

Emissions Test Report

EUT Name:Home Wi-Fi RouterModel No.:A010001CFR 47 Part 15.247: 2015 and RSS 247: 2015

Prepared for:

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-			

Note: Latest revision report will replace all previous reports.

Statement of Compliance

Manufacturer:	eero inc 933 20th Street San Francisco, CA 94107 (415) 738-7972
Requester / Applicant:	Clifford Clarke
Name of Equipment: Model No. Type of Equipment: Application of Regulations: Test Dates:	Home Wi-Fi Router A010001 Intentional Radiator CFR 47 Part 15.247: 2015 and RSS 247: 2015 03 Nov 2015 to 08 Dec 2015

Guidance Documents:

Emissions: ANSI C63.10-2013, KDB 558074 D01 DTS Measurement Guidance v03r02, KDB 662911 D01 Multiple Transmitter Output v02r01

Test Methods:

Emissions: ANSI C63.10-2013, KDB 558074 D01 DTS Measurement Guidance v03r02, KDB 662911 D01 Multiple Transmitter Output v02r01

The electromagnetic compatibility test and documented data described in this report has been performed and recorded by TUV Rheinland, in accordance with the standards and procedures listed herein. As the responsible authorized agent of the EMC laboratory, I hereby declare that the equipment described above has been shown to be compliant with the EMC requirements of the stated regulations and standards based on these results. If any special accessories and/or modifications were required for compliance, they are listed in the Executive Summary of this report.

This report must not be used to claim product endorsement by A2LA or any agency of the U.S. Government. This report contains data that are not covered by A2LA accreditation. This report shall not be reproduced except in full, without the written authorization of TUV Rheinland of North America.

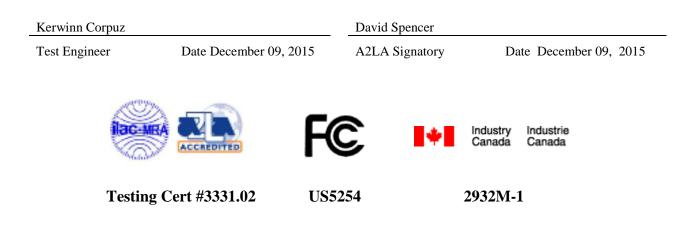


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1 Executive Summary

1.1 Scope

This report is intended to document the status of conformance with the requirements of the CFR 47 Part 15.247: 2015 and RSS 247: 2015 based on the results of testing performed on 03 Nov 2015 to 08 Dec 2015 on the Home Wi-Fi Router Model A010001 manufactured by eero inc This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report. The 2412 MHz to 2462 MHz frequency band is covered in this document.

1.3 Summary of Test Results

Table 1: Summary of Test Results

Test	Test Method ANSI C63.4	Test Parameters (Measured)	Result
Spurious Emission in Transmitted Mode	CFR47 15.209, CFR47 15.247 (d) RSS-GEN Sect.8.9, RSS 247 Sect. 6.2.1.2	Class B	Complied
Restricted Bands of Operation	CFR47 15.205, RSS GEN Sect.8.10	Class B	Complied
AC Power Conducted Emission	CFR47 15.207, RSS-GEN Sect.8.8	Class B	Complied
Occupied Bandwidth	CFR47 15.247 (a1), RSS GEN Sect.6.6	See plots	Complied
Maximum Output Power	CFR47 15.247 (b), RSS 247 Sect. 5.4.4, 6.2.4.1	26.72 dBm (802.11g) 26.76 dBm (HT 20) 23.32 dBm (HT 40)	Complied
Peak Power Spectral Density	CFR47 15.247 (e), RSS 247 Sect. 5.2.2	< 8 dBm/3kHz	Complied
Out of Band Emission	CFR47 15.247 (d), RSS 247 Sect.5.5	30 MHz - 25 GHz < 30 dBm/100kHz	Complied
RF Exposure	CFR47 15.247 (i), 2.1093 RSS-102 Issue 5	General Population	Complied

Note: This test report covers 2400 MHz to 2483.5 MHz band.

1.4 Special Accessories

No special accessories were necessary in order to achieve compliance.

1.5 Equipment Modifications

None

2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 **US Federal Communications Commission**



TUV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 is recognized by the commission for performing testing services for the general public on a fee basis. These laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (US5254). The laboratory scope of accreditation includes: Title 47 CFR Parts 15, 18, and 90. The accreditation is updated every 3 years.

2.1.2 NIST / A2LA



TUV Rheinland of North America is accredited by the National Voluntary Laboratory Accreditation Program, which is administered under the auspices of the National Institute of Standards and Technology. The laboratory has been assessed and accredited in accordance with ISO Guide 17025:1999 and ISO 9002 (Lab Code

Testing Cert #3331.02). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

2.1.3 Canada – Industry Canada

Industry Canada Industrie Canada

TUV Rheinland of North America at the 1279 Quarry Ln, Pleasanton, CA 94566 address is accredited by Industry Canada for performing testing services for the general public on a fee basis. This laboratory test

facilities have been fully described in reports submitted to and accepted by Industry Canada (File Number 2932M). This reference number is the indication to the Industry Canada Certification Officers that the site meets the requirements of RSS 212, Issue 1 (Provisional). The accreditation is updated every 3 years.

2.1.4 Japan – VCCI



The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) is a group that consists of Information Technology Equipment (ITE) manufacturers and EMC test laboratories. The purpose of the Council is to take voluntary control measures against electromagnetic interference from

Information Technology Equipment, and thereby contribute to the development of a socially beneficial and responsible state of affairs in the realm of Information Technology Equipment in Japan. TUV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 has been assessed and approved in accordance with the Regulations for Voluntary Control Measures.

VCCI Registration No. for Pleasanton: A-0031

VCCI Registration No. for Santa Clara: A-0032

2.1.5 Acceptance by Mutual Recognition Arrangement



The United States has an established agreement with specific countries under the Asia Pacific Laboratory Accreditation Corporation (APLAC) Mutual Recognition Arrangement. Under this agreement, all TUV Rheinland at 1279 Quarry Ln, Pleasanton, CA 94566 test results and test reports within the scope of the laboratory NIST / A2LA accreditation will be accepted by each member

country.

2.2 Test Facilities

All of the test facilities are located at 1279 Quarry Lane, Pleasanton, California 94566, USA. The 2305 Mission College, Santa Clara, 95054, USA location is considered a Pleasanton annex.

2.2.1 Emission Test Facility

The Semi-Anechoic chamber and AC Line Conducted measurement facility used to collect the radiated and conducted data has been constructed in accordance with ANSI C63.7:1992. The site has been measured in accordance with and verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 and 5 meters. The site is listed with the FCC and accredited by A2LA (Lab Code Testing Cert #3331.02). The 3/5-meter semi-anechoic chamber used to collect the radiated data has been verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 meters. The site is listed with the FCC and accredited by A2LA (Lab Code Testing Cert #3331.02). The 3/5-meter semi-anechoic chamber used to collect the radiated data has been verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 meter and 5 meters. A report detailing this site can be obtained from TUV Rheinland of North America.

2.2.2 Immunity Test Facility

ESD, EFT, Surge, PQF: These tests are performed in an environmentally controlled room with a 3.7 m x 4.8 m x 3.175 mm thick aluminum floor connected to PE ground.

For ESD testing, tabletop equipment is placed on an insulated mat with a surface resistivity of 10^9 Ohms/square on a 1.6 m x 0.8 m x 0.8 m high non-conductive table with a 3.175 mm aluminum top (Horizontal Coupling Plane). The HCP is connected to the main ground plane via a low impedance ground strap through two 470-k Ω resistors. The Vertical Coupling Plane consists of an aluminum plate 50 cm x 50 cm x 3.175 mm thick. The VCP is connected to the main ground plane via a low impedance ground strap through two 470-k Ω resistors.

For EFT, Surge, PQF, the HCP and VCP are removed.

RF Field Immunity testing is performed in a 7.3m x 4.3m x 4.1m anechoic chamber.

RF Conducted and Magnetic Field Immunity testing is performed on a 4.8m x 3.7m x 3.175mm thick aluminum ground plane.

All test areas allow a minimum distance of 1 meter from the EUT to walls or conducting objects.

2.3 Measurement Uncertainty

Two types of measurement uncertainty are expressed in this report, per *ISO Guide To The Expression Of Uncertainty In Measurement*, 1st Edition, 1995.

The Combined Standard Uncertainty is the standard uncertainty of the result of a measurement when that result is obtained from the values of a number of other quantities; it is equal to the positive square root of the sum of the variances or co-variances of these other quantities, weighted according to how the measurement result varies with changes in these quantities. The term *standard uncertainty* is the result of a measurement expressed as a standard deviation.

2.3.1 Sample Calculation – radiated & conducted emissions

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

Field Strength $(dB\mu V/m) = RAW - AMP + CBL + ACF$

Where: RAW = Measured level before correction ($dB\mu V$)

AMP = Amplifier Gain (dB)

CBL = Cable Loss (dB)

ACF = Antenna Correction Factor (dB/m)

$$V/m = 10^{\frac{dB\mu V/m}{20}}$$

Sample radiated emissions calculation @ 30 MHz

μ

Measurement +Antenna Factor-Amplifier Gain+Cable loss=Radiated Emissions (dBuV/m)

25 dBuV/m + 17.5 dB - 20 dB + 1.0 dB = 23.5 dBuV/m

2.3.2 Measurement Uncertainty

Per CISPR 16-4-2	Ulab	Ucispr	
Radiated Disturbance @ 1			
30 – 1,000 MHz	2.25 dB	4.51 dB	
Radiated Disturbance @ 3	³ meters		
30 – 1,000 MHz	2.26 dB	4.52 dB	
1 – 6 GHz	2.12 dB	4.25 dB	
6 – 18 GHz	2.47 dB	4.93 dB	
Conducted Disturbance @	Mains Terminals		
150 kHz – 30 MHz	1.09 dB	2.18 dB	
Disturbance Power			
30 MHz – 300 MHz	3.92 dB	4.3 dB	

Voltech PM6000A

The estimated combined standard uncertainty for harmonic current and flicker measurements is \pm 5.0%.	Per CISPR 16-4-2 Methods
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2.3.3 Measurement Uncertainty Immunity

The estimated combined standard uncertainty for ESD immunity measurements is $\pm 8.2\%$.	Per IEC 61000-4-2
The estimated combined standard uncertainty for radiated immunity measurements is ± 4.10 dB.	Per IEC 61000-4-3
The estimated combined standard uncertainty for conducted immunity measurements with CDN is \pm 3.66 dB	Per IEC 61000-4-6
The estimated combined standard uncertainty for power frequency magnetic field immunity is $\pm 2.9\%$.	Per IEC 61000-4-8

Thermo KeyTek EMC Pro

The estimated combined standard uncertainty for EFT fast transient immunity measurements is $\pm 2.6\%$.
The estimated combined standard uncertainty for surge immunity measurements is $\pm 2.6\%$.
The estimated combined standard uncertainty for voltage variation and interruption measurements is $\pm 1.74\%$.

The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by a coverage factor of 2. Compliance criteria are not based on measurement uncertainty.

2.4 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Standard 17025:2005. Equipment calibration records are kept on file at the test facility.

3 Product Information

3.1 Product Description

The Model A010001, Home Wi-Fi Router, is a Wi-Fi router for the home capable of operating in the 2.4 GHz and 5 GHz frequency bands over 20 MHz, 40 MHz and 80 MHz channels.

3.2 Equipment Configuration

A description of the equipment configuration is given in the Test Plan Section. The EUT was tested as called for in the test standard and was configured and operated in a manner consistent with its intended use. The EUT was connected to rated power and allowed to reach intended operating conditions. The placement of the EUT system components was guided by the test standard and selected to represent typical installation conditions.

In the case of an EUT that can operate in more than one configuration, preliminary testing was performed to determine the configuration that produced maximum radiation.

The final configuration was selected to produce the worst case radiation for emissions testing and to place the EUT in the most susceptible state for immunity testing.

3.3 Operating Mode

A description of the operation mode is given in the Test Plan Section. In the case of an EUT that can operate in more than one state, preliminary testing was performed to determine the operating mode that produced maximum radiation.

The final operating mode was selected to produce the worst case radiation for emissions testing and to place the EUT in the most susceptible state for immunity testing.

3.4 Unique Antenna Connector

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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of CFR47 Parts 15.211, 15.213, 15.217, 15.219, or 15.221.

3.4.1 Results

The Home Wi-Fi Router has seven custom integrated antennas. The 2.4GHz band uses custom integrated antennas, Antenna 1 and Antenna 2, and has maximum gain + 1.5 dBi. There are no beam forming and no additional antenna available.

Refer to Table 13 for additional antenna information.

4 **Emissions**

Testing was performed in accordance with CFR 47 Part 15.247: 2015 and RSS 247: 2015. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Procedures described in section 8 of the standard were used.

4.1 Output Power Requirements

The maximum output power requirement is the maximum equivalent isotropic radiated power delivering at the transmitting antenna under specified conditions of measurements in the presence of modulation.

The maximum output power and harmonics shall not exceed CFR47 Part 15.247 (b):2015 and RSS 247: 2015 Sect. 5.4.4, and Sect. 6.2.4.

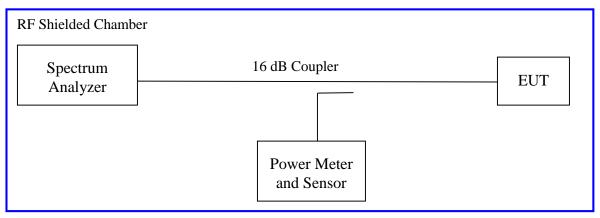
The maximum transmitted powers are

Band 2400-2483.5 MHz: 1 W

4.1.1 Test Method

The ANSI C63.10-2013 Section 11.9.2.2.2. conducted method was used to measure the channel power output. The preliminary investigation was performed at different data rate/ chain to determine the highest power output for each mode. The worst findings were conducted on 3 channels in each operating range per CFR47 Part 15.247(b): 2015 and RSS 247 Sect. 5.4.4; 2400 MHz to 2483.5 MHz. The worst mode results indicated below.

Test Setup:



Method AVGSA-1 of "KDB 558074 – DTS Measurement Guidance v03r02" applies since the EUT continuously transmits with duty cycle greater than 98%. Sample detector was used.

Each chain was measured individually and applied the measure-and-sum approach per KDB662911.

4.1.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Test Conditions: Conducted Measurement, Normal Temperature					
Antenna Type: Custom Integrated Power Setting: See test plan					
Max. Directi	onal Gain:	+ 1.5 dBi			
Signal State:	Modulated	at 100%.			
Ambient Ter	np.: 24° C		Re	lative Humidity:3	39%
			802.11g		
Operating Channel (MHz)	Limit [dBm]	Ch0 [dBm]	Ch1 [dBm]	Total Power [dBm]	Margin [dB]
2412.00	30.00	25.06	24.51	27.80	-2.20
2427.00	30.00	25.12	24.69	27.92	-2.08
2437.00	30.00	25.14	25.24	28.20	-1.80
2447.00	30.00	<mark>26.72</mark>	<mark>26.39</mark>	29.57	-0.43
2462.00	30.00	23.86	23.64	26.76	-3.24
Note: 1.The highest output power was observed at 802.11g mode, 6.0 Mbps, 1 Data Streams.					

2. The sum of Ch0 and Ch1 = Total Power.

3. Plots for all the measurements stated above were taken, to reduce complexity and bulkiness of the report Highlighted Plots are placed in the report.

Test Conditi	ons: Condu	cted Measuremen	it, Normal Temper	ature	
Antenna Tyj	pe: Custom	Integrated		Power Setting:	See test plan
Max. Directi	ional Gain:	+ 1.5 dBi			
Signal State:	Modulated	at 100%.			
Ambient Ter	mp.: 24° C		Re	elative Humidity:3	9%
			802.11n		
Operating Channel (MHz)	Limit [dBm]	Ch0 [dBm]	Ch1 [dBm]	Total Power [dBm]	Margin [dB]
2412.00	30.00	24.91	24.32	27.64	-2.36
2417.00	30.00	24.93	24.12	27.55	-2.45
2422.00	30.00	24.29	23.49	26.92	-3.08
2427.00	30.00	25.1	24.67	27.90	-2.10
2432.00	30.00	24.94	24.72	27.84	-2.16
2437.00	30.00	25.34	25.27	28.32	-1.68
2442.00	30.00	26.15	25.99	29.08	-0.92
2447.00	30.00	<mark>26.76</mark>	<mark>26.61</mark>	29.70	-0.30
2452.00	30.00	25.49	25.07	28.30	-1.70
2457.00	30.00	25.08	24.7	27.90	-2.10
2462.00	30.00	24.04	24.1	27.08	-2.92

Note: 1. The highest output power was observed at HT20 MCS0, 1 Data Streams.

2. The sum of Ch0 and Ch1 = Total Power.

3. Plots for all the measurements stated above were taken, to reduce complexity and bulkiness of the report Highlighted Plots are placed in the report.

Table 4: RF C	Output Powe	r at the Antenna	Port – Test Result	s Continues	
Test Conditi	ions: Condu	cted Measureme	nt, Normal Tempe	erature	
Antenna Ty	pe: Custom	Integrated		Power Setting	: See test plan
Max. Direct	ional Gain:	+ 1.5 dBi			
Signal State	: Modulated	at 100%.			
Ambient Te	mp.: 24° C		R	elative Humidity:	39%
			802.11n		
Operating Channel (MHz)	Limit [dBm]	Ch0 [dBm]	Ch1 [dBm]	Total Power [dBm]	Margin [dB]
2422.00	30.00	22.47	22.41	25.45	-4.55
2452.00	30.00	<mark>23.32</mark>	<mark>23.15</mark>	26.25	-3.75
2. The	e sum of Ch) and $Ch1 = Tota$	l Power.	MCS0, 1 Data Strea	

3. Plots for all the measurements stated above were taken, to reduce complexity and bulkiness of the report Highlighted Plots are placed in the report.

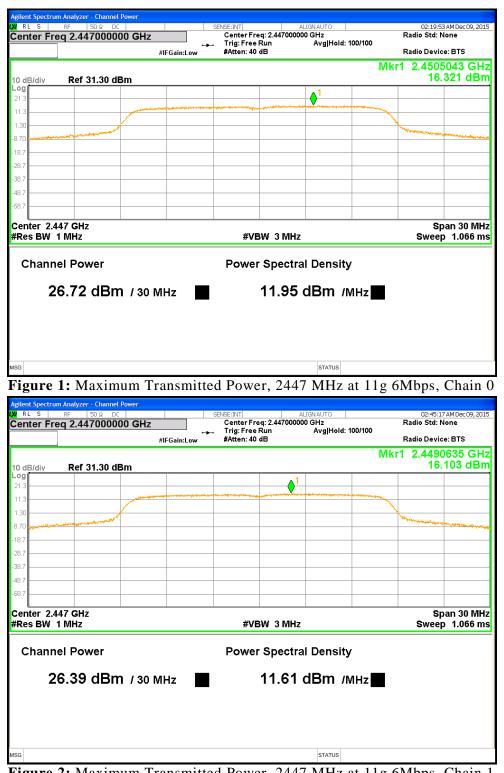


Figure 2: Maximum Transmitted Power, 2447 MHz at 11g 6Mbps, Chain 1

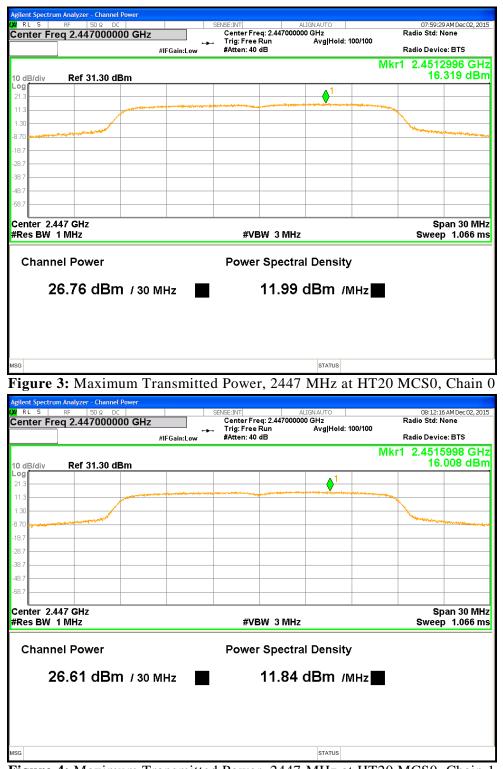


Figure 4: Maximum Transmitted Power, 2447 MHz at HT20 MCS0, Chain 1

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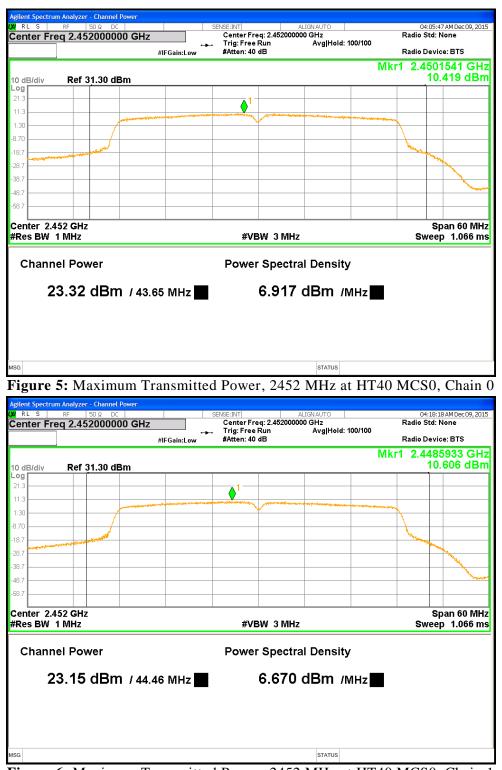


Figure 6: Maximum Transmitted Power, 2452 MHz at HT40 MCS0, Chain 1

4.2 Occupied Bandwidth

The occupied bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency.

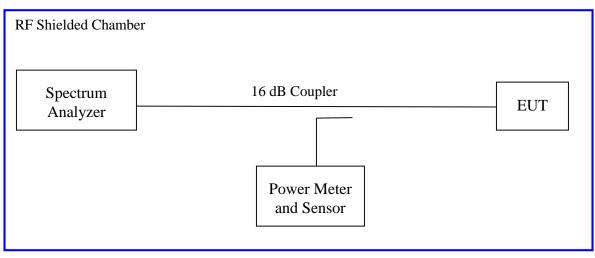
The 99% bandwidth is the bandwidth in which 99% of the transmitted power occupied.

The minimum 6 dB bandwidth shall be at least 500 kHz.

4.2.1 Test Method

The conducted method was used to measure the occupied bandwidth according to ANSI C63.10:2013 Section 11.8. The measurement was performed with modulation per CFR47 15.247(a) (2) 2015 and RSS Gen Sect. 6.6 2014. The preliminary investigation was performed to find the narrowest 26 dB bandwidth for each operational mode at different data rates. This worst finding was performed on 3 channels in each operating frequency range; 2400 MHz to 2483.5 MHz, a 6 dB bandwidth was used. The worst results indicated below.

Test Setup:



4.2.2 Results

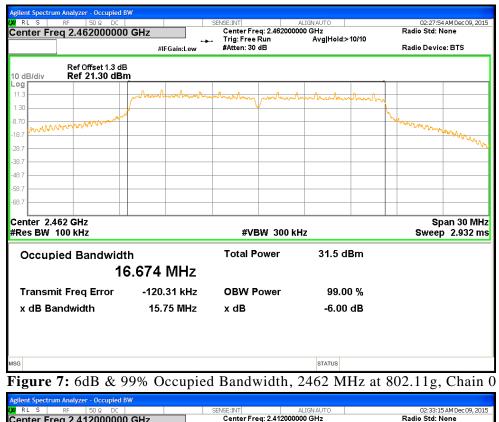
As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Test Condit	tions: Conducted Me	easurement, Normal Te	emperature			
Antenna Ty	vpe: Custom Integrat	ted	Power Settir	ng: See test plan		
Max. Direct	tional Gain: + 1.5 d	Bi				
Signal State	e: Modulated at 1009	%.				
Ambient Te	emp.: 24° C		Relative Humidity	7:39%		
		Bandwidth (MHz) fo	or 802.11g			
Freq.	6dB Bandw	idth (MHz)	99% Bandw	99% Bandwidth (MHz)		
(MHz)	Ch0	Ch1	Ch0	Ch1		
2412	15.63	<mark>15.79</mark>	16.36	<mark>16.38</mark>		
2437	15.73	15.76	18.69	19.25		
2462	<mark>15.75</mark>	15.93	<mark>16.67</mark>	16.73		
Note: The b	andwidth was measu	ared at 6.0 Mbps				
		Bandwidth (MHz) fo	r 802.11n			

Freq.	6dB Bandy	vidth (MHz)	99% Bandw	idth (MHz)
(MHz)	Ch0	Ch1	Ch0	Ch1
2412	15.44	15.32	17.54	17.56
2437	<mark>16.37</mark>	<mark>16.37</mark>	<mark>19.04</mark>	<mark>19.55</mark>
2462	16.36	16.32	17.75	17.83

Note: The bandwidth was measured at HT20 MCS0, 1 Data Streams

		Bandwidth (MHz) for	r 802.11n	
Freq.	6dB Bandy	vidth (MHz)	99% Bandw	idth (MHz)
(MHz)	Ch0	Ch1	Ch0	Ch1
2422	<mark>35.15</mark>	<mark>35.15</mark>	<mark>35.99</mark>	<mark>36.04</mark>
2452	35.11	35.13	35.81	35.90
Note: Th	e bandwidth was meas	sured at HT40 MCS0, 1	Data Streams	



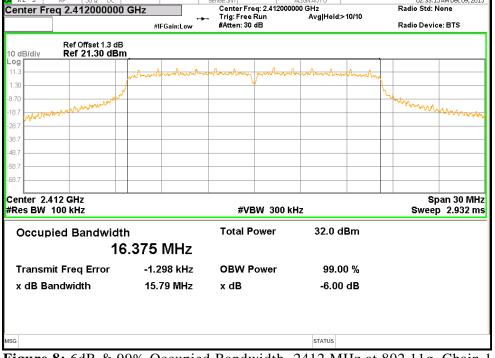


Figure 8: 6dB & 99% Occupied Bandwidth, 2412 MHz at 802.11g, Chain 1

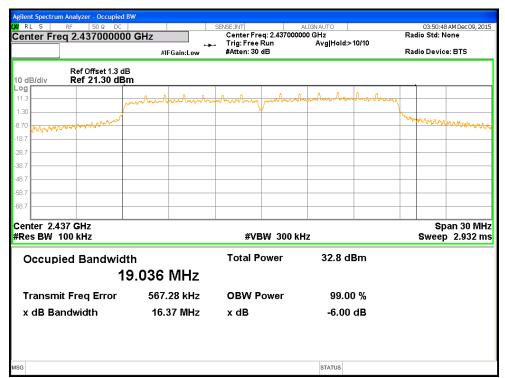


Figure 9: 6dB & 99% Occupied Bandwidth, 2437 MHz at HT20, Chain 0

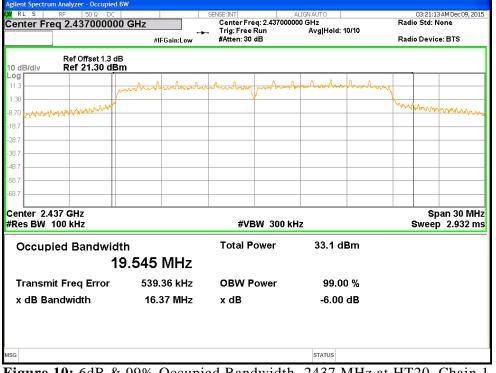


Figure 10: 6dB & 99% Occupied Bandwidth, 2437 MHz at HT20, Chain 1

Report Number: 31563403.001 EUT: Home Wi-Fi Router Model: A010001 EMC / Rev 1.0

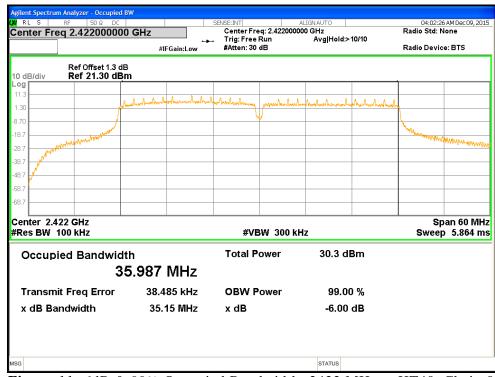


Figure 11: 6dB & 99% Occupied Bandwidth, 2422 MHz at HT40, Chain 0

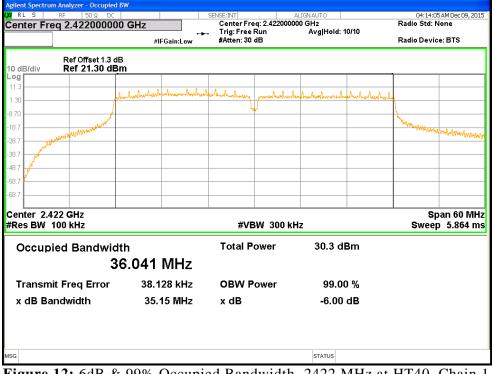


Figure 12: 6dB & 99% Occupied Bandwidth, 2422 MHz at HT40, Chain 1

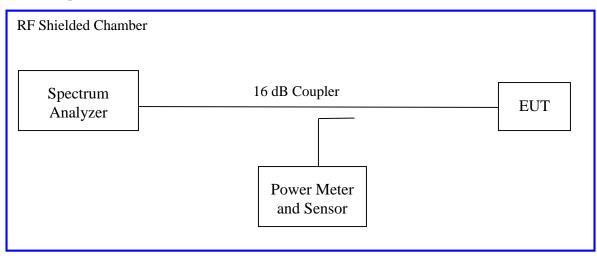
4.3 Peak Power Spectral Density

According to the CFR47 Part 15.247 (e) and RSS 247 Sect.5.2.2, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.1 Test Method

The conducted method was used to measure the channel power output per ANSI C63.10-2013 Section 11.10.3. The measurement was performed with modulation per CFR47 Part 15.247 (e) and RSS 247 Sect.5.2.2. The pre-evaluation was performed to find the worst modes. The worst findings were conducted on 3 channels in each operating frequency range of 2400 MHz to 2483.5 MHz. The worst sample result indicated below.

Test Setup:



4.3.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

	^	•	y – Test Resul			
Test Cond	itions: Cond	lucted Measu	rement, Norm	al Temperature	2	
Antenna T	ype: Custor	n Integrated		P	ower Setting:	See test plan
Max. Dire	ctional Gaiı	n: + 1.5 dBi				
Signal Sta	te: Modulate	ed at 100%.				
Ambient 7	Гетр.: 24° (C		Relativ	e Humidity:3	9%
		Pea	ak Power Spe	ctral Density		
			802.1	1g		
Freq. (MHz)	Ch0 [dBm]	Ch1 [dBm]	Max [dBm]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
2412	-9.51	-10.07	-9.51	-6.77	8	-14.77
2437	<mark>-9.00</mark>	<mark>-8.93</mark>	-8.93	-5.95	8	-13.95
2462	-9.32	-10.29	-9.32	-6.77	8	-14.77
2. T	The sum of C	h0 and Ch1 =		rved at 11g 6 M e report.	Ibps per data	stream.
			802.1	1n		
Freq. (MHz)	Ch0 [dBm]	Ch1 [dBm]	Max [dBm]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
2412	-9.70	-10.29	-9.70	-6.97	8	-14.97
2437	<mark>-9.09</mark>	<mark>-9.51</mark>	-9.09	-6.28	8	-14.28
2462	-10.42	-10.49	-10.42	-7.44	8	-15.44
2. T	The sum of C	h0 and Ch1 =		rved at HT20 e report.	MCS0 per dat	a stream.

Test Cond	itions: Cond	lucted Measu	rement, Norm	al Temperature	e	
Antenna T	ype: Custor	n Integrated		P	ower Setting	: See test plan
Max. Dire	ctional Gaiı	n: + 1.5 dBi				
Signal Sta	te: Modulate	ed at 100%.				
Ambient 7	Г етр.: 24° (2		Relativ	e Humidity:3	9%
		Pea	ak Power Spe	ctral Density		
			802.1	1n		
Freq. (MHz)	Ch0 [dBm]	Ch1 [dBm]	Max [dBm]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
2422	-14.58	-14.88	-14.58	-11.72	8	-19.72
2452	<mark>-13.98</mark>	<mark>-13.71</mark>	-13.71	-10.83	8	-18.83
2. T	The sum of C	h0 and Ch1 =		rved at HT40 e report.	MCS0 per dat	a stream.

Table 7: Peak Power Spectral Density – Test Results Continues

SENSE:INT ALIGN AUTO 01: #Avg Type: RMS ↓ Trig: Free Run Avg Hold: 100/100 #Atten: 30 dB	53:00 AM Dec 09, 201 TRACE 1 2 3 4 5 TYPE A WAWW DET S N N N N
Mkr1 2.4	42 920 GH -9.004 dBr
	8.00 dE
1	
www.www.www.www.	
- White a start of the start of	
	MMMMMM
	pan 30.00 MH Lms (2000 pt
BW 10 kHz #Sweep 100.1	

Figure 13: Power Spectral Density, 2437 MHz at 802.11g 6Mbps, Chain 0



Figure 14: Power Spectral Density, 2437 MHz at 802.11g 6Mbps, Chain 1

a Ri Ceni		RF q 2.4	50Ω D 1370000				BE:INT		ALIGNAUTO #Avg Type		03:49	30 AM Dec 09, 2015 TRACE 1 2 3 4 5
					PNO: Wide IFGain:Lov		Trig: Free #Atten: 30		Avg Hold: '	100/100		
0 dE			fset 1.3 dB 1.30 dBn							N		2 635 GH 9.089 dBn
11.3												
1.30												8.00 dB
3.70									A = = = 0.0 0.0 0.0 0.0	1		
18.7				MWW	NWW	ww	MMM	Pwww	www	an A A A A A A V	1	
28.7				4				·			have	MMMM
38.7	ww	MM	WWWA									
18.7												
58.7												
68.7												
	ter 2.43 s BW 3.					#VBW					Spa	un 30.00 MH ns (2000 pts

Figure 15: Power Spectral Density, 2437 MHz at HT20 MCS0, Chain 0



Figure 16: Power Spectral Density, 2437 MHz at HT20 MCS0, Chain 1



Figure 17: Power Spectral Density, 2452 MHz at HT40 MCS0, Chain 0

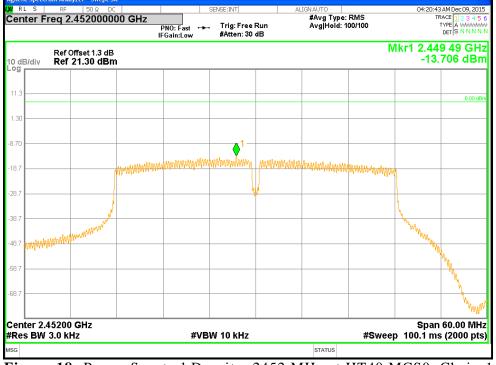


Figure 18: Power Spectral Density, 2452 MHz at HT40 MCS0, Chain 1

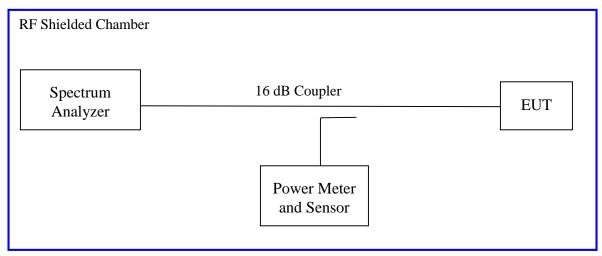
4.4 Out of Band Emissions

Transmitter spurious emissions are emissions outside the frequency range of the equipment when the equipment is in transmitting mode; per requirement of CFR47 15.205, 15.209, 15.247(d), RSS-247 Sect. 5.5.

4.4.1 Test Method

The conducted method was used to measure the undesirable emission requirement. The measurement was performed with modulation. This test was conducted on 3 channels of Sample in each mode on Sample. The worst sample result indicated below.

Test Setup:



Measurement Procedure AVG2 of KDB 662911

4.4.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 8: Emissions at the Band-Edge – Test Results

Test Condi	tions: Conducted Me	easurement,	Normal Temper	ature		
Antenna T	ype: Custom Integrat	ed		Power Set	ting: See test pla	n
Max. Direc	tional Gain: + 1.5 d	Bi				
Signal Stat	e: Modulated at 1009	6.				
Ambient T	emp.: 24° C		Re	lative Humid	ity:39%	
	No	n-Restricte	d Frequency Ba	and Emissions	5	
Freq. (MHz)	Mode	Chain	Measured (dBm)	Limit (dBm)	Plots	TX Freq. (MHz)
2400	11g-6Mbps	0	-20.34	-15.09	Fig. 19, 20	Pass
2400	11g-6Mbps	1	-18.80	-15.67	Fig. 21, 22	Pass
2483.5	11g-6Mbps	0	-45.51	-15.34	Fig. 23, 24	Pass
2483.5	11g-6Mbps	1	-46.34	-16.82	Fig. 25, 26	Pass
2400	HT20-MCS0	0	-18.86	-15.16	Fig. 27, 28	Pass
2400	HT20-MCS0	1	-20.24	-16.04	Fig. 29, 30	Pass
2483.5	HT20-MCS0	0	-44.28	-15.15	Fig. 31, 32	Pass
2483.5	HT20-MCS0	1	-44.83	-15.94	Fig. 33, 34	Pass
2400	HT40-MCS0	0	-22.31	-19.50	Fig. 35, 36	Pass
2400	HT40-MCS0	1	-23.07	-19.66	Fig. 37, 38	Pass
2483.5	HT40-MCS0	0	-44.18	-18.94	Fig. 39, 40	Pass
2483.5	HT40-MCS0	1	-46.72	-19.58	Fig. 41, 42	Pass
	ne stated limits for 30 ne worst case of each			ividual output	per KDB 662911	Method.

	S	RF 50 \$			SENSE:INT	ALIC	GNAUTO			LAM Dec 09, 20
ente	er Fre	q 2.4120		0: Fast ↔ ain:Low	Trig: Free Run Atten: 30 dB		#Avg Type: Avg Hold: 10			RACE 1 2 3 4 5 TYPE MWAAWA DET P N N N M
0 dB/ 0 g 🗖		Ref Offset 1 Ref 21.30						MI	kr4 2.400 -17.	900 GH 745 dBr
11.3					V1					
1.30 -										
3.70										
18.7										-15.09 dB
28.7				#	<u></u>	The second				
8.7				1			Nilder State	aller .		
8.7							to a solution		and the	
				ulterius.						- A
	Andrew Antonia		Provide and a distant and the second							New York
8.7 -										
onte		200 GHz								150.0 MH
				#\/B	M 300 kHz			Sween	14 67 ms	(1100000 nt
Res	BW 1	00 kHz			W 300 kHz		онулоти	-	14.67 ms	(10000 pt
Res 1 N 2 N 3 N	BW 10 009 160 1 1 1 1 1	00 kHz f f f	× 2.414 498 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.908 -20.338 -60.583	FUNCTION dBm dBm dBm	FUNCTI	ON WIDTH	-	14.67 ms	(10000 pt
Res 1 N 2 N 3 N 5	BW 10 009 160 1 1 1 1 1	00 kHz SCL f	2.414 498 GHz 2.400 000 GHz	¥ 14.908 -20.338	FUNCTION dBm dBm dBm	FUNCTI	ON WIDTH	-		(1000 pt
Res 1 N 2 N 3 N 5 6 7 8 9 0	BW 10 009 160 1 1 1 1 1	00 kHz f f f	2.414 498 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.908 -20.338 -60.583	FUNCTION dBm dBm dBm	FUNCTI	ON WIDTH	-		
Res 1 N 2 N 3 N 5 6 7 8 9	BW 10 009 160 1 1 1 1 1	00 kHz f f f	2.414 498 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.908 -20.338 -60.583	FUNCTION dBm dBm dBm	FUNCTI	on width	-		

Figure 19: Measured Bandedge for 802.11g-6Mbps at 2412 MHz, Chain 0

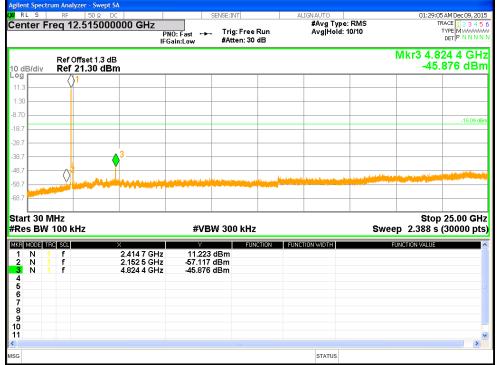


Figure 20: Out of Band Emissions for 802.11g-6Mbps at 2412 MHz, Chain 0

	S	RF	50 Ω DC	SENSE:IN	T	ALIGNAUTO	02:33:30 AM De	
ente	er Fr	req 2.4			: Free Run en: 30 dB	#Avg Type: RMS Avg Hold: 100/100	TRACE 1 TYPE M DET P	2345
0 dB/	div		ffset 1.3 dB 21.30 dBm				Mkr4 2.400 930 -16.954	
11.3					V^1			
1.30 -					the second s			
B.70								
				🚫				-15.67 dt
18.7 -				A CONTRACT OF A	`	And		
28.7 -						- Management		
38.7								
18.7 -				ender tilsen.				\bigcirc
58.7		-	and the state of the				`	N
58.7								
L. ∙onto	er 2.4	41200	GHz				Span 150	.0 MF
						C	/eep 14.67 ms (100	00 pt
	BW	100 ki		#VBW 300) KHZ	24	сер 14.07 m3 (100	
Res	DDE TF	ic scl	lz ×	Y		SW NOTION WIDTH	FUNCTION VALUE	
Res	ide te N 1		łz	#VBW 300			• •	_
Res 1 M 2 M 3 M	DDE TF N 1 N 1	RC SCL f f f	12 2.413 268 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.330 dBm -18.800 dBm -59.429 dBm			• •	
Res 1 M 2 M 3 M 5	DDE TF N 1 N 1	RC SCL f f	1z 2.413 268 GHz 2.400 000 GHz	¥ 14.330 dBm -18.800 dBm			• •	
Res 1 N 2 N 3 N 5 6	DDE TF N 1 N 1	RC SCL f f f	12 2.413 268 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.330 dBm -18.800 dBm -59.429 dBm			• •	
Res 1 N 2 N 3 N 5 6 7 8	DDE TF N 1 N 1	RC SCL f f f	12 2.413 268 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.330 dBm -18.800 dBm -59.429 dBm			• •	
Res 1 1 2 1 3 1 5 6 7 8 9	DDE TF N 1 N 1	RC SCL f f f	12 2.413 268 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.330 dBm -18.800 dBm -59.429 dBm			• •	
Res 1 1 2 1 3 1 5 6 7 8	DDE TF N 1 N 1	RC SCL f f f	12 2.413 268 GHz 2.400 000 GHz 2.483 500 GHz	¥ 14.330 dBm -18.800 dBm -59.429 dBm			• •	

Figure 21: Measured Bandedge for 802.11g-6Mbps at 2412 MHz, Chain 1

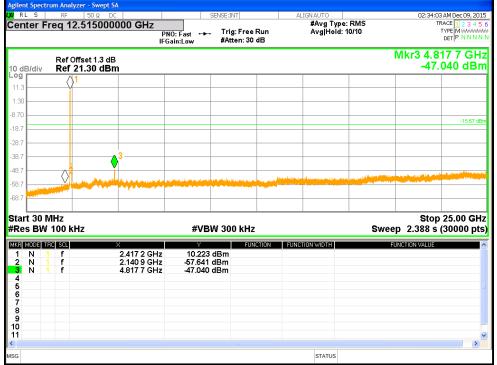


Figure 22: Out of Band Emissions for 802.11g-6Mbps at 2412 MHz, Chain 1

	. S	RF	50 Ω DC			SENSE:INT	AL	IGN AUTO			9 AM Dec 09, 201
ent	ter F	req 2.	4620000	F	PNO: Fast 🔸	Trig: Free F Atten: 30 d		#Avg Type Avg Hold:			TYPE MWWWW DET P N N N N
	3/div		offset 1.3 dB 21.30 dBm						М	kr4 2.474 -17	555 GH 144 dBn
og 11.3											
1.30											
3.70											-15.34 dE
8.7											-15.34 up
28.7					and the second s						
38.7		~2						$\sqrt{3}$			
8.7											
58.7	and and a							New Market	eles di deservi dei dirit	and an application of the second section.	
68.7											
		46200	<u></u>							Spar	150.0 MH
eni	ter 2.	40ZUU	GHZ			W 000 LUL-			Cwoon	1467 mg	(10000 pts
		40200 100 k			#VB	W 300 kHz			aweep	14.07 1115	(p.
Res	s BW	100 k	Hz	X	Y	FUNC	TION FUNCT	TION WIDTH	-	UNCTION VALUE	(10000 pc
Res 1 2	SBW 1005 TO N 1	100 k 10 scu f f	Hz 2.	.456 982 GHz .400 000 GHz	14.660 -50.335	dBm dBm	TION FUNCT	TION WIDTH	-		(
Res 1 2 3	SBW N 1 N 1 N 1	100 k f f f	Hz 2.	.456 982 GHz .400 000 GHz .483 500 GHz	14.660 -50.335 -45.511	dBm dBm dBm dBm	TION FUNCT	TION WIDTH	-		
Res 1 2 3 4 5	SBW 1005 TO N 1	100 k 10 scu f f	Hz 2.	.456 982 GHz .400 000 GHz	14.660 -50.335	dBm dBm dBm dBm	TION FUNCT	ION WIDTH	-		
Res 1 2 3 4 5 6 7	SBW N 1 N 1 N 1	100 k f f f	Hz 2.	.456 982 GHz .400 000 GHz .483 500 GHz	14.660 -50.335 -45.511	dBm dBm dBm dBm	TION FUNCT	ION WIDTH	-		
Res 1 2 3 4 5 6 7 8 9	SBW N 1 N 1 N 1	100 k f f f	Hz 2.	.456 982 GHz .400 000 GHz .483 500 GHz	14.660 -50.335 -45.511	dBm dBm dBm dBm	TION FUNC	TION WIDTH	-		
Res 1 2 3 4 5 6 7 8 9	SBW N 1 N 1 N 1	100 k f f f	Hz 2.	.456 982 GHz .400 000 GHz .483 500 GHz	14.660 -50.335 -45.511	dBm dBm dBm dBm	TION FUNCT	ION WIDTH	-		
Res 1 2 3 4 5 6 7 8	SBW N 1 N 1 N 1	100 k f f f	Hz 2.	.456 982 GHz .400 000 GHz .483 500 GHz	14.660 -50.335 -45.511	dBm dBm dBm dBm	TION FUNCT	ION WIDTH	-		

Figure 23: Measured Bandedge for 802.11g-6Mbps at 2483.5 MHz, Chain 0

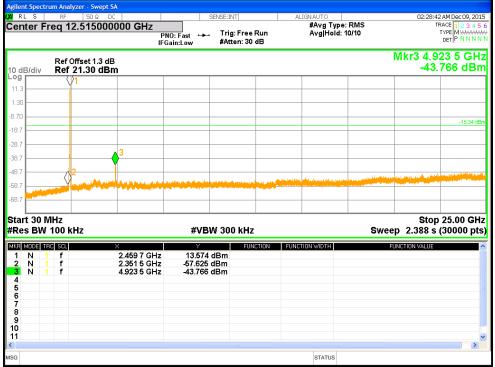


Figure 24: Out of Band Emissions for 802.11g-6Mbps at 2483.5 MHz, Chain 0

-	S	RF			SE	NSE:INT	ALI	GNAUTO			24 AM Dec 09, 201
en	ter	Freq	2.46200		NO: Fast ↔↔ Gain:Low	Trig: Free Run Atten: 30 dB		#Avg Type Avg Hold:			TYPE MWWWW DET P N N N N
0 dE og i	3/div		'Offset 1.3 f 21.30 c			14			М	kr4 2.474 -17	210 GH .089 dBr
ug 11.3											
1.30						halipheter and here	<mark></mark>				
3.70											
8.7											-16.82 dE
					And the second s						
8.7					e suid						
8.7		C	2		1						
8.7		11 Mar									
8.7	din eta a	/							in a state of the second states of the second states of the second states of the second states of the second st	a di na pangina na pan	and a state of the last state of the
8.7											
			0 GHz								150.0 MH
Re	s BV	V 100	kHz		#VBN	/ 300 kHz			Sweep	14.67 ms	(10000 pt
		TRC SCL		×	Y	FUNCTION	FUNCT	ION WIDTH		UNCTION VALUE	
	N N	1 f 1 f		2.458 227 GHz 2.400 000 GHz	13.178 d -50.649 d						
	N N	1 f		2.483 500 GHz 2.474 210 GHz	-46.340 d -17.089 d						
				2.474 2 10 0112	-11.003 u	Biii					
4 5											
4 5 6 7											
4 5 6											
4 5 6 7 8 9											
4 5 6 7 8											>

Figure 25: Measured Bandedge for 802.11g-6Mbps at 2483.5 MHz, Chain 1

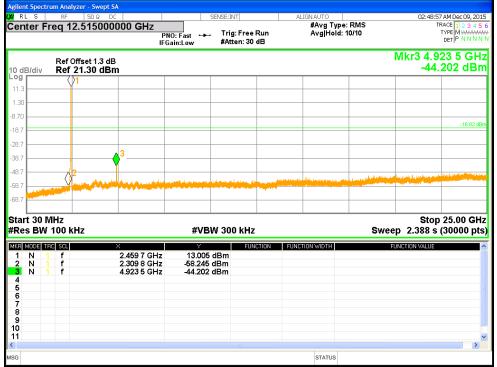


Figure 26: Out of Band Emissions for 802.11g-6Mbps at 2483.5 MHz, Chain 1

	6 RF	50 Ω DC		SENSE:INT	ALIGN AUTO		03:31:58 AM Dec 09, 20:
enter	r Freq 2	2.412000000 GH	Z PNO: Fast ↔ IFGain:Low	. Trig: Free Run Atten: 30 dB	#Avg Type: Avg Hold:>1		TRACE 12345 TYPE MWWWW DET PNNN
) dB/di		Offset 1.3 dB 21.30 dBm				Mkr4 :	2.400 705 GH -17.439 dBr
11.3							
.30							
3.70							
8.7							-15.16 dE
				/***	No. Martine		
8.7					and the last		
8.7							aha
8.7			and and an an and the second second				
	high search shallow	المحمد فالجاجزة وماحيته أعلمتهم ومناجع فاحتيدوه	A STATE OF THE OWNER OF THE OWNER OF				
8.7							
	2.4120						Span 150.0 MH
		LU-	#VB	W 300 kHz		Sweep 14.0	67 ms (10000 pt
Res E	SW 100	KITZ					
KR MOD	e tro scl	×	Y	FUNCTION	FUNCTION WIDTH	FUNCTIO	N VALUE
KR MOD 1 N	e tro scl 1 f	× 2.413 238		dBm	FUNCTION WIDTH	FUNCTIO	N VALUE
KR MOD 1 N 2 N 3 N	E TRC SCL 1 f 1 f 1 f	× 2.413 238 2.400 000 2.483 500	GHz -18.860 GHz -61.846	dBm dBm dBm	FUNCTION WIDTH	FUNCTIO	N VALUE
KE MOD 1 N 2 N 3 N 4 N 5	e tro sol 1 f 1 f	× 2.413 238 2.400 000	GHz -18.860 GHz -61.846	dBm dBm dBm	FUNCTION WIDTH	FUNCTIO	N VALUE
KR MOD 1 N 2 N 3 N 4 N 5 6	E TRC SCL 1 f 1 f 1 f	× 2.413 238 2.400 000 2.483 500	GHz -18.860 GHz -61.846	dBm dBm dBm	FUNCTION WIDTH	FUNCTIO	N VALUE
KE MOD 1 N 2 N 3 N 4 N 5 6 7 8	E TRC SCL 1 f 1 f 1 f	× 2.413 238 2.400 000 2.483 500	GHz -18.860 GHz -61.846	dBm dBm dBm	FUNCTION WIDTH	FUNCTIO	N VALUE
KR MOD 1 N 2 N 3 N 4 N 5 6 7 8 9	E TRC SCL 1 f 1 f 1 f	× 2.413 238 2.400 000 2.483 500	GHz -18.860 GHz -61.846	dBm dBm dBm	FUNCTION WIDTH	FUNCTIO	N VALUE
1 N 2 N 3 N	E TRC SCL 1 f 1 f 1 f	× 2.413 238 2.400 000 2.483 500	GHz -18.860 GHz -61.846	dBm dBm dBm	FUNCTION WIDTH	FUNCTIO	N VALUE

Figure 27: Measured Bandedge for HT20-MCS0 at 2412 MHz, Chain 0

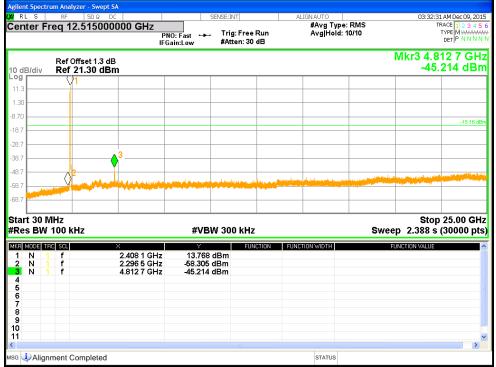


Figure 28: Out of Band Emissions for HT20-MCS0 at 2412 MHz, Chain 0

U <mark>RLS</mark>				SENSE:INT		ALIGNAUTO		03:14:07 AM Dec 09, 20:
ente	r Freq	2.412000000	GHz PNO: Fast IFGain:Low		Free Run n: 30 dB	#Avg Type: Avg Hold: 1		TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
0 dB/d		f Offset 1.3 dB f 21.30 dBm					Mkr	4 2.399 850 GH -18.020 dBr
1.3								
.30								
.70				4				
8.7						te.		-16.04 d
8.7				1				
8.7				/			National States	Netensian a c
8.7			والتاليب والمحاد					
1000	ومهاما مقولتين	مليحان والمتح والمترد والمتاك الملاحوه	strate and the second second second second					Num V
8.7								
	r 2.4120 3W 100			¢VBW 300	kHz		Sweep 1	Span 150.0 MH 4.67 ms (10000 pt
	DE TRC SCI			Y	FUNCTION FUN	CTION WIDTH	FUN	CTION VALUE
		2.414	000 GHz -20	.963 dBm .237 dBm				
1 N 2 N 3 N	1 f	2.400 2.483		.589 dBm .020 dBm				
1 N 2 N 3 N 4 N 5	1 f	2.400 2.483						
1 N 2 N 3 N 4 N 5 6 7	1 f	2.400 2.483						
1 N 2 N 3 N 5 6 7 8 9	1 f	2.400 2.483						
1 N 2 N 3 N 5 6 7 8 9 0	1 f	2.400 2.483						
1 N 2 N 3 N	1 f	2.400 2.483						2

Figure 29: Measured Bandedge for HT20-MCS0 at 2412 MHz, Chain 1

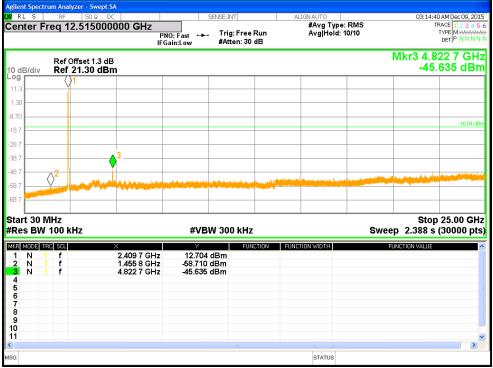


Figure 30: Out of Band Emissions for HT20-MCS0 at 2412 MHz, Chain 1

RL S	RF	50 Ω DC		SENSE:INT	ALIC	GNAUTO			5 AM Dec 09, 201
enter	Freq 2	.462000000	GHz PNO: Fas IFGain:Lo			#Avg Type: Avg Hold:>			RACE 1 2 3 4 5 TYPE M WWWW DET P N N N N
0 dB/di		Offset 1.3 dB 21.30 dBm					MI	(r4 2.473 -16.	955 GH: 212 dBn
1.3					dest und det				
.30									
.70				1 Martin	\ ∮_				-15.15 dB
8.7				····					
8.7						3			
8.7		and the state of the				<u> </u>			
8.7	and the second second						وحاربي والمعاملة الم	ويناو فالإدرار وما الأو الأطار	are families and sold
8.7									
	2.46200 W 100 H			#VBW 300 kH	7		Sweep	Span 14.67 ms	150.0 MH (10000 pts
	TRC SCL	×				ON WIDTH	-	UNCTION VALUE	(10000 pt
1 N 2 N	1 f 1 f 1 f	2.400 2.483	000 GHz -4 500 GHz -4	4.848 dBm 8.720 dBm 4.283 dBm					
3 N	1 f	2.473	955 GHz -1	6.212 dBm					
3 N 4 N 5									
3 N 4 N 5 6 7									
3 N 4 N 5 6 7 8 9									
3 N 4 N 5 6									



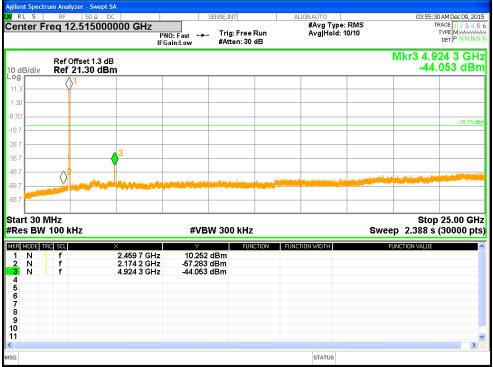


Figure 32: Out of Band Emissions for HT20-MCS0 at 2483.5 MHz, Chain 0

ontor		F 50 Ω DC			SENSE:INT	AL	IGN AUTO			7 AM Dec 09, 201
enter	Freq	2.46200000	PN	0: Fast ↔ ain:Low	Trig: Free Ri Atten: 30 dE		#Avg Type Avg Hold:>		т	RACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
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^{og}						141.				
.30						inghalala la				
.70										
8.7					pp					-15.94 dB
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8.7				La Martin			∧3			
8.7	(1 ¹⁴						
	Jan Stranger									
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8.7										
onter		00 GHz								150.0 MH
				#VB	W 300 kHz			Sweep	14.67 ms	(10000 pts
	W 100) kHz								
Res B	TRC SO	u x		Y	FUNCT	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B KR MOD		a × 2.4	55 722 GHz	14.061	dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B 1 N 2 N 3 N	TRC 50 1 f 1 f 1 f	1 2.4 2.4 2.4 2.4	155 722 GHz 100 000 GHz 183 500 GHz	14.061 -48.859 -44.825	dBm dBm dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B 1 N 2 N	TRC SU	1 2.4 2.4 2.4 2.4	55 722 GHz 00 000 GHz	14.061 -48.859	dBm dBm dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B 1 N 2 N 3 N 4 N 5 6	TRC 50 1 f 1 f 1 f	1 2.4 2.4 2.4 2.4	155 722 GHz 100 000 GHz 183 500 GHz	14.061 -48.859 -44.825	dBm dBm dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B 1 N 2 N 3 N 4 N 5 6 7 8	TRC 50 1 f 1 f 1 f	1 2.4 2.4 2.4 2.4	155 722 GHz 100 000 GHz 183 500 GHz	14.061 -48.859 -44.825	dBm dBm dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B 1 N 2 N 3 N 4 N 5 6 7 8 9	TRC 50 1 f 1 f 1 f	1 2.4 2.4 2.4 2.4	155 722 GHz 100 000 GHz 183 500 GHz	14.061 -48.859 -44.825	dBm dBm dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	
Res B 1 N 2 N 3 N 4 N	TRC 50 1 f 1 f 1 f	1 2.4 2.4 2.4 2.4	155 722 GHz 100 000 GHz 183 500 GHz	14.061 -48.859 -44.825	dBm dBm dBm	ION FUNCT	ION WIDTH	F	UNCTION VALUE	



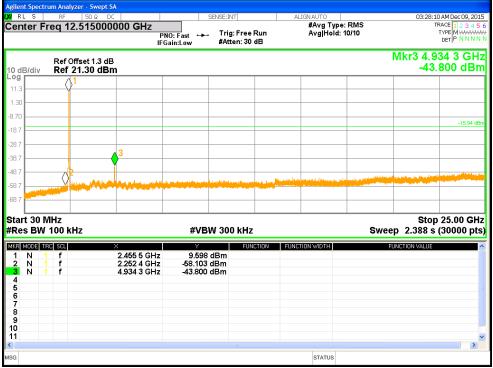


Figure 34: Out of Band Emissions for HT20-MCS0 at 2483.5 MHz, Chain 1

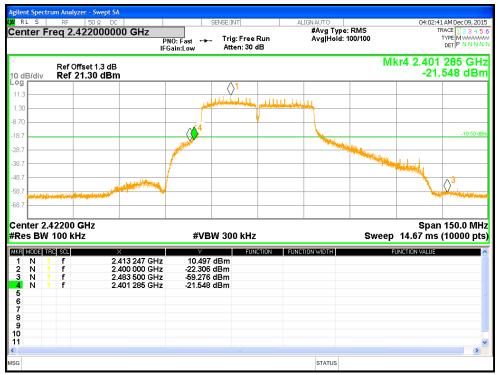


Figure 35: Measured Bandedge for HT40-MCS0 at 2422 MHz, Chain 0

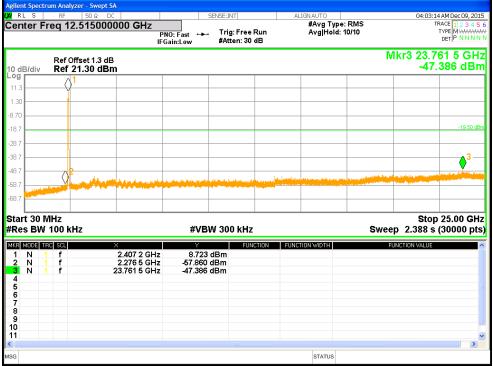


Figure 36: Out of Band Emissions for HT40-MCS0 at 2422 MHz, Chain 0



Figure 37: Measured Bandedge for HT40-MCS0 at 2422 MHz, Chain 1

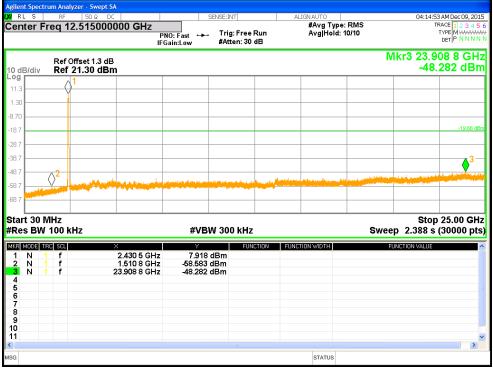
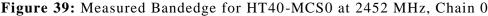


Figure 38: Out of Band Emissions for HT40-MCS0 at 2422 MHz, Chain 1





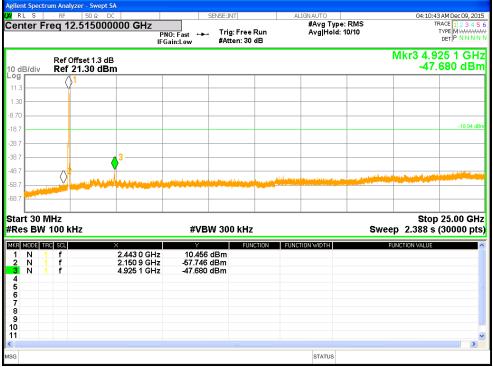


Figure 40: Out of Band Emissions for HT40-MCS0 at 2452 MHz, Chain 0



Figure 41: Measured Bandedge for HT40-MCS0 at 2452 MHz, Chain 1

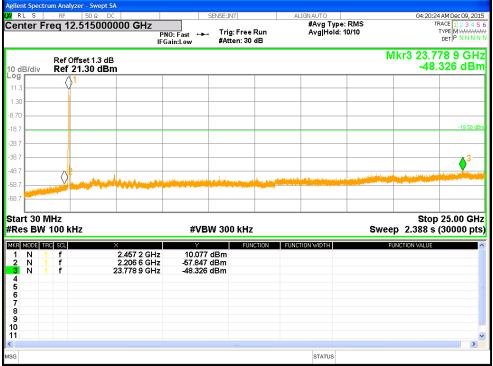


Figure 42: Out of Band Emissions for HT40-MCS0 at 2452 MHz, Chain 1

4.5 Transmit Spurious Emissions

Transmitter spurious emissions are emissions outside the frequency range of the equipment when the equipment is in transmit mode; per requirement of CFR47 15.205, 15.209, 15.247(d), RSS 247 Sect.5.5.

4.5.1 Test Methodology

4.5.1.1 Preliminary Test

A test program that controls instrumentation and data logging was used to automate the preliminary RF emission test procedure. The frequency range of interest was divided into sub-ranges to yield a frequency resolution of approximately 120 kHz and provide a reading at each frequency for no more than 12° of turntable rotation. For each frequency sub-range the turntable was rotated 360° while peak emission data was recorded and plotted over the frequency range of interest in horizontal and vertical antenna polarization's.

Preliminary emission profile testing was performed inside the anechoic chamber. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the floor. The EUT was positioned as shown in the setup photographs. The receiving antenna was placed at a distance of 3m at a fixed height of 1m. Measurement equipment was located outside of the chamber. A video camera was placed inside the chamber to view the EUT.

Pres-scans were performed to determine the worst data rate / chains.

4.5.1.2 Final Test

For each frequency measured, the peak emission was maximized by manipulating the receiving antenna from 1 to 4 meters above the ground plane and placing it at the position that produced the maximum signal strength reading. The turntable was then rotated through 360° while observing the peak signal and placing the EUT at the position that produced maximum radiation. The six highest emissions relative to the limit were measured unless such emissions were more than 20 dB below the limit. If less than six emissions are within 20 dB of the limit, than the noise level of the receiver is measured at frequencies where emissions are expected. Multiples of all oscillator and microprocessor frequencies were also checked.

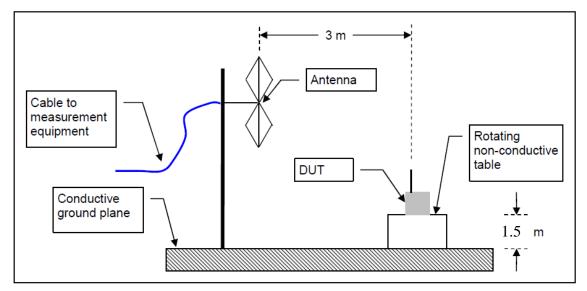
Final testing was performed on an NSA compliant test site. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the ground plane. The placement of EUT and cables were the same as for preliminary testing and is shown in the setup photographs.

Final results are: 802.11g (Chain 1 and Chain 2), HT20 (Chain 1 and Chain 2), HT40 (Chain 1 and Chain 2).

4.5.1.3 Deviations

None.

Test Setup:



4.5.2 Transmitter Spurious Emission Limit

The spurious emissions of the transmitter shall not exceed the values in CFR47 Part 15.205, 15.209: 2015 and RSS Gen Sect. 8.10: 2014.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

All harmonics and spurious emission which are outside of the restricted band shall be 20dB below the in-band emission.

4.5.3 Test Results

The final measurement data was taken under the worst case operating modes, configurations, and/or cable positions. It also reflects the results including any modifications and/or special accessories listed in Sections 1.4 and test plan.

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 9: Transmit Spurious Emission at Band-Edge Requirements

Test Conditions: Radiated Measurement

Antenna Type: Custom Integrated

Power Setting: See test plan

Relative Humidity:37%

Max. Directional Gain: +1.5 dBi

Signal State: Modulated at 100%.

Ambient Temp.: 24° C

Amplem	1 emp.: 24	C			Ne	lauve II	unnunty:	5770
				Band	-Edge	Results		
Freq. (MHz)	Level (dBuV/m)	Pol. (H/V)	Limit (dBuV/m)	Margin (dB)	Det.	Table Deg.	Tower (cm)	Note
2390	67.58	V	74	-6.42	Pk	280	181	PLOT 43: 11g-6Mbps-2412MHz-TP26- Ch0-Ch1
2390	50.44	V	54	-3.56	Ave	280	181	PLOT 44: 11g-6Mbps-2412MHz- TP26- Ch0-Ch1
2390	72.73	Н	74	-1.27	Pk	327	201	PLOT 45: 11g-6Mbps-2412MHz- TP26- Ch0-Ch1
2390	53.82	Н	54	-0.18	Ave	327	201	PLOT 46: 11g-6Mbps-2412MHz- TP26- Ch0-Ch1
2483.5	68.74	Н	74	-5.26	Pk	330	196	PLOT 47: 11g-6Mbps-2462MHz- TP26- Ch0-Ch1
2483.5	52.28	Н	54	-1.72	Ave	330	196	PLOT 48: 11g-6Mbps-2462MHz- TP26- Ch0-Ch1
2483.5	68.14	V	74	-5.86	Pk	112	219	PLOT 49: 11g-6Mbps-2462MHz- TP26- Ch0-Ch1
2483.5	50.86	V	54	-3.14	Ave	112	219	PLOT 50: 11g-6Mbps-2462MHz- TP26- Ch0-Ch1
2390	65.56	V	74	-8.44	Pk	278	238	PLOT 51: HT20-MCS0-2412MHz- TP26- Ch0-Ch1
2390	51.39	V	54	-2.61	Ave	278	238	PLOT 52: HT20-MCS0-2412MHz- TP26- Ch0-Ch1
2390	68.86	Н	74	-5.14	Pk	82	204	PLOT 53: HT20-MCS0-2412MHz- TP26- Ch0-Ch1
2390	53.42	Н	54	-0.58	Ave	82	204	PLOT 54: HT20-MCS0-2412MHz- TP26- Ch0-Ch1
2483.5	59.89	V	74	-14.11	Pk	108	257	PLOT 55: HT20-MCS0-2462MHz- TP26- Ch0-Ch1
2483.5	46.11	V	54	-7.89	Ave	108	257	PLOT 56: HT20-MCS0-2462MHz- TP26- Ch0-Ch1
2483.5	59.68	Н	74	-14.32	Pk	320	170	PLOT 57: HT20-MCS0-2462MHz- TP26- Ch0-Ch1
2483.5	46.00	Н	54	-8.00	Ave	320	170	PLOT 58: HT20-MCS0-2462MHz- TP26- Ch0-Ch1

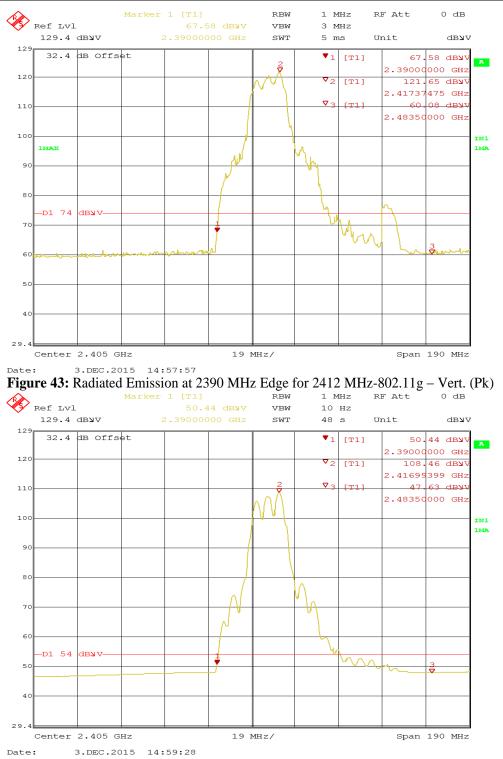
Note: 1. The emissions were measured at the adjacent restricted band of the fundamental signal.

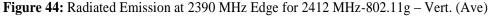
2. All the band-edge measurements met the restricted band requirements of CFR47 15.205.

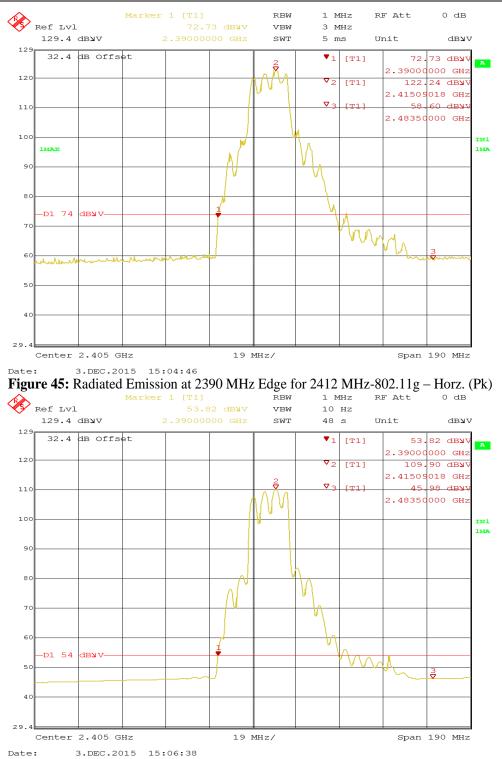
	Band-Edge Results, continue												
Freq. (MHz)	Level (dBuV/m)	Pol. (H/V)	Limit (dBuV/m)	Margin (dB)	Det.	Table Deg.	Tower (cm)	Note					
2390	63.02	V	74	-10.98	Pk	114	260	PLOT 59: HT40-MCS0-2422MHz-TP25- Ch0-Ch1					
2390	47.63	V	54	-6.37	Ave	114	260	PLOT 60: HT40-MCS0-2422MHz-TP25- Ch0-Ch1					
2390	68.84	Н	74	-5.16	Pk	79	200	PLOT 61: HT40-MCS0-2422MHz-TP25- Ch0-Ch1					
2390	51.34	Н	54	-2.66	Ave	79	200	PLOT 62: HT40-MCS0-2422MHz-TP25- Ch0-Ch1					
2483.5	66.04	Н	74	-7.96	Pk	324	196	PLOT 63: HT40-MCS0-2452MHz-TP25- Ch0-Ch1					
2483.5	51.64	Н	54	-2.36	Ave	324	196	PLOT 64: HT40-MCS0-2452MHz-TP25- Ch0-Ch1					
2485.0	65.35	V	74	-8.65	Pk	107	254	PLOT 65: HT40-MCS0-2452MHz-TP25- Ch0-Ch1					
2483.5	49.43	V	54	-4.57	Ave	107	254	PLOT 66: HT40-MCS0-2452MHz-TP25- Ch0-Ch1					

Note: 1. The emissions were measured at the adjacent restricted band of the fundamental signal.

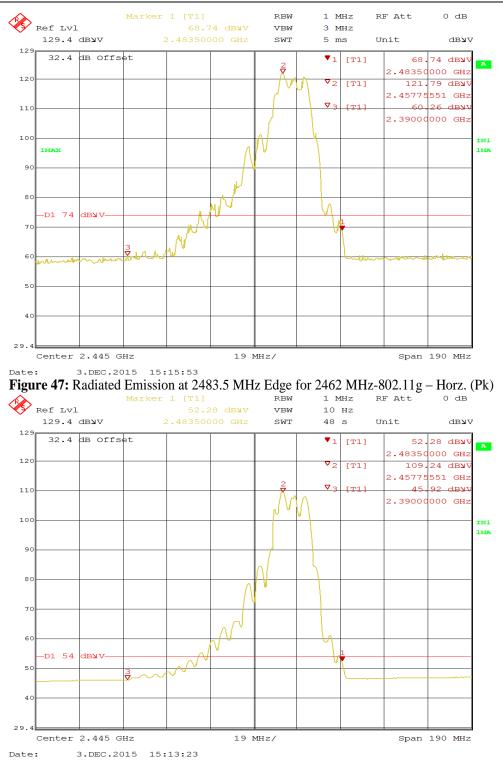
2. All the band-edge measurements met the restricted band requirements of CFR47 15.205.

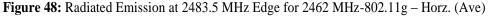


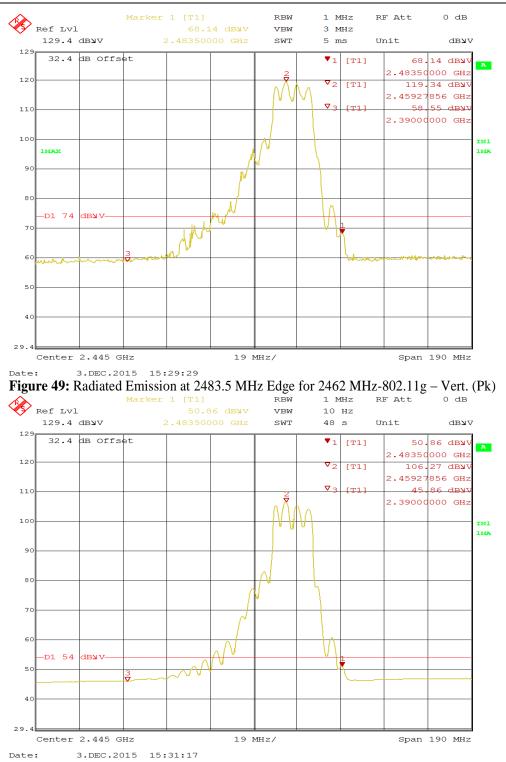


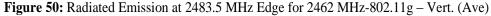


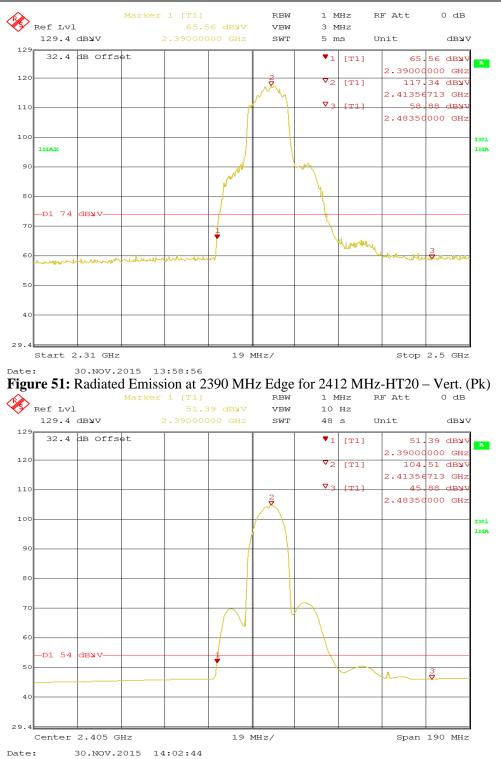




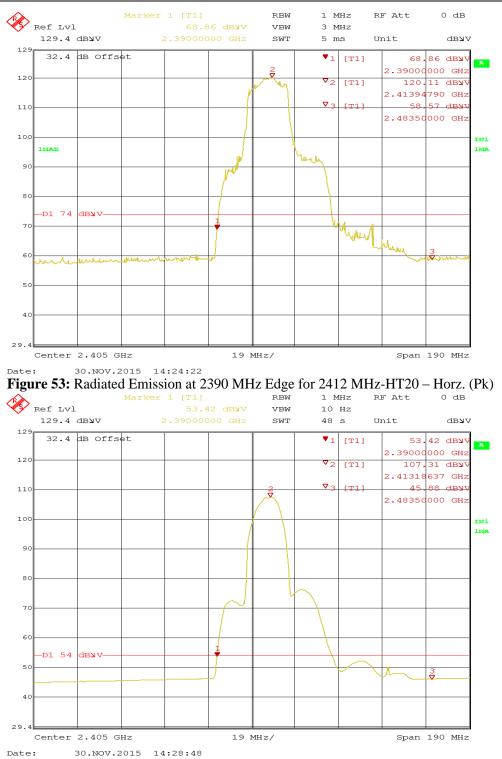


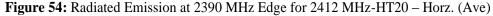


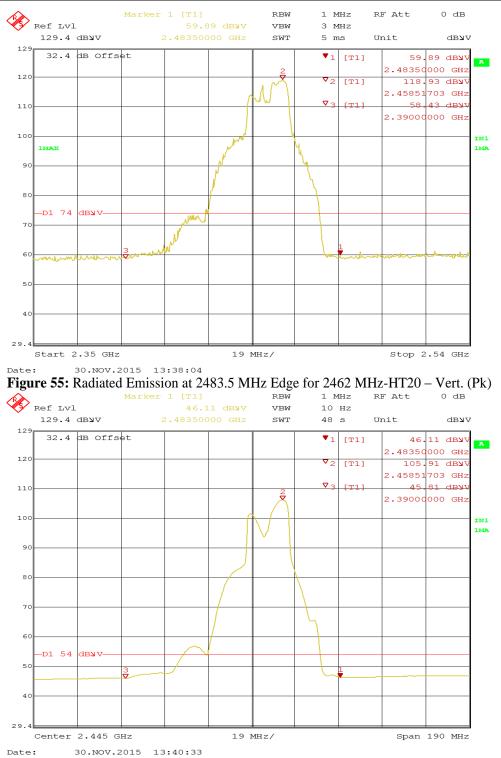




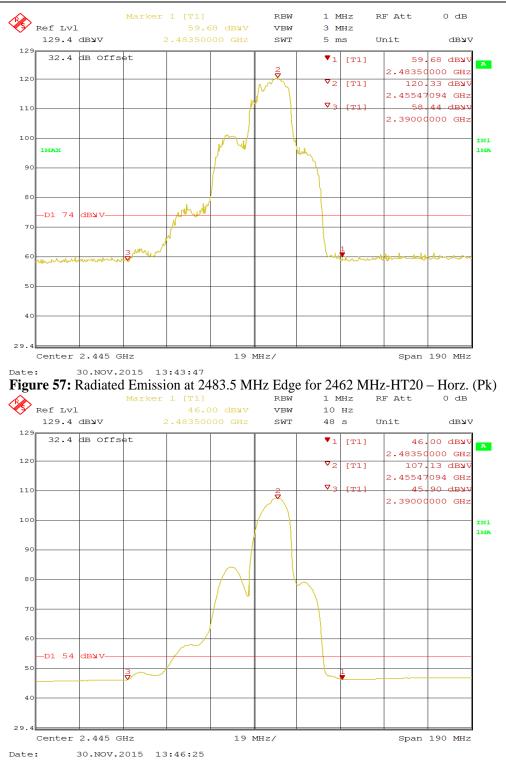




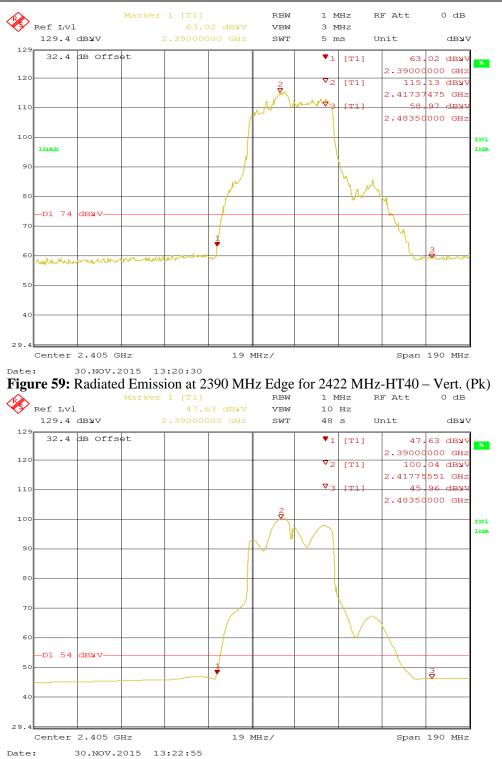




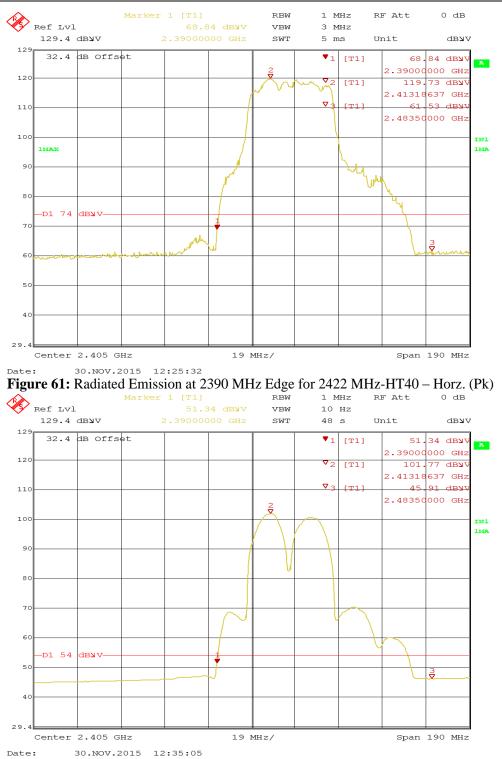


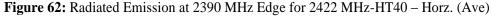


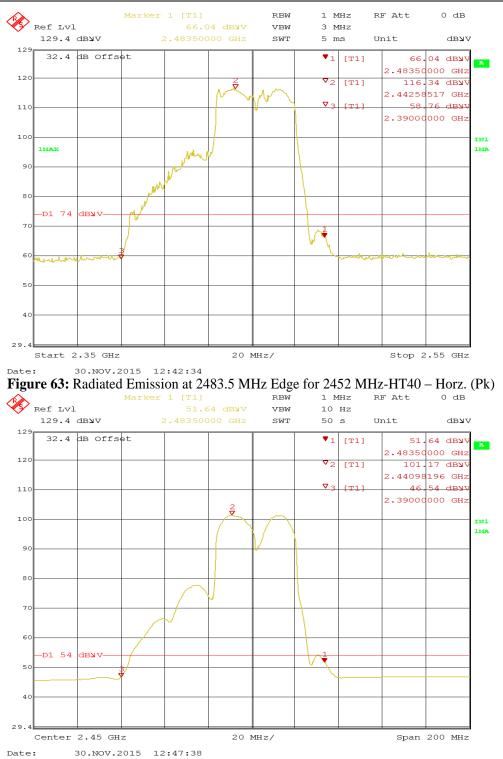




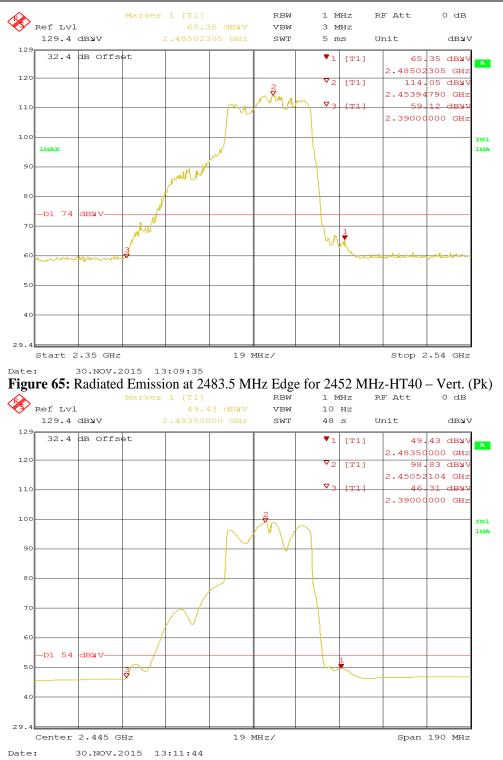


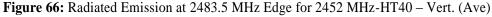












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SOP 1 Ra		Emissions				Trac	king #	315634	03.0	01 Page 1	of 14
EUT Name		e Wi-Fi Route	er			= 0	ate		-	06, 2015	
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EUT Serial		-0053-5XKS					•	um out	-		
EUT Config	·	11n at HT20 I					ne AC /	•	-	Vac / 60 H	
Standard		47 Part 15 Su	ubpart C	, RSS-24	7, RSS-G		3W / VB			kHz/ 300 k	
Dist/Ant Us	sed 3m /	JB3					erforme	а бу	Ker	winn Corpu	Z
_					Iz Transn						
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MHz	dBuV/m		dB	dBuV/m		H/V	cm	deg		dBuV/m	dB
960.02	42.08	5.86	-7.37	40.57	QP	Н	157	96		54.00	-13.43
71.02	51.37	2.93	-23.79	30.51	QP	V	113	172		40.00	-9.49
78.08	52.52	2.98	-24.09	31.41	QP	V	141	179		40.00	-8.59
98.09	29.15	3.11	-22.34	9.91	QP	V	378	24		43.50	-33.59
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EUT I	Name	Hom	e Wi-Fi Route	er				Dat	e		Nov	/ 05, 2015	
EUT I	Nodel	A010	0001					Ten	np / Hu	um in	23°	C / 38%rh	
EUT \$	Serial	E59A	-0053-5XKS	-EP43				Ten	np / Hເ	um out	N/A		
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Stand	lard	CFR	47 Part 15 Su	ubpart C	, RSS-24	7, RSS-G	EN	RB	W/VB	W	1 M	Hz/ 3 MHz	
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1467	73.62	39.74	4.42	-6.52	37.64	Average	Н		112	238		54.00	-16.36
1798	38.98	37.50	5.04	2.21	44.74	Average	н		112	58		54.00	-9.26
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SOP 1 Ra	diated E	Emissions				Tr	acking #	3156340	3.001 Page 3	of 14
EUT Name	Hom	e Wi-Fi Route	er			I	Date	I	Nov 05, 2015	
EUT Mode	A010	0001					Temp / Hu	um in 🗌	23° C / 38%rh	
EUT Serial	E59A	\-0053-5XKS	-EP43				Temp / Hu	um out	N/A	
EUT Config		11g at 6Mbps					Line AC /		120 Vac / 60 H	Z
Standard		47 Part 15 Sι			7, RSS-G		RBW / VB		1 MHz/ 3 MHz	
Dist/Ant Us	sed 3m –	- EMCO3115	/ 1m – A	AHA-840			Performe	dby I	Kerwinn Corpu	Z
		1	– 18 GH	lz Transm	nit at 2437	7 MHz ((Mid Char	nnel)		
Frequency	Raw	Cable Loss	AF	Level	Detector	Polari	ty Height	Azimut	h Limit	Margin
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB
14626.37	39.56	4.43	-6.77	37.21	Average	Н	157	302	54.00	-16.79
4876.17	48.30	2.88	-16.76	34.42	Average	V	102	44	54.00	-19.58
17948.24	36.86	5.02	1.10	42.98	Average	V	142	294	54.00	-11.02
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Total CF= A	F+ Cable I	_oss AF= Ante	nna facto	or + Pream	р			·		
Note: Othe	r than spec	trum noise floo	or, emissi	on at the li	imit is the f	fundame	ental freque	ency.		

SOP 1	Radiated I	Emissions				Tra	cking #	31563403	3.001 Page 4	of 14
EUT Nan	ne Hom	e Wi-Fi Route	ər			D	ate	N	lov 05, 2015	
EUT Mod	del A010	0001				Т	emp / Hu	um in 2	3° C / 38%rh	
EUT Seri	al E59/	4-0053-5XKS	-EP43			Te	emp / Hi	um out N	I/A	
EUT Cor	fig. 802.	11g at 6Mbps	s / chain	0&1		Li	ine AC /	Freq 12	20 Vac / 60 H	z
Standard	CFR	47 Part 15 Sι	ubpart C	, RSS-24	7, RSS-G	BEN R	BW / VB	W 1	MHz/ 3 MHz	
Dist/Ant	Used 3m -	- EMCO3115	/ 1m – A	AHA-840		P(erforme	dby K	erwinn Corpu	Z
1 – 18 GHz Transmit at 2462 MHz (High Channel)										
Frequen	cy Raw	Cable Loss	AF	Level	Detector	Polarity	/ Height	Azimuth	h Limit	Margin
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB
4919.17	7 50.19	2.89	-16.46	36.62	Average	Н	175	-2	54.00	-17.38
14577.4	9 39.72	4.41	-6.94	37.20	Average	Н	126	130	54.00	-16.80
18000.0	0 36.85	5.05	2.48	44.38	Average	Н	160	56	54.00	-9.62
dBuV				Phoints	and of I	North /	Amoria		05 Nov 1	5 19:40
90.0			1011	virenne		sorur/	ALIMATIN	20	re	Llorinost
00.0										Horizont: Vertical
80.0									— <u>A</u> i	i Lmt
70.0									+ Fo	rmal
60.0									-	
50.0		4							RJ	
		<u> </u>					المعاد المحرول	<u>م م</u> رید	1	
40.0				. Maria	بعيميدال	A Property of	About the second		-	
	LAAM	بال ممليد	and the second	M				+		
30.0	- Aller	and a Mala	-						Море Г	Dist 3m
20.0									Spec D	
10.0									Frequenc	y: MHz
10.0	10						10000.	0	18000.0	
ee	ro inc, Hon	ne WiFi Rout	ter, TX 2	2462MHz	at 11g 6	Mbps				
Fil	ename: c:\	program files	s (x86)\/	emisoft -	 vasona) 	\results\	2015110)5_eero_F	RE3.emi	
		AVG - Limit, E				al CF ± U	ncertainty	1		
		oss AF= Anten					,			
Note: Othe	er than spectr	um noise floor,	, emissio	n at the lim	nit is the fu	ndamenta	al frequer	icy.		

SOP	1 Ra	diated E	missions				Т	rack	king #	315634	03.0	01 Page 5	of 14
EUT N	lame	Hom	e Wi-Fi Route	er				Dat	e		Nov	[,] 05, 2015	
EUT N	lodel	A010	0001						np / Hu	um in	23°	C / 38%rh	
EUT S	Serial	E59A	-0053-5XKS	-EP43					np / Hu	um out			
EUT (Config	. 802.1	11n at HT20-I						Line AC / Freq 120			Vac / 60 H	Z
Stand	lard	CFR	47 Part 15 Su	ubpart C, RSS-247, RSS-GEN					W / VB	W	Hz/ 3 MHz		
Dist/A	Ant Us	ed 3m -	EMCO3115	/ 1m – A	AHA-840			Per	forme	d by	Ker	winn Corpu	Z
		r	1 -	– 18 GH	z Transm	nit at 2412	2 MHz	(Lo	w Char	nnel)			
Frequ	iency	Raw	Cable Loss	AF	Level	Detector	Polar	ity	Height	Azimu	uth	Limit	Margin
M	Ηz	dBuV/m	dB	dB	dBuV/m		H/V	/	cm	deg	I	dBuV/m	dB
1456	1.09	39.88	4.42	-7.13	37.16	Average	Н		223	272	2	54.00	-16.84
1799	8.70	36.77	5.05	2.45	44.27	Average	Н		126	32		54.00	-9.73
4814	4.79	50.21	2.88	-17.09	36.00	Average	V		148	22		54.00	-18.00
dBu	v				2heinls	and of I	Jorth	hΔr	moric	• - 2		05 Nov 1	5 19:58
90.0				1011	virenne		TOTO	17.0	The re-	- C.B		1 <u> </u>	Horizonta
													Horizonta Vertical
80.0												1 — Āī	
70.0												+ Fa	rmal
10.0													
60.0									_				
50.0												関	
									المرد وي	المحجوبان			
40.0			h		a alberta a	1 martin	A MARK	****			100	Ŧ.	
30.0	A		Mult	mon	M	4				+	•		
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20.0												Spec D	ist 3m
10.0												Frequenc	y: MHz
10.0	0.000								10000.	0	1	8000.0	
	eero Filen	ine, Hom	e WiFi Rout program files	er, TX 2	2412MHz emisoft	at HT20	MCS	0 Fe1/24	015110)5 oom	PE	4 omi	
		anne, 18, 1	avgram mea	- Consola	CATHERN 1 1	V COVINC	a coult		010110	N_CEIU			
L													
			AVG - Limit, _oss AF= Ante				tal CF :	± Un	certaint	y			
			trum noise floo				fundam	nenta	al freque	ency.			

SOP	1 Ra	diated E	Emissions				Т	rack	king #	315634	03.0	01 Page 6	of 14
EUT N	lame	Hom	e Wi-Fi Route	ər				Dat	te			/ 05, 2015	
EUT N	/lodel	A010	0001					Temp / Hum in 23° C / 38%rh					
EUT S	Serial	E59A	A-0053-5XKS	-EP43				Ter	mp / Hı	um out	N/A		
EUT C	Config	a. 802.7	11n at HT20-	MCS0/	chain 0 &	1			ne AC /			Vac / 60 H	Z
Stand	•	-	47 Part 15 St						W / VB			Hz/ 3 MHz	
			- EMCO3115			.,			rforme		-	winn Corpu	7
DISUT						nit at 2437					Rei		<u> </u>
Frequ	iencv	Raw	Cable Loss	AF		Detector	1	<u>`</u>			uth	Limit	Margin
MH		dBuV/m	dB	dB	dBuV/m		H/V		cm	dea		dBuV/m	dB
1798		37.68	5.03	2.07		Average	H		118	60		54.00	-9.21
4870	0.00	46.26	2.88	-16.77	32.37	Average	V		145	68		54.00	-21.63
1457	5.53	39.72	4.41	-6.95	37.19	Average	V		180	120)	54.00	-16.81
dBu	v			TI N/ F	l Maria Saulta		اللي م					05 Nov 1	5 20:25 -
90.0	• 			TOVE	kneinia	and of I	vortr	1 AI	meric	а		_	
													Horizonta Vertical
80.0												1 — Ai	Lmt
70.0												+ Fa	rmal
60.0													
50.0												(R)	
40.0							بېردى ر	, AN	and the second	and the second second	W	+	
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30.0	gt ^{ge} ren	Instal	ward one Office	v		*						Mone F	Dist 3m
20.0												Spec D	
												Frequence	y: MHz
10.0	0000.0								10000.	0	1	18000.0	
	eero	ine, Hom	ne WiFi Rout	ter, <u>TX 2</u>	2437MHz	at HT20	MCS	0		_	_		
	Filen	ame: c:\j	program files	s (X80)/s	emisoft -	 vasona) 	vresult	1512	015110	15_eero	_RE	:5.emi	
			AVG - Limit, E oss AF= Anten				al CF ±	Und	certainty				
			um noise floor,				ndame	ntal	frequen	CV.			
		P							1	,			I

SOP 1 Ra	diated E	Emissions				Tra	acking #	3156340	03.001 Page	e 7 of 14	
EUT Name	Hom	e Wi-Fi Route	ər			0	Date		Nov 05, 201	5	
EUT Model	A010	0001					remp / Hւ	um in	23° C / 38%	° C / 38%rh	
EUT Serial	E59A	A-0053-5XKS	-EP43			1	Temp / Hu	um out	N/A		
EUT Config	. 802.1	11n at HT20-I	MCS0/	chain 0 &	ι 1	L	_ine AC /	Freq	120 Vac / 60) Hz	
Standard	CFR	47 Part 15 Sι	ubpart C	, RSS-24	7, RSS-G	EN F	RBW / VB	W	1 MHz/ 3 M	Hz/ 3 MHz	
Dist/Ant Us	ed 3m -	EMCO3115	/ 1m – A	AHA-840		F	Performe	d by	Kerwinn Co	rpuz	
		1 -	– 18 GH			· ``	High Chai	,			
Frequency	Raw	Cable Loss	AF	Level	Detector	Polarit	y Height	Azimu	th Limit	Margin	
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/i	m dB	
17982.07	37.68	5.03	2.04	44.75	Average	Н	125	242	54.00	-9.25	
4933.43	53.09	2.88	-16.42	39.56	Average	V	125	116	54.00	-14.44	
14628.25	39.56	4.43	-6.77	37.23	Average	V	148	226	54.00	-16.77	
dBuV				2hoints	and of I	Jorth	Americ	· o	05 No	v 15 20:45 -	
90.0			TOVE	viteniic		vorun	Ament	<i>.</i> a		[4] Llerinert	
										[1] Horizonta [2] Vertical	
80.0										Av Lmt	
70.0									+	Formal	
60.0					+	++					
50.0		h			-				- 183		
								A BARRIER			
40.0					have	Martin Martin			THE		
a	man	ا مملكم.	a sea					+			
30.0 JA	Physical Street of St	44 - T. 64				+++			Mea	s Dist 3m	
20.0										c Dist 3m	
									Freque	ency: MHz	
10.0							10000.	0	18000.0		
eero	ine, Horr	ie WiFi Rout	ter, <u>TX</u> 2	246,2M <mark>H</mark> z	at HT20	MCS0	LODADAG				
Filen	ame: c:\j	program files	s (X80)/s	emisoft -	 vasona) 	results	3/201511(lo_eero	RE0.emi		
		AVG - Limit,				tal CF \pm	Uncertaint	y			
		<u>_oss AF= Ante</u> trum noise floo				fundame	ntal frague	ancy			
NOLE. ULIEI	man spec		, 5111331	ion at the l		unuaine	ana neque	snoy.			

SOP	1 Ra	diated E	missions				T	racl	king # 🕄	3156340	03.00	01 Page 8	of 14
EUT N	ame	Home	e Wi-Fi Route	er				Da	ite		Nov	06, 2015	
EUT M		A010	001					Temp / Hum in 24°				C / 34%rh	
EUT S			-0053-5XKS						mp / Hu				
EUT C		. 802.1	1n at HT20 I) MCS0 / chain 0 & 1				Line AC / Freq 120				Vac / 60 H	Z
Standa	ard	CFR4	47 Part 15 Su	ubpart C	, RSS-24	7, RSS-G	EN	RB	BW / VB	W	1 MH	Hz/ 3 MHz	
Dist/A	nt Us	ed 3m –	EMCO3115	/ 1m – A	AHA-840			Pe	erformed	d by	Kerv	vinn Corpu	Z
			18 -	– 25 GH	z Transm	it at 2412	MHz	(Lo	ow Chan	nel)			
Frequ	ency	Raw	Cable Loss	AF	Level	Detector	Polar	ity	Height	Azimu	ith	Limit	Margin
MH	lz	dBuV/m	dB	dB	dBuV/m		H/V	/	cm	deg		dBuV/m	dB
21619	9.24	43.45	5.40	-9.71	39.14	Peak	Н		150	0		54.00	-14.86
dBu\ 100.0				TUV F	Rheinla	and of N	Vorth	ı A	meric	a		06 Nov 1	5 10:43
90.0												= [1]	Horizont: Vertical
80.0												— Av	Lmt
70.0													
60.0													
50.0												Av	
40.0	Literas		er ag har set af a most of	د. ديلويساميلر ويدري		ومحافاته وماحوي	a an	Leving		A	1000-m		
30.0												[2]	
20.0												Meas D Spec D	
10.0												Frequenc	
0.0	8000.0										2:	5000.0	
	eero i Filena	nc, Hom ime: c:\p	e WiFi Rout program files	er, TX 2 (x86)\a	412MHz emisoft -	at HT20 vasona	MCS(result	0 IS\2	2015110	6_eero	_RE	1.emi	I
Spee M	orain	E Field /	AVG - Limit, E	Eiold A				Line	oortoint				
	0		oss AF= Anten					Uni	centainty				
Note: N	o sign	ificant emi	ssions was ob	served fo	or 802.11g	and 802.1	1n - H	T20.	. Measu	red spec	trum	noise floo	r

SOP	1 Ra	diated E	missions				Т	rac	king #	315634	03.0	01 Page 9	of 14
EUT N	ame	Home	e Wi-Fi Route	er				Da	ate		Nov	06, 2015	
EUT M	lodel	A010	001								-	C / 34%rh	
EUT S			-0053-5XKS						emp / Ηι		-		
EUT C	onfig											Vac / 60 H	Z
Standa												Hz/ 3 MHz	
Dist/A	nt Us	ed 3m –	EMCO3115	/ 1m – A	AHA-840			Pe	erformed	d by	Ker	winn Corpu	Z
			18	– 25 GH	lz Transm	nit at 2437	7 MHz	(M	lid Chan	nel)			
Frequ	ency	Raw	Cable Loss	AF	Level	Detector	Polar	ity	Height	Azimu	uth	Limit	Margin
MH	lz	dBuV/m	dB	dB	dBuV/m		H/\	/	cm	deg		dBuV/m	dB
21268	8.54	43.65	5.35	-9.41	39.59	Peak	Н		150	0		54.00	-14.41
dBu\ 100.0				TUV F	Rheinla	and of N	Vorth	۱A	meric	a		06 Nov 1	5 10:54
90.0												= [1]	Horizont: Vertical Lmt
80.0												— AV	Lmt
70.0												-	
60.0												-	
50.0												Av	
40.0		Den an da	والمربية ومحرفات والمرا	يسلح من	Ann an the sec	ويستعدين ويعتني				b a		-	
30.0												[2]	
20.0												Meas D Spec D	
10.0												Frequenc	
0.0	8000.0										2	5000.0	
	eero i Filena	inc, Hom ame: c:∖p	e WiFi Rout program files	er, TX 2 (x86)\a	2437MHz emisoft -	at HT20 vasona)	MCS result	0 ts\/2	2015110	6_eero	_RE	2.emi	I
Cres I	10 10 10		AV/C Limit			AV/0 . T-		1.1.1					
Total C	CF= Al	+ Cable L	AVG - Limit, oss AF= Ante	nna facto	r + Pream	р							
Note:	No sig	nificant er	nissions was c	bserved	for 802.11	g and 802	.11n -	HT2	20. Meas	ured sp	ectru	um noise flo	or.

SOP 1 Ra	diated E	missions				Т	rac	cking # 3	315634	03.0	01 Page 10) of 14
EUT Name	Hom	e Wi-Fi Route	er				Da	ate		Nov	06, 2015	
EUT Model	A010										C / 34%rh	
EUT Serial		-0053-5XKS	S-EP43				Temp / Hum out N/A					
EUT Config			MCS0 / chain 0 & 1				-				Vac / 60 H	Z
Standard		47 Part 15 Su				EN					Hz/ 3 MHz	
Dist/Ant Us		EMCO3115			,		Ре	erformed	dby	Ker	winn Corpu	Z
		18 -	- 25 GH:	z Transm	it at 2462	MHz			-		1	
Frequency	Raw	Cable Loss	AF	Level	Detector	Pola	rity	Height	Azimu	ıth	Limit	Margin
MHz	dBuV/m	dB	dB	dBuV/m		H/\	\checkmark	cm	deg		dBuV/m	dB
21549.10	44.03	5.39	-9.62	39.79	Peak	Н		150	0		54.00	-14.21
dBuV/m			TUVF	Rheinla	and of N	Jorth	h A	meric	а		06 Nov 1	5 11:02
100.0 90.0] 二閉	Horizont:
80.0											— X	Vertical Lmt
70.0												
60.0											-	
50.0											Av	
40.0			ر المعالي ال		ويحجر ويدائها	مد دولت	1				-	
30.0		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	19. Con								[2]	
20.0											Meas D	
10.0											Spec D	
0.0											Frequenc	у. мпи
	ine Hom	e WiFi Rout	er TX 2	482MHz	at HT20	MCS	0				5000.0	
Filena	ame: c:\p	e WiFi Rout program files	(x86)\e	misoft -	vasona\	resul	ts\:	2015110	6_eero	_RE	3.emi	I
•		AVG - Limit, E oss AF= Anten				ICF ±	Un	ncertainty				
		ssions was ob				1n - H	T20). Measur	ed spec	ctrun	n noise floo	r.

SOP '	SOP 1 Radiated Emissions Tracking # 31563403.001 Page 11 of 14												
EUT N	ame	Hom	e Wi-Fi Route	er				Date	е		Nov	05, 2015	
EUT M	lodel	A010	001					Tem	np / Hu	um in	23°	C / 38%rh	
EUT S	erial	E59A	-0053-5XKS	-EP43				Tem	າp / Hເ	um out	N/A		
EUT C	onfig	. 802.1	11n at HT40 I	MCS0/	chain 0 &	. 1		Line	AC /	Freq	120	Vac / 60 H	Z
Standa	Standard CFR47 Part 15 Subpart C, RSS-247, RSS-GEN RBW / VBW 1 M								1 M	Hz/ 3 MHz			
Dist/A	Dist/Ant Used 3m – EMCO3115 / 1m – AHA-840 Performed by K							Ker	winn Corpu	Z			
		L	1 -	– 18 GH	z Transm	nit at 2422	2 MHz	(Low	v Char	nnel)			
Freque	ency	Raw	Cable Loss	AF	Level	Detector	Polar	ity ∣⊦	leight	Azimu	ıth	Limit	Margin
MH	z	dBuV/m	dB	dB	dBuV/m		H/\	/	cm	deg		dBuV/m	dB
14593	3.24	39.69	4.43	-6.88	37.24	Average	Н		121	196		54.00	-16.76
4845	.21	43.32	2.89	-16.86	29.35	Average	V		210	361		54.00	-24.65
18000	0.00	36.74	5.05	2.48	44.27	Average	V		101	320		54.00	-9.73
dBuV	/			TUV F	Rheinla	and of I	North	n An	nerio	a		05 Nov 1	5 21:10 -
90.0												1 — 🖽	Horizont
80.08								_	_			- 그 옷	
70.0													rmal
60.0								+				Jona	
50.0												(A)	
40.0						ما اه	ببه ا	w, w		A CONTRACT	W	÷	
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30.0	~ ~ ~	maderic	O HANK OF A	~		+						Meas D	Vict 2m
20.0												Spec E	
												Frequenc	y: MHz
	0.000								10000.	0	1	8000.0	
	eero inc, Home WiFi Router, TX 2422MHz at HT40 MCS0 Filename: c:\program files (x86)\emisoft - vasona\results\20151105_eero_RE7.emi												
	Filename. c. program mes (xoo)vemisori - vasonavesuits/zo151105_eero_Rc7.emi												
Spec N	Spec Margin = E-Field AVG - Limit, E-Field AVG = FIM AVG+ Total CF ± Uncertainty												
Total C	Total CF= AF+ Cable Loss AF= Antenna factor + Preamp												
Note:	Other	than spec	trum noise floo	or, emissi	on at the l	imit is the	fundam	nenta	l freque	ency.			

SOP 1 Radiated Emissions Tracking # 31563403.001 Page 12 of 14							
EUT Name Home Wi-Fi Router	Date	Nov 05, 2015					
EUT Model A010001	Temp / Hum in	23° C / 38%rh					
EUT Serial E59A-0053-5XKS-EP43	Temp / Hum out						
EUT Config. 802.11n at HT40 MCS0 / chain 0 & 1	120 Vac / 60 Hz						
Standard CFR47 Part 15 Subpart C, RSS-247, RSS-GEN	1 MHz/ 3 MHz						
Dist/Ant Used 3m – EMCO3115 / 1m – AHA-840	Performed by	Kerwinn Corpuz					
1 – 18 GHz Transmit at 2452 MH		l l					
Frequency Raw Cable Loss AF Level Detector Po	plarity Height Azimu	uth Limit Margin					
MHz dBuV/m dB dB dBuV/m H	H/V cm deg	dBuV/m dB					
4902.63 48.89 2.89 -16.61 35.16 Average	Н 121 -2	54.00 -18.84					
14575.92 39.66 4.41 -6.95 37.12 Average	V 132 264	54.00 -16.88					
17982.15 37.68 5.03 2.04 44.75 Average	V 156 248	54.00 -9.25					
dBuV TUV Rheinland of Nor	rth America	05 Nov 15 21:28 -					
90.0		- [1] Horizont					
80.0		- [2] Vertical					
00.0		— <u>A</u> v Lmt					
70.0		+ Formal					
60.0							
50.0							
40.0		*					
300 mander Mon I marked	+++++++++++++++++++++++++++++++++++++++						
		Meas Dist 3m					
20.0		Spec Dist 3m Frequency: MHz					
10.0	10000.0						
eero inc, Home WiFi Router, TX 2452MHz at HT40 MC	10000.0	18000.0					
Filename: c:\program files (x86)\emisoft - vasona\results\20151105 eero RE8.emi							
Pres Marrie E Field AV/C Limit E Field AV/C FIM AV/C Tatal CE L Uncertainty							
Spec Margin = E-Field AVG - Limit, E-Field AVG = FIM AVG+ Total CF \pm Uncertainty Total CF= AF+ Cable Loss AF= Antenna factor + Preamp							
Note: Other than spectrum noise floor, emission at the limit is the fundar	mental frequency.	_					

SOP 1 Ra	SOP 1 Radiated Emissions Tr									Tracking # 31563403.001 Page 13 of 14				
EUT Name	Hom	e Wi-Fi Route	er				Da	ate		Nov	06, 2015			
EUT Model	A010	001					Те	emp / Hu	ım in	24°	C / 34%rh			
EUT Serial	E59A	-0053-5XKS	-EP43				Те	emp / Hu	m out	N/A				
EUT Config	. 802.1	11n at HT40 N	ACS0/c	chain 0 &	1		Li	ne AC /	Freq	120	Vac / 60 H	Z		
Standard	Standard CFR47 Part 15 Subpart C, RSS-247, RSS-GEN RBW / VBW 1						1 M	Hz/ 3 MHz						
Dist/Ant Us	Dist/Ant Used 3m – EMCO3115 / 1m – AHA-840 Performed by K							Kerv	winn Corpu	Z				
· · · · · · · · · · · · · · · · · · ·	C	18 -	- 25 GH	z Transm	nit at 2422	MHz	z (Lo	ow Chan	nel)					
Frequency		Cable Loss	AF	Level	Detector	Pola	rity	Height	Azimu	ıth	Limit	Margin		
MHz	dBuV/m	dB	dB	dBuV/m		Η/\	V	cm	deg		dBuV/m	dB		
21268.54	43.55	5.35	-9.41	39.49	Peak	V		150	0		54.00	-14.51		
dBuV/m			TUV F	Rheinla	and of N	Vorti	h A	\meric	а		06 Nov 1	5 11:16 -		
90.0												Horizont: Vertical Lmt		
80.0														
70.0											-			
60.0											-			
50.0											Av			
40.0			. ب معام . بول	and a subsec		Facelan d			L		-			
30.0											[2]			
20.0											Meas D Spec D			
10.0											Frequence			
0.0 18000.0	1									2	5000.0			
eero inc, Home WiFi Router, TX 2422MHz at HT40 MCS0 Filename: c:\program files (x88)\emisoft - vasona\results\20151106_eero_RE4.emi														
	Spec Margin = E-Field AVG - Limit, E-Field AVG = FIM AVG+ Total CF ± Uncertainty Total CF= AF+ Cable Loss AF= Antenna factor + Preamp													
		missions was o				n noi:	se f	floor.						

SOP 1 R	adia	ted E	missions				Т	rac	cking # 3	315634	03.0	SOP 1 Radiated Emissions Tracking # 31563403.001 Page 14 of 14								
EUT Name)	Hom	e Wi-Fi Route	er				Da	ate		Nov	06, 2015								
EUT Mode	el	A010	0001	-				Те	emp / Hu	m in		C / 34%rh								
EUT Seria	I	E59A	-0053-5XKS	-EP43					emp / Hu		N/A									
EUT Confi	g.	802.1	11n at HT40 I	MCS0/0	chain 0 &	1		Li	ne AC /	Freq	120	Vac / 60 H	Z							
Standard	•		47 Part 15 Su				EN	R	BW / VB	w	120	kHz/ 300 k	Hz							
Dist/Ant U	sed	3m –	EMCO3115	/ 1m – A	HA-840			Pe	erformed	l by	Kerv	winn Corpu	Z							
			18 -	- 25 GH	z Transm	it at 2452	MHz	(H	igh Char	nnel)										
Frequency	/ R	aw	Cable Loss	AF	Level	Detector	Pola	rity	Height	Azimu	uth	Limit	Margin							
MHz	dBu	uV/m	dB	dB	dBuV/m		Η/	V	cm	deg		dBuV/m	dB							
21675.35	44	1.04	5.40	-9.78	39.66	Peak	Н		150	0		54.00	-14.34							
dBuV/m				TUV F	Rheinla	and of N	Jorti	h A	\meric	а		06 Nov 1	5 11:21 -							
100.0 90.0													Horizont: Vertical							
80.0												— Xi	Lmt							
70.0												-								
60.0												-								
50.0												Av								
40.0	week/ee	مرادع معر	ور المساور وما والم من الم					مول	بيواريو الانصوا	W. within the		-								
30.0									•			[2]								
20.0												Meas D Spec D								
10.0												Frequenc	y: MHz							
0.0	0										2	5000.0								
eero inc, Home WiFi Router, TX 2452MHz at HT40 MCS0 Filename: c:\program files (x86)\emisoft - vasona\results\20151106_eero_RE5.emi																				
	Spec Margin = E-Field AVG - Limit, E-Field AVG = FIM AVG+ Total CF ± Uncertainty Total CF= AF+ Cable Loss AF= Antenna factor + Preamp																			
Note: No sig	nifica	nt emi	ssions was ob	served. N	leasured	spectrum	noise	e flo	oor.											

4.6 AC Conducted Emissions

Testing was performed in accordance with ANSI C63.4: 2014. These test methods are listed under the laboratory's A2LA Scope of Accreditation.

This test measures the levels emanating from the EUT's AC input port, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

The AC conducted emissions of equipment under test shall not exceed the values in CFR47 Part 15.207: 2015 and RSS Gen: 2015 Sect. 8.8.

4.6.1 Test Methodology

A test program that controls instrumentation and data logging was used to automate the AC Power Line Conducted emission test procedure. The frequency range of interest was divided into subranges such as to yield a frequency resolution of 9 kHz. Each phase and neutral of the AC power line were measured with respect to ground. Measurements were performed using a set of 50μ H / 50Ω LISNs.

Testing is performed in Lab 5. The setup photographs clearly identify which site was used. The vertical ground plane used in the semi-anechoic chamber is a 2m x 2m solid aluminum frame and panel, and it is bonded to the horizontal ground plane.

In the case of tabletop equipment, the EUT is placed on a 1.0m x 1.5m non-conductive table 80cm above the ground plane and 40cm from a vertical ground reference plane. The rear of the EUT was positioned flush with the backside of the table and directly over the LISNs. The power and I/O cables were routed over the edge of the table and bundled approximately 40cm from the ground plane. Support equipment was powered from a separate LISN.

4.6.1.1 Deviations

There were no deviations from this test methodology.

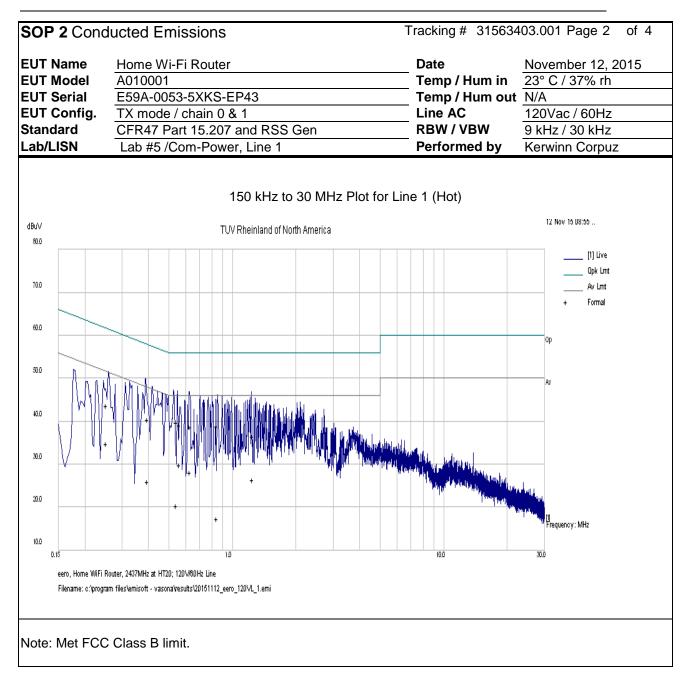
4.6.2 Test Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Test Conditions: Conducted Measurement at Normal Conditions only						
Antenna Type: Custom Integrate	d	Power Level: See Test Plan				
AC Power: 120 Vac/60 Hz		Configuration: 7	`abletop			
Ambient Temperature: 22° C		Relative Humidity: 37% RH				
Configuration	Frequ	iency Range	Test Result			
Line 1 (Hot)	0.15	to 30 MHz	Pass			
Line 2 (Neutral)	0.15	to 30 MHz	Pass			

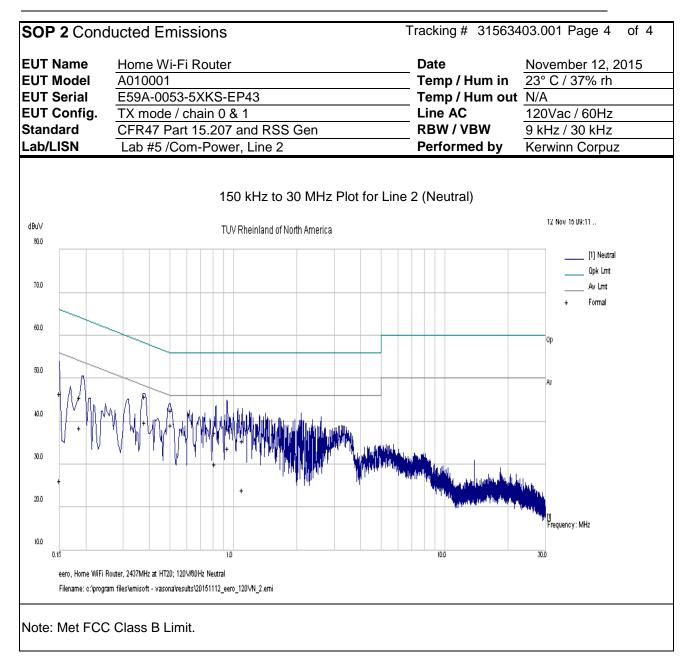
Table 10: AC Conducted Emissions - Test Results

SOP 2 Con	ducted E	missions	6	Trac	Tracking # 31563403.001 Page 1 of 4						
EUT Name		/i-Fi Router			Da			nber 12, 20	15		
EUT Model	A010001		- D 40			mp / Hum		/ 37% rh			
EUT Serial	-)53-5XKS-E				mp / Hum		. / 0011			
EUT Config. Standard						ne AC / Fre SW / VBW	•	c / 60Hz / 30 kHz			
Lab/LISN	Lab #5 /Com-Power, Line 1					-					
	Raw	Limiter	Ins.	Level	Performed byKerwinn CorpuzDetectorLineLimitMarginResult						
Frequency	Kaw	Linner	Loss	Level	Detector	Line	LIIIIII	Margin	Result		
MHz	dBuV	dB	dB	dBuV		Line	dBuV	dB			
0.395	30.44	9.96	0.09	40.49	QP	Live	57.96	-17.46	Pass		
0.395	15.85	9.96	0.09	25.90	Ave	Live	47.96	-22.06	Pass		
0.541	29.80	9.98	0.08	39.86	QP	Live	56.00	-16.14	Pass		
0.541	10.18	9.98	0.08	20.24	Ave	Live	46.00	-25.76	Pass		
0.561	29.09	9.98	0.08	39.15	QP	Live	56.00	-16.85	Pass		
0.561	19.82	9.98	0.08	29.88	Ave	Live	46.00	-16.12	Pass		
0.628	28.60	9.98	0.07	38.65	QP	Live	56.00	-17.35	Pass		
0.628	18.06	9.98	0.07	28.11	Ave	Live	46.00	-17.89	Pass		
1.241	26.50	10.00	0.06	36.55	QP	Live	56.00	-19.45	Pass		
1.241	16.42	10.00	0.06	26.47	Ave	Live	46.00	-19.53	Pass		
0.843	28.93	9.98	0.07	38.99	QP	Live	56.00	-17.01	Pass		
0.843	7.35	9.98	0.07	17.40	Ave	Live	46.00	-28.60	Pass		
0.252	33.55	9.96	0.13	43.64	QP	Live	61.70	-18.06	Pass		
0.252	24.79	9.96	0.13	34.88	Ave	Live	51.70	-16.82	Pass		
Spec Margin = Combined Standa Notes: EUT	ard Uncertai	nty $U_c(y) = \pm$	1.2 dB Exp	anded Uncer	tainty $U = ku$ is mitted at 2	<i>l_c(y) k</i> = 2 2437 MHz i	for 95% cont n 802.11n	idence at HT20 M0	CS0		



SOP 2 Conducted EmissionsTracking # 31563403.001 Page 3 of 4									
EUT Name	Home W	'i-Fi Router			D	ate	Nove	ember 12, 2	015
EUT Model	A010001				Т	emp / Hurr	n in 23° (C / 37% rh	
EUT Serial	E59A-00	53-5XKS-E	P43			emp / Hurr			
EUT Config.		e / chain 0 8				ine AC / Fr		/ac / 60Hz	
Standard		Part 15.207		Gen		BW / VBW		z / 30 kHz	
Lab/LISN	Lab #5 /	Com-Powe	r, Line 2		P	erformed I	by Kerw	inn Corpuz	
Frequency	Raw	Limiter	Ins. Loss	Level	Detector	Line	Limit	Margin	Result
MHz	dBuV	dB	dB	dBuV		Line	dBuV	dB	
0.944	28.09	9.99	0.06	38.14	QP	Neutral	56.00	-17.86	Pass
0.944	23.67	9.99	0.06	33.72	Ave	Neutral	46.00	-12.28	Pass
0.379	35.74	9.96	0.09	45.79	QP	Neutral	58.30	-12.51	Pass
0.379	29.67	9.96	0.09	39.73	Ave	Neutral	48.30	-8.57	Pass
0.505	32.43	9.98	0.08	42.49	QP	Neutral	56.00	-13.51	Pass
0.505	28.98	9.98	0.08	39.04	Ave	Neutral	46.00	-6.96	Pass
0.150	36.28	9.94	0.23	46.45	QP	Neutral	65.98	-19.53	Pass
0.150	15.90	9.94	0.23	26.07	Ave	Neutral	55.98	-29.91	Pass
0.817	27.41	9.98	0.07	37.46	QP	Neutral	56.00	-18.54	Pass
0.817	19.92	9.98	0.07	29.97	Ave	Neutral	46.00	-16.03	Pass
1.099	25.49	9.99	0.06	35.54	QP	Neutral	56.00	-20.46	Pass
1.099	13.85	9.99	0.06	23.90	Ave	Neutral	46.00	-22.10	Pass
0.187	35.41	9.95	0.18	45.54	QP	Neutral	64.19	-18.65	Pass
0.187	28.24	9.95	0.18	38.37	Ave	Neutral	54.19	-15.81	Pass
Spec Margin = C Combined Standa	rd Uncertainty	$U_{c}(y) = \pm 1.2$	2 dB Expan				or 95% confide		

Notes: EUT was setup as table top equipment and transmitted at 2437 MHz in 802.11n at HT20 MCS0



4.7 Maximum Permissible Exposure

4.7.1 Test Methodology

In this document, we try to prove the safety of radiation harmfulness to the human body for our product. The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The Gain of the antenna used in this calculation is declared by the manufacturer, and the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis transmission formula is a far field assumption, the calculated result of that is an over-prediction for near field power density. We will take that as the worst case to specify the safety range.

4.7.2 **RF Exposure Limit**

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Average Time (minutes)				
(A)Limits For Occupational / Control Exposures								
0.3–3.0	614	1.63	*(100)	6				
3.0–30	1842/f	4.89/f	*(900/f ²)	6				
30–300			1.0	6				
300 - 1500			f/300	6				
1500 - 100,000			5	6				
(E	B)Limits For Gene	ral Population / Un	controlled Exposu	ire				
0.3–1.34	614	1.63	*(100)	30				
1.34-30	824/f	2.19/f	*(180/ f ²)	30				
30–300	27.5	0.037	0.2	30				
300 - 1500			f/1500	30				
1500 - 100,000			1.0	30				

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

F = Frequency in MHz

* = Plane-wave equivalent power density

4.7.3 EUT Operating Condition

The software provided by Manufacturer enabled the EUT to transmit data at lowest, middle and highest channel individually.

4.7.4 Classification

The antenna of the product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance with the antenna should be included in user's manual. So, this device is classified as a **Mobile Device**.

See below calculation for 2.412 GHz RF Exposure at a distance of 20cm.

4.7.5 Test Results

4.7.5.1 Antenna Gain

The 2.412 GHz transmitting maximum antenna gain is +1.5 dBi or 1.41 (numeric).

4.7.5.2 Output Power into Antenna & RF Exposure value at distance 20cm:

Calculations for this report are based on highest power measurement.

Limit for MPE (from FCC part 1.1310 table1) is 1.0 mW/cm²

The highest measured total power is +29.57 dBm or 905.73 mW (summed 2 chains)

Using the Friss transmission formula, the EIRP is Pout*G, and R is 20cm.

 $Pd = (296.76*1.41) / (1600\pi) = 0.2541 \text{ mW/cm}^2$, which is 0.7459 mW/cm² below to the limit.

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

4.7.6 Sample Calculation

The Friss transmission formula: $Pd = (Pout^*G) / (4^*\pi^*R^2)$

Where;

 $\begin{array}{l} Pd = power \ density \ in \ mW/cm^2 \\ Pout = output \ power \ to \ antenna \ in \ mW \\ G = gain \ of \ antenna \ in \ linear \ scale \\ \pi \approx 3.1416 \\ R = distance \ between \ observation \ point \ and \ center \ of \ the \ radiator \end{array}$

in cm

Ref. : David K. Cheng, Field and Wave Electromagnetics, Second Edition, Page 640, Eq. (11-133).

5 Test Equipment List

5.1 Equipment List

Equipment	Manufacturer	Model #	Serial/Inst #	Last Cal mm/dd/yyyy	Next Cal mm/dd/yyyy
Bilog Antenna	Sunol Sciences	JB3	A102606	07/08/2014	07/08/2016
Horn Antenna	Sunol Sciences	DRH-118	A040806	02/10/2015	02/10/2016
Antenna (18-40 GHz)	Com-Power	AHA-840	105005	07/08/2015	07/08/2016
Spectrum Analyzer	Rohde & Schwarz	FSL6	100169	01/13/2015	01/13/2016
Spectrum Analyzer	Agilent	N9038A	MY51210195	01/12/2015	01/12/2016
Spectrum Analyzer	Agilent	N9030A	MY52350885	03/02/2015	03/02/2016
Spectrum Analyzer	Rohde Schwarz	ESIB	832427/002	01/13/2015	01/13/2016
Spectrum Analyzer	Rohde Schwarz	FSV40	1321.3008K40	11/01/2015	11/01/2016
Amplifier	Sonoma Instruments	310	185516	01/13/2015	01/13/2016
Amplifier	Miteq	TTA1800-30-4G	1842452	01/13/2015	01/13/2016
Amplifier	Rohde & Schwarz	TS-PR26	100011	07/24/2014	07/24/2016
Amplifier	Rohde & Schwarz	TS-PR40	100012	02/21/2015	02/21/2016
Power Meter	Agilent	E4418B	MY45103902	01/15/2015	01/15/2016
Power Sensor	Hewlett Packard	8482A	US37295801	01/15/2015	01/15/2016
Thermo Chamber	Espec	BTZ-133	0613436	03/16/2015	03/16/2016
DC Power Supply	Agilent	E3634A	MY400004331	01/12/2015	01/12/2016
Notch Filter	Micro-Tronics	BRM50716	003	01/30/2015	01/30/2016
Signal Generator	Anritsu	MG3694A	42803	01/13/2015	01/13/2016
Power Sensors	Rohde & Schwarz	OSP120	1520.9010.02	12/19/2014	12/14/2015

* Calibration of equipment past due for re-calibration will be performed expeditiously. If any equipment is found to be out of tolerance at that time, affected customers will be notified accordingly.

6 EMC Test Plan

6.1 Introduction

This section provides a description of the Equipment Under Test (EUT), configurations, operating conditions, and performance acceptance criteria. It is an overview of information provided by the manufacturer so that the test laboratory may perform the requested testing.

6.2 Customer

 Table 11: Customer Information

Company Name	eero inc
Address	933 20th Street
City, State, Zip	San Francisco, CA 94107
Country	USA
Phone	(415) 738-7972
Fax	

 Table 12: Technical Contact Information

Name	Clifford Clarke
E-mail	compliance@eero.com
Phone	(415) 738-7972
Fax	

6.3 Equipment Under Test (EUT)

Table 13: EUT Specifications

EUT Specifications							
Dimensions	W: 4.75in (121mm) x D: 4.75in (121mm) x H: 0.85-1.26in (22-33mm)						
AC Input	100-240V AC, 50 – 60 Hz						
Environment	Indoor						
Operating Temperature Range:	0 to 35 degrees C						
Multiple Feeds:	☐ Yes and how many ⊠ No						
Hardware Version	01A						
Part Number	830-00001-14						
RF Software Version	v1.0.0						
802.11-radio modules							
Operating Mode	802.11g, 802.11n (HT20 and HT40)						
Transmitter Frequency Band	2.4 GHz – 2.4835 GHz						
Max. Rated Power Output	See Channel Planning Table.						
Power Setting @ Operating Channel	See Channel Planning Table.						
Antenna Type	Qty 7 – 2 custom antennas at 2.4GHz. See Table 13 for details						
Antenna Gain	Antenna $1 = +1.5 \text{ dBi}$, Antenna $2 = -0.75 \text{ dBi}$						
Modulation Type	AM FM DSSS OFDM Other describe: 16QAM and 64 QAM						
Data Rate	 802.11g: 2 Spatial Streams: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n HT20: 2 Spatial Streams: 13, 26, 39, 52, 78, 104, 117, 130 /156 Mbps (LGI) 802.11n HT40: 2 Spatial Streams: 27, 54, 81, 108, 162, 216, 243, 270 / 324, 370 Mbps (LGI) 						
TX/RX Chain (s)	MIMO (2x2); no beam forming						
Directional Gain Type	Correlated Beam-Forming Other describe:						
Type of Equipment	Table Top Wall-mount Floor standing cabinet						

EUT Specifications

Note: All 2 chains will be on / transmitted at all time.

Table 14: Antenna Information

Number	Antenna Type	Description	Max Gain (dBi)
Antenna 1	Stamped metal Planar Inverted F antenna(PIFA)	2.4 GHz Wi-Fi Chain 2	1.50
Antenna 2	Stamped metal PIFA	2.4 GHz Wi-Fi Chain 1	-0.75
Antenna 3	Stamped metal PIFA	Bluetooth	2.51
Antenna 5	Monopole	5 GHz Wi-Fi U-NII-1 Band, Chain 1	1.11
Antenna 6	Monopole	5 GHz Wi-Fi U-NII-1 Band, Chain 2	2.13
Antenna 7	Monopole	5 GHz Wi-Fi U-NII-3 Band, Chain 1	-1.01
Antenna 8	Monopole	5 GHz Wi-Fi U-NII-3 Band, Chain 2	2.24

Table 15: EUT Channel Power Specifications

ТР	No	Frequency	Target Power Value dBm			
Setting	No.	(MHz)	802.11b	802.11g	802.11n (HT20)	802.11n (HT40)
26	1	2412		25.06	24.91	
26	2	2417			24.93	
*	3	2422			24.29	22.47
29	4	2427		25.12	25.10	
29	5	2432			24.94	
29	6	2437		25.24	25.34	
29	7	2442			26.15	
29	8	2447		26.72	26.76	
*	9	2452			25.49	23.32
26	10	2457			25.08	
26	11	2462		23.86	24.10	
	Note: 1. The adjusted power target values are updated at the evaluated frequencies. 2. *TP setting for HT20 = 26 and TP setting for HT40 = 25.					

Max Power for single Chain

Table 16: Interface Specifications

Interface Type	Cabled with what type of cable?	Is the cable shielded?	Maximum potential length of the cable?	Metallic (M), Coax (C), Fiber (F), or Not Applicable?
Ethernet	RJ45	🖂 No	🛛 Metric: 2 m	N/A

Table 17: Supported Equipment

Equipment	Manufacturer	Model	Serial	Used for
Laptop	Dell	Latitude	35521341769	Setup EUT operating channel
Note: None.				

Table 18: Description of Sample used for Testing

Device	Serial	RF Connection	CFR47 Part 15.247	
	E59A-0053-	Custom Integrated	Radiated Emissions,	
	5XSK-EP43	Antenna	AC Conducted Emissions	
	E5AN0264	Custom Integrated	Radiated Bandedge Emissions	
Home Wi-Fi Router	LJAN0204	Antenna	Radiated Bandeuge Emissions	
	E5AN0264		Peak Transmit Power,	
		Direct Connection	Peak Power Spectral Density,	
			Occupied Bandwidth,	
			Band-Edge,	
			Out-of-Band Emissions	

Table 19: Description of Test Configuration used for Radiated Measurement.

Device	Antenna	Mode	Setup Photo (X-Axis)	Setup Photo (Y-Axis)	Setup Photo (Z-Axis)
Home Wi-Fi Router	Custom Integrated	Transmit	EUT laid flat.	N/A	N/A
Note: N/A.					

Test Specifications

6.4 Test Specifications

Table 20: Test Specifications

Emissions and Immunity			
Standard	Requirement		
CFR 47 Part 15.247: 2015	All		
RSS 247 Issue 1, 2015	All		

END OF REPORT