



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

CERTIFICATION TEST REPORT

FOR

802.11n + BT MODULE

MODEL NUMBER: WCN3660

FCC ID: PPD-WCN3660 IC: 4104A-WCN3660

REPORT NUMBER: 12U14222-6

ISSUE DATE: JUNE 07, 2012

Prepared for QUALCOMM ATHEROS, INC. 1700 TECHNOLOGY DRIVE SAN JOSE, CA 95110, U.S.A.

Prepared by COMPLIANCE CERTIFICATION SERVICES (UL CCS) 47173 BENICIA STREET FREMONT, CA 94538, U.S.A. TEL: (510) 771-1000 FAX: (510) 661-0888

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NVLAP LAB CODE 200065-0

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Revision History

Rev.	Issue Date	Revisions	Revised By
	06/07/12	Initial Issue	F. Ibrahim

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Pass

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	QUALCOMM ATHEROS, INC. 1700 TECHNOLOGY DRIVE SAN JOSE, CA, 95110, U.S.A.	
EUT DESCRIPTION:	802.11n + BT MODULE	
MODEL:	WCN3660	
SERIAL NUMBER:	N10FXYDC9 and N10G84TRF	
DATE TESTED:	February 2, 2012 – June 06, 2012	
	APPLICABLE STANDARDS	
s	TEST RESULTS	
CFR 47	Pass	
INDUSTRY CANAI	DA RSS-210 Issue 8 Annex 8	Pass
		_

INDUSTRY CANADA RSS-GEN Issue 3

Compliance Certification Services (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 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:

Tested By:

FRANK IBRAHIM EMC SUPERVISOR UL CCS

DENNIS HUANG EMC ENGINEER UL CCS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, 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%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is Qualcomm Atheros 802.11n + Bluetooth Adapter supports 802.11a/b/g/n and Bluetooth v2.1 + EDR/ Bluetooth 3.0/ Bluetooth 4.0 LE operation.

The test platform contains the WCN3660 module and the Qualcomm APQ8060A host processor which serves as the WLAN and BT baseband.

The radio module is manufactured by Qualcomm Atheros.

5.2. MODIFICATIONS

The manufacturer declares the following modification in order to pass 2nd harmonic:

"We have identified a source of leakage for the 2nd harmonic as the 1.8V bias line from the WCN3660 chip. We implemented a notch filter on this line inside the module to filter the harmonic and achieve compliance. This filter will be used in the production version of the module. It was added at the output of chip inside the Y0253 module on Vdd 1p8 LDO net.

5.3. MAXIMUM OUTPUT POWER

2.4GHz WLAN						
Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)			
2412 - 2462	802.11b	21.74	149.28			
2412 - 2462	802.11g	25.48	353.18			
2412 - 2462	802.11n HT20	24.79	301.30			
	5.8GHz WLAN					
5725-5850	802.11a	24.88	307.61			
5725-5850	802.11n HT20	24.83	304.09			
5725-5850	802.11n HT40	24.68	293.76			

The transmitter has a maximum peak conducted output power as follows:

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes **WCN3660 WLAN/BT** antenna with the following specification:

Band of operation (MHz)	2400-2483.5	5.15-5.35	5.47-5.725	5.725-5.850
Antenna Type	PIFA	PIFA	PIFA	PIFA
Antenna model	EBJ Aux	ED4 Main	ED4 Aux	ED4 Main
Antenna Gain (dBi)	3.62	5.6	5.3	4.8

5.5. SOFTWARE AND FIRMWARE

The test utility software used during testing was QRCT, Version 2.4.74.0.

5.6. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1 GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

The worst-case data rate for each mode is determined to be as follows, based on input from the manufacturer of the radio:

802.11b mode: 1 Mbps 802.11g mode: 6 Mbps 802.11a mode: 6 Mbps 802.11n HT20mode: MCS0 802.11n HT40mode: MCS0

All Radiated Emissions tests were tested with a new modified module (see Section 5.2 for Client's Description of changes).

All Antenna port tests were tested with the original RF module and verified with the new modified module to ensure its compliance performance.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List					
Description	Manufacturer	Model	Serial Number	FCC ID	
Laptop PC	Lenovo	2007-64U	L3-5C76D	DoC	
Laptop 1	HP	EliteBook 8460P	CNU20326PD	Doc	
Laptop 1 AC/DC Adapter	HP	PPP012D-S	608428-003	Doc	
AC/DC Combo Adapter	Lenovo	40Y7649	670044390K	DoC	
Host (MTP Test Platform)	Qualcomm	N10G1DJYG	7415BA7C	None	
JTAG & Power Supply Adapter	Qualcomm	1DN14ASSY20-N6859	N10G1C4WW	None	
Board					
Module Test Board	Qualcomm	1DN14ASSY20-Y0122	N10G3JMG8	None	
DC power supply	Lambda	LA-300	783974	None	
DC power supply	Xantrex	XHR 60-18	27519	None	

I/O CABLES

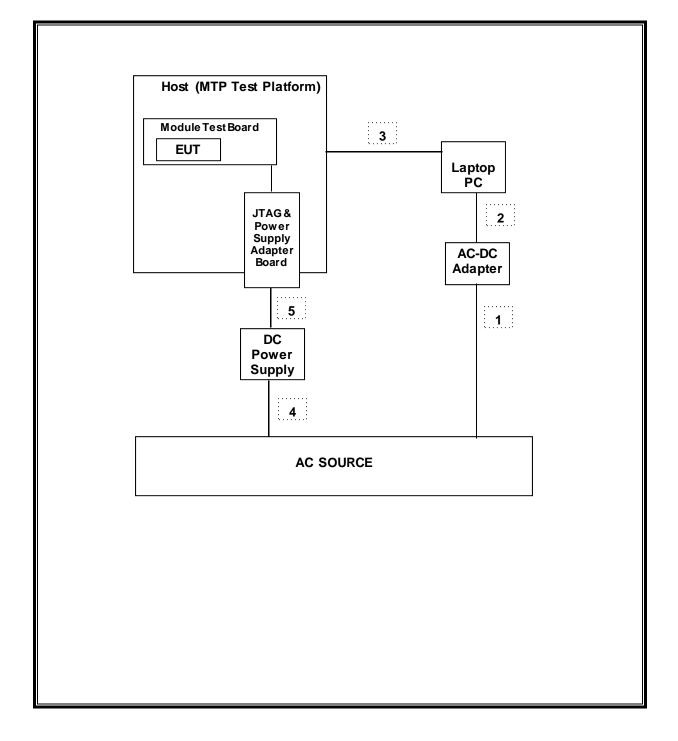
	I/O Cable List						
Cable	Port	# of identical	Connector	Cable Type	Cable	Remarks	
No		ports	Туре		Length (m)		
1	AC	1	US 115V	Shielded	1	N/A	
2	DC	1	DC	Un-shielded	1.85	Ferrite at laptop's end	
3	USB	1	USB	Un-shielded	1.8	N/A	
4	AC	1	US 115V	Shielded	1.85	N/A	
5	DC	1	DC	Un-shielded	1	N/A	

TEST SETUP

The EUT is soldered on a test board that is mounted on the MTP Test Platform. The back cover of the MTP is removed so that the EUT is totally exposed, outside of the host platform. Test software exercised the EUT.

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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 Equipment List					
Description Manufacture		Model	Asset	Cal Due Date	
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	07/14/12	
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/12	
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	11/11/12	
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/12	
Horn Antenna, 26.5 GHz	ARA	MWH-1826/B	C00589	07/28/12	
Horn Antenna, 40 GHz	ARA	MWH-2640/B	C00981	06/14/12	
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	03/14/13	
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	03/22/13	
Power Meter	Agilent / HP	437B	N02778	08/11/12	
Power Sensor, 18 GHz	Agilent / HP	8481A	N02782	07/29/12	
High pass Filter, 7.6 GHz	Micro-Tronics	HPM13195	N02682	CNR	
Reject Notch Filter, 2.4 GHz	Micro-Tronics	-	-	CNR	
EMI Test Receiver	R & S	ESHS 20	N02396	08/19/13	
LISN	FCC	FCC-LISN-50/250	C00626	12/13/12	

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7. ANTENNA PORT TEST RESULTS

7.1. 802.11b MODE IN THE 2.4 GHz BAND

7.1.1.6 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.

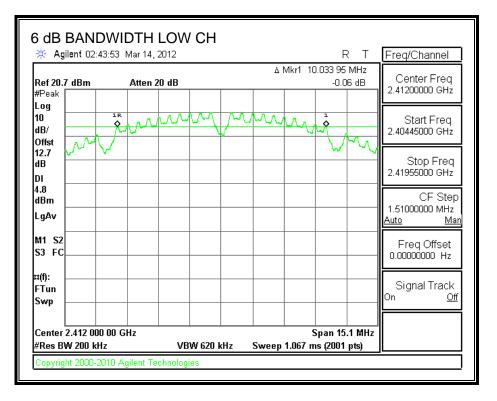
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

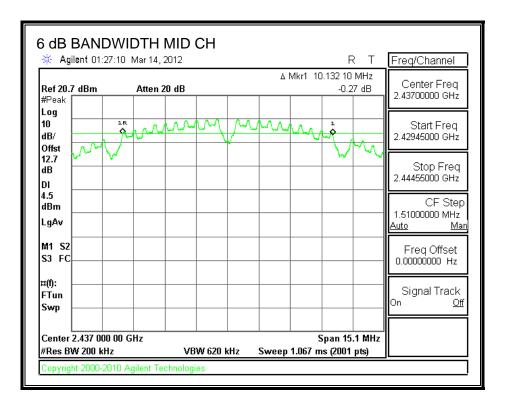
RESULTS

Channel	nnel Frequency 6 dB Bandwidth		Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	2412	10.03395	0.5
Middle	2437	10.13210	0.5
High	2462	10.09435	0.5

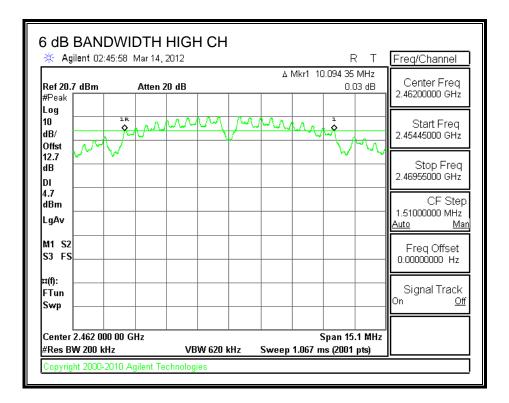
6 dB BANDWIDTH



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7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

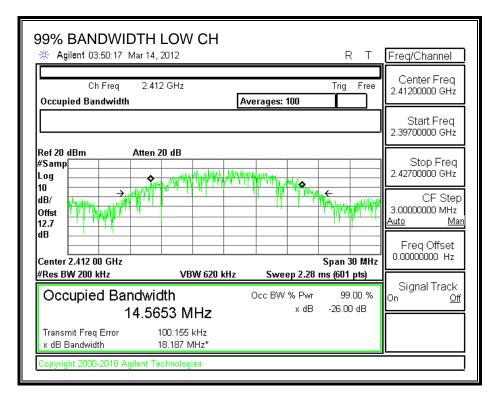
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

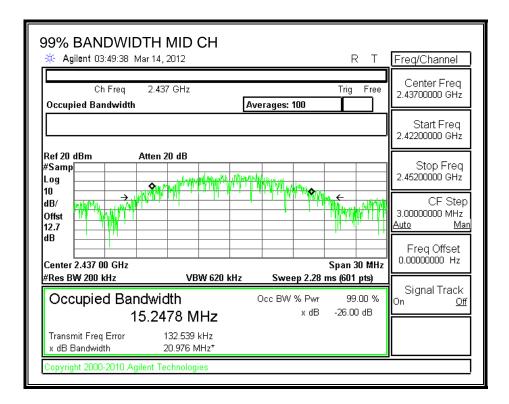
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	2412	14.5653
Middle	2437	15.2478
High	2462	13.7272

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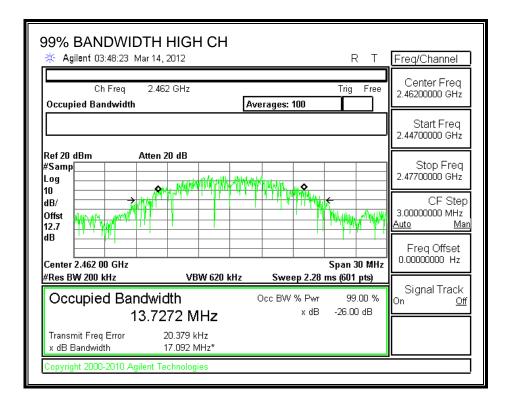
99% BANDWIDTH



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7.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

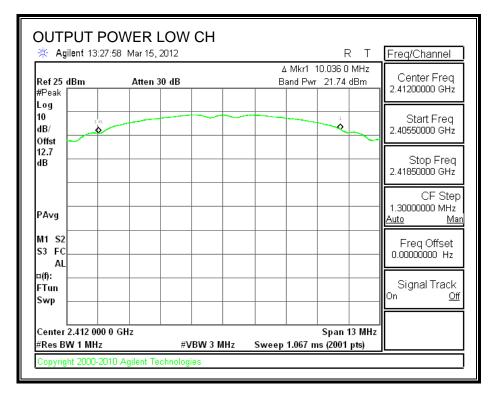
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

RESULTS

Channel	Frequency	Peak Power	Limit	Margin
		Reading		
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	21.74	30	-8.26
Middle	2437	21.74	30	-8.26
High	2462	21.29	30	-8.71

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OUTPUT POWER



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	OWER MID	СН		
🔆 Agilent 13:30):10 Mar 15, 2012		RT	Freq/Channel
Ref 25 dBm #Peak	Atten 30 dB		∆ Mkr1 10.133 5 MHz Band Pwr 21.74 dBm	Center Freq 2.43700000 GHz
Log 10 dB/ Offst			1	Start Freq 2.43050000 GHz
12.7 dB				Stop Freq 2.44350000 GHz
PA∨g				CF Step 1.30000000 MHz <u>Auto Man</u>
M1 S2 S3 FC AL				Freq Offset 0.00000000 Hz
¤(f): FTun Swp				Signal Track On <u>Off</u>
Center 2.437 000 #Res BW 1 MHz		/BW 3 MHz	Span 13 MHz Sweep 1.067 ms (2001 pts)	
Copyright 2000-20	10 Agilent Technolog	ies		

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An Angliette 00.42	203 May 31, 2012	R T	Freq/Channel
Ref 25 dBm #Peak	Atten 30 dB	Band Pwr 21.29 dBm	Center Freq 2.46200000 GHz
Log 10 dB/	1R	1	Start Freq 2.45445000 GHz
Offst 12.7 dB			Stop Freq 2.46955000 GHz
PAvg			CF Step 1.5100000 MHz <u>Auto Ma</u>
M1 S2 S3 FC AA			Freq Offset 0.00000000 Hz
¤(f): FTun Swp			Signal Track On <u>Off</u>
Center 2.462 000 #Res BW 1 MHz	OO GHz VBW 3 MHz	Span 15.1 MHz z #Sweep 475.1 ms (2001 pts)	

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7.1.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 12.7 dB (including 12 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Power
	(MHz)	(dBm)
Low	2412	19.00
Middle	2437	19.00
High	2462	19.00

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7.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

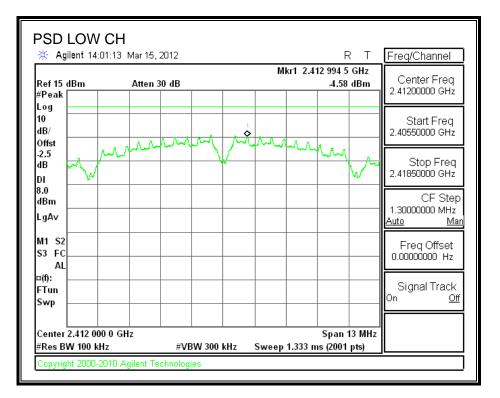
RESULTS

Note: analyzer offset = cable loss + attenuator + 10 log (3/100 kHz) = -2.5 dB

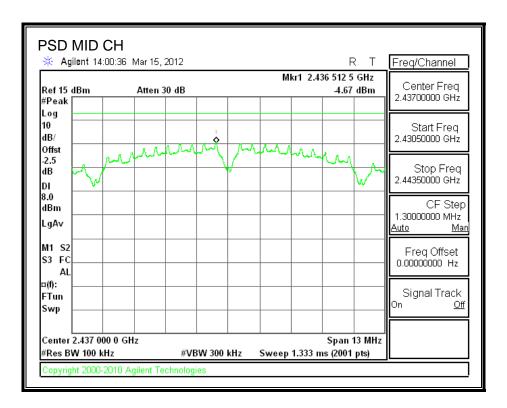
Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	-4.58	8	-12.58
Middle	2437	-4.67	8	-12.67
High	2462	-4.68	8	-12.68

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POWER SPECTRAL DENSITY



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🔆 Agilent 09:58:	zo iviayor, zurz			RT	Freq/Channel
Ref 15 dBm #Peak	Atten 30 dB		Mkr1 2.4	62 507 0 GHz -4.68 dBm	Center Freq 2.46200000 GHz
Log 10 dB/					Start Freq 2.45550000 GHz
Offst -2.5 dB	n fait and a fait		Marka Kark	hange	Stop Freq 2.46850000 GHz
8.0 dBm LgAv					CF Step 1.30000000 MHz Auto Ma
M1 S2 S3 FC					Freq Offset 0.00000000 Hz
AA ¤(f): FTun Swp					Signal Track
Center 2.462 000 0 #Res BW 100 kHz		W 300 kHz #	Sweep 475.1 r	Span 13 MHz	2

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7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

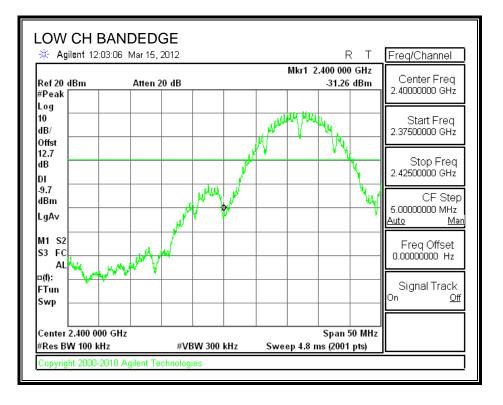
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

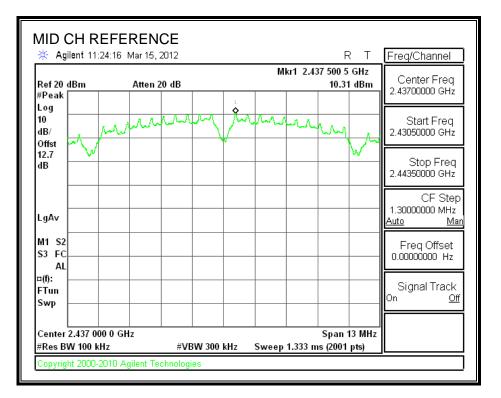


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Ref20dBı #Peak	m	Atten 20	dB			Center Freq 13.0150000 GHz
Log 10 dB/ Offst						Start Freq 30.0000000 MHz
12.7 dB		1				Stop Freq 26.000000 GHz
DI -9.7 dBm						CF Step
LgAv –						2.59700000 GHz Auto Ma
Start 30 M #Res BW 1			#VBW 300 kHz		Stop 26.000 GHz 32 s (2001 pts)	Freq Offset
Marker 1	Trace (1)	Type Freg	X Axis 7.237 GH	I	Amplitude -33.23 dBm	0.00000000 112
2	(1)	Freq	12.054 GH		-51.12 dBm	Signal Track On <u>Of</u>

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SPURIOUS EMISSIONS, MID CHANNEL

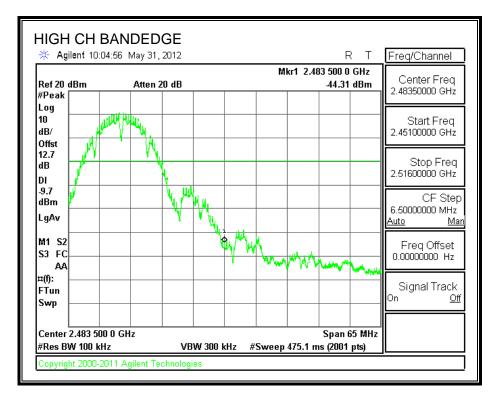


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D (20 ID		A.v. 20	. 15				Mkr	3 12.18		Center Fre	eu.
Ref 20 dBm #Peak		Atten 20	ав					-51.82	abm	13.0150000 G	
Log											
10 dB/										Start Fre 30.000000 м	
Offst											п
12.7		2								Stop Fr	en
dB DI				3						26.0000000 G	
9.7		1		•				lanula			
dBm		hip and a strategy	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	And a state of the local distance of the loc						CF S 2.59700000 Gi	
LgAv	_										Ma
Start 30 MH:	Z						Sto	p 26.00	0 GHz	Freq Offs	ot
#Res BW 10			#VB	W 300		Swee	p 2.482	,	• •	0.00000000 H	Ηz
Marker 1	Trace (1)	Type Freq			Axis 73 GHz			Amplitu 55.41 dB			
2	(1) (1)	Freq Freq			15 GHz 84 GHz			-33.04 dB -51.82 dB		Signal Tra	ck
	0	rieq		12.1	04 012			-51.02 UB		On	<u>Off</u>

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SPURIOUS EMISSIONS, HIGH CHANNEL



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	16:58 May 31, 2012			R T	Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB		MH	r1 2.458 GHz 9.20 dBm	Center Freq 13.0150000 GHz
Log 1 10					Start Freq
dB/					30.0000000 MHz
12.7 dB					Stop Freq
DI					26.0000000 GHz
dBm					CF Step 2.59700000 GHz
LgAv					<u>Auto Ma</u>
V1 S2 S3 FC					Freq Offset
AA ¤(f):	man	a mar a farmer	and the second s	and the second second	
FTun Swp					Signal Track On <u>Off</u>
			Sto		

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7.2. 802.11g MODE IN THE 2.4 GHz BAND

7.2.1. 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.

TEST PROCEDURE

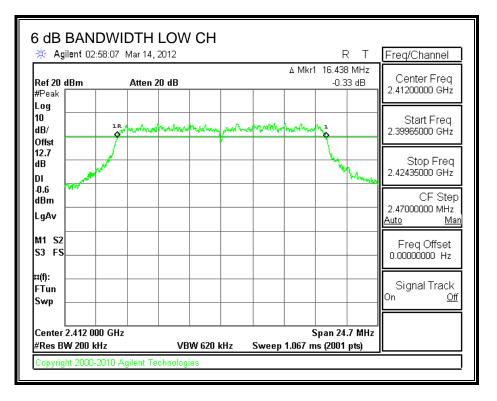
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	2412	16.438	0.5
Middle	2437	16.500	0.5
High	2462	16.438	0.5

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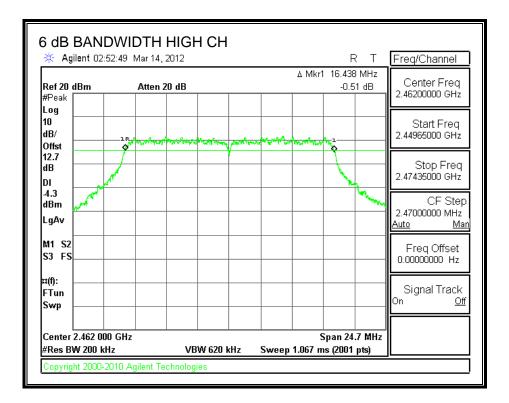
6 dB BANDWIDTH



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🔆 Agilent 02:5	5:26 Mar 14, 2012			RΤ	Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB		∆ Mkr1	16.500 MHz -0.08 dB	Center Freq 2.43700000 GHz
Log 10 dB/	1 Bulanoland malain	nerting rating	Walther Concerning	1	Start Freq 2.42465000 GHz
Offst 12.7 dB DI 1.6	~			ha hours	Stop Freq 2.44935000 GHz
dBm LgAv					CF Step 2.47000000 MHz <u>Auto Man</u>
M1 S2 S3 FS					Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track On <u>Off</u>
Center 2.437 000 #Res BW 200 kH) 3W 620 kHz	S Sweep 1.067 m	pan 24.7 MHz s (2001 pts)	

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7.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

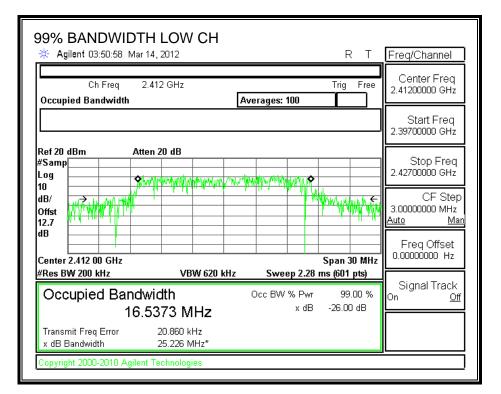
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	2412	16.5373
Middle	2437	17.1373
High	2462	16.4875

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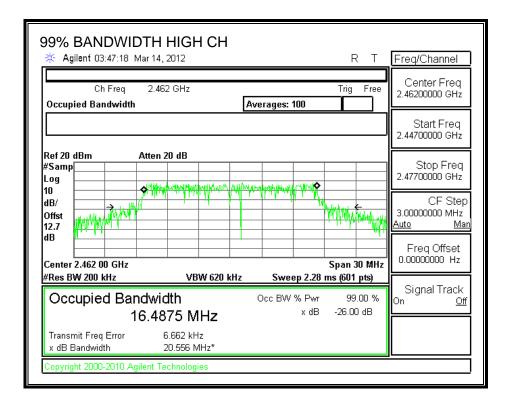
99% BANDWIDTH



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99% BANDWIDTH MID CH		RТ	Freq/Channel
Ch Freq 2.437 GHz Occupied Bandwidth	Averages: 100	Trig Free	Center Freq 2.43700000 GHz
	<u> </u>		Start Freq 2.42200000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10			Stop Freq 2.45200000 GHz
dB/ → dB/ → 12.7	W MICE MALE	ad the second	← CF Step 3.00000000 MHz <u>Auto Man</u>
dB	Sp	an 30 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz VBW 620	kHz Sweep 2.28 ms	(601 pts)	Signal Track
Occupied Bandwidth 17.1373 MHz	Occ BW % Pwr xdB -2	99.00 % 26.00 dB	On <u>Off</u>
Transmit Freq Error176.506 kHzx dB Bandwidth29.261 MHz*			
Copyright 2000-2010 Agilent Technologies			

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7.2.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

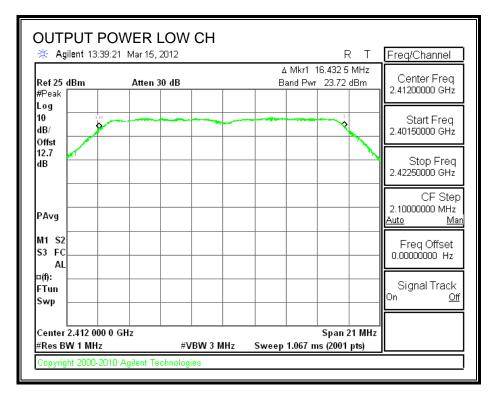
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

RESULTS

Channel	Frequency	Peak Power	Limit	Margin
		Reading		
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	23.72	30	-6.28
Middle	2437	25.48	30	-4.52
High	2462	23.31	30	-6.69

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OUTPUT POWER



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	OWER MID (3:08 Mar 15, 2012	СН		RТ	Freq/Channel
Ref 25 dBm #Peak	Atten 30 dB			16.506 0 MHz 25.48 dBm	Center Freq 2.43700000 GHz
Log 10 dB/ Offst				1	Start Freq 2.42650000 GHz
12.7 dB					Stop Freq 2.44750000 GHz
PAvg					CF Step 2.1000000 MHz <u>Auto Man</u>
M1 S2 S3 FC AL					Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track ^{On <u>Off</u>}
Center 2.437 000 #Res BW 1 MHz		BW 3 MHz	Sweep 1.067 m	Span 21 MHz ns (2001 pts)	
Copyright 2000-20	10 Agilent Technologi	es			

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A rightin 00.4	6:01 May 31, 2012	R T	Freq/Channel
Ref 25 dBm #Peak	Atten 30 dB	∆ Mkr1 16.432 5 MHz Band Pwr 23.31 dBm	Center Freq 2.46200000 GHz
Log 10 1R dB/ Offst			Start Freq 2.45150000 GHz
dB			Stop Freq 2.47250000 GHz
PAvg			CF Step 2.1000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC AA			Freq Offset 0.00000000 Hz
¤(f): FTun Swp			Signal Track On <u>Off</u>
Start 2.451 500 0 #Res BW 1 MHz	GHz VBW 3	Stop 2.472 500 0 GHz MHz #Sweep 475.1 ms (2001 pts)	

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7.2.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 12.7 dB (including 12 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Power
	(MHz)	(dBm)
Low	2412	15.40
Middle	2437	17.20
High	2462	15.30

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7.2.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

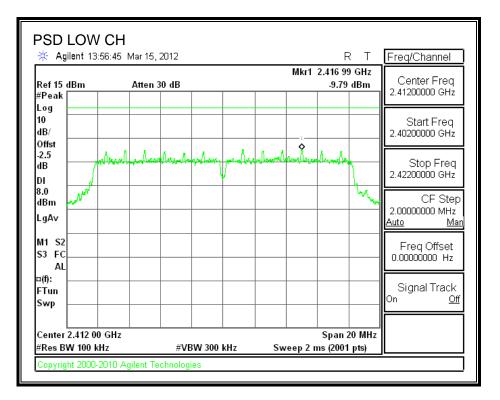
RESULTS

Note: analyzer offset = cable loss + attenuator + 10 log (3/100 kHz) = -2.5 dB

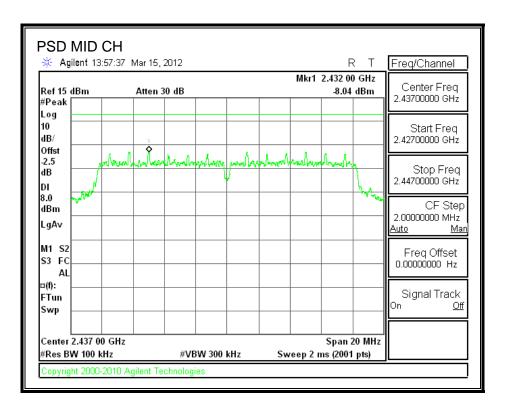
Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	-9.79	8	-17.79
Middle	2437	-8.04	8	-16.04
High	2462	-10.72	8	-18.72

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POWER SPECTRAL DENSITY



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								Mkr1	2.457 01	l GHz	
Ref 15 d #Peak	Bm		Atten 3	30 dB					-10.72	dBm	Center Freq 2.46200000 GHz
Log 10 dB/ Offst			1								Start Freq 2.45200000 GHz
-2.5 dB	7	and tracent	evilue min	hawaha	non-Antonio	presentine.	-	andras	logentleg	1	Stop Freq 2.47200000 GHz
I F	A Confer									hor y	CF Step 2.00000000 MHz
M1 S2 S3 FC AA											<u>Auto Ma</u> Freq Offset 0.0000000 Hz
¤(f): FTun Swp –											Signal Track On <u>Off</u>

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7.2.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

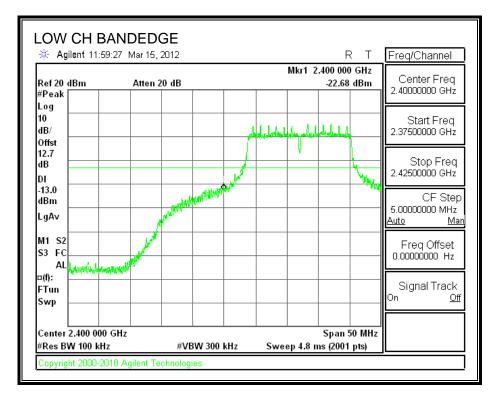
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

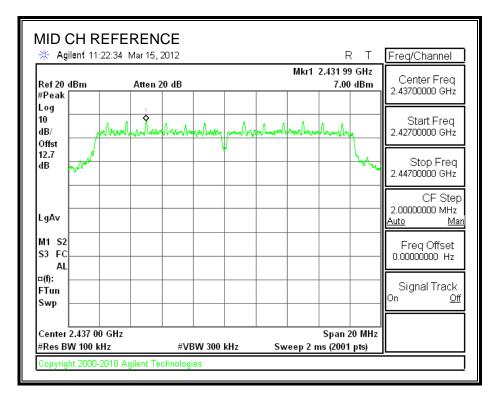


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Ref 20 dBm	Atten	20 dB			7.237 GHz 40.75 dBm	Center Freq
#Peak						13.0150000 GHz
Log 10 dB/ Offst						Start Freq 30.0000000 MHz
12.7 dB DI						Stop Freq 26.000000 GHz
-13.0 dBm	Manual La Maria	Jan and an and an and an and	and the second designed and th			CF Step
LgAv						2.59700000 GHz <u>Auto Ma</u>
Start 30 MHz #Res BW 100 k		#VBW 300		ep 2.482 s (2	• /	Freq Offset
	ace Type (1) Freq		X Axis .237 GHz		mplitude 75 dBm	┣━━━━━
						Signal Track On <u>Of</u>

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SPURIOUS EMISSIONS, MID CHANNEL



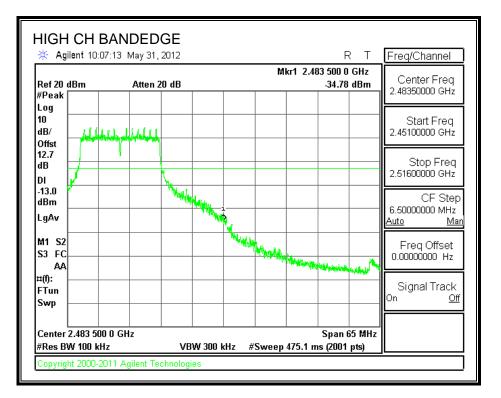
COMPLIANCE CERTIFICATION SERVICES (UL CCS) 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

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Ref 20 dBr	n	Atten 20 di	3		Mk	ar1 7.30 -37.15	2 GHz dBm	Center Freq
#Peak								13.0150000 GHz
Log 10 dB/ Offst								Start Freq 30.0000000 MHz
12.7 dB		1 •						Stop Freq 26.000000 GHz
-13.0		and the second	and the set of the set	***		Alimitation		CF Step 2.59700000 GHz
LgAv —								<u>Auto Ma</u>
Start 30 MI #Res BW 1		Type	#VBW 300 kHz	Swee	Sto p 2.482	p 26.00 s (2001 Amplitu	pts)	Freq Offset 0.00000000 Hz
1	(1)	Freq	7.302 GHz			.37.15 dB		Signal Track On <u>Off</u>

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SPURIOUS EMISSIONS, HIGH CHANNEL



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🔆 Agilent 10:15:	:30 May 31, 2012			RT	Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB		M	kr1 8.717 GHz -51.44 dBm	Center Freq 13.0150000 GHz
Log 10 dB/ Offst					Start Freq 30.000000 MHz
12.7 dB DI					Stop Freq 26.0000000 GHz
-13.0 dBm LgAv					CF Step 2.59700000 GHz <u>Auto Ma</u>
V1 S2 S3 FC AA		Wayne and and	Phalication and a second based	way way	Freq Offset 0.00000000 Hz
¤(f): FTun Swp	www.www.				Signal Track On <u>Off</u>
Start 30 MHz #Res BW 100 kHz		VBW 300 kHz	Sweep 2.482	op 26.000 GHz	

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7.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

7.3.1.6 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.

TEST PROCEDURE

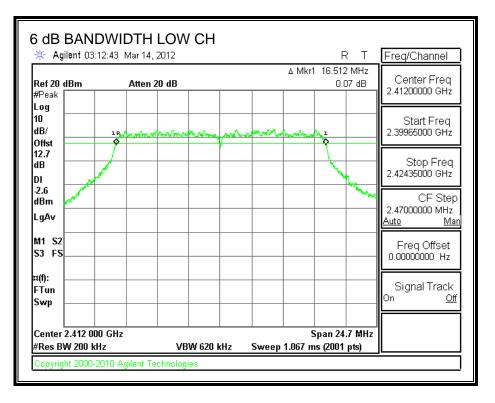
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	2412	16.512	0.5
Middle	2437	16.413	0.5
High	2462	16.463	0.5

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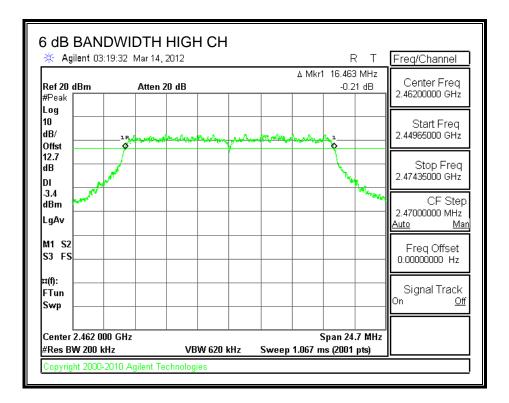
6 dB BANDWIDTH



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6 dB BAND	WIDTH MID CH		RТ	Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB		Mkr1 16.413 MHz -0.02 dB	Center Freq 2.43700000 GHz
Log 10 dB/ Offst	2 Rol not not and more highly	ny with marked to	Marine	Start Freq 2.42465000 GHz
12.7 dB			Matanice	Stop Freq 2.44935000 GHz
1.5 dBm LgAv				CF Step 2.47000000 MHz <u>Auto Man</u>
M1 S2 S3 FS				Freq Offset 0.00000000 Hz
¤(f): FTun Swp				Signal Track On <u>Off</u>
Center 2.437 000 #Res BW 200 kHz) kHz Sweep 1.	Span 24.7 MHz 067 ms (2001 pts)	
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7.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

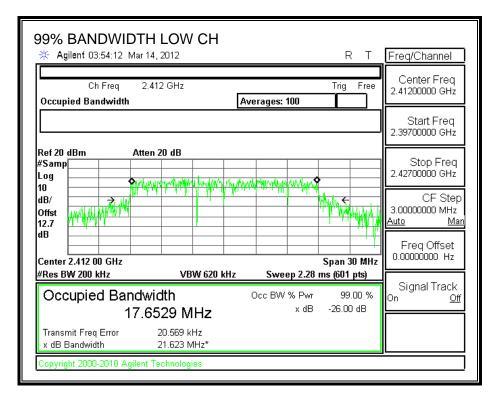
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	2412	17.6529
Middle	2437	18.1277
High	2462	17.6708

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99% BANDWIDTH

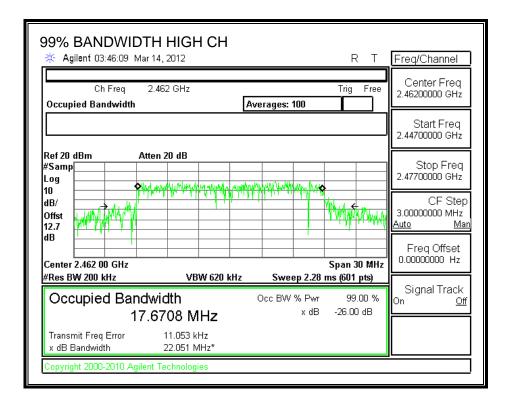


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99% BANDWIDTH MID CH	R T	Freq/Channel
Ch Freq 2.437 GHz Occupied Bandwidth	Trig Free Averages: 100	Center Freq 2.43700000 GHz
		Start Freq 2.42200000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10		Stop Freq 2.4520000 GHz
dB/→ Offst 12.7		← CF Step 3.00000000 MHz <u>Auto Man</u>
dB	Span 30 MHz	Freq Offset 0.00000000 Hz
Occupied Bandwidth 18.1277 MHz	kHz Sweep 2.28 ms (601 pts) Occ BW % Pwr 99.00 % x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error127.173 kHzx dB Bandwidth29.585 MHz*		
Copyright 2000-2010 Agilent Technologies		

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7.3.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

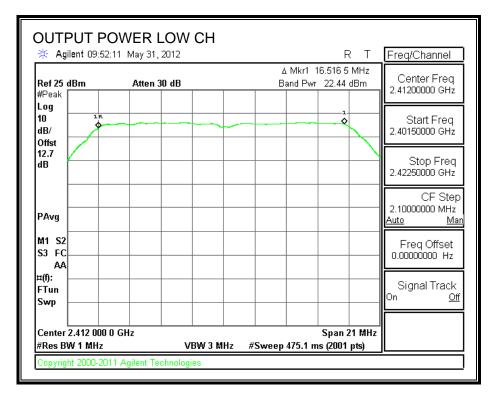
<u>RESULTS</u>

Channel	Frequency	Peak Power Reading	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	22.44	30	-7.56
Middle	2437	24.79	30	-5.21
High	2462	21.05	30	-8.95

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OUTPUT POWER



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OUTPUT P	OWER MID C	ЭН	R T	Freq/Channel
Ref 25 dBm #Peak	Atten 30 dB		∆ Mkr1 16.411 5 MHz Band Pwr 24.79 dBm	
Log 10 dB/ Offst				Start Freq 2.42650000 GHz
12.7 dB				Stop Freq 2.44750000 GHz
PAvg				CF Step 2.1000000 MHz <u>Auto Man</u>
M1 S2 S3 FC AL				Freq Offset 0.00000000 Hz
¤(f): FTun Swp				Signal Track On <u>Off</u>
Center 2.437 000 #Res BW 1 MHz		BW 3 MHz	Span 21 Mł Sweep 1.067 ms (2001 pts)	lz
Copyright 2000-20	10 Agilent Technologie	95		

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Agricine 03.43	9:41 May 31, 2012	R T	Freq/Channel
Ref 25 dBm #Peak	Atten 30 dB	∆ Mkr1 16.464 0 MHz Band Pwr 21.05 dBm	Center Freq 2.46200000 GHz
Log 10 IR dB/ Offst			Start Freq 2.45150000 GHz
dB			Stop Freq 2.47250000 GHz
PAvg			CF Step 2.10000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC AA			Freq Offset 0.00000000 Hz
¤(f): FTun Swp			. Signal Track On <u>Off</u>
Center 2.462 000 #Res BW 1 MHz	0 GHz VBW 3 Mi	Span 21 MHz 	

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7.3.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 12.7dB (including 12 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Power
	(MHz)	(dBm)
Low	2412	14.40
Middle	2437	16.80
High	2462	13.10

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7.3.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

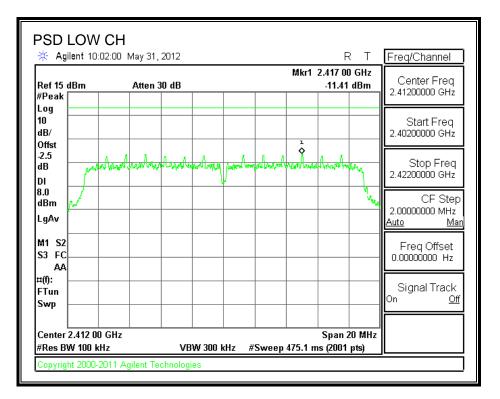
RESULTS

Note: analyzer offset = cable loss + attenuator + 10 log (3/100 kHz) = -2.5 dB

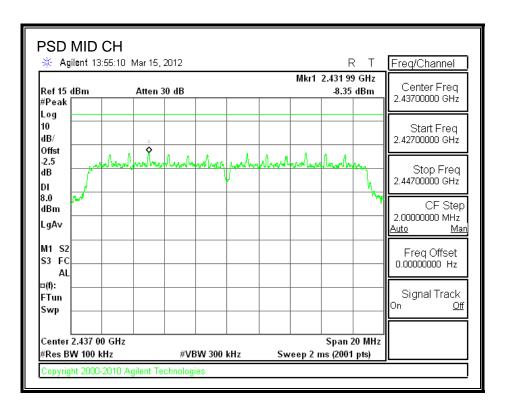
Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	-11.41	8	-19.41
Middle	2437	-8.35	8	-16.35
High	2462	-12.97	8	-20.97

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POWER SPECTRAL DENSITY



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	Mkr1 2.457 01 GHz							
Ref 15 dB #Peak	m	Atten 30 dB				-12.97	dBm	Center Freq 2.46200000 GHz
Log 10 dB/ Offst		1						Start Freq 2.45200000 GHz
-2.5 dB DI	montan	rel capel mappil sayes	hannallagua	prontemportune	ntrinetran	Investig	in	Stop Freq 2.47200000 GHz
8.0 dBm LgAv							4 'Y	CF Step 2.0000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC AA								Freq Offset 0.00000000 Hz
¤(f): FTun Swp								Signal Track On <u>Of</u>

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7.3.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

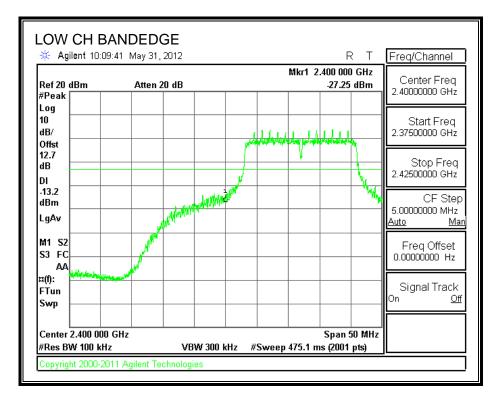
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

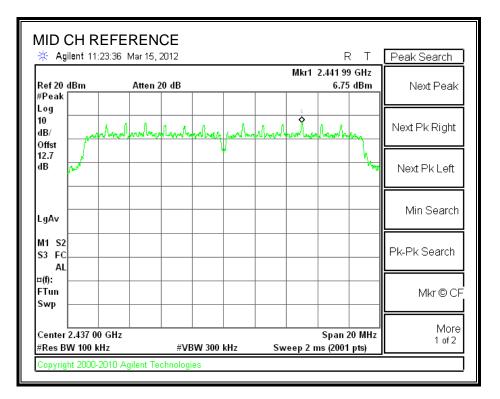


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An rightent for	12:45 May 31, 201	2		R T	Freq/Channel
Ref 20 dBm #Peak	Atten 20 d	B	م	Akr1 2.419 GHz 2.62 dBm	Center Freq 13.0150000 GHz
Log					
10 1 dB/ ♦					Start Freq 30.000000 MHz
Offst 12.7 dB					Stop Freq
DI					26.000000 GHZ
-13.2 dBm					CF Step
LgAv					2.59700000 GHz <u>Auto Ma</u>
V1 S2 S3 FC					Freq Offset
AA 	m	Mar Martin			┣━━━━
¤(f): <mark>vierende fe</mark> FTun Swp					Signal Track
Start 30 MHz			S	top 26.000 GHz	*

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SPURIOUS EMISSIONS, MID CHANNEL

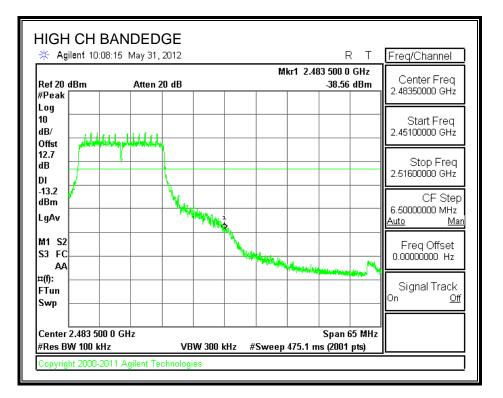


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Ref 20 dBm	1	Atten 20	dB				Mł	ur1 7.31 -38.33	l5 GHz ¢dBm	Cente	
#Peak										13.01500	JO GHZ
Log										0	
										Stan 30.00000	t Freq
Offst										00.00000	50 111112
12.7 dB										Stor	o Freq
										26.00000	
-13.2											
dBm	and the second	- All and a second second		بليهم ل يكان			and the second			2.597000	F Step
LgAv —										2.597000 <u>Auto</u>	JU GHZ Ma
Start 30 MH	17						Sto	p 26.00	0 GHz		
#Res BW 1			#VBV	V 300	kHz	Swee	p 2.482	-		Freq	Offset
Marker	Trace	Туре			Axis			Amplite	Jde	0.000000	UU HZ
1	(1)	Freq		7.3	15 GHz			38.33 dB	m	0	Turali
										on Signal	Track Of
										<u> </u>	<u></u>

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SPURIOUS EMISSIONS, HIGH CHANNEL



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Ske Aglient 10:1-	4:04 May 31, 2012			R T	Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB			cr1 2.471 GHz 2.16 dBm	Center Freq 13.0150000 GHz
Log 10 1 dB/ Offst					Start Freq 30.000000 MHz
dB					Stop Freq 26.000000 GHz
-13.2 dBm LgAv					CF Step 2.59700000 GHz <u>Auto Ma</u>
V1 S2 S3 FC			ماينيلا مدين مديني المريسية الم	- MANANA	Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track
Start 30 MHz #Res BW 100 kH		/BW 300 kHz	Sweep 2.482	op 26.000 GHz	_

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7.4. 802.11a MODE IN THE 5.8 GHz BAND

7.4.1.6 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.

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

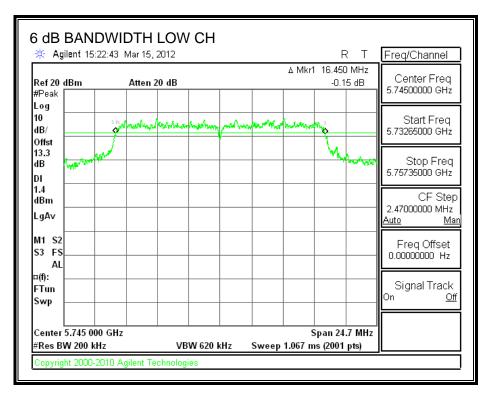
<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5745	16.450	0.5
Middle	5785	16.413	0.5
High	5825	16.450	0.5

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6 dB BANDWIDTH



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🔆 Agilent 1	5:25:23	Mar 15,3	2012						хт	Freq/Channel
Ref 20 dBm #Peak		Atten 2	0 dB				∆ Mkr1	16.413 -0.3	3 MHz 5 dB	Center Freq 5.78500000 GHz
Log 10 dB/ Offst	1R.	town hypert	n.s.lut.no	Knowliven	productions	and and strips	lenorosi Hana	HUL .		Start Freq 5.77265000 GHz
DI	- and							hot.	******	Stop Freq 5.79735000 GHz
1.4 dBm LgA∨										CF Step 2.47000000 MHz <u>Auto Man</u>
M1 S2 S3 FS AL										Freq Offset 0.00000000 Hz
⊐⊏ ¤(f): FTun Swp										Signal Track On <u>Off</u>
Center 5.785 #Res BW 200			VB	W 620 I	kHz	Sweep		ipan 24 s (2001		

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🔆 Agilent 1	5.20.41 1	viai 15,2	012				A Mind	16.450		Freq/Channel
Ref 20 dBm #Peak		Atten 20) dB						7 dB	Center Freq 5.82500000 GHz
Log 10 dB/	1R AT	anger Transford	when	nongulana	proton	marke	leeven and			Start Freq 5.81265000 GHz
Offst 13.3 dB DI	A BEAU							- Konta	`~ ***	Stop Freq 5.83735000 GHz
0.9 dBm LgAv										CF Step 2.47000000 MHz
M1 S2 S3 FS										<u>Auto Mar</u> Freq Offset 0.0000000 Hz
AL ¤(f): FTun Swp										Signal Track On <u>Off</u>
Center 5.825 #Res BW 200				W 620 I		Sweep		pan 24.		

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7.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

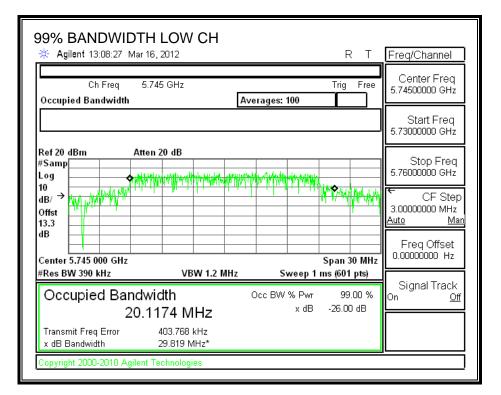
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	20.1174
Middle	5785	19.6832
High	5825	20.3078

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99% BANDWIDTH



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99% BANDWIDTH MID	СН		RТ	Freq/Channel
Ch Freq 5.785 GHz Occupied Bandwidth	Averages		Trig Free	Center Freq 5.78500000 GHz
				Start Freq 5.77000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Alayadani basa kini dala kini	<u>{}</u>		Stop Freq 5.8000000 GHz
$dB \rightarrow dB \rightarrow$				← CF Step 3.00000000 MHz <u>Auto Man</u>
dB		•	an 30 MHz	Freq Offset 0.00000000 Hz
#Res BW 390 kHz V Occupied Bandwidth	BW 1.2 MHz	Sweep 1 ms	(601 pts) 99.00 %	Signal Track On Off
19.6832 N	ЛНz	xdB -2	26.00 dB	
Transmit Freq Error340.074x dB Bandwidth29.757				
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99% BANDWIDTH HIGH CH	ł	RТ	Freq/Channel
Ch Freq 5.825 GHz Occupied Bandwidth	Averages: 100	Trig Free	Center Freq 5.82500000 GHz
			Start Freq 5.8100000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	1		Stop Freq 5.84000000 GHz
dB/→ Offst 13.3		Philiphy pryposes	← CF Step 3.00000000 MHz <u>Auto Man</u>
dB Center 5.825 00 GHz		Span 30 MHz	Freq Offset 0.00000000 Hz
#Res BW 390 kHz VBW 1.2	MHz Sweep1	ms (601 pts)	
Occupied Bandwidth 20.3078 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error 387.454 kHz x dB Bandwidth 29.835 MHz*			
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7.4.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

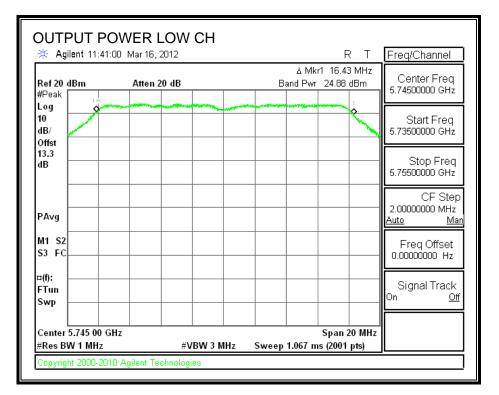
<u>RESULTS</u>

Channel	Frequency	Peak Power Reading	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	24.88	30	-5.12
Middle	5785	24.52	30	-5.48
High	5825	24.40	30	-5.60

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OUTPUT POWER



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🔆 Agilent 11:4	2:26 Mar 16, 2012			RT	Freq/Channel
Ref 20 dBm #Peak □ □ □	Atten 20 dB		=	r1 16.41 MHz 24.52 dBm	Center Freq 5.78500000 GHz
Log Log dB/					Start Freq 5.77500000 GHz
dB					Stop Freq 5.79500000 GHz
PAvg					CF Step 2.00000000 MHz <u>Auto Mar</u>
M1 S2 S3 FC					Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track On <u>Off</u>
Center 5.785 00 #Res BW 1 MHz		/BW 3 MHz	Sweep 1.067 m	Span 20 MHz is (2001 pts)	

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🔆 Agilent 11:44	:28 Mar 16, 2012			RT	Marker
Ref 20 dBm #Peak	Atten 20 dB			kr1 16.45 MHz r 24.40 dBm	Select Marker 1 2 <u>3</u> 4
18				And	Normal
dB					Delta
PAvg					Delta Pair (Tracking Ref) Ref ∆
M1 S2 S3 FC					Span Pair Span <u>Center</u>
¤(f): FTun Swp					Off
Center 5.825 00 0 #Res BW 1 MHz		VBW 3 MHz	Sweep 1.067 n	Span 20 MHz ns (2001 pts)	More 1 of 2

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7.4.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 13.3 dB (including 12 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5745	16.00
Middle	5785	16.00
High	5825	16.00

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7.4.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

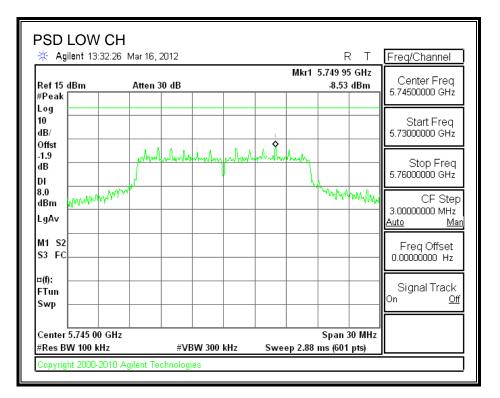
RESULTS

Note: analyzer offset = cable loss + attenuator + 10 log (3/100 kHz) = -1.9 dB

Channel	Frequency PPSD		Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	-8.53	8	-16.53
Middle	5785	-8.51	8	-16.51
High	5825	-8.40	8	-16.40

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POWER SPECTRAL DENSITY



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🔆 Agilent 1	5.51.55	war io,.	2012							Freq/Channel
Ref 15 dBm #Peak		Atten 3	0 dB				Mkr1	5.790 00 -8.51) GHz dBm	Center Freq 5.78500000 GHz
Log 10 dB/						1				Start Freq 5.77000000 GHz
Offst -1.9 dB DI		1	mlunthy	obsolling	mbwh	Musle				Stop Freq 5.8000000 GHz
8.0 dBm o ^(Ngro∭) LgAv	www.wwv							M M WA	nwyhytwyd	CF Step 3.00000000 MHz Auto Ma
M1 S2 S3 FC										Freq Offset 0.00000000 Hz
¤(f): FTun Swp										Signal Track On <u>Off</u>
Center 5.785 #Res BW 100			#\/E	3W 300	LU-		ep 2.88		30 MHz	

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🔆 Agilent 13:30	J:20 Mar 16,	2012				RT	Freq/Channel
Ref 15 dBm #Peak	Atten	30 dB			lkr1 5.83 _8	0 00 GHz .40 dBm	Center Freq 5.82500000 GHz
Log 10 dB/							Start Freq 5.8100000 GHz
Offst -1.9	wheel	Monthermal	monter	dul hat	du .		Stop Freq
dB DI 8.0 dBm	NICO				- U	Manufin	5.84000000 GHz
dBm (\ ^{NVVVVVV}) LgAv						WAYAAA	CF Step 3.00000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC							Freq Offset 0.00000000 Hz
¤(f): FTun Swp							Signal Track On <u>Off</u>
Center 5.825 00 (#Res BW 100 kH		#VBW 30			Spa 2.88 ms (an 30 MHz	

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7.4.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

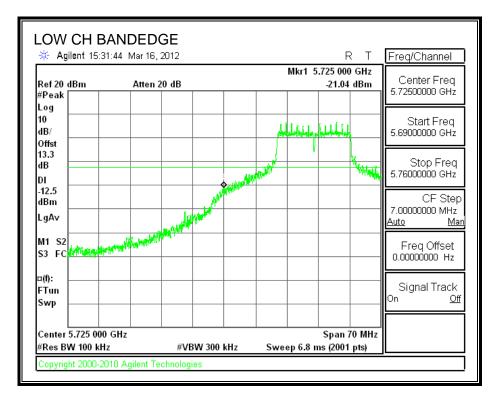
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

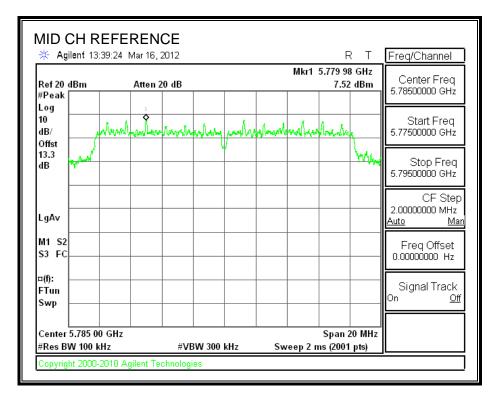


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)7:04 May 31,	2012		R		Freq/Channel
Ref 10 dBm #Peak	Atten '	IO dB		Mkr1 5.76 3.79 c		Center Freq 20.0150000 GHz
Log	\$					
10 dB/ Offst						Start Freq 30.0000000 MHz
13.3 dB						Stop Freq 40.000000 GHz
DI						
dBm						CF Step 3.99700000 GHz
LgAv				/	Myran	<u>Auto Ma</u>
V1 S2 S3 FC AA	No 20 cm	Way way and a second	more			Freq Offset 0.00000000 Hz
¤(f):	where the street					Signal Track
Swp						On <u>Off</u>
				Stop 40.00	<u></u>	

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SPURIOUS EMISSIONS, MID CHANNEL

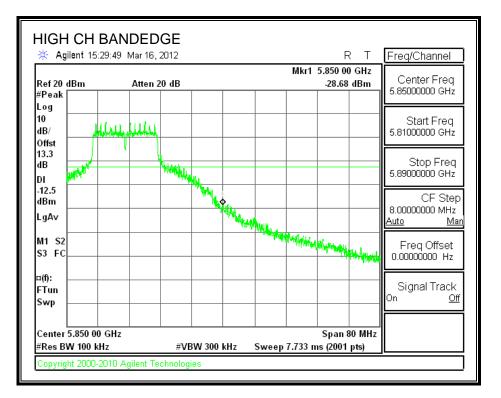


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🔆 Agilent 09	05:47 May 3	1,2012			RT	Freq/Channel
Ref 10 dBm #Peak	Atter	10 dB			5.76 GHz 85 dBm	Center Freq 20.0150000 GHz
Log						
10 dB/						Start Freq 30.000000 MHz
Offst 13.3 dB						Stop Freq 40.000000 GHz
DI						40.0000000 0112
dBm						CF Step 3.99700000 GHz
LgAv					m.	<u>Auto Ma</u>
V1 S2 S3 FC		wohnten	worker phalle	man		Freq Offset 0.00000000 Hz
	WAY WW					Cignal Track
FTun Swp						Signal Track On <u>Off</u>
Start 30 MHz #Res BW 100		#VBW 300		Stop 40 7eep 3.82 s (60	.00 GHz	

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SPURIOUS EMISSIONS, HIGH CHANNEL



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🔆 Agilent 09	:04:56 May 31	, 2012			RT	Freq/Channel
Ref 10 dBm #Peak		10 dB			5.83 GHz 29 dBm	Center Freq 20.0150000 GHz
Log						
10 dB/ Offst						Start Freq 30.000000 MHz
13.3 dB						Stop Freq 40.000000 GHz
DI						CF Step
dBm LgAv					m	3.99700000 GHz Auto Ma
V1 S2 S3 FC	Mun Au	with the wit	where we wanted	and the second		Freq Offset 0.00000000 Hz
¤(f): ∽nuk™ FTun Swp	1447, Å , A A A A					Signal Track ^{On <u>Off</u>}
Start 30 MHz				Stop 40	.00 GHz	

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7.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

7.5.1. 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.

TEST PROCEDURE

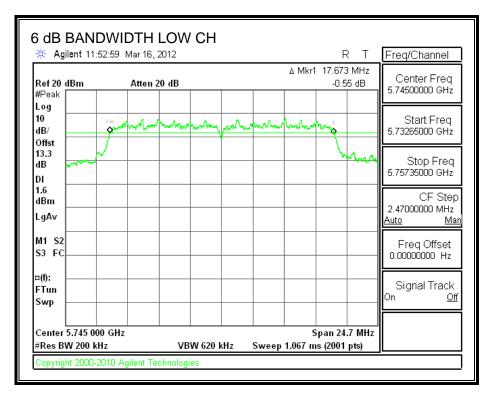
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5745	17.673	0.5
Middle	5785	17.846	0.5
High	5825	17.685	0.5

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6 dB BANDWIDTH



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6 dB BAND Agilent 11:49	WIDTH MID CH 1:32 Mar 16, 2012	ł	R	T Freq/Channel	1
Ref 20 dBm #Peak	Atten 20 dB		∆ Mkr1 17.846 N 0.05		ĺ
Log 10 dB/	for the solution of the solution	manne	-lenhurdhang	Start Freq 5.77265000 GHz]
13.3 dB DI			<u> </u>	Stop Freq 5.79735000 GHz]
0.9 dBm LgA∨				CF Step 2.47000000 MHz <u>Auto Mar</u>	
M1 S2 S3 FS				Freq Offset 0.00000000 Hz	
¤(f): FTun Swp				Signal Track On <u>Off</u>]
Center 5.785 000 #Res BW 200 kHz		20 kHz Swee	Span 24.7 p 1.067 ms (2001 pt		
Copyright 2000-20	10 Agilent Technologies]

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🔆 Agilent 1	1:47:07	War 16, 2012						? T	Freq/Channel
Ref 20 dBm #Peak		Atten 20 dB				∆ Mkr1	17.685 -0.4	i MHz 9 dB	Center Freq 5.82500000 GHz
Log 10 dB/ Offst	18	with marked	number	(K. S. San	and the second	woodraw	hunia		Start Freq 5.81265000 GHz
13.3 dB at the	and the						4	V Vortege	Stop Freq 5.83735000 GHz
1.3 dBm									CF Step 2.47000000 MHz
M1 S2 S3 FS									<u>Auto Mar</u> Freq Offset 0.00000000 Hz
¤(f): FTun Swp									Signal Track On <u>Off</u>
Center 5.825 #Res BW 200			BW 620 I	H7	Sween	S 1.067 m	pan 24. « /2001		

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7.5.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

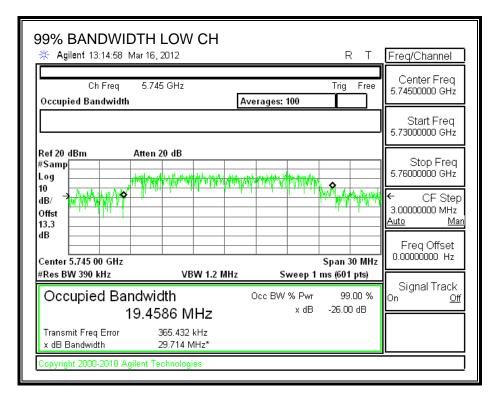
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	19.4586
Middle	5785	19.7851
High	5825	20.4621

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99% BANDWIDTH



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99% BANDWIDTH MID CH	1	RТ	Freq/Channel
Ch Freq 5,785 GHz Occupied Bandwidth	Averages: 100	Trig Free	Center Freq 5.78500000 GHz
			Start Freq 5.77000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log			Stop Freq 5.8000000 GHz
dB/→ dB/→ 0ffst 13.3			CF Step 3.00000000 MHz <u>Auto Man</u>
dB		Span 30 MHz	Freq Offset 0.00000000 Hz
Occupied Bandwidth 19.7851 MHz	Occ BW % Pwr	ms (601 pts) 99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error 314.236 kHz x dB Bandwidth 29.835 MHz*	_		
Copyright 2000-2010 Agilent Technologies			

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99% BANDWIDTH HIGH CH		RТ	Freq/Channel
Ch Freq 5.825 GHz Occupied Bandwidth	Trig Averages: 100	g Free	Center Freq 5.82500000 GHz
			Start Freq 5.81000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log			Stop Freq 5.84000000 GHz
dB/ → /// / / / / / / / / / / / / / / / /		**** **	← CF Step 3.0000000 MHz <u>Auto Man</u>
dB Center 5.825 00 GHz		30 MHz	Freq Offset 0.00000000 Hz
#Res BW 390 kHz VBW 1.2	MHz Sweep 1 ms (60)1 pts)	Signal Track
Occupied Bandwidth 20.4621 MHz		99.00 % 00 dB	On <u>Off</u>
Transmit Freq Error406.385 kHzx dB Bandwidth29.856 MHz*			
Copyright 2000-2010 Agilent Technologies			

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7.5.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

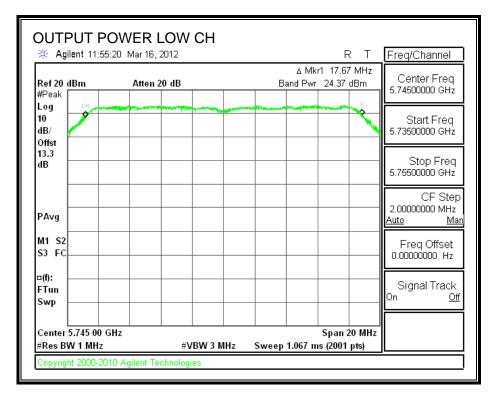
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

RESULTS

Channel	Frequency	Peak Power	Limit	Margin
		Reading		
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	24.37	30	-5.63
Middle	5785	24.34	30	-5.66
High	5825	24.83	30	-5.17

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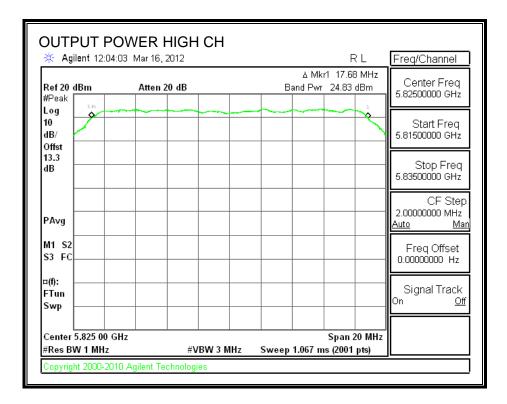
OUTPUT POWER



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	POWER M 1:56:31 Mar 16, 20	-		RТ	Freq/Channel
Ref 20 dBm #Peak	Atten 20			r1 17.84 MHz 24.34 dBm	Center Freq 5.78500000 GHz
				A CONTRACTOR OF	Start Freq 5.77500000 GHz
13.3 dB					Stop Freq 5.79500000 GHz
PAvg					CF Step 2.0000000 MHz <u>Auto Man</u>
M1 S2 S3 FC					Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track On <u>Off</u>
Center 5.785 #Res BW 1 M	Hz	#VBW 3 MHz	Sweep 1.067 m	Span 20 MHz ns (2001 pts)	
Copyright 200	D-2010 Agilent Tech	nologies			

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7.5.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 13.3 dB (including 12 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5745	16.00
Middle	5785	16.00
High	5825	16.00

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7.5.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

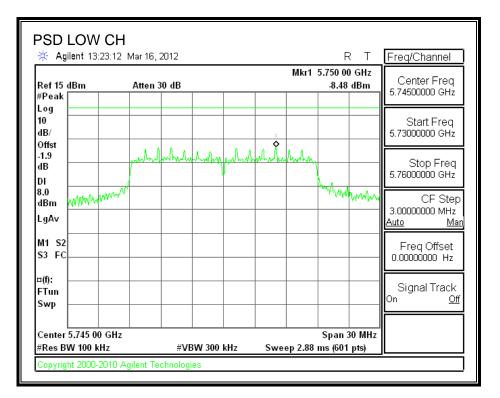
RESULTS

Note: analyzer offset = cable loss + attenuator + 10 log (3/100 kHz) = -1.9 dB

Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	-8.48	8	-16.48
Middle	5785	-8.76	8	-16.76
High	5825	-8.50	8	-16.50

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POWER SPECTRAL DENSITY



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🔆 Agile	ant 15:2	24.14 ľ	viar 16, 2	2012							Freq/Channel
Ref 15 dE #Peak ∏	3m		Atten 3	0 dB				Mkr1	5.786 2 -8.76	5 GHz dBm	Center Freq 5.78500000 GHz
Log 10 dB/ Offst						_1					Start Freq 5.77000000 GHz
-1.9 dB –			monte	mherty	Andra	palme	orborho	hardreng			Stop Freq 5.8000000 GHz
8.0 dBm M LgAv	WWW	nw~/*							WW ^I Yrw	white	CF Step 3.00000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC											Freq Offset 0.00000000 Hz
¤(f): FTun Swp											Signal Track On <u>Off</u>
Center 5. #Res BW				#\/F	W 300	kH7	Swo	ep 2.88		30 MHz	

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🔆 Agilent 13:28	.uz iviai io,	2012					₹ T	Freq/Channel
Ref 15 dBm #Peak □	Atten 3	0 dB		1	MKr1	5.830 00 -8.50	dBm	Center Freq 5.82500000 GHz
Log								<u> </u>
10 dB/ Offst				1				Start Freq 5.81000000 GHz
-1.9 dB		mbalach	afanlush	whenter	Andrey			Stop Freq 5.84000000 GHz
DI	_					h.		
8.0 dBm 01/1/1/1/0/04	UN Y					1.0000	hallhow	
LgAv								3.00000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC								Freq Offset 0.00000000 Hz
¤(f):								
FTun Swp								Signal Track On <u>Of</u>
Center 5.825 00 (Span (30 MHz	

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7.5.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

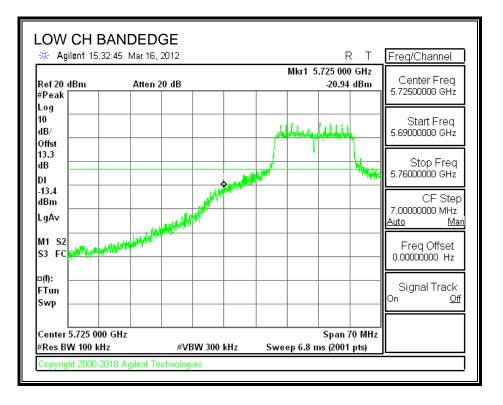
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

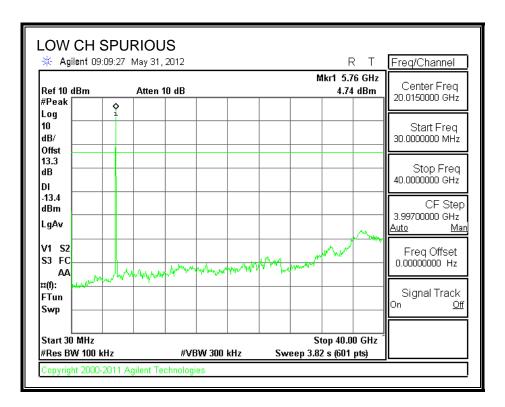
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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

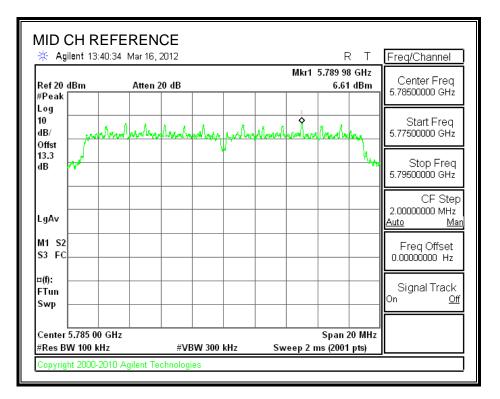


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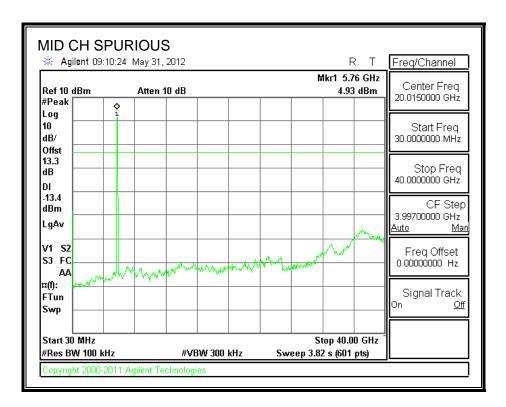


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SPURIOUS EMISSIONS, MID CHANNEL

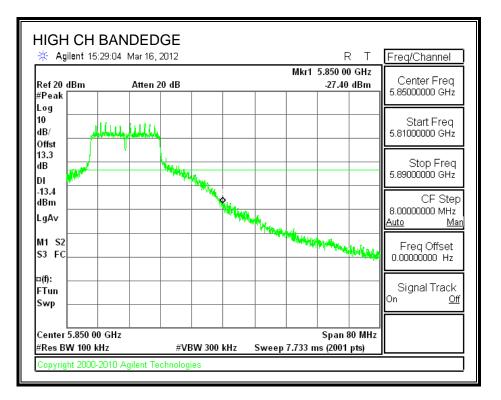


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SPURIOUS EMISSIONS, HIGH CHANNEL



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🔆 Agilent 09	:10:55 May	31,2012				R	Т	Freq/Channel
Ref 10 dBm #Peak	Att	en 10 dB		1	Mk	r1 5.83 0.44 c		Center Freq 20.0150000 GHz
Log								
10 dB/ Offst								Start Freq 30.000000 MHz
13.3 dB								Stop Freq 40.000000 GHz
DI								
dBm LgAv								CF Step 3.99700000 GHz Auto Ma
V1 S2 S3 FC		whenter	An your growthey	w.m.	the Warner	r de la	»- _{Сфияр}	Freq Offset 0.00000000 Hz
#(f): مراجعه FTun Swp								Signal Track On <u>Off</u>
Start 30 MHz #Res BW 100 F			√ 300 kHz		Stop ep 3.82 s	p 40.00		

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7.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

7.6.1. 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.

TEST PROCEDURE

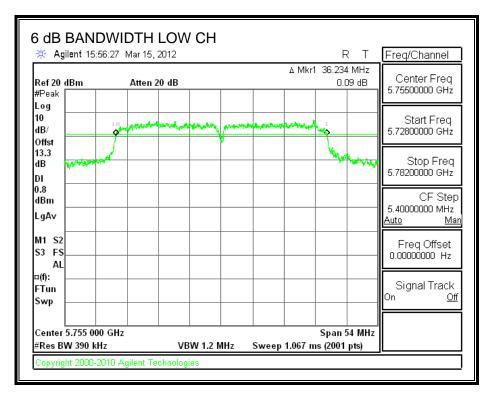
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5755	36.234	0.5
High	5795	36.342	0.5

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6 dB BANDWIDTH



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🔆 Agilent 15:58	3:44 Mar 15, 2012			RT	Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB		∆ Mkr	1 36.342 MHz -0.08 dB	Center Freq 5.79500000 GHz
Log 10 dB/	1. Phan and the fact and the fact	alter ton fronton	le contract and and	he h	Start Freq 5.76800000 GHz
Offst 13.3 dB				- Warman	Stop Freq 5.82200000 GHz
0.2 dBm LgAv					CF Step 5.40000000 MHz Auto Mar
M1 S2 S3 FS AL					Freq Offset 0.00000000 Hz
AL ¤(f): FTun Swp					Signal Track On <u>Off</u>
Center 5.795 000 #Res BW 390 kHz		W 1.2 MHz	Sweep 1.067 n	Span 54 MHz	

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7.6.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

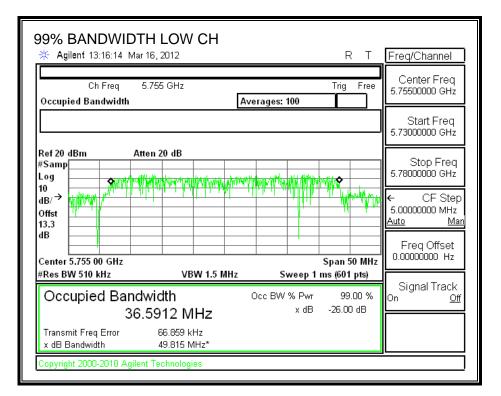
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

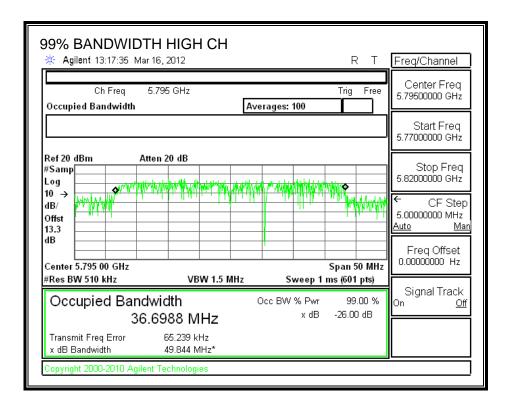
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5755	36.5912
High	5795	36.6988

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99% BANDWIDTH



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7.6.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

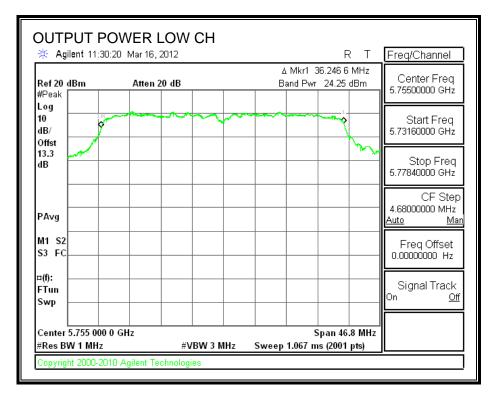
RESULTS

Channel	Frequency	Peak Power	Limit	Margin
		Reading		
	(MHz)	(dBm)	(dBm)	(dB)
Low	5755	24.25	30	-5.75
High	5795	24.68	30	-5.32

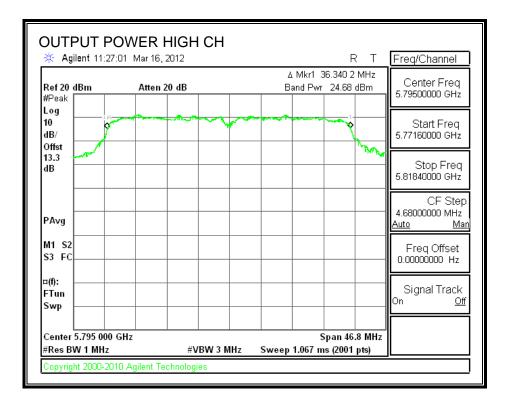
COMPLIANCE CERTIFICATION SERVICES (UL CCS) 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

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OUTPUT POWER



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7.6.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 13.3 dB (including 12 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency Power	
	(MHz)	(dBm)
Low	5755	15.00
High	5795	16.00

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7.6.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

RESULTS

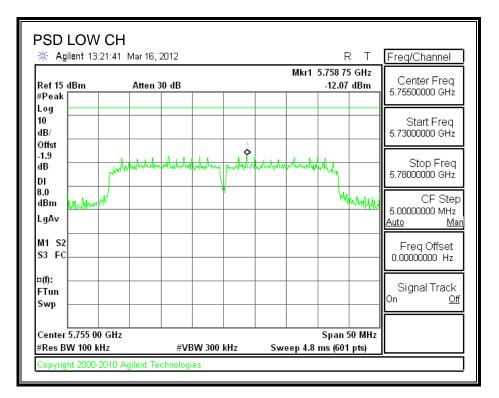
Note: analyzer offset = cable loss + attenuator + 10 log (3/100 kHz) = -1.9 dB

Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5755	-12.07	8	-8.00
High	5795	-12.29	8	-8.00

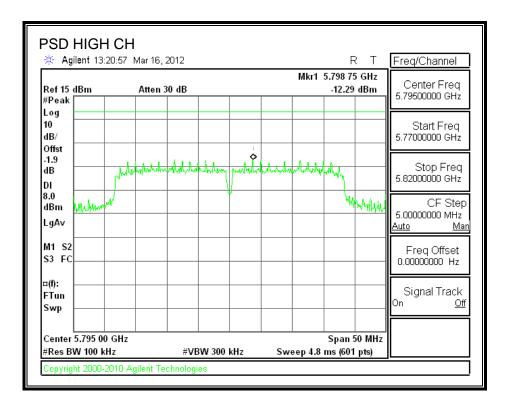
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POWER SPECTRAL DENSITY



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7.6.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

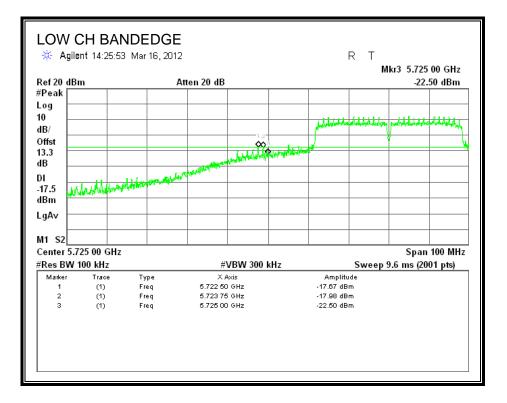
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

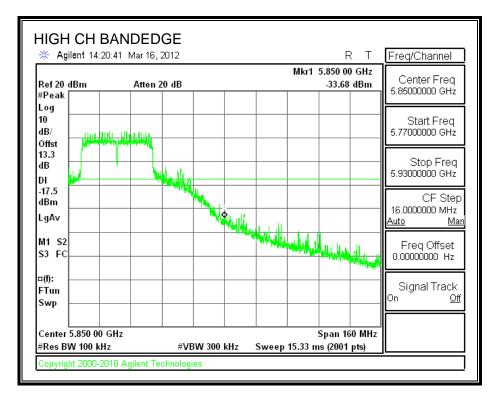


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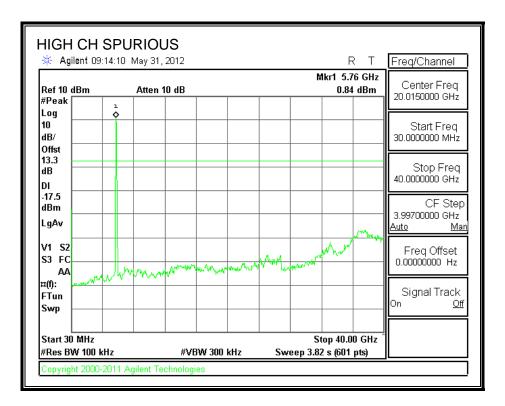
we Aylient 09.	13:30 May 31	, 2012			R		Freq/Channel
Ref 10 dBm #Peak		10 dB			Akr1 5.76 0.63	6 GHz dBm	Center Freq 20.0150000 GHz
Log	1 \$						
10 dB/ Offst							Start Freq 30.000000 MHz
13.3 dB							Stop Freq 40.000000 GHz
DI							
dBm							CF Step 3.99700000 GHz
LgAv						Mr.	Auto Mai
V1 S2 S3 FC	han	want the second	1 March 10	AM WANT	and speen		Freq Offset 0.00000000 Hz
FTun	- A A A A A A A A A A A A A A A A A A A						Signal Track On Off
Swp							
Start 30 MHz				S	top 40.00	GHz	

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SPURIOUS EMISSIONS, HIGH CHANNEL



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8. RADIATED TEST RESULTS

8.1. 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. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

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, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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.

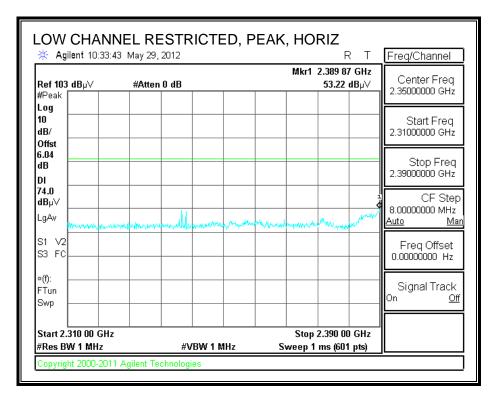
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

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8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. TX ABOVE 1 GHz FOR 802.11b 1TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

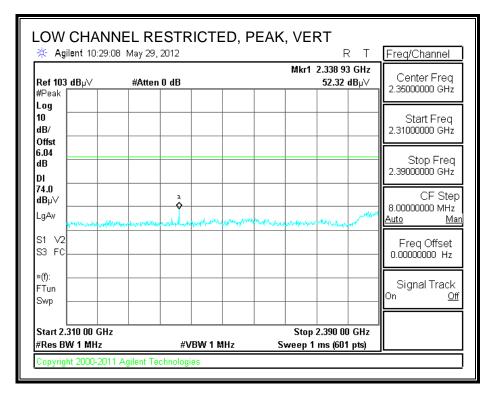


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🔆 Agilent 10:34	4:24 May 29, 2012		F	RΤ	Freq/Channel
Ref 103 dB µ∀ #Peak □	#Atten 0 dB		Mkr1 2.386 5 41.98		Center Freq 2.35000000 GHz
Log 10 dB/					Start Freq 2.31000000 GHz
Offst 6.04 dB DI					Stop Freq 2.39000000 GHz
54.0 dBµ∨ LgAv				1	CF Step 8.00000000 MHz <u>Auto Mar</u>
S1 V2 S3 FC				^	Freq Offset 0.00000000 Hz
»(f): FTun Swp					Signal Track On <u>Off</u>
Start 2.310 00 GF #Res BW 1 MHz		#VBW 10 Hz	Stop 2.390 00 Sweep 6.238 s (601		

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

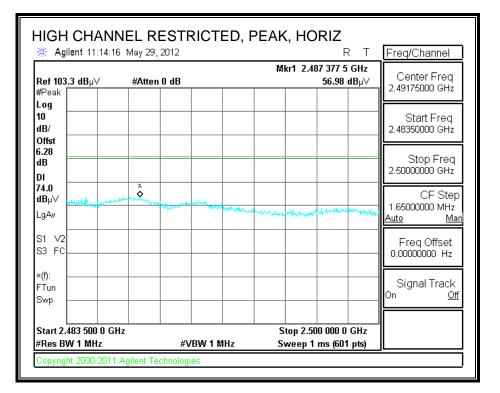


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	:39 May 29, 2012		RT	Freq/Channel
Ref 103 dB µ∨ #Peak □ □	#Atten 0 dB	 Mkr1 2	2.386 53 GHz 41.19 dBµ∨	Center Freq 2.35000000 GHz
Log				
10 dB/				Start Freq 2.31000000 GHz
Offst 6.04 dB				Stop Freq 2.39000000 GHz
DI 54.0 dBµ∀				CF Step
LgAv			г	8.00000000 MHz <u>Auto Man</u>
S1 V2 S3 FC		 	~_^	Freq Offset 0.00000000 Hz
»(f):				
FTun Swp				Signal Track On <u>Off</u>
			2.390 00 GHz	

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

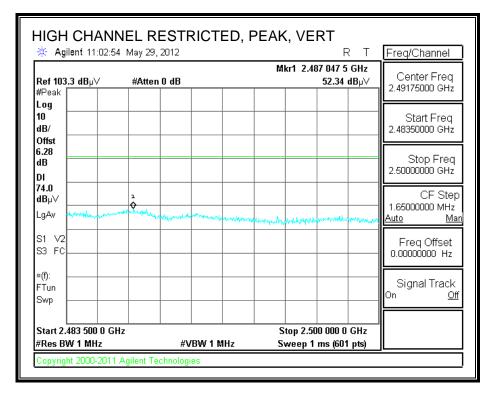


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🔆 Agilent 11:15:0	U3 May 29, 201	2		RT	Freq/Channel
Ref 103.3 dB µ∨	#Atten 0 d	B	Mkr1 2.4	87 130 0 GHz 49.52 dBµ∨	Center Freq 2.49175000 GHz
Log 10 dB/ Offst					Start Freq 2.48350000 GHz
dB					Stop Freq 2.5000000 GHz
54.0 dBµ∨ LgAv	- <u>1</u>				CF Step 1.65000000 MHz <u>Auto Mar</u>
S1 V2 S3 FC					Freq Offset 0.00000000 Hz
»(f): FTun Swp					Signal Track On <u>Off</u>
Start 2.483 500 0 G #Res BW 1 MHz	GHz	#VBW 10 Hz	Stop 2.5 Sweep 1.28	00 000 0 GHz 7 s (601 pts)	

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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



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🔆 Agilent 11:04:53	May 29, 2012		RT	Freq/Channel
Ref 103.3 dBµ∨ #Peak	#Atten 0 dB	Mkr1 2.487 · 4	130 0 GHz 2.74 dBµ∨	Center Freq 2.49175000 GHz
Log 10 dB/ Offst				Start Freq 2.48350000 GHz
6.28 dB				Stop Freq 2.50000000 GHz
DI				CF Step 1.6500000 MHz <u>Auto Mar</u>
S1 V2 S3 FC				Freq Offset 0.00000000 Hz
»(f): FTun Swp				Signal Track On <u>Off</u>
Start 2.483 500 0 GHz #Res BW 1 MHz	#VBW 10	Stop 2.500 (Hz Sweep 1.287 s		

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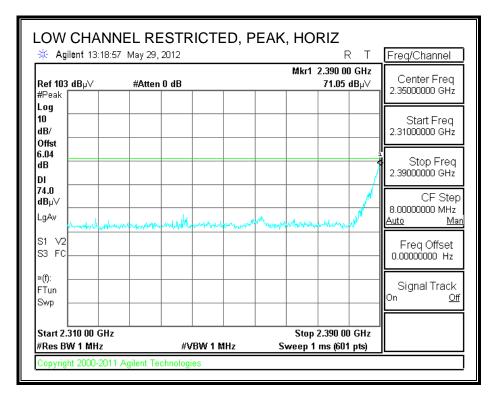
HARMONICS AND SPURIOUS EMISSIONS

Test Engr Date: Project # Company Test Targ Mode Op	5/25/2012 - 5/29/2012 : 12U14222 y: Qualcomm Atheros et: FCC 15.205														
	f Dist Read AF CL	Measuren Distance Analyzer Antenna Cable Los	to Anter Reading Factor	ina		Preamp C Distance Average I Calculate High Pass	Correc Field St d Peak	rength @ Field Stre	9 3 m	Peak Fie Margin v	Field Stren Ed Strength 7s. Average 7s. Peak Lin	Limit Limit			
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
Low Cha	nnel - 24	412MHz	Î	Ì	1					İ					
4.824	3.0	38.7	33.4	6.2	-35.5	0.0	0.0	42.8	74.0	-31.2	V	Р	100.8	295.3	
4.824	3.0	31.0	33.4	6.2	-35.5	0.0	0.0	35.1	54.0	-18.9	V	A	100.8	295.3	
4.824	3.0	38.0	33.4	6.2	-35.5	0.0	0.0	42.2	74.0	-31.8	Н	Р	146.0	265.4	
4.824	3.0	28.9	33.4	6.2	-35.5	0.0	0.0	33.1	54.0	-20.9	Н	A	146.0	265.4	
Mid Chai	1nel - 24	37MHz													
4.874	3.0	38.5	33.5	6.2	-35.5	0.0	0.0	42.7	74.0	-31.3	V	Р	100.5	117.2	
4.874	3.0	30.6	33.5	6.2	-35.5	0.0	0.0	34.8	54.0	-19.2	V	A	100.5	117.2	
4.874	3.0	36.3	33.5	6.2	-35.5	0.0	0.0	40.5	74.0	-33.5	H	Р	100.4	78.4	
4.874	3.0	26.0	33.5	6.2	-35.5	0.0	0.0	30.3	54.0	-23.7	H	A	100.4	78.4	
7.311	3.0	36.3	35.7	8.4	-35.4	0.0	0.0	45.0	74.0	-29.0	V	Р	195.1	120.4	
7.311	3.0	23.8	35.7	8.4	-35.4	0.0	0.0	32.5	54.0	-21.5	V	А	195.1	120.4	
7.311	3.0	36.0	35.7	8.4	-35.4	0.0	0.0	44.6	74.0	-29.4	Н	Р	123.8	288.5	
7.311	3.0	23.5	35.7	8.4	-35.4	0.0	0.0	32.1	54.0	-21.9	Н	A	123.8	288.5	
	I				ļ										
High Cha															
4.924	3.0	38.1	33.5	6.3	-35.5	0.0	0.0	42.5	74.0	-31.5	V	Р	129.7	267.2	
4.924	3.0	29.6	33.5	6.3	-35.5	0.0	0.0	33.9	54.0	-20.1	V	A	129.7	267.2	
4.924	3.0	38.9	33.5	6.3	-35.5	0.0	0.0	43.3	74.0	-30.7	H	Р	122.5	134.5	
4.924	3.0	30.5	33.5	6.3	-35.5	0.0	0.0	34.8	54.0	-19.2	Н	A	122.5	134.5	
7.386	3.0	40.6	35.8	8.4	-35.5	0.0	0.0	49.4	74.0	-24.6	V	Р	190.1	184.7	
7.386	3.0	32.3	35.8	8.4	-35.5	0.0	0.0	41.1	54.0	-13.0	V	A	190.1	184.7	
7.386	3.0	37.8	35.8	8.4	-35.5	0.0	0.0	46.6	74.0	-27.4	Н	Р	100.0	125.6	
7.386	3.0	27.0	35.8	8.4	-35.5	0.0	0.0	35.7	54.0	-18.3	H	A	100.0	125.6	

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8.2.2. TX ABOVE 1 GHz FOR 802.11g 1TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

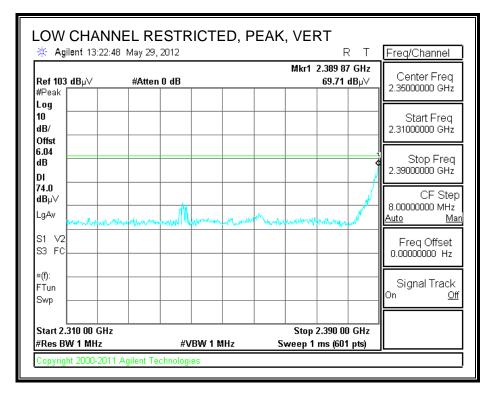


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🔆 Agilent 13:19	:36 May 29, 2012				T Freq/Channel
Ref 103 dB µ∨ #Peak □	#Atten 0 dB		M	kr1 2.390 00 GH 53.43 dBµ	Contor Frog
Log 10					
dB/					Start Freq 2.31000000 GHz
6.04 dB					Stop Freq
DI					2.39000000 GHz
54.0 dBµ∀					CF Step
LgAv					8.0000000 MHz Auto Mar
S1 V2 S3 FC					Freq Offset 0.00000000 Hz
×(f):					
FTun Swp					Signal Track On <u>Off</u>
Start 2.310 00 GH #Res BW 1 MHz	-	#VBW 10 Hz		itop 2.390 00 GH 5.238 s (601 pts)	

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

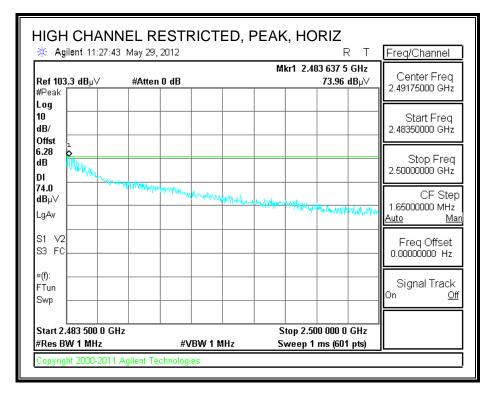


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🔆 Agilent 13:23	:22 May 29, 2012				RT	Freq/Channel
Ref 103 dBµ∨	#Atten 0 dB			Mkr1 2.390 51.3	00 GHz 7 dBµ∨	Center Freq 2.35000000 GHz
#Peak Log						
10 dB/						Start Freq 2.31000000 GHz
Offst 6.04 dB						Stop Freq 2.3900000 GHz
DI						CF Step
LgAv						8.00000000 MHz <u>Auto Mar</u>
S1 V2 S3 FC			\uparrow		\square	Freq Offset 0.00000000 Hz
×(f): FTun						Signal Track On Off
Swp						
Start 2.310 00 GH #Res BW 1 MHz	-	VBW 10 Hz	Swee	Stop 2.390 p 6.238 s (60		

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

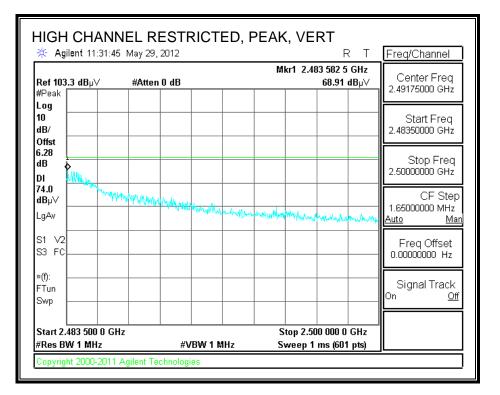


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🔆 Agilent 11:27:5	58 May 29, 2012			RT	Freq/Channel
Ref 103.3 dB µ∨	#Atten 0 dB			3 500 0 GHz 53.44 dBµ∨	Center Freq 2.49175000 GHz
Log 10 dB/ Offst					Start Freq 2.48350000 GHz
dB					Stop Freq 2.5000000 GHz
54.0 dBµ√ å LgAv					CF Step 1.6500000 MHz <u>Auto Mar</u>
S1 V2 S3 FC					Freq Offset 0.00000000 Hz
×(f): FTun Swp					. Signal Track . On <u>Off</u>
Start 2.483 500 0 G #Res BW 1 MHz		VBW 10 Hz	Stop 2.500 Sweep 1.287) 000 0 GHz s (601 pts)	

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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



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🔆 Agilent 11:31:5	9 May 29, 2012			RT	Freq/Channel
Ref 103.3 dB µ∀ #Peak	#Atten 0 dB		Mkr1 2.4	83 500 0 GHz 48.86 dBµ∨	Center Freq 2.49175000 GHz
Log 10 dB/					Start Freq 2.48350000 GHz
Offst 6.28 dB DI					Stop Freq 2.5000000 GHz
54.0 dBµ∨ LgAv					CF Step 1.6500000 MHz <u>Auto Mar</u>
S1 V2 S3 FC					Freq Offset 0.00000000 Hz
≈(f): FTun Swp					Signal Track On <u>Off</u>
Start 2.483 500 0 GI #Res BW 1 MHz		W 10 Hz	Stop 2.50 Sweep 1.28	00 000 0 GHz 7 s (601 pts)	

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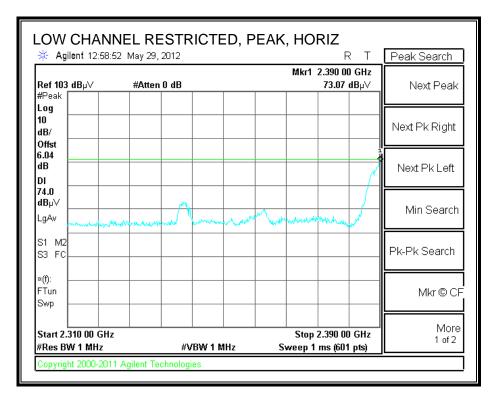
HARMONICS AND SPURIOUS EMISSIONS

Test Engr Date: Project #: Company Test Targo Mode Ope	5/25/2012 - 5/29/2012 t#: 12U14222 my: Qualcomm Atheros rget: FCC 15.247															
	f Dist	Measuren Distance				Preamp (Distance		+ + a 2 ma		-	Field Stren	•				
											U					
	Read	Analyzer	0		Avg	Average				Margin vs. Average Limit Margin vs. Peak Limit						
	AF	Antenna			Peak	Calculate			ength	margin	vs. Peak Lii	mi				
	CL	Cable Los	SS		HPF	High Pas	s Filter									
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes	
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree		
Low Char	nel - 24	412MHz														
4.824	3.0	36.4	33.4	6.2	-35.5	0.0	0.0	40.6	74.0	-33.4	V	Р	100.0	159.6		
4.824	3.0	24.4	33.4	6.2	-35.5	0.0	0.0	28.5	54.0	-25.5	V	A	100.0	159.6		
4.824	3.0	36.0	33.4	6.2	-35.5	0.0	0.0	40.2	74.0	-33.8	Н	Р	121.8	32.8		
4.824	3.0	24.0	33.4	6.2	-35.5	0.0	0.0	28.1	54.0	-25.9	Н	A	121.8	32.8		
	I		ļ		ļ											
Mid Char			22.5	()	25.5	0.0	0.0	40.0	74.0		v	Р	142.5	170.0		
4.874 4.874	3.0	36.6	33.5 33.5	6.2 6.2	-35.5	0.0	0.0	40.9 28.7	74.0 54.0	-33.1 -25.3	v	A P	143.5 143.5	150.0 150.0		
4.874	3.0	36.9	33.5	6.2	-35.5	0.0	0.0	41.1	74.0	-25.5	н	A P	143.5	229.9		
4.874	3.0	24.0	33.5	6.2	-35.5	0.0	0.0	28.2	54.0	-25.8	H	A	120.5	229.9		
7.311	3.0	37.7	35.7	8.4	-35.4	0.0	0.0	46.4	74.0	-27.6	v	P	120.3	207.0		
7.311	3.0	24.3	35.7	8.4	-35.4	0.0	0.0	32.9	54.0	-21.1	v	A	189.4	207.0		
7.311	3.0	35.7	35.7	8.4	-35.4	0.0	0.0	44.3	74.0	-29.7	н	P	183.2	32.8		
7.311	3.0	23.4	35.7	8.4	-35.4	0.0	0.0	32.1	54.0	-21.9	Н	A	183.2	32.8		
	1															
High Cha	nnel - 2	2462MHz														
4.924	3.0	36.8	33.5	6.3	-35.5	0.0	0.0	41.1	74.0	-32.9	V	Р	198.7	47.4		
4.924	3.0	24.7	33.5	6.3	-35.5	0.0	0.0	29.0	54.0	-25.0	V	A	198.7	47.4		
4.924	3.0	37.0	33.5	6.3	-35.5	0.0	0.0	41.4	74.0	-32.6	Н	Р	151.6	114.7		
4.924	3.0	24.6	33.5	6.3	-35.5	0.0	0.0	28.9	54.0	-25.1	Н	A	151.6	114.7		
7.386	3.0	38.0	35.8	8.4	-35.5	0.0	0.0	46.8	74.0	-27.2	V	Р	176.6	186.3		
7.386	3.0	25.5	35.8	8.4	-35.5	0.0	0.0	34.3	54.0	-19.7	V	A	176.6	186.3		
7.386	3.0	36.9	35.8	8.4	-35.5	0.0	0.0	45.7	74.0	-28.3	H	Р	198.5	319.9		
7.386	3.0	24.0	35.8	8.4	-35.5	0.0	0.0	32.8	54.0	-21.2	Н	A	198.5	319.9		

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8.2.3. TX ABOVE 1 GHz FOR 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

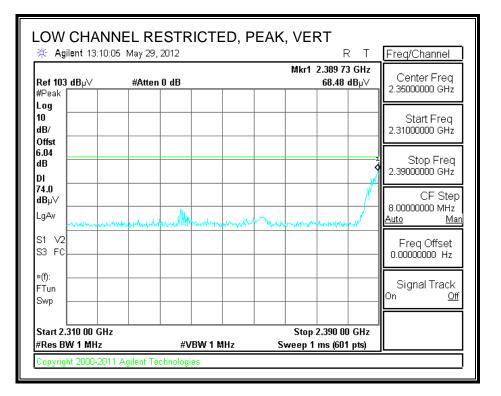


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🔆 Agilent 13:01	:45 May 29, 2012			RT	Peak Search
Ref 103 dBµ∨	#Atten 0 dB		Mkr1	I 2.390 00 GHz 53.66 dBµ∀	Next Peak
#Peak Log					
10 dB/					Next Pk Right
Offst 6.04 dB					Next Pk Left
DI 54.0 dBµ∨					Min Search
LgAv					Mill Search
S1 M2 S3 FC		mr			Pk-Pk Search
×(f):					
FTun Swp					Mkr © Cf
Start 2.310 00 GH #Res BW 1 MHz	-	VBW 10 Hz		p 2.390 00 GHz 38 s (601 pts)	More 1 of 2

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

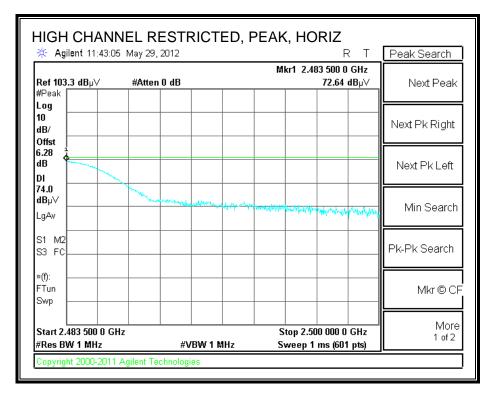


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🔆 Agilent 13:10	:32 May 29, 2012			RT	Freq/Channel
Ref 103 dB µ∨ #Peak □	#Atten 0 dB		Mk	r1 2.390 00 GHz 50.48 dBµ∨	Center Freq 2.35000000 GHz
Log					l
10 dB/					Start Freq 2.31000000 GHz
Offst 6.04 dB					Stop Freq
DI 54.0 dBµ∀					CF Step
LgAv					8.00000000 MHz <u>Auto Mar</u>
S1 V2 S3 FC			h-		Freq Offset 0.00000000 Hz
×(f):					Signal Track
Swp					On <u>Off</u>
Start 2.310 00 GH #Res BW 1 MHz	-	VBW 10 Hz		op 2.390 00 GHz .238 s (601 pts)	ļ

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

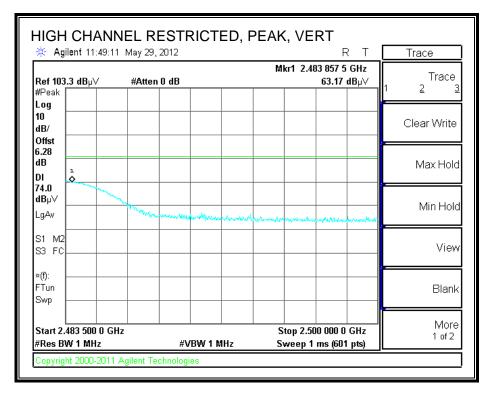


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* Agilent 11:43:16 Ma	_ RESTRICTED, y 29, 2012	R T	Peak Search
Ref 103.3 dBµ∨ # #Peak	Atten 0 dB	Mkr1 2.483 500 0 GHz 49.80 dBµ∨	Next Peak
Log 10 dB/ Offst			Next Pk Right
6.28 dB DI			Next Pk Left
54.0 dBµ√ LgAv ∳			Min Search
S1 V2 S3 FC			Pk-Pk Search
≈(f): FTun Swp			Mkr © CF
Start 2.483 500 0 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 2.500 000 0 GHz Sweep 1.287 s (601 pts)	More 1 of 2

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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



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🔆 Agilent 11:49:2	26 May 29, 201:	2		RT	Trace
Ref 103.3 dBµ∀	#Atten 0 d	В	Mkr1	2.483 500 0 GHz 41.84 dBµ∀	Trace
#Peak Log					'
10 dB/					Clear Write
Offst 6.28 dB					Max Hold
DI 54.0 dBµ∀					 Min Holo
LgAv					IVIIITTIOIC
S1 V2 S3 FC				<u> </u>	View
»(f): FTun					Blank
Swp					
Start 2.483 500 0 G #Res BW 1 MHz	GHz	#VBW 10 Hz	•	2.500 000 0 GHz .287 s (601 pts)	More 1 of 2

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HARMONICS AND SPURIOUS EMISSIONS

Test Engr		Dennis I	Huang												
Date:		05/29/12													
Project #:		12U1422	2												
Company	:	Qualcon	nm Ath	eros											
Test Targe		FCC 15.2	205												
Mode Ope	r:	802.11n	HT20 T	κ.											
	f	Measuren	aant Ena		A	Preamp (7			A	Field Stren	ath Limit			
	Dist	Distance				Distance		t to 2 ma	tore	-	eld Strength	•			
	Read	Analyzer						rength @			vs. Average				
	AF	Analyzer	0		Avg Peak			Field Stre		0	vs. Average vs. Peak Lii				
	CL CL	Cable Los			Peak HPF	High Pas			ingth	wargin	vs. reak Ll	1110			
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
Low Char	nel - 24	12MHz	1	Î	1			i i		Ì			ĺ		
4.824	3.0	38.6	33.4	6.2	-35.5	0.0	0.0	42.8	74.0	-31.2	V	Р	192.8	134.0	
4.824	3.0	25.0	33.4	6.2	-35.5	0.0	0.0	29.1	54.0	-24.9	V	A	192.8	134.0	
4.824	3.0	37.9	33.4	6.2	-35.5	0.0	0.0	42.1	74.0	-31.9	Н	Р	153.5	160.3	
4.824	3.0	24.8	33.4	6.2	-35.5	0.0	0.0	28.9	54.0	-25.1	Н	A	153.5	160.3	
			1		1										
Mid Chan	nel - 24	37MHz			1					1					
4.874	3.0	38.5	33.5	6.2	-35.5	0.0	0.0	42.7	74.0	-31.3	V	Р	199.2	327.4	
4.874	3.0	25.8	33.5	6.2	-35.5	0.0	0.0	30.0	54.0	-24.0	V	A	199.2	327.4	
4.874	3.0	36.9	33.5	6.2	-35.5	0.0	0.0	41.1	74.0	-32.9	Н	Р	143.8	348.9	
4.874	3.0	24.3	33.5	6.2	-35.5	0.0	0.0	28.6	54.0	-25.4	Н	A	143.8	348.9	
7.311	3.0	36.1	35.7	8.4	-35.4	0.0	0.0	44.7	74.0	-29.3	V	Р	196.9	298.3	
7.311	3.0	24.1	35.7	8.4	-35.4	0.0	0.0	32.7	54.0	-21.3	V	A	196.9	298.3	
7.311	3.0	36.2	35.7	8.4	-35.4	0.0	0.0	44.8	74.0	-29.2	Н	Р	105.7	35.5	
7.311	3.0	24.1	35.7	8.4	-35.4	0.0	0.0	32.7	54.0	-21.3	Н	A	105.7	35.5	
High Cha	nnel - 2	462MHz													
4.924	3.0	37.3	33.5	6.3	-35.5	0.0	0.0	41.6	74.0	-32.4	v	Р	190.6	102.1	
4.924	3.0	26.4	33.5	6.3	-35.5	0.0	0.0	30.7	54.0	-23.3	V	A	190.6	102.1	
4.924	3.0	36.5	33.5	6.3	-35.5	0.0	0.0	40.8	74.0	-33.2	Н	Р	132.8	163.9	
4.924	3.0	24.7	33.5	6.3	-35.5	0.0	0.0	29.0	54.0	-25.0	Н	A	132.8	163.9	
7.386	3.0	36.9	35.8	8.4	-35.5	0.0	0.0	45.7	74.0	-28.3	V	Р	166.2	228.8	
7.386	3.0	24.2	35.8	8.4	-35.5	0.0	0.0	33.0	54.0	-21.0	V	A	166.2	228.8	
7.386	3.0	36.3	35.8	8.4	-35.5	0.0	0.0	45.1	74.0	-28.9	Н	Р	132.9	280.3	
7.386	3.0	24.1	35.8	8.4	-35.5	0.0	0.0	32.9	54.0	-21.1	Н	A	132.9	280.3	

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8.2.4. TX ABOVE 1 GHz FOR 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Test Engr: Date: Project #: Company: Test Target: EUT: f Dist Dist Deced		Dennis H 5/24/2012 12U1422 Qualcon FCC 15.2 802.11a I	2 - 5/25/ 2 nm Ath 205	eros	ule: N1	0G84TRF									
		Measuren Distance Analyzer Antenna Cable Los	to Antei Reading Factor	ina	1	Preamp C Distance Average I Calculate High Pass	Correc Field St d Peak	rength @ Field Stre	23 m	Peak Fie Margin v	Field Stren Id Strength /s. Average /s. Peak Lin	Limit Limit			
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
Low Cha	nnel - 5	745MHz													
11.490	3.0	36.7	38.8	10.7	-35.5	0.0	0.7	51.4	74.0	-22.6	V	Р	135.7	12.1	
11.490	3.0	28.5	38.8	10.7	-35.5	0.0	0.7	43.3	54.0	-10.7	V	A	135.7	12.1	
11.490	3.0	35.0	38.8	10.7	-35.5	0.0	0.7	49.8	74.0	-24.3	Н	Р	102.6	59.8	
11.490	3.0	24.8	38.8	10.7	-35.5	0.0	0.7	39.5	54.0	-14.5	Н	A	102.6	59.8	
Mid Cha	nnol 5'	785MH //													
11.570	3.0	34.9	38.9	10.8	-35.5	0.0	0.7	49.7	74.0	-24.3	v	Р	156.5	3.4	
11.570	3.0	26.0	38.9	10.8	-35.5	0.0	0.7	40.9	54.0	-13.1	v	A	156.5	3.4	
11.570	3.0	35.3	38.9	10.8	-35.5	0.0	0.7	50.2	74.0	-23.8	H	P	100.2	96.2	
11.570	3.0	25.0	38.9	10.8	-35.5	0.0	0.7	39.9	54.0	-14.1	Н	А	100.2	96.2	
High Ch															
11.650	3.0	35.2	39.0	10.9	-35.5	0.0	0.7	50.3	74.0	-23.7	V	Р	169.0	10.2	
11.650	3.0	27.2	39.0	10.9	-35.5	0.0	0.7	42.3	54.0	-11.7	V	A	169.0	10.2	
11.650 11.650	3.0	36.5	39.0	10.9	-35.5	0.0	0.7	51.6	74.0	-22.4	H	P	136.0	64.2	
	3.0	27.2	39.0	10.9	-35.5	0.0	0.7	42.2	54.0	-11.8	н	A	136.0	64.2	

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8.2.5. TX ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Date: Project #: Company Test Targ EUT:	:	Dennis H 5/24/2012 12U1422 Qualcom FCC 15.2 802.11n J	2 - 5/25/ 2 1m Atho 205	eros	tF Modu	le: N10G	84TRI	7							
	f Dist Read AF CL	Measurem Distance (Analyzer Antenna] Cable Los	to Anter Reading Factor	ina	1	Preamp C Distance Average I Calculate High Pass	Correc Field St d Peak	rength @ Field Stre	3 m	Peak Fie Margin v	Field Stren Id Strength /s. Average /s. Peak Lin	Limit Limit			
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
Low Cha	nnel - 5'	745MHz													
11.490	3.0	38.4	38.8	10.7	-35.5	0.0	0.7	53.1	74.0	-20.9	V	Р	136.9	256.0	
11.490	3.0	33.1	38.8	10.7	-35.5	0.0	0.7	47.9	54.0	-6.1	V	A	136.9	256.0	
11.490	3.0	34.9	38.8	10.7	-35.5	0.0	0.7	49.6	74.0	-24.4	Н	Р	173.0	119.7	
11.490	3.0	26.6	38.8	10.7	-35.5	0.0	0.7	41.3	54.0	-12.7	Н	A	173.0	119.7	
Mid Chai	1	07101													
11.570	<u>1nel - 57</u> 3.0	39.1	38.9	10.8	-35.5	0.0	0.7	54.0	74.0	-20.0	v	Р	122.4	254.6	
11.570	3.0	33.8	38.9	10.8	-35.5	0.0	0.7	48.7	54.0	-20.0	v	A	122.4	254.6	
11.570	3.0	35.8	38.9	10.8	-35.5	0.0	0.7	50.0	74.0	-24.0	Н	P	122.4	272.0	
11.570	3.0	24.7	38.9	10.8	-35.5	0.0	0.7	39.6	54.0	-14.4	н	A	197.6	272.0	
	1														
High Cha	nnel - 5	825MHz												i l	
11.650	3.0	40.7	39.0	10.9	-35.5	0.0	0.7	55.8	74.0	-18.2	V	Р	108.9	257.8	
	3.0	36.0	39.0	10.9	-35.5	0.0	0.7	51.1	54.0	-2.9	V	A	108.9	257.8	
11.650		38.4	39.0	10.9	-35.5 -35.5	0.0	0.7	53.4	74.0	-20.6	Н	Р	151.2	15.7	
11.650 11.650	3.0	33.2					0.7	48.3	54.0	-5.7	Н	A	151.2	15.7	

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8.2.6. TX ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE 5.8 GHz BAND

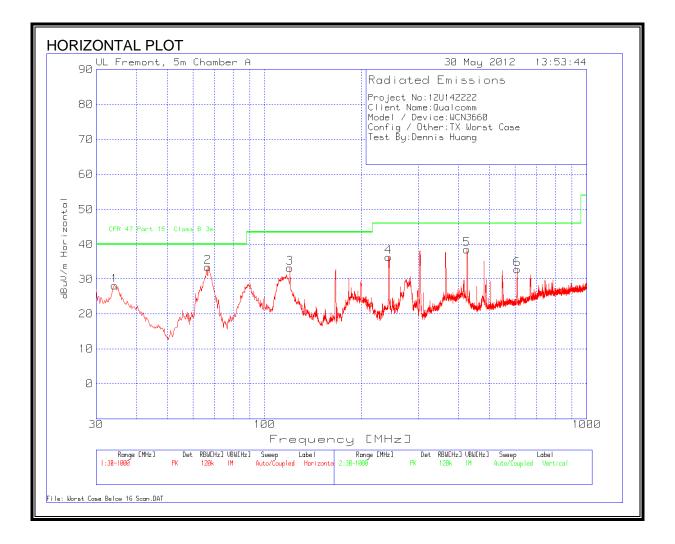
HARMONICS AND SPURIOUS EMISSIONS

	:	Dennis I	0												
Date:		5/24/2012	2 - 5/25/	2012											
Project #:		12U1422	2												
Company	:	Qualcon	ım Athe	eros											
Test Targ	et:	FCC 15.2													
EUT:		802.11n	HT40 M	ode, R	F Modu	le: N10G	84TRI	F							
			_												
	f	Measuren				Preamp O				U	Field Stren	0			
	Dist	Distance						t to 3 me			ld Strength				
	Read AF	Analyzer Antenna	0		Avg			trength @			s. Average				
	AF CL	Antenna Cable Los			Peak HPF	Calculate High Pas		Field Stre	ength	Margin v	s. Peak Li	mit			
	CL.	Cable Los	is		HPF	High Pas	s Fiiter								
f	Dist	Read	AF	CL	Amp	D Corr		Corr.	Limit		Ant. Pol.		Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
Low Cha										ļ					
11.510	3.0	37.8	38.8	10.7	-35.5	0.0	0.7	52.6	74.0	-21.4	V	Р	131.0	255.5	
11.510 11.510	3.0	32.7 34.2	38.8 38.8	10.7 10.7	-35.5	0.0	0.7	47.4	54.0 74.0	-6.6 -25.0	V H	A	131.0	255.5	
11.510	3.0	24.4	38.8	10.7	-35.5	0.0	0.7	49.0 39.1	54.0	-25.0	H H	P A	100.0 100.0	324.1	
11.510	3.0	24.4	30.0	10./	-35.5	0.0	0.7	39.1	54.0	-14.9	п	A	100.0	324.1	
High Cha															
	3.0	38.9	38.9	10.8	-35.5	0.0	0.7	53.8	74.0	-20.2	V	Р	110.2	257.9	
	3.0	34.0	38.9	10.8	-35.5	0.0	0.7	48.9	54.0	-5.1	V	A	110.2	257.9	
11.590		37.9	38.9	10.8 10.8	-35.5	0.0	0.7	52.8 46.3	74.0	-21.2	Н	Р	165.5	14.4	
11.590 11.590 11.590 11.590	3.0	31.3	38.9						54.0	-7.7	н	A	165.5	14.4	

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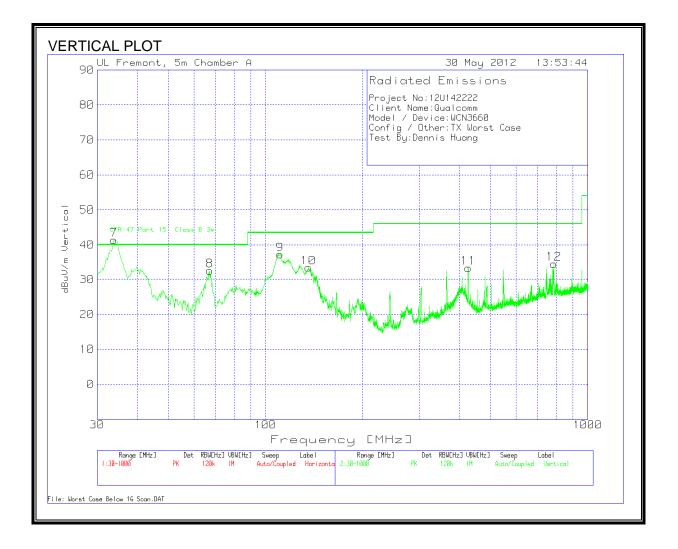
8.3. WORST-CASE BELOW 1 GHz

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



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



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HORIZONTAL AND VERTICAL DATA

Antenna Height [cm] 300 400 300 100 200 100	Polarity Horz Horz Horz Horz
Height [cm] 300 400 300 100 200	Horz Horz Horz
400 300 100 200	Horz Horz
400 300 100 200	Horz Horz
100 200	Horz
200	Horz
100	Horz
	Horz
Ant Height	Polarity
[cm]	
100	Vert
400	Vert
100	Vert
100	Vert
200	Vert
100	Vert
-	[cm] 100 400 100 100 200

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9. 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

ANSI C63.4

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LINE 1 RESULTS

<u>6 WORST EMISSIONS</u>

Line-L1 .15 - 30MHz

Trace Markers

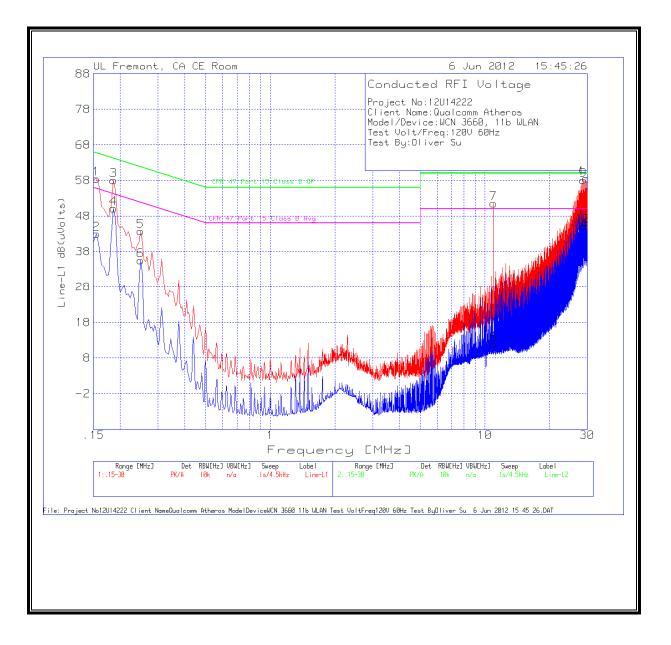
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dB(uVolts)	CFR 47 Part 15 Class B QP	Margin to Limit (dB)	CFR 47 Part 15 Class B Avg	Margin to Limit (dB)
1	.1545	58.32	РК	.1	0	58.42	65.8	-7.38	-	-
2	.1545	42.86	Av	.1	0	42.96		-	55.8	-12.84
3	.186	57.92	РК	.1	0	58.02	64.2	-6.18		-
4	.186	50	Av	.1	0	50.1		-	54.2	-4.1
5	.249	43.65	РК	.1	0	43.75	61.8	-18.05		
6	.249	35.47	Av	.1	0	35.57		-	51.8	-16.23
7	10.986	51.3	РК	.1	.2	51.6	60	-8.4		
8	10.986	11.57	Av	.1	.2	11.87		-	50	-38.13
9	28.77	57.29	РК	.5	.3	58.09	60	-1.91	-	-
10	28.77	44.34	Av	.5	.3	45.14		-	50	-4.86
11	29.5215	57.75	РК	.5	.3	58.55	60	-1.45		-
12	29.5215	45.53	Av	.5	.3	46.33	-	-	50	-3.67

PK - Peak detector

Av - average detection

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LINE 1 RESULTS



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LINE 2 RESULTS

<u>6 WORST EMISSIONS</u>

Line-L2 .15 - 30MHz

Trace Markers

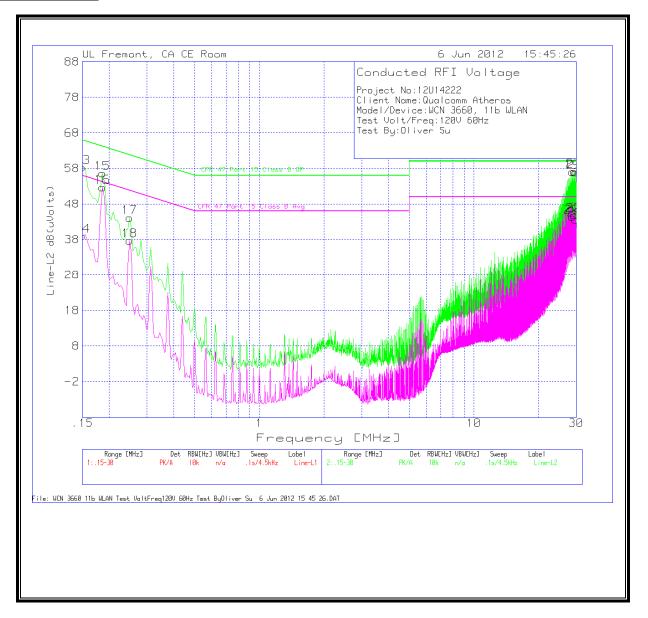
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dB(uVolts)	CFR 47 Part 15 Class B QP	Margin to Limit (dB)	CFR 47 Part 15 Class B Avg	Margin to Limit (dB)
13	.15	58.22	РК	.1	0	58.32	66	-7.68	-	-
14	.15	38.85	Av	.1	0	38.95	-	-	56	-17.05
15	.186	56.59	РК	.1	0	56.69	64.2	-7.51		
16	.186	52.66	Av	.1	0	52.76		-	54.2	-1.44
17	.249	44.09	РК	.1	0	44.19	61.8	-17.61	-	-
18	.249	37.67	Av	.1	0	37.77		-	51.8	-14.03
19	28.77	56.28	РК	.5	.3	57.08	60	-2.92	-	-
20	28.77	43.53	Av	.5	.3	44.33		-	50	-5.67
21	29.2695	56.44	РК	.5	.3	57.24	60	-2.76	-	-
22	29.2695	44.14	Av	.5	.3	44.94	-	-	50	-5.06
23	29.769	56.08	РК	.5	.3	56.88	60	-3.12	-	-
24	29.769	42.81	Av	.5	.3	43.61	-	-	50	-6.39

PK - Peak detector

Av - average detection

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LINE 2 RESULTS



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