

Application

For

Part 2, Subpart J, Paragraph 2.907 Equipment Authorization of Certification for an Intentional Radiator per Part 15, Subpart C, paragraphs 15.207, 15.209 and 15.247

And

RSS-247 Issue 1 for Industry Canada

For the Acuity Brands Lighting, Inc. and Acuity Brands Technology Services, Inc.

Model: ACWIFI001

FCC ID: 2ADCB-ACWIFI001 IC: 6715A-ACWIFI001

UST Project: 16-0139 Issue Date: August 26, 2016

Total Pages in This Report: 148

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I certify that I am authorized to sign for the Test Agency and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US TECH (Agent Responsible For Test):

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Title: Compliance Engineer – President

Date August 26, 2016



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MEASUREMENT TECHNICAL REPORT

COMPANY NAME:	Acuity Brands
MODEL:	ACWIFI001
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001

DATE: August 26, 2016

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

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List of Attachments

Agency Agreements Application Forms Letter of Confidentiality Equipment Label(s) Block Diagram(s) Schematic(s) Test Configuration Photographs Internal Photographs External Photographs Antenna Photographs Theory of Operation RF Exposure User's Manual

1 General Information

1.1 Purpose of this Report

This report is prepared as a means of conveying test results and information concerning the suitability of this exact product for public distribution according to the FCC Rules and Regulations Part 15, Section 247 and IC RSS 247 Issue 1.

1.2 Characterization of Test Sample

The sample used for testing was received by US Tech on June 30, 2016 in good operating condition.

1.3 Product Description

The Equipment Under Test (EUT) is the Acuity Brands Technology Services, Inc. Model ACWIFI001 radio module. The ACWIFI001 radio module is an embedded wireless internet connectivity module that operates in the 2.4 and 5.0 GHz spectrums.

The EUT can be used with one of two types of antennas, however it will only be set up and can only broadcast using one antenna at a time; never both simultaneously. There is only one RF port. The antenna uses an RF switch that will attenuate the signal to the antenna that is not being used for transmission.

The 5.0 GHz Wi-Fi radio features have been tested and the results detailed in a separate report.

Antenna Gain: 2.79 dBi (flex trace), 1.0 dBi (omni) Modulation: DSSS Bandwidth: 20 MHz and 40 MHz modulation Maximum Output Power: b mode: 16 dBm, g mode: 17 dBm, n mode: 16 dBm, n mode (40 MHz): 17.2 dBm.

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1.4 Configuration of Tested System

The Test Sample was tested per ANSI C63.10:2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and ANSI C63.4:2014, Methods of Measurement of Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (2014), and per FCC KDB Publication number 558074v03r05 for Digital Transmission Systems Operating Under section 15.247.

A list of EUT and Peripherals is found in Table 1 below. A block diagram of the tested system is shown in Figure 1. Test configuration photographs are provided in separate Appendices.

1.5 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA 30004. This site has been fully described and registered with the FCC. Its designation number is 186022. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 9900A-1.

1.6 Related Submittals

1.6.1 The EUT is subject to the following FCC authorizations:

- a) Certification under section 15.247 as a transmitter.
- b) Certification under section 15.407 as a transmitter

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1.6.2 Verification of the Digital Apparatus

The EUT is radio module. This report covers the certification requirements for the radio module. When installed within a host device, the host device with radio module will be subject to verification testing to meet the requirements of 15.107 and 15.109.

 Table 1. EUT and Peripherals

PERIPHERAL MANUFACTURER.	MODEL NUMBER	SERIAL NUMBER	FCC/IC ID:	CABLES P/D
Acuity Brands Technology Services, Inc.	ACWIFI001	Engineering Sample	2ADCB-ACWIFI001 6715A-ACWIFI001	N/A
Antenna See antenna details				

U= Unshielded S= Shielded P= Power D= Data

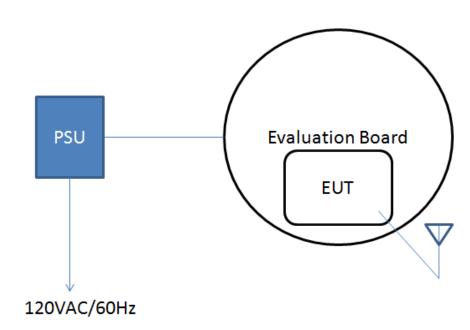


Figure 1. Block Diagram of Test Configuration

2 Tests and Measurements

2.1 Test Equipment

The table below lists test equipment used to evaluate this product. Model numbers, serial numbers, and calibration status at the time of testing are indicated.

Table	2.	Test	Instr	uments
Iabic	~ .	1030	11130	unicitio

TEST INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	CALIBRATION DUE DATE
SPECTRUM ANALYZER	8566B	HEWLETT- PACKARD	2410A00109	08/30/16
SPECTRUM ANALYZER	DSA815	RIGOL	DSA180300138	6/30/2017
SPECTRUM ANALYZER	E4407B	Agilent	US41442935	2/11/2017
LOOP ANTENNA	SAS- 200/562	A. H. Systems	142	9/28/2017 2 yr
BICONICAL ANTENNA	3110B	EMCO	9306-1708	11/24/2017 2 yr
LOG PERIODIC ANTENNA	3146	EMCO	9110-3236	11/19/2016 2 yr
LOG PERIODIC ANTENNA	3146	EMCO	9305-3600	10/01/2016 2 yr
HORN ANTENNA	SAS-571	A.H. Systems	605	8/25/2017 2 yr.
HORN ANTENNA	3115	EMCO	9107-3723	10/8/2016 2 yr.
PRE-AMPLIFIER	8449B	HEWLETT- PACKARD	3008A00480	12/01/2016
PRE-AMPLIFIER	8447D	HEWLETT- PACKARD	1937A02980	12/02/2016
LISN x 2	9247-50- TS-50-N	SOLAR ELECTRONICS	955824 and 955825	11/30/2016

Note: The calibration interval of the above test instruments are 12 months unless stated otherwise and all calibrations are traceable to NIST/USA.

2.2 Modifications to EUT Hardware

No modifications were made by US Tech in order to bring the EUT into compliance with FCC Part 15, Subpart C Intentional Radiator Limits for the transmitter portion of the EUT or the Subpart B Unintentional Radiator Limits (Receiver and Digital Device) Requirements.

2.3 Number of Measurements for Intentional Radiators (15.31(m))

Measurements of intentional radiators or receivers shall be performed and reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in Table 3 below.

Frequency Range over which the device operates	Number of Frequencies	Location in the Range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near the top 1 near the bottom
Greater than 10 MHz	3	1 near top 1 near middle 1 near bottom

Table 3. Number of Test Frequencies for Intentional Radiators

Because the EUT operates at 2412 MHz to 2462 MHz, 3 test frequencies were used.

2.4 Frequency Range of Radiated Measurements (Part 15.33)

2.4.1 Intentional Radiator

The spectrum was investigated for the intentional radiator from the lowest RF signal generated in the EUT, without going below 9 kHz to the 10th harmonic of the highest fundamental frequency generated or 40 GHz, whichever is the lowest.

2.4.2 Unintentional Radiator

For the digital device, an unintentional radiator, the frequency range tested was 30 MHz to 1000 MHz, or to 5 times the highest internal clock frequency.

2.5 Measurement Detector Function and Bandwidth (PART 15.35)

The radiated and conducted emissions limits shown herein are based on the following:

2.5.1 Detector Function and Associated Bandwidth

On frequencies below 1000 MHz, the limits herein are based upon measurement equipment employing a CISPR Quasi-peak detector function and related measurement bandwidths (i.e. 9 kHz from 150 kHz to 30 MHz and 120 kHz from 30 MHz to 1000 MHz). Alternatively, measurements may be made with equipment employing a peak detector function as long as the same bandwidths specified for the Quasi-peak device are used.

2.5.2 Corresponding Peak and Average Requirements

Above 1000 MHz, radiated limits are based on measuring instrumentation employing an average detector function. When average radiated emissions are specified there is also a corresponding Peak requirement, as measured using a peak detector, of 20 dB greater than the average limit. For all measurements above 1000 MHz the Resolution Bandwidth shall be at least 1 MHz.

2.5.3 Pulsed Transmitter Averaging

When the radiated emissions limit is expressed as an average value, and the transmitter is pulsed, the measured field strength shall be determined by applying a Duty Cycle Correction Factor based upon dividing the total ON time during the first 100 ms period by 100 ms (or by the period if less than 100 ms). The duty cycle may be expressed logarithmically in dB.

In this case the transmitter is assumed to have a duty cycle for near 100% (>98%) on. The different modes were varied below. The EUT was programmed and tested with this duty cycle setting.

2.6 Duty Cycle Verification

🔆 Agi	lent :	12:54:5	4 Nov	30,20	16						File
Ref Ø Peak		ep Ti	Atten	10 dB							Create Dir+
Log 10		ep n 0 ms									
dB/											
W1 S2											
S3 FS AA											
											Format⊦
Center Res Bk	2.412 3 MHz	GHz z		V	ВМ З М	Hz	Swee	ep 100	Spa ms (40	n 0 Hz 1 pts)	More 2 of 2

Figure 2. 802.11 b, 1 Mbps Duty Cycle

🔆 Agi	lent 1	.2:56:4:	1 Nov	30,201	16					Sweep
Ref Ø Peak		T :	Atten	10 dB						Sweep Time
Log 10		ep Ti 0 ms								100.0 ms
dB/										Sweep Single Cont
										Auto Sweep
										Coupling SR <u>SA</u>
W1 S2										
S3 FS AA										
										Points
										401
Center Res BW				VI	L BW 3 MI	l	Swee	p 100	n 0 Hz 1 pts)	Segmented.
										p

Figure 3. 802.11b, 22 Mbps Duty Cycle

🔆 Agil	lent 1	.2:58:20	6 Nov	30,201	16						BI	√Avg
Ref 0 o	dBm		Atten	10 dB								Res BW
⊃eak Log L0	RBW	aaaa	IAAA	MH ə				www	b		3.000	100000 MHz
₩B/	1949 (AC.44	*05**4/₩	Wey Car	onen en	an a	n na munufi	ymylwwy.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	NHW WAL	1,1 ⁰ 1,1 ⁰ 1,1	3.000 <u>Auto</u>	4 Video B 100000 MH Mai
											<u>Auto</u>	VBW/RB4 1.00000 Mar
											0n	Average 100 <u>Off</u>
11 S2 53 FS AA											<u>Auto</u>	Avg Type Video Mar
											EÌ	1I Res BW None
	2.412 3 MHz			VI	BW 3 MI	Hz	Sr	veep 4		n 0 Hz 1 pts)		

Figure 4. 802.11g, 6 Mbps Duty Cycle

Agilent 12:59:01 Nov 3	30,2016		Sweep
f0dBm Atten: ^{ak} Sweep Time	LØ dB		Sweep Time 100.0 ms
	tertertertertertertertertertertertertert	no har	Sweer Single Con
			Auto Sweep Coupling SR <u>SF</u>
\$2			
AA			
			Points 401
nter 2.412 GHz s BW 3 MHz	VBW 3 MHz	Span 0 Hz Sweep 100 ms (401 pts)	Segmented

Figure 5. 802.11g, 72 Mbps Duty Cycle

🔆 Agi	lent	13:01:2	2 Nov	30,203	16						Sv	/eep
Ref Ø Peak Log	Swe	ep T	ime	10 dB							Sw	eep Time 100.0 ms
10 dB/	15000	260 fff9	an a	#*********	an an the second second	n de la compañsión de la c	an the structure of the state o	wy William And			<u>Single</u>	Sweer Con
												o Sweep Coupling Sf
												<u>vi</u>
W1 S2 S3 FS												
AA												Points
									Ĺ		6	401
Center Res BW				V	BW 3 M	Hz	Swee	ep 100	Spa ms (40	n 0 Hz 1 pts)	26	gmented

Figure 6. 802.11n, MCS0 Duty Cycle

Ref0dBm Atten 10dB	
	weep Time 100.0 ms
10 dB/	Sweep Cont
AL SR	uto Sweep Coupling SA
	<u></u>
W1 S2 S3 FS AA	
	Points 401
Center 2.412 GHz Span 0 Hz Span 0 Hz Res BW 3 MHz Sweep 100 ms (401 pts)	egmented⊦

Figure 7. 802.11n, MCS7 Duty Cycle

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2.7 EUT Antenna Requirements (PART 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. Only the antenna(s) listed in Table 4 will be used with this module.

Table 4. Allowed Antenna(s)

REPORT REFERENCE	MANUFACTURER	TYPE OF ANTENNA	MODEL		TYPE OF CONNECTOR
Antenna 1	Laird	Flex trace	MAF95310 Mini NanoBlade	2.8	u.fl
Antenna 2	Laird	Omni	DCF5151C- FNM	1.0	N-type to u.fl

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2.8 Maximum Peak Conducted Output Power (PART 15.247 (b) (3))

For this test, the transmitter was programmed to operate at a maximum output power across the bandwidth.

Peak power within the band 2.4 GHz to 2.4835 GHz was measured per FCC KDB Publication 558074 and ANSI C63.10 section 11.9.1.2 as an Antenna Conducted test with a spectrum analyzer by connecting the spectrum analyzer directly, via a short RF cable, and attenuators to the antenna output terminals on the EUT. The spectrum analyzer was set for an impedance of 50 Ω with the RBW set greater than the 6 dB bandwidth of the EUT, and the VBW ≥ RBW. Peak antenna conducted output power is tabulated in the tables below.

 Table 5. 802.11b Peak Antenna Conducted Output Power per Part 15.247 (b) (3)

Frequency of Fundamental (MHz)	Raw Test Data (dBm)	Converted Data (mW)	FCC Limit (mW)
2412	14.63	29.0	1000
2442	15.54	35.8	1000
2462	15.42	34.8	1000

Table 6. 802.11g Peak Antenna Conducted Output Power per Part 15.247 (b) (3)

Frequency of Fundamental (MHz)	Raw Test Data (dBm)	Converted Data (mW)	FCC Limit (mW)	
2412	14.80	30.2	1000	
2442	17.01	50.2	1000	
2462	15.13	32.5	1000	

Table 7. 802.11n Peak Antenna Conducted Output Power per Part 15.247 (b) (3)

Frequency of Fundamental (MHz)	Raw Test Data (dBm)	Converted Data (mW)	FCC Limit (mW)
2412	12.54	17.9	1000
2442	15.47	35.2	1000
2462	12.34	17.1	1000

Table 8. 802.11n 40 MHz BW Peak Antenna Conducted Output Power per Part 15.247 (b) (3)

Frequency of Fundamental (MHz)	Raw Test Data (dBm)	Converted Data (mW)	FCC Limit (mW)	
2422	13.33	21.5	1000	
2437	17.21	52.5	1000	
2452	10.51	11.2	1000	

Test Date: December 1, 2016 Tested By Signature:

Name: George Yang

US Tech Test Report: FCC Part 18 FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	5 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
Agilent 11:52:41 Dec 1, 2016	Trace/View
Ch Freq 2.412 GHz Trig Free Channel Power	ee Trace <u>1</u> 2 3
Center 2.412000000 GHz Ref 20 dBm #Atten 30 dB Ext PG -8 dB	Clear Write
#Peak Log 10	Max Hold
dB/	Min Hold

Figure 8. Peak Antenna Conducted Output Power 802.11b Low Channel

₩VBW 3 MHz

Span 19.95 MHz Sweep 4 ms (401 pts)

Power Spectral Density

-56.61 dBm/Hz

Center 2.412 GHz #Res BW 1 MHz

Channel Power

14.63 dBm /13.3000 MHz

View

Blank

More 1 of 2

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:		2	rtification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
★ Agilent 11:54:33 Dec 1, 20:	16	1	Freq/Channel
Ch Freq 2.442 GHz Channel Power Center 2.442000000 C	iHz	Trig Free	Center Freq 2.44200000 GHz
	: Ext PG –8 dB		Start Freq 2.43191250 GHz
#Peak Log 10			Stop Freq 2.45208750 GHz
			CF Step 2.01750000 MHz <u>Auto</u> Man
Center 2.442 GHz #Res BW 1 MHz #	VBW 3 MHz Swee	Span 20.18 MHz ep 4 ms (401 pts)	FreqOffset 0.00000000 Hz
Channel Power	Power Sp	pectral Density	Signal Track On <u>Off</u>
15.54 dBm /13.4500	MHz -55.	74 dBm/Hz	Scale Type Log <u>Lin</u>

Figure 9. Peak Antenna Conducted Output Power 802.11b Mid Channel

FCC ID: IC:	port Numb ate:							I	FCC F	Part 15 Co	ertification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
🔆 Agil	ent 12:	00:5	7 Dec	1,201	.6						Freq/Channel
Channel Cent	Ch Fr ^{Power} er 2.4			2 GHz 00 G	Hz				Tri	g Free	Center Freq 2.46200000 GHz Start Freq
Ref 20	dBm		#Atten	30 dB	Ext P	G –8 dE	;				2.45188250 GHz
#Peak Log 10											Stop Freq 2.47211750 GHz
dB/											CF Step 2.02350000 MHz <u>Auto</u> Man
	2.462 GH W 1 MHz	lz		#	↓ VBW 3 M	1Hz	SI).23 MHz 01 pts)	FreqOffset 0.00000000 Hz
Chan	nel Pow	er				Р	ower	Spect	ral D	ensity	Signal Track On <u>Off</u>
15.	.42 dB	m ,	/13.4	900	MHz		-5	5.88	dBm	/Hz	Scale Type Log <u>Lin</u>

Figure 10. Peak Antenna Conducted Output Power 802.11b High Channel

FCC ID: IC:	-				F		ertification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
🔆 Agiler	nt 13 : 18	:05 Dec	1,2016				Freq/Channel
Channel F	Ch Fred Power er 2.412					Trig Free	Center Freq 2.41200000 GHz Start Freq
Ref 20 d	dBm	#Atten	30 dB Ext PG	6 –8 dB			2.39807250 GHz
#Peak Log 10						, , ,	Stop Freq 2.42592750 GHz
dB/							CF Step 2.78550000 MHz <u>Auto</u> Man
Center 2 #Res BW	2.412 GHz 1 MHz		#VBW 3 M	Hz		an 27.86 MHz ms (401 pts)	FreqOffset 0.00000000 Hz
Chann	iel Power			Pov	wer Spectr	al Density	Signal Track On <u>Off</u>
14.8	30 dBm	/18.5	700 MHz		-57.89 (dBm/Hz	Scale Type Log <u>Lin</u>

Figure 11. Peak Antenna Conducted Output Power 802.11g Low Channel

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
* Agilent 13:21:17 Dec 1, 2016	Freq/Channel
Ch Freq 2.442 GHz Channel Power Center 2.442000000 GHz	Trig Free Center Freq 2.44200000 GHz Start Freq
Ref 20 dBm	2.42739750 GHz
#Peak Log 10	Stop Freq 2.45660250 GHz
	CF Step 2.92050000 MHz <u>Auto</u> Man
Center 2.442 GHz #Res BW 1 MHz #VBW 3 MHz :	Span 29.2 MHz Freq Offset Sweep 4 ms (401 pts) 0.00000000 Hz
Channel Power Power	Signal Track
17.01 dBm /19.4700 MHz -9	55.89 dBm/Hz Log Lin

Figure 12. Peak Antenna Conducted Output Power 802.11g Mid Channel

FCC ID: IC:						F	FCC Pa		ertification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
🔆 Agila	ent 13:22	:33 Dec 1	,2016						Freq/Channel
Channel	Ch Freq ^{Power} er 2.462						Trig	Free	Center Freq 2.46200000 GHz Start Freq
Ref 20 #Peak [dBm	#Atten 3	0 dB Ext PG	-8 dB					2.44784000 GHz
Log 10					·····	~~~~	-		Stop Freq 2.47616000 GHz
dB/									CF Step 2.83200000 MHz <u>Auto</u> Man
Center #Res Bk	2.462 GHz		#VBW 3 M	Hz	Sw		an 28.3 ms (401		FreqOffset 0.00000000 Hz
Chan	nel Power			P	owers	Spect	ral Der	ısity	Signal Track On <u>Off</u>
15.	13 dBm	/18.88	00 MHz		-57	7.63	dBm/	Hz	Scale Type Log <u>Lin</u>

Figure 13. Peak Antenna Conducted Output Power 802.11g High Channel

US Tech Tes FCC ID: IC: Test Report N Issue Date: Customer: Model:	·				I		ertification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
🔆 Agilent	13:25:3	4 Dec 1	.,2016				Freq/Channel
Channel Powe		2.412 00000				Trig Free	Center Freq 2.41200000 GHz
Ref 20 dBm		#Atten 3	0 dB Ext PG	-8 dB			Start Freq 2.39868750 GHz
#Peak Log 10	Warne	· · · · · · ·			a and the second se		Stop Freq 2.42531250 GHz
dB/							CF Step 2.66250000 MHz <u>Auto</u> Man
Center 2.41 #Res BW 1 M			#VBW 3 M	Hz		an 26.62 MHz ms (401 pts)	FreqOffset 0.00000000 Hz
Channel						ral Density	Signal Track On <u>Off</u>
12.54	dBm /	/17.75	500 MHz		-59.95	dBm/Hz	Scale Type Log <u>Lin</u>

Figure 14. Peak Antenna Conducted Output Power 802.11n Low Channel

US Tech Test Report: FCC Par FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	t 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
* Agilent 13:27:22 Dec 1, 2016	Freq/Channel
Ch Freq 2.442 GHz Trig Channel Power	2.44200000 GHz
Ref 20 dBm #Atten 30 dB Ext PG -8 dB #Peak	2.42835750 GHz Stop Freq 2.45564250 GHz
	CF Step 2.72850000 MHz <u>Auto</u> Man
Center 2.442 GHz Span 27.25 #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401	
Channel Power Power Spectral Den	sity On Off
15.47 dBm /18.1900 MHz -57.13 dBm/H	Hz Scale Type

Figure 15. Peak Antenna Conducted Output Power 802.11n Mid Channel

FCC ID: IC:	port Number: ate:						ertification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
🔆 Agi	l ent 13:29:1	4 Dec 1, 2	2016				Freq/Channel
Channel Cent	Ch Freq Power er 2.462	2.462 GF 000000				Trig Free	Center Freq 2.46200000 GHz Start Freq
Ref 20	dBm	#Atten 30	dB Ext PG	-8 dB			2.44865750 GHz
#Peak Log 10	- Arm					×~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Stop Freq 2.47534250 GHz
dB/							CF Step 2.66850000 MHz <u>Auto</u> Man
	2.462 GHz W 1 MHz		#VBW 3 MI	Hz		pan 26.68 MHz ms (401 pts)	FreqOffset 0.00000000 Hz
Chan	inel Power			Po	wer Spect	ral Density	Signal Track On <u>Off</u>
12.	.34 dBm .	/17.790	0 MHz		-60.16	dBm/Hz	Scale Type Log <u>Lin</u>

Figure 16. Peak Antenna Conducted Output Power 802.11n High Channel

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:			ertification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
🔆 Agilent 13:07:54	Dec 1, 2016		Freq/Channel
Ch Freq 2 Channel Power Center 2.42200	2.422 GHz 0000 GHz	Trig Free	Center Freq 2.42200000 GHz Start Freq
#Peak	ten 30 dB Ext PG -8 dB		2.39500000 GHz Stop Freq
Log 10 dB/			2.44900000 GHz CF Step 5.40000000 MHz <u>Auto</u> Man
Center 2.422 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 54 MHz Sweep 4 ms (401 pts)	FreqOffset 0.00000000 Hz
Channel Power	Po	ower Spectral Density	Signal Track On <u>Off</u>
13.33 dBm /3	6.0000 MHz	-62.23 dBm/Hz	Scale Type Log <u>Lin</u>

Figure 17. Peak Antenna Conducted Output Power 802.11n (40MHz) Low Channel

US Tech Test Report: FCC Part FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
* Agilent 13:11:41 Dec 1, 2016	Freq/Channel
Ch Freq 2.437 GHz Trig F Channel Power Center 2.437000000 GHz	2.43700000 GHz
Ref 20 dBm #Atten 30 dB Ext PG — 8 dB	Start Freq 2.40990250 GHz
#Peak	Stop Freq 2.46409750 GHz
	CF Step 5.41950000 MHz <u>Auto</u> Man
Center 2.437 GHz Span 54.2 #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401	
Channel Power Power Spectral Dens	sity On Off
17.21 dBm /36.1300 MHz -58.37 dBm/H	Z Scale Type

Figure 18. Peak Antenna Conducted Output Power 802.11n (40MHz) Mid Channel

US Tech Test Report: FCC Part 15 FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001
* Agilent 13:14:26 Dec 1, 2016	Freq/Channel
Ch Freq 2.452 GHz Trig Free Channel Power Center 2.452000000 GHz	2.45200000 GHz
Ref 20 dBm #Atten 30 dB Ext PG — 8 dB	Start Freq 2.42486500 GHz
#Peak	Stop Freq 2.47913500 GHz
	✓ CF Step 5.42700000 MHz <u>Auto</u> Man
Center 2.452 GHz Span 54.27 MH #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts	
Channel Power Power Spectral Density	Signal Track
10.51 dBm /36.1800 MHz -65.08 dBm/Hz	Scale Type Log <u>Lin</u>

Figure 19. Peak Antenna Conducted Output Power 802.11n (40MHz) High Channel

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

2.8 Power Spectral Density (PART 15.247(e)) (IC RSS 247 5.2(2))

The transmitter was placed into a continuous mode of operation at all applicable frequencies. The measurements were performed per the procedures of FCC KDB Procedure 558074 and ANSI C63.10 section 11.10.2. No duty cycle factor was added since the EUT was operating at >98% duty cycle during this test. The RBW was set to 10 kHz and the Video Bandwidth was set to \geq RBW. The span was set to 1.5 times the OBW.

In accordance with 15.247 (e), the power spectral density shall be no greater than +8 dBm per any 3 kHz band. Since the EUT meets the requirements with a 10 kHz RBW setting the RBW was not reduce beyond 10 kHz.

The following results show that all are less than +8 dBm per 3 kHz band.

 Table 9. 802.11b Power Spectral Density for Low, Mid and High Bands

Frequency (MHz)	Raw Test Data (dBm/10 kHz)	FCC Limit (dBm/3 kHz)	Margin (dB)	
2412	-8.99	8.0	16.99	
2442	-8.27	8.0	16.27	
2462	-8.73	8.0	16.73	

Table 10. 802.11g Power Spectral Density for Low, Mid and High Bands

Frequency (MHz)	Raw Test Data (dBm/10 kHz)	Margin (dB)		
2412	-5.62	8.0	13.62	
2442	-3.66	8.0	11.66	
2462	-5.45	8.0	13.45	

Table 11. 802.11n Power Spectral Density for Low, Mid and High Bands

Frequency (MHz)	Raw Test Data (dBm/10 kHz)	FCC Limit (dBm/3 kHz)	Margin (dB)	
2412	-12.50	8.0	20.50	
2442	-9.19	8.0	17.19	
2462	-13.24	8.0	21.24	

Table 12. 802.11 40 MHz BW Power Spectral Density for Low, Mid and High Bands

Frequecy (MHz)	Test Data (dBm/10 kHz)	Limit (dBm/kHz)	Margin (dB)	
2422	-15.18	8.0	23.18	
2437	-12.38	8.0	20.38	
2452	-18.33	8.0	26.33	

Test Date: December 1, 2016 Tested By Signature:

Name: George Yang

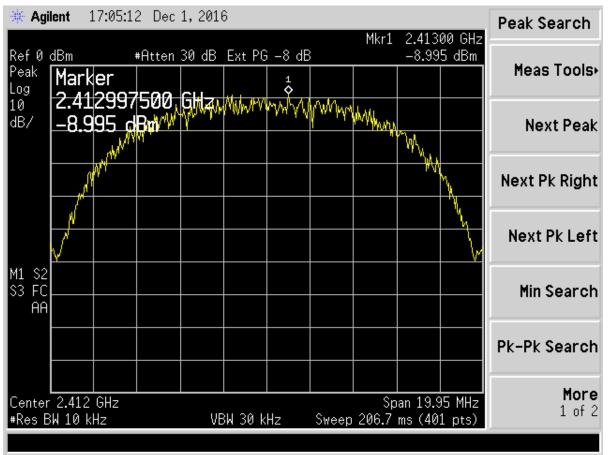


Figure 20. Peak Power Spectral Density 802.11b Low Channel

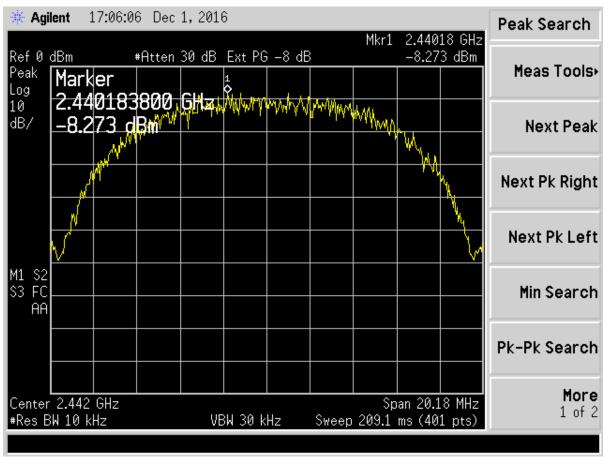


Figure 21. Peak Power Spectral Density 802.11b Mid Channel

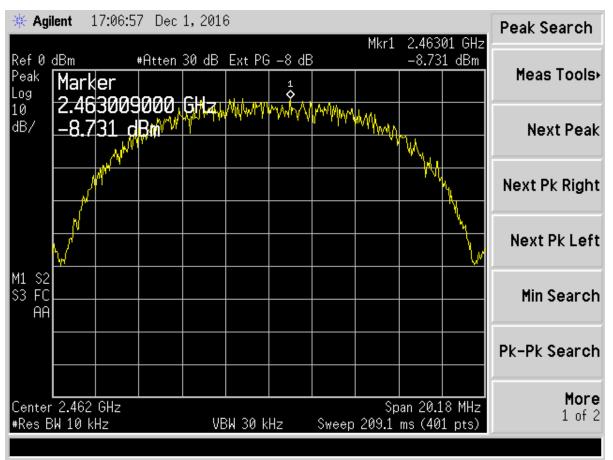


Figure 22. Peak Power Spectral Density 802.11b High Channel

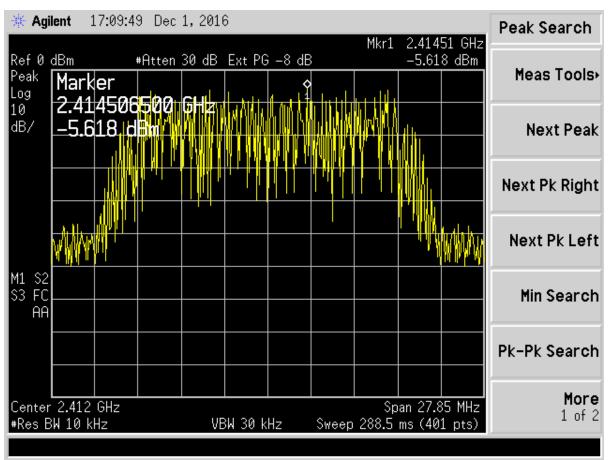


Figure 23. Peak Power Spectral Density 802.11g Low Channel

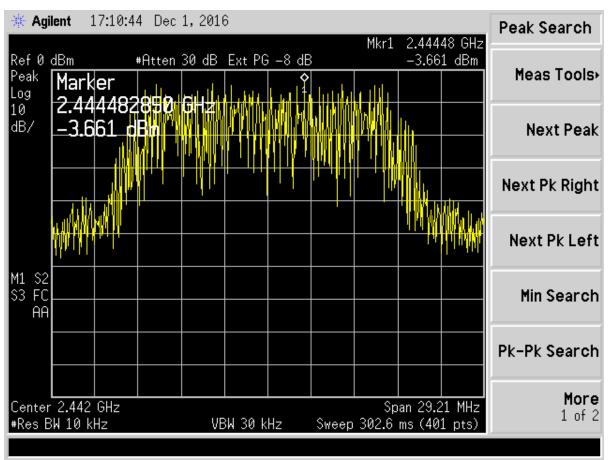


Figure 24. Peak Power Spectral Density 802.11g Mid Channel

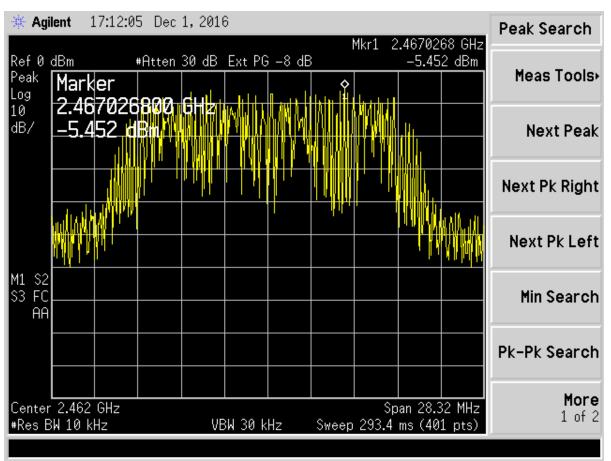


Figure 25. Peak Power Spectral Density 802.11g High Channel

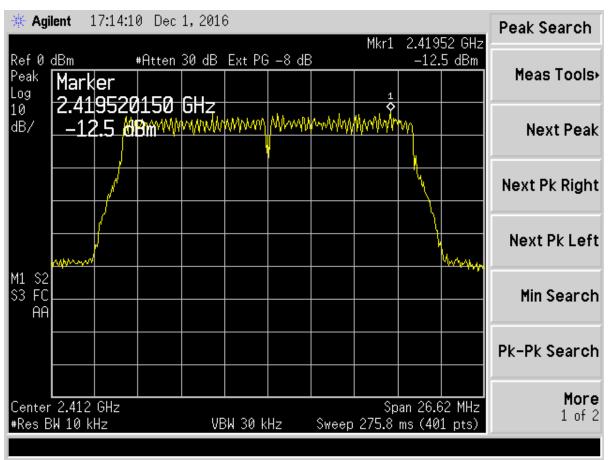


Figure 26. Peak Power Spectral Density 802.11n Low Channel

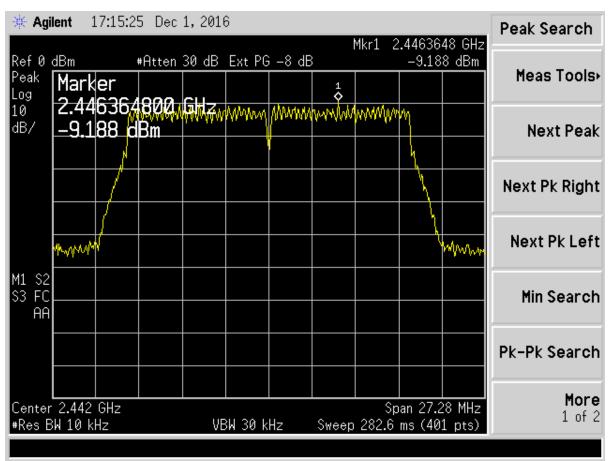


Figure 27. Peak Power Spectral Density 802.11n Mid Channel

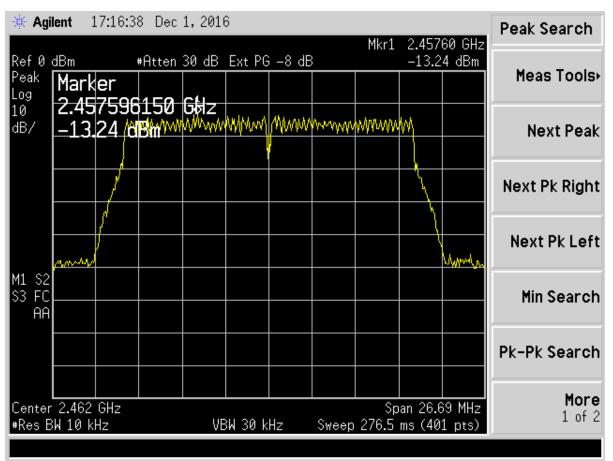


Figure 28. Peak Power Spectral Density 802.11n High Channel

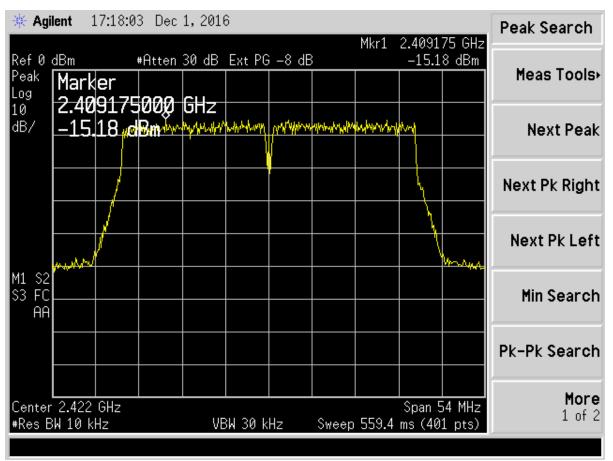


Figure 29. Peak Power Spectral Density 802.11n (40MHz) Low Channel

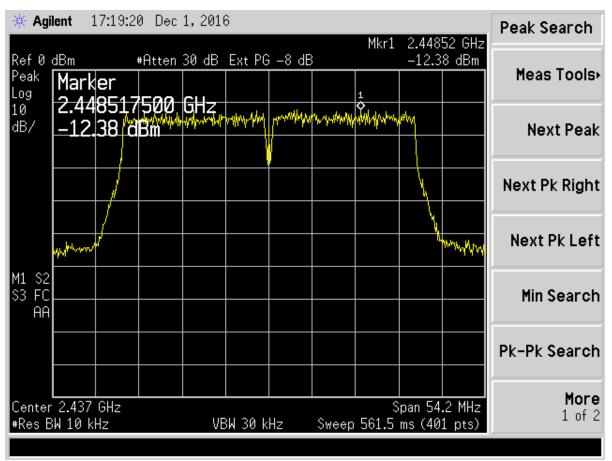


Figure 30. Peak Power Spectral Density 802.11n (40MHz) Mid Channel

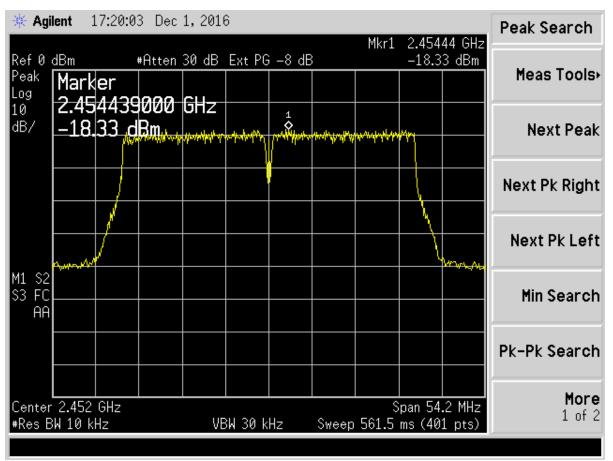


Figure 31. Peak Power Spectral Density 802.11n (40MHz) High Channel

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

2.8 Intentional Radiator, Power Line Conducted Emissions (PART 15.207)

The EUT is designed to operate with an input voltage of 3.3 VDC. An evaluation board was used during testing and it supplied the necessary 3.3 VDC voltage to the EUT. The EUT is considered to be indirectly connected to the AC mains during normal operation. Power line conducted emissions testing was performed to ensure that with the EUT in operation (exercising all transmitter functions), the complete system continues to meet the applicable requirements for PART 15.207. These measurements were completed and are displayed below.

150 KHz to 30 MHz							
Test: Power Line Conducted Emissions Client: Acuity Brands Technology Services, Inc. Services, Inc.							
	Project	: 16-0139		N	lodel: ACWIFI00	D1	
Frequency (MHz)	Test Data (dBuv)	LISN+CL-PA (dB)	Results (dBuV)	AVG Limits (dBuV)	Detector PK, QP, or AVG		
			Positive lead				
0.1675	60.70	0.50	61.20	65.1*	3.9	QP	
0.1675	32.87	0.50	33.37	55.1	21.7	AVG	
0.6075	32.60	0.32	32.92	46.0	13.1	PK	
4.9466	39.62	0.40	40.02	46.0	6.0	PK	
6.6660	47.67	0.43	48.10	50.0	1.9	QP	
10.3833	40.12	0.54	40.66	50.0	9.3	QP	
24.9160	29.87	0.90	30.77	50.0	19.2	PK	
			Negative lead				
0.1517	59.66	0.42	60.08	65.9*	5.8	QP	
0.1517	31.00	0.42	31.42	55.9	24.5	AVG	
0.6666	35.86	0.15	36.01	46.0	10.0	PK	
4.9533	36.03	0.28	36.31	46.0	9.7	QP	
6.6250	47.71	0.31	48.02	50.0	2.0	QP	
10.0000	43.51	0.40	43.91	50.0	6.1	PK	
26.0833	32.69	0.73	33.42	50.0	16.6	PK	

Table 13. Power Line Conducted Emissions Test Data, Part 15.207

(*)= Quasi Peak limit applied.

SAMPLE CALCULATION at 0.1628 MHz:

Magnitude of Measured Frequency	39.40	dBuV
<u>+ Cable Loss+ LISN Loss</u>	0.49	dB
=Corrected Result	39.89	dBuV
Limit	55.30	dBuV
-Corrected Result	39.89	dBuV
Margin	15.40	dB

Test Date: November 30, 2016

1 Tested By Signature:

Nam

Name: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

2.9 Restricted Bands of Operation (Part 15.205)

Only spurious emissions can fall in the frequency bands of PART 15.205. The field strength of these spurious cannot exceed the limits of 15.209. Radiated harmonics and other Spurious are examined for this requirement. See test data herein.

2.10 Intentional Radiator, Spurious Emissions (PART 15.209, 15.247(d)) (IC RSS 247, 5.4)

2.10.1 Conducted Spurious Emissions

The EUT was put into a continuous-transmit mode of operation (>98% duty cycle) and tested per FCC KDB Publication 558074 D01 v03r05 for conducted out of band emissions emanating from the antenna port over the frequency range of 30 MHz to 25 GHz. A conducted scan was performed on the EUT to identify and record spurious signals that were related to the transmitter. The conducted spurious emissions were measured at the antenna port of the EUT.

Note 1: The results below are compared to Peak limits.

Note 2: For emissions levels below 1000 MHz, the restricted band limits were applied to show worst case

★ Agilent 12:54:16 Aug 5, 2016	Peak Search
Mkr1 620.8 MHz Ref 20 dBm #Atten 10 dB Ext PG -20 dB -43.88 dBm Peak Log	
10 dB/	Next Peak
	Next Pk Right
620.793201 MHz -43.88 dBm	Next Pk Left
M1 S2 S3 FC AA	Min Search
	Pk-Pk Search
Start 30 MHz Stop 1 GHz #Res BW 120 kHz VBW 300 kHz Sweep 155.1 ms (707 pts)	

Figure 32. Antenna Conducted Emissions 802.11b Low, Part 1

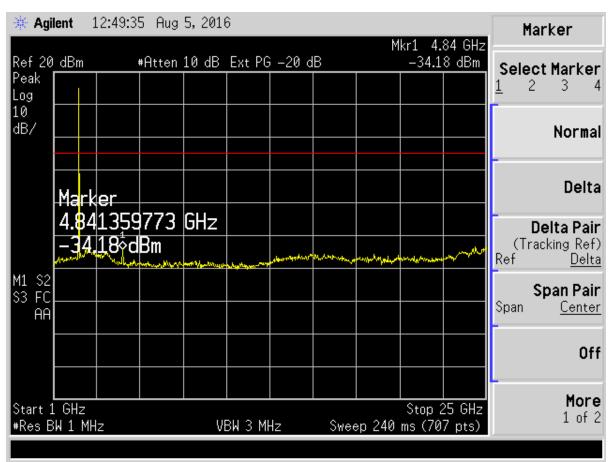


Figure 33. Antenna Conducted Emissions 802.11b Low, Part 2

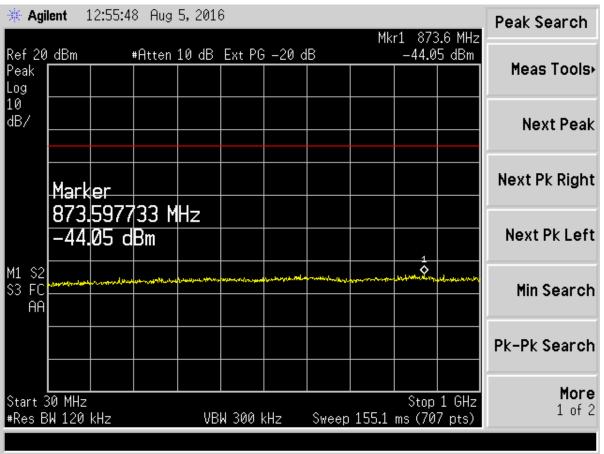


Figure 34. Antenna Conducted Emissions 802.11b Mid, Part 1

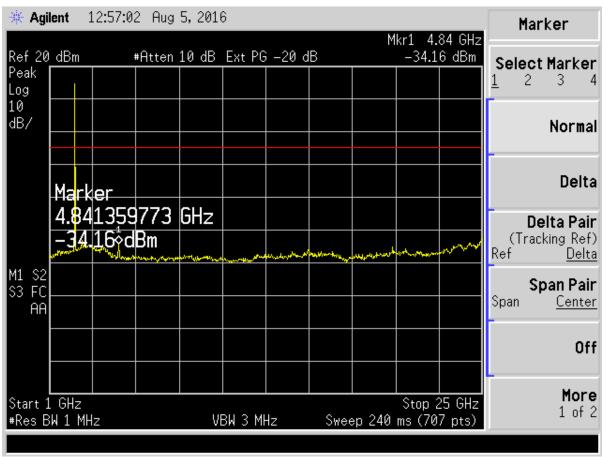


Figure 35. Antenna Conducted Emissions 802.11b Mid, Part 2

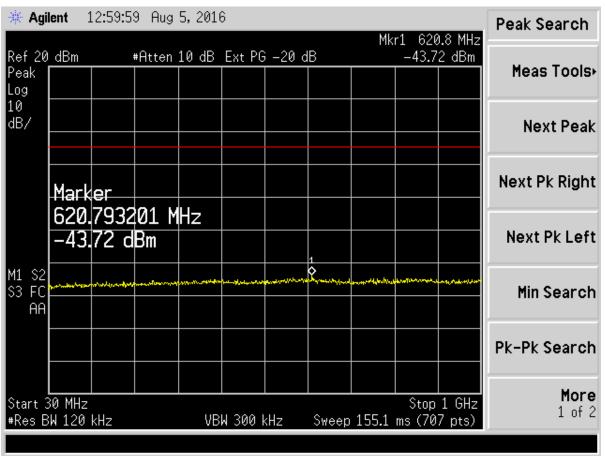


Figure 36. Antenna Conducted Emissions 802.11b High, Part 1

US Tech Test Report: FCC Part 15 Certification/ RSS 247 FCC ID: 2ADCB-ACWIFI001 6715A-ACWIFI001 IC: Test Report Number: 16-0139 Issue Date: August 26, 2016 Customer: **Acuity Brands** ACWIFI001 Model: 🔆 Agilent 12:59:14 Aug 5, 2016 Trace/View Mkr1 4.84 GHz -34.54 dBm Ref 20 dBm #Atten 10 dB Ext PG -20 dB Trace Peak 2 1 Log 10 dB/ **Clear Write** Max Hold Marker 841359773 GHz 4 -34.54∳dBm Min Hold M1 S2 S3 FC View ÂÂ Blank

Figure 37. Antenna Conducted Emissions 802.11b High, Part 2

VBW 3 MHz

Start 1 GHz

#Res BW 1 MHz

More

1 of 2

Stop 25 GHz

Sweep 240 ms (707 pts)

🔆 Agil	lent 1	13:01:5	6 Aug	5,201	6						Peak Search
D.(00	-ID			10 10		• <u> </u>	D	Mki		'.1 MHz	
Ref 20 Peak Log			#Htten	10 dB		-20 a	D		-44.0	7 dBm	Meas Tools•
10 dB/											Next Peak
	Mark		241								Next Pk Right
		0538 07 d		1HZ							Next Pk Left
M1 S2 S3 FC AA	and a second	*****				and the second	Therefore the second	and a stand of the	rulig-mer-ender,	under the m	Min Search
											Pk-Pk Search
Start 3 #Res B				VB	 W 300	kHz	Sweep	155.1		1 GHz 7 pts)	More 1 of 2

Figure 38. Antenna Conducted Emissions 802.11g Low, Part 1

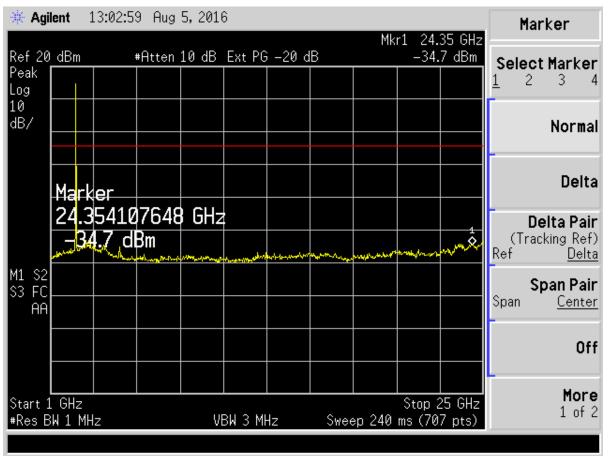


Figure 39. Antenna Conducted Emissions 802.11g Low, Part 2

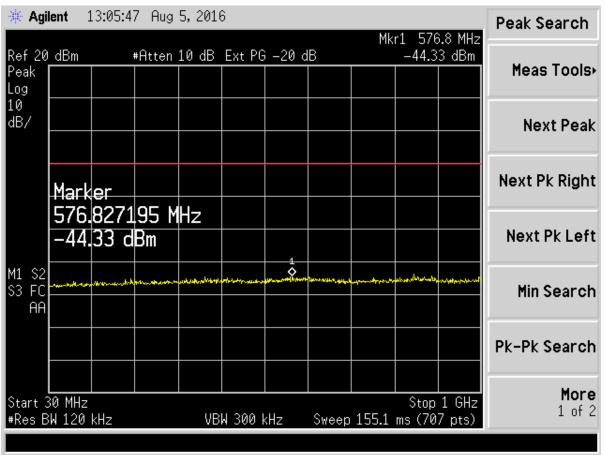


Figure 40. Antenna Conducted Emissions 802.11g Mid, Part 1

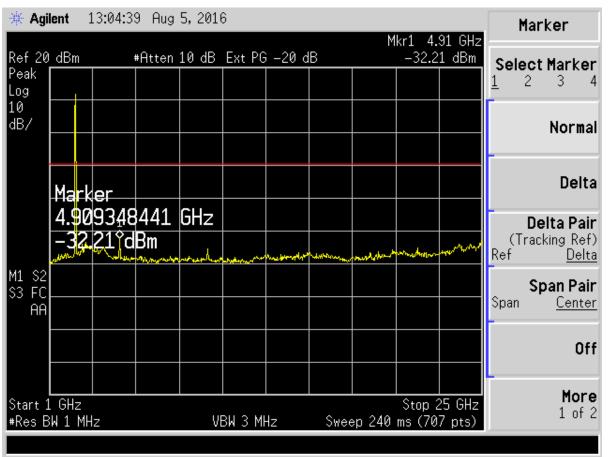


Figure 41. Antenna Conducted Emissions 802.11g Mid, Part 2

Agilent 13:06:50 Aug 5, 2016										Peak Search	
Mkr1 831.0 MHz Ref 20 dBm #Atten 10 dB Ext PG — 20 dB — 44.22 dBm											
Ref 20 Peak Log	dBm		#Htten		Ext PG	-20 d	В		-44.2	2 dBm	Meas Tools•
10 dB/											Next Peak
	Mark										Next Pk Right
		0056 22 d		1Hz					1		Next Pk Left
M1 S2 S3 FC AA	and the second second	h-yeedfarthyteed h	المحاجريات موعودات. ا	a sana ana ang sana a	an Angada An	n taran matura da ka	∿behapti∿awîh¦tanîkanî	estaden Nevel	Ś	la _{na da} n dapanta	Min Search
											Pk-Pk Search
Start 3 #Res B		kHz		VB	W 300 I	kHz	Sweep	155.1		1 GHz 7 pts)	More 1 of 2

Figure 42. Antenna Conducted Emissions 802.11g High, Part 1

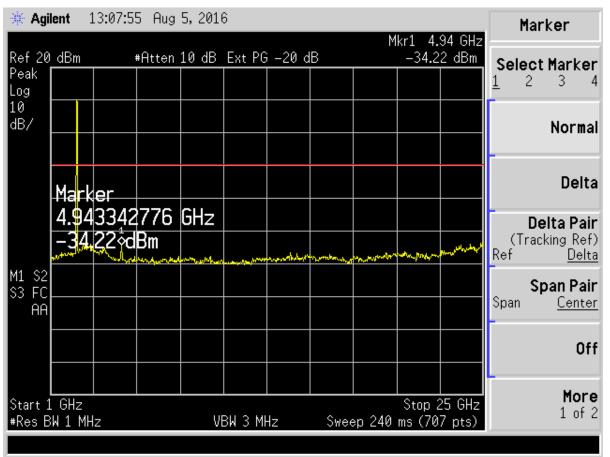


Figure 43. Antenna Conducted Emissions 802.11g High, Part 2

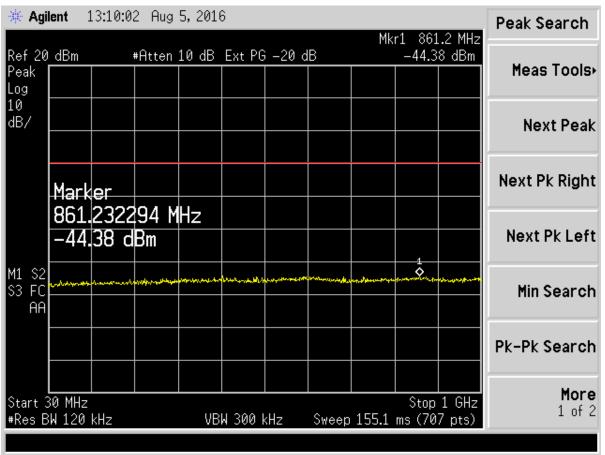


Figure 44. Antenna Conducted Emissions 802.11n Low, Part 1

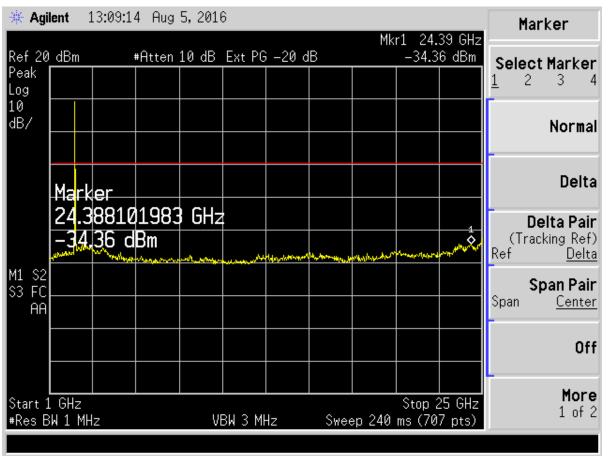


Figure 45. Antenna Conducted Emissions 802.11n Low, Part 2

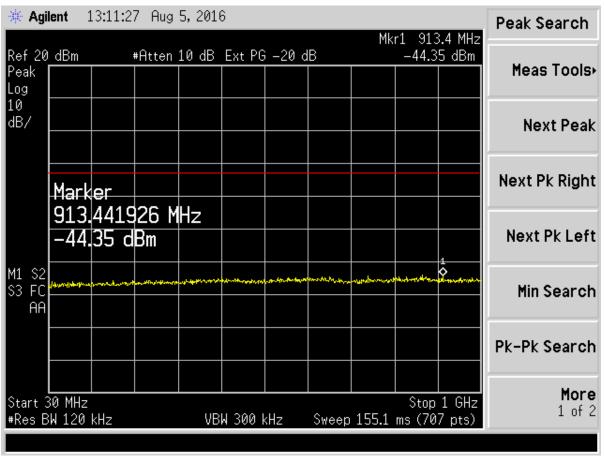


Figure 46. Antenna Conducted Emissions 802.11n Mid, Part 1

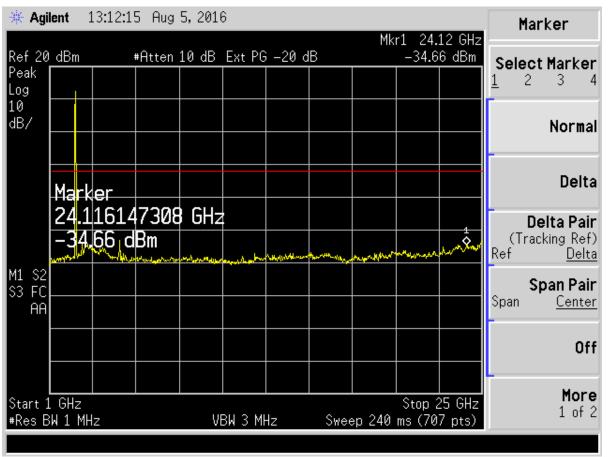


Figure 47. Antenna Conducted Emissions 802.11n Mid, Part 2

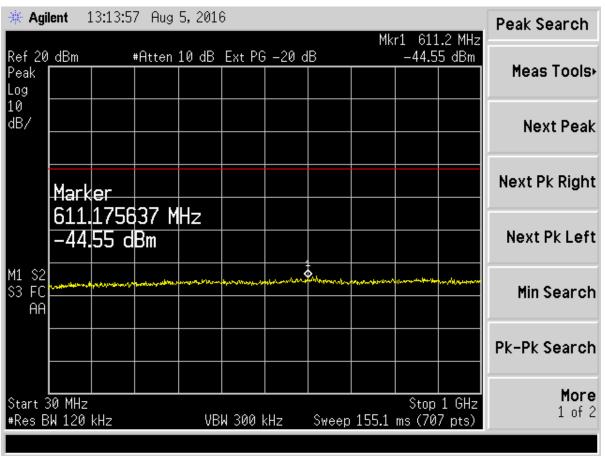


Figure 48. Antenna Conducted Emissions 802.11n High, Part 1

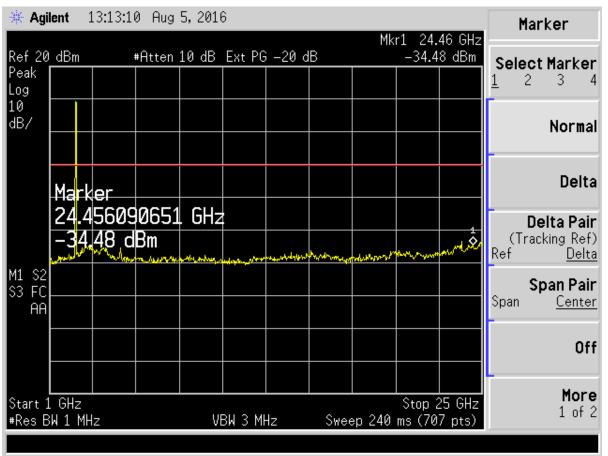


Figure 49. Antenna Conducted Emissions 802.11n High, Part 2

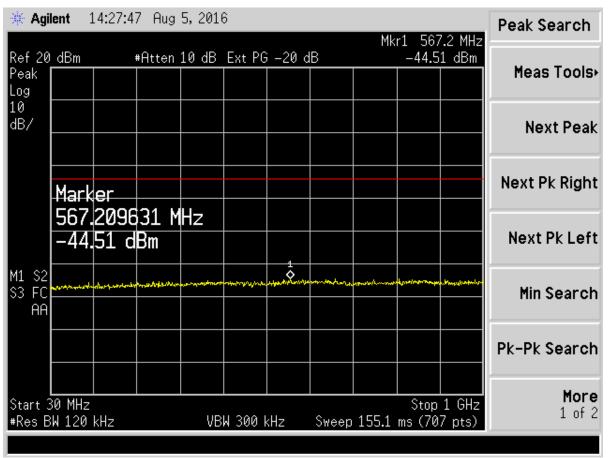


Figure 50. Antenna Conducted Emissions 802.11n, 40MHz Low, Part 1

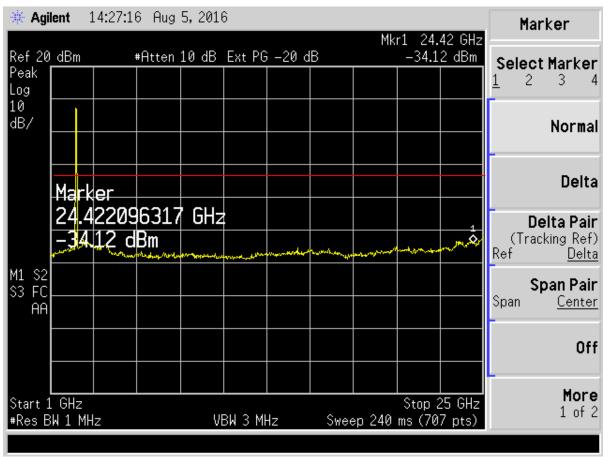


Figure 51. Antenna Conducted Emissions 802.11n, 40 MHz Low, Part 2

🔆 Agil	lent 1	L4:36:0	4 Aug	5,201	6						Peak Search
			<u> </u>				_	Mk		3.3 MHz	
Ref 20	dBm	:	#Atten	10 dB	Ext PG	i -20 d	В		-43.7	1 dBm	Meas Tools⊦
Peak Log											neas roois
10											
dB/											Next Peak
											nonti vak
	Maul										Next Pk Right
	Mark	1									
	593.	3144	47 M	Hz							
	-43.	71 d	Bm								Next Pk Left
						1					
M1 S2		Aurona	and the second starting th	-	manut		the martin		uninter terrestance	antender alle the	Him Consult
S3 FC AA											Min Search
											Pk-Pk Search
											TK TK Jearon
Start 3	30 MHz								Stop	1 GHz	More
#Res B		kHz		VB	W 300 H	<hz< td=""><td>Sweep</td><td>155.1</td><td></td><td></td><td>1 of 2</td></hz<>	Sweep	155.1			1 of 2

Figure 52. Antenna Conducted Emissions 802.11n, 40 MHz Mid, Part 1

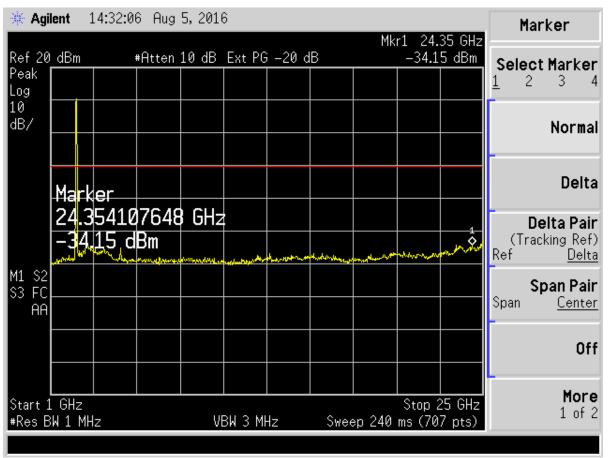


Figure 53. Antenna Conducted Emissions 802.11n, 40 MHz Mid, Part 2

🔆 Agi	lent 1	L 4: 29:0	2 Au	g 5,	2016	6						Peak Search
D (AA	. 15		~					ID.	Mki		.8 MHz	
Ref 20 Peak Log			#Htte	n 10	1 dB	Ext PG) –20 c	IR IR		-44.4	7 dBm	Meas Tools∙
10 dB/												Next Peak
	Mark		00									Next Pk Right
		8101 47 d		MH	Z		1					Next Pk Left
M1 S2 S3 FC AA	And a second state of the	****	h.,hantahi		anga da shakka a				, gyg / wy - o do f y gyw		^م والفر مالهمها (یا و خمیره،	Min Search
												Pk-Pk Search
	L 30 MHz 3W 120				VB	W 300	kHz	Sweep	155.1		1 GHz 7 pts)	More 1 of 2

Figure 54. Antenna Conducted Emissions 802.11n, 40 MHz High, Part 1

US Tech Test Report: FCC Part 15 Certification/ RSS 247 FCC ID: 2ADCB-ACWIFI001 6715A-ACWIFI001 IC: Test Report Number: 16-0139 Issue Date: August 26, 2016 Customer: **Acuity Brands** ACWIFI001 Model: 14:29:46 Aug 5, 2016 🔆 Agilent Marker Mkr1 24.22 GHz -34.91 dBm Ref 20 dBm #Atten 10 dB Ext PG -20 dB Select Marker Peak 2 3 1 Log 10 dB/ Normal Delta Marker 24.218130311 GHz Delta Pair ***** 491 dBm (Tracking Ref) Ref <u>Delta</u> M1 S2 S3 FC Span Pair Span <u>Center</u> ÂÂ Off

4

More

1 of 2

Stop 25 GHz

Sweep 240 ms (707 pts)

Figure 55. Antenna Conducted Emissions 802.11n, 40 MHz High, Part 2

VBW 3 MHz

Start 1 GHz

#Res BW 1 MHz

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

2.10.2 Radiated Spurious Emissions (PART 15.209, 15.247)

The EUT was placed into a continuous transmit mode of operation (>98% duty cycle) and tested per FCC KDB Publication 558074 D01 v03r05 and ANSI C63.10:2013. A preliminary scan was performed on the EUT to find signal frequencies that were caused by the transmitter part of the device. To obtain worse case results the EUT was tested in X, Y, and Z axes or in the orientation of normal operation if the device is designed to operation in a fixed position.

Radiated measurements were then conducted between the frequency range of 9kHz (or lowest frequency used/generated by the device) up to the tenth harmonic of the device (no greater than 40 GHz). In the band below 30 MHz a resolution bandwidth (RBW) of 9 kHz was used, emissions below 1 GHz were tested with a RBW of 120 KHz and emissions above 1 GHz were tested with a RBW of 1 MHz. All video bandwidth settings were at least three times the RBW value.

The EUT was investigated to PART 15.209, General requirements for unwanted spurious emissions to address the concerns of unwanted emissions that may radiate from the EUT cabinet, control circuits, or power leads. The results for this test can be found in the sections below.

Table 14. Intentional Radiator, Spurious Radiated Emissions (PART 15.209), 9 kHz to 1000 MHz

9 kHz to 30 MHz									
Test: Radiated Emissions Client: Acuity Brands									
	Projec	:t: 16-0139	Model: ACWIFI001						
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	QP Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or QP		
All emissions found were greater than 20dB from the limit.									

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 15. Intentional Radiator, Spurious Radiated Emissions (PART 15.209), 30 MHz to 1000 MHz

30 MHz to 1000 MHz									
	Test: Radi	ated Emissions		Client: Acuity Brands					
	Projec	:t: 16-0139			Model: AC\	VIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	QPAntennaMarginDetectLimitsDistance/(dB)PK,(dBuV/m)PolarizationQF					
30.00	40.86	-13.82	27.04	40.0	3m./VERT	13.0	QP		
48.28	49.61	-16.61	33.00	40.0	3m./VERT	7.0	PK		
191.93	46.99	-11.57	35.42	43.5	3m./HORZ	8.1	PK		
216.00	50.01	-13.52	36.49	43.5	3m./HORZ	7.0	PK		
290.00	48.15	-10.22	37.93	46.0	3m./HORZ	8.1	PK		
214.00	47.18	-14.02	33.16	43.5	3m./VERT	10.3	PK		
314.00	44.61	-9.73	34.88	46.0	3m./VERT	11.1	PK		
	All emissions found were greater than 20dB from the limit.								

Sample Calculation at 30.00 MHz:

Magnitude of Measured Frequency	40.86	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	-13.82	dB/m
Corrected Result	27.04	dBuV/m

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 16. Intentional Radiator, Spurious Radiated Emissions (PART 15.209), above 1 GHz

1 GHz to 25 GHz										
	Test: Radia	ated Emissions			Client: Acuit	y Brands				
	Projec	:t: 16-0139			Model: ACV	VIFI001				
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	QP Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or QP			
1588.00	53.44	-7.82	45.62	54.0	3.0m./HORZ	8.4	PK			
1637.50	47.59	-7.36	40.23	54.0	3.0m./VERT	13.8	PK			
Fundamental and Harmonic emissions are presented in the tables that follow. No other emissions were seen greater than 20 dB from the limit.										

Sample Calculation at 1588.00 MHz:

Magnitude of Measured Frequency	53.44	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	-07.82	dB/m
Corrected Result	45.62	dBuV/m

Test Date: August 1, 2016

Tested By Signature: ______ Name<u>: George Yang</u>

2.10.2.1 Antenna 1 Spurious Emissions Test Results (Part 15.205, 15.209, 15.247)

EUT connected to Antenna 1.

Table 17. 802.11b Peak Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)					Client: Acuity Brands				
	Proj	ect: 16-0 ⁻	139			Model: ACW	'IFI001		
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel								
2412.00	72.87	0.0	30.35	103.22		3.0m./VERT		PK	
4824.00	47.74	0.0	3.33	51.07	74.0	3.0m./VERT	22.9	PK	
				Mid Chan	nel				
2442.00	72.21	0.0	30.32	102.53		3.0m./VERT		PK	
4884.00	50.85	0.0	3.52	54.37	74.0	3.0m./VERT	19.6	PK	
				High Char	nnel				
2462.00	70.36	0.0	30.32	100.68		3.0m./VERT		PK	
4944.00	52.53	0.0	3.11	55.64	74.0	3.0m./VERT	18.4	PK	

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 and 15.247

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4824.00 MHz:

Magnitude of Measured Frequency	47.74	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	3.33	dB/m
+Additional Factor (filter loss)	0.00	dB
Corrected Result	51.07	dBuV/m

Test Date: December 6, 2016

Tested By Signature:

Name: George Yang

Table 18. 802.11b Average Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)				247(d)		Client: Acuity	Brands		
Project: 16-0139						Model: ACW	'IFI001		
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel								
2412.00	62.79	0.0	30.35	93.14		3.0m./VERT		AVG	
4824.00	47.74	0.0	3.33	51.07	54.0	3.0m./VERT	2.9	AVG	
				Mid Chan	nel				
2442.00	62.63	0.0	30.32	92.95		3.0m./VERT		AVG	
4884.00	37.72	0.0	3.52	41.24	54.0	3.0m./VERT	12.8	AVG	
	High Channel								
2462.00	59.61	0.0	30.32	89.93		3.0m./VERT		AVG	
4944.00	39.83	0.0	3.11	42.94	54.0	3.0m./VERT	11.1	AVG	

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4824.00 MHz:

Magnitude of Measured Frequency	47.74	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	3.33	dB/m
+Additional Factor (duty cycle & filter loss)	0.00	dB
Corrected Result	51.07	dBuV/m

Test Date: December 6, 2016

Tested By \checkmark Signature:

Name: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Test: F	Test: FCC Part 15, Para 15.209, 15.247(d)					ity Brands Tech	nology Sei	vices, Inc.		
	Project: 16-0139					Model: ACW	'IFI001			
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode		
	Low Channel									
2412.00	73.13	0.0	30.35	103.48		3.0m./VERT		PK		
4824.00	53.54	0.0	3.33	56.87	74.0	3.0m./VERT	17.1	PK		
				Mid Chan	nel					
2442.00	69.23	0.0	30.32	99.55		3.0m./VERT		PK		
4884.00	51.96	0.0	3.52	55.48	74.0	3.0m./VERT	18.5	PK		
7326.00	49.97	0.0	9.48	59.45	74.0	3.0m./VERT	14.6	PK		
	High Channel									
2462.00	70.39	0.0	30.32	100.71		3.0m./VERT		PK		
4944.00	51.84	0.0	3.11	54.95	74.0	3.0m./VERT	19.0	PK		
7416.00	50.45	0.0	8.54	58.99	74.0	3.0m./VERT	15.0	PK		

Table 19. 802.11g Peak Radiated Fundamental & Harmonic Emissions

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4824.00 MHz:

Magnitude of Measured Frequency	53.54	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	3.33	dB/m
+Additional Factor (filter loss)	0.00	dB
Corrected Result	56.87	dBuV/m

Test Date: December 6, 2016

Tested By Signature: A Name: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 20. 802.11g Average Radiated Fundamental & Harmonic Emissions

Test: F	FCC Part 1	5, Para 1	5.209, 15.2	Client: Acuity Brands					
Project: 16-0139						Model: ACW	'IFI001		
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel								
2412.00	64.14	0.0	30.35	94.49		3.0m./VERT		AVG	
4824.00	43.25	0.0	3.33	46.58	54.0	3.0m./VERT	7.4	AVG	
				Mid Chan	nel				
2442.00	60.90	0.0	30.32	91.22		3.0m./VERT		AVG	
4884.00	41.98	0.0	3.52	45.50	54.0	3.0m./VERT	8.5	AVG	
7326.00	35.89	0.0	9.48	45.37	54.0	3.0m./VERT	8.6	AVG	
				High Char	nnel				
2462.00	62.12	0.0	30.32	92.44		3.0m./VERT		AVG	
4944.00	39.18	0.0	3.11	42.29	54.0	3.0m./VERT	11.7	AVG	
7416.00	36.54	0.0	8.54	45.08	54.0	3.0m./VERT	8.9	AVG	

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4824.00 MHz:

Magnitude of Measured Frequency	43.25	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	3.33	dB/m
+Additional Factor (duty cycle & filter loss)	0.00	dB
Corrected Result	46.58	dBuV/m

Test Date: December 6, 2016

Tested By Signature: A Name: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Test: F	Test: FCC Part 15, Para 15.209, 15.247(d)					Client: Acuity	Brands		
	Project: 16-0139					Model: ACW	/IFI001		
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
				Low Char	nnel				
2412.00	79.50	0.0	32.09	111.59		3.0m./HORZ		PK	
4857.00	48.76	0.0	9.77	58.53	74.0	3.0m./HORZ	15.5	PK	
7292.00	48.90	0.0	13.81	62.71	74.0	3.0m./HORZ	11.3	PK	
				Mid Chan	nel				
2440.00	76.00	0.0	31.53	107.53		3.0m./HORZ		PK	
4896.00	50.43	0.0	9.86	60.29	74.0	3.0m./HORZ	13.7	PK	
7358.00	49.78	0.0	15.76	65.54	74.0	3.0m./HORZ	8.5	PK	
	High Channel								
2462.00	74.00	0.0	31.53	105.53		3.0m./HORZ		PK	
4922.00	51.75	0.0	9.98	61.73	74.0	3.0m./HORZ	12.3	PK	
7387.00	49.25	0.0	15.69	64.94	74.0	3.0m./HORZ	9.1	PK	

Table 21. 802.11n Peak Radiated Fundamental & Harmonic Emissions

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10^{th} harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4857.00 MHz:

Magnitude of Measured Frequency	48.76	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	9.77	dB/m
+Additional Factor	0.00	dB
Corrected Result	58.53	dBuV/m

Test Date: July 7, 2016 Tested By Signature: <u>Hassain Rahama</u> Name<u>: Hossein Rahnama</u>

		<u> </u>							
Test: F	-CC Part 1	5, Para 1	5.209, 15.2	247(d)		Client: Acuity	Brands		
Project: 16-0139					Model: ACWIFI001				
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
				Low Char	nnel				
2412.00	68.27	0.0	32.09	100.36		3.0m./HORZ		AVG	
4854.00	29.29	0.0	9.77	39.06	54.0	3.0m./HORZ	14.9	AVG	
7305.00	29.20	0.0	14.16	43.36	54.0	3.0m./HORZ	10.6	AVG	
				Mid Chan	nel				
2440.00	66.15	0.0	31.53	97.68		3.0m./HORZ		AVG	
4894.00	32.40	0.0	9.86	42.26	54.0	3.0m./HORZ	11.7	AVG	
7357.00	29.92	0.0	15.76	45.68	54.0	3.0m./HORZ	8.3	AVG	
	High Channel								
2462.00	63.30	0.0	31.53	94.83		3.0m./HORZ		AVG	
4928.00	36.60	0.0	10.06	46.66	54.0	3.0m./HORZ	7.3	AVG	
7378.00	30.00	0.0	15.69	45.69	54.0	3.0m./HORZ	8.3	AVG	

Table 22. 802.11n Average Radiated Fundamental & Harmonic Emissions

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4854.00 MHz:

Magnitude of Measured Frequency	29.29	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	9.77	dB/m
+Additional Factor	0.00	dB
Corrected Result	39.06	dBuV/m

Test Date: July 7, 2016 Tested By Signature: <u>Hassin Rahama</u> Name<u>: Hossein Rahnama</u>

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 23. 802.11n 40 MHz BW Peak Radiated Fundamental & Harmonic
Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)						Client: Acuity	Brands	
	Proj	ect: 16-0 ⁻	139			Model: ACW	/IFI001	
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
				Low Char	nnel			
2422.00	76.00	0.0	31.53	107.53		3.0m./HORZ		PK
4858.00	48.93	0.0	9.77	58.70	74.0	3.0m./HORZ	15.3	PK
7292.00	50.22	0.0	13.81	64.03	74.0	3.0m./HORZ	10.0	PK
				Mid Chan	nel			
2437.00	76.86	0.0	31.68	108.54		3.0m./HORZ		PK
4875.00	48.96	0.0	9.87	58.83	74.0	3.0m./HORZ	15.2	PK
7335.00	49.00	0.0	15.74	64.74	74.0	3.0m./HORZ	9.3	PK
High Channel								
2452.00	73.90	0.0	31.53	105.43		3.0m./HORZ		PK
4918.00	51.35	0.0	9.98	61.33	74.0	3.0m./HORZ	12.7	PK
7370.00	49.16	0.0	15.69	64.85	74.0	3.0m./HORZ	9.2	PK

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10^{th} harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4858.00 MHz:

Magnitude of Measured Frequency	48.93	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	9.77	dB/m
+Additional Factor	0.00	dB
Corrected Result	58.70	dBuV/m

Test Date: July 7, 2016 Tested By Signature: <u>Hassin Rahama</u> Name<u>: Hossein Rahnama</u>

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 24. 802.11n 40 MHz BW Average Radiated Fundamental & Harmonic
Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)						Client: Acuity	Brands	
	Project: 16-0139					Model: ACW	'IFI001	
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
				Low Char	nnel			
2422.00	63.90	0.0	31.68	95.58		3.0m./HORZ		AVG
4834.00	29.62	0.0	9.67	39.29	54.0	3.0m./HORZ	14.7	AVG
7307.00	29.97	0.0	14.30	44.27	54.0	3.0m./HORZ	9.7	AVG
				Mid Chan	nel			
2437.00	65.03	0.0	31.68	96.71		3.0m./HORZ		AVG
4893.00	31.00	0.0	9.86	40.86	54.0	3.0m./HORZ	13.1	AVG
7344.00	30.00	0.0	15.74	45.74	54.0	3.0m./HORZ	8.3	AVG
High Channel								
2452.00	61.92	0.0	31.53	93.45		3.0m./HORZ		AVG
4929.00	33.92	0.0	10.06	43.98	54.0	3.0m./HORZ	10.0	AVG
7347.00	29.95	0.0	15.74	45.69	54.0	3.0m./HORZ	8.3	AVG

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4834.00 MHz:

Magnitude of Measured Frequency	29.62	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	9.67	dB/m
+Additional Factor	-0.00	dB
Corrected Result	39.29	dBuV/m

Test Date: July 7, 2016 Tested By Signature: <u>Hassin Rahama</u> Name<u>: Hossein Rahnama</u>

2.10.2.2 Antenna 2 Spurious Emissions Test Results (Part 15.205, 15.209, 15.247)

EUT connected to Antenna 2.

Table 25. 802.11b Peak Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)						Client: Acuity	Brands	
	Proj	ect: 16-0 ⁻	139			Model: ACW	'IFI001	
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
				Low Char	nel			
2412.00	73.19	0.0	30.16	103.35		3.0m./HORZ		PK
4823.77	53.58	0.0	3.30	56.88	74.0	3.0m./HORZ	17.1	PK
				Mid Chan	nel			
2442.00	69.55	0.0	30.13	99.68		3.0m./HORZ		PK
4884.08	55.02	0.0	3.49	58.51	74.0	3.0m./HORZ	15.5	PK
High Channel								
2462.00	68.07	0.0	30.13	98.20		3.0m./HORZ		PK
4924.15	57.93	0.0	3.17	61.10	74.0	3.0m./HORZ	12.9	PK

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4823.77 MHz:

Magnitude of Measured Frequency	53.58	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	3.30	dB/m
+Additional Factor	0.00	dB
Corrected Result	56.88	dBuV/m

Test Date: December 6, 2016

Tested By Signature:

Name: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 26. 802.11b Average Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)			247(d)		Client: Acuity	Brands			
	Project: 16-0139					Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
				Low Char	nnel				
2412.00	62.43	0.0	30.16	92.59		3.0m./HORZ		AVG	
4823.77	39.99	0.0	3.30	43.29	54.0	3.0m./HORZ	10.7	AVG	
				Mid Chan	nel				
2442.00	59.25	0.0	30.13	89.38		3.0m./HORZ		AVG	
4884.08	42.87	0.0	3.49	46.36	54.0	3.0m./HORZ	7.6	AVG	
	High Channel								
2462.00	57.63	0.0	30.13	87.76		3.0m./HORZ		AVG	
4924.15	44.61	0.0	3.17	47.78	54.0	3.0m./HORZ	6.2	AVG	

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4823.77 MHz:

Magnitude of Measured Frequency	39.99	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	3.30	dB/m
+Additional Factor (duty cycle)	0.00	dB
Corrected Result	43.29	dBuV/m

Test Date: December 6, 2016

Tested By Signature: Mame: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Test: FCC Part 15, Para 15.209, 15.247(d)				247(d)	Client: Acuity Brands Technology Services, Inc.				
	Proj	ect: 16-0	139		Model: ACWIFI001				
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
				Low Char	nnel				
2412.00	70.01	0.0	30.16	100.17		3.0m./HORZ		PK	
4824.60	60.31	0.0	3.30	63.61	74.0	3.0m./HORZ	10.4	PK	
				Mid Chan	nel				
2442.00	68.12	0.0	30.13	98.25		3.0m./HORZ		PK	
4885.50	59.17	0.0	3.49	62.66	74.0	3.0m./HORZ	11.3	PK	
	High Channel								
2462.00	66.65	0.0	30.13	96.78		3.0m./HORZ		PK	
4921.60	60.12	0.0	3.17	63.29	74.0	3.0m./HORZ	10.7	PK	

Table 27. 802.11g Peak Radiated Fundamental & Harmonic Emissions

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4824.60 MHz:

Magnitude of Measured Frequency	60.31	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	3.30	dB/m
+Additional Factor	0.00	dB
Corrected Result	63.61	dBuV/m

Test Date: December 6, 2016

Tested By Signature:

▲ Name: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 28. 802.11g Average Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)				247(d)		Client: Acuity	Brands		
	Project: 16-0139					Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
				Low Char	nel				
2412.00	61.22	0.0	30.16	91.38		3.0m./HORZ		AVG	
4824.60	47.92	0.0	3.30	51.22	54.0	3.0m./HORZ	2.8	AVG	
				Mid Chan	nel				
2442.00	59.67	0.0	30.13	89.80		3.0m./HORZ		AVG	
4885.50	46.51	0.0	3.49	50.00	54.0	3.0m./HORZ	4.0	AVG	
	High Channel								
2462.00	57.76	0.0	30.13	87.89		3.0m./HORZ		AVG	
4921.60	47.12	0.0	3.17	50.29	54.0	3.0m./HORZ	3.7	AVG	

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4824.60 MHz:

Magnitude of Measured Frequency	47.92	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	3.30	dB/m
+Additional Factor (duty cycle)	-0.00	dB
Corrected Result	51.22	dBuV/m

Test Date: December 6, 2016

Tested By Signature: Mame: George Yang

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Test: FCC Part 15, Para 15.209, 15.247(d)					Client: Acuity Brands				
	Project: 16-0139					Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
				Low Char	nnel				
2412.00	73.86	0.0	32.09	105.95		3.0m./HORZ		PK	
4827.15	56.54	0.0	8.77	65.31	74.0	3.0m./HORZ	8.7	PK	
7249.57	50.29	0.0	14.08	64.37	74.0	3.0m./HORZ	9.6	PK	
				Mid Chan	nel				
2442.00	73.75	0.0	31.53	105.28		3.0m./HORZ		PK	
4882.95	56.24	0.0	9.87	66.11	74.0	3.0m./HORZ	7.9	PK	
7339.05	50.38	0.0	15.74	66.12	74.0	3.0m./HORZ	7.9	PK	
	High Channel								
2462.00	77.36	0.0	31.53	108.89		3.0m./HORZ		PK	
4930.00	55.84	0.0	10.06	65.90	74.0	3.0m./HORZ	8.1	PK	
7374.60	50.07	0.0	15.69	65.76	74.0	3.0m./HORZ	8.2	PK	

Table 29. 802.11n Peak Radiated Fundamental & Harmonic Emissions

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10^{th} harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4827.15 MHz:

Magnitude of Measured Frequency	56.54	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	8.77	dB/m
+Additional Factor	0.00	dB
Corrected Result	65.31	dBuV/m

Test Date: July 11, 2016 Tested By Signature: <u>Hassein Rahama</u> Name<u>: Hossein Rahnama</u>

Table 30. 802.11n Average Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)				Client: Acuity Brands					
	Project: 16-0139				Model: ACWIFI001				
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel								
2412.00	63.32	0.0	32.09	95.41		3.0m./HORZ		AVG	
4827.15	41.46	0.0	8.77	50.23	54.0	3.0m./HORZ	3.8	AVG	
				Mid Chan	nel				
2442.00	63.61	0.0	31.53	95.14		3.0m./HORZ		AVG	
4882.95	40.15	0.0	9.87	50.02	54.0	3.0m./HORZ	4.0	AVG	
	High Channel								
2462.00	66.94	0.0	31.53	98.47		3.0m./HORZ		AVG	
4930.00	40.79	0.0	10.06	50.85	54.0	3.0m./HORZ	3.2	AVG	

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4827.15 MHz:

Magnitude of Measured Frequency	41.46	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	8.77	dB/m
+Additional Factor	-0.00	dB
Corrected Result	50.23	dBuV/m

Test Date:				
Tested By	11 .		Name <u>: Hossein</u>	
Signature:	Hassen	Rahama	Name: Hossein	<u>Rahnama</u>

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 31. 802.11n 40 MHz BW Peak Radiated Fundamental & Harmonic
Emissions

Test: F	FCC Part 1	5, Para 1	5.209, 15.2	Client: Acuity Brands				
	Proj	ect: 16-0 ⁻	139		Model: ACW	'IFI001		
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
				Low Char	nnel			
2422.00	70.38	0.0	31.53	101.91		3.0m./HORZ		PK
4815.00	43.47	0.0	8.77	52.24	74.0	3.0m./HORZ	21.8	PK
7247.00	43.59	0.0	14.08	57.67	74.0	3.0m./HORZ	16.3	PK
				Mid Chan	nel			
2437.00	71.40	0.0	31.53	102.93		3.0m./HORZ		PK
4874.00	43.98	0.0	9.87	53.85	74.0	3.0m./HORZ	20.2	PK
7313.00	43.93	0.0	14.30	58.23	74.0	3.0m./HORZ	15.8	PK
				High Char	nnel			
2452.00	76.66	0.0	31.53	108.19		3.0m./HORZ		PK
4927.00	43.23	0.0	10.06	53.29	74.0	3.0m./HORZ	20.7	PK
7362.00	43.17	0.0	15.76	58.93	74.0	3.0m./HORZ	15.1	PK

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10^{th} harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4815.00 MHz:

Magnitude of Measured Frequency	43.47	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	8.77	dB/m
+Additional Factor	0.00	dB
Corrected Result	52.24	dBuV/m

Test Date: July 11, 2016 Tested By Signature: <u>Hassin Rahama</u> Name<u>: Hossein Rahnama</u>

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

Table 32. 802.11n 40 MHz BW Average Radiated Fundamental & Harmonic Emissions

Test: F	CC Part 1	5, Para 1	5.209, 15.2	Client: Acuity Brands				
	Proj	ect: 16-0 ⁻	139		Model: ACW	'IFI001		
Frequency (MHz)	Test Data (dBuV)	HPF (dB)	AF+CA -AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
				Low Char	nnel			
2422.00	58.07	0.0	31.53	89.60		3.0m./HORZ		AVG
4827.00	25.45	0.0	8.77	34.22	54.0	3.0m./HORZ	19.8	AVG
7247.00	25.05	0.0	14.08	39.13	54.0	3.0m./HORZ	14.9	AVG
				Mid Chan	nel			
2437.00	60.00	0.0	31.53	91.53		3.0m./HORZ		AVG
4880.00	25.02	0.0	9.87	34.89	54.0	3.0m./HORZ	19.1	AVG
7311.00	25.17	0.0	14.30	39.47	54.0	3.0m./HORZ	14.5	AVG
				High Char	nnel			
2452.00	64.95	0.0	32.74	97.69		3.0m./HORZ		AVG
4929.00	25.68	0.0	10.06	35.74	54.0	3.0m./HORZ	18.3	AVG
7345.00	25.19	0.0	15.74	40.93	54.0	3.0m./HORZ	13.1	AVG

1. (*) Falls within the restricted bands of PART 15.205. Limits based on PART 15.209 & 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. A High Pass filter was used, that additional factor is added to the HPF column.

4. A Duty Cycle correction factor of 0.0 dB was used, that additional factor is added to the HPF column.

5. The EUT was placed in three orthogonal positions, tested while broadcasting from each antenna, and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 4827.00 MHz:

Magnitude of Measured Frequency	25.45	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+ Filter loss	8.77	dB/m
+Additional Factor	-0.00	dB
Corrected Result	34.22	dBuV/m

Test Date: July 11, 2016 Tested By Signature: <u>Hassin Rahama</u> Name<u>: Hossein Rahnama</u>

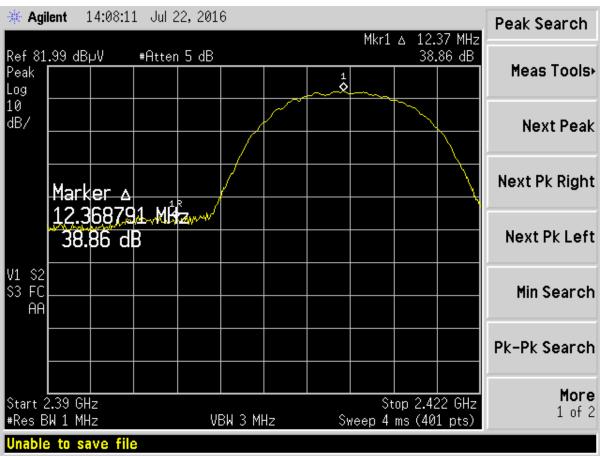
US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

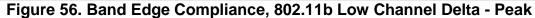
2.11 Band Edge and Restricted Band Measurements (PART 15.247 (d))

Band Edge measurements are made following the guidelines in FCC KDB Publication No. 558074 and ANSI C63.10:2013 section 6.10.5 with the EUT initially operating on the Lowest Channel and then operating on the Highest Channel within its band of operation. Antenna port conducted measurements are performed to demonstrate compliance with the requirement of 15.247(d) that all emissions outside of the band edges be attenuated by at least 20 dB when compared to its highest in-band value (contained in a 100 kHz band).

To capture the band edge set the Spectrum Analyzer frequency span set to 2 MHz to capture the peak level of the emission operating on the channel closest to the band edge as well as any modulation products falling outside of the authorized band of operation. Conducted measurements are performed with RBW approximately 1.5* Span. In all cases, the VBW is set \geq RBW. See figure and calculations below for more detail.

2.11.1 Band Edge Measurements





Band Edge Delta	38.86	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	18.86	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

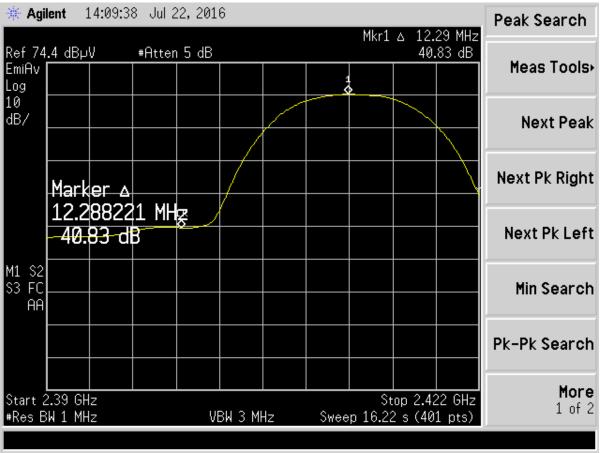


Figure 57. Band Edge Compliance, 802.11b Low Channel Delta - Average

Band Edge Delta	40.83	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	20.83	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

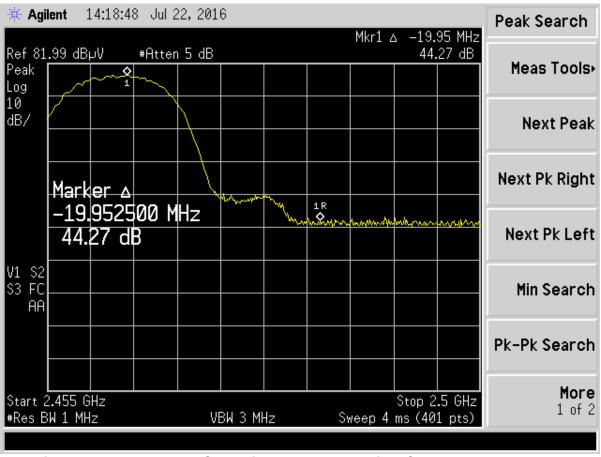


Figure 58. Band Edge Compliance,802.11b High Channel Delta – Peak

Band Edge Delta	44.27	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	24.27	dB

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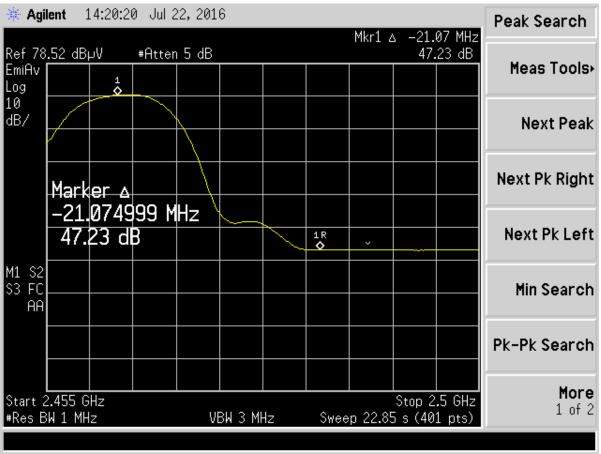


Figure 59. Band Edge Compliance, 802.11b High Channel Delta – Average

Band Edge Delta	47.23	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	27.23	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

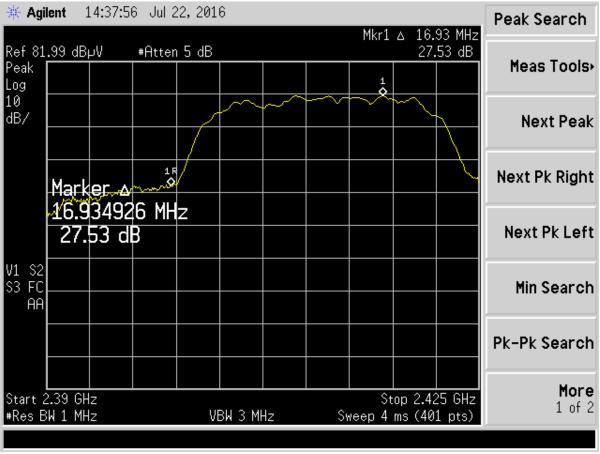


Figure 60. Band Edge Compliance, 802.11g Low Channel Delta - Peak

Band Edge Delta	27.53	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	7.53	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

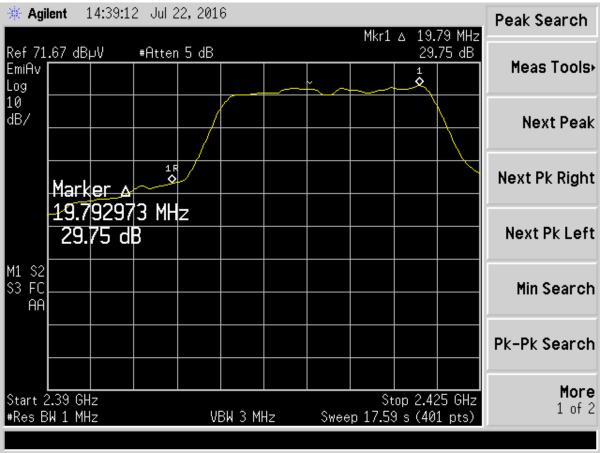


Figure 61. Band Edge Compliance, 802.11g Low Channel Delta - Average

Band Edge Delta	29.75	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	9.75	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

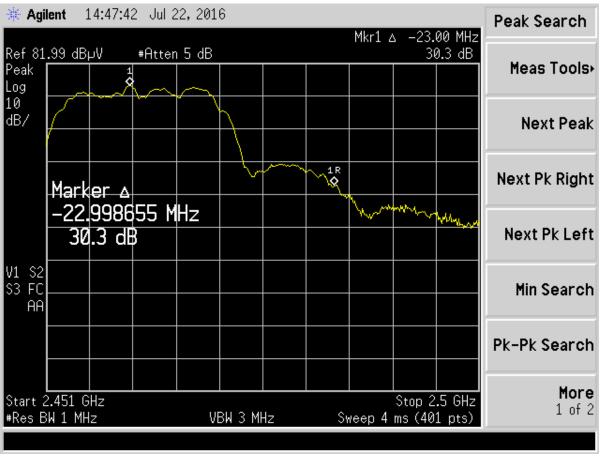


Figure 62. Band Edge Compliance, 802.11g High Channel Delta – Peak

Band Edge Delta	30.30	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	10.30	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

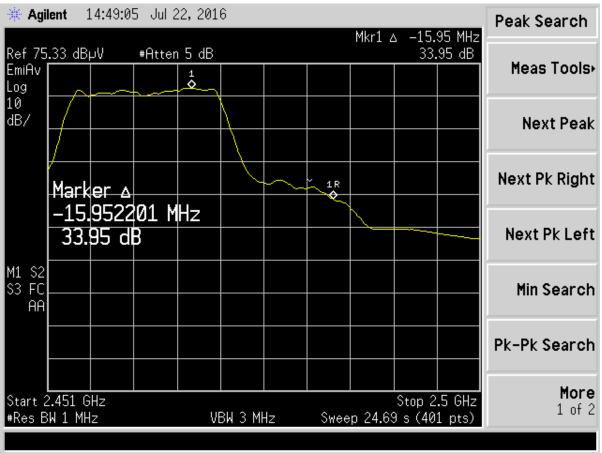


Figure 63. Band Edge Compliance, 802.11g High Channel Delta – Average

Band Edge Delta	33.95	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	13.95	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

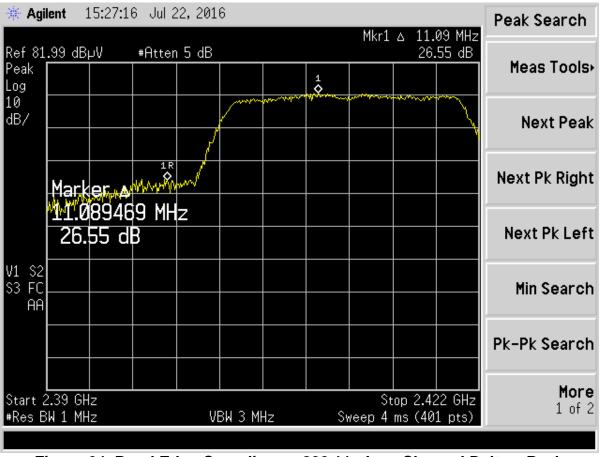


Figure 64. Band Edge Compliance, 802.11n Low Channel Delta – Peak

Band Edge Delta	26.55	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	6.55	dB

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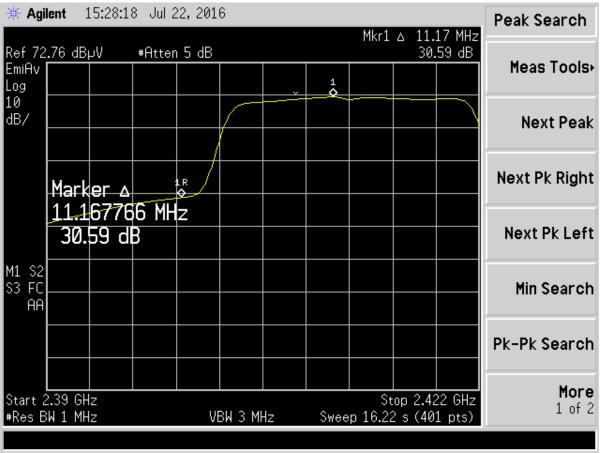


Figure 65. Band Edge Compliance, 802.11n Low Channel Delta - Average

Band Edge Delta	30.59	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	10.59	dB

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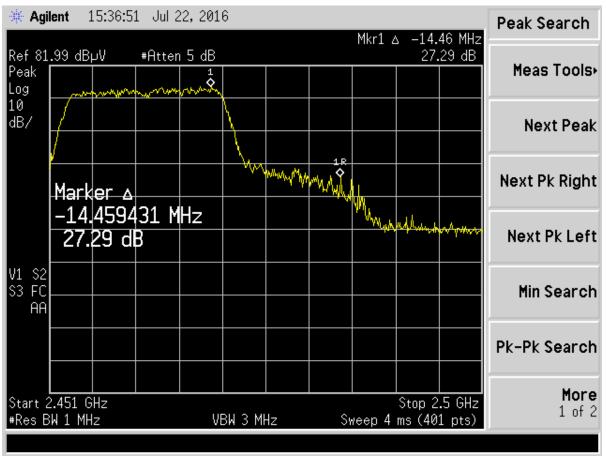


Figure 66. Band Edge Compliance, 802.11n High Channel Delta – Peak

Band Edge Delta	27.29	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	7.29	dB

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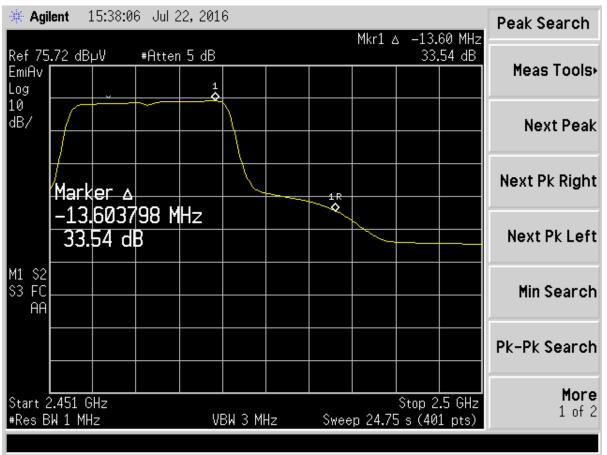


Figure 67. Band Edge Compliance, 802.11n High Channel Delta – Average

Band Edge Delta	33.54	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	13.54	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

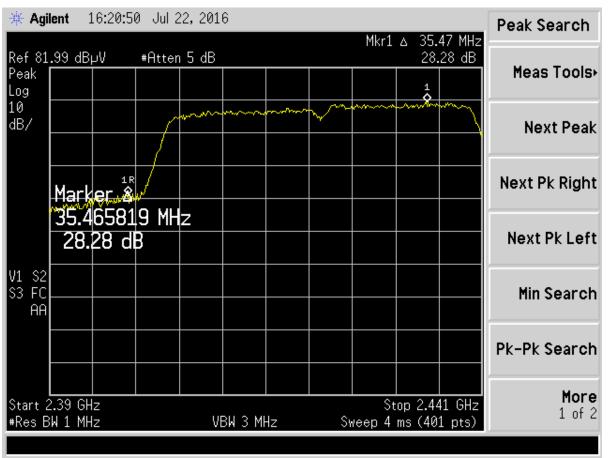


Figure 68. Band Edge Compliance, 802.11 40 MHz BW Low Channel Delta – Peak

Band Edge Delta	28.28	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	8.28	dB

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

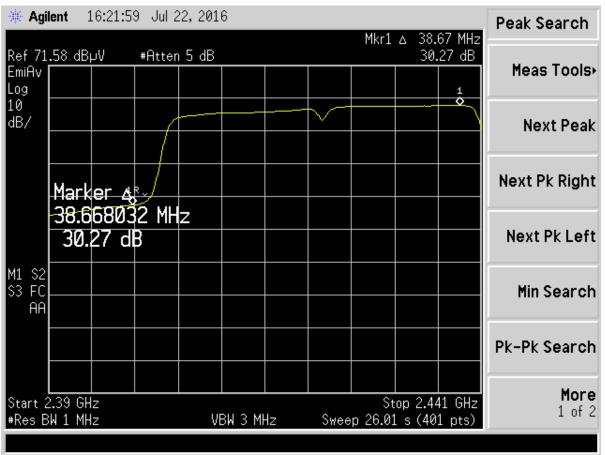


Figure 69. Band Edge Compliance, 802.11 40 MHz BW Low Channel Delta – Average

Band Edge Delta	30.27	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	10.27	dB

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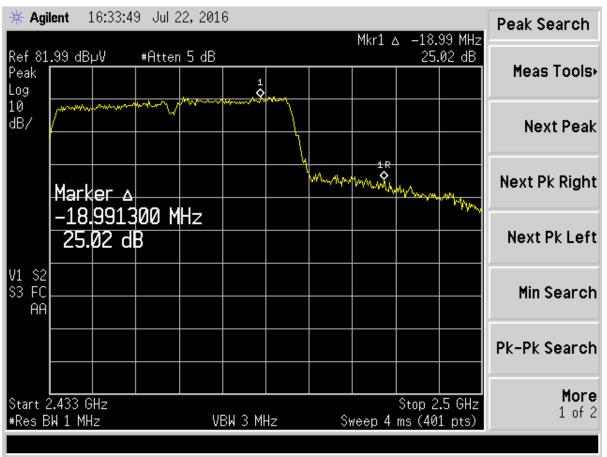


Figure 70. Band Edge Compliance, 802.11 40 MHz BW High Channel Delta – Peak

Band Edge Delta	25.02	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	5.02	dB

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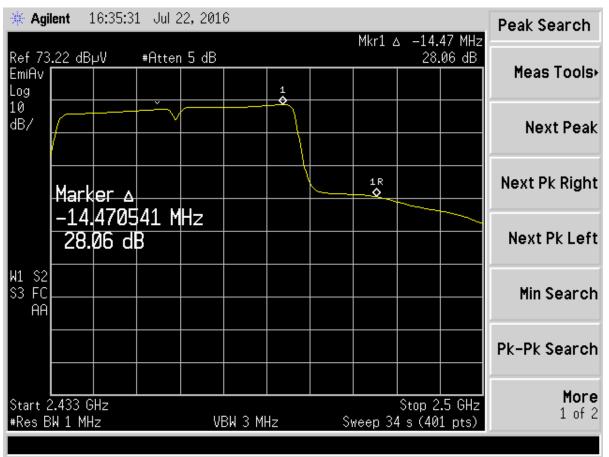


Figure 71. Band Edge Compliance, 802.11 40 MHz BW High Channel Delta – Average

Band Edge Delta	28.06	dB
Band Edge Limit (20 dB from Fundamental)	20.00	dB
Band Edge Margin	8.06	dB

2.11.2 Restricted Band measurements (Radiated)

Restricted band measurements were performed using the radiated emissions method. The EUT was tested once with Antenna 1 and then again with Antenna 2. The plots and calculations using Antenna 1, the highest gain antenna, follow.

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 **Acuity Brands** ACWIFI001

₩ Agilent 14:38:19 Jul 28, 2016	Peak Search
Mkr1 2.3284 GHz Ref 86.99 dBہV Atten 5 dB 34.96 dBہV	
Peak Log	Meas Tools•
10 dB/	Next Peak
Marker	Next Pk Right
2.32840000 GHz -34.96-dBbu	Next Pk Left
M1 S2 S3 FC AA	Min Search
	Pk-Pk Search
Start 2.31 GHz Stop 2.39 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)	More 1 of 2

Figure 72. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11b - Peak

Table 33. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11b – Peak

2310 MHz to 2390 MHz Restricted Band Peak Measurements										
-	Fest: Radia	ted Emissions		Client: A	cuity Brands Te	echnology Servi	ices, Inc.			
	Project	: 16-0139		Model: ACWIFI001						
Frequency (MHz)	Test Data (dBuv)	AF+CA- AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Detector PK, or AVG					
2328.40	34.96	31.68	66.64	74.0	3.0m./HORZ	7.4	PK			

Test Date: July 28, 2016 1 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	L 4:42: 3	8 Juli	28,201	6						Peak Search
Ref 33	84 dBi	ωU	<u> </u>	n 5 dB				Mkr1		00 GHz dBµV	
EmiAv	.04 00										Meas Tools⊦
Log 10								~			
dB/											Next Peak
											Next Pk Right
	Mark		000								
		0000 ס בו		GHZ							Next Pk Left
	20	.3 dE	рЦЛ								HEALTKLEIL
M1 S2											Min Coorob
S3 FC AA											Min Search
											Pk-Pk Search
Start 2							A			39 GHz	More 1 of 2
#Res B	WIMH	Z		#V	BW 3 M	HZ	Swee	p 40.62	s (40	i pts)	

Figure 73. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11b - Average

Table 34. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11b – Average

2310 MHz to 2390 MHz Restricted Band Average Measurements										
	Test: Radia	ated Emissions	Client: Ac	uity Brands Tec	hnology Se	rvices, Inc.				
	Projec	t: 16-0139	Model: ACWIFI001							
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Detector PK, or AVG					
2350.00	20.30	31.68	51.98	54.0	3.0m./HORZ	2.0	AVG			

Test Date: July 28, 2016 1 Tested By Name: George Yang Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	L4:48:1	6 Julí2	28,201	6						Peak Search
Ref 86 Book	.99 dBj	μ٧	Atter	5 dB				Mkr1		16 GHz dBµV	Meas Tools•
Peak Log											neas roois,
10 dB/											Next Peak
	Mark										Next Pk Right
			.250 ₿µŲҲ		www	h	-hay marked		where we		Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B				#V	BW 3 M	Hz	Sr	veep 4		.5 GHz 1 pts)	More 1 of 2

Figure 74. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11b - Peak

Table 35. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11b – Peak

2483.5 MHz to 2500 MHz Restricted Band Peak Measurements										
	Test: Radia	ated Emissions	Client: Act	uity Brands Tec	hnology Sei	rvices, Inc.				
	Projec	t: 16-0139	Model: ACWIFI001							
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Limits Distance/ Marg					
2488.16	35.22	31.53	66.75	74.0	3.0m./HORZ	7.3	PK			

Test Date: July 28, 2016 1 Tested By Name: George Yang Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	L 4:49:1 3	2 Jul a	28,201	6						Peak Search
Ref 34	.25 dB	μV	Atter	<u>15dB</u>				Mkr1		97 GHz dBµV	
EmiAv Log										_1	Meas Tools∙
10 dB/		ř									Next Peak
	Mark	er									Next Pk Right
	2.49	8968		GHz							
	20.	29 d	BµV								Next Pk Left
M1 S2 S3 FC											Min Search
ÂÂ											
											Pk-Pk Search
Start 2 #Res B				 #\/	вы з м	——— Н7	Swee	p 13.25		.5 GHz 1 nts)	More 1 of 2
								p-10.20	-3 (10	<u>pt</u>	

Figure 75. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11b -Average

Table 36. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11b – Average

	2483.5 MHz to 2500 MHz Restricted Band Average Measurements												
Test: Radiated EmissionsClient: Acuity Brands Technology Services, Inc.													
	Projec	:t: 16-0139			Model: AC\	VIFI001							
Frequency (MHz)	Test Data (dBuv)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG									
2498.96	20.29	31.53	51.82	54.0	3.0m./HORZ	2.2	AVG						

Test Date: July 28, 2016 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 **Acuity Brands** ACWIFI001

🔆 Agi	lent 1	L 4: 53:5	7 Jul 2	28,201	6						Peak Search
Ref 86 Peak Log	.99 dB	μV	Atter	15 dB				Mkr1		96 GHz dBµV	Meas Tools∙
10 dB/											Next Peak
	Mark	1	000	си –							Next Pk Right
			1000 BµV.~		hhum	Wym	Vha mada	yan, baasa	han	w. m. m.	Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B				#V	BW 3 M	Hz	Sv	s veep 4		39 GHz 1 pts)	More 1 of 2

Figure 76. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11g - Peak

Table 37. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11g – Peak

	2310 MHz to 2390 MHz Restricted Band Peak Measurements												
	Test: Radia	ated Emissions		Client: Acuity Brands Technology Services, Inc									
	Projec	t: 16-0139			Model: AC\	VIFI001							
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG						
2389.60	36.97	31.68	68.65	74.0	3.0m./HORZ	5.3	PK						

Test Date: July 28, 2016 1 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agi	lent 1	L4:57:5	1 Jul a	28,201	6						Peak Search
Ref 37	09 dB	ωU	Ĥ++er	ı5dB				Mkr1		00 GHz dBµV	
EmiAv Log									20.77		Meas Tools∙
10 dB/	<u> </u>										Next Peak
	Mark		000								Next Pk Right
		0000 77 d		GHz							Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B				#V	BW 3 M	Hz	Swee	S p 40.62		39 GHz 1 pts)	More 1 of 2

Figure 77. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11g - Average

Table 38. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11g – Average

	2310 MHz to 2390 MHz Restricted Band Average Measurements												
	Test: Radia	ated Emissions		Client: Acuity Brands Technology Services, Inc.									
	Projec	t: 16-0139			Model: ACV	VIFI001							
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG						
2390.00	20.77	31.68	52.45	54.0	3.0m./HORZ	1.5	AVG						

Test Date: July 28, 2016 Tested By Name: George Yang Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	15:02:5	8 Julá	28,201	6						Peak Search
Ref 86 Peak Log	.99 dB	٧	Atter	15 dB				Mkr1		71 GHz dBµV	Meas Tools∙
10 dB/											Next Peak
	Mark		250	сu_							Next Pk Right
		3706 76 d			Abarrow M	hamment	vtervovatte-	~~~~	~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	hymhith	Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B				#V	BW 3 M	Hz	Sr	veep 4		.5 GHz 1 pts)	More 1 of 2

Figure 78. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11g - Peak

Table 39. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11g – Peak

	2483.5 MHz to 2500 MHz Restricted Band Peak Measurements												
Test: Radiated Emissions Client: Acuity Brands Technology Services, Inc.													
	Projec	t: 16-0139			Model: ACV	VIFI001							
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG						
2483.70	36.76	31.53	68.29	74.0	3.0m./HORZ	5.7	PK						

Test Date: July 28, 2016 Tested By Name: George Yang Signature: _

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	15:05:4	6 Julá	28,201	6						Peak Search
Ref 35	.66 dB	μV	Atter	15dB				Mkr1		95 GHz dBµV	Meas Tools•
EmiAv Log											meas 100is
10 dB/	\$										Next Peak
uD7											Next Peak
											Next Pk Right
	Mark		750	си_							noxtrikingit
		3953 .5 dE	3750 Riill	GHZ							Next Pk Left
		.5 u	~µ~								
M1 S2 S3 FC											Min Search
AA											
											Pk-Pk Search
Start 2										.5 GHz	More 1 of 2
#Res B	W 1 MH	z		#V	BW 3 M	Hz	Sv	veep 10)s(40	1 pts)	1012

Figure 79. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11g - Average

Table 40. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11g – Average

	2483.5 MHz to 2500 MHz Restricted Band Average Measurements												
Test: Radiated Emissions Client: Acuity Brands Technology Services, Inc.													
	Projec	:t: 16-0139			Model: ACV	VIFI001							
Frequency (MHz)	Test Data (dBuv)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG									
2483.95	20.50	31.53	52.03	54.0	3.0m./HORZ	2.0	AVG						

Test Date: July 28, 2016 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	15:17:1	5 Julí	28, 201	6						Peak Search
Ref 86	.99 dBi	υV	Atter	ı5dB				Mkr1		44 GHz dBµV	
Peak Log											Meas Tools⊦
10											
dB/											Next Peak
	Mark	er									Next Pk Right
	2.34	4400	000	GHz	1						
	34	•8, dl	3µJ~~~	- m- hay been	vym	mMum	ymph	www.wh	man	www.	Next Pk Left
M1 S2											
S3 FC AA											Min Search
											Pk-Pk Search
											Horo
Start 2 #Res B				#U	BW 3 M	Н-7	\$1	S Yeep 4		39 GHz 1 nts)	More 1 of 2
WIGS D		2		*0	on o n	112		төөр ч	115 (40	r hray	

Figure 80. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11n - Peak

Table 41. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11n – Peak

	2310 MHz to 2390 MHz Restricted Band Peak Measurements												
	Test: Radia	ated Emissions		Client: Acuity Brands Technology Services, Inc									
	Projec	t: 16-0139			Model: AC\	VIFI001							
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG						
2344.40	34.80	31.68	66.48	74.0	3.0m./HORZ	7.5	PK						

Test Date: July 28, 2016 1 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agi	lent 1	15:18:4	7 Jul i	28,201	6					Peak Search
Ref 35	1 dBu	U.	Atter	n 5 dB				Mkr1	00 GHz dBµV	
EmiAv Log										Meas Tools⊦
10 dB/										Next Peak
	Mark									Next Pk Right
		0000 45 d	1000 BµV	GHz						Next Pk Left
M1 S2 S3 FC AA										Min Search
										Pk-Pk Search
Start 2 #Res B				#V	BW 3 M	Hz	Swee	s p 64.23	39 GHz 1 pts)	More 1 of 2

Figure 81. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11n - Average

Table 42. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11n – Average

	2310 MHz to 2390 MHz Restricted Band Average Measurements												
	Test: Radia	ated Emissions	Client: Acuity Brands Technology Services, Inc.										
	Projec	t: 16-0139	Model: ACWIFI001										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Detector PK, or AVG								
2390.00	20.45	31.68	52.13	54.0	3.0m./HORZ	1.9	AVG						

Test Date: July 28, 2016 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	15:08:1	0 Jul 2	28,201	6						Peak Search
Ref 86	.99 dBi	υV	Atter	ı5dB				Mkr1		88 GHz ∶dBµV	
Peak											Meas Tools•
Log 10											
dB/											Next Peak
	Mark										Next Pk Right
		1	250	GH-							
		.2 d			unter		Am	man	MentAnn	h	Next Pk Left
M1 S2 S3 FC											Min Search
ÂÂ											
											Pk-Pk Search
											TK TK Sear on
	400.0	<u> </u>							<u></u>		More
Start 2 #Res B				#V	вы з м	Hz	Sv	γeep 4		.5 GHz 1 pts)	1 of 2

Figure 82. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11n- Peak

Table 43. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11n – Peak

	2483.5 MHz to 2500 MHz Restricted Band Peak Measurements												
	Test: Radia	ated Emissions		Client: Acuity Brands Technology Services, Inc.									
	Projec	t: 16-0139	Model: ACWIFI001										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits Distance/									
2499.87	35.2	31.53	66.73	74.0	3.0m./HORZ	7.3	PK						

Test Date: July 28, 2016 1 Tested By Signature: Name: George Yang

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	ent 1	15:08:5	6 Julá	28,201	6						Peak Search
Ref 36.	28 YB	υU	0++~r	ı5dB				Mkr1		04 GHz dBµV	
EmiAv Log	.50 00								20.1		Meas Tools∙
10 dB/	\$	<u> </u>									Next Peak
	Mark										Next Pk Right
	2.48	4036		GHz							Next Pk Left
M1 S2	20	.1 dł	р Т – – – – – – – – – – – – – – – – – – –								
S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B					ВМ З М	 ⊔-,	Sulaa	p 13.25		.5 GHz	More 1 of 2
wittes D	MET LIU	2		#U	ויר אט	ΠZ	Swee	p 13.20	5 (40	1 hrs)	

Figure 83. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11n - Average

Table 44. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11n – Average

	2483.5 MHz to 2500 MHz Restricted Band Average Measurements												
Test: Radiated EmissionsClient: Acuity Brands Technology Services, Inc.													
	Projec	t: 16-0139		Model: ACWIFI001									
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG						
2484.03	20.10	31.53	51.63	54.0	3.0m./HORZ	2.4	AVG						

Test Date: July 28, 2016

Tested By Signature: //

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

Log 10 dB/ Marker 2.382800000 GHz 	🔆 Agi	ilent (15:47:00 Jul 28, 2016	Peak Search
Peak Log 10 dB/ Meas To Next P Marker 2.382800000 GHz Next Pk R Marker 2.382800000 GHz 1 Marker 1 Next Pk R Next Pk R Next Pk R	R⊖f 86	399 JB		
dB/ Marker Next Pk R 2.382800000 GHz 1 36.2-dBµV Next Pk R	Peak Log			Meas Tools
Marker 2.382800000 GHz 36.2 dByV M1 S2 M1 S2				Next Peak
M1 S2 MSG-2-dByV-m				Next Pk Right
				Next Pk Left
	\$3 FC			Min Search
Pk-Pk Sea				Pk-Pk Search

Figure 84. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11n (40MHz) - Peak

Table 45. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11n (40MHz) – Peak

	2310 MHz to 2390 MHz Restricted Band Peak Measurements												
Test: Radiated Emissions Client: Acuity Brands Technology Services, Inc.													
	Projec	t: 16-0139		Model: ACWIFI001									
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Antenna Limits Distance/ (dBuV/m) Polarization (dB)									
2382.80	36.20	31.68	74.0	3.0m./HORZ	6.1	PK							

Test Date: July 28, 2016 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	15:49:1	5 Julá	28,201	6						Peak Search
Ref 36	.14 dB	۷u	Atter	ı5dB				Mkr1		00 GHz dBµV	
EmiAv Log											Meas Tools+
10 dB/			~								Next Deals
uD7											Next Peak
											Novt Dk Dight
	Mark	1									Next Pk Right
		0000 84 d	000	GHz							Next Pk Left
	20.	04 U	ph^								HOATTREOT
M1 S2 S3 FC											Min Search
ÂÂ											
											Pk-Pk Search
Start 2										39 GHz	More 1 of 2
#Res B	W 1 MH	z		#\/	BW 3 M	Hz	Swee	p 64.23	3s(40	1 pts)	1012

Figure 85. Radiated Restricted band 2310 MHz to 2390 MHz, 802.11n (40MHz) - Average

Table 46. Radiated Restricted Band 2310 MHz to 2390 MHz, 802.11n (40MHz) – Average

	2310 MHz to 2390 MHz Restricted Band Average Measurements												
Test: Radiated EmissionsClient: Acuity Brands Technology Services, Inc.													
	Projec	t: 16-0139	Model: ACWIFI001										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	AVG Antenna Limits Distance/ (dB) Polarization									
2390.00	20.84	31.68	52.52	54.0	3.0m./HORZ	1.5	AVG						

Test Date: July 28, 2016 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agi	lent 1	.6:02:2	3 Jul 2	28, 201	6						Marker
Ref 86	.99 dBi	υV	Atter	ı5 dB				Mkr1		28 GHz dBµV	
Peak Log											Select Marker <u>1</u> 2 3 4
10 dB/											Normal
	Mark										Delta
		4283 93 d	3750 8µ∀		~~~~~		hadger og av	Marcharach	materia	an a	Delta Pair (Tracking Ref) Ref <u>Delta</u>
M1 S2 S3 FC AA											Span Pair Span <u>Center</u>
											Off
	2.483 G W 1 MH			#V	BW 3 M	Hz	Si	veep 4		.5 GHz 1 pts)	More 1 of 2

Figure 86. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11n (40MHz) - Peak

Table 47. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11n (40MHz) – Peak

	2483.5 MHz to 2500 MHz Restricted Band Peak Measurements												
Test: Radiated EmissionsClient: Acuity Brands Technology Services, Inc.													
	Projec	t: 16-0139	Model: ACWIFI001										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Detector PK, or AVG								
2484.28	35.93	31.53	67.46	74.0	3.0m./HORZ	6.5	PK						

Test Date: July 28, 2016 Tested By Signature:

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

🔆 Agil	lent 1	16:05:1	0 Jul:	28,201	6						Peak Search
Ref 35	47. dBi	υU	Atte	n 5 dB				Mkr1		20 GHz dBµV	
EmiAv Log									20.70		Meas Tools∙
10 dB/	 ◆						×				Next Peak
	Mark		250								Next Pk Right
		4201 73 d	.250 BµV	GHZ							Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Start 2 #Res B					BW 3 M	Hz	SI	veep 10		.5 GHz 1 pts)	More 1 of 2

Figure 87. Radiated Restricted band 2483.5 MHz to 2500 MHz, 802.11n (40MHz) - Average

Table 48. Radiated Restricted Band 2483.5 MHz to 2500 MHz, 802.11n (40MHz) – Average

	2483.5 MHz to 2500 MHz Restricted Band Average Measurements							
	Test: Radiated EmissionsClient: Acuity Brands Technology Services, Inc.						rvices, Inc.	
Project: 16-0139 Model:				Model: ACV	VIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG	
2484.20	20.73	31.53	52.26	54.0	3.0m./HORZ	1.7	AVG	

Test Date: July 28, 2016 Tested By Signature:

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

2.14 Six (6) dB Bandwidth per PART 15.247(a)(2),

The EUT antenna port was connected to a spectrum analyzer having a 50 Ω input impedance. Measurements were performed similar to the method of FCC, KDB Publication No. 558074 for a bandwidth of 6 dB. The RBW was set to 100 kHz and with the VBW \geq RBW. The results of this test are given in the table below and Figures below.

Table 49. 802.11b Six (6) dB Bandwidth

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum FCC Bandwidth (MHz)
2412	9.162	0.500
2442	9.175	0.500
2462	9.175	0.500

Table 50. 802.11g Six (6) dB Bandwidth

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum FCC Bandwidth (MHz)
2412	16.583	0.500
2442	16.537	0.500
2462	16.500	0.500

Table 51. 802.11n Six (6) dB Bandwidth

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum FCC Bandwidth (MHz)
2412	17.825	0.500
2442	17.874	0.500
2462	17.839	0.500

Test Date: July 22, 2016 Tested By Signature:

Table 52. 802.11n 40 MHz BW Six (6) dB Bandwidth

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum FCC Bandwidth (MHz)
2422	35.587	0.500
2437	36.555	0.500
2452	36.521	0.500

Test Date: July 22, 2016 Tested By Signature:

₩ Agilent 14:29:18 Jul 22, 2016	Meas Setup
Ch Freq 2.412 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Center 2.412000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB	<u>Exp</u> Repeat
#Peak	Max Hold
	<u>On</u> Off
dB/	Occ BW % Pwr 99.00 %
	OBW Span
Center 2.412 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	50.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 13.3474 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 154.058 kHz × dB Bandwidth 9.162 MHz	Optimize Ref Level

Figure 88. Six dB Bandwidth 802.11b Low Channel

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₩ Agilent 14:27:22 Jul 22, 2016	Meas Setup
Ch Freq 2.442 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Center 2.442000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB #Peak	Exp Repeat
Log 10 20 20 20 20 20 20 20 20 20 20 20 20 20	Max Hold On Off
dB/	Occ BW % Pwr 99.00 %
Center 2.442 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	OBW Span 50.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 13.4563 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 133.816 kHz × dB Bandwidth 9.175 MHz	Optimize RefLevel

Figure 89. Six dB Bandwidth 802.11b Mid Channel

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

★ Agilent 14:25:37 Jul 22, 2016	Meas Setup
Ch Freq 2.462 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
х dB — 6.00 dB Ref 81.99 dBµV #Atten 5 dB	Avg Mode Exp Repeat
#Peak	<u>On</u> Max Hold
dB/	0cc BW % Pwr 99.00 %
Center 2.462 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	OBW Span 50.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Риг 99.00 Х 13.4897 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 161.717 kHz x dB Bandwidth 9.175 MHz	Optimize Ref Level

Figure 90. Six dB Bandwidth 802.11b High Channel

₩ Agilent 14:58:09 Jul 22, 2016	Meas Setup
Ch Freq 2.462 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Ref 81.99 dBµV #Atten 5 dB	Avg Mode Exp Repeat
#Peak Log 10	Max Hold On Off
dB/	Occ BW % Pwr 99.00 %
Center 2.462 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	OBW Span 50.0000000 MHz
Оссирied Bandwidth Осс ВИ % Рыг 99.00 % 18.5769 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 62.792 kHz × dB Bandwidth 16.583 MHz	Optimize Ref Level

Figure 91. Six dB Bandwidth 802.11g Low Channel

₩ Agilent 15:00:31 Jul 22, 2016	Meas Setup
Ch Freq 2.442 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Center 2.442000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB	<u>Exp</u> Repeat
#Peak	Max Hold On Off
10	On Off
dB/	0cc BW % Pwr 99.00 %
	0BW Span
Center 2.442 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	50.0000000 MHz
Оссирied Bandwidth Осс ВИ % Риг 99.00 % 19.4757 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 463.135 kHz × dB Bandwidth 16.537 MHz	Optimize Ref Level

Figure 92. Six dB Bandwidth 802.11g Mid Channel

★ Agilent 15:02:19 Jul 22, 2016	Meas Setup
Ch Freq 2.412 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Center 2.412000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB	<u>Exp</u> Repeat
#Peak	Max Hold
10	<u>On</u> Off
dB/	Occ BW % Pwr 99.00 %
	00.00 %
	OBW Span 50.0000000 MHz
Center 2.412 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	50.0000000 MHZ
Оссирied Bandwidth Осс ВН % Рыг 99.00 % 18.8810 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 340.293 kHz	Optimize
x dB Bandwidth 16.500 MHz	Ref Level

Figure 93. Six dB Bandwidth 802.11g High Channel

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

₩ Agilent 16:14:20 Jul 22, 2016	Meas Setup
Ch Freq 2.412 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Center 2.412000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB	<u>Exp</u> Repeat
#Peak	Max Hold On Off
	On Off
	Occ BW % Pwr 99.00 %
	OBW Span
Center 2.412 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	50.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 17.7488 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 20.361 kHz × dB Bandwidth 17.825 MHz	Optimize Ref Level

Figure 94. Six dB Bandwidth 802.11n Low Channel

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

* Agilent 16:12:46 Jul 22, 2016	Meas Setup
Ch Freq 2.442 GHz Trig Free Occupied Bandwidth Image: Charge State Stat	Avg Number 10 On Off
Center 2.442000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB	<u>Exp</u> Repeat
#Peak Log 10 → ∽	Max Hold On Off
dB/	Occ BW % Pwr 99.00 %
	OBW Span
Center 2.442 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	50.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 18.1947 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 199.904 kHz × dB Bandwidth 17.874 MHz	Optimize Ref Level

Figure 95. Six dB Bandwidth 802.1n Mid Channel

★ Agilent 15:55:37 Jul 22, 2016	Meas Setup
Ch Freq 2.462 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Ref 81.99 dBµV #Atten 5 dB	Avg Mode Exp Repeat
	Max Hold On Off
dB/	0cc BW % Pwr 99.00 %
Center 2.462 GHz Span 50 MHz Sweep 5.18 ms (401 pts)	OBW Span 50.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 17.7855 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 12.722 kHz × dB Bandwidth 17.839 MHz	Optimize Ref Level

Figure 96. Six dB Bandwidth 802.11n High Channel

FCC Part 15 Certification/ RSS 247 2ADCB-ACWIFI001 6715A-ACWIFI001 16-0139 August 26, 2016 Acuity Brands ACWIFI001

₩ Agilent 16:42:54 Jul 22, 2016	Meas Setup
Ch Freq 2.422 GHz Trig Free Occupied Bandwidth	Avg Number 10 On <u>Off</u>
Center 2.422000000 GHz	Avg Mode
Ref 81.99 dBµV #Atten 5 dB	<u>Exp</u> Repeat
#Peak Log	Max Hold
10	<u>On</u> Off
dB/	Occ BW % Pwr 99.00 %
	OBW Span
Center 2.422 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	50.0000000 MHz
Оссирied Bandwidth Осс ВМ % Рыг 99.00 % 36.0361 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 115.354 kHz × dB Bandwidth 35.587 MHz	Optimize Ref Level

Figure 97. Six dB Bandwidth 802.11 40 MHz BW Low Channel

★ Agilent 16:44:29 Jul 22, 2016	Meas Setup
Ch Freq 2.437 GHz Trig Free Occupied Bandwidth Image: Character Street St	Avg Number 10 On Off
Center 2.437000000 GHz	Avg Mode Exp Repeat
Ref 81.99 dBµV #Atten 5 dB #Peak Log 10 +	<u>On</u> Max Hold
dB/	Occ BW % Pwr 99.00 %
Center 2.437 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	OBW Span 50.0000000 MHz
Оссирied Bandwidth Осс ВИ Х Рыг 99.00 Х 36.1262 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 67.434 kHz × dB Bandwidth 36.555 MHz	Optimize RefLevel

Figure 98. Six dB Bandwidth - 15.247 – 802.11 40 MHz BW Mid Channel

★ Agilent 16:39:57 Jul 22, 2016	Meas Setup
Ch Freq 2.452 GHz Trig Free Occupied Bandwidth Image: Character Structure Image: Character Structu	Avg Number 10 On <u>Off</u>
Ref 81.99 dBµV #Atten 5 dB	Avg Mode Exp Repeat
#Peak Log 10	<u>On</u> Max Hold
dB/	Occ BW % Pwr 99.00 %
Center 2.452 GHz Span 50 MHz #Res BW 100 kHz VBW 300 kHz Sweep 5.18 ms (401 pts)	OBW Span 50.0000000 MHz
Оссирied Bandwidth Осс ВИ % Рыг 99.00 % 36.1762 MHz × dB -6.00 dB	x dB -6.00 dB
Transmit Freq Error 50.826 kHz × dB Bandwidth 36.521 MHz	Optimize Ref Level

Figure 99. Six dB Bandwidth - 15.247 – 802.11 40 MHz BW High Channel

US Tech Test Report:	FCC Part 15 Certification/ RSS 247
FCC ID:	2ADCB-ACWIFI001
IC:	6715A-ACWIFI001
Test Report Number:	16-0139
Issue Date:	August 26, 2016
Customer:	Acuity Brands
Model:	ACWIFI001

2.12 99% Occupied Bandwidth (IC RSS Gen, 6.6)

These measurements were performed while the EUT was in a constant transmit mode. A method similar to the marker delta method was used to capture the points. The RBW was set to approximately 1/100 of the manufacturers claimed RBW and with the VBW \geq RBW.

Table 53. 802.11b 20 dB Bandwidth and 99% Occupied Bandwidth

Frequency (MHz)	99% Occupied Bandwidth (MHz)
2412	13.347
2442	13.456
2462	13.489

Table 54. 802.11g 20 dB Bandwidth and 99% Occupied Bandwidth

Frequency (MHz)	99% Occupied Bandwidth (MHz)
2412	18.576
2442	19.475
2462	18.881

Table 55. 802.11n 20 dB Bandwidth and 99% Occupied Bandwidth

Frequency (MHz)	99% Occupied Bandwidth (MHz)
2412	17.748
2442	18.194
2462	17.785

Table 56. 802.11n (40MHz) 20 dB Bandwidth and 99% Occupied Bandwidth

Frequency (MHz)	99% Occupied Bandwidth (MHz)
2422	36.036
2437	36.126
2452	36.176

Test Date: July 22, 2016 Tested By Signature:

2.13 Measurement Uncertainty

The measurement uncertainties given were calculated using the method detailed in CISPR 16-4. A coverage factor of k=2 was used to give a level of confidence of approximately 95%.

2.13.1 Conducted Emissions Measurement Uncertainty

Measurement Uncertainty (within a 95% confidence level) for this test is \pm 2.78 dB.

2.13.2 Radiated Emissions Measurement Uncertainty

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is \pm 5.39 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is \pm 5.18 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is \pm 5.21dB.

2.14 FCC 15.407(c) Compliance

Per FCC 15.407(c), this device automatically discontinues transmission in case of either the absence of information to transmit or operational failures.

Data transmission is always initiated by software, which enables the transmitter to operate. The transmitter will only run when the data is being transmitted and then turns off at the end of the transmission.