

FCC CFR47 PART 15 SUBPART E INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

802.11a/g/n/ac WLAN + BLUETOOTH PCI-E CUSTOM COMBINATION CARD

MODEL NUMBER: BCM94360CS2

FCC ID: QDS-BRCM1072 IC: 4324A-BRCM1072

REPORT NUMBER: 13U14796-1, Revision A

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Prepared for BROADCOM CORPORATION 190 MATHILDA PLACE SUNNYVALE, CA 94086, U.S.A.

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NVLAP LAB CODE 200065-0

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1. ATTESTATION OF TEST RESULTS

STANDARD CFR 47 Part 15 Subpart C		TEST RESULTS Pass		
APPLICABLE STANDARDS				
DATE TESTED:	January 10 to March 21, 2013			
SERIAL NUMBER:	C8Y2521000NFC31EM & C8Y2521000FC31EK			
MODEL:	BCM94360CS2			
EUT DESCRIPTION:	802.11a/g/n/ac WLAN + Bluetooth PCI Card	E Custom Combination		
COMPANY NAME:	BROADCOM CORPORATION 190 MATHILDA PLACE SUNNYVALE, CA 94086, U.S.A.			

 INDUSTRY CANADA RSS-210 Issue 8 Annex 8
 Pass

 INDUSTRY CANADA RSS-GEN Issue 3
 Pass

 UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not

on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

FRANK IBRAHIM WISE PROJECT LEAD UL CCS

Tested By:

VIEN TRAN EMC ENGINEER UL CCS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10:2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <u>http://www.ccsemc.com</u>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/g/n/ac WLAN + Bluetooth PCI-E Custom Combination Card.

The radio module is manufactured by Broadcom.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

2400 - 2483.5 MHz Authorized Frequency Band									
Frequency	Frequency Mode Power, Power, Total Tota								
Range (MHz)		Chain 0	Chain 1	power	power				
		(dBm)	(dBm)	(dBm)	(mW)				
2412 - 2462	802.11b CDD 2TX	20.60	20.20	23.41	219.53				
2412 - 2462	802.11g Legacy 1TX	20.32	N/A	20.32	107.65				
2412 - 2462	802.11n HT20 CDD 2TX	20.25	20.08	23.18	207.78				
5725 - 5850 M	Hz Authorized Frequency Ba	nd							
Frequency	Mode	Power,	Power,	Total	Total				
Range (MHz)		Chain 0	Chain 1	power	power				
		(dBm)	(dBm)	(dBm)	(mW)				
5745 - 5825	802.11n HT20 CDD 2TX	20.10	20.11	23.12	204.89				
5755 - 5795	802.11n HT40 CDD 2TX	20.10	20.10	23.11	204.66				
5775 MHz	802.11n AC80 CDD 2TX	17.21	17.10	20.17	103.89				
5775 MHz	802.11n AC80 1TX	18.35	N/A	18.35	68.39				

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List of test reduction and modes covering other modes:

2400 - 2483.5 MHz Authorized Frequency Band (Antenna Port Testing)					
Frequency	Mode	Covered by			
Range (MHz)					
2412 - 2462	802.11b Legacy 1TX	802.11b CDD 2TX			
2412 - 2462	802.11g CDD 2TX	802.11n HT20 CDD 2TX			
2412 - 2462	802.11g BF 2TX	802.11n HT20 BF 2TX			
2412 - 2462	802.11n HT20 1TX	802.11g Legacy 1TX			
2412 - 2462	802.11n HT20 BF 2TX	802.11n HT20 CDD 2TX			

5725 - 5850 MH	5725 - 5850 MHz Authorized Frequency Band (Antenna Port Testing)					
Frequency	Mode	Covered by				
Range (MHz)						
5745 - 5825	802.11a Legacy 1TX	802.11n HT20 CDD 2TX				
5745 - 5825	802.11a CDD 2TX	802.11n HT20 CDD 2TX				
5745 - 5825	802.11n HT20 1TX	802.11n HT20 CDD 2TX				
5745 - 5825	802.11a BF 2TX	802.11n HT20 BF 2TX				
5745 - 5825	802.11n HT20 BF 2TX	802.11n HT20 CDD 2TX				
5745 - 5825	802.11n AC20 BF 2TX	802.11n HT20 CDD 2TX				
5755 - 5795	802.11n HT40 1TX	802.11n HT40 CDD 2TX				
5755 - 5795	802.11n HT40 BF 2TX	802.11n HT40 CDD 2TX				
5755 - 5795	802.11n AC40 BF 2TX	802.11n HT40 CDD 2TX				
5775	802.11n AC80 1TX	802.11n AC80 CDD 2TX				
5775	802.11n AC80 BF 2TX	802.11n AC80 CDD 2TX				

2400 - 2483.5 MHz Authorized Frequency Band (Radiated Testing)					
Frequency	Mode	Covered by			
Range (MHz)					
2412 - 2462	802.11b Legacy 1TX	802.11b CDD 2TX			
2412 - 2462	802.11g Legacy 1TX (Harmonics)	802.11n HT20 CDD 2TX (Harmonics)			
2412 - 2462	802.11g CDD 2TX	802.11n HT20 CDD 2TX			
2412 - 2462	802.11g BF 2TX	802.11n HT20 BF 2TX			
2412 - 2462	802.11n HT20 1TX	802.11g Legacy 1TX			

5725 - 5850 MHz Authorized Frequency Band (Radiated Testing)				
Frequency	Mode	Covered by		
Range (MHz)				
5745 - 5825	802.11g Legacy 1TX	802.11n HT20 CDD 2TX		
5745 - 5825	802.11a CDD 2TX	802.11n HT20 CDD 2TX		
5745 - 5825	802.11a BF 2TX	802.11n AC20 BF 2TX		
5745 - 5825	802.11n HT20 1TX	802.11n HT20 CDD 2TX		
5745 - 5825	802.11n HT20 BF 2TX	802.11n AC20 BF 2TX		
5755 - 5795	802.11n HT40 1TX	802.11n HT40 CDD 2TX		
5755 - 5795	802.11n HT40 BF 2TX	802.11n AC40 BF 2TX		
5775	802.11n AC80 1TX	802.11n AC80 2TX		

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5.3. DESCRIPTION OF AVAILABLE ANTENNAS

No.	Antenna Manufacturer	Antenna Type	Model	Peak gain @ 2412, 2422, 2432MHz,	Peak gain (6150- 6250MHz) @5200MHz	Peak gain (5250- 6360MHz) (26320MHz	Peak gain (5470-5725MHz) @5500, 5700MHz	Peak gain (5725- 6850MHz) @5785, 5805MHz	
r.	Amphenol/Pulse	802.11abgn WLANIBT Antenna	631-1546 WIFi 1	1.67	5.00	6.10	5.27	4.39	
t.	Amphenol/Pulse	802.11abgn WLAN Anterna	631-1546 WIFr 2	5.90	6.75	5.57	5.89	5.29	Host 1
2	Amphenol/ Pulsa	802.11abgn WLAN/97 Anterna	631-1547 WIFi 1	4.97	4.07	4.93	577	4.0	Host 2
2	Amphenol/Pulse	802 11sbgn WLAN Anterna	631-1547 WE12	487	4.74	5.21	651	yi 20	
2	Amphenol/ Pulse	802.11abgn WLANIET Antenna	631-1547 BT	4:97					

Notes:

- This table includes two sets of antennas, first set is identified by number (1) in the first column, and the second set is identified by number (2) in the first column.
- Red numbers in this table are the highest antenna gain used for SISO antenna port testing as worst-case scenario.
- Blue highlighted cells in this table are the antenna gains that yield the highest composite gain for 2TX modes, these numbers are used for 2TX antenna port testing as worst-case scenario.
- For radiated testing, the antennas with highest gains from first and second sets were selected as worst-case scenario.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom, rev. 6.30.118.62. The test utility software used during testing was BCM Internal, rev. 6.30.RC118.62.

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5.5. WORST-CASE CONFIGURATION AND MODE

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC.

Worst-Case data rates, as provided by the client, were as follows:

For 2.4 GHz Band: 802.11b: 1 Mb/s. 802.11g: 6 Mb/s. 802.11n 20MHz: MCS0.

For 5.8 GHz Band: 802.11a: 6 Mb/s. 802.11n 20MHz: MCS0. 802.11n 40MHz: MCS0. 802.11n 80MHz: MCS0.

Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power.

For Radiated Band Edge measurements preliminary testing showed that the worst case was vertical polarization, so final measurements were performed with vertical polarization only.

For all modes with single chain, chain 0 (connector J0, Main port) was selected per the software provided by the client. Based on the client a preliminary investigation was performed on the two chains and chain 0 was found to be worst-case.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

	;	Support Equipment Lis	t	
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	EliteBook 2730p	2CE848852D	DoC
Laptop	Lenovo	G560	CBU4473193	DoC
Laptop	Apple	Macbook Pro	C02H124BDV10	DoC
AC Adapter	HP	PPP09L	592C40CLLUTBUY	DoC
AC Adapter	Lenovo	ADP-65KH B	11S36001646ZZ1001FKY6	DoC
AC Adapter	Apple	A1343	C04207625HVDJ92BD	DoC
Adapter Board	Catalyst	MINI2EXP	N/A	N/A
Adapter Board	Catalyst	MINI2EXP	N/A	N/A
Adapter Board	Broadcom	BCM94331CSMFG	1458937	N/A
Adapter Board	Broadcom	BCM94331CSMFG	1504043	N/A

I/O CABLES

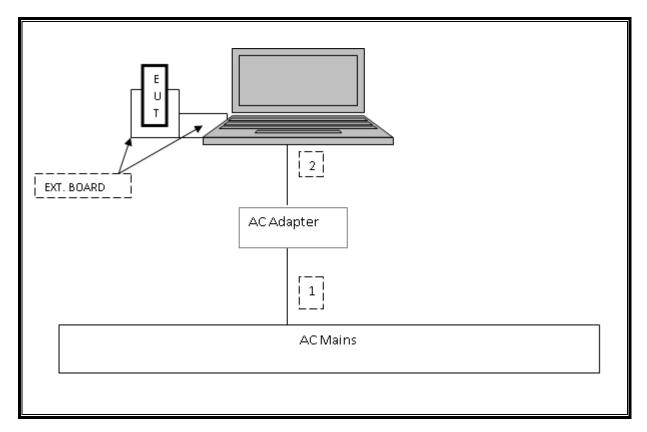
	I/O Cable List										
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks					
1	AC	2	US 115V	Un-Shielded	1.0m	NA					
2	DC	2	DC	Un-Shielded	1.8m	Ferrite at laptop's end					

TEST SETUP

The EUT is attached to a jig board which is installed in the PCMCI slot of a host laptop computer during the tests. Test software exercised the radio card.

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SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

	Test Equip	ment List			
Description	Manufacturer	Model	Asset	Cal Date	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/13/11	12/13/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	05/11/11	05/11/13
EMI Test Receiver, 9 kHz-7 GHz	R&S	ESCI 7	1000741	07/13/12	07/06/13
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	08/08/12	08/08/13
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/11	12/13/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/11	12/13/13
Antenna, Horn, 18 GHz	EMCO	3115	C00945	11/12/12	11/12/13
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00946	11/12/12	11/12/13
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	06/14/12	06/14/13
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	02/13/12	02/13/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/16/13	01/16/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/12	10/22/13
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/02/11	08/02/13
LISN, 30 MHz	FCC	50/250-25-2	N02396	08/08/12	08/08/13
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR	CNR
Reject Filter, 5.15-5.35 GHz	Micro-Tronics	BRC13190	N02680	CNR	CNR
Reject Filter, 5.47-5.725 GHz	Micro-Tronics	BRC13191	N02678	CNR	CNR
Reject Filter, 5.725-5.825 GHz	Micro-Tronics	BRC13192	N02676	CNR	CNR

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

<u>LIMITS</u>

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

Mode	ON Time	Period	Duty Cycle	Duty	Duty Cycle	1/B
	В		x	Cycle	Correction Factor	Minimum VBW
	(msec)	(msec)	(linear)	(%)	(dB)	(kHz)
2.4GHz Band						
802.11b CDD	12.460	12.580	0.990	99.05%	0.00	0.010
802.11g Legacy	2.075	2.090	0.993	99.28%	0.00	0.010
802.11n HT20 CDD	11.530	11.750	0.981	98.13%	0.00	0.010
5GHz Band						
802.11a	2.072	2.087	0.993	99.28%	0.00	0.010
802.11n HT20 CDD	1.930	1.951	0.989	98.92%	0.00	0.010
802.11n HT20 STBC	1.933	1.951	0.991	99.08%	0.00	0.010
802.11n HT40 SISO	0.915	0.966	0.947	94.72%	0.24	1.035
802.11n HT40 CDD	0.9139	0.9691	0.943	94.30%	0.25	1.032
802.11n HT40 STBC	0.936	0.969	0.966	96.59%	0.15	1.032
802.11n AC80 SISO	0.4637	0.4802	0.966	96.56%	0.15	2.082
802.11n AC80 CDD	0.4635	0.4816	0.962	96.24%	0.17	2.076

7.1. ON TIME AND DUTY CYCLE RESULTS

7.2. MEASUREMENT METHODS

<u>6 dB BW</u>: KDB 558074 D01 v02, Section 7.0.

Output Power: KDB 558074 D01 v02, Sections 8.2.3 and 8.2.4.

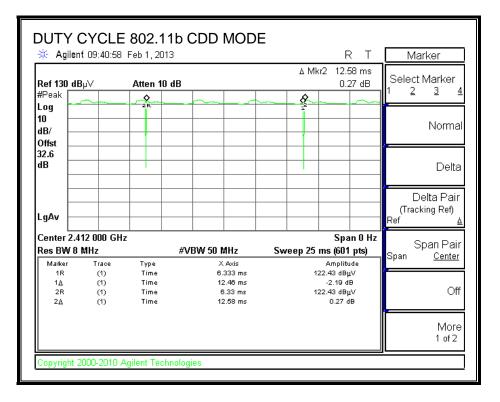
Power Spectral Density: KDB 558074 D01 v02, Sections 9.2 and 9.4.

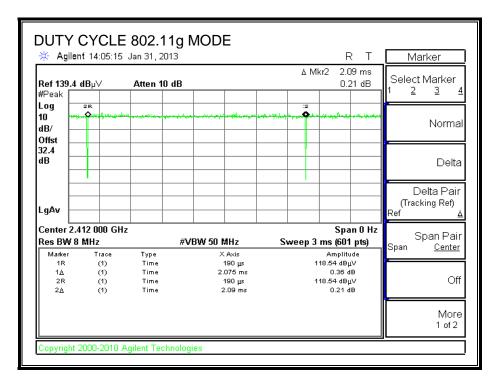
Out-of-band emissions in non-restricted bands: KDB 558074 D01 v02, Sections 10.1.

Out-of-band emissions in restricted bands: KDB 558074 D01 v02, Sections 10.2.1.

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7.3. DUTY CYCLE PLOTS 2.4 GHz



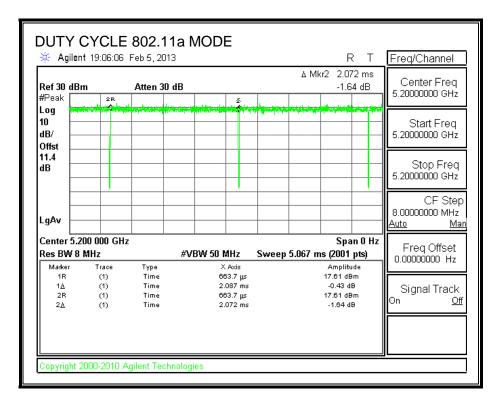


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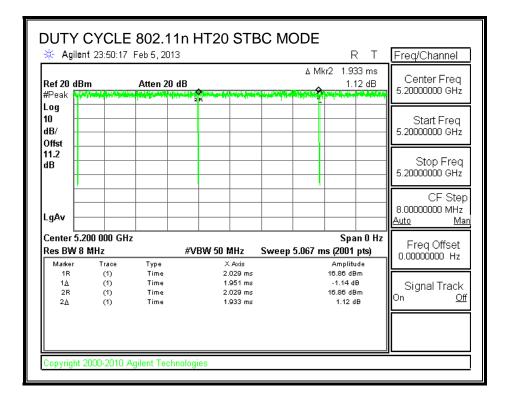
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🔆 Agilen	it 09:56:27	Feb 20, 2013	}			F	₹Т	Ma	rker
Ref 40.8 d	ΔM		75 m s 15 dB	Select					
#Peak	2R				1 ₂			1 <u>2</u>	3 4
Log 🔤	Markers way Ord	and an approximate a street and	wanger (1870 - 1971 (19	and a state of the second of t	and the second	and the second	an for the second s		
dB/									Norma
Offst 📃									
10.8 dB									
"" -									Delta
-	<u> </u>				- r				-lt- Deix
									elta Pair ting Ref)
LgAv ⊢								Ref	∆
Center 2.4	37 000 GH:	z				Spa	n O Hz		D .
Res BW 8	MHz		#VBW 50 M	Hz S	weep 18.8	ms (601	pts)) Span	pan Pair <u>Center</u>
Marker 1B	Trace	Туре Тіте		∿xis 14 m.s		Amplite 27.50 dB		opun	
1K 1∆	(1) (1)	Time		14 ms 53 ms		27.50 dB 0.70 d			
2R 2A	(1) (1)	Time Time		14 ms 75 ms		27.50 dB -0.85 d			Off
	0	Time	11.	, o ms		-0.00 u	~	ļ	
									More
									1 of 2

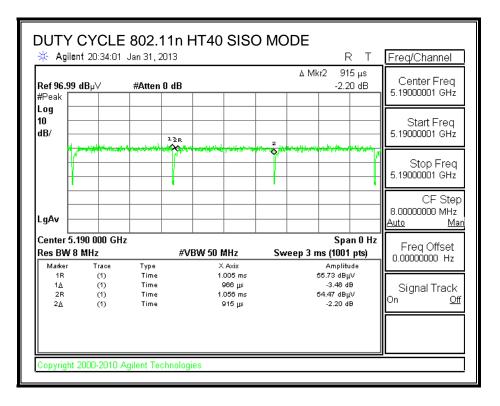
<u>5 GHz</u>

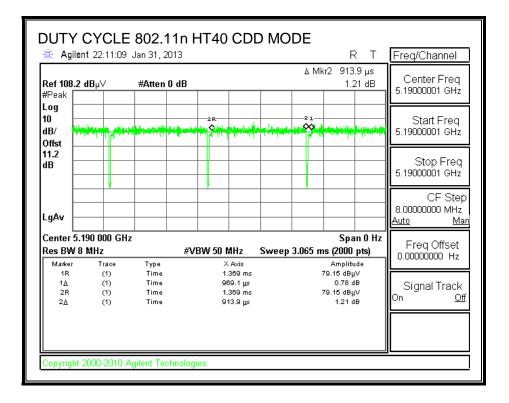


	Y CYCLE ilent 21:43:40								RΤ	Freq/Cha	annel
Ref 100 #Peak) dBµ∨	#Atten () dB				ΔMł		93 ms 74 dB	Center 5.1800000	
Log 10 dB/	ulter que l'hanne avec and		2R		ato states		2.	and the sector of		Start 5.1800000	Freq 10 GHz
Offst 10 dB					· · · · · ·					Stop 5.1800000) Freq 10 GHz
#PAvg										C 5.1800000 Auto	F Step 10 GHz <u>Mar</u>
	5.180 000 GH	z				-	F 0.07		an O Hz	Freg	Offset
Marker	V 8 MHz r Trace	Туре	#VI	<u>3W 50 N</u>	AHZ Axis	Sweep	5.067 m	S (1001 Amplitu	<u> </u>	0.000000	
1R	(1)	Time			905 ms		6	34.87 dBj			
1Δ	(1)	Time			951 ms			0.11 0		Signal	Track
2R 2A	(1) (1)	Time Time			905 ms .93 ms		6	4.87 dBµ 0.74 d		On	Off
									-		
	ht 2000-2010 A										



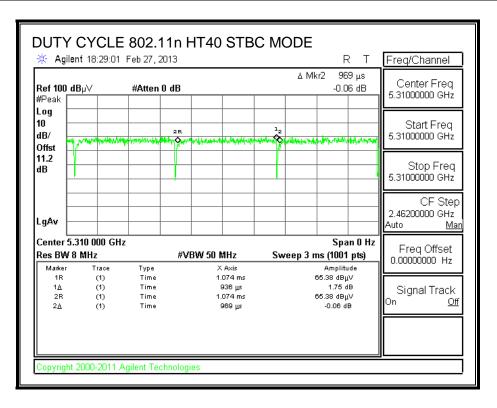
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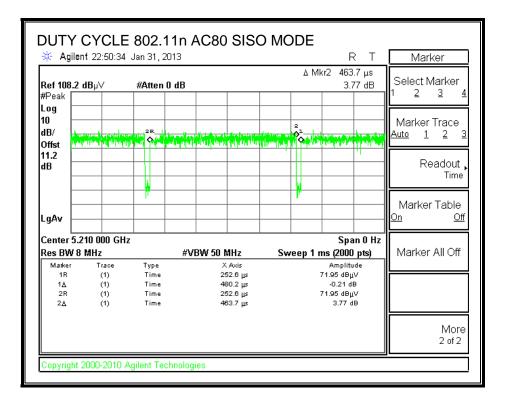




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			802.1 Feb 4, 20		4C80	CD	D MC	DE	F	₹Т	Freq/0	Channel
Ref 15 o #Peak			#Atten 1					∆ Mk	1.	.6 µs 31 dB		nter Freq 10000 GHz
Log 10 dB/ Offst								·•••••••••••				tart Freq 10000 GHz
11.4 dB												itop Freq 10000 GHz
LgAv											8.0000 <u>Auto</u>	CF Step 10000 MHz <u>Man</u>
Center	5.530 0	00 GHz							Spa	an O Hz		eq Offset
Res BW		:		#V	BW 50 N	//Hz	Sweep	1.067 m				00000 Hz
Marker 1R		race (1)	Type Time			Axis 19.2 цs			Amplite 4.52 dB			
14		(1) (1)	Time			ю∠µ.s 31.6 µ.s			1.31 c			nol Trook
2R		(1)	Time		9	i9.2 μs			4.52 dE		ll On	nal Track Off
2∆	I	(1)	Time		46)3.5 μs			0.58 (18		
Copyrig	ht 2000-	2010 A	gilent Tec	hnolog	ies						<u></u>	

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8. ANTENNA PORT TEST RESULTS

8.1. 802.11b Legacy 1TX MODE IN THE 2.4 GHz BAND

Covered by testing 11b CDD 2TX, power per chain used in the 802.11b 2TX mode is equal to the power per chain that will be used for 802.11b 1TX.

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8.2. 802.11b CDD 2TX MODE IN THE 2.4 GHz BAND

8.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

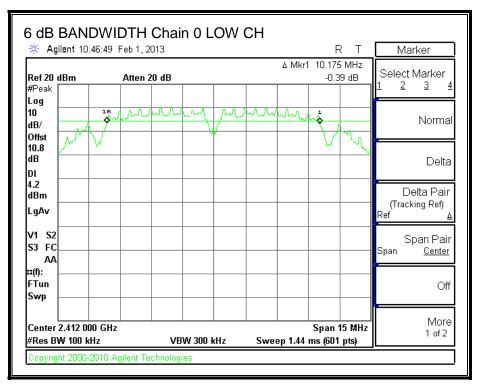
RESULTS

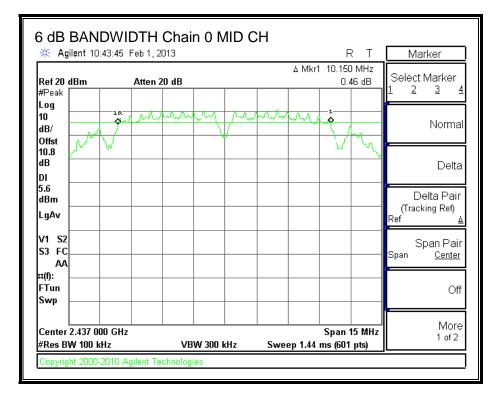
Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Chain 0	Chain 1	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low	2412	10.175	10.175	0.5
Mid	2437	10.150	10.075	0.5
High	2462	10.150	10.175	0.5

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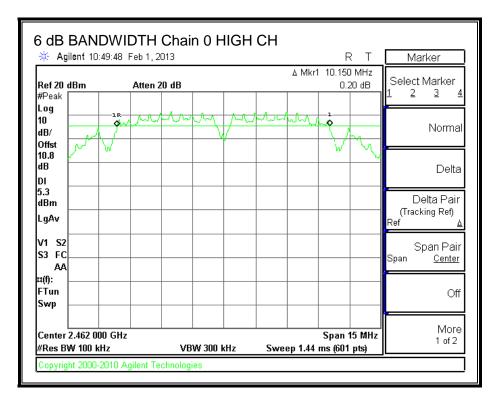
6 dB BANDWIDTH, Chain 0



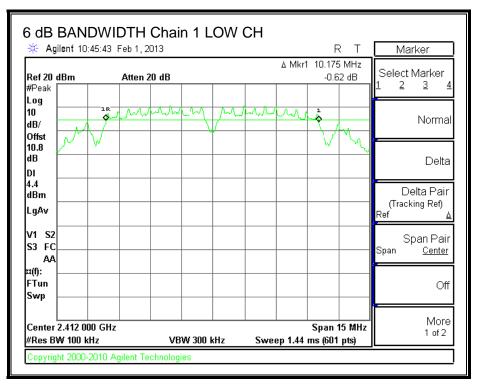


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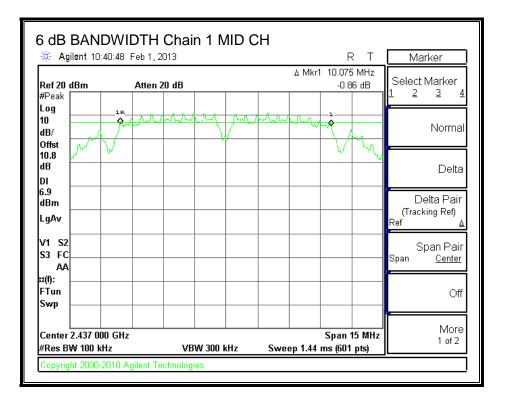


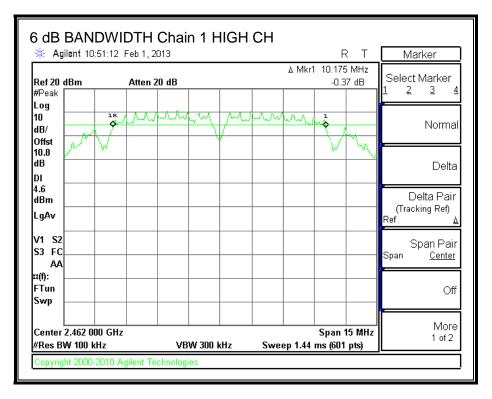
6 dB BANDWIDTH, Chain 1



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8.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

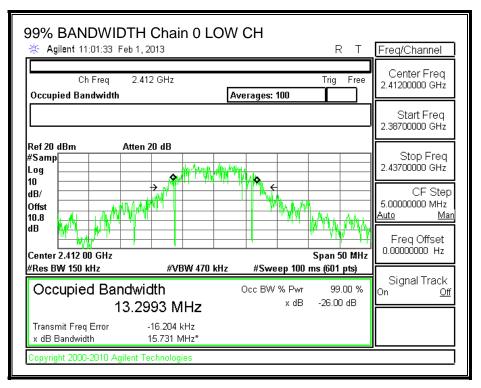
<u>RESULTS</u>

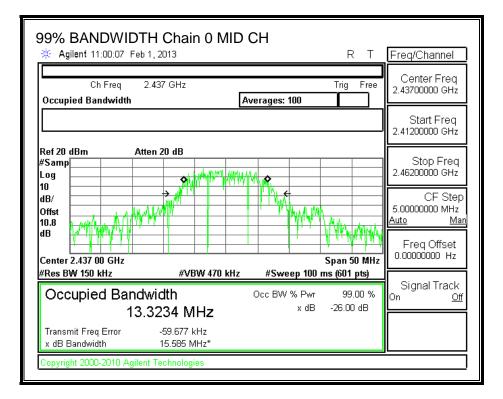
Channel	Frequency	99% BW	99% BW
		Chain 0	Chain 1
	(MHz)	(MHz)	(MHz)
Low	2412	13.2993	13.3097
Mid	2437	13.3234	13.3121
High	2462	13.3474	13.3275

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99% BANDWIDTH, Chain 0

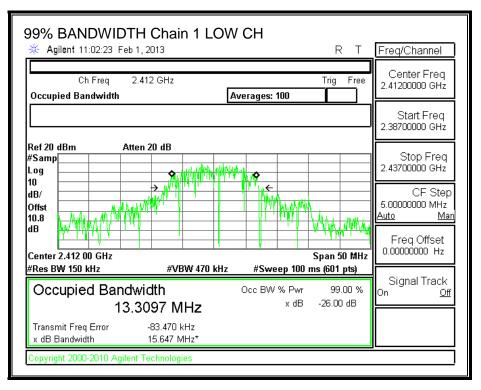




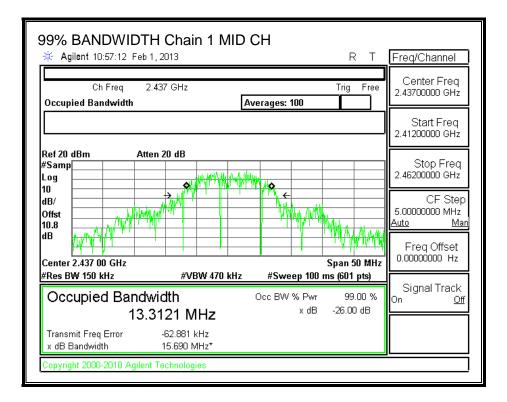
Page 28 of 200UL CCSFORM NO: CCSUP4701H47173 BENICIA STREET, FREMONT, CA 94538, USATEL: (510) 771-1000FAX: (510) 661-0888This report shall not be reproduced except in full, without the written approval of UL CCS.

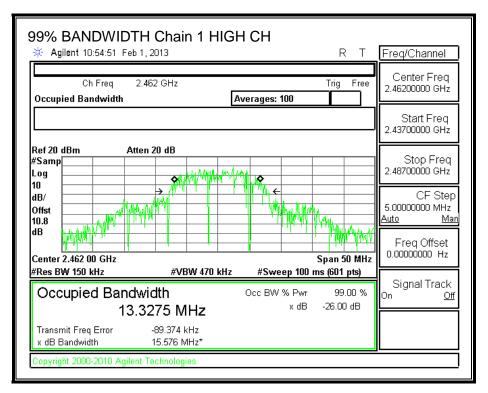
99% BANDWIDTH Chai	n 0 HIGH CH	R T	Freq/Channel
Ch Freq 2.462 GHz Occupied Bandwidth	Averages: 100	Trig Free	Center Freq 2.46200000 GHz
			Start Freq 2.43700000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10 dB/ Offst 10.8 dB Center 2.462 00 GHz		Span 50 MHz	Stop Freq 2.48700000 GHz CF Step 5.00000000 MHz <u>Auto</u> Freq Offset 0.00000000 Hz
#Res BW 150 kHz #V Occupied Bandwidth 13.3474 N	BW 470 kHz #Sweep 100 Occ BW % Pwr 1Hz × dB	99.00 %	Signal Track ^{On <u>Off</u>}
Transmit Freq Error -53.264 x dB Bandwidth 15.723 I Copyright 2000-2010 Agilent Technolog	kHz MHz*		

99% BANDWIDTH, Chain 1



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8.2.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For output power consideration, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Uncorrelated Chains
Antenna	Antenna	Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
4.97	4.87	4.92

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<u>RESULTS</u>

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
Low	2412	4.92	30.00	30	36	30.00
Mid	2437	4.92	30.00	30	36	30.00
High	2462	4.92	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Chain 1	Total	Power	Margi
		Meas	Meas	Corr'd	Limit	
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	2412	19.88	19.75	22.83	30.00	-7.17
Mid	2437	20.60	20.20	23.41	30.00	-6.59
High	2462	20.70	20.00	23.37	30.00	-6.63

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8.2.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

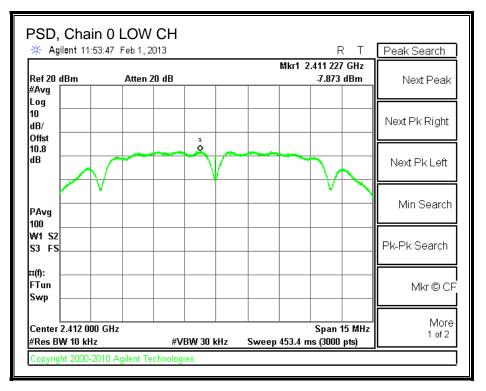
RESULTS

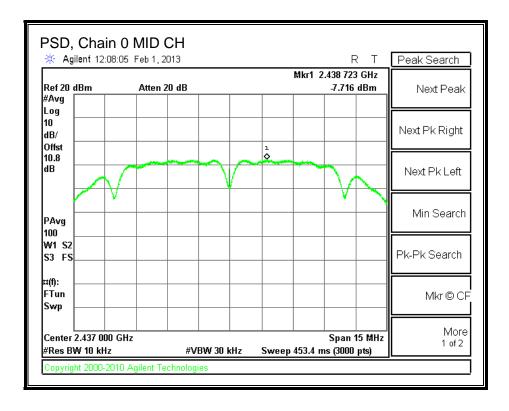
PSD Results

Channel	Frequency	Chain 0	Chain 1	Total	Limit	Margin
		Meas	Meas	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	2412	-7.873	-8.092	-4.971	8.0	-12.971
Mid	2437	-7.116	-7.114	-4.105	8.0	-12.105
High	2462	-7.657	-8.200	-4.910	8.0	-12.910

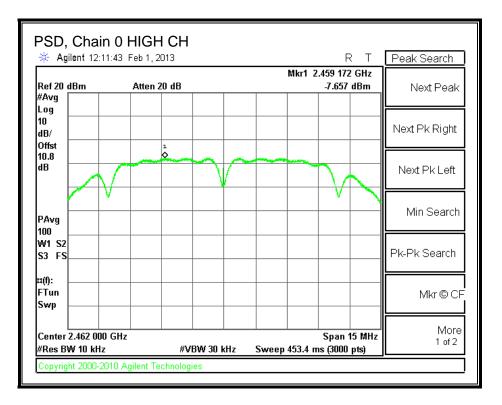
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PSD, Chain 0

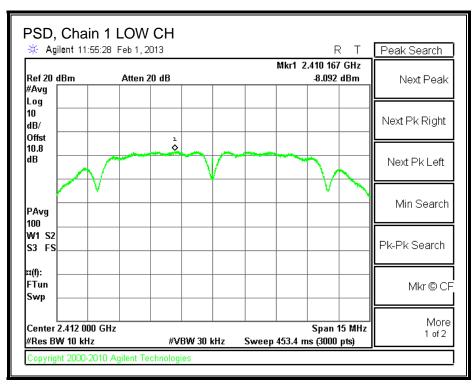




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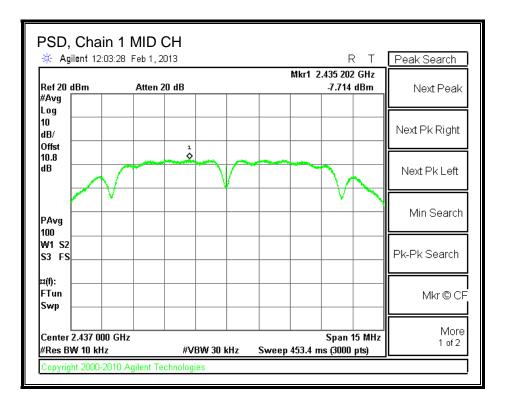


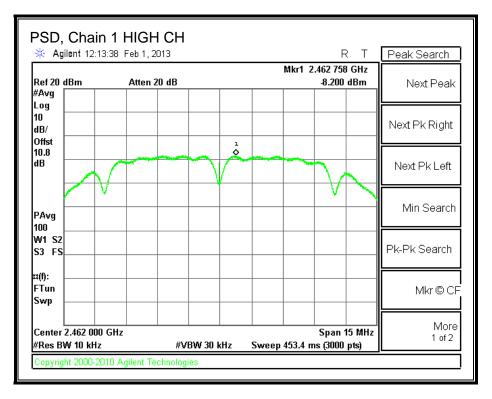
PSD, Chain 1



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8.2.5. OUT-OF-BAND EMISSIONS

LIMITS

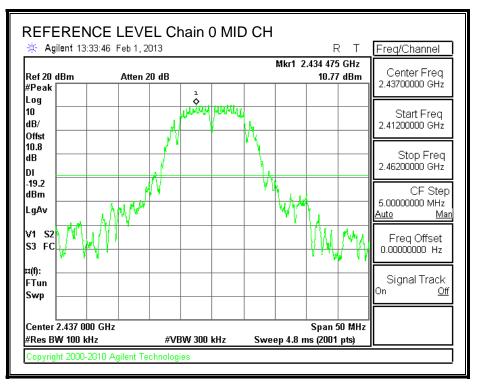
FCC §15.247 (d)

IC RSS-210 A8.5

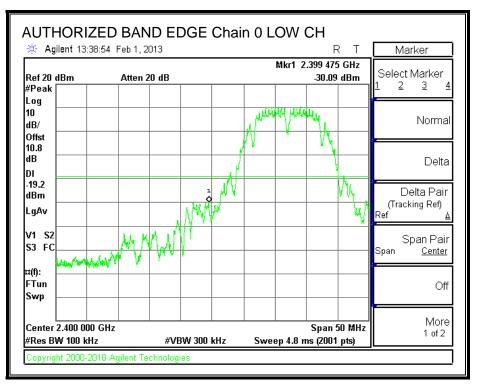
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

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IN-BAND REFERENCE LEVEL, Chain 0



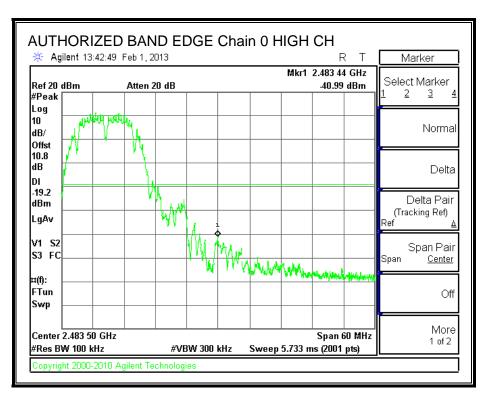
LOW CHANNEL BANDEDGE, Chain 0



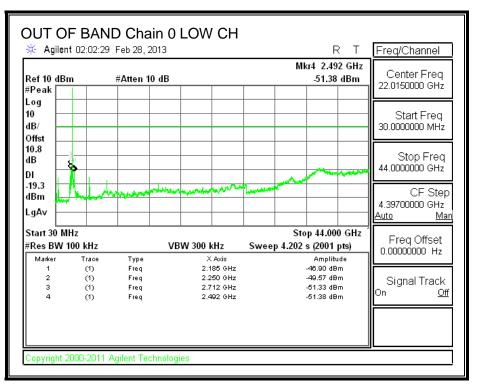
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HIGH CHANNEL BANDEDGE, Chain 0

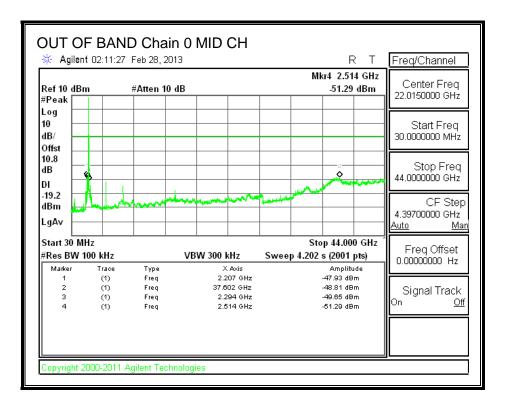


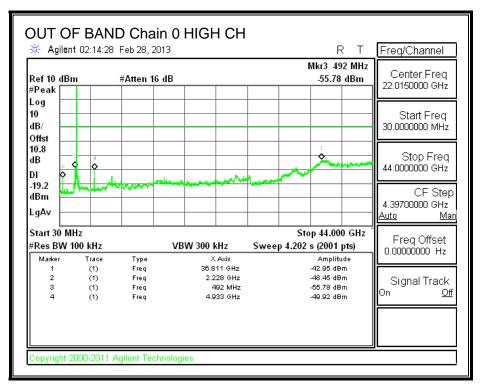
OUT-OF-BAND EMISSIONS, Chain 0



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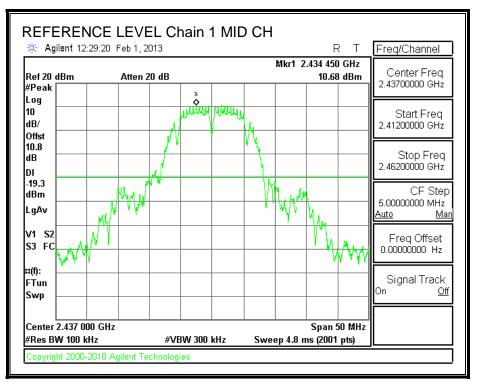
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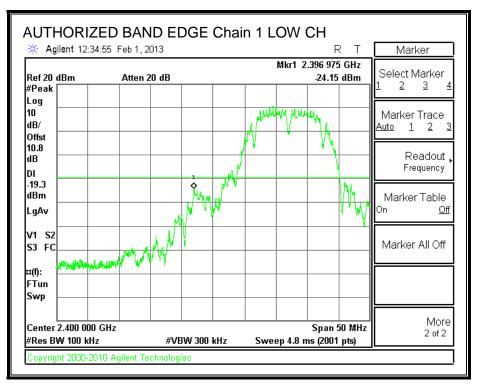


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IN-BAND REFERENCE LEVEL, Chain 1



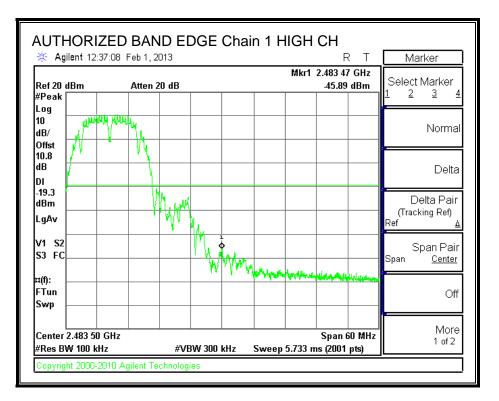
LOW CHANNEL BANDEDGE, Chain 1

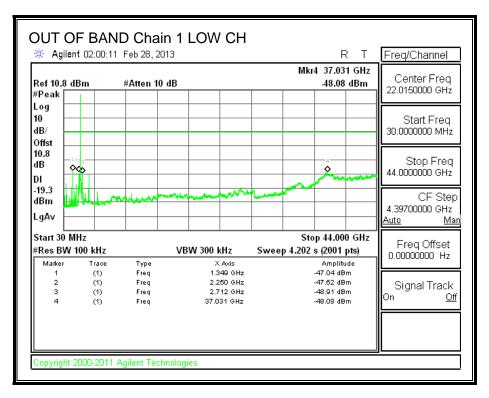


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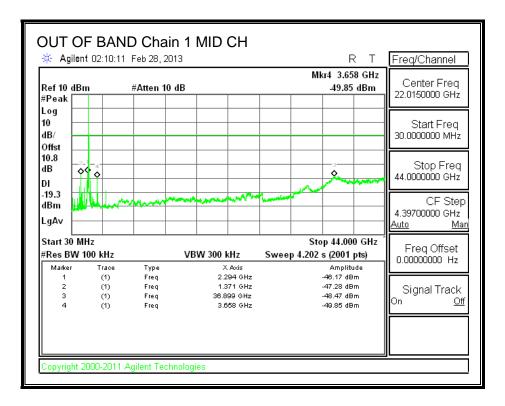
HIGH CHANNEL BANDEDGE, Chain 1

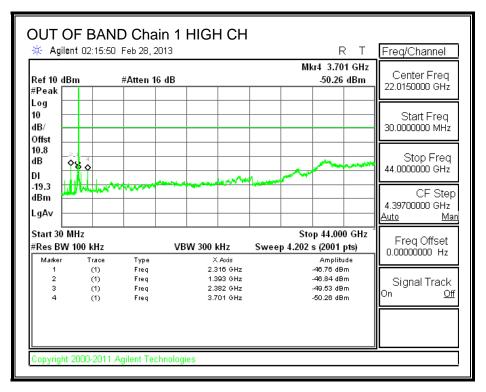




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8.3. 802.11g Legacy 1TX MODE IN THE 2.4 GHz BAND

8.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

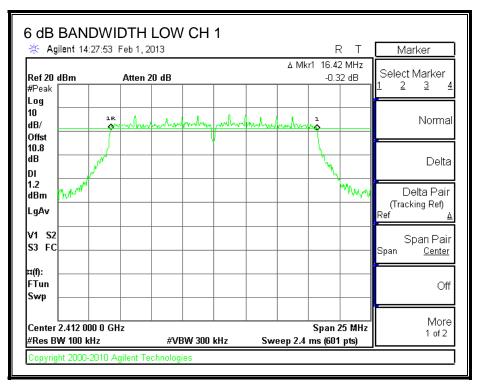
RESULTS

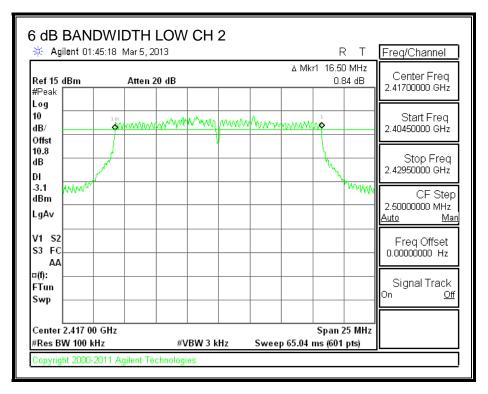
Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low 1	2412	16.42	0.5
Low 2	2417	16.50	0.5
Mid	2437	16.42	0.5
High 2	2457	16.65	0.5
High 1	2462	16.42	0.5

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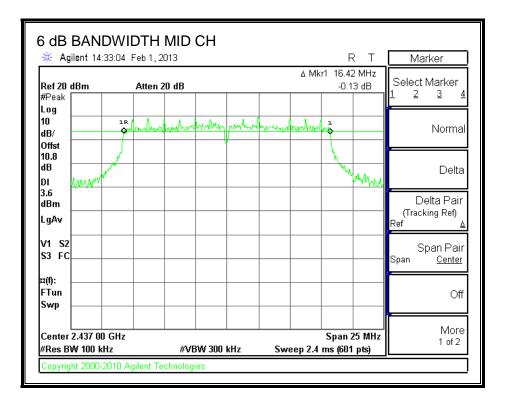
6 dB BANDWIDTH

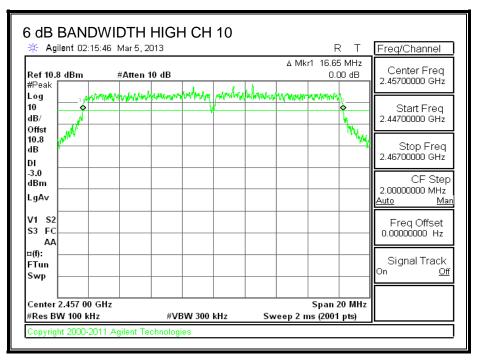




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6 dB I					H CH	11			F	?Т	Marker	٦
Ref 20 d #Peak		.34.40	Atten 2					∆ Mk	r1 16.42		Select Marker	l 1
Log 10 dB/ Offst		lR Ø	mathy	hardwyw	walking	partural	mmm	mahn	1		Norma	I
10.8 dB DI		award -							l - Vu		Delta	Ī
0.5 dBm LgAv	h-Malana									YMWW	Delta Pair (Tracking Ref) Ref ∆	j
V1 S2 S3 FC											Span Pair Span <u>Center</u>	-
¤(f): FTun Swp -											Off	1
Center 2 #Res BV				#VE	300 W	kHz	Swe	eep 2.4	•	25 MHz pts)	More 1 of 2	ļ
Copyrigh	nt 2000-	2010 A	gilent Te	chnologi	es]

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8.3.2. 99% BANDWIDTH

<u>LIMITS</u>

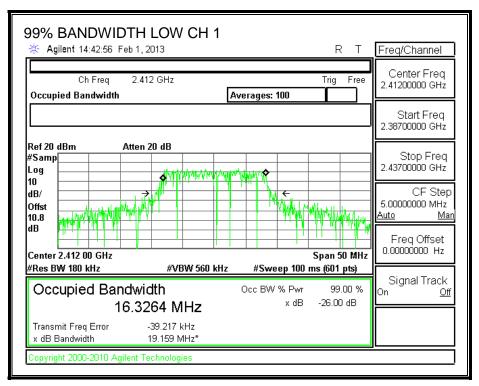
None; for reporting purposes only.

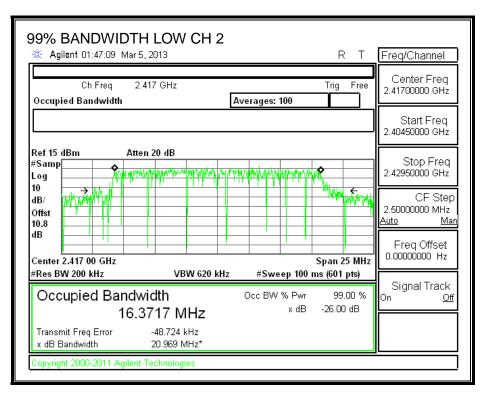
RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low 1	2412	16.3264
Low 2	2417	16.3717
Mid	2437	17.3769
High 2	2457	16.4839
High 1	2462	16.4286

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99% BANDWIDTH

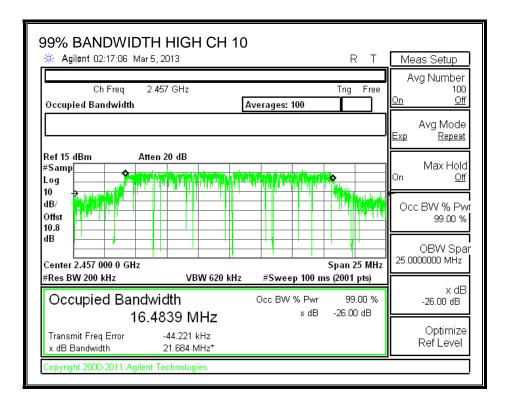




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99% BANDWIDTH MID CH	I R T	Freq/Channel
Ch Freq 2.437 GHz Occupied Bandwidth	Trig Free Averages: 100	Center Freq 2.43700000 GHz
		Start Freq 2.41200000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10		Stop Freq 2.46200000 GHz
10 dB/ Offst 10.8 dB	A Married And A	CF Step 5.0000000 MHz <u>Auto Man</u>
Center 2.437 00 GHz #Res BW 180 kHz #VBW 5	Span 50 MHz 60 kHz #Sweep 100 ms (601 pts)	Freq Offset 0.00000000 Hz
Occupied Bandwidth 16.3769 MHz	Occ BW % Pwr 99.00 % x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -84.568 kHz x dB Bandwidth 22.829 MHz*		
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99% BANDWIDTH			RT	Freq/Channel
Ch Freq 2.44 Occupied Bandwidth	52 GHz	verages: 100	Trig Free	Center Freq 2.46200000 GHz
				Start Freq 2.43700000 GHz
#Samp	20 dB			Stop Freq 2.48700000 GHz
10 dB/ Offst 10.8 0.8 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4			Not a state of the	CF Step 5.0000000 MHz <u>Auto Mar</u>
dB Center 2.462 00 GHz #Res BW 180 kHz	#VBW 560 kHz	#Sweep 100	Span 50 MHz	Freq Offset 0.00000000 Hz
Occupied Bandwi		Occ BW % Pwr x dB	99.00 %	Signal Track ^{On <u>Off</u>}
	-45.361 kHz 19.167 MHz*			
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8.3.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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<u>RESULTS</u>

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
1	2412	5.98	30.00	30	36	30.00
2	2417	5.98	30.00	30	36	30.00
6	2437	5.98	30.00	30	36	30.00
10	2457	5.98	30.00	30	36	30.00
11	2462	5.98	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Total	Power	Margin
		Meas	Corr'd	Limit	
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	17.55	17.55	30.00	-12.45
2	2417	20.18	20.18	30.00	-9.82
6	2437	20.20	20.20	30.00	-9.80
10	2457	20.32	20.32	30.00	-9.68
11	2462	17.55	17.55	30.00	-12.45

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8.3.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

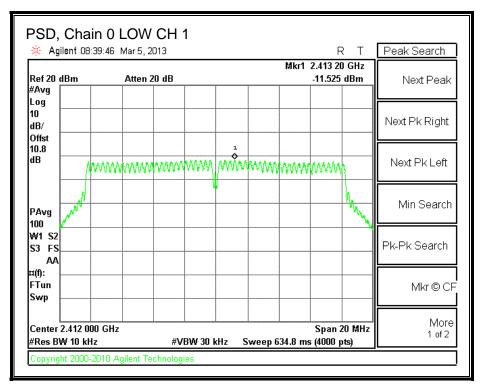
RESULTS

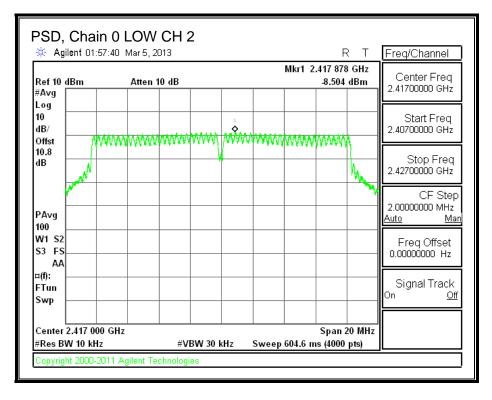
PSD Results

Channel	Frequency	Chain 0	Limit	Margin
		Meas		
	(MHz)	(dBm)	(dBm)	(dB)
1	2412	-11.525	8.0	-19.5
2	2417	-8.504	8.0	-16.5
6	2437	-9.022	8.0	-17.0
10	2457	-9.260	8.0	-17.3
11	2462	-11.801	8.0	-19.8

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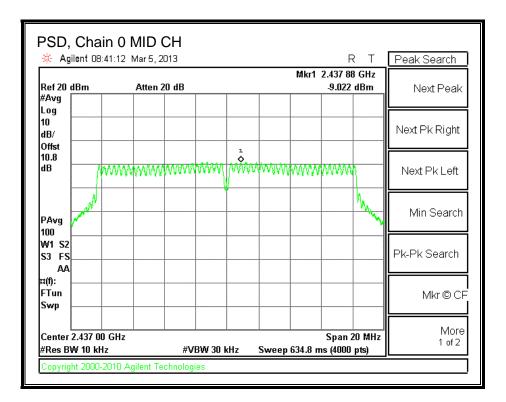
PSD, Chain 0

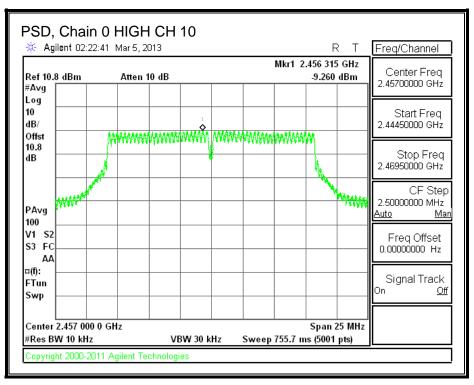




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👫 Agilent 10:4	46:49 Mar5,20	13			RT	1 oak ooaren
tef 20 dBm Avg	Atten 20) dB		Mkr1	2.463 22 GHz -11.801 dBm	
og 0 B/						Next Pk Right
0.8	www.ww	wwww	www	wwww	AWWWA	Next Pk Left
Avg)			- King	Min Search
V1 S2 3 FS AA						Pk-Pk Search
(f): Tun wp						Mkr@Cl
enter 2.462 00 Res BW 10 kHz		#VBW 30 I	kHz Sw	eep 634.8 r	Span 20 MH ns (4000 pts)	Iz More 1 of 2

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8.3.5. OUT-OF-BAND EMISSIONS

LIMITS

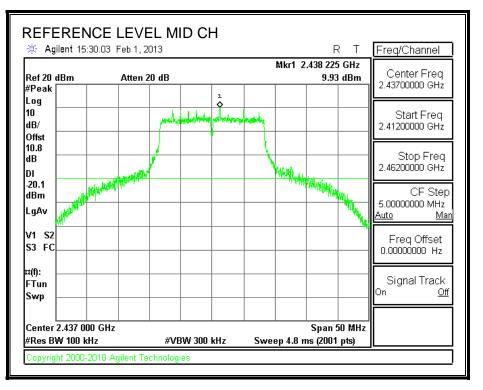
FCC §15.247 (d)

IC RSS-210 A8.5

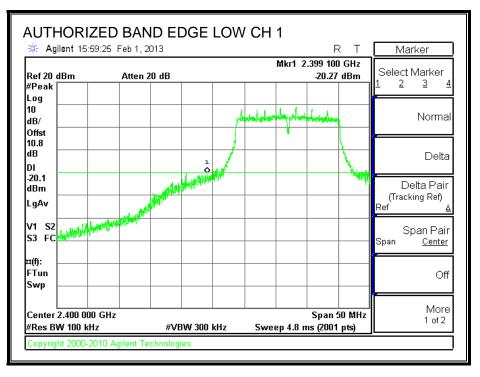
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

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IN-BAND REFERENCE LEVEL

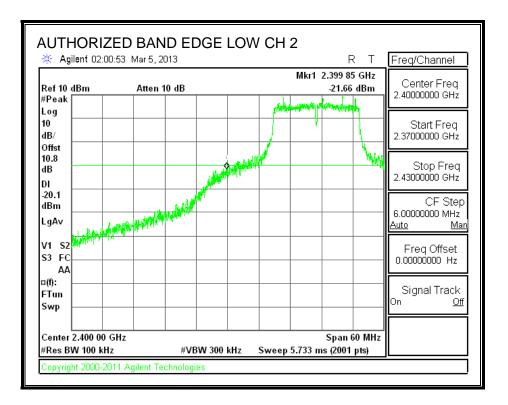


LOW CHANNEL BANDEDGE

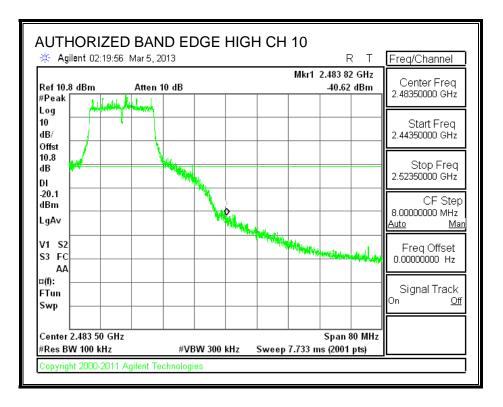


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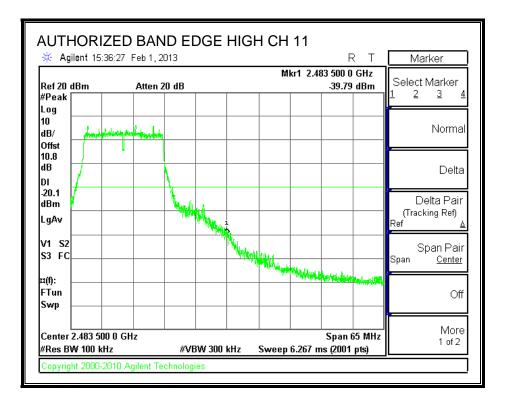
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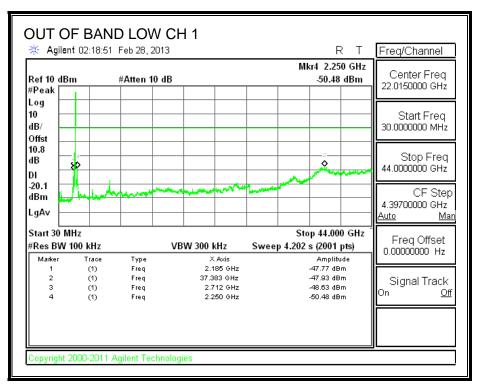
HIGH CHANNEL BANDEDGE

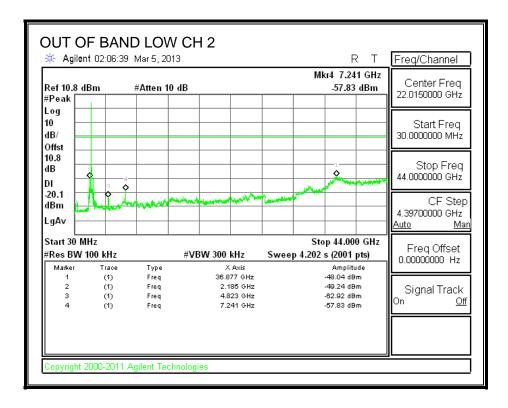


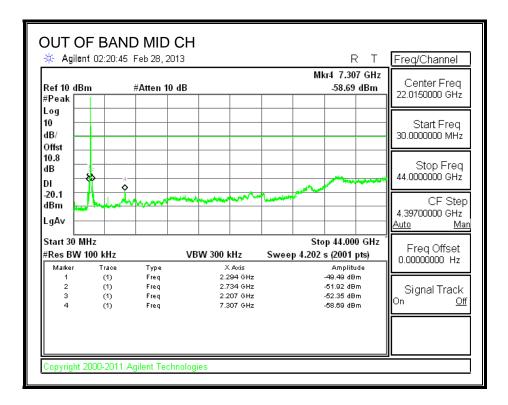
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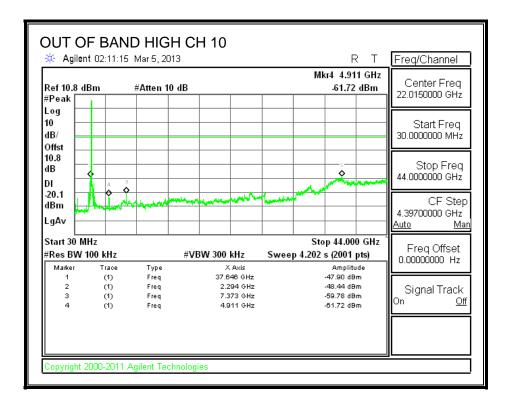
OUT-OF-BAND EMISSIONS

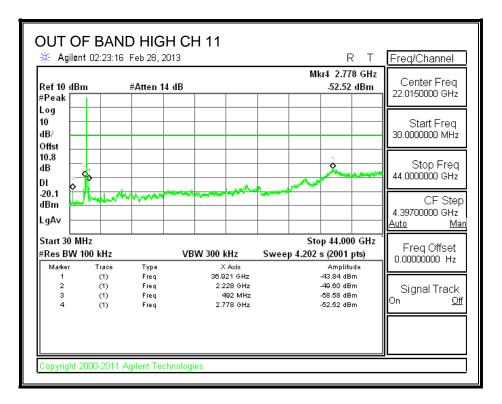






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8.4. 802.11g CDD 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.5. 802.11g TxBF 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.6. 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

Covered by testing 11g Legacy 1TX, power is equal or higher than the power level the device will operate at.

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8.7. 802.11n HT20 CDD 2TX MODE IN THE 2.4 GHz BAND

8.7.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

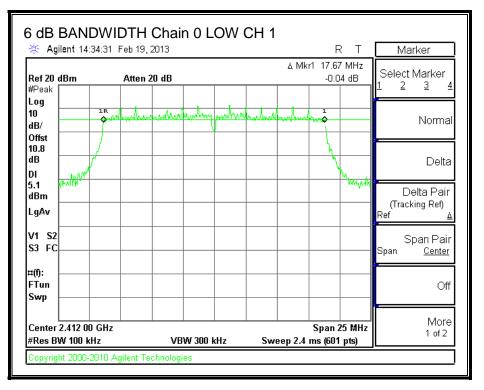
RESULTS

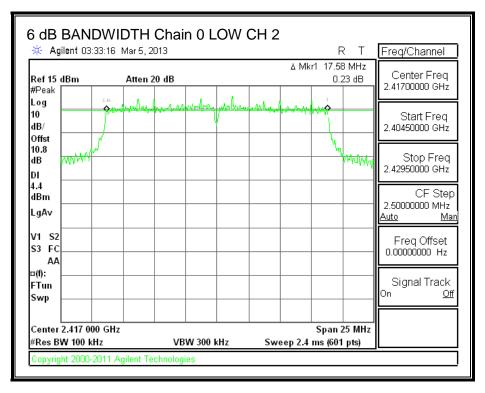
Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Chain 0	Chain 1	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low 1	2412	17.67	17.67	0.5
Low 2	2417	17.58	17.67	0.5
Mid	2437	17.67	17.67	0.5
High 10	2457	17.67	17.67	0.5
High 11	2462	17.62	17.67	0.5

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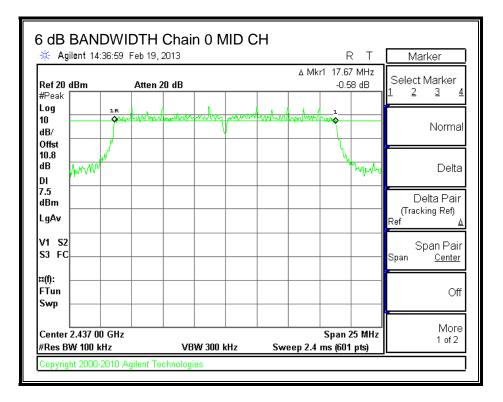
6 dB BANDWIDTH, Chain 0

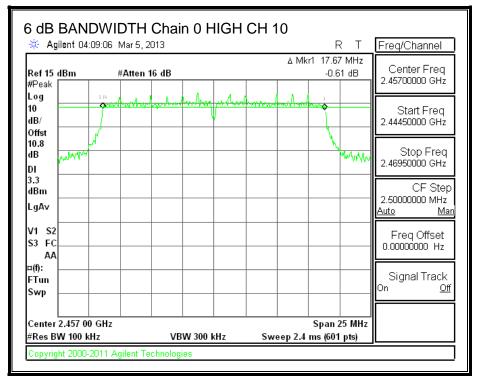




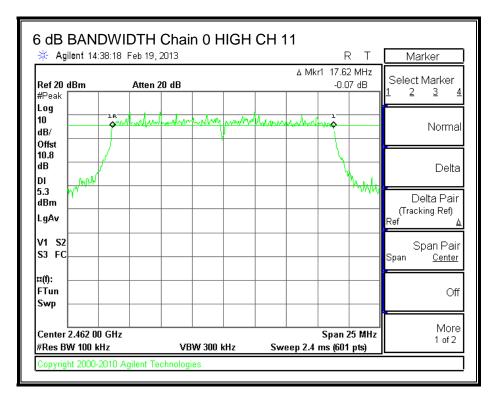
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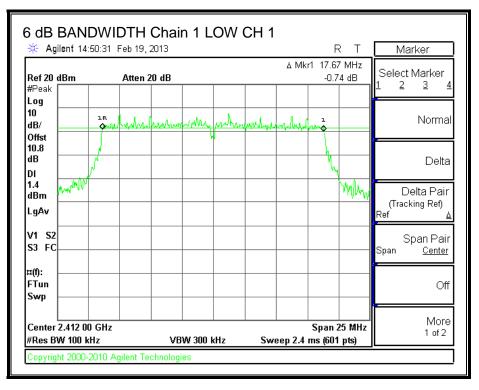




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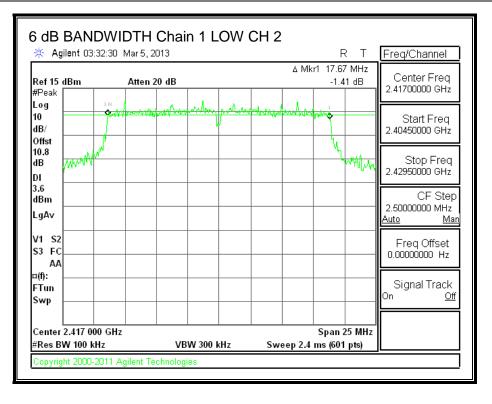


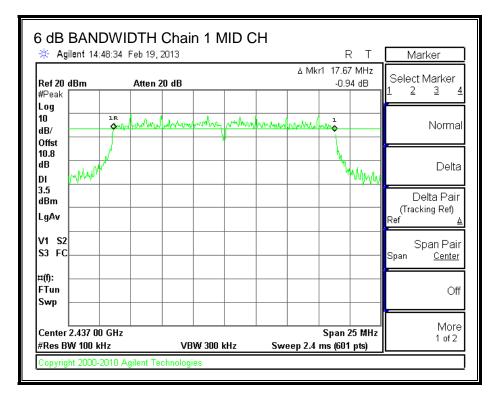
6 dB BANDWIDTH, Chain 1



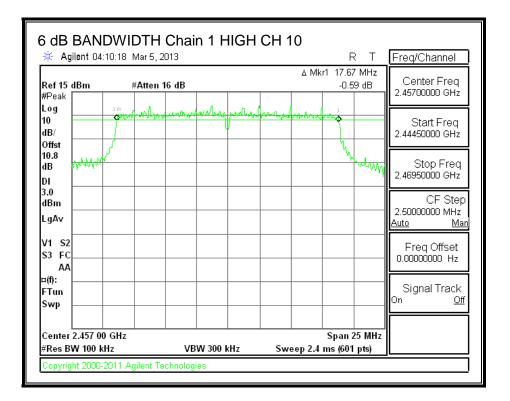
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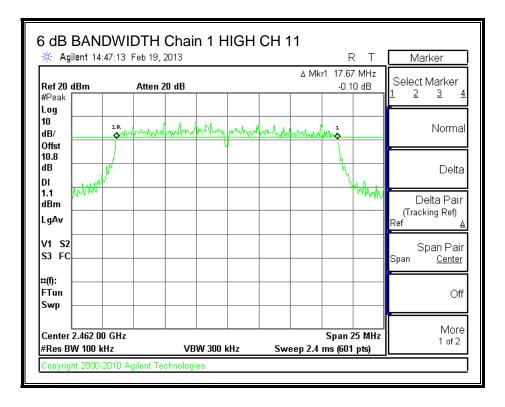
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8.7.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

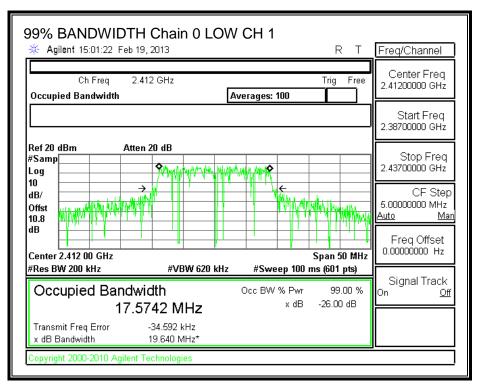
<u>RESULTS</u>

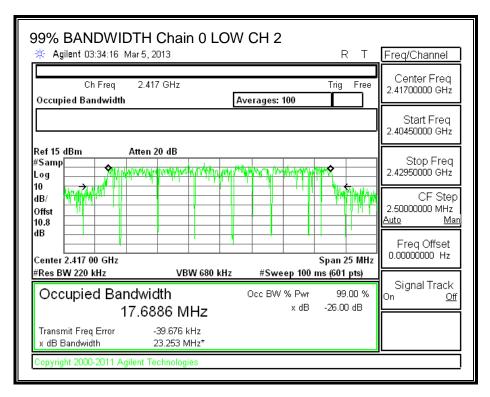
Channel	Frequency	99% BW	99% BW
		Chain 0	Chain 1
	(MHz)	(MHz)	(MHz)
Low 1	2412	17.5742	17.3810
Low 2	2417	17.6886	17.6279
Mid	2437	17.6347	17.6691
High 10	2457	17.6682	17.6530
High 11	2462	17.5510	17.6254

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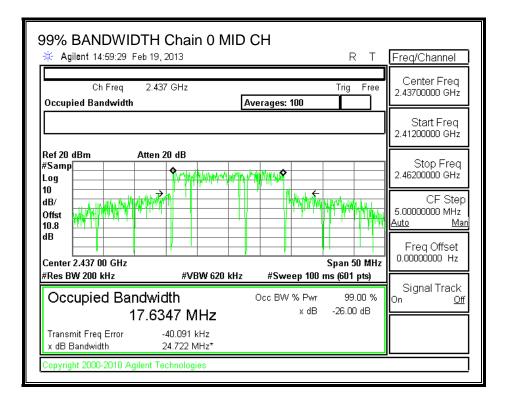
99% BANDWIDTH, Chain 0

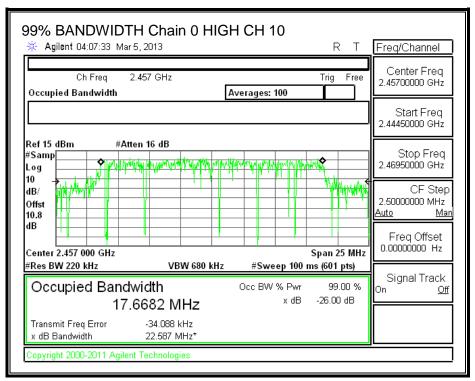




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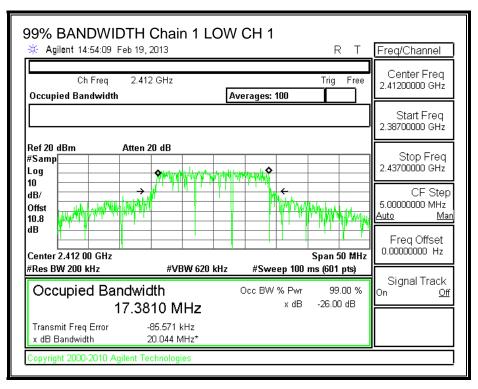


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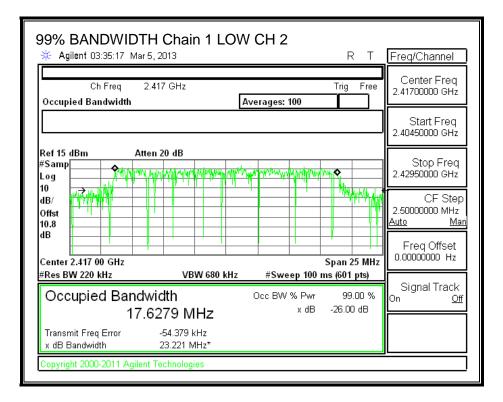
99% BANDWIDTH C		RT	Freq/Channel
Ch Freq 2.462 C Occupied Bandwidth	GHz Averages: 100	Trig Free	Center Freq 2.46200000 GHz
			Start Freq 2.43700000 GHz
Ref 20 dBm Atten 20 #Samp Log 10 dB/ Offst 10.8 dB Center 2.462 00 GHz		Span 50 MHz	Stop Freq 2.48700000 GHz 5.00000000 MHz <u>Auto Man</u> Freq Offset 0.00000000 Hz
#Res BW 200 kHz	•	100 ms (601 pts)	Signal Track
Occupied Bandwidt 17.551		Pwr 99.00 % (dB -26.00 dB	On <u>Off</u>
x dB Bandwidth 19.	.684 kHz 775 MHz*		
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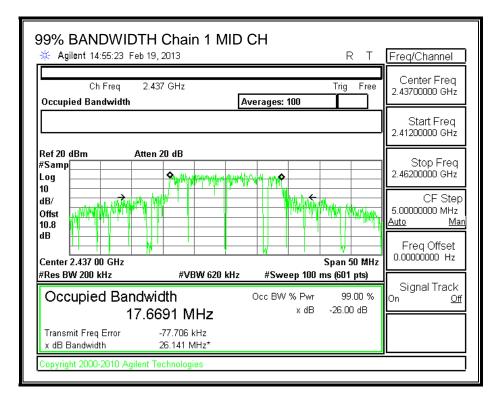
99% BANDWIDTH, Chain 1



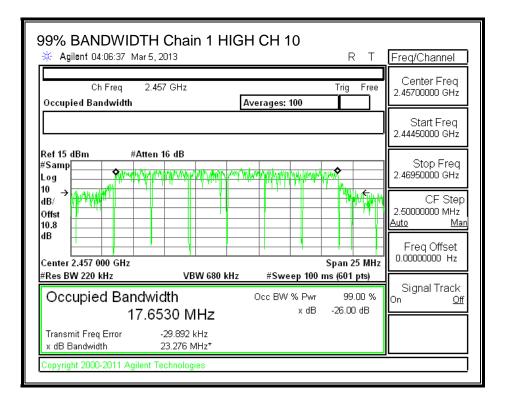
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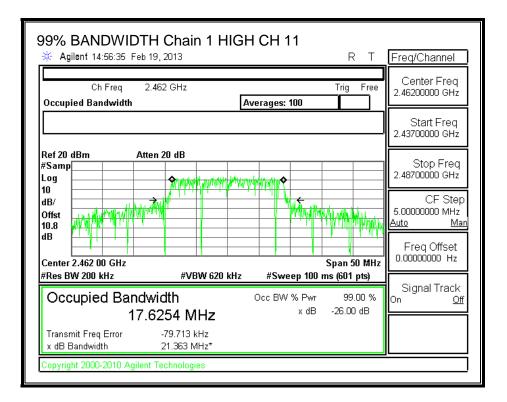
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8.7.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Uncorrelated Chains
Antenna	Antenna	Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
4.97	4.87	4.92

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RESULTS

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
1	2412	4.92	30.00	30	36	30.00
2	2417	4.92	30.00	30	36	30.00
6	2437	4.92	30.00	30	36	30.00
10	2457	4.92	30.00	30	36	30.00
11	2462	4.92	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Chain 1	Total	Power	Margin
		Meas	Meas	Corr'd	Limit	
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	15.40	15.60	18.51	30.00	-11.49
2	2417	20.02	20.17	23.11	30.00	-6.89
6	2437	20.10	20.05	23.09	30.00	-6.91
10	2457	20.25	20.08	23.18	30.00	-6.82
11	2462	16.15	15.81	18.99	30.00	-11.01

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8.7.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

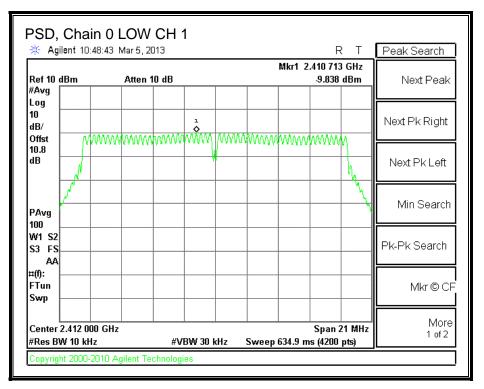
RESULTS

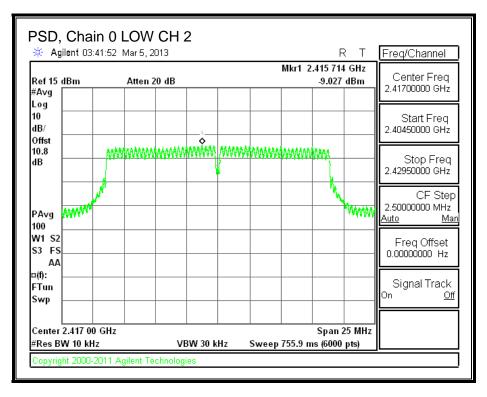
PSD Results

Channel	Frequency	Chain 0	Chain 1	Total	Limit	Margin
		Meas	Meas	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	-9.838	-9.737	-6.78	8.0	-14.8
2	2417	-9.027	-9.062	-6.03	8.0	-14.0
6	2437	-5.606	-5.129	-2.35	8.0	-10.4
10	2457	-9.371	-9.484	-6.42	8.0	-14.4
11	2462	-9.146	-9.790	-6.45	8.0	-14.4

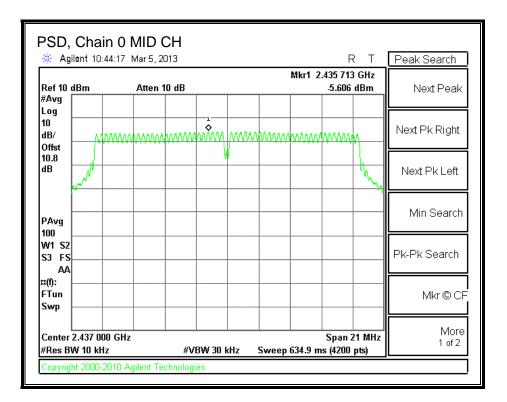
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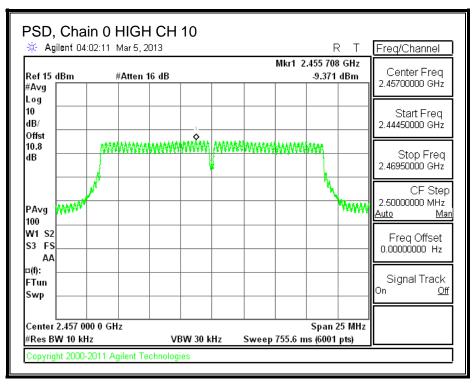
PSD, Chain 0





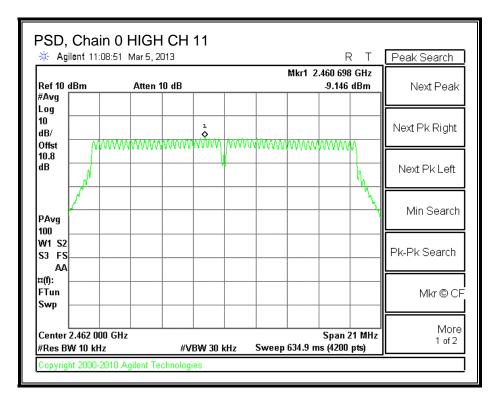
Page 80 of 200UL CCSFORM NO: CCSUP4701H47173 BENICIA STREET, FREMONT, CA 94538, USATEL: (510) 771-1000FAX: (510) 661-0888This report shall not be reproduced except in full, without the written approval of UL CCS.



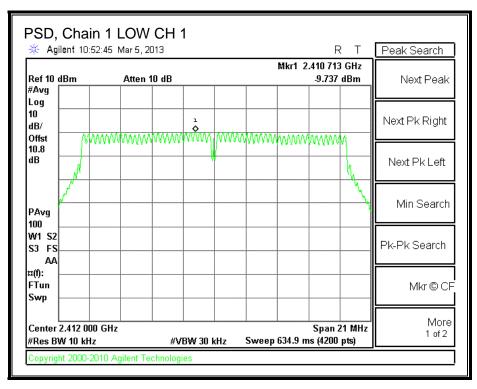


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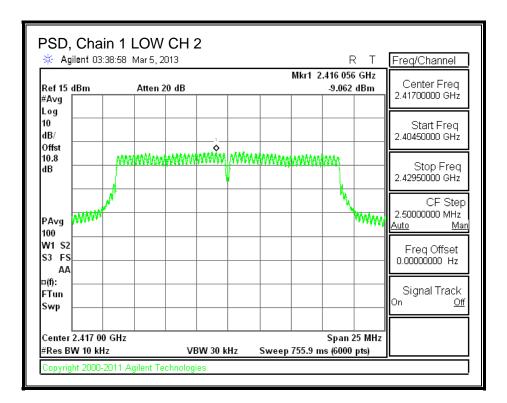


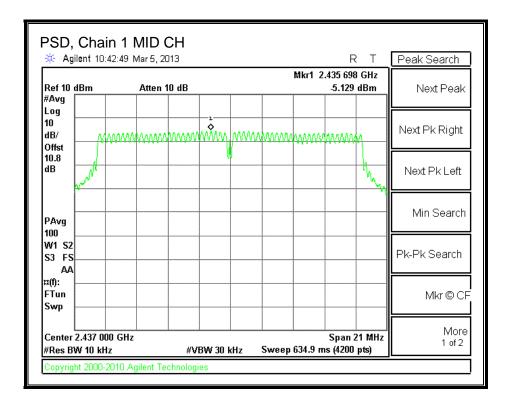
PSD, Chain 1



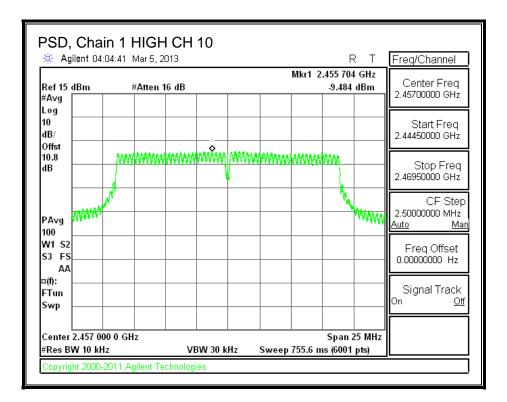
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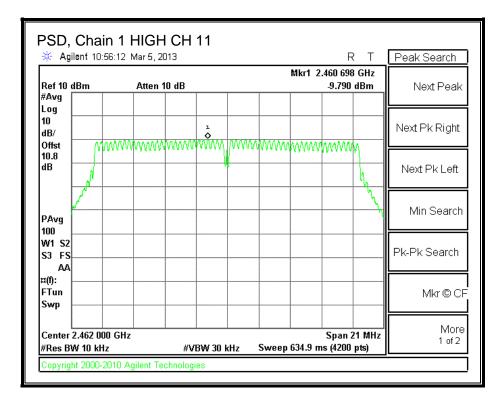
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8.7.5. OUT-OF-BAND EMISSIONS

LIMITS

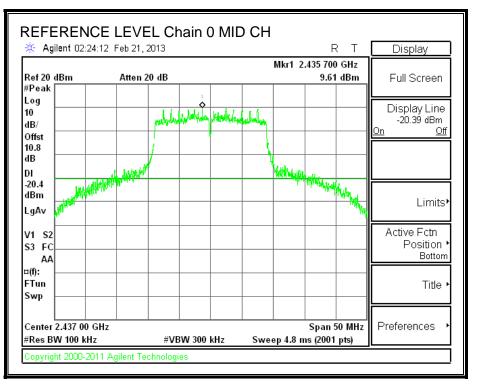
FCC §15.247 (d)

IC RSS-210 A8.5

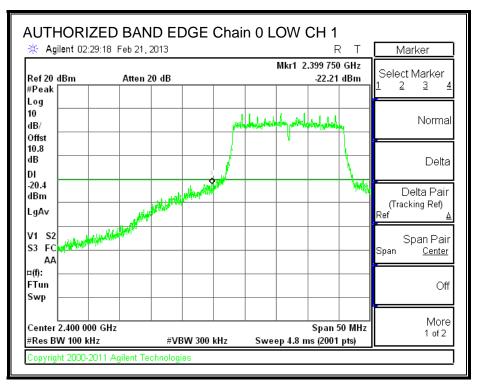
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

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IN-BAND REFERENCE LEVEL, Chain 0

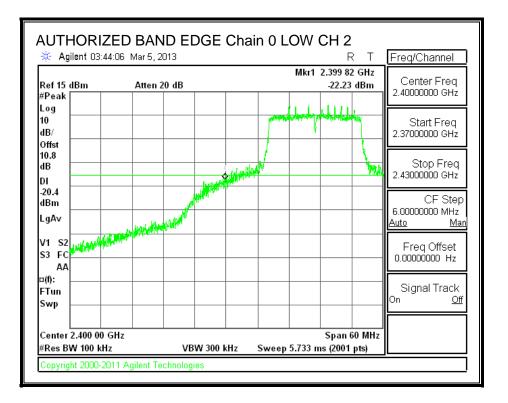


LOW CHANNEL BANDEDGE, Chain 0

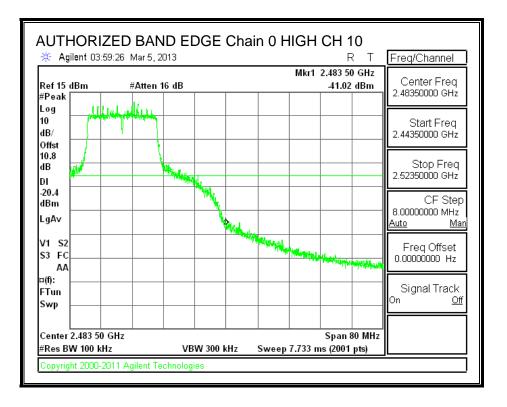


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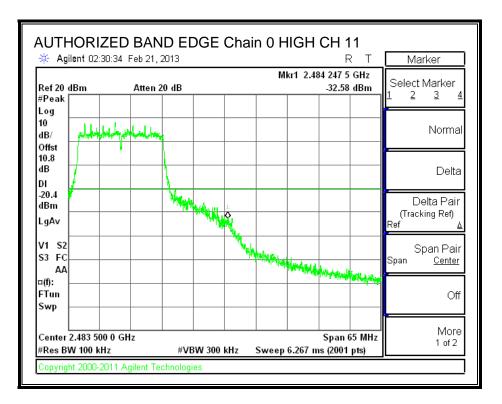
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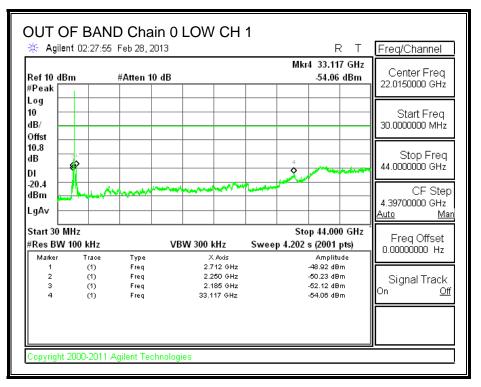
HIGH CHANNEL BANDEDGE, Chain 0



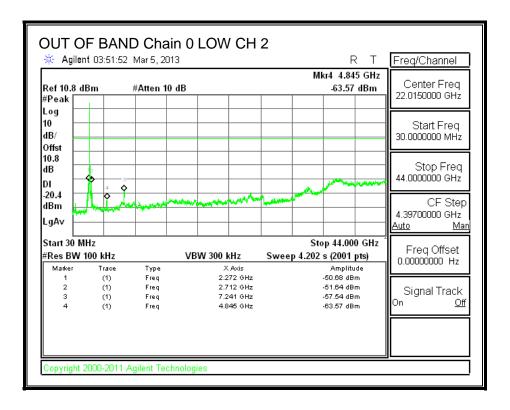
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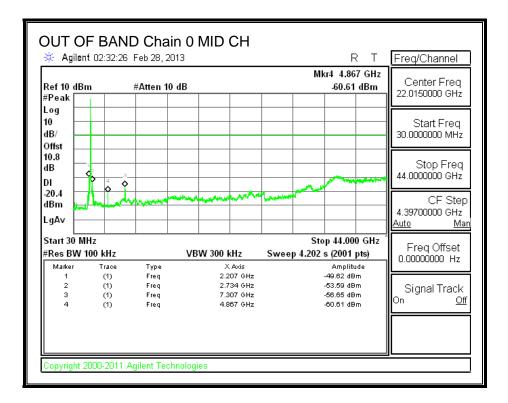


OUT-OF-BAND EMISSIONS, Chain 0

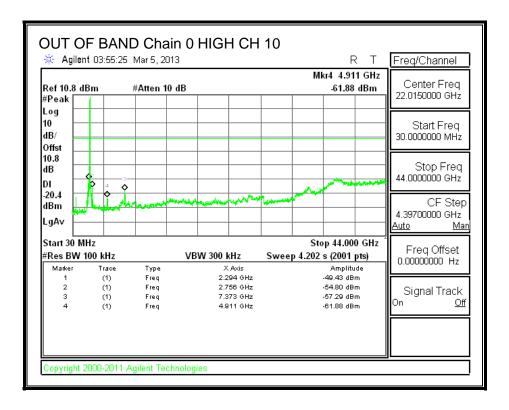


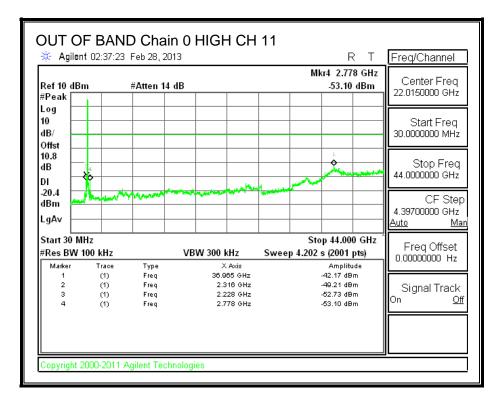
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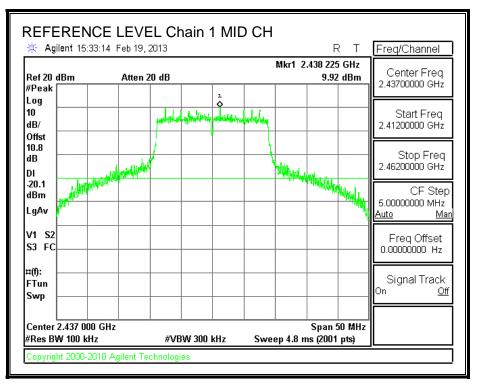




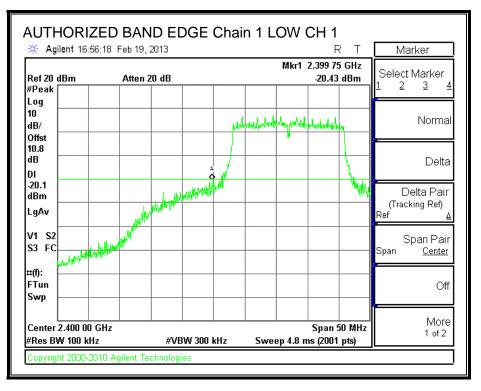
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IN-BAND REFERENCE LEVEL, Chain 1

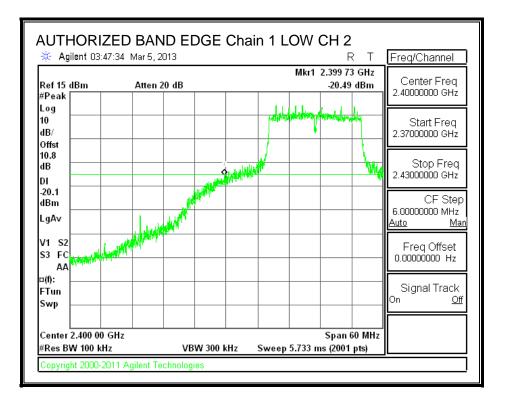


LOW CHANNEL BANDEDGE, Chain 1

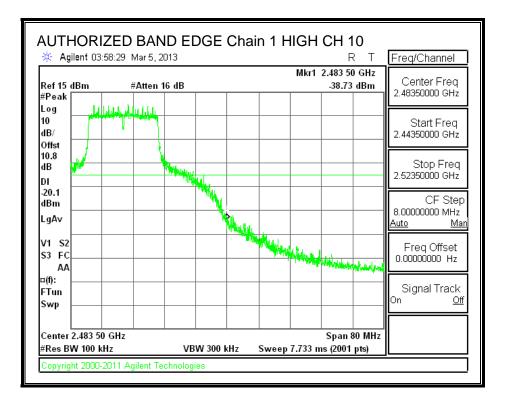


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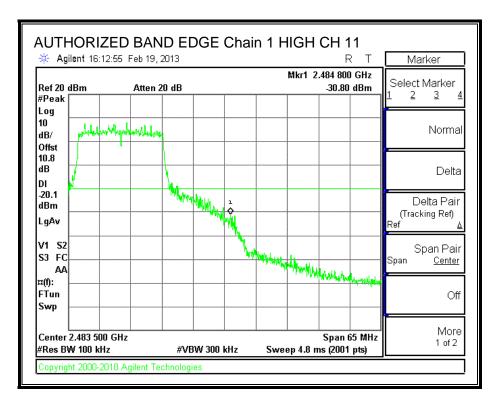
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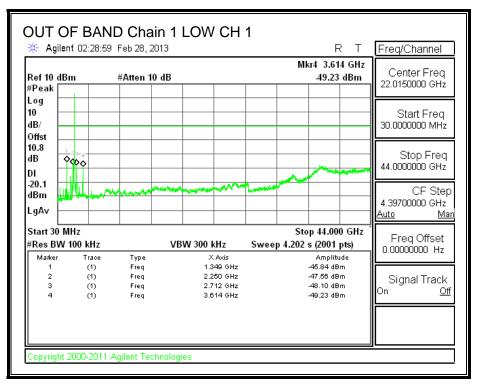
HIGH CHANNEL BANDEDGE, Chain 1



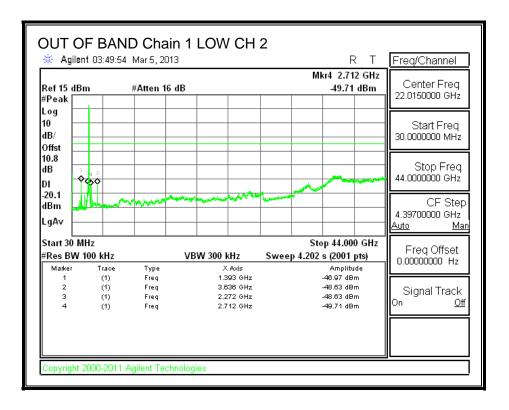
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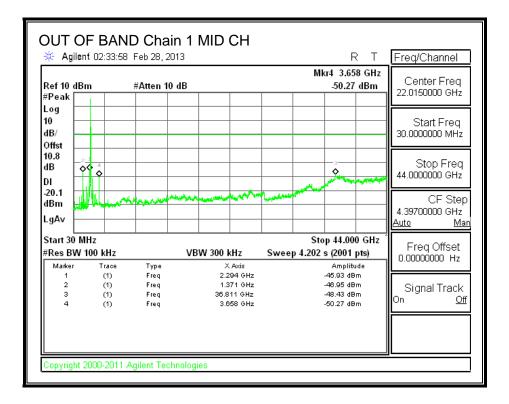


OUT-OF-BAND EMISSIONS, Chain 1

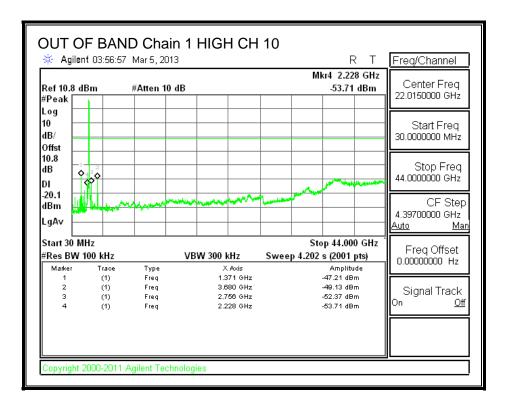


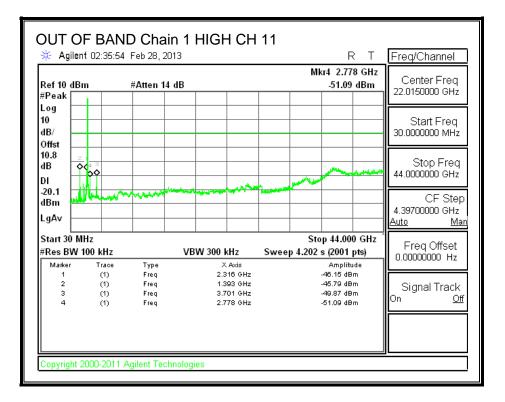
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8.8. 802.11n HT20 TxBF 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.9. 802.11a Legacy 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11a 1TX.

8.10. 802.11a CDD 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.11. 802.11n HT20 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT20 1TX.

8.12. 802.11a TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

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8.13. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND

8.13.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

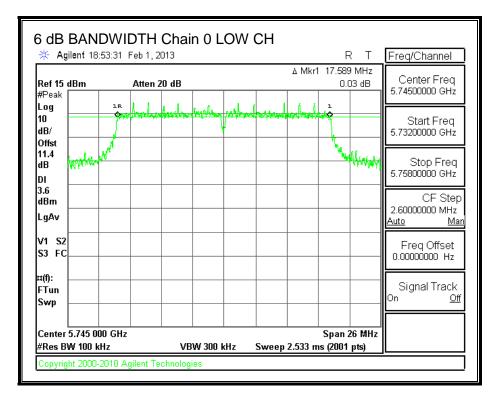
<u>RESULTS</u>

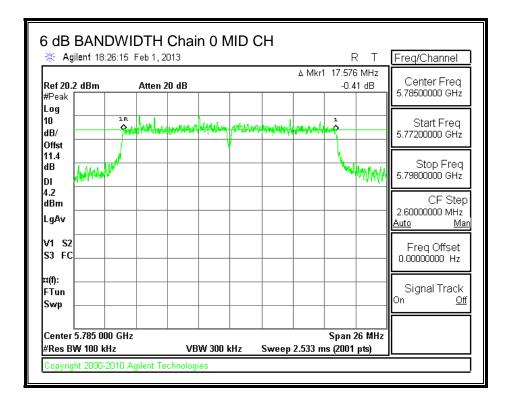
Channel	Frequency	Frequency 6 dB BW 6 dB BW		Minimum
		Chain 0	Chain 1	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5745	17.589	17.589	0.5
Mid	5785	17.576	17.537	0.5
High	5825	17.602	17.537	0.5

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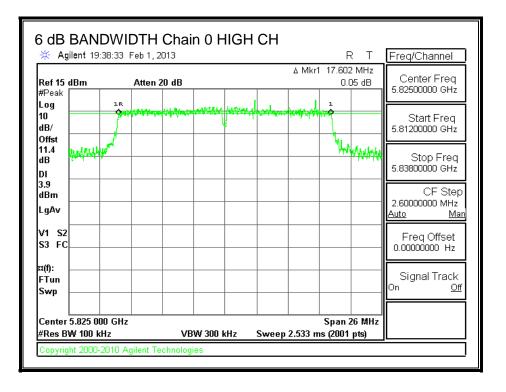
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6 dB BANDWIDTH, Chain 0

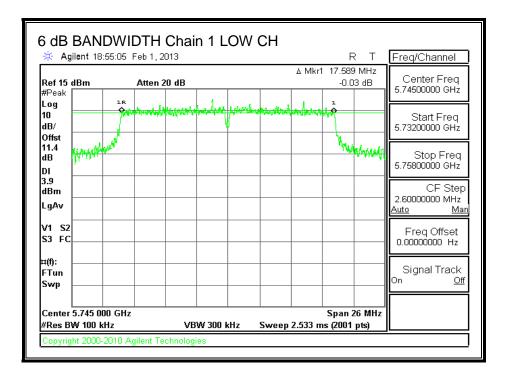




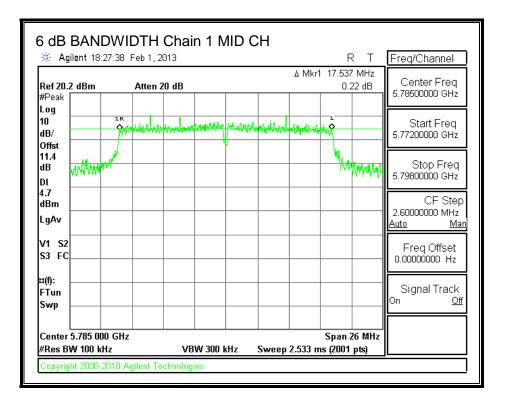
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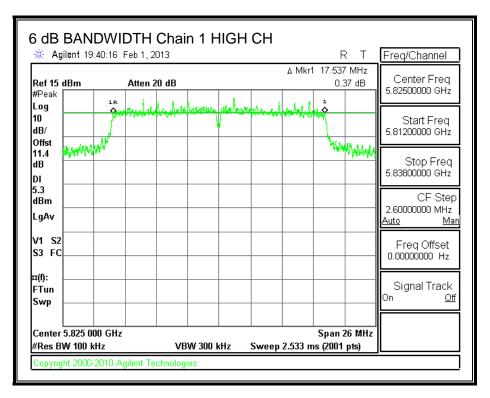


6 dB BANDWIDTH, Chain 1



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8.13.2. 99% BANDWIDTH

LIMITS

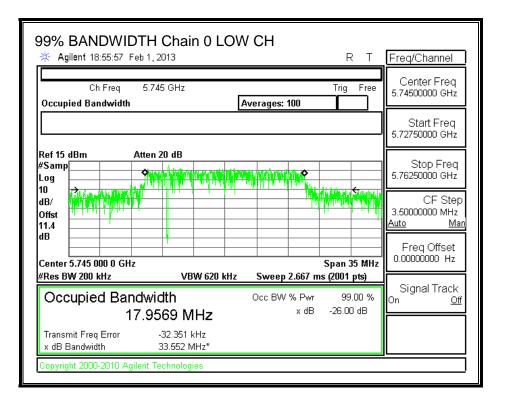
None; for reporting purposes only.

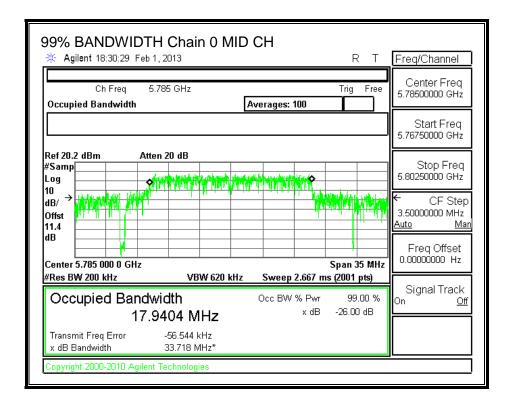
<u>RESULTS</u>

Channel	Frequency	99% BW	99% BW	
		Chain 0	Chain 1	
	(MHz)	(MHz)	(MHz)	
Low	5745	17.9569	17.8198	
Mid	5785	17.9404	19.4538	
High	5825	19.4330	19.5689	

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99% BANDWIDTH, Chain 0

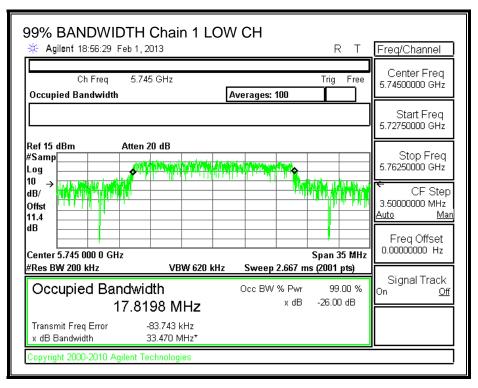




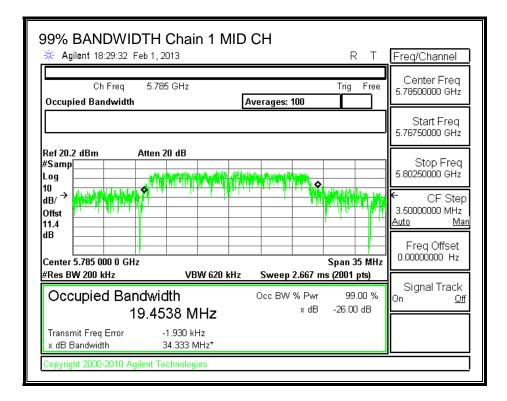
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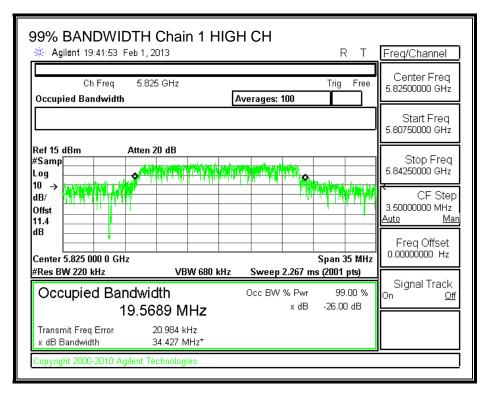
99% BANDWIDTH		GH CH	RТ	Freq/Channel
	25 GHz		Triq Free	Center Freq
Occupied Bandwidth	.5 0112	Averages: 100		5.82500000 GHz
				Start Freq 5.80750000 GHz
Ref 15 dBm Atten #Samp Log 10 → a structure and and a	20 dB	' A' ALT TATA TATA.		Stop Freq 5.84250000 GHz
dB/ Offst 11.4 dB				CF Step 3.5000000 MHz <u>Auto Man</u>
Center 5.825 000 0 GHz #Res BW 220 kHz	VBW 680 kH	z Sweep 2.267 m	Span 35 MHz	Freq Offset 0.00000000 Hz
Occupied Bandwi		Occ BW % Pwr x dB	99.00 %	Signal Track On <u>Off</u>
Transmit Freq Error	-33.449 kHz 34.381 MHz*			
Copyright 2000-2010 Agilent To	echnologies			

99% BANDWIDTH, Chain 1



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8.13.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Uncorrelated Chains
Antenna	Antenna	Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
4.90	6.28	5.64

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<u>RESULTS</u>

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5745	5.64	30.00	30	36	30.00
Mid	5785	5.64	30.00	30	36	30.00
High	5825	5.64	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Chain 1	Total	Power	Margi
		Meas	Meas	Corr'd	Limit	
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5745	20.01	20.00	23.02	30.00	-6.98
Mid	5785	20.10	20.11	23.12	30.00	-6.88
High	5825	20.10	20.05	23.09	30.00	-6.91

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8.13.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

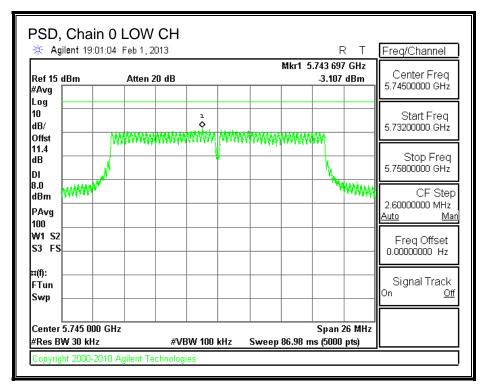
PSD Results

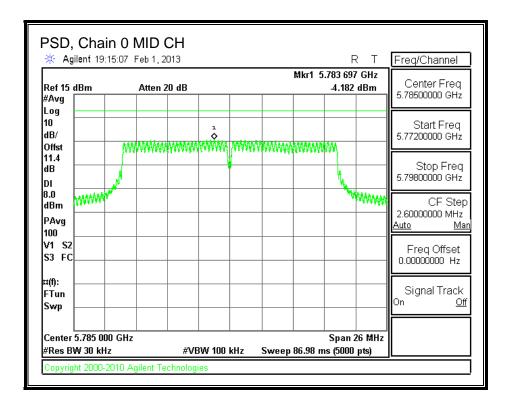
Channel	Frequency	Chain 0	Chain 1	Total	Limit	Margin
		Meas	Meas	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5745	-3.107	-4.149	-0.59	8.0	-8.6
Mid	5785	-4.182	-4.037	-1.10	8.0	-9.1
High	5825	-1.062	-1.959	1.52	8.0	-6.5

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PSD, Chain 0

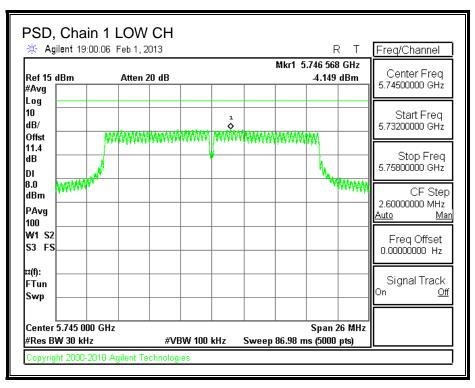




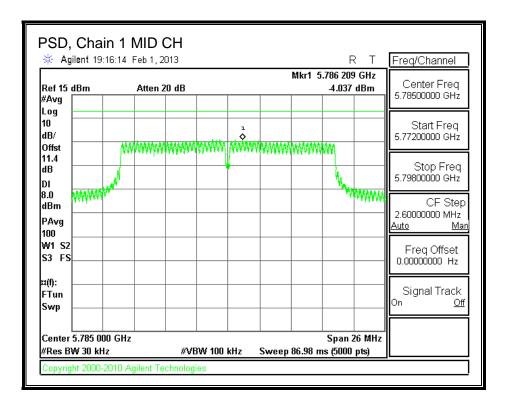
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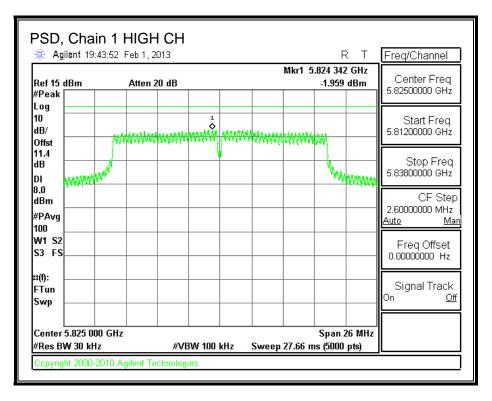
	PSD, Chain 0 HIGH CH Agilent 19:44:57 Feb 1, 2013 R T Peak Search										
Ref 15 o #Peak	Mkr1 5.823 713 GHz Ref 15 dBm Atten 20 dB -1.062 dBm Peak								B GHz	Next Peak	
Log 10 dB/ Offst		M	MAMM	en e		MANANA	ANNANA A	MMMM	₩\		Next Pk Right
11.4 dB DI 8.0	Hervitet	want -							Arry.	*****	Next Pk Left
dBm #PAvg 100											Min Search
W1 S2 S3 FS											Pk-Pk Search
¤(f): FTun Swp											Mkr © CF
Center #Res B\				#VE	3W 100	kHz	Sweep	27.66 m	•	26 MHz pts)	More 1 of 2
Copyrig	ht 2000-	2010 Ag	gilent Te	chnologi	es						

PSD, Chain 1



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8.13.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

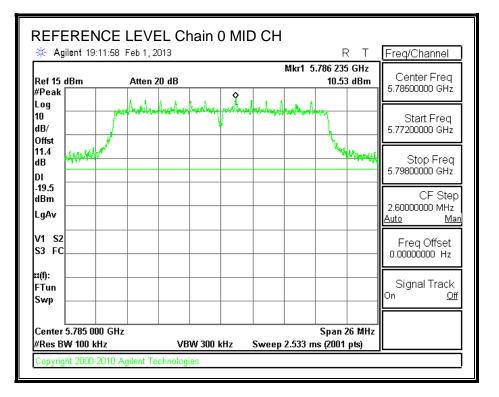
IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

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RESULTS

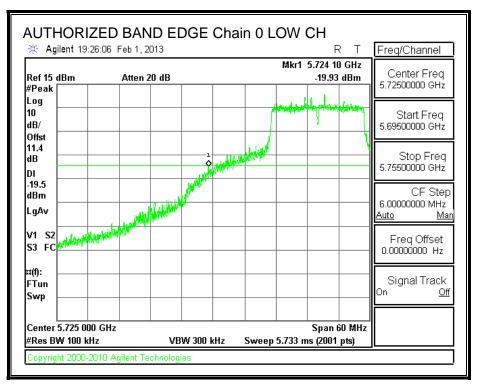
IN-BAND REFERENCE LEVEL, Chain 0



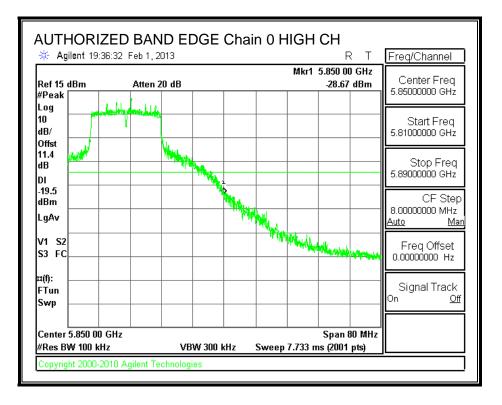
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LOW CHANNEL BANDEDGE, Chain 0



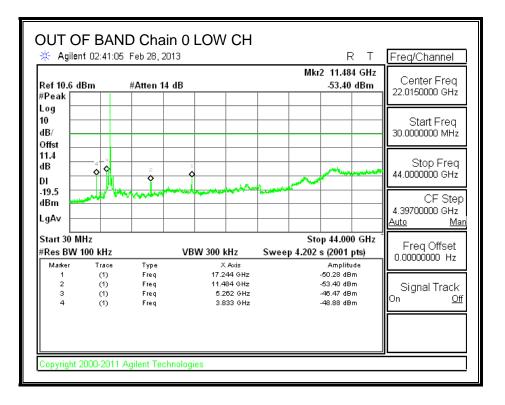
HIGH CHANNEL BANDEDGE, Chain 0

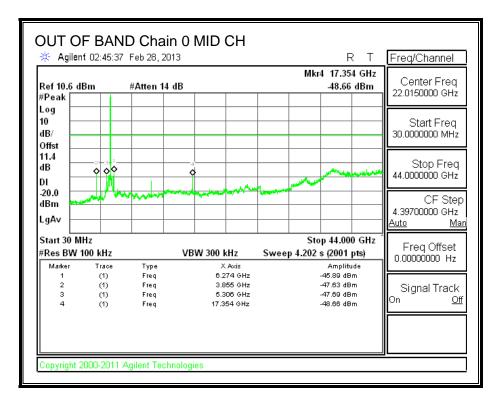


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OUT-OF-BAND EMISSIONS, Chain 0





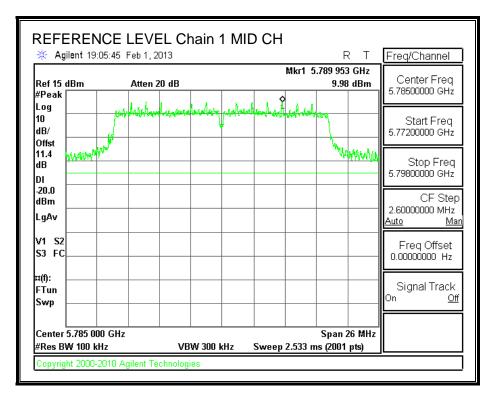
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🔆 Agilen	t 02:50:34	Feb 28, 20)13					₹Т	Freq/Cha	annel
Ref 10.6 di #Peak	Bm	#Atten 14	dB			Mkr	4 17.48 -49.36	6 GHz dBm	Center 22.015000	
Log 10 dB/ Offst									Start 30.000000	Freq 00 MHz
11.4 dB DI			4				~	مربعه مدینونه	Stop 44.000000) Freq 10 GHz
-20.0 dBm ====================================		Christian .							C 4.3970000 <u>Auto</u>	F Step 10 GHz <u>Man</u>
Start 30 M #Res BW 1	100 kHz		VBW 300		Swee	Sto p 4.202 s	· ·	pts)	Freq (0.000000	
Marker 1 2 3 4	Trace (1) (1) (1) (1)	Type Freq Freq Freq Freq	5. 3. 5.	X Axis 350 GHz 877 GHz 570 GHz 486 GHz			Amplitu 44.03 dB 45.32 dB 45.58 dB 49.36 dB	im im im	Signal On	Track <u>Off</u>

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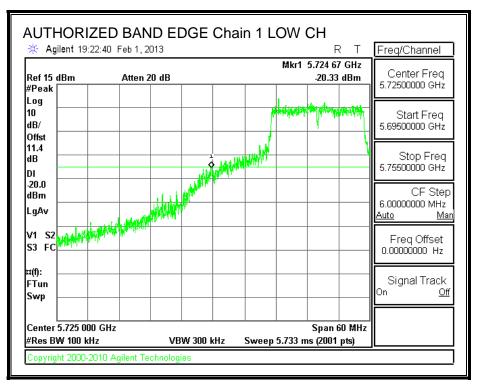
IN-BAND REFERENCE LEVEL, Chain 1



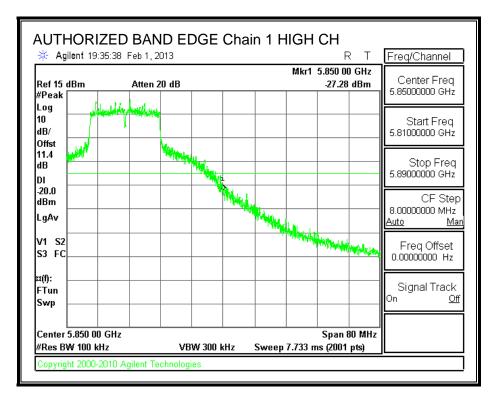
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LOW CHANNEL BANDEDGE, Chain 1

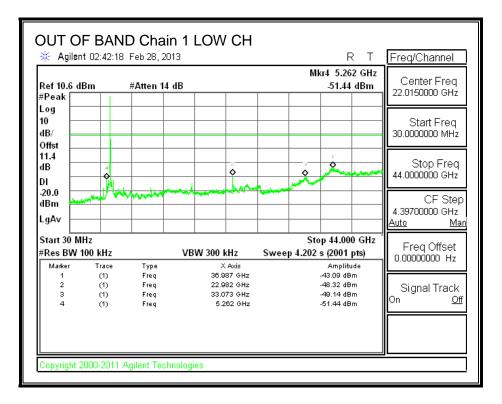


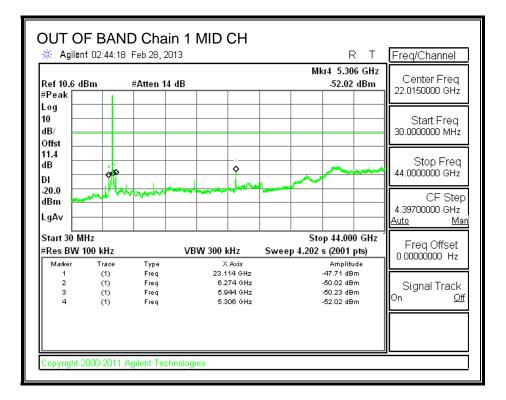
HIGH CHANNEL BANDEDGE, Chain 1



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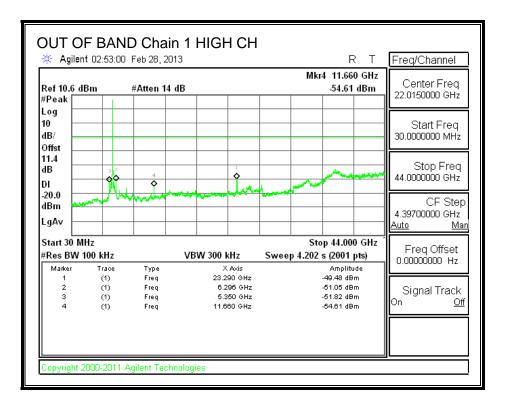
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8.14. 802.11n HT20 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.15. 802.11n AC20 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.16. 802.11n HT40 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT40 CDD 2TX, power per chain used in the 802.11n HT40 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT40 1TX.

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8.17. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND

8.17.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

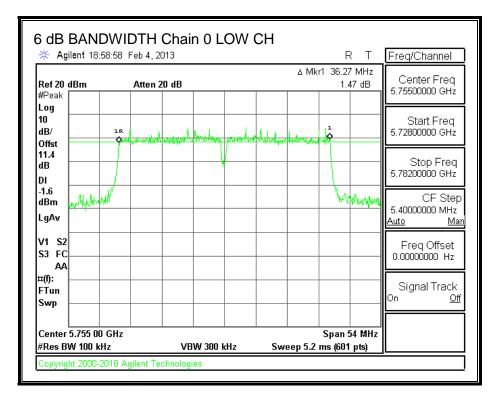
<u>RESULTS</u>

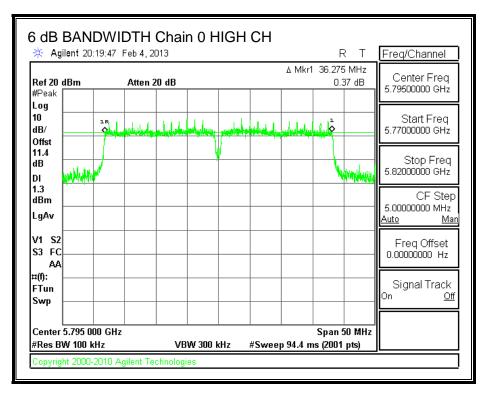
Channel	Frequency	6 dB BW	6 dB BW	Minimum	
		Chain 0	Chain 1	Limit	
	(MHz)	(MHz)	(MHz)	(MHz)	
Low	5755	36.270	36.270	0.5	
High	5795	36.275	36.075	0.5	

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6 dB BANDWIDTH, Chain 0

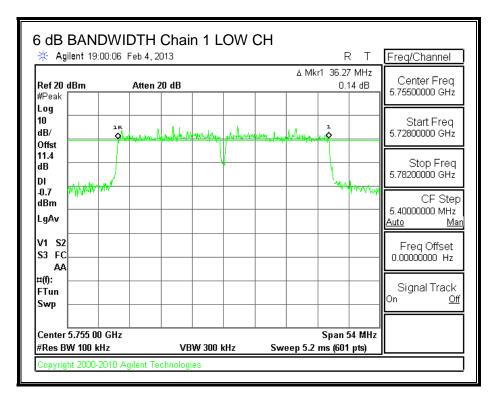


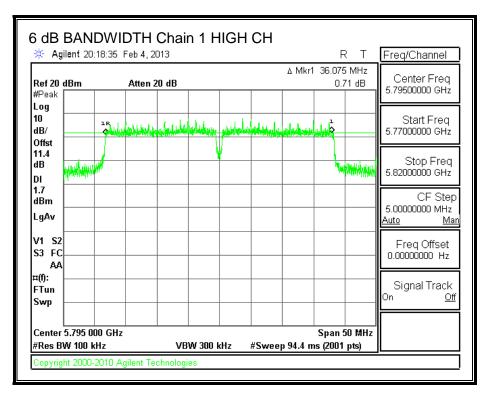


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6 dB BANDWIDTH, Chain 1





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8.17.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

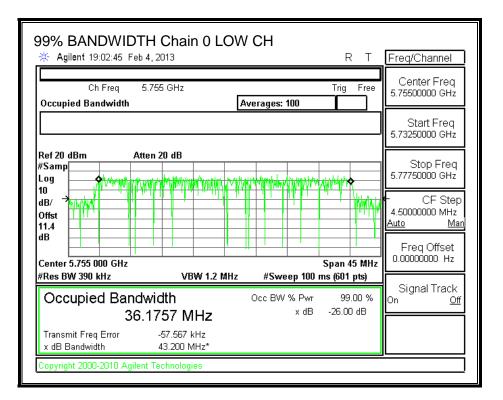
<u>RESULTS</u>

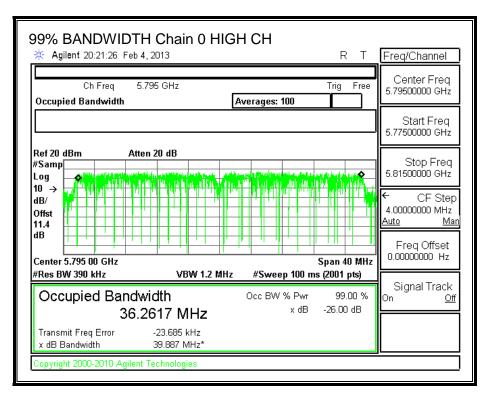
Channel	Frequency	99% BW	99% BW
		Chain 0	Chain 1
	(MHz)	(MHz)	(MHz)
Low	5755	36.1757	36.1968
High	5795	36.2617	36.2620

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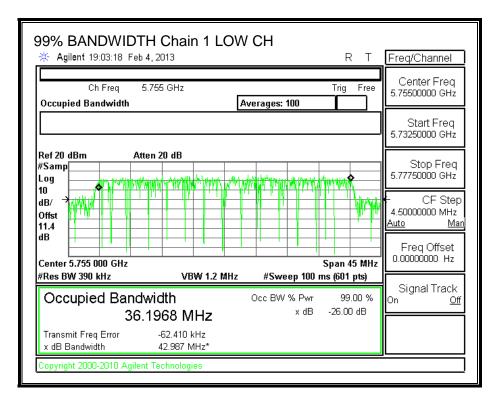
99% BANDWIDTH, Chain 0

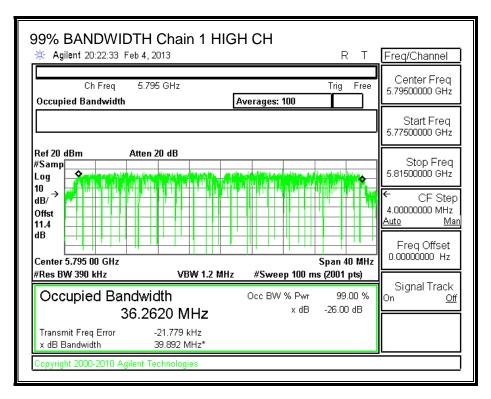




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99% BANDWIDTH, Chain 1





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8.17.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Uncorrelated Chains			
Antenna	Antenna	Directional			
Gain	Gain	Gain			
(dBi)	(dBi)	(dBi)			
4.90	6.28	5.64			

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<u>RESULTS</u>

Limits

Channel	Frequency	quency Directional FCC		IC	IC	Max				
		Gain	Power	Power	EIRP	Power				
			Limit	Limit	Limit					
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)				
Low	5755	5.64	30.00	30	36	30.00				
High	5795	5.64	30.00	30	36	30.00				

Results

Channel	Frequency	Chain 0	Chain 1	Total	Power	Margi
		Meas	Meas	Meas Corr'd		
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5755	16.77	16.72	19.76	30.00	-10.24
High	5795	20.10	20.10	23.11	30.00	-6.89

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8.17.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

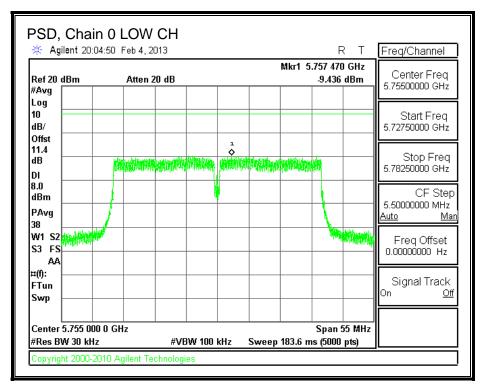
PSD Results

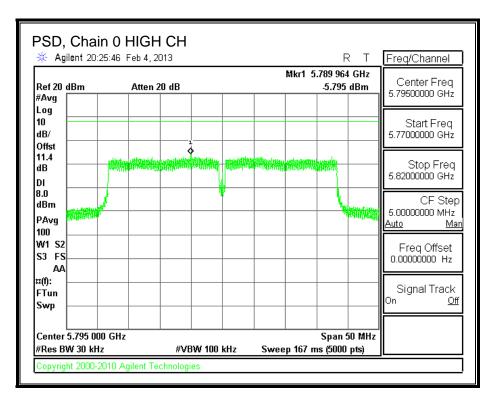
Channel	Frequency	ency Chain 0 Chain 1		Total	Limit	Margin
		Meas	Meas	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5755	-9.436	-9.227	-6.32	8.0	-14.3
High	5795	-5.795	-6.280	-3.02	8.0	-11.0

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PSD, Chain 0

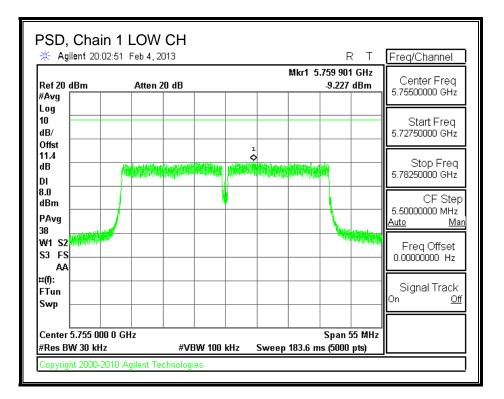


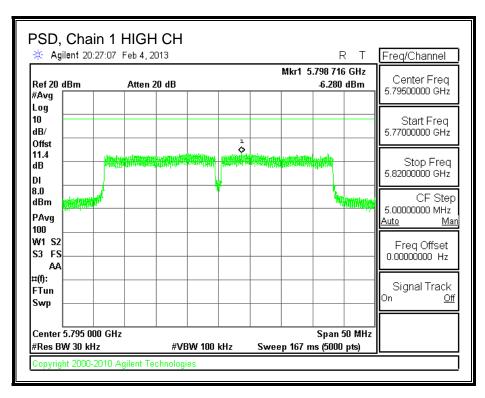


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PSD, Chain 1





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8.17.5. OUT-OF-BAND EMISSIONS

LIMITS

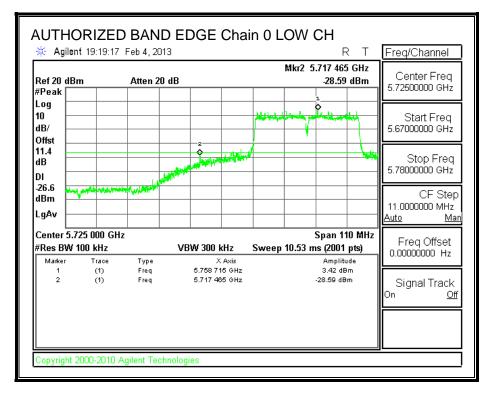
FCC §15.247 (d)

IC RSS-210 A8.5

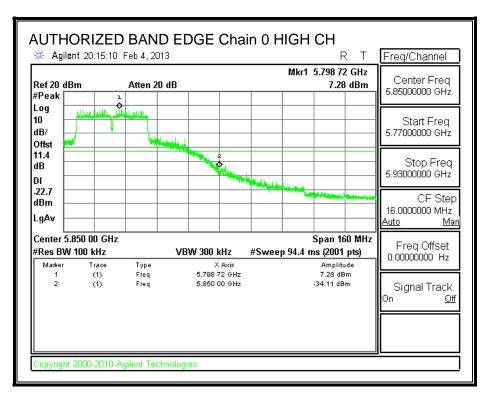
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

RESULTS

LOW CHANNEL BANDEDGE, Chain 0



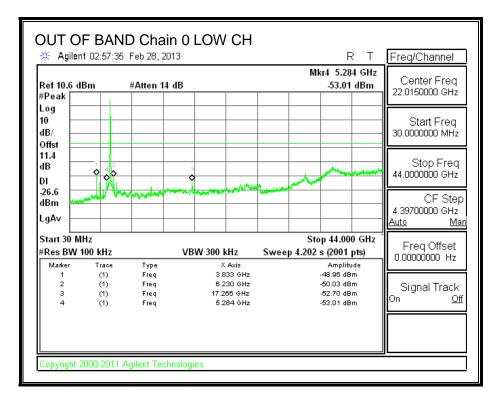
HIGH CHANNEL BANDEDGE, Chain 0

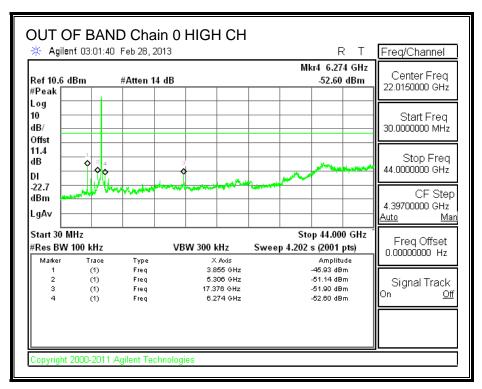


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OUT-OF-BAND EMISSIONS, Chain 0

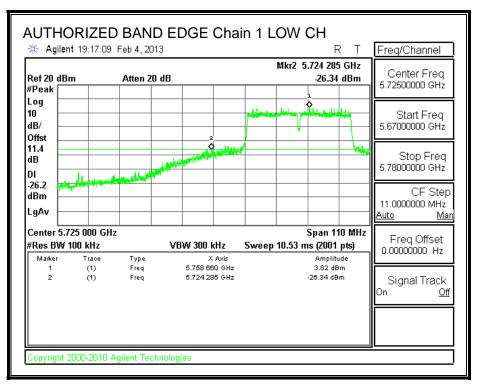




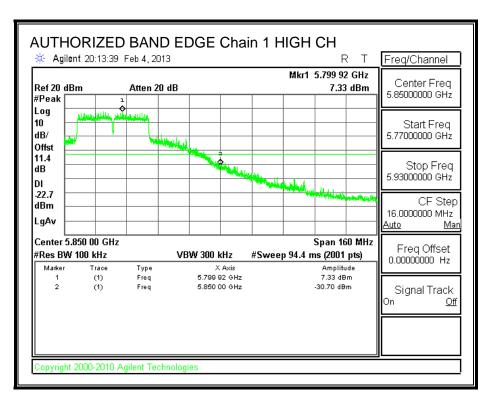
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LOW CHANNEL BANDEDGE, Chain 1

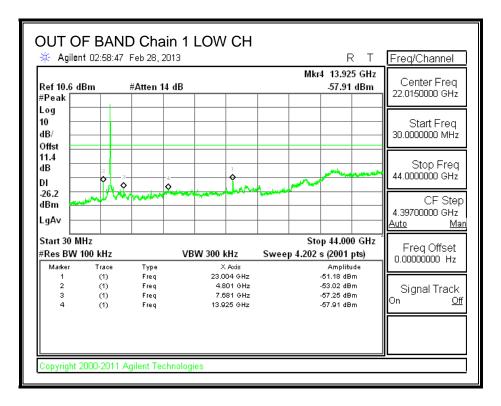


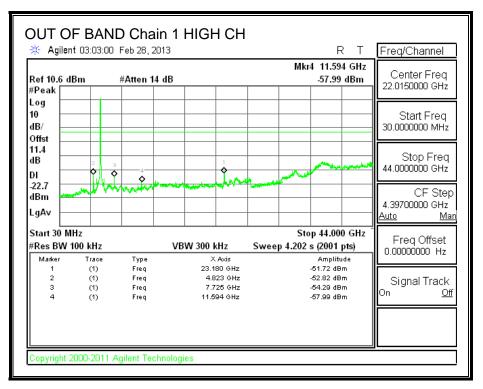
HIGH CHANNEL BANDEDGE, Chain 1



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8.18. 802.11n HT40 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT40 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.19. 802.11n AC40 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT40 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

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8.20. 802.11n AC80 1TX MODE IN THE 5.8 GHz BAND

8.20.1. 6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $>= 3 \times RBW$, peak detector and max hold.

RESULTS

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Mid	5775	75.153	0.5

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6 dB BANDWIDTH

6 dB E					СН				F	х т	Freq/Channel
Ref 11.4 #Peak			Atten 1				۵	. Mkr1 7		MHz I3 dB	Center Freq 5.77500000 GHz
Log 10 dB/ Offst		1R		المللب	ul filler		h iji kangang		ļ.		Start Freq 5.71750000 GHz
11.4 dB DI						}					Stop Freq 5.83250000 GHz
-5.2 dBm LgAv		•									CF Step 11.500000 MHz <u>Auto Man</u>
V1 S2 S3 FC AA											Freq Offset 0.00000000 Hz
¤(f): – FTun Swp –											Signal Track On <u>Off</u>
	Center 5.775 000 0 GHz Span 115 MHz #Res BW 100 kHz VBW 300 kHz #Sweep 100 ms (2001 pts)										
Copyright	t 2000-20	111 Ag	ilent Teo	:hnologi	es						

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8.20.2. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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<u>RESULTS</u>

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
Mid	5775	6.28	29.72	30	36	29.72

Results

Channel	Frequency	Chain 0	Total	Power	Margin
		Meas Corr'd		Limit	
		Power Power			
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5775	18.35	18.35	29.72	-11.37

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8.20.3. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

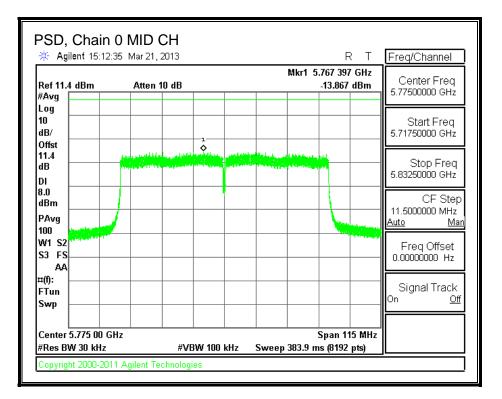
RESULTS

PSD Results

Channel	Frequency	Chain 0	Limit	Margin
		Meas		
	(MHz)	(dBm)	(dBm)	(dB)

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PSD, Chain 0



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8.20.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

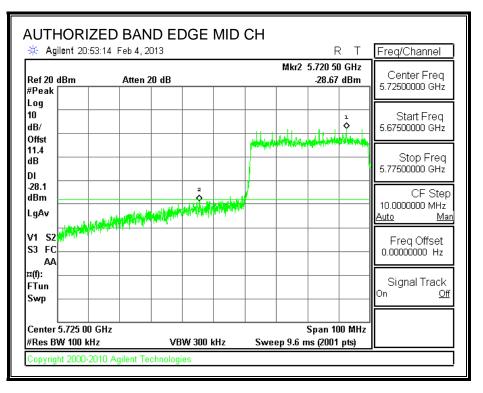
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

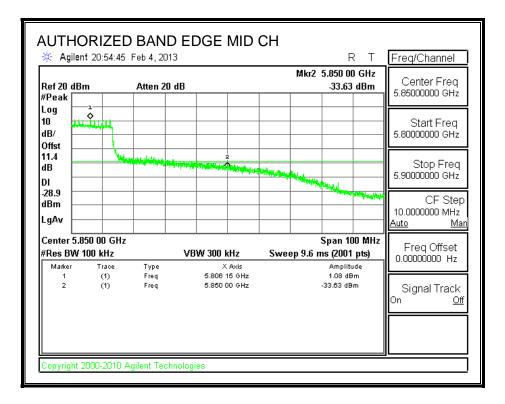
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the inband reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

MID CHANNEL BANDEDGE

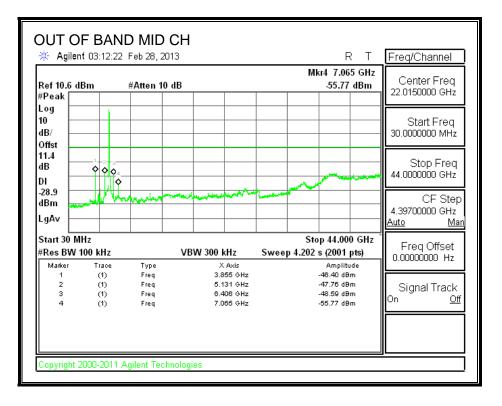


MID CHANNEL BANDEDGE



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OUT-OF-BAND EMISSIONS



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8.21. 802.11n AC80 CDD 2TX MODE IN THE 5.8 GHz BAND

8.21.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

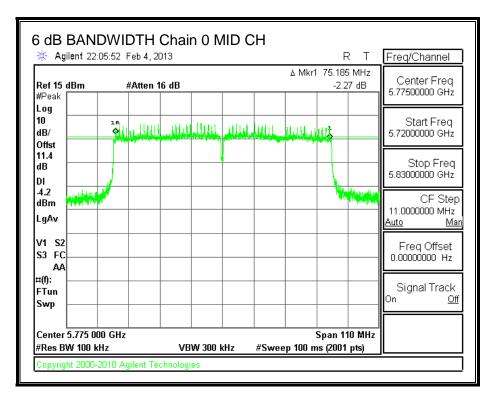
RESULTS

Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Chain 0	Chain 1	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5775	75.185	75.350	0.5

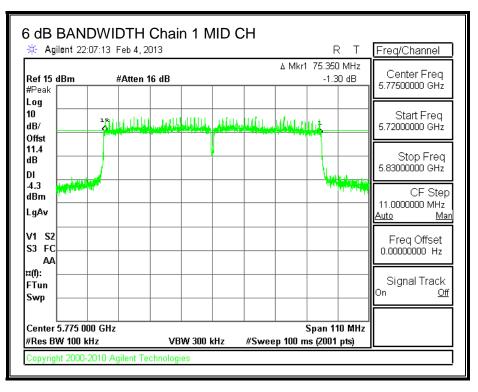
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6 dB BANDWIDTH, Chain 0



6 dB BANDWIDTH, Chain 1



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8.21.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

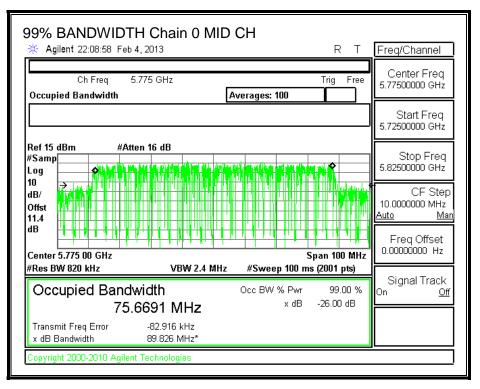
<u>RESULTS</u>

Channel	Frequency	99% BW	99% BW
		Chain 0	Chain 1
	(MHz)	(MHz)	(MHz)
Mid	5775	75.6691	75.6061

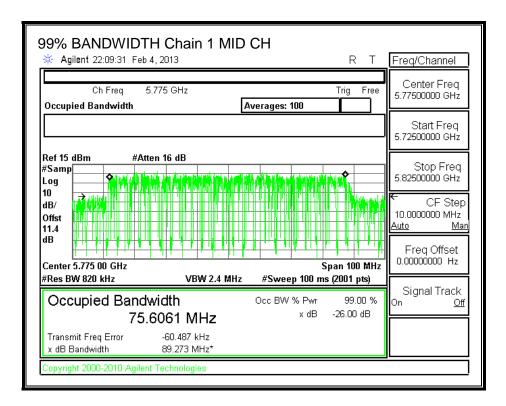
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99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



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8.21.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Uncorrelated Chains					
Antenna	Antenna	Directional					
Gain	Gain	Gain					
(dBi)	(dBi)	(dBi)					
4.90	6.28	5.64					

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<u>RESULTS</u>

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
Mid	5775	5.64	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Chain 1	Total	Power	Margi
		Meas	Meas	Corr'd	Limit	
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5775	17.21	17.10	20.17	30.00	-9.83

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8.21.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

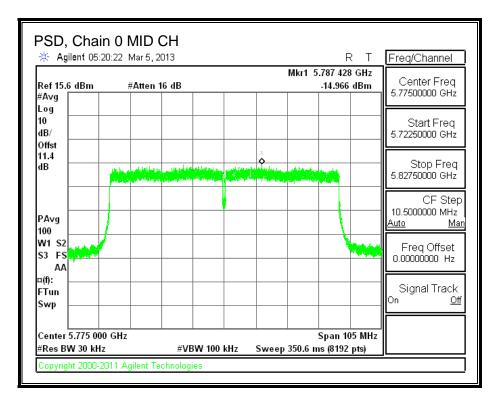
RESULTS

PSD Results

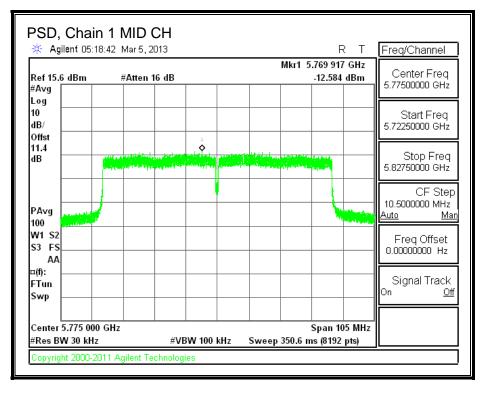
Channel	Frequency	Chain 0	Chain 1	Total	Limit	Margin
		Meas	Meas	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

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PSD, Chain 0



PSD, Chain 1



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8.21.5. OUT-OF-BAND EMISSIONS

LIMITS

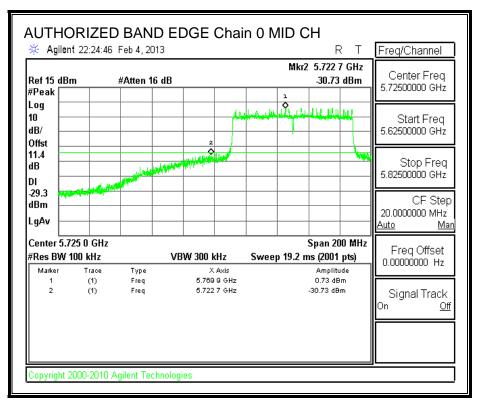
FCC §15.247 (d)

IC RSS-210 A8.5

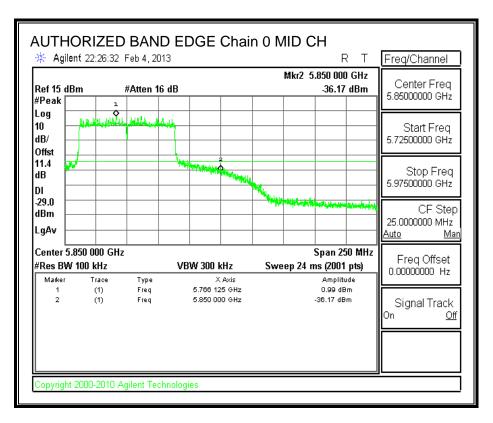
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

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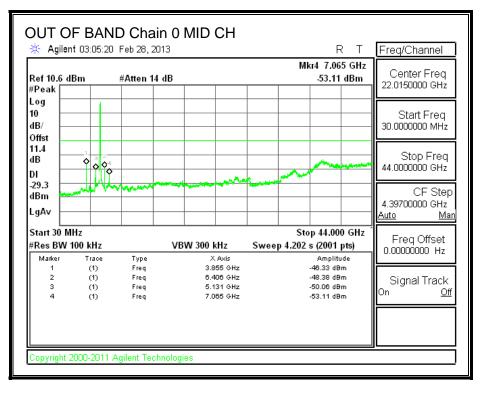
LOW END BANDEDGE, Chain 0,



HIGH END BANDEDGE, Chain 0



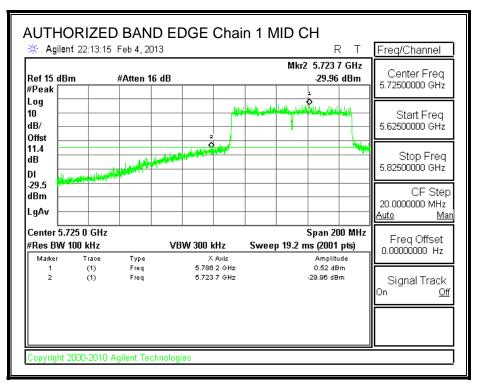
OUT-OF-BAND EMISSIONS, Chain 0



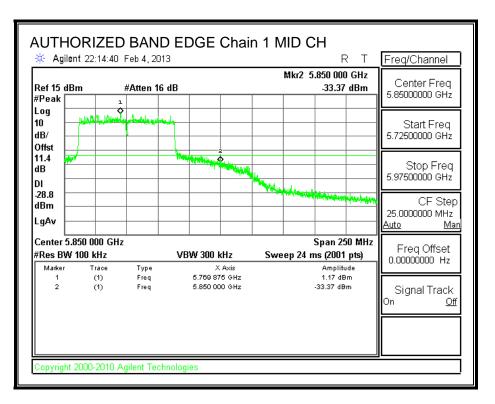
UL CCS FORM NO: CCSUP4701H 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

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LOW END BANDEDGE, Chain 1



HIGH CHANNEL BANDEDGE, Chain 1



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	F BANE		1 MID (СН		F	₹Т	Freq/Char	nel
Ref 10.6 dl #Peak	Bm	#Atten 10 d	iB		M	lkr4 7.70 -58.31)3 GHz dBm	Center F 22.0150000	
Log 10 dB/ Offst								Start F 30.0000000	
11.4 dB DI				3 (a marte	Stop 44.0000000	
-29.3 dBm ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- Market Mark	mm	walkeneraat					CF 4.39700000 <u>Auto</u>	Step GHz <u>Man</u>
Start 30 M #Res BW 1 Marker		Туре	VBW 300 k	Hz S	St Sweep 4.202	op 44.00 s (2001 Amplite	pts)	Freq Of 0.00000000	
1 2 3 4	(1) (1) (1) (1)	Freq Freq Freq Freq	6.40 23.09	31 GHz 06 GHz 02 GHz 03 GHz		-49.45 dB -52.35 dB -56.39 dB -58.31 dB)m)m	Signal T On	rack <u>Off</u>
Copyright 2	2000-2011 A	gilent Techr	nologies						

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8.22. 802.11n AC80 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC80 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

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9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

<u>LIMITS</u>

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

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9.2. **TRANSMITTER ABOVE 1 GHz**

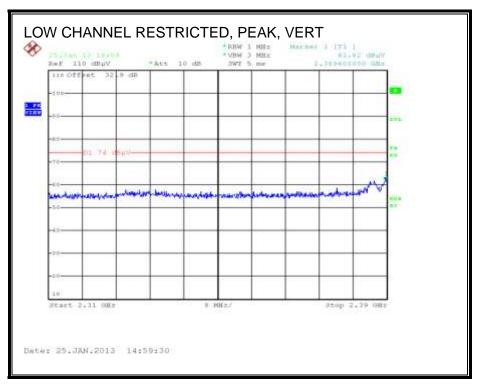
9.2.1. 802.11b Legacy 1TX MODE IN THE 2.4 GHz BAND

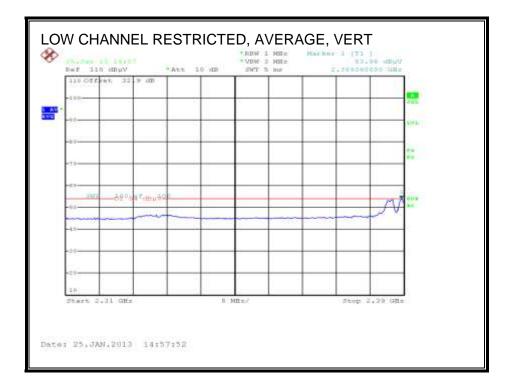
Covered by testing 11b CDD 2TX, power per chain used in the 802.11b 2TX mode is equal to the power per chain that will be used for 802.11b 1TX.

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9.2.2. 802.11b CDD 2TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

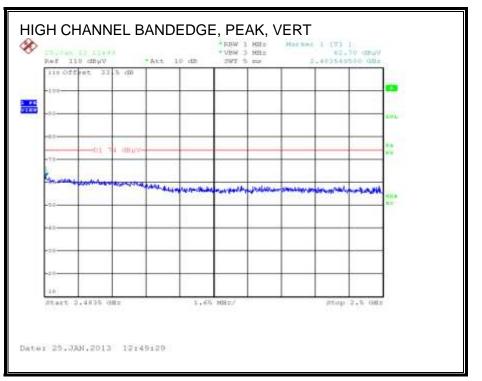


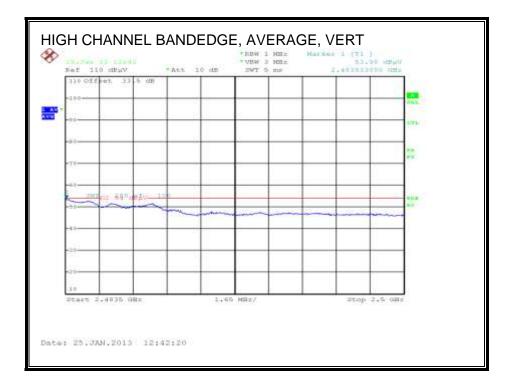


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AUTHORIZED BANDEDGE (HIGH CHANNEL)

Channel 11





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HARMONICS AND SPURIOUS EMISSIONS

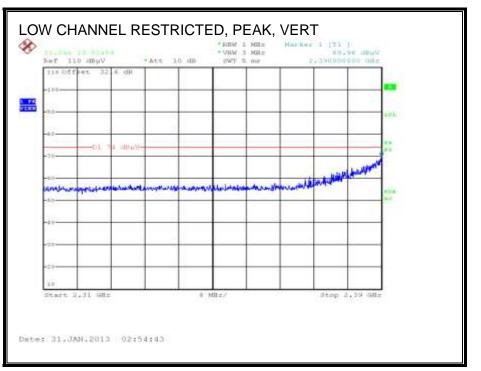
Company Project A Date: Test Eng Configur Mode: Test Equ	; ;; gineer: ration:		Broadcom (13U14796 1/30/2013 K. Nguyen BCM94360 11b Mode :)C52 wi	th Lap		AC adap	ter									
		CARGO DE	Broas	malifae	1 26	CH-	Dra am	olifer	26-40GH	Í.		He	rn > 180	-		Ľ	Limit
	Horn 1-18GHz Pre-amplifer 1-26GHz T73; S/N: 6717 @3m + T144 Miteq 3008A00931 .					T88 Min		Children a		T89;	ARA 18-260		Sec. 1997			FCC 15.205	
Hi Freq		tes	12'0	able 2	2807	300	20' cal	ble 22	2807500			HPF		eject Filte	, I	Peak	Measurements
1000	able 221	10001-000	• 12 ca	able 228	07600	•	20° cab	le 228	07500 •	1	HPF	_4.0GHz	•	• Ave RBW		w=1	V=VBW=1MHz o Measurements MHz : VBW=3MHz (MHz) 100 C
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg	- C. C. C.	Pk Lim dBaV/m	Avg Lim dBuV/m	Pk Mar dB			(PWR); 100 Sweeps Notes (V/H)
Channel 1	distant distant distant		upuv	GIEN/III	an	up	90	an	11 129 18 7 200	ubev	/ 658	6139 V (III	GING TO ME		an	-	(1.1)
.824	3.0	43.5	36.7	33.5	6.7	-35.7	0.0	0.6	48.6	41.8	_	74	54	-25.4	-12.2	_	v
.824 2.060	3.0	40.6	34.2	33.5 39.6	6.7 11.5	-35.7	0.0	0.6	45.8	39.4		74	54	-28.2	-14.6		H
2.060	3.0	343	24.8	39.6	11.5	-35.7	0.0	0.9	50.6	41.1		74	54	-23.4	-12.9		H
hannel 6					1	1000	100		1000	11		30.00		10000	1000	4.	1997 - 19
.874	3.0	45.3	39.6	33.8	6.8	-35.7	0.0	0.6	50.6	44.5		74	54	-23.4	.9,1	1	v
.874	3.0	42.9	38.5	33.5	6.8	-35.7	0.0	0.6	48.2	43.8		74	54	-25.8	-10.2		H
311	3.0	45.1	39.3 36.9	35.9	8.7 8.7	-35.8 -35.8	0.0	0.6	54.6 50.3	48.8		74	54	-19.4	-5.2	+	V H
2.185	3.0	34.5	25.9	39.6	11.5	-35.6	0.0	0.9	50.9	42.3		74	54	-23.1	-11.7		v
2.185	3.0	35.2	25.1	39.6	11.5	-35.6	0.0	0.9	51.6	41.5		74	54	-22.4	-12.5		H
hannel 1													-				
.924	3.0	46.1	41.7	33.6	6.8	-35.6	0.0	0.6	51.5 50.3	47.1		74	54	-22.5	-6.9		V
.924	3.0	42.3	37.8	33.6 36.0	6.8 8.7	-35.6	0.0	0.6	50.3	43.2		74	54 54	-23.7	-10.8		H V
386	3.0	39.6	33.5	36.0	8.7	-35.8	0.0	0.6	49.2	43.1		74	54	-24.8	-10.9		H
2.310	3.0	35.8	24.9	39.6	11.6	-35.6	0.0	0,9	52.3	41.4		74	54	-21.7	12.6		V
12.310	3.0	34.9	24.2	39.6	11.6	-35.6	0.0	0.9	51,4	40.7		74	54	-22.6	-13.3		н
tev. 01.30	22		2			11.											
	f		ent Frequenc	¥.		Amp	Preamp (ct to 3 mete	0.0				Average I Peak Field			
	Thi-	Distance to				D Corr Avg			ct to 3 mete Strength @				Pk Lim	Peak Field Margin vs			
	Dist	Amaharan D				Peak			k Field Stre				Pk Mar	Margin vs Margin vs			
	Read	Analyzer R Antenna Fa				T COK				orni			LW DOW	som fan va	. FOR L	ander.	
		Analyzer R Antenna Fa Cable Loss	actor			HPF	High Pas	s Fifter									

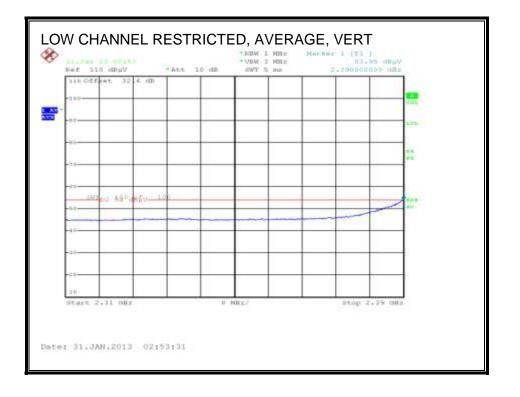
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9.2.3. 802.11g 1TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

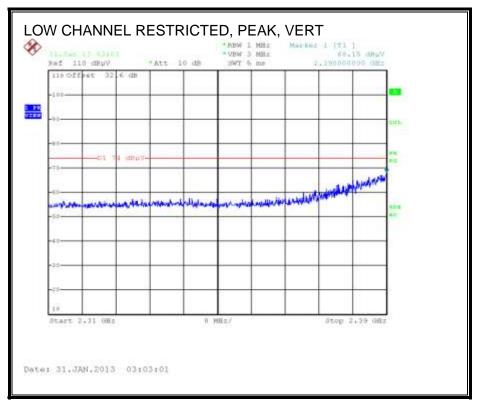
Channel 1

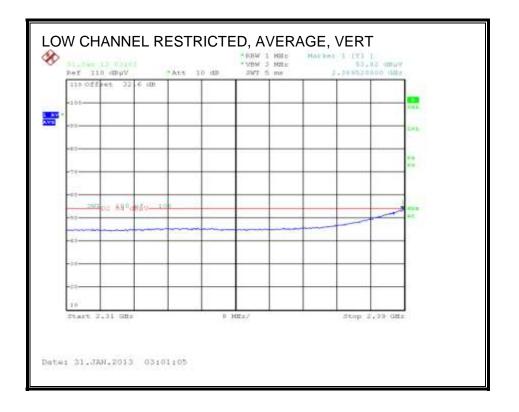




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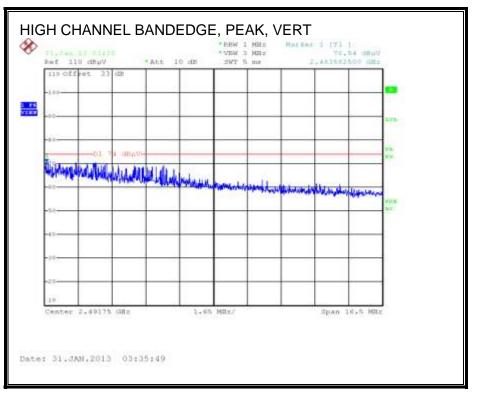
Channel 2

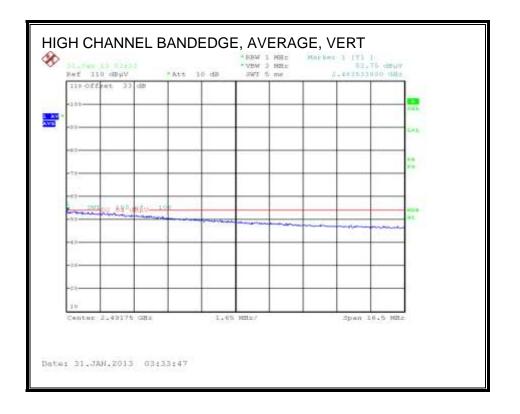




AUTHORIZED BANDEDGE (HIGH CHANNEL)

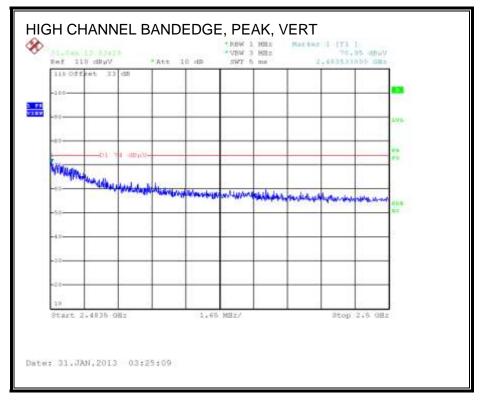
Channel 10

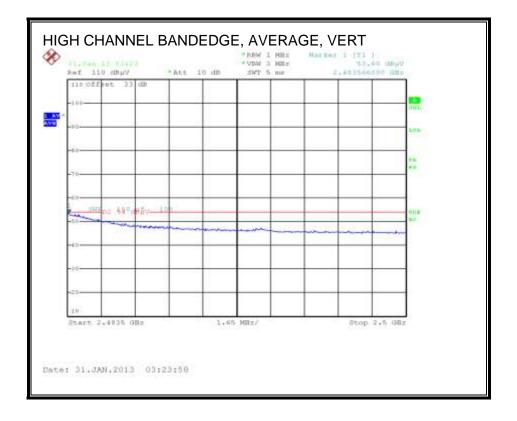




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Channel 11





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HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

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9.2.4. 802.11g CDD 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.5. 802.11g TxBF 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.6. 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

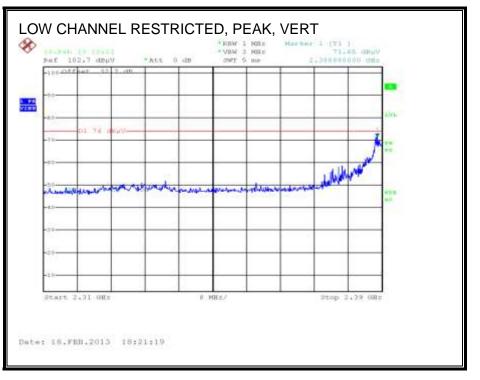
Covered by testing 11g Legacy 1TX, power is equal or higher than the power level the device will operate at.

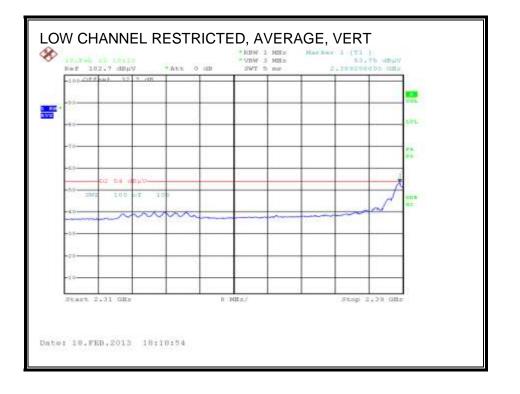
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9.2.7. 802.11n HT20 CDD 2TX MODE IN THE 2.4 GHz BAND

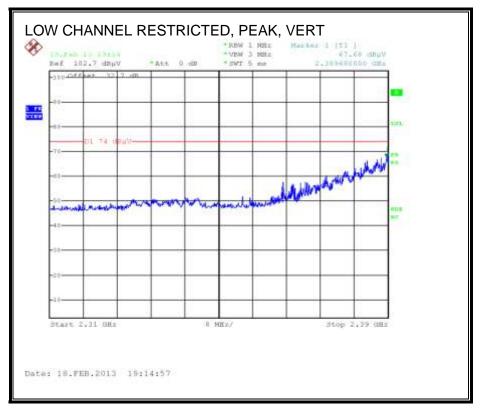
RESTRICTED BANDEDGE (LOW CHANNEL)

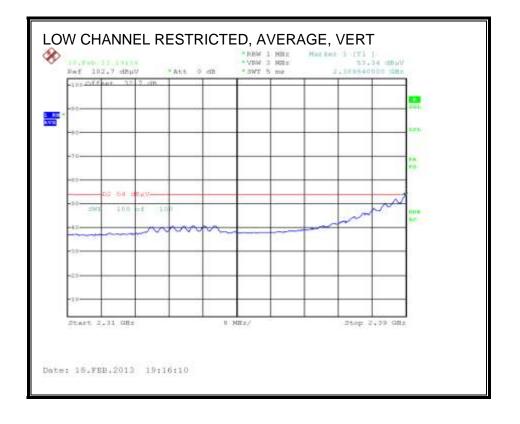
Channel 1





Channel 2

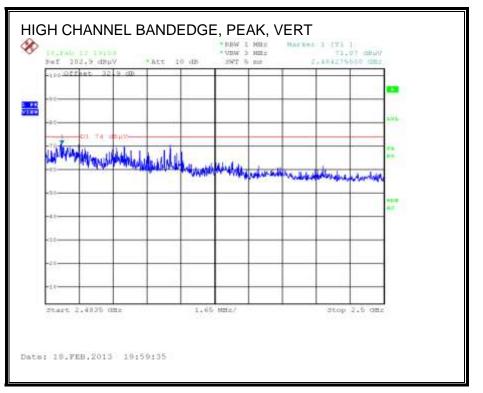


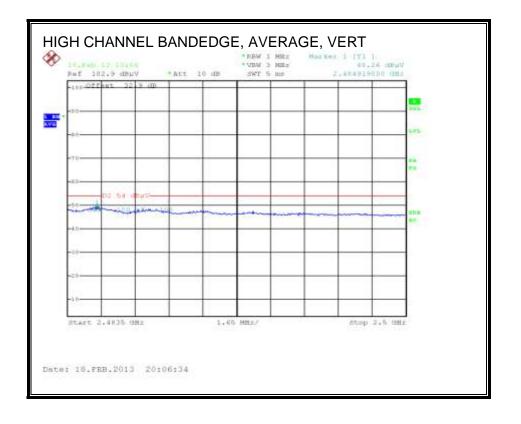


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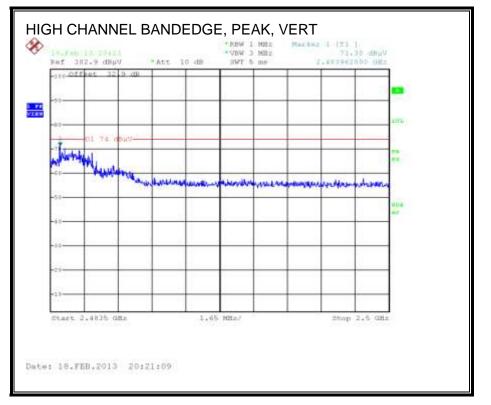
AUTHORIZED BANDEDGE (HIGH CHANNEL)

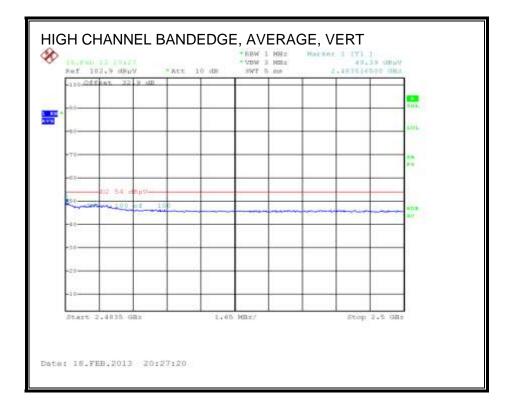
Channel 10





Channel 11





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HARMONICS AND SPURIOUS EMISSIONS

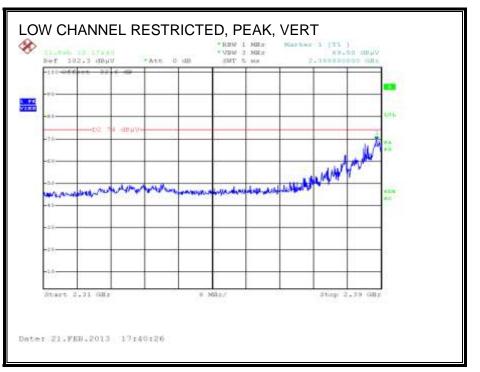
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			10223.0	10 C.S.	-	and the second		212.1112.7						
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uipmen	<u>t:</u>	i i							<i>v</i>					
						- and			12					Limit
		• T144 N	Aiteq 30	08A00	931 -	T88 Mit	eq 26-	40GHz	• T89	ARA 18-26	GHz; S/N:10	49	•	FCC 15.205
		12' 0	able 2	28076	500	20' cal	ble 22	2807500		HPF	R	ject Filte	r	
able 221	807700	12' ca	able 228	07600	•	20° cab	le 228	07500 •			• R	001	•	
200000			100000	CL	Атр	D Corr	Fltr	Peak	Avg	Pk Lim		12022000121		Notes
		dBuV	dB/m	dB	dB	dB	dB	dBaV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
3.0	41.1	29.4	33.5	6.7	-35.7	0.0	0.0	45.7	34.0	74	54	-28.3	-20.0	v
														H
3.0	37.1	25.5		11.5	-35.7	0.0	0.0	52.5	40.9	74	54	-21.8		H
6 (2437)						1				Live attention				
														V H
3.0	44.6	32.8	35.9	8.7	-35,8	0.0	0.0	53.4	41.6	74	54	-20.6	-12.4	v
3.0	46.9	35.6	35,9	8.7	-35.8	0.0	0.0	55.8	44.4	74	54	-18.2	.9,6	н
														v
	And the second se	25.2	39,6	11.5	-35.6	0.0	0.0	50.9	40.6	74	54	-23,1	-13.4	н
3.0	41.2	30.6	33.6	6.8	-35,6	0.0	0.0	46.9	35.4	74	54	-27.1	-18.6	v
3.0	40.9	29.6	33.6	6.8	-35.6	0.0	0.0	45.6	34.4	74	54	-28.4	-19.6	Н
														V H
				and the second second										H V
3.0	35.0	24.8	39.6	11.6	-35.6	0.0	0.0	50.5	40.4	74	54	-23.5	-13.6	н
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	Constant Processing and	· · · · · · · · · · · · · · · · · · ·			10.00	100 C 100 C 100 C						A		
CL	Cable Loss				HPF	High Pas			alfan		1 1 1 1 1 1 1 1	sym Bin 42	Constanting	
	M: main main main main main main main main	#: gineer: ration: uipmont: orn 1-18GHz SR: 6717 @3m percy Cobies cable 22807700 able 22807700 able 22807700 able 22807700 able 22807700 able 22807700 3.0 <trr> 3.0 <!--</td--><td>fr: 13U14796 2/27/2013 gineer: K. Nguyen ration: BCM9436(Tx 2,4GHz ulpment: orn 1-18GHz Pre-at SN: 6717 @3m SN: 6717 @3m able 22807700 able 22807700 able 22807700 12' c Dist Read Pic Qable 22807700 able 22807700 12' c Dist Read Pic 3.0 3</td><td>h: 13U14796 2/27/2013 gineer: K. Nguyen ration: BCM94360CS2 E interment: Tx 2.4GHz 11n HT ulpment: Orn 1-18GHz Pre-amplifier SN: 6717 @3m able 22807700 able 22807700 able 22807700 12' cable 2 Dist Read Pik Read Avg. AF (m) dBuV dBuV dB'm 12' cable 22 Dist Read Pik Read Avg. AF (m) dBuV dBuV dB'm 12' cable 23 3.0 35.6 3.0 35.6 3.0 35.6 3.0 35.6 3.0 35.5 3.0 44.6 3.0 45.9 3.0 46.9 3.0 45.5 3.0 45.5 3.0 45.5 3.0 45.6 3.0 35.5 3.0 35.6 3.0 35.6 3.0 35.6 3.0 45.8 3.0 35.6 3.0</td><td>h: 13U14796 2/27/2013 gineer: K. Nguyen ration: BCM94360C52 EUT with Tx 2.4GHz 11n HT20 CI uipment: orn 1-18GHz SR: 6717 @3m percy Cobes cable 22807700 able 22807700</td><td>h: 13U14796 2/27/2013 gineer: K. Nguyen ration: BCM94360CS2 EUT with laptog Tx 2.4GHz 11n HT20 CDD 2TX ulpment: Orn 1-18GHz Pre-amplifer 1-26GHz SN: 6717 @3m Dist Read Pic Read Avg. AF CL Amp Dist Read Pic Read Avg. AF CL Amp (m) dBuV dBuV dBuW dB'm dB dB 12' cable 22807600 12' cable 22807600 Dist Read Pic Read Avg. AF CL Amp (m) dBuV dBuV dB'm dB dB 12' cable 22807600 12' cable 22807600</td><td>fr: 13U14796 2/27/2013 gineer: K. Nguyen ration: BCM94360C52 EUT with laptop, AC adapts uipment: Pre-amplifer 1-26GHz Pre-amplifer 1-26GHz orn 1-18GHz Pre-amplifer 1-26GHz Pre-amplifer 1-26GHz SR: 6717 @3m T144 Mineq 3008A00931 T88 Min percy Codes 20' cal cable 22807700 12' cable 22807600 20' cal Dist Read Pik Read Avg. AF CL Amp D Corr (m) dBuV dBuw dB dB dB dB 12' cable 22807600 . 20' cal 20' cal Dist Read Pik Read Avg. AF CL Amp D Corr (m) dBuV dBuw dB dB dB dB 12' cable 22807600 . 20' cal 20' cal 30. 0ai 35.6 25. 35.6 35.7 0.0 30. 0ai 35.6 25.2 39.6 11.5 35.7 0.0 3.0 35.6 <th< td=""><td>h: 13U14796 2/27/2013 ginseer: K. Nguyen ration: BCM94360C52 EUT with laptop. AC adapter, a Tx 2.4GHz 11n HT20 CDD 2TX uipment: Pre-amplifer 1-26GHz Pre-amplifer 188 Miteq 26- orn 1-18GHz Pre-amplifer 1-26GHz Pre-amplifer 188 Miteq 26- SN: 6717 @3m 12' cable 22807600 20' cable 22 able 22807700 12' cable 22807600 20' cable 22 Dist Read Pik Read Avg. AF CL Amp D Corr Fir (m) dBuV dBuV dB' dB' dB dB dB dB dB dB 12' cable 22807600 . 20' cable 2280 0.0</td><td>fr: 13U14796 2/27/2013 ginser: Suppose 2/27/2013 ginser: ginser: E K. Nguyen Nguyen ration: BCM94360C52 EUT with laptop, AC sdapter, and EUT as Tx 2.4GHz 11n HT20 CDD 2TX uipment: Pre-amplifer 1-26GHz T144 Mineq 3008A00931 Pre-amplifer 26-40GHz T88 Mineq 26-40GHz SR: 6717 @3m 12' cable 22807600 12' cable 22807600 20' cable 22807500 20' cable 22807500 bist Read Pix Read Avg AF CL Amp D Corr Fitr Peak (m) Dist Read Pix Read Avg AF CL Amp D Corr Fitr Peak (m) 12' cable 22807600 0 0 0.0 43.6 0.0 43.7 3.0 30.0 28.7 33.5 6.7 35.7 0.0 0.0 43.6 3.0 30.0 28.7 33.5 6.8 35.7 0.0 0.0 43.6 3.0 30.4 25.2 39.6 11.5 35.7 0.0 0.0 43.6 3.0 30.4 28.3 33.5 6.8 35.7 0.0 0.0 43.7 <!--</td--><td>fr: 13U14796 2/27/2013 gineer: K. Nguyen ration: BCM94360CS2 EUT with laptop, AC adapter, and EUT antenna set Tx 2.4GHz 11n HT20 CDD 2TX uipment: Pre-amplifer 1-26GHz Pre-amplifer 25-40GHz T89 orn 1-18GHz Pre-amplifer 1-26GHz Pre-amplifer 25-40GHz T89 source Codes 12' cable 22807600 20' cable 22807500 T89 obst Read Avg AF CL Amp D Corr Fitr Peak Avg Dist Read Pk Read Avg AF CL Amp D Corr Fitr Peak Avg 0.3.0 35.0 25.2 39.6 11.5 35.7 0.0 0.0 45.7 34.0 3.0 35.6 25.2 39.6 11.5 35.7 0.0 0.0 53.6 44.4 3.0 35.6 25.2 39.6 15.35.7 0.0 0.0 53.6 44.4 3.0 35.6 25.2 39.6 11.5 35.7 0.0 0.0 53.0 40.6 3.0<!--</td--><td>H: 13U14796 227/2013 geneer: K. Nguyen ration: BCM94360CS2 EUT with laptop, AC adapter, and EUT antenna setup Tz 2.4GHz 11n HT20 CDD 2TX uipmont: Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Ho Sitt 6717 @20m Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Ho Sitt 6717 @20m 12' cable 22807600 20' cable 22807500 Pre-amplifer 26-40GHz HPF Date: Cable 22807700 12' cable 22807600 20' cable 22807500 Pre-amplifer 26-40GHz HPF Dist Read Pk Read Avg AF CL Amp D Corr Fltr Peak Avg Pk Lim (m) dBuV dB ub dB dW'm dBuV/m dBuV/m 12' cable 22807600 12' cable 22807500 12' cable 22807500 12' cable 22807500 10' cable 22807500</td><td>H: 13UI 4796 22772013 geneer: K. 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Nguyen ration: BCM94360C52 EUT with laptop. AC adapter, a Tx 2.4GHz 11n HT20 CDD 2TX uipment: Pre-amplifer 1-26GHz Pre-amplifer 188 Miteq 26- orn 1-18GHz Pre-amplifer 1-26GHz Pre-amplifer 188 Miteq 26- SN: 6717 @3m 12' cable 22807600 20' cable 22 able 22807700 12' cable 22807600 20' cable 22 Dist Read Pik Read Avg. AF CL Amp D Corr Fir (m) dBuV dBuV dB' dB' dB dB dB dB dB dB 12' cable 22807600 . 20' cable 2280 0.0</td><td>fr: 13U14796 2/27/2013 ginser: Suppose 2/27/2013 ginser: ginser: E K. 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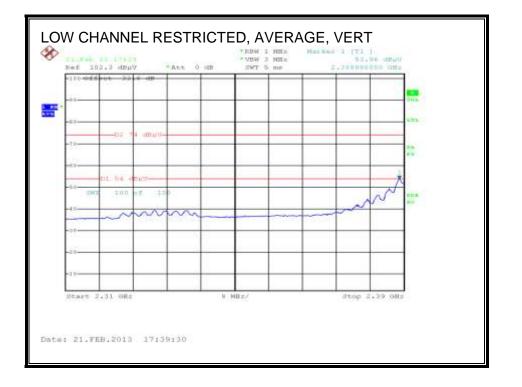
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9.2.8. 802.11n HT20 TxBF 2TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

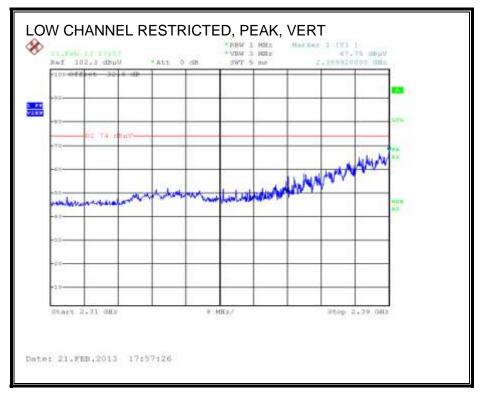
Channel 1

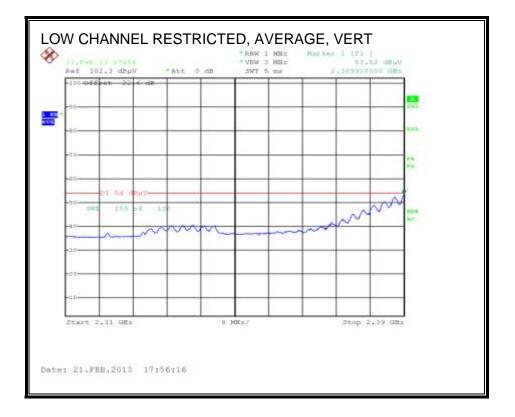




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Channel 2

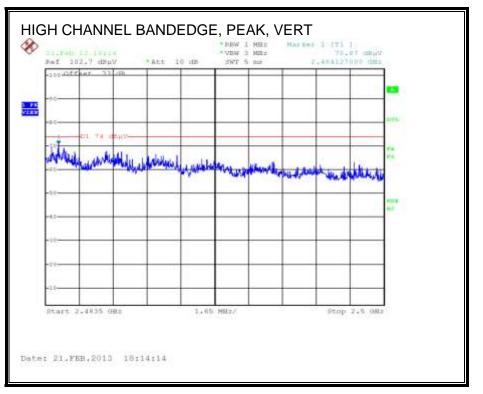


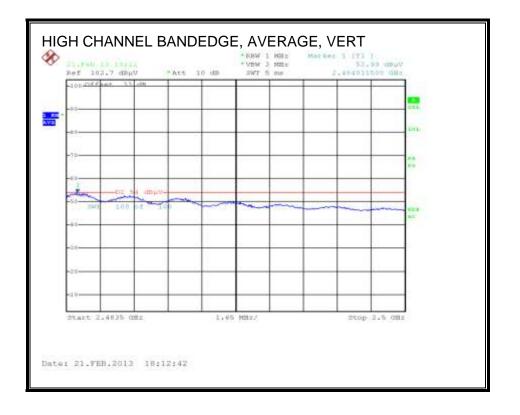


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AUTHORIZED BANDEDGE (HIGH CHANNEL)

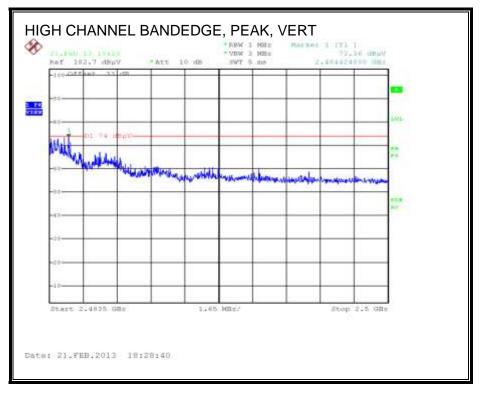
Channel 10

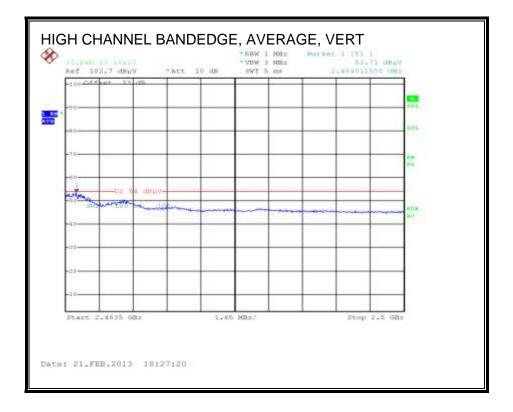




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Channel 11





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HARMONICS AND SPURIOUS EMISSIONS

Complia			Measurem Services, Fr		5m Ch	amber-	٨								
Compan Project (Date: Test En Configu Mode:	∦: gineer:		Broadcom (13U14796 2/23/2013 K. Nguyen BCM94360 11ac 20MH	C52 E	UT wit			er, an	d antenna	setup					
est Eq	ulpmer	ut:								1				1411	
н	orn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	н	orn > 18G	Hz		Limit
173; 5	S/N: 671	7 @3m	• T144 N	Aiteq 30	08A00		T88 Min	eq 26-	40GHz	• T85); ARA 18-264	GHz; S/N:10	49	-	FCC 15.205
3.0	His Prequency Cables 3° cable 22807700 3° cable 22807700			able 2	28076	500			2807500		HPF	Re	ject Filte	RB	Measurements W=VBW=1MHz
3.0	able 22	807700	• 12 ca	ble 228	07600	•	20° cab	le 228	• 07500			• R_	001		e Measurements MHz ; VBW=10Hz
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
hannel 1	(2412)	(sHz)		anon-muchae	Conception of the			and the second		The second second second				and the later of the	hindda
824 824	3.0	42.9	31.4	33.5 33.5	6.7	-35.7	0.0	0.0	47.4	35.9	74	54	-26.6	-18.1	V H
2.060	3.0	40.5	28.1	39.6	11.5	-35.7	0.0	0.0	\$5.9	43.5	74	54	-18.1	-10.5	v
2.060	3.0	37.0	26.5	39.6	11.5	-35.7	0.0	0.0	52.4	41.8	74	54	-21.6	-12.2	H
hannel 6 874	3.0	43.4	32.3	33.5	6.8	-35.7	0.0	0.0	48.0	36.9	74	54	-26.0	-17.1	v
874	3.0	38.6	28.1	33.5	6.8	-35.7	0.0	0.0	43.2	32.7	74	54	-30.8	-21.3	H
311	3.0	46.1	34.4	35.9	8.7	-35.8	0.0	0.0	54.9	43.2	74	54	-19.1	-10.8	v
311	3.0	42.1	30.8 27.3	35.9	8.7	-35.8	0.0	0.0	51.0 55.8	39.7 42.8	74	54 54	-23.0	-14.3	H V
2.185	3.0	37.8	26.4	39.6	11.5	.35.6	0.0	0.0	53.3	41.9	74	54	-10.2	-12.1	H
hannel 1	11 (2462	MH2)													
.924	3.0	44.8	.33.3	33.6	6.8	-35.6	0.0	0.0	49.5	38.0	74	54	-24.5	-16.0	V
924 386	3.0	42.8	30.8	33.6	6.8 8.7	-35.6	0.0	0.0 0.0	47.5	35.5	74	54	-26,5	-18.5	H V
.186	3.0	43.2	31.6	36.0	8.7	.35.8	0.0	0.0	52.1	40.6	74	54	21.9	13.4	H
2.310	3.0	40.3	27.1	39.6	11.6	-35.6	0.0	0.0	55.9	42.7	74	54	-18,1	-11.3	v
2.310 av. 01.30	3.0	37.9	26.2	39.6	11.6	-35.6	0.0	0.0	53.4	41.8	74	54	-20.6	-12.2	н
-	f Dist Read AF CL	Measurem Distance to Analyzer R Antenna F Cable Loss	leading actor	Y		Amp D Corr Avg Peak HPF	Average	Corre Field S d Peal	ct to 3 mete Strength @ k Field Stre	3 т		Pk Lim Avg Mar	Peak Field Margin vs	'ield Strengtf 1 Strength Li Average Li Peak Limit	mit

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9.2.9. 802.11a Legacy 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11a Legacy 1TX.

9.2.10.802.11a CDD 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.11.802.11a TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.12. 802.11n HT20 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT20 1TX.

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9.2.13. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

	High	Frequency	Measurem	ent											
Compli	ance Ce	rtification	Services, Fr	emont	5m Ch	amber-	4								
Compa	ny:		Broadcom												
roject	#:		13U14796												
Date:			2/22/2013												
	ngineer:		Kris N/Dan												
1.0.0	uration:		EUT, Adapt												
Mode:			HT20 2TX	CDD, 5	SGH:	6									
lost F	auipmen														
	quipmen		1							1					
۲	forn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Ho	orn > 18G	Hz		Limit
173;	S/N: 671	7 @3m	- T144 B	Aiteq 30	08A00	931 .	T88 Mit	eq 26-	40GHz	• T8	9; ARA 18-266	GHz; S/N:10	49		FCC 15.205 .
					2100	Contraction of the local distance of the loc									
- HLHE	quency Ca	pes-	1									1		28.5	1211000000000
3'	cable 2	2807700	12' c	able 2	28076	500	20' ca	ble 22	2807500		HPF	Re	ject Filte	· · · · · · · · · · · · · · · · · · ·	Measurements
-			-				0.00		6204A			_	50	and the second second	W=VBW=1MHz
3.	cable 22	507700	• 12 ca	ible 228	07600	-	20' cab	10 228			PF_7.6GHz	•			e Measurements MHz ; VBW=10Hz
1	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lina	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
hannel	149: 574	5MHz			and the second se							(construction of the second			and the second sec
1,490	3.0	41.5	32.2	39.1	11.2	-35.9	0.0	0.7	56.6	47.3	74	54	-17.4	-6.7	v
	3.0	37.8	28.3	39.1	11,2	35.9	0.0	0.7	53.0	43.5	74	54	-23.0	-10.5	H
1.490		SMH2		10.10	11.2	-35.8		0.7						-6.7	v
1.490 hannel							0.0	0.7	58.5	47.3	74	54	-15.5	-0.7	N H
1.490 Thannel 1.570	3.0	43.2	32.0	39.2	and the second		0.0	0.4	40.0	40.8	74				
1.490 Thannel 1.570 1.570	3.0	43.2 35.7	32.0 25.2	39.2 39.2	11.2	.35.8	0.0	0.7	50.9	40.5	74	.84	-23.1	-Love	
1.490 hannel 1.570 1.570 hannel	3.0	43.2 35.7 5MHz	25.2	39,2	11.2	-35.8	0.0	0.7							v
11.490 Channel 11.570 11.570 Channel 11.650	3.0 3.0 165 : 583	43.2 35.7	5000	and the first states of	and the second				50,9 57,9 52,9	40.5 47.0 42.6	74 74 74	54 54 54	-23.3 -16.3 -21.1	-7.0 -11.4	V H
11.490 Channel 11.570 11.570	3.0 3.0 165 : 582 3.0 3.0 3.0	43.2 38.7 550Hz 42.4	25.2 31.6	39.2 39.3	11.2 11.3	-35.8 -35.8	0.0	0.7	57.9	47.0	74	54	16.1	-7.0	
1.490 Thunnel 1.570 1.570 Thunnel 1.650 1.650	3.0 3.0 165 : 583 3.0 3.0 0.13	43.2 35.7 550Hz 42.4 37.5	25.2 31.6 27.2	39.2 39.3 39.3	11.2 11.3	35.8 35.8 35.8	0.0 0.0	0.7 0.7	57.9	47.0	74	54 54	.16.1 -21.1	-11,4	н
1.490 Channel 11.570 11.570 Channel 11.650 11.650	3.0 3.0 165 : 582 3.0 3.0 0.13	43.2 35.7 550Hz 42.4 37.5 Measurem	25.2 31.6 27.2 ent Frequency	39.2 39.3 39.3	11.2 11.3	35.8 35.8 35.8 Amp	0.0 0.0 Preamp (0.7 0.7	57.9 52.9	47.0 42.6	74	54 54 Avg Lim	-16.1 -21.1 Average F	-7.0 -11.4	H Limit
1.490 Channel 11.570 11.570 Channel 11.650 11.650	3.0 3.0 165 : 582 3.0 3.0 0.13 f Dist	43.2 35.7 550Hz 42.4 37.5 Measurem Distance to	25.2 31.6 27.2 ent Frequence Antenna	39.2 39.3 39.3	11.2 11.3	35.8 35.8 35.8 Amp D Corr	0.0 0.0 Preamp 0 Distance	0.7 0.7 Gain	57.9 52.9	47.0 42.6	74	54 54 Avg Lim Pk Lim	-16.1 -21.1 Average F	-7.0 -11.4 Tield Strength	H 1 Limit mit
1.490 Thunnel 1.570 1.570 Thunnel 1.650 1.650	3.0 3.0 165 : 582 3.0 3.0 0.13 f Dist Read	43.2 38.7 550Bz 42.4 37.5 Measurem Distance to Analyzer R	28.2 31.6 27.2 ent Frequence Antenna cading	39.2 39.3 39.3	11.2 11.3	35.8 35.8 35.8 Amp D Corr Avg	0.0 0.0 Preamp 0 Distance Average	0.7 0.7 Gain Corre	57.9 52.9 ct to 3 mete Strength @	47.0 42.6 42.6 3 m	74	54 54 Avg Lim Pk Lim Avg Mar	-16.1 -21.1 Average F Peak Field Margin vs	-7.0 -11.4 Tield Strength I Strength Lia Average Lia	H Limit mit mit
1.490 Thunnel 1.570 1.570 Thunnel 1.650 1.650	3.0 3.0 165 : 582 3.0 3.0 0.13 f Dist	43.2 35.7 550Hz 42.4 37.5 Measurem Distance to	28.2 31.6 27.2 ent Frequence Antenna cading	39.2 39.3 39.3	11.2 11.3	35.8 35.8 35.8 Amp D Corr	0.0 0.0 Preamp 0 Distance Average	0.7 0.7 Gain Corre	57.9 52.9	47.0 42.6 42.6 3 m	74	54 54 Avg Lim Pk Lim Avg Mar	-16.1 -21.1 Average F Peak Field Margin vs	-7.0 -11.4 Tield Strength	H Limit mit mit

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9.2.14. 802.11n HT20 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

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9.2.15. 802.11n AC20 TxBF 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Complia	ince Ce	rtification 8	Services, Fr	emont :	5m Ch	amber-	Δ									
Compan Project (Date: Test En	#: gineer:		Broadcom 13U14796 2/25/2013 Vien Tran													
Configu Mode:	ration:		EUT / Lapb Tx 5.8GHz			20.273	T+RF									
rest Eq	uipmen		11 South	Danu_		20.210	_1.01									
н	orn 1-	18GHz	Pre-ar	mplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Н	orn > 180	SHz		Limit	
1.03350	T73; S/N: 6717 @3m 💉 T144 Miteq 300 Hi Frequency Cables					931 -	T88 Mit	eq 26-	40GHz	• T89	ARA 18-264	GHz; S/N:10	149	•	FCC 15.205	•
10000						100	20' cal	ble 22	2807500		HPF	R	eject Filte	r		
3.0	able 221	807700	, 12 ca	ible 228	07600	•	20° cab	le 228	07500	HP	F_7.6GHz	•		•		
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lins dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	_
LOW CH	ANNEL 0	(149), 5745MB 44.3	Hz 35.4	39.1	11.2	-35.9	0.0	0.7	59.5	50.5	74	54	-14.5	.3.5	v	_
1.490	3.0	37.9	28.6	39.1	11.2	35.9	0.0	0.7	53.1	43.8	74	54	-20.9	-10.2	н	_
ID CHA	NNEL (1	57), 5785MH		100.00	1	1000	2000	1.112	120	10.000		1. 62.		1-201		
1.570	3.0	45.8	36.1	39.2	11.2	-35,8	0.0	0.7	61.1	51.4	74	54	-12.9	-2.6	v	_
1.570	3.0	38.6	29.8	39.2	11.2	-35.8	0.0	0.7	\$3.9	45.1	74	54	-20.3	-8.9	H	
11.650	3.0	(165), 5825MB 45.6	35.6	39.3	11.3	.35.8	0.0	0.7	61.0	51.0	74	54	-13.0	.3.0	v	-
1.650	3.0	38.5	29.6	39.3	11.3	-35.8	0.0	0.7	54.2	45.0	74	54	-19.8	.9.0	н	_
Rev. 01.30	0.13													_		
	f		nt Frequenc	у		Атр	Preamp (Field Strength		
	Dist	Distance to				C 10			ct to 3 met			Pk Lim		d Strength Li		
		Analyzer Re				Avg			Strength @					Average Li	mit	
	AF	Antenna Fa				Peak			k Field Stre	ngth		Pk Mar	Margin vs	Peak Limit		
	CL	Cable Loss				HPF	High Pas	s Filter								

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9.2.16. 802.11n HT40 1TX MODE IN THE 5.8 GHz BAND

Covered by testing to 11n HT40 CDD 2TX, power per chain used in the 802.11n HT40 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT40 1TX.

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9.2.17. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

	High	Frequency	Measurem	ient													
Compli			Services, Fr		5m Ch	amber.	A										
28300																	
ompa Project			Broadcom 13U14796														
Toject	141		2/22/2013														
	ngineer:		Kris N/Dan	or Vo													
	tration:		EUT, Adap		ton. Ar	ntenna											
Iode:			11n HT40 :	C. C													
1.0325	59/339R																
est E	quipmen	<u>f:</u>													1470		
ł	forn 1-	18GHz	Pre-ar	mplifer	1-260	GHz	Pre-am	plifer	26-40GH	z		He	rn > 18G	Hz		Limit	
173:	73; S/N: 6717 @3m 🕌 T144 Miteq 300					031 -	T88 Mit	eq 26.	4DGH2		T89; /	ARA 18-260	Hz: S/N:10	49	-	FCC 15.205	
10000		1-75200		100	1000		1.00		1000	21							-
- 15 Pre	quency Cal	sies	1 10000	27. K			Absorb	1975 - 186					10		1 20000		
3'	cable 2	2807700	12' 0	able 2	28076	000	20' cal	ble 22	2807500			HPF	Re	ject Filte	-	Measurements	
-			-									219222		35		V=VBW=1MHz	ł.,
3.4	cable 22	307700	• 12 ca	sble 228	07600	-	20' cab	le 228	07500 .		HPF.	7.6GHz				ge Measurement MHz : VBW=100	
,1. <u></u>			4 1		_	-		_		4					KBW=1	MHZ, VBW-10	
	Dist	Read Pk	Read Avg.	AF	CL	Ашр	D Corr	Fltr	Peak	A	g	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
1			dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBu	V/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
GHz	1.000	dBuV	dBuy	10.07 100	Statistics in case of	The Real Property lies and the real Property lie											
GHz	151: 575	5MHz										12-0		-			
GHz hannei 1.510	151: 575	5MH2 40.2	29.6	39.2	11.2	-35.8	0.0	0.7	55.3	44		74	54	-18.7	9.2	v.	_
GHz hannei 1.510 1.510	151: 575 3.0 3.0	5MHz 40.2 36.4			11.2 11.2	-35.8 -35.8	0.0	0,7 0.7	55.3 51.6	44		74 74	54 54	-18.7 -22.4	.9,2 -12.6	V H	
GHz Thannel 1.510 1.510 Thannel	151: 575	5MHz 40.2 36.4	29.6	39.2							.4			and the second s			
GHz Channel 11.510 11.510 Channel 11.590	151: 575 3.0 3.0 159: 579	5MHz 40.2 36.4 5MHz	29.6 26.2	39.2 39.2	11,2	35.5	0.0	0.7	51.6	41	.4	74	54	-22.4	-12.6	H	
GHz Channel 11.510 Channel 11.590 11.590	151: 575 3.0 3.0 159: 579 3.0 3.0 3.0	5MH2 40.2 36.4 5MH2 42.2	29.6 26.2 30.6	39.2 39.2 39.2	11.2	-35.8 -35.8	0.0	0.7	51.6 57.6	41	.4	74 74	54 54	-22.4	-12.6	H	
GHz Channel 11.510 11.510	151: 575 3.0 3.0 159: 579 3.0 3.0 3.0 0.13	5MHz 40.2 36.4 5MHz 42.2 36.4	29.6 26.2 30.6 25.8	39.2 39.2 39.2 39.2 39.2	11.2	35.8 35.8 35.8	0.0	0.7 0.7 0.7	51.6 57.6	41	.4	74 74	54 84 54	-32.4 -16.4 -22.3	-12.6 -8.1 -12.9	H V H	
GHz Channel 11.510 Channel 11.590 11.590	151: 575 3.0 3.0 159: 579 3.0 3.0 3.0 0.13	5MHz 40.2 36.4 5MHz 42.2 36.4 Measurema	29.6 26.2 30.6 25.8 ent Frequenc	39.2 39.2 39.2 39.2 39.2	11.2 11.2 11.2	35.8 35.8 35.8 Amp	0.0 0.0 0.0 Preamp (0.7 0.7 0.7 Gain	51.6 57.6 51.7	41 45 41	.4	74 74	54 54 54	-22.4 -16.4 -22.3 Average F	-12.6 -8.1 -12.9 Seld Strength	H V H	
GHz Channel 11.510 Channel 11.590 11.590	151: 575 3.0 3.0 3.0 3.0 3.0 3.0 0.13 f Dist	5MHz 40.2 36.4 5MHz 42.2 36.4 Measuremi Distance to	29.6 26.2 30.6 25.8 ent Frequenc Antenna	39.2 39.2 39.2 39.2 39.2	11.2 11.2 11.2	35.8 35.8 35.8 Amp D Corr	0.0 0.0 0.0 Preamp (Distance	0.7 0.7 0.7 Gain	51.6 57.6 51.7 ct to 3 met	41 45 41	.4	74 74	54 54 54 Avg Lim Pk Lim	-22.4 -16.4 -22.3 Average I Peak Field	-12.6 -8.1 -12.9 Sield Strength	H V H	
GHz Channel 11.510 Channel 11.590 11.590	151: 575 3.0 3.0 159: 579 3.0 3.0 0.13 f Dist Read	3MHz 40.2 36.4 5MHz 42.2 36.4 Measurem Distance to Analyzer R	29.6 26.2 30.6 25.8 ent Frequenc Antenna eading	39.2 39.2 39.2 39.2 39.2	11.2 11.2 11.2	35.8 35.8 35.8 Amp D Corr Avg	0.0 0.0 0.0 Preamp 0 Distance Average	0.7 0.7 0.7 Gain Corre Field S	51.6 57.6 51.7 ct to 3 meth Strength @	41 45 41 15 3 m	.4	74 74	54 54 54 Avg Lim Pk Lim Avg Mar	-22.4 -16.4 -22.3 Average I Peak Field Margin vs	-12.6 -8.1 -12.9 Steid Strength I Strength Lis Average Lis	H V H	
GHz Channel 11.510 Channel 11.590 11.590	151: 575 3.0 3.0 159: 579 3.0 3.0 0.13 f Dist Read AF	5MHz 40.2 36.4 5MHz 42.2 36.4 Measurems Distance to Analyzer R Antenna Fe	29.6 26.2 30.6 25.8 ent Frequence Antenna eading actor	39.2 39.2 39.2 39.2 39.2	11.2 11.3 11.2	35.8 35.8 35.8 Amp D Corr Asg Peak	0.0 0.0 0.0 Preamp 0 Distance Average Calculate	0.7 0.7 0.7 Gain Corre Field S	51.6 57.6 51.7 ct to 3 meto Strength @ k Field Stre	41 45 41 15 3 m	.4	74 74	54 54 54 Avg Lim Pk Lim Avg Mar	-22.4 -16.4 -22.3 Average I Peak Field Margin vs	-12.6 -8.1 -12.9 Sield Strength	H V H	
GHz Channel 11.510 Channel 11.590 11.590	151: 575 3.0 3.0 159: 579 3.0 3.0 0.13 f Dist Read	3MHz 40.2 36.4 5MHz 42.2 36.4 Measurem Distance to Analyzer R	29.6 26.2 30.6 25.8 ent Frequence Antenna eading actor	39.2 39.2 39.2 39.2 39.2	11.2 11.3 11.2	35.8 35.8 35.8 Amp D Corr Avg	0.0 0.0 0.0 Preamp 0 Distance Average	0.7 0.7 0.7 Gain Corre Field S	51.6 57.6 51.7 ct to 3 meto Strength @ k Field Stre	41 45 41 15 3 m	.4	74 74	54 54 54 Avg Lim Pk Lim Avg Mar	-22.4 -16.4 -22.3 Average I Peak Field Margin vs	-12.6 -8.1 -12.9 Steid Strength I Strength Lis Average Lis	H V H	

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9.2.18. 802.11n HT40 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC40 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

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9.2.19. 802.11n AC40 TxBF 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

	High	Frequency	Measuren	aent												
ompli			Services, Fr		5m Ch	amber-	A									
Compa	135		Broadcom													
roject			13U14796													
Tojeci	m.		2/25/2013													
	ngineer:		Vien Tran													
	iration:		EUT / Lapt	ton / An	tenna											
Mode:			Tx 5.8GHz			T40 2T	X_TxBF									
1.012	14/3324	20														
est Ec	quipmen	£														_
H	lorn 1-	18GHz	Pre-a	mplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	He	orn > 18G	Hz	1	Limit	
173:	S/N: 671	7 @3m	084005	131 -	T88 Min	eg 26-	4DGHz	T	19: ARA 18-260	GHz; S/N:10	49	-	FCC 15.205			
10,000		1-79400	1	120.23	1000		100.000	100	1000	1						- 22
- 15 Pre	quency Cel	ples	1 1997	- 47 - 6			ASSISTING			1		10		1		
3'	cable 2	22807700	12'	cable 2	28076	00	20' cal	ble 22	2807500		HPF	Re	ject Filte	er i		
34	able 22	807700	17.	able 228	07600		20' cab	in 728	07500	I FR	PF 7.6GHz			-		
11.	0010 110		12.61	sole 220	07000	•	20 000	IC LLO			11_1.0014	1		*		
-	L m ()			Lores	1.000		The second		1			1	-			
ſ	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg	Pk Lins n dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
CH	(m)	(151), 5755M	and the second se	an/m	an	aB	ab	015	d Esta V/m	dib@V/B	n asuv/m	disu v/m	an	an	(V(B)	_
GHz	TANNEL /			39.2	11.2	-35.8	0.0	0.7	54.2	44.3	74	54	-19.8	.9.9	v	-
LOW CE	ANNEL (39.1	28.9			and the local division of	0.0	0.7	51.2	42.1	74	54	-22.8	-11.9	н	-
LOW CE		and the second second	28.9	39.2	11.2	-35.6	0.0									
LOW CH 11.510 11.510 HIGH CH	3.0 3.0 IANNEL (39.1 36.0 (159), 5795M	26.9 Hz	39.2	1000	1.000		19	1000	199						_
LOW CH 11.510 11.510 HIGH CH 11.590	3.0 3.0 IANNEL (3.0	39.1 36.0 (159), 5795M 41.2	26.9 Hz 30.1	39.2 39.2	11.2	-35.8	0.0	0.7	56.5	45.4	74	54	-17,8	-8.6	v	_
LOW CH 11.510 11.510 HIGH CH 11.590	3.0 3.0 IANNEL (39.1 36.0 (159), 5795M	26.9 Hz	39.2	1000	1.000		19	56.5 52.5	45.4 43.6	74 74	54 54	-17,8 -21.5	-8.6 -10.4	V H	_
LOW CI 11.510 11.510 HIGH CI 11.590 11.590	3.0 3.0 EANNEL (3.0 3.0	39.1 36.0 (159), 5795M 41.2	26.9 Hz 30.1	39.2 39.2	11.2	-35.8	0.0	0.7						and the second se		
LOW CH 11.510 11.510	3.0 3.0 HANNEL (3.0 3.0 3.0	39.1 36.0 (159), 5795M 41.2 37.2	26.9 Hz 30.1 28.3	39.2 39.2 39.2	11.2	-35.8 -35.8	0.0	0.7 0.7				54	-21.5	-10.4	н	
LOW CE 11.510 11.510 HIGH CE 11.590 11.590	3.0 3.0 IANNEL (3.0 3.0 0.13	39.1 36.0 (159), 5795M 41.2 37.2 Measureme	26.9 Hz 30.1 28.3 ent Frequenc	39.2 39.2 39.2	11.2 11.2	-35.8 -35.8 Amp	0.0 0.0 Preamp (0.7 0.7	52.5	43.6		54 Avg Lim	-21.5 Average F	-10.4	H Limit	
LOW CE 11.510 11.510 HIGH CE 11.590 11.590	3.0 3.0 3.0 3.0 3.0 0.13 f Dist	39.1 36.0 (159), 5795M 41.2 37.2 Measureme Distance to	26.9 Hz 30.1 28.3 est Frequenc	39.2 39.2 39.2	11.2 11.2	-35.8 -35.8 Amp D Corr	0.0 0.0 Preamp (Distance	0.7 0.7 Gain Corre	52.5 ct to 3 mete	43.6		54 Avg Lim Pk Lim	-21.5 Average F Peak Field	-10.4 Field Strength	H Limit nit	
LOW CE 11.510 11.510 HIGH CE 11.590 11.590	3.0 3.0 3.0 3.0 0.13 f Dist Read	39.1 36.0 (159), 5795M 41.2 37.2 Measureme Distance to Analyzer R	26.9 Hz 30.1 28.3 ent Frequenc Astenna eading	39.2 39.2 39.2	11.2 11.2	-35.8 -35.8 Amp D Corr Avg	0.0 0.0 Preamp 0 Distance Average	0.7 0.7 Gain Corre Field S	52.5 et to 3 mete Strength @	43.6 15 3 m		54 Avg Lim Pk Lim Avg Mar	-21.5 Average F Peak Field Margin vs	-10.4 Seld Strength A Strength Lin Average Lin	H Limit nit	
LOW CE 11.510 11.510 HIGH CE 11.590 11.590	3.0 3.0 3.0 3.0 3.0 0.13 f Dist	39.1 36.0 (159), 5795M 41.2 37.2 Measureme Distance to	26.9 Hz 30.1 28.3 ent Frequenc Astenna eading actor	39.2 39.2 39.2	11.2 11.2	-35.8 -35.8 Amp D Corr	0.0 0.0 Preamp 0 Distance Average	0.7 0.7 Gain Corre Field S	52.5 ct to 3 mete Strength @ k Field Stre	43.6 15 3 m		54 Avg Lim Pk Lim Avg Mar	-21.5 Average F Peak Field Margin vs	-10.4 Field Strength	H Limit nit	

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9.2.20. 802.11n AC80 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC80 CDD 2TX, power per chain used in the 802.11n AC80 CDD 2TX mode is equal to the power per chain that will be used for 802.11n AC80 1TX.

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9.2.21. 802.11n AC80 CDD 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

	igh Frequency	y Measurem	ient													
Compliance	Certification			5m Cha	mber./	A										
Company:		Broadcom														
Project #:		13U14796														
Date:		2/22/2013														
Test Engine	er	Kris N/Dan	ny Vu													
Configuratio	an:	EUT, Adap	ter, lapt	op, Ant	enna											
Mode:		Tx 5.8GHz	Band_B	lac HT	80 217	X CDD_C	H.15	5								
Test Equips	20026															
lest Lquipu	Lent:				1				1							_
Hom	1-18GHz	Pre-at	mplifer	1-26G	Hz	Pre-am	plifer	26-40GH	z		Н	orn > 18G	Hz		Limit	
T73; 5/N: /	6717 @3m	T144 P	Miteq 30	0840093	1.	T88 Mit	eq 26-	40GHz		T89;	ARA 18-260	GHz; S/N:10	19	-	FCC 15.205	
106635035	102 2200		a state and		0.21	A&STOR	1.50									- 22
- H Prequency	/ Cables	1			- 1	C. Serverson at			T.			10		1		
3' cabi	e 22807700	12' 0	able 2	280760	00	20' cal	ble 22	2807500			HPF	Re	ject Filte	- Peak	Measurements	
								1000000000		_		-	Jecel and	RBV	W=VBW=1MHz	
3' cable	22807700	. 1Z cz	sble 228	07600		20' cabi	e 228	07500 🖕		HPF	7.6GHz				ge Measuremen	
Construction of the second sec	serveren i j	A Lorente			- 1	Losson and						2		RBW=1	1MHz ; VBW=10	Hz
		Deta Colorador	AF	CL	Ашр	D Corr	Fltr	Peak	A	vg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	_
f Di	ist Read Pk	Read Avg.					1.05	dBuV/m	JD.	Vim	dBuV/m	dBuV/m	dB	dB	(V/H)	
1.	ist Read Pk n) dBuV	Read Avg. dBuV	dB/m	dB	dB	dB	dB	0.15/0 V /m	0.00				0.0			
	n) dBuV		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	dB	dB	dB	dB	0.1540 V /m	abe			Contra Print	4B		and a second s	
GHz (n low Channel: 1.550 3	n) dBuV 5775MHz .0 37.2	dBuV 27.2	dB/m 39.2	11.2	-35.8	0.0	0.7	\$2.5	43	1.5	74	84	-21.5	-11.5	v	
GHz (n low Channel: 1.550 3	n) dBuV 5775MHz	dBuV	dB/ns						43					-11.8 -13.7	V H	
GHz (n low Channel: 1.550 3	n) dBuV 5775MHz .0 37.2	dBuV 27.2	dB/m 39.2	11.2	-35.8	0.0	0.7	\$2.5	43	1.5	74	84	-21.5			
GHz (n low Channel: 1.550 3.	n) dBuV 5775MHz .0 37.2 .0 35.6	dBuV 27.2	dB/m 39.2 39.2	11.2 11,2	.35.8 .35.8	0.0	0.7 0.7	\$2.5	43	1.5	74	64 54	-21.5 -23.1		H	
GHz (n ov Channel: 11.550 3 11.550 3 Rev. 01.30,13	n) dBuV 5775MHz .0 37.2 .0 35.6 Measurem	dBuV 27.2 25.0 ent Frequenc	dB/m 39.2 39.2	11.2 11.2	.35.8 .35.8	0.0 0.0 Preamp (0.7 0.7	\$2.5	43	1.5	74	84 54 Avg Lim	-21.5 -23.1 Average F	-13.7	H 1 Limit	
GH2 (n low Channel 11.550 3 11.550 3 kev. 01.30.13 f Dis	n) dBuV 5775MHz .0 37.2 .0 35.6 Measurem	dBuV 27.2 25.0 ent Frequenc	dB/m 39.2 39.2	11.2 11.2 //	35.8 35.8 Amp D Corr	0.0 0.0 Preamp (Distance	0.7 0.7 Jain Corre	52.5 50.9	41	1.5	74	84 54 Avg Lim Pk Lim	21.5 -23.1 Average F Peak Field	-13.7 Tield Strength	H 1 Limit mit	
GH2 (n low Channel 11.550 3 11.550 3 kev. 01.30.13 f Dis	n) dBuV 5775MRa .0 37.2 .0 35.6 Measurem at Distance to ad Analyzer R	dBuV 27.2 25.0 ent Frequenc o Antenna Reading	dB/m 39.2 39.2	11.2 11,2	38.8 35.8 Amp D Corr Avg	0.0 0.0 Preamp O Distance Average	0.7 0.7 Jain Corre Field S	\$2.5 50.9	4) 4(3 m	1.5	74	84 54 Avg Lim Pk Lim Avg Mar	-21.5 -23.1 Average F Peak Field Margin vs	-13.7 Tield Strength	H 1 Limit mit	

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9.2.22. 802.11n AC80 2TX TxBF MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

	High	Frequency	Measurer	nent													
Compli	ance Ce	rtification	Services, F	remont	5m Cl	amber	A										
Compa Project Date: Test Fr			Broadcom 13U14796 2/25/2013 Vien Tran														
	ration:		EUT / Lap Tx 5.8GHz				X TxBF										
	uipmen																
н	lorn 1-	18GHz	Pre-a	mplife	1-26	GHz	Pre-am	plifer	26-40GH	z		н	orn > 1	8GHz	1	Limit	
173;	S/N: 671	7 @Jm	• T144	Miteq 30	08A00	931 .	T88 Mit	eq 26-	40GHz	•	T89;	ARA 18-260	GHZ; S/N	1049	-	FCC 15.205	•
	ouency Cal cable 2	2807700	12'	cable 2	2807	600	20' ca	ble 23	2807500			HPF	Ĩ	Reject Fil	ter		
3. 0	able 221	107700	• 12 c	able 220	07600	•	20' cab	le 228	07500 •		HPF	F_7 6GHz			•		
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp	D Corr dB	Fltr	Peak dBuV/m		vg V/m	Pk Lim dBuV/m	Avg Li dBuV	0.0000000000000000000000000000000000000	r Avg Mar dB	Notes (V/H)	
- International	and so the second second	55), 5775MH	le													2	
1.510	3.0	38.5	27.6	39.2 39.2	11.2	-35.8	0.0	0.7	53.6 50.6		2.8	74	54 54	-20.4	-11.2	V H	
tev. 01.3	1000	2014		2714		000		ML I	2070		0.2				1	- 97	
-	f		ent Frequenc	y.		Атр	Preamp							100 C 100	Field Strengt		
	Dist	Distance to Analyzer R				D Corr Avg		(T	ct to 3 met Strength @				Pk Lim		eld Strength L vs. Average L		
	Read	semantice to				Peak			k Field Stre						vs. Peak Limit		
	Read AF	Antenna Fa						s Filter									

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9.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

Project : 13U14796 Company Name: Broadcom Model / Config: BCM94360CS2 Mode: Tx Worst Case Test By: Vien Tran

Horizontal 30 - 1000MHz

					T64					
				T185	preamp/					
				Antenna	cable	dB				
Marker	Test	Meter		Factor	loss loop	(uVolts/	FCC Part 15B		Height	
No.	Frequency	Reading	Detector	(dB)	(dB)	meter)	Class B 3m	Margin	[cm]	Polarity
1	85.25	52.75	PK	7.5	-27.1	33.15	40.0	-6.85	300	Horz
3	128.87	50.11	PK	14.1	-26.8	37.41	43.5	-6.09	200	Horz
5	276.68	46.21	PK	13.3	-26	33.51	46.0	-12.49	100	Horz
8	415.29	47.33	PK	16.1	-25.3	38.13	46.0	-7.87	100	Horz
9	443.88	45.80	РК	16.7	-25.1	37.40	46.0	-8.60	200	Horz
15	960.02	31.16	РК	22.7	-22.5	31.36	54.0	-22.64	100	Horz

Vertical 30 - 1000MHz

					T64					
				T185	preamp/					
				Antenna	cable	dB				
Marker	Test	Meter		Factor	loss loop	(uVolts/	FCC Part 15B		Height	
No.	Frequency	Reading	Detector	(dB)	(dB)	meter)	Class B 3m	Margin	[cm]	Polarity
16	84.76	52.16	PK	7.5	-27.1	32.56	40.0	-7.44	200	Vert
18	128.87	47.12	PK	14.1	-26.8	34.42	43.5	-9.08	100	Vert
20	275.71	43.83	PK	13.3	-26.1	31.03	46.0	-14.97	200	Vert
23	415.29	39.80	PK	16.1	-25.3	30.60	46.0	-15.40	100	Vert
24	443.88	39.83	PK	16.7	-25.1	31.43	46.0	-14.57	100	Vert
30	966.80	30.62	PK	22.8	-22.8	30.62	54.0	-23.38	100	Vert

PK - Peak detector

QP - Quasi-Peak detector

LnAv - Linear Average detector

LgAv - Log Average detector

Av - Average detector

CAV - CISPR Average detector

RMS - RMS detection

CRMS - CISPR RMS detection

PK1 - KDB 789033 v01r02 G)5) Method: Peak

AD1 - KDB 789033 v01r02 G)6) Method: AD Primary Power Average

VB1 - KDB 789033 v01r02 G)6) Method: VB Alternative Reduced Video

PK2 - KDB558074 v02 10.2.3.2/8.1.1 Method: Maximum Peak

MAv1 - KDB558074 v02 10.2.3.2/8.2.1 Option 1 Maximum RMS Average

MAv2 - KDB558074 v02 10.2.3.3/8.2.2 Option 2 Slow Sweep RMS Average

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10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted I	.imit (dBuV)
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

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RESULTS

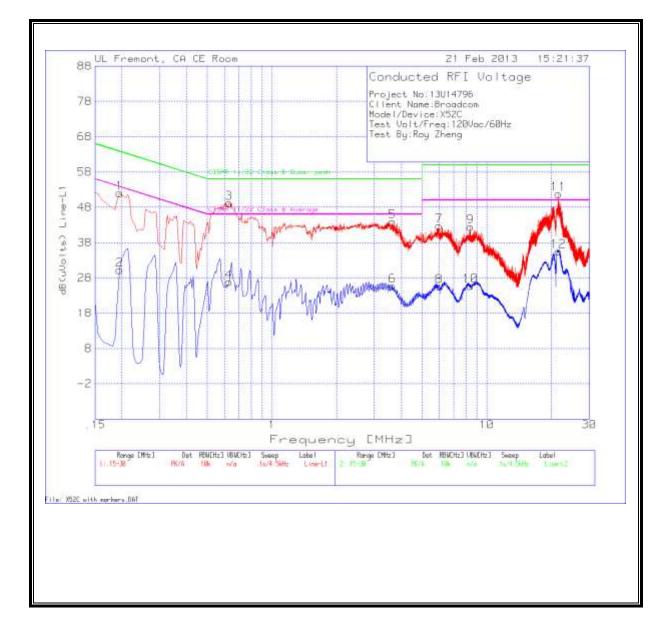
<u>6 WORST EMISSIONS</u>

Project No:		13U14796	-						
Client Name		Broadcom							
Model/Dev	ice:	BCM94360CS2							
Test Volt/Fr	eq:	120Vac/60Hz	-						
Test By:		Roy Zheng							
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi- peak	Margin	CISPR 11/22 Class B Average	Margin
Line-L1.15 -		Detettor		(45)	ablactores	peak	in a Bui	Dracinge	11101811
0.195	51.88	РК	0.1	0	51.98	63.8	-11.82	-	-
0.195	30.16	Av	0.1	0	30.26	-	-	53.8	-23.54
0.6315	49.11	РК	0.1	0	49.21	56	-6.79	-	-
0.6315	26.73	Av	0.1	0	26.83	-	-	46	-19.17
3.6375	43.58	РК	0.2	0.1	43.88	56	-12.12	-	-
3.6375	25.42	Av	0.2	0.1	25.72	-	-	46	-20.28
6.0045	42.6	РК	0.1	0.1	42.8	60	-17.2	-	-
6.0045	25.42	Av	0.1	0.1	25.62	-	-	50	-24.38
8.394	42.24	РК	0.1	0.1	42.44	60	-17.56	-	-
8.394	25.52	Av	0.1	0.1	25.72	-	-	50	-24.28
21.5655	51.23	PK	0.3	0.2	51.73	60	-8.27	-	-
21.5655	35.07	Av	0.3	0.2	35.57	-	-	50	-14.43
Line-L2 .15 -	30MHz								
0.195	49.4	PK	0.1	0	49.5	63.8	-14.3	-	-
0.195	27.74	Av	0.1	0	27.84	-	-	53.8	-25.96
0.5055	48.99	PK	0.1	0	49.09	56	-6.91	-	-
0.5055	31.69	Av	0.1	0	31.79	-	-	46	-14.21
0.9375	45.71	PK	0.1	0	45.81	56	-10.19	-	-
0.9375	30.11	Av	0.1	0	30.21	-	-	46	-15.79
3.534	43.72	РК	0.1	0.1	43.92	56	-12.08	-	-
3.534	24.45	Av	0.1	0.1	24.65	-	-	46	-21.35
8.907	42.59	РК	0.1	0.1	42.79	60	-17.21	-	-
8.907	26.6	Av	0.1	0.1	26.8	-	-	50	-23.2
21.759	47.25	РК	0.3	0.2	47.75	60	-12.25	-	-
21.759	27.99	Av	0.3	0.2	28.49	-	-	50	-21.51
PK - Peak de QP - Quasi-I Av - Averag	Peak detecto	Dr							

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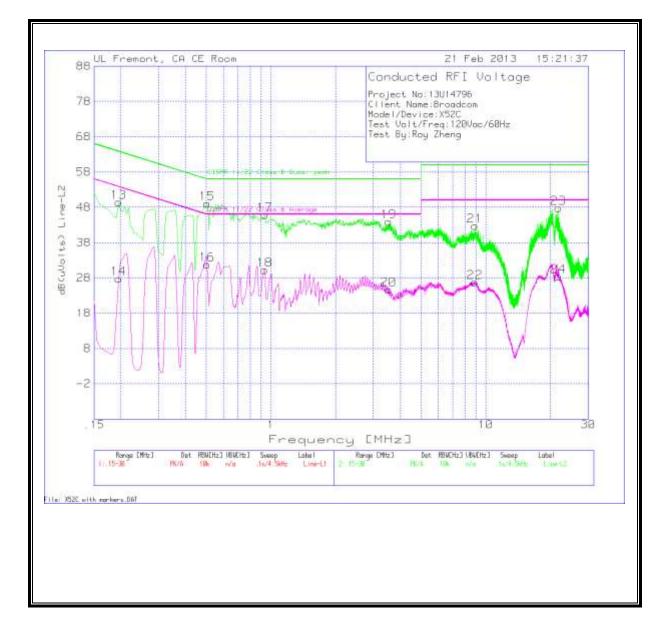
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LINE 1 RESULTS



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LINE 2 RESULTS



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