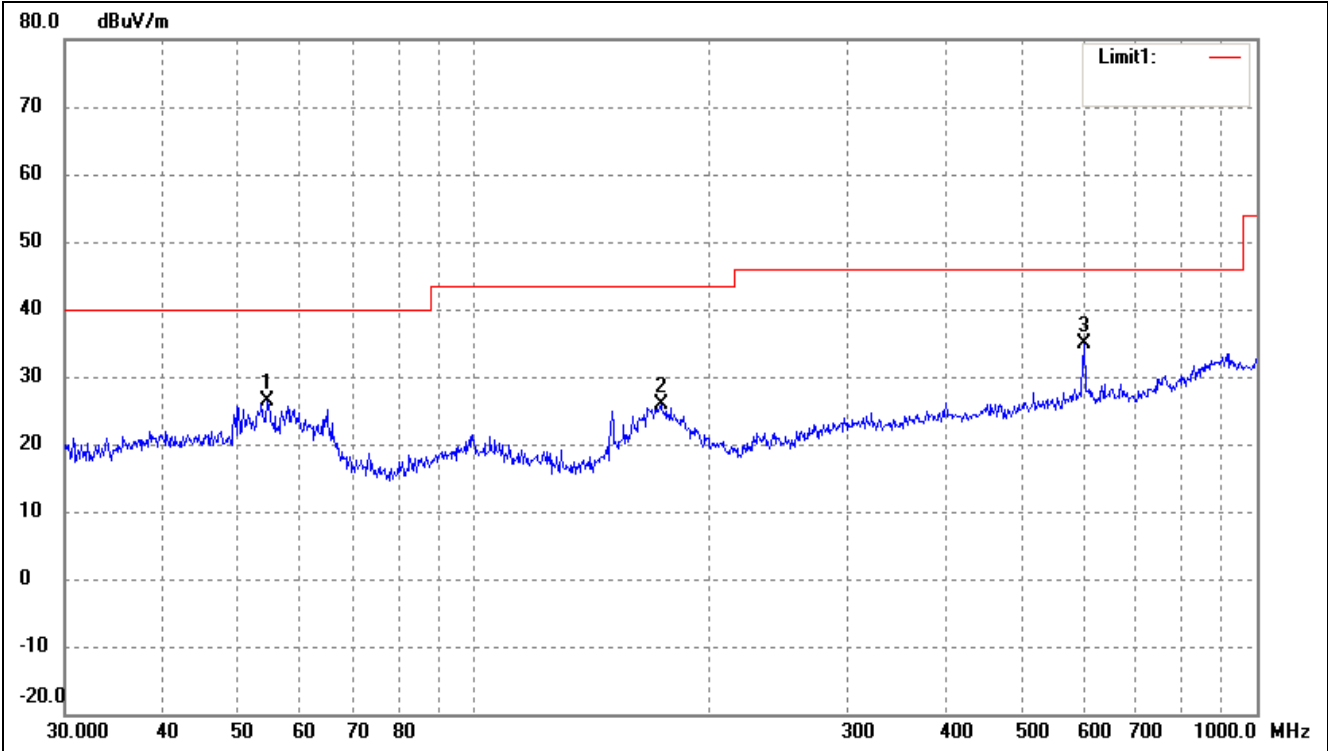
EUT: Android TV Dongle
 Tested Model: MBR-1100
 Operating Condition: 802.11n-HT40 Transmitting Low Channel-2422MHz
 Comment: Adapter:DC5.35V

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	56.5929	17.23	5.68	22.91	40.00	-17.09	267	100	peak
2	192.4186	19.32	3.33	22.65	43.50	-20.85	114	200	peak
3	601.4265	22.47	13.22	35.69	46.00	-10.31	35	200	peak

Test Specification: Vertical

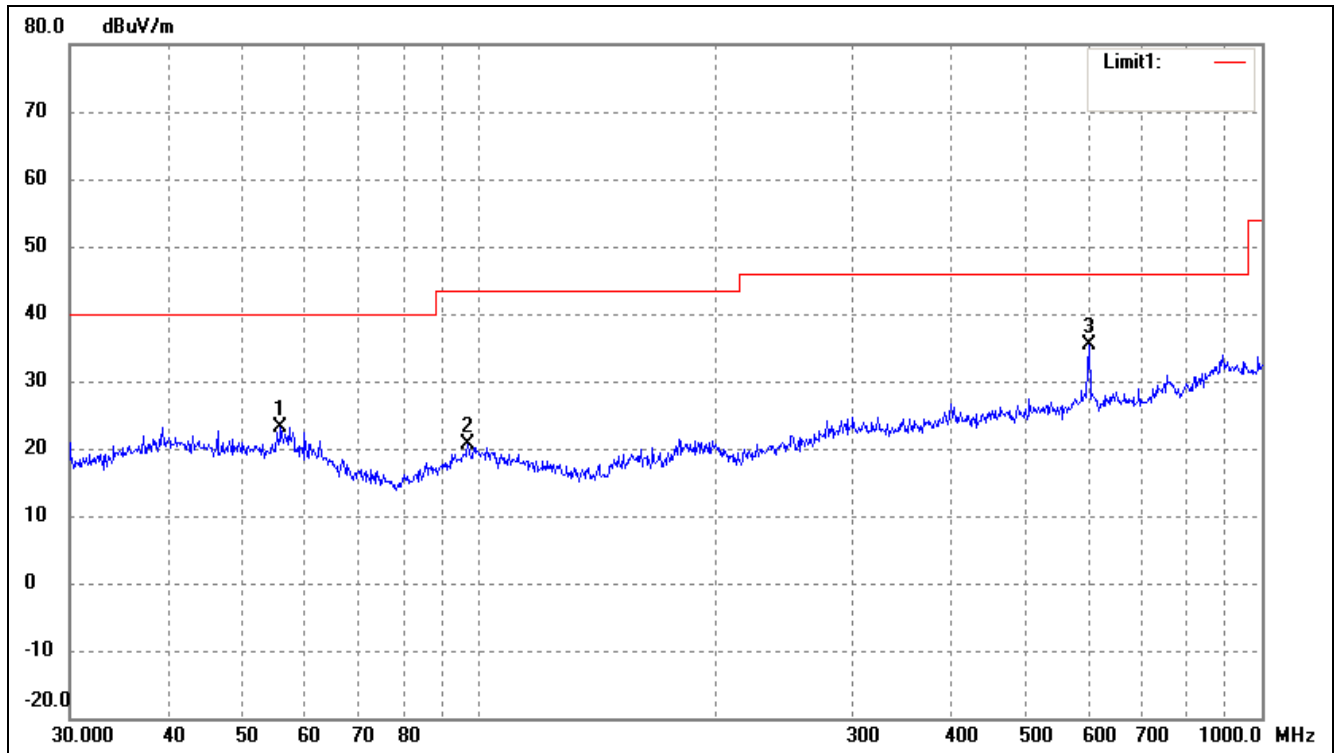


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	54.4516	20.56	5.87	26.43	40.00	-13.57	360	100	peak
2	173.2051	23.17	2.70	25.87	43.50	-17.63	258	100	peak
3	601.4265	21.57	13.22	34.79	46.00	-11.21	270	100	peak

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

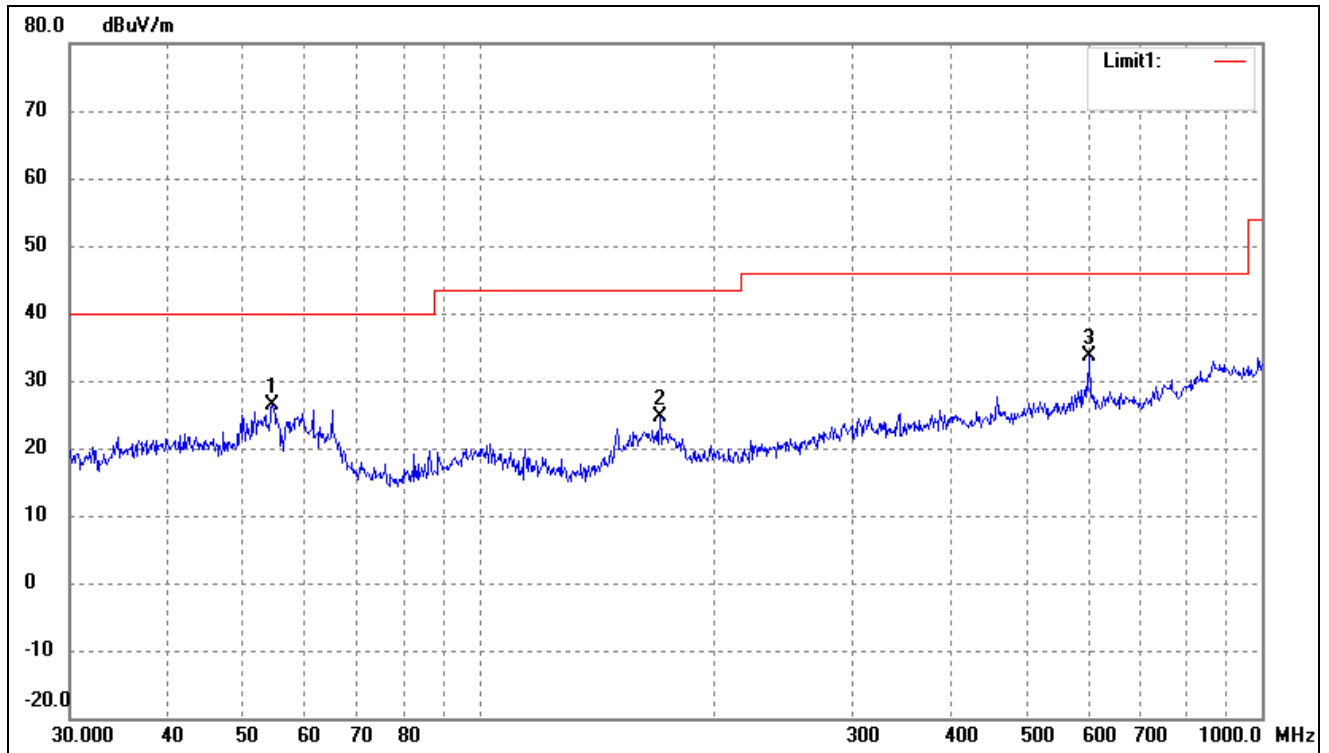
Comment: Adapter:DC5.35V

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	55.8047	17.46	5.75	23.21	40.00	-16.79	251	100	peak
2	96.7749	15.24	5.32	20.56	43.50	-22.94	167	100	peak
3	601.4265	22.07	13.22	35.29	46.00	-10.71	44	100	peak

Test Specification: Vertical

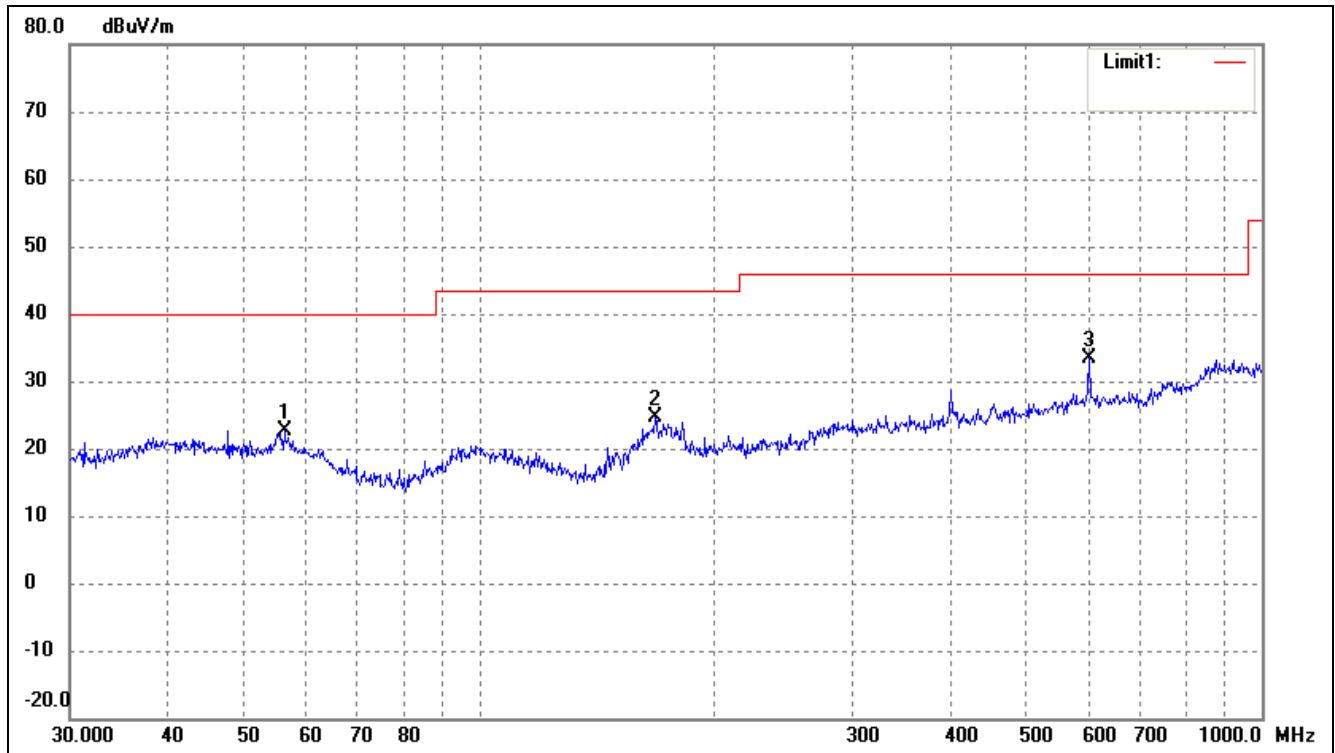


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	54.4516	20.43	5.87	26.30	40.00	-13.70	47	100	peak
2	170.1948	21.84	2.68	24.52	43.50	-18.98	264	100	peak
3	601.4265	20.52	13.22	33.74	46.00	-12.26	225	100	peak

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

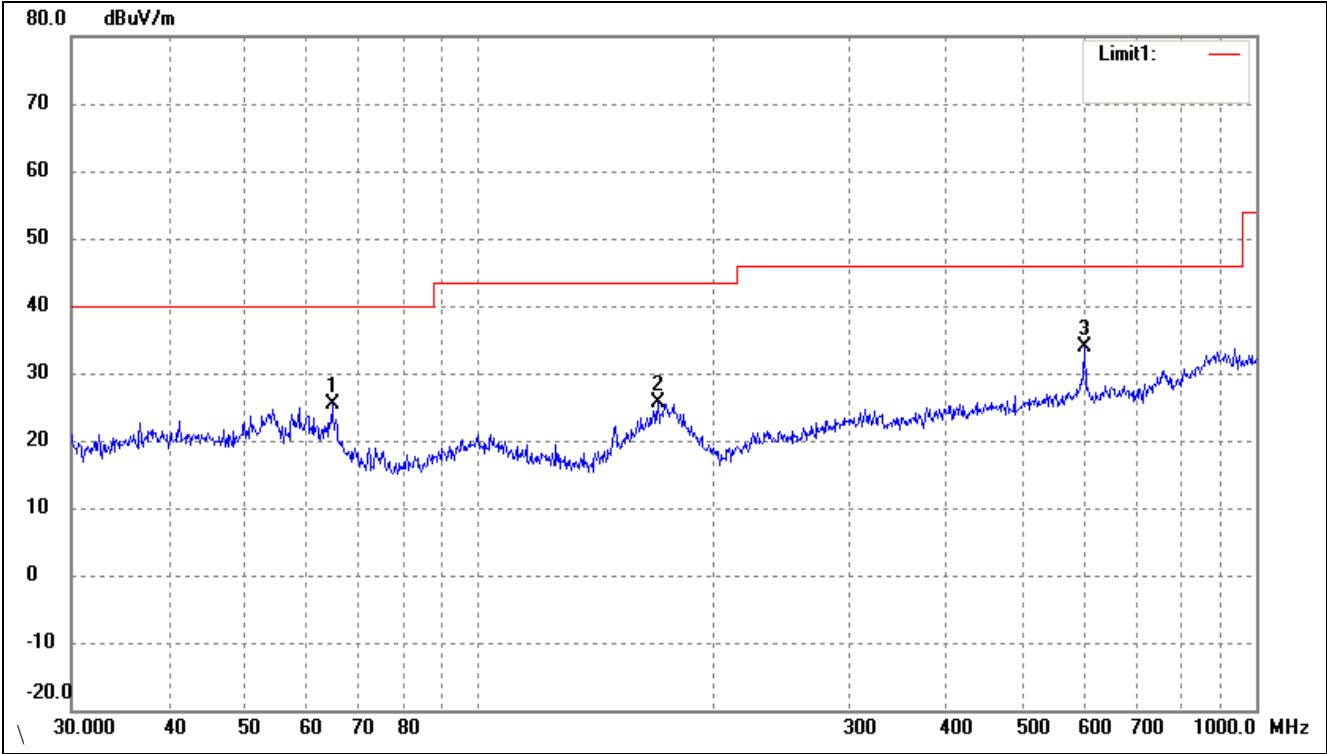
Comment: Adapter:DC5.35V

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	56.3948	16.93	5.69	22.62	40.00	-17.38	360	100	peak
2	167.8243	22.04	2.67	24.71	43.50	-18.79	287	100	peak
3	601.4265	20.09	13.22	33.31	46.00	-12.69	168	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	64.8865	21.64	3.82	25.46	40.00	-14.54	78	100	peak
2	170.1948	23.03	2.68	25.71	43.50	-17.79	136	100	peak
3	601.4265	20.66	13.22	33.88	46.00	-12.12	284	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	54.09	-3.87	50.22	74.00	-23.78	H	PK
4824.000	38.84	-3.87	34.97	54.00	-19.03	H	AV
7236.000	46.30	1.14	47.44	74.00	-26.56	H	PK
7236.000	34.98	1.19	36.17	54.00	-17.83	H	AV
4824.000	57.31	-3.86	53.45	74.00	-20.55	V	PK
4824.000	40.50	-3.86	36.64	54.00	-17.36	V	AV
7236.000	49.11	1.10	50.21	74.00	-23.79	V	PK
7236.000	37.44	1.10	38.54	54.00	-15.46	V	AV
Middle Channel-2442MHz							
4884.000	54.74	-3.74	51.00	74.00	-23.00	H	PK
4884.000	39.99	-3.74	36.25	54.00	-17.75	H	AV
7326.000	47.77	1.47	49.24	74.00	-24.76	H	PK
7326.000	33.10	1.47	34.57	54.00	-19.43	H	AV
4884.000	53.97	-3.74	50.23	74.00	-23.77	V	PK
4884.000	40.89	-3.74	37.15	54.00	-16.85	V	AV
7326.000	47.98	1.47	49.45	74.00	-24.55	V	PK
7326.000	34.08	1.47	35.55	54.00	-18.45	V	AV
High Channel-2472MHz							
4944.000	55.82	-3.59	52.23	74.00	-21.77	H	PK
4924.000	41.76	-3.59	38.17	54.00	-15.83	H	AV
7416.000	46.38	1.79	48.17	74.00	-25.83	H	PK
7416.000	34.83	1.79	36.62	54.00	-17.38	H	AV
4944.000	54.94	-3.59	51.35	74.00	-22.65	V	PK
4924.000	42.04	-3.59	38.45	54.00	-15.55	V	AV
7416.000	47.99	1.79	49.78	74.00	-24.22	V	PK
7416.000	35.18	1.79	36.97	54.00	-17.03	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							
4824.000	55.50	-3.86	51.64	74.00	-22.36	H	PK
4824.000	42.23	-3.86	38.37	54.00	-15.63	H	AV
7236.000	48.42	1.10	49.52	74.00	-24.48	H	PK
7236.000	34.40	1.10	35.50	54.00	-18.50	H	AV
4824.000	55.99	-3.86	52.13	74.00	-21.87	V	PK
4824.000	42.65	-3.86	38.79	54.00	-15.21	V	AV
7236.000	49.22	1.10	50.32	74.00	-23.68	V	PK
7236.000	35.54	1.10	36.64	54.00	-17.36	V	AV
Middle Channel-2442MHz							
4884.000	55.10	-3.74	51.36	74.00	-22.64	H	PK
4884.000	43.28	-3.74	39.54	54.00	-14.46	H	AV
7326.000	47.38	1.47	48.85	74.00	-25.15	H	PK
7326.000	35.27	1.47	36.74	54.00	-17.26	H	AV
4884.000	57.07	-3.74	53.33	74.00	-20.67	V	PK
4884.000	43.86	-3.74	40.12	54.00	-13.88	V	AV
7326.000	48.40	1.47	49.87	74.00	-24.13	V	PK
7326.000	35.33	1.47	36.80	54.00	-17.20	V	AV
High Channel-2472MHz							
4944.000	54.00	-3.59	50.41	74.00	-23.59	H	PK
4924.000	40.75	-3.59	37.16	54.00	-16.84	H	AV
7416.000	47.18	1.79	48.97	74.00	-25.03	H	PK
7416.000	34.73	1.79	36.52	54.00	-17.48	H	AV
4944.000	56.11	-3.59	52.52	74.00	-21.48	V	PK
4924.000	42.69	-3.59	39.10	54.00	-14.90	V	AV
7416.000	48.58	1.79	50.37	74.00	-23.63	V	PK
7416.000	35.95	1.79	37.74	54.00	-16.26	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							
4824.000	55.60	-3.86	51.74	74.00	-22.26	H	PK
4824.000	40.54	-3.86	36.68	54.00	-17.32	H	AV
7236.000	47.26	1.10	48.36	74.00	-25.64	H	PK
7236.000	34.44	1.10	35.54	54.00	-18.46	H	AV
4824.000	56.71	-3.86	52.85	74.00	-21.15	V	PK
4824.000	43.18	-3.86	39.32	54.00	-14.68	V	AV
7236.000	49.21	1.10	50.31	74.00	-23.69	V	PK
7236.000	35.77	1.10	36.87	54.00	-17.13	V	AV
Middle Channel-2442MHz							
4884.000	54.16	-3.74	50.42	74.00	-23.58	H	PK
4884.000	42.48	-3.74	38.74	54.00	-15.26	H	AV
7326.000	48.74	1.47	50.21	74.00	-23.79	H	PK
7326.000	33.10	1.47	34.57	54.00	-19.43	H	AV
4884.000	54.92	-3.74	51.18	74.00	-22.82	V	PK
4884.000	42.62	-3.74	38.88	54.00	-15.12	V	AV
7326.000	48.49	1.47	49.96	74.00	-24.04	V	PK
7326.000	35.20	1.47	36.67	54.00	-17.33	V	AV
High Channel-2472MHz							
4944.000	53.90	-3.59	50.31	74.00	-23.69	H	PK
4924.000	43.23	-3.59	39.64	54.00	-14.36	H	AV
7416.000	48.31	1.79	50.10	74.00	-23.90	H	PK
7416.000	36.10	1.79	37.89	54.00	-16.11	H	AV
4944.000	55.70	-3.59	52.11	74.00	-21.89	V	PK
4924.000	41.48	-3.59	37.89	54.00	-16.11	V	AV
7416.000	48.55	1.79	50.34	74.00	-23.66	V	PK
7416.000	35.36	1.79	37.15	54.00	-16.85	V	AV

Test Mode: 802.11n-HT40

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2422MHz							
4844.000	53.25	-3.90	49.35	74.00	-24.65	H	PK
4824.000	38.25	-3.90	34.35	54.00	-19.65	H	AV
7266.000	46.48	1.06	47.54	74.00	-26.46	H	PK
7266.000	32.56	1.06	33.62	54.00	-20.38	H	AV
4844.000	54.22	-3.90	50.32	74.00	-23.68	V	PK
4824.000	39.42	-3.90	35.52	54.00	-18.48	V	AV
7266.000	48.81	1.06	49.87	74.00	-24.13	V	PK
7266.000	34.78	1.06	35.84	54.00	-18.16	V	AV
Middle Channel-2442MHz							
4884.000	52.53	-3.74	48.79	74.00	-25.21	H	PK
4884.000	37.88	-3.74	34.14	54.00	-19.86	H	AV
7326.000	44.88	1.47	46.35	74.00	-27.65	H	PK
7326.000	32.03	1.47	33.50	54.00	-20.50	H	AV
4884.000	53.74	-3.74	50.00	74.00	-24.00	V	PK
4884.000	39.95	-3.74	36.21	54.00	-17.79	V	AV
7326.000	45.78	1.47	47.25	74.00	-26.75	V	PK
7326.000	34.00	1.47	35.47	54.00	-18.53	V	AV
High Channel-2462MHz							
4924.000	52.65	-3.63	49.02	74.00	-24.98	H	PK
4924.000	39.37	-3.63	35.74	54.00	-18.26	H	AV
7386.000	45.63	1.62	47.25	74.00	-26.75	H	PK
7386.000	30.73	1.62	32.35	54.00	-21.65	H	AV
4924.000	54.84	-3.63	51.21	74.00	-22.79	V	PK
4924.000	40.83	-3.63	37.20	54.00	-16.80	V	AV
7386.000	48.18	1.62	49.80	74.00	-24.20	V	PK
7386.000	35.12	1.62	36.74	54.00	-17.26	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	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23

9.3 Test Procedure

According to the KDB 558074D01 v03r02, 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 V03r02, 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

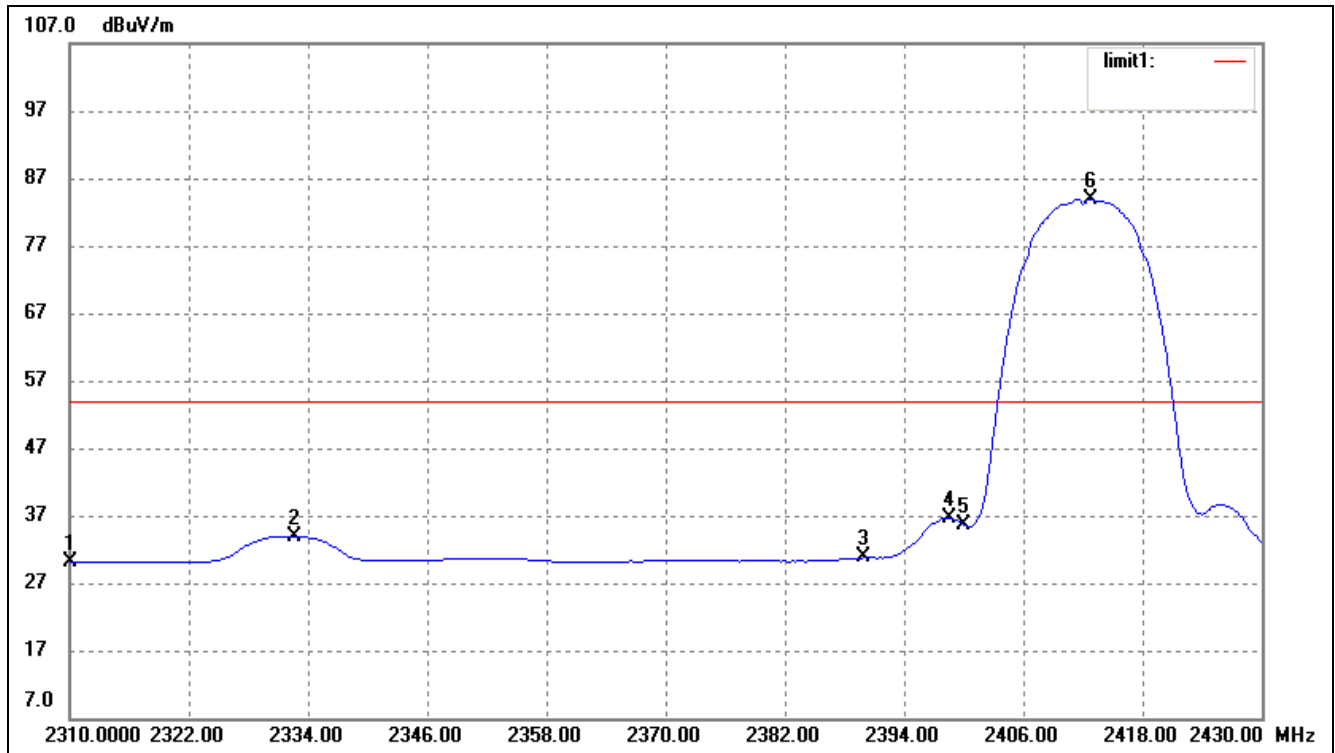
Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.5 Summary of Test Results/Plots

Please refer to the test plots as below.

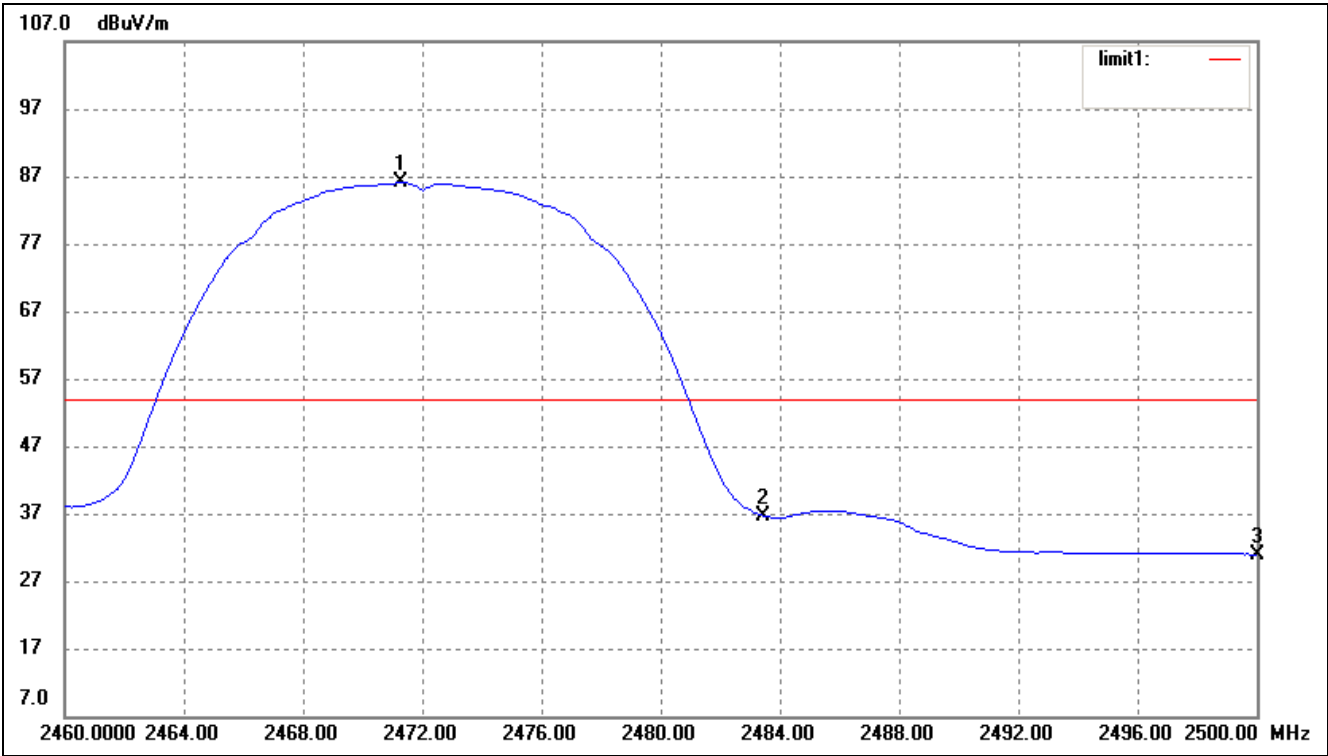
802.11b-Lowest Bandedge

Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	33.80	-3.69	30.11	54.00	-23.89	Average Detector
	2310.000	46.47	-3.69	42.78	74.00	-31.22	Peak Detector
2	2332.560	50.20	-3.54	46.66	74.00	-27.34	Peak Detector
	2332.560	37.59	-3.64	33.95	54.00	-20.05	Average Detector
3	2390.000	34.26	-3.49	30.77	54.00	-23.23	Average Detector
	2390.000	46.55	-3.49	43.06	74.00	-30.94	Peak Detector
4	2398.560	40.17	-3.46	36.71	54.00	-17.29	Average Detector
	2397.120	51.62	-3.46	48.16	74.00	-25.84	Peak Detector
5	2400.000	51.91	-3.46	48.45	Delta=35.47dBc		Average Detector
6	2412.720	87.34	-3.42	83.92			Average Detector

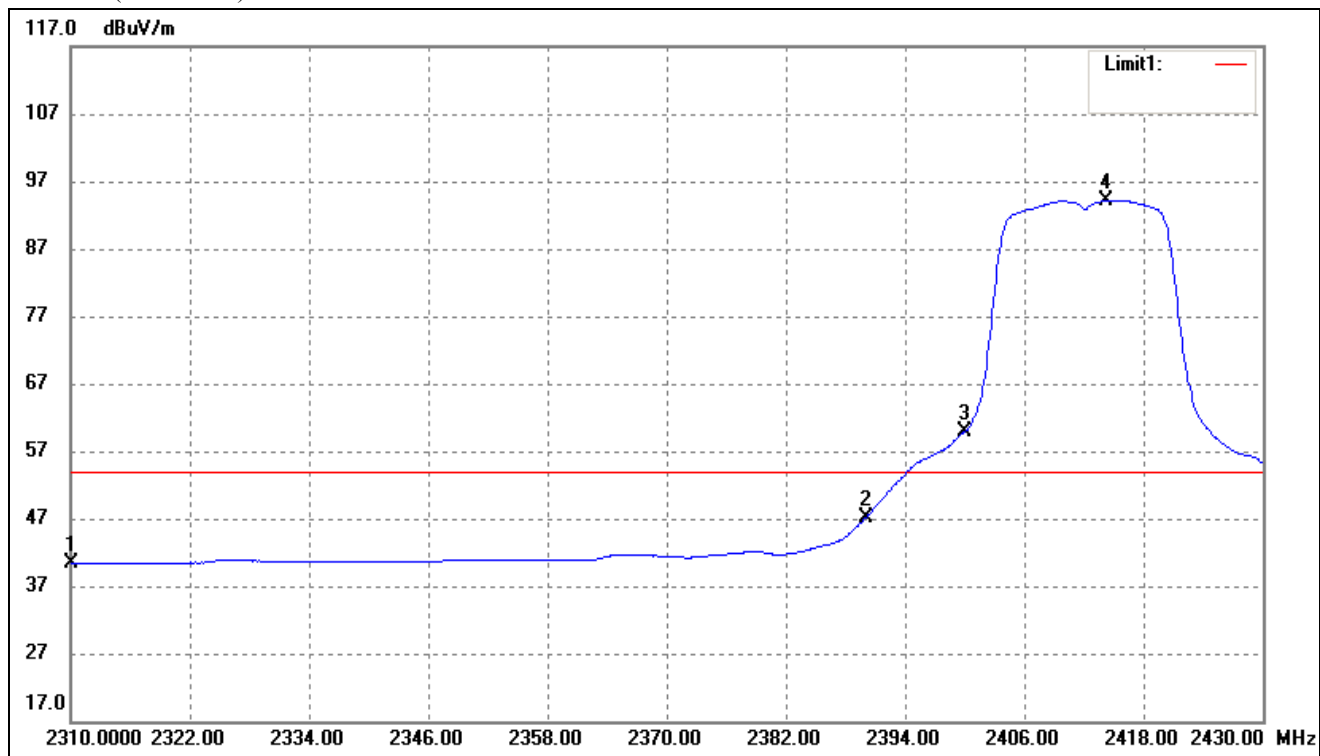
802.11b-Highest Bandedge
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2471.280	89.33	-3.27	86.06	/	/	Average Detector
	2470.720	100.28	-3.28	97.00	/	/	Peak Detector
2	2483.500	Delta = 50.37dBc		35.69	54.00	-18.31	Average Detector
	2483.500			46.63	74.00	-27.37	Peak Detector
3	2500.000	34.14	-3.20	30.94	54.00	-23.06	Average Detector
	2500.000	48.48	-3.20	45.28	74.00	-28.72	Peak Detector

802.11g-Lowest Bandedge

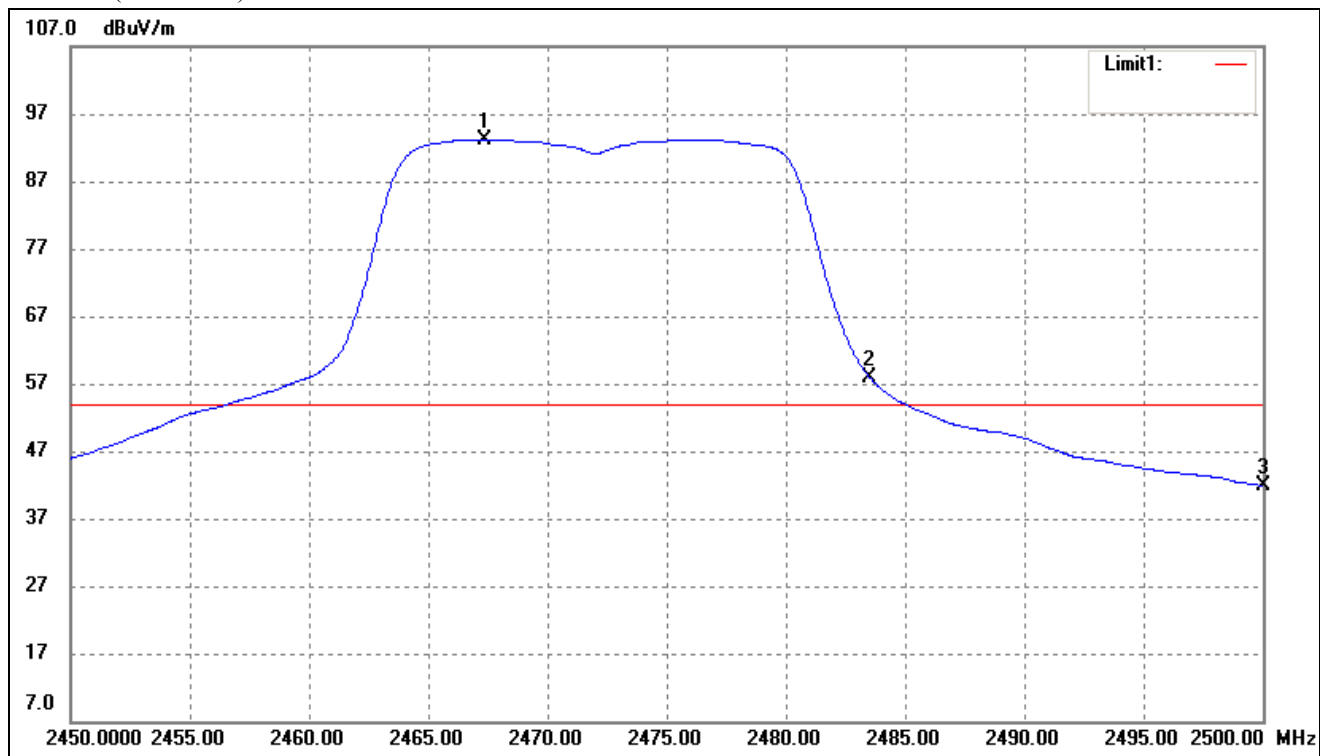
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	24.09	16.34	40.43	54.00	-13.57	Average Detector
	2310.000	35.88	16.34	52.22	74.00	-21.78	Peak Detector
2	2390.000	30.16	17.03	47.19	54.00	-6.81	Average Detector
	2390.000	48.68	17.03	65.71	74.00	-8.29	Peak Detector
3	2400.000	42.81	17.11	59.92	Delta=34.32dBc		Average Detector
4	2414.160	77.02	17.22	94.24			Average Detector

802.11g-Highest Bandedge

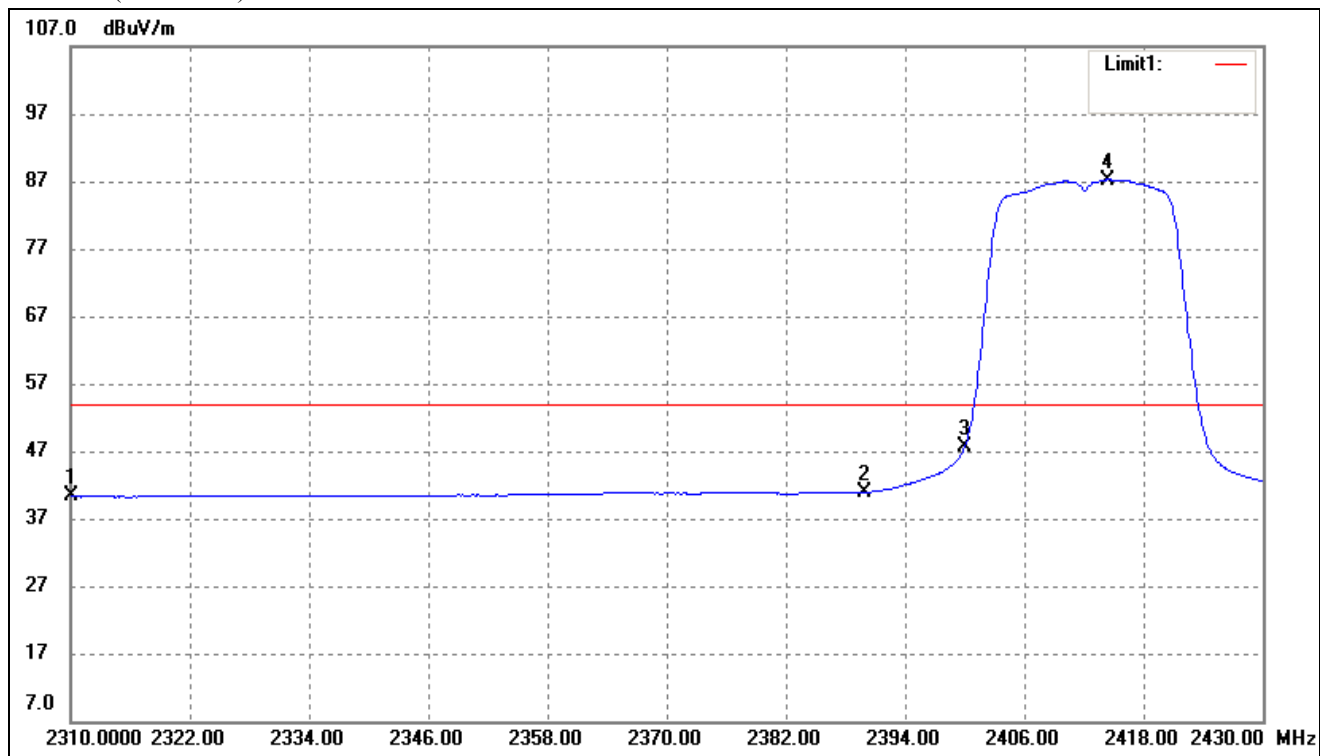
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.350	75.64	17.60	93.24	/	/	Average Detector
	2467.350	86.80	17.59	104.40	/	/	Peak Detector
1	2483.500	Delta = 52.78dBc		40.46	54.00	-13.54	Average Detector
	2483.500			51.62	74.00	-22.38	Peak Detector
3	2500.000	23.97	17.86	41.83	54.00	-12.17	Average Detector
	2500.000	39.43	17.86	57.29	74.00	-16.71	Peak Detector

802.11n-HT20-Lowest Bandedge

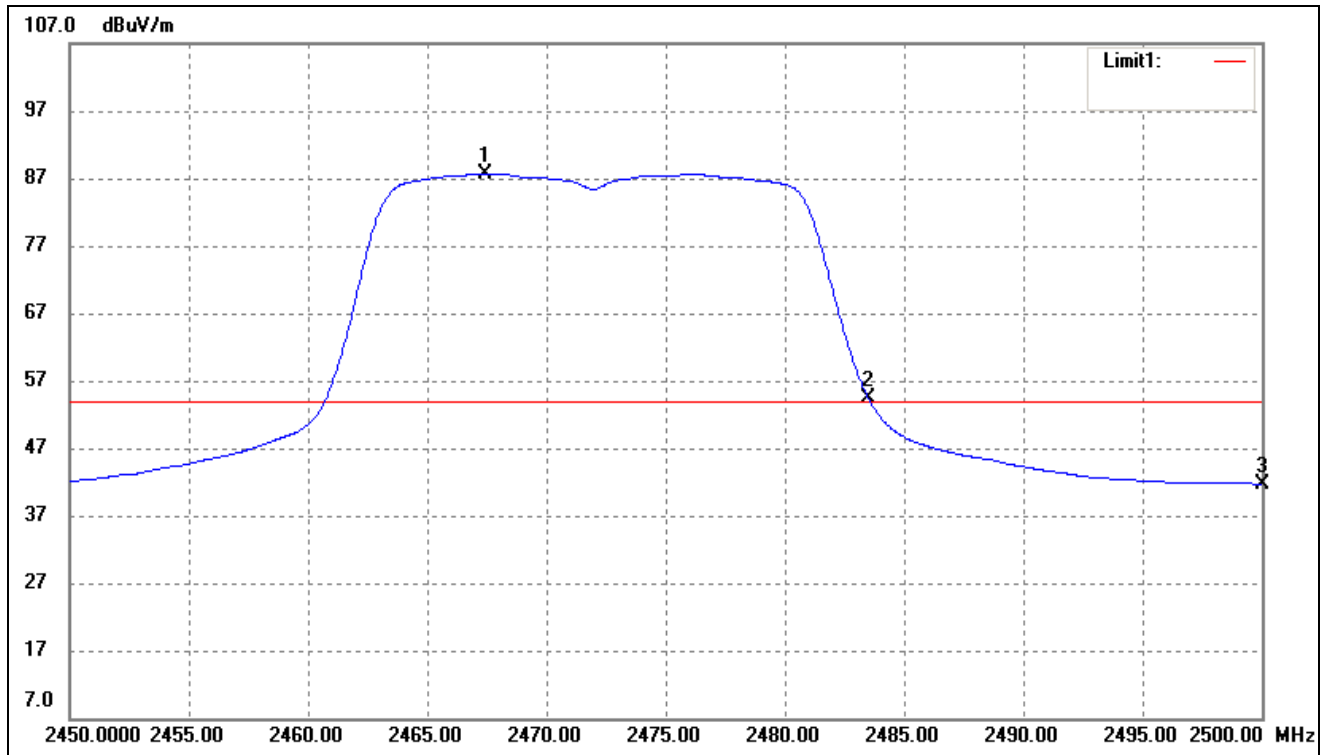
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	23.95	16.34	40.29	54.00	-13.71	Average Detector
	2310.000	35.16	16.34	51.50	74.00	-22.50	Peak Detector
2	2390.000	23.91	17.03	40.94	54.00	-13.06	Average Detector
	2390.000	34.92	17.03	51.95	74.00	-22.05	Peak Detector
3	2400.000	30.42	17.11	47.53	Delta=39.72dBc		Average Detector
4	2414.400	70.03	17.22	87.25			Average Detector

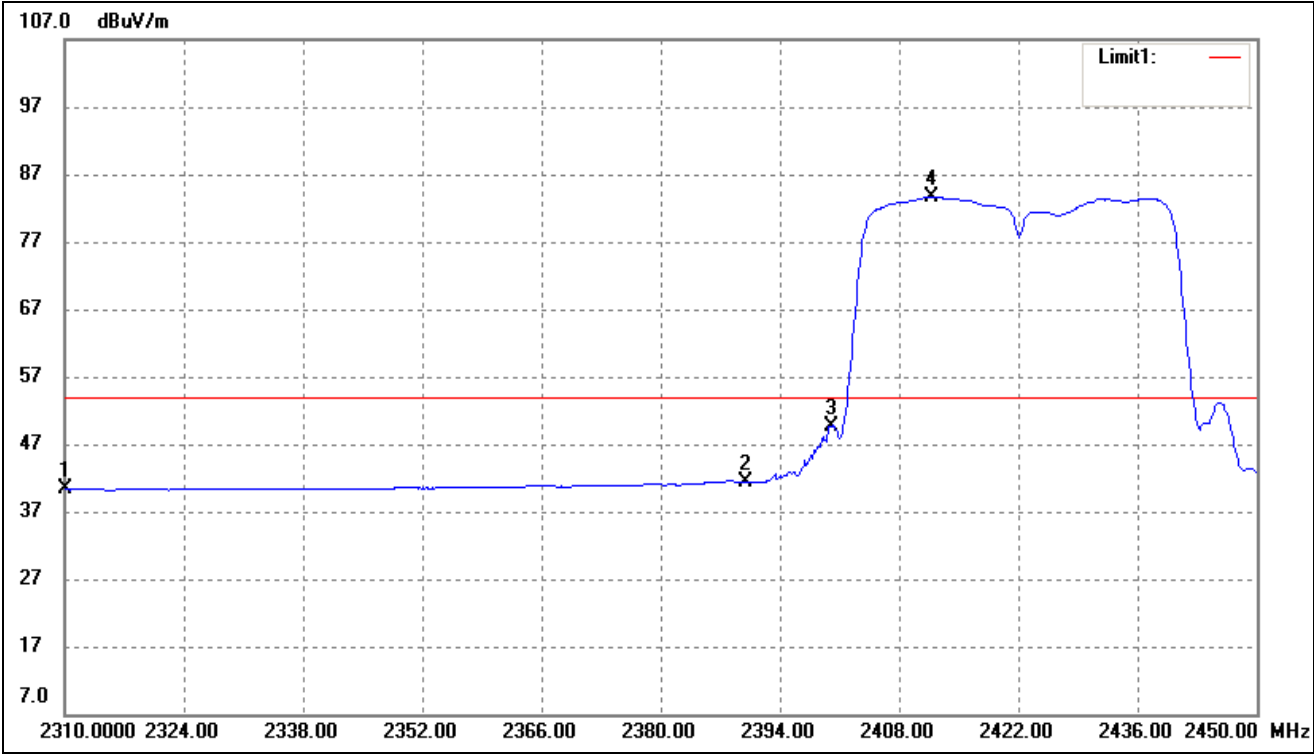
802.11n-HT20-Highest Bandedge

Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.400	70.08	17.60	87.68	/	/	Average Detector
	2466.900	81.79	17.60	99.39	/	/	Peak Detector
2	2483.500	Delta =51.35dBc		36.33	54.00	-17.67	Average Detector
	2483.500			48.04	74.00	-25.96	Peak Detector
3	2500.000	23.86	17.86	41.72	54.00	-12.28	Average Detector
	2500.000	36.28	17.86	54.14	74.00	-19.86	Peak Detector

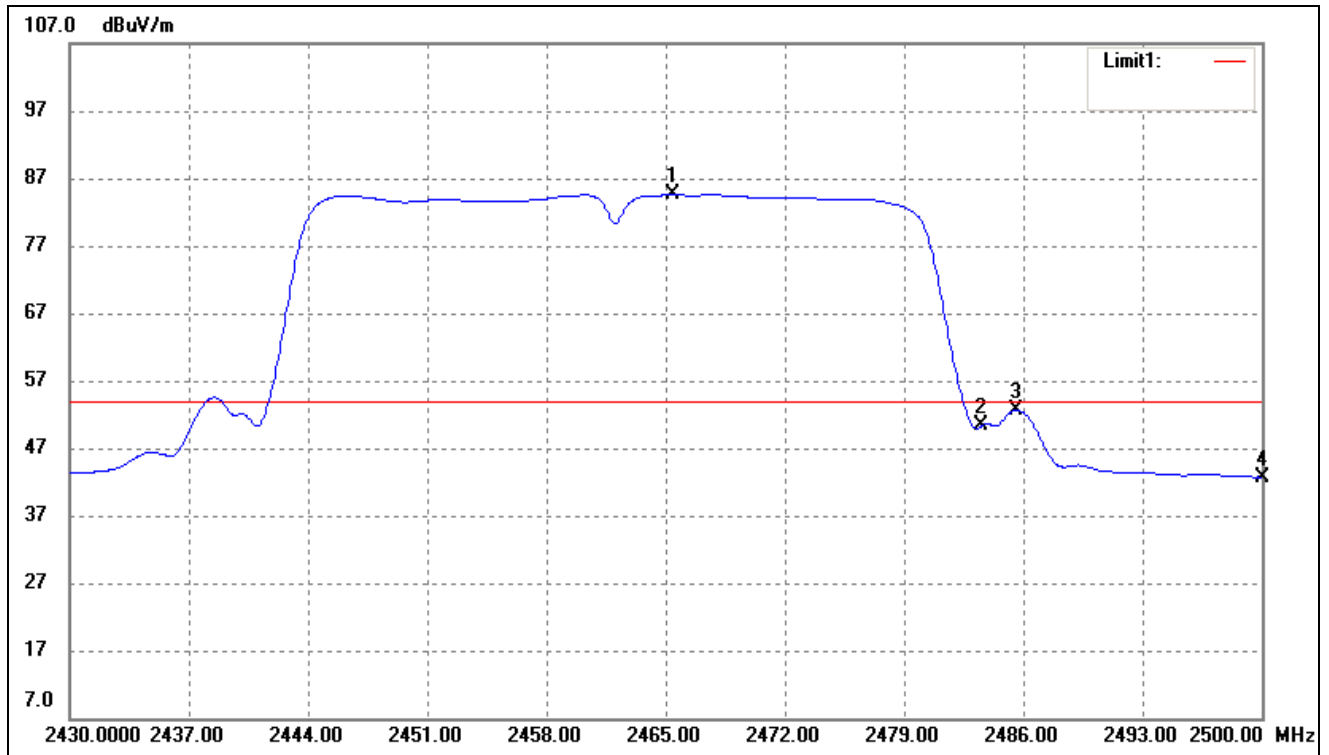
802.11n-HT40-Lowest Bandedge
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	23.96	16.34	40.30	54.00	-13.70	Average Detector
	2310.000	35.63	16.34	51.97	74.00	-22.03	Peak Detector
2	2390.000	24.30	17.03	41.33	54.00	-12.67	Average Detector
	2390.000	35.51	17.03	52.54	74.00	-21.46	Peak Detector
3	2400.000	32.62	17.11	49.73	Delta=34.02dBc		Average Detector
4	2413.780	66.55	17.20	83.75			Average 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	2465.420	67.06	17.59	84.65	/	/	Average Detector
	2465.140	79.02	17.59	96.61	/	/	Peak Detector
2	2483.500	Delta = 51.52dBc		33.13	54.00	-20.87	Average Detector
	2483.500			45.09	74.00	-28.91	Peak Detector
3	2485.580	34.93	17.74	52.67	54.00	-1.33	Average Detector
	2485.440	46.99	17.74	64.73	74.00	-9.27	Peak Detector
4	2500.000	24.89	17.86	42.75	54.00	-11.25	Average Detector
	2500.000	36.44	17.86	54.30	74.00	-19.70	Peak Detector

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:

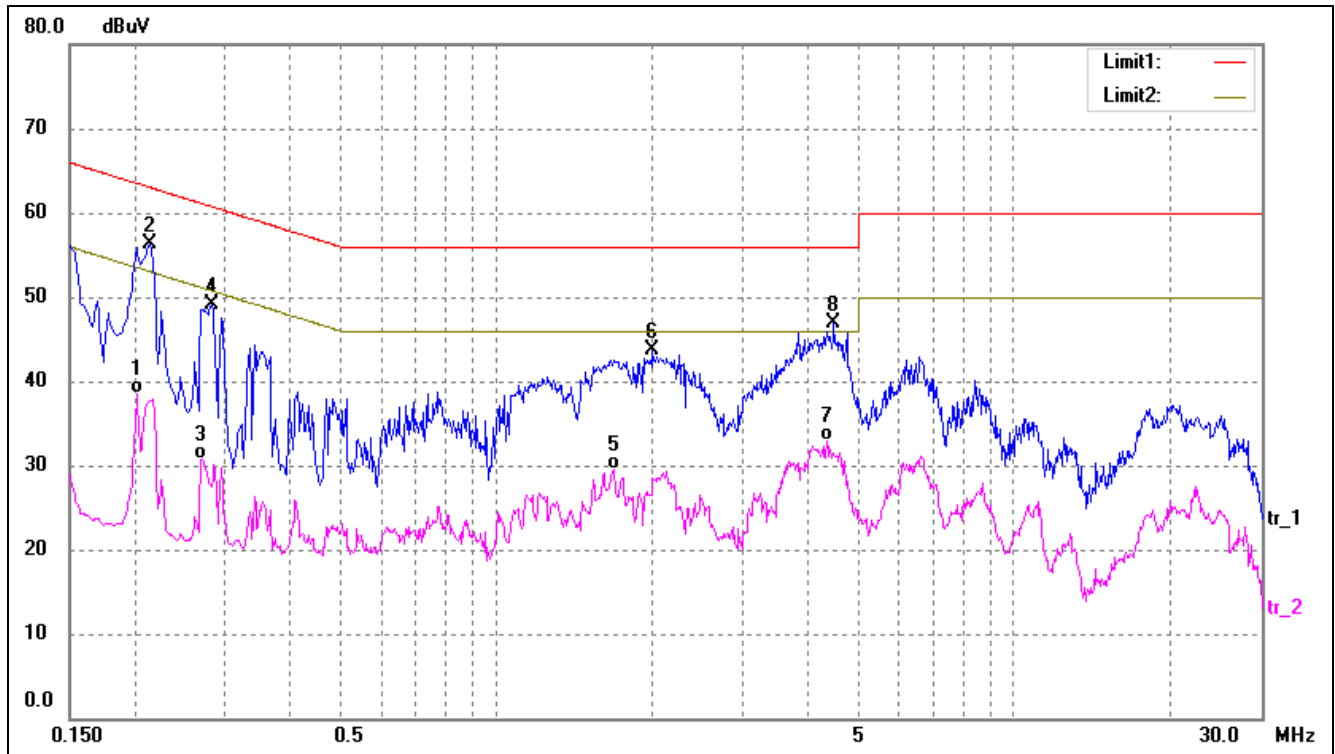
-6.82 dB at 0.2140 MHz in the Line mode, Peak detector, 0.15-30MHz

10.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

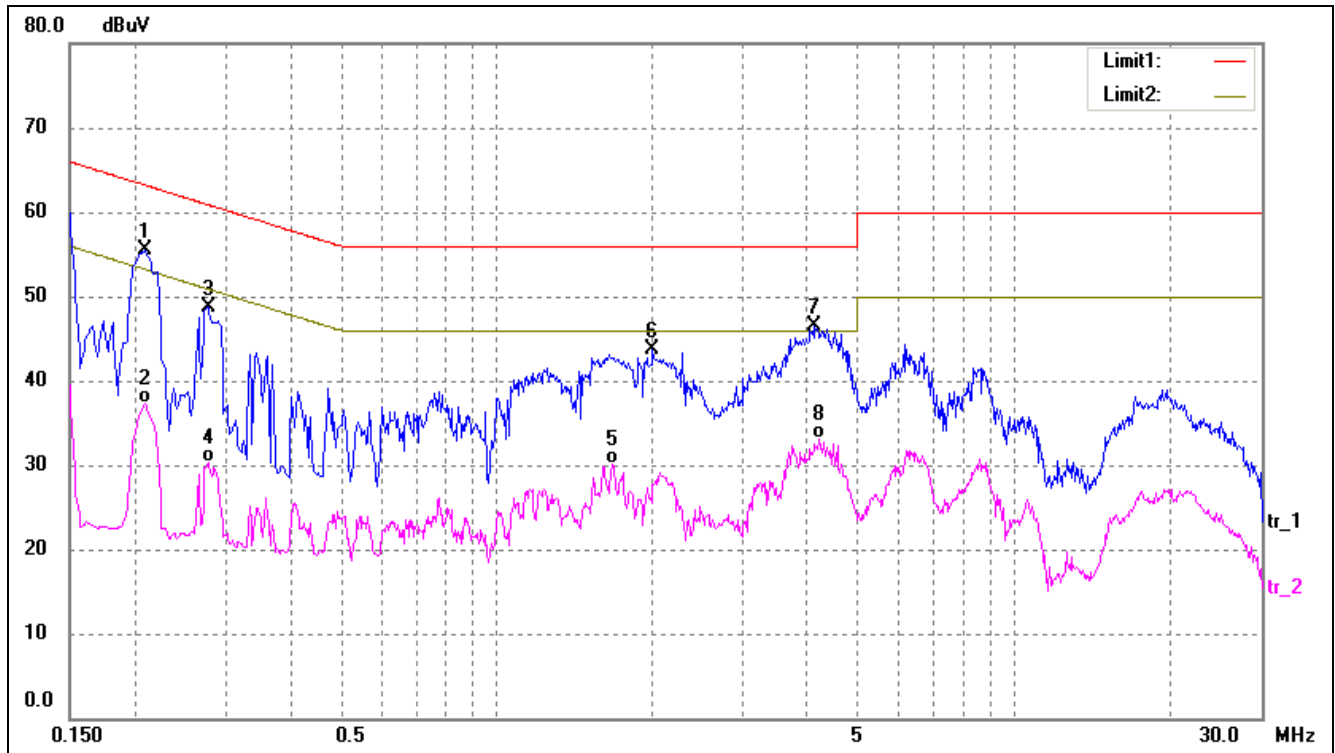
EUT: Android TV Dongle
 Tested Model: MBR-1100
 Operating Condition: Transmitting(Wi-Fi)
 Comment: Adapter:DC5.35V

Test Specification: Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2020	28.97	9.50	38.47	53.53	-15.06	AVG
2	0.2140	46.73	9.50	56.23	63.05	-6.82	peak
3	0.2700	21.25	9.50	30.75	51.12	-20.37	AVG
4	0.2820	39.63	9.50	49.13	60.76	-11.63	peak
5	1.6940	19.56	10.00	29.56	46.00	-16.44	AVG
6	2.0060	33.63	10.00	43.63	56.00	-12.37	peak
7	4.3460	22.97	10.00	32.97	46.00	-13.03	AVG
8	4.4980	36.90	10.00	46.90	56.00	-9.10	peak

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2100	45.91	9.50	55.41	63.21	-7.80	peak
2	0.2100	27.90	9.50	37.40	53.21	-15.81	AVG
3	0.2780	39.28	9.50	48.78	60.88	-12.10	peak
4	0.2780	20.76	9.50	30.26	50.88	-20.62	AVG
5	1.6780	20.01	10.00	30.01	46.00	-15.99	AVG
6	2.0100	33.66	10.00	43.66	56.00	-12.34	peak
7	4.1300	36.53	10.00	46.53	56.00	-9.47	peak
8	4.2060	23.09	10.00	33.09	46.00	-12.91	AVG

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