

FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

DUAL BAND PHONE WITH BT & WLAN

MODEL NUMBER: LG-P769, LGP769, P769

FCC ID: ZNFP769

REPORT NUMBER: 12U14516

ISSUE DATE: 2012-08-07

Prepared for LG ELECTRONICS USA 1000 SYLVAN AVENUE ENGLEWOOD CLIFFS NJ, 07632, USA

Prepared by UL LLC 1285 WALT WHITMAN RD. MELVILLE, NY 11747, U.S.A. TEL: (631) 271-6200 FAX: (877) 854-3577

NVLAP LAB CODE 100255-0

Revision History

Rev.	Issue Date	Revisions	Revised By
	08/07/12	Initial Issue	M. Antola

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS USA 1000 SYLVAN AVENUE ENGLEWOOD, NJ 07632, USA		
EUT DESCRIPTION:	DUAL BAND PHONE WITH BT & WLAN		
MODEL:	LG-P769, LGP769, P769		
SERIAL NUMBER:	205KPYR203330 & 205KPCA203331		
DATE TESTED:	2012-07-26 to 2012-08-07		
	APPLICABLE STANDARDS		
ST	ANDARD	TEST RESULTS	
CFR 47 P	art 15 Subpart C	Pass	

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Inc. based on interpretations of these calculations. The results show that the equipment 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 by the referenced documents. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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 By:

Tested By:

Bob DeLisi WiSE Principal Engineer UL LLC

Mat Mat

Mike Antola WiSE Project Lead UL LLC

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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 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at <u>http://ts.nist.gov/standards/scopes/1002550.htm</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	± 3.3 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.00 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 an 802.11b/g/n transceiver in the 2.4GHz band and is an 802.11 a/n transceiver in the 5GHz band.

The radio module is manufactured by Broadcom utilizing WLAN chipset: BCM4330X.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range	Mode	Output Power	Output Power
(MHz)		(dBm)	(mW)
2412 - 2462	802.11b	17.70	58.88
2412 - 2462	802.11g	15.90	38.90
2412 - 2462	802.11n	13.90	24.55
5745 - 5825	802.11a	14.00	25.12
5745 - 5825	802.11n	13.00	19.95

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of -0.45 dBi.

5.4. SOFTWARE AND FIRMWARE

The Baseband version was LGP769AT-00-V08_RevC-310-260-JUN-16-2012+0. The Kernel version was 3.0.21. The HW version was Rev.C.

The firmware installed in the EUT during testing was Version 4.0.4.

The EUT software version installed during testing LGP769-V08e.

The test utility software used during testing was WLAN Test and Module Test.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

In the 2.4GHz band the worse-case data rates for 802.11b/g/n were 1Mpbs, 6Mbps and 6.5Mbps, respectively. In the 5GHz band the worse-case data rates for 802.11a/n were 6Mbps and 6.5Mbps, respectively.

It was determined that the x-axis yielded the worse-case orientation.

	105
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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST								
Description Manufacturer Model Serial Number FCC ID								
Travel Adapter	LG Electronics	MCS-02WR	RA250126368	N/A				
Headphones LG Electronics N/A N/A N/A								

I/O CABLES

	I/O CABLE LIST									
Cable	Port	# of	Connector	Cable	Cable	Remarks				
No.		Identica	Туре	Туре	Length					
		Ports								
1	USB	1	USB	Shielded	<3M					
2	Headphone	1	Audio	Unshielded	<3M					

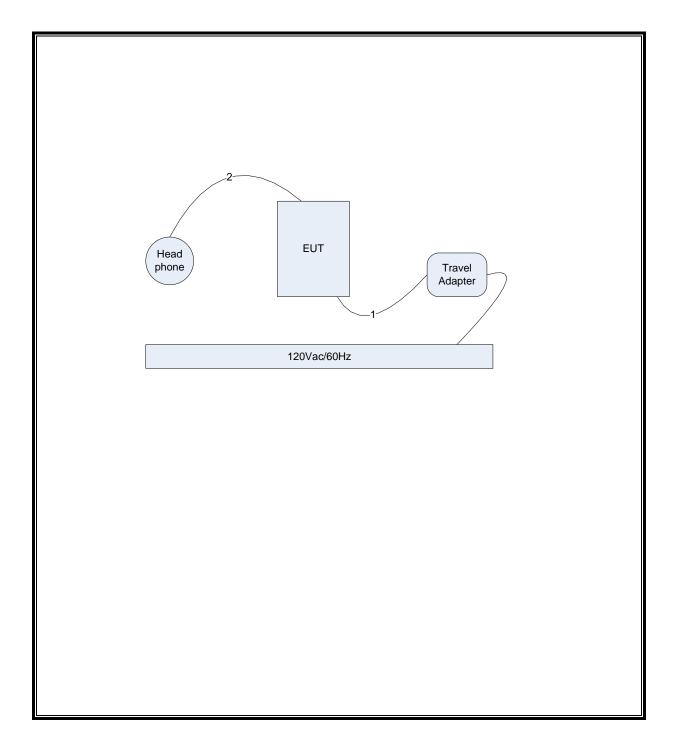
TEST SETUP

The EUT is a stand-alone device.

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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:

Radiated Emissions						
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date	
30-1000MHz			·			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2012-01-30	2013-01-30	
Bicon Antenna	Schaffner	VBA6106A	54		2013-04-10	
Log-P Antenna	Schaffner	UPA6109	44067	2012-05-16		
Switch Driver	HP	11713A	ME7A-627	N/A	N/A	
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A	
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A	
RF Switch Box	UL	1	44398	N/A	N/A	
Measurement Software	UL	Version 9.5	44740	N/A	N/A	
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07	
Multimeter	Fluke	83111	ME5B-305	2012-02-01	2013-02-28	
Above 1GHz (Band Optimized Sy		1				
	Rohde &					
EMI Receiver	Schwarz	ESIB40	34968	2012-03-06	2013-03-06	
Horn Antenna (1-2 GHz)	ETS	3161-01	51442	2008-03-28	See * below	
Horn Antenna (2-4 GHz)	ETS	3161-02	48107	2007-09-27	See * below	
Horn Antenna (4-8 GHz)	ETS	3161-03	48106	2007-09-27	See * below	
Horn Antenna (8-12 GHz)	ETS	3160-07	8933	2008-11-24	See * below	
Horn Antenna (12-18 GHz)	ETS	3160-08	8932	2007-09-27	See * below	
Horn Antenna (18-26.5 GHz)	ETS	3160-09	8947	2007-09-26	See * below	
Horn Antenna (26.5-40 GHz)	ETS	3160-10	73004	2007-09-26	See * below	
Signal Path Controller	HP	11713A	50250	N/A	N/A	
Gain Controller	HP	11713A	50251	N/A	N/A	
RF Switch / Preamp Fixture	UL	BOMS1	50249	N/A	N/A	
System Controller	UL	BOMS2	50252	N/A	N/A	
Measurement Software	UL	Version 9.5	44740	N/A	N/A	
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07	
Multimeter	Fluke	83111	ME5B-305	2012-02-01		
* - Note: As allowed by the calibration						

* - Note: As allowed by the calibration standard ANSI C63.4 Section 4.4.2, standard gain horns need only a one-time calibration. Only if physical damage occurs will the horn antenna require re-calibration.
* Gain standard horn antennas (sometimes called standard gain horn antennas) need not be calibrated beyond that which is provided by the manufacturer unless they are damaged or deterioration is suspected, or they are used at a distance closer than 2D²/λ. Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances.

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Conducted Antenna Port Tests							
Description Manufacturer Model Identifier Cal Date Cal							
Spectrum Analyzer	Agilent	E4446A	72822	2012-01-31	2013-02-28		
Power Sensor	Rohde & Schwarz	NRP-Z81	73137	2011-09-27	2012-09-27		
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43733	2012-03-13	2014-03-13		
Multimeter	Fluke	83III	ME5B-305	2012-02-01	2013-02-28		

Conducted Emissions - Mains							
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date		
Conducted Emissions – GP 1			•				
	Rohde &						
EMI Receiver	Schwarz	ESCI7	75141	2012-01-05	2013-01-05		
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2012-02-03	2013-02-28		
Switch Driver	HP	11713A	44397	N/A	N/A		
RF Switch Box	UL	4	44404	N/A	N/A		
Measurement Software	UL	Version 9.5	44736	N/A	N/A		
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-13	2014-03-13		
Multimeter	Fluke	83III	ME5B-305	2012-02-01	2013-02-28		

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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

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 6dB BW and the VBW is set to \geq 3 times the RBW. The sweep time is coupled.

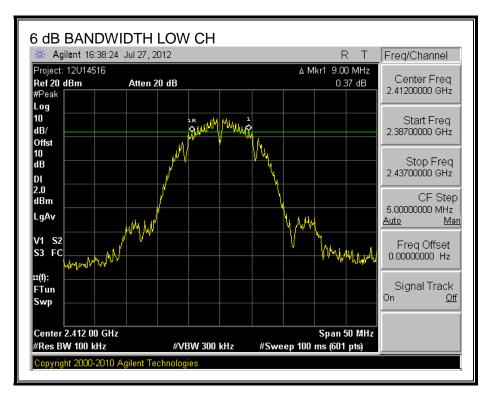
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.0000	0.5
Middle	2437	9.0000	0.5
High	2462	9.0000	0.5

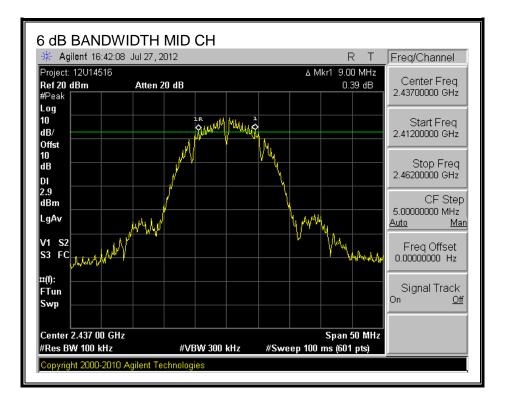
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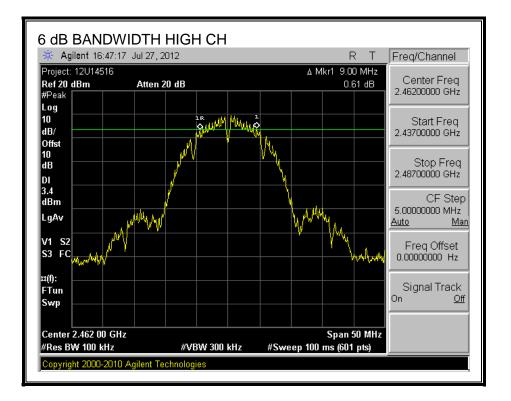
6 dB BANDWIDTH



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7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

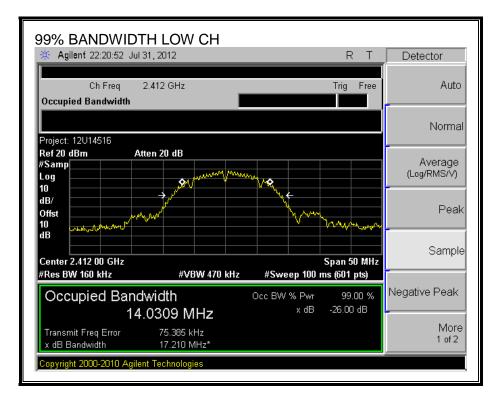
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

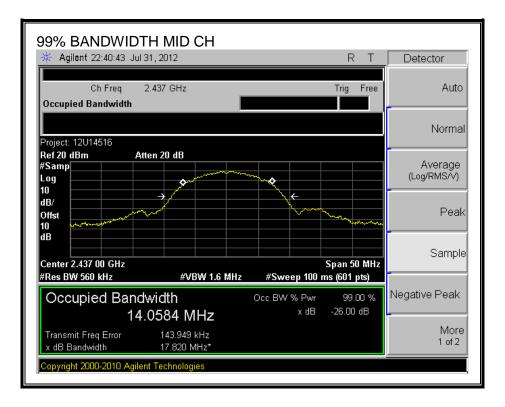
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.0309
Middle	2437	14.0584
High	2462	14.2575

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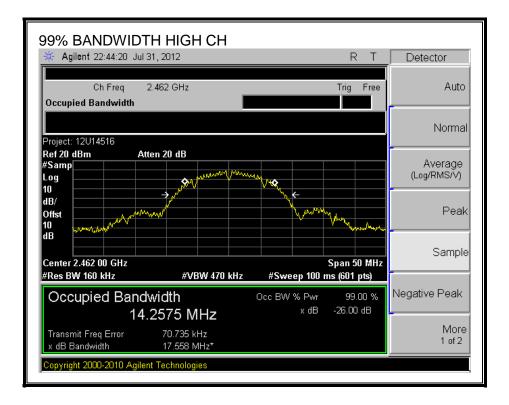
99% BANDWIDTH



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7.1.3. OUTPUT POWER

<u>LIMITS</u>

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

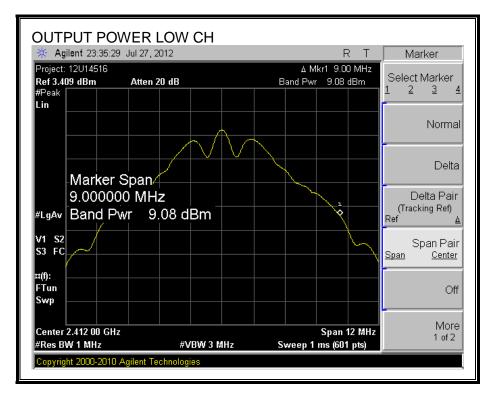
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

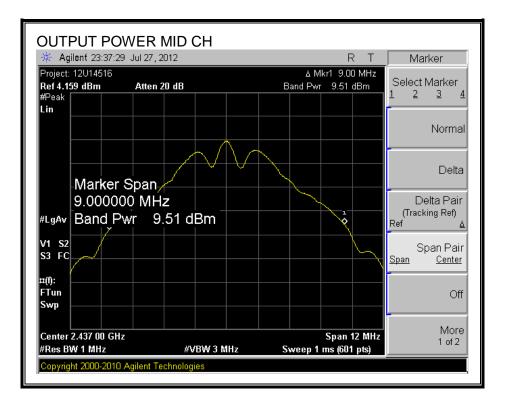
Channel	Frequency	Measured	Offset	Output	Limit	Margin
		Reading		Power		
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Low	2412	9.08	10	19.08	30	-10.92
Middle	2437	9.51	10	19.51	30	-10.49
High	2462	10.22	10	20.22	30	-9.78

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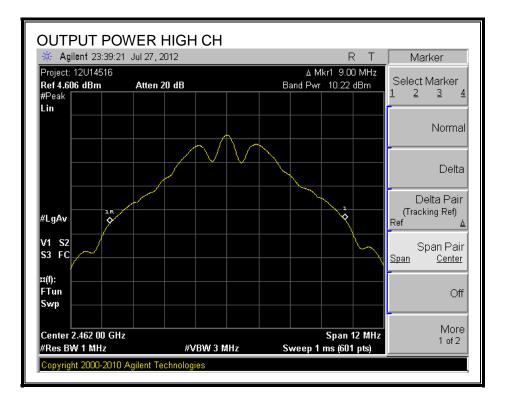
OUTPUT POWER



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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

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The cable assembly insertion loss of 10 dB (including 10 dB pad and 0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2412	16.6
Middle	2437	17.2
High	2462	17.7

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7.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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

TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

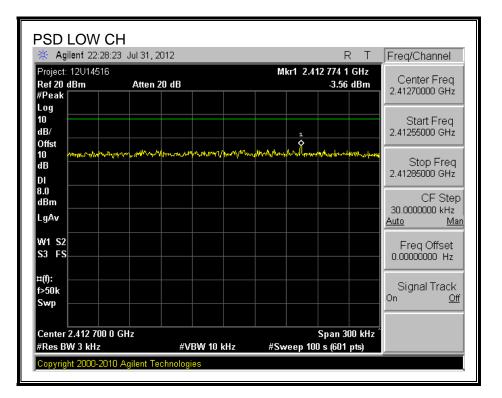
RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-3.56	8	-11.56
Middle	2437	-3.17	8	-11.17
High	2462	-4.08	8	-12.08

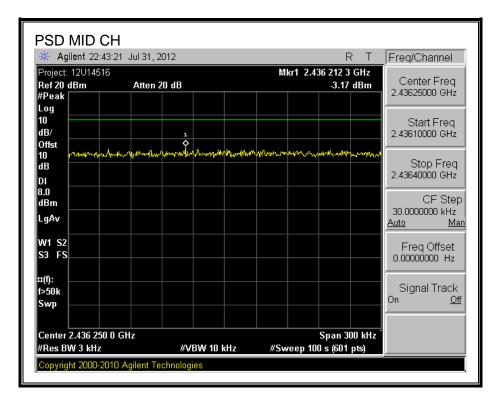
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POWER SPECTRAL DENSITY



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🔆 Agilent 22:40	6:45 Jul 31, 2012			RT	Freq/Channel
Project: 12U14518 Ref 20 dBm #Peak	Atten 20 dB		Mkr1 2	462 991 2 GHz -4.08 dBm	Center Freq 2.46295000 GHz
Log 10 dB/ Offst			1		Start Freq 2.46280000 GHz
10 dB DI	when an and prove the	Nutwithd Harver	Mathana and Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski Andrewski A Andrewski Andrewski A	When Min Marine Mari Marine Marine M	Stop Freq 2.46310000 GHz
8.0 dBm LgAv					CF Step 30.0000000 kHz <u>Auto Man</u>
W1 S2 S3 FS					Freq Offset 0.00000000 Hz
¤(f): f>50k Swp					Signal Track On <u>Off</u>
Center 2.462 950 #Res BW 3 kHz		BW 10 kHz	#Sweep 1	Span 300 kHz 100 s (601 pts)	

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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

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

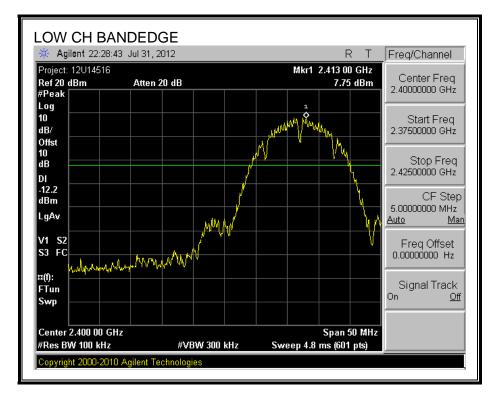
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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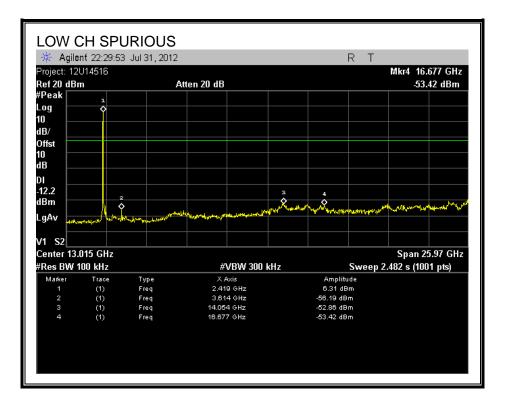
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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

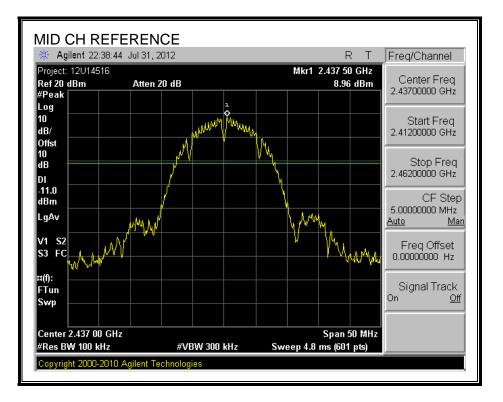


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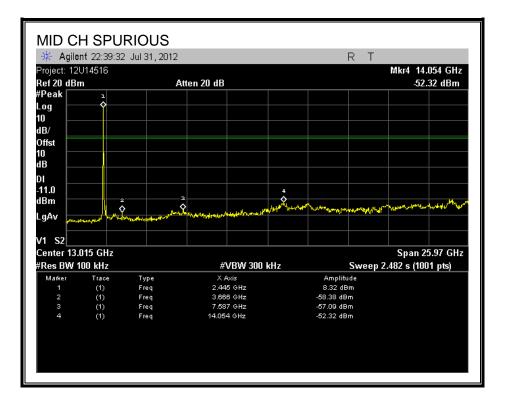


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SPURIOUS EMISSIONS, MID CHANNEL

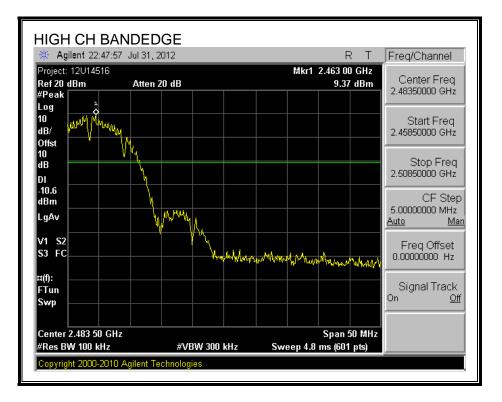


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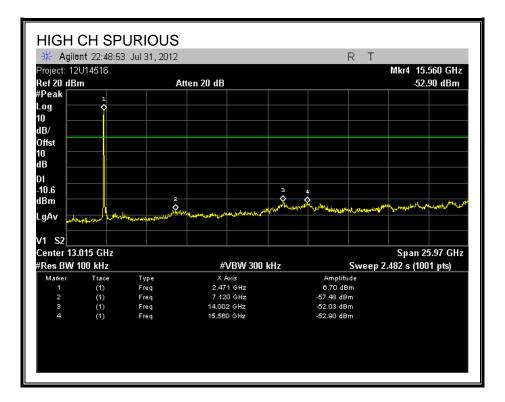


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SPURIOUS EMISSIONS, HIGH CHANNEL



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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

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 6dB BW and the VBW is set to \geq 3 times the RBW. The sweep time is coupled.

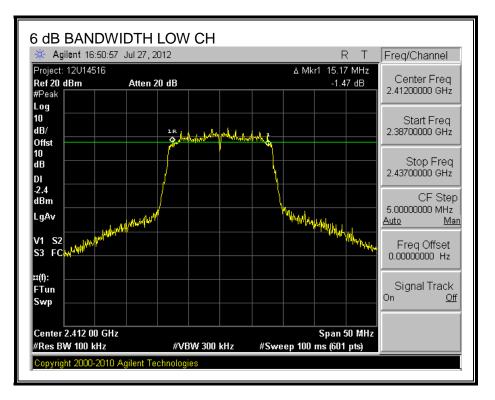
<u>RESULTS</u>

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.1700	0.5
Middle	2437	15.1700	0.5
High	2462	15.1700	0.5

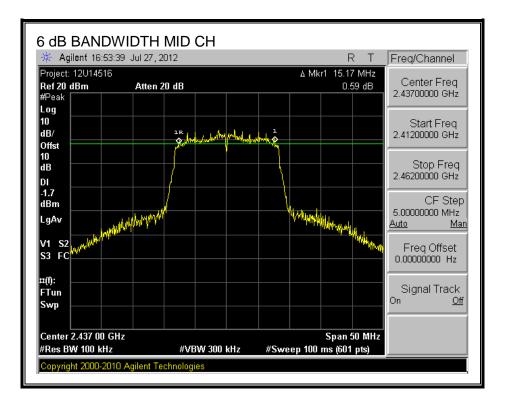
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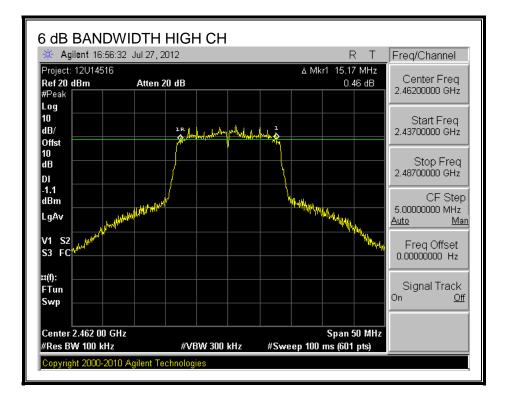
6 dB BANDWIDTH



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7.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

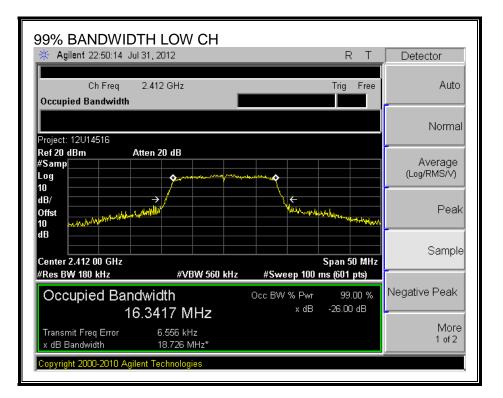
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

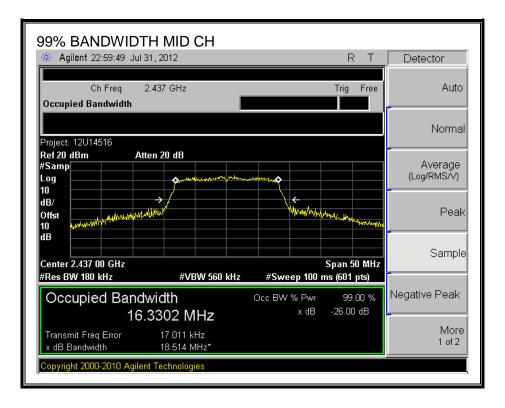
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	2412	16.3417
Middle	2437	16.3302
High	2462	16.3887

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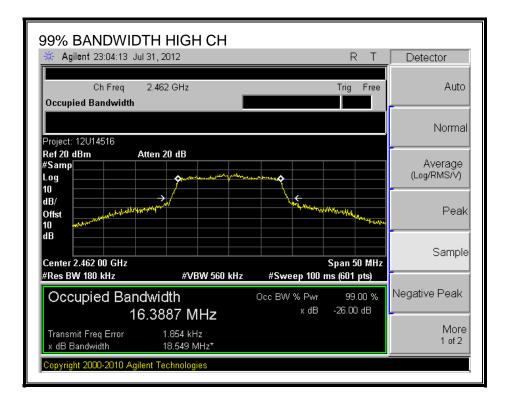
99% BANDWIDTH



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7.2.3. OUTPUT POWER

<u>LIMITS</u>

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

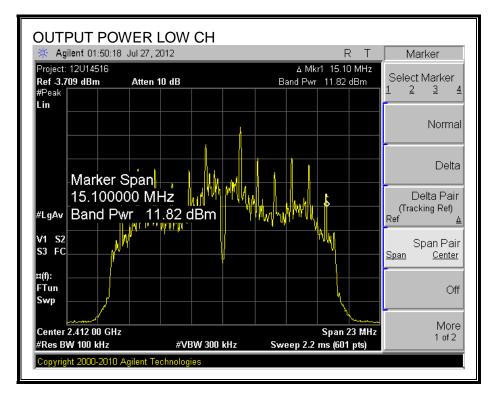
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

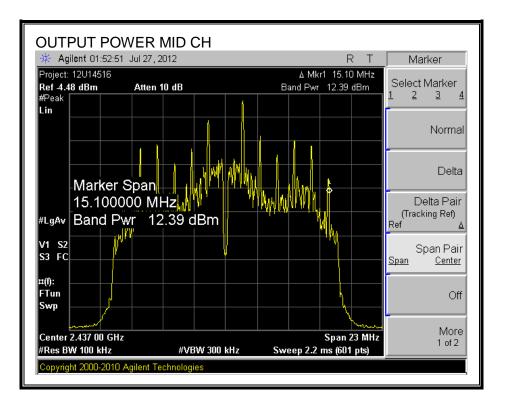
Channel	Frequency	Measured	Offset	Output	Limit	Margin
		Reading		Power		
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Low	2412	11.82	10	21.82	30	-8.18
Middle	2437	12.39	10	22.39	30	-7.61
High	2462	12.90	10	22.90	30	-7.10

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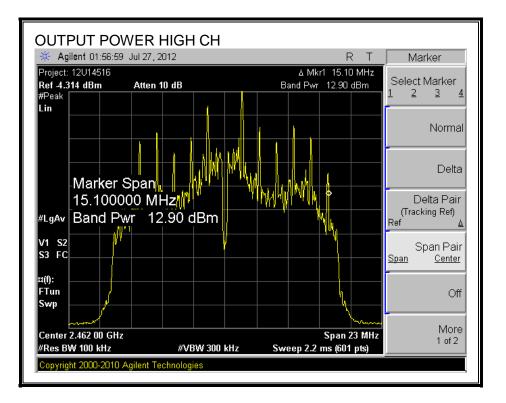
OUTPUT POWER



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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 10 dB (including 10 dB pad and 0 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	14.50
Middle	2437	15.40
High	2462	15.90

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7.2.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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

TEST PROCEDURE

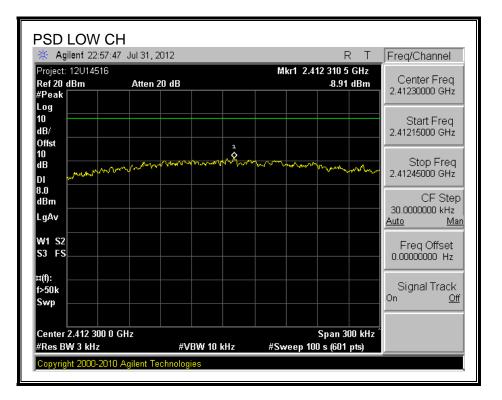
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

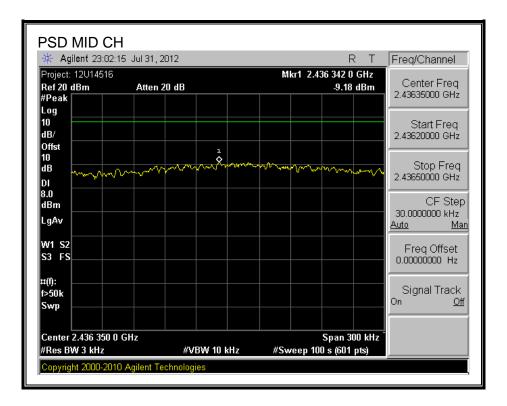
Channel	Frequency PPSD		Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	-8.91	8	-16.91
Middle	2437	-9.18	8	-17.18
High	2462	-8.68	8	-16.68

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POWER SPECTRAL DENSITY



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🔆 Agilent 23:08	6:37 Jul 31, 2012		R	T Freq/Channel
Project: 12U14518 Ref 20 dBm #Peak	Atten 20 dB		Mkr1 2.461 701 5 GH -8.68 dB	Contor Eron
Log 10 dB/ Offst				Start Freq 2.46155000 GHz
10 dB <mark>~~~~~~</mark> DI	avaranter and with	at the factor of the state of the	man man	Stop Freq 2.46185000 GHz
8.0 dBm LgAv				CF Step 30.0000000 kHz <u>Auto Man</u>
W1 S2 S3 FS				Freq Offset 0.00000000 Hz
¤(f): f>50k Swp				Signal Track On <u>Off</u>
Center 2.461 700 #Res BW 3 kHz		/ 10 kHz #	Span 300 k Sweep 100 s (601 pts)	

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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

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

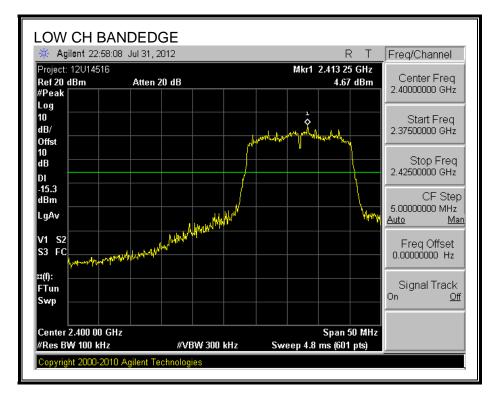
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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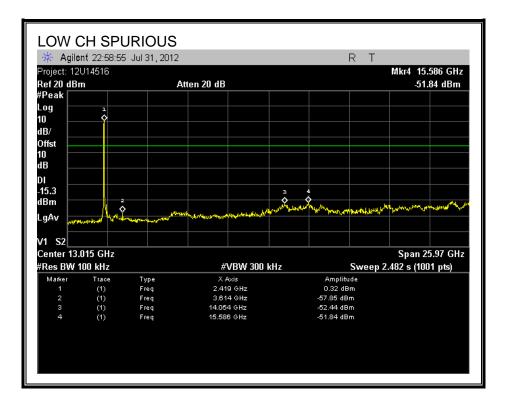
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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

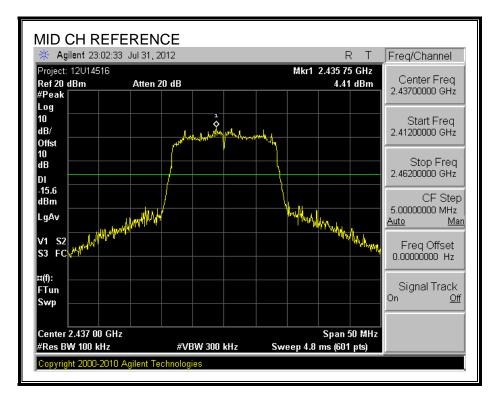


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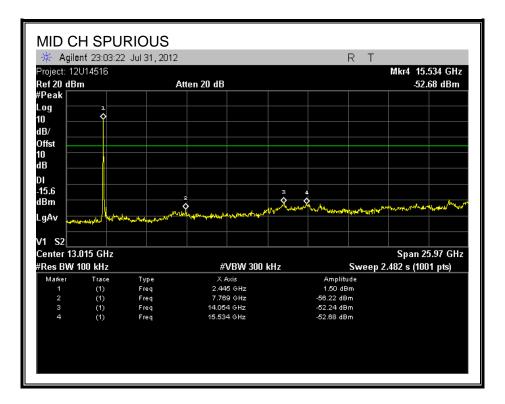


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SPURIOUS EMISSIONS, MID CHANNEL

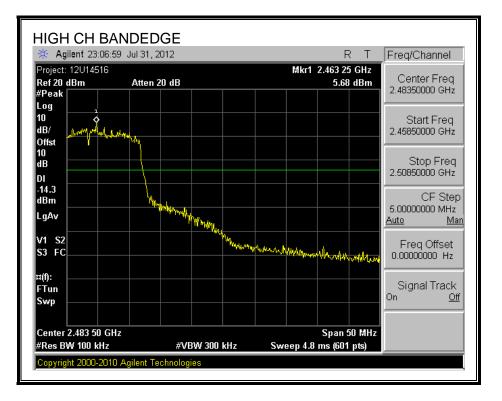


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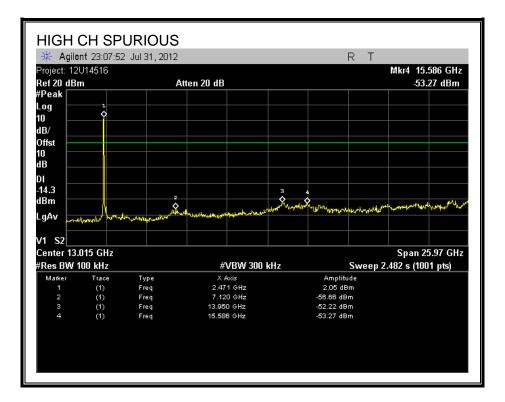


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SPURIOUS EMISSIONS, HIGH CHANNEL



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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

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 6dB BW and the VBW is set to \geq 3 times the RBW. The sweep time is coupled.

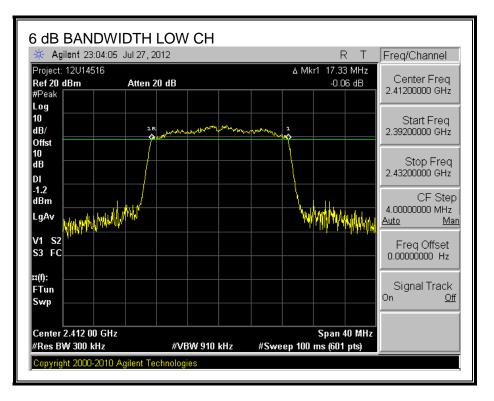
<u>RESULTS</u>

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.3300	0.5
Middle	2437	17.3300	0.5
High	2462	17.4000	0.5

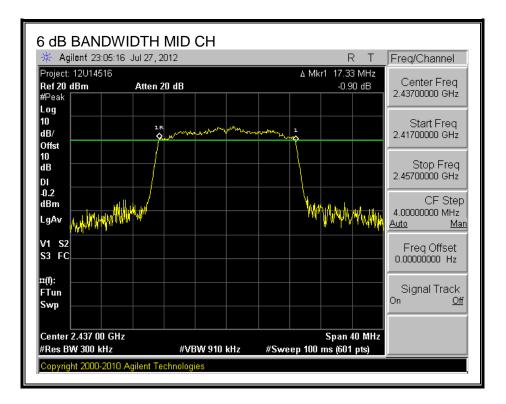
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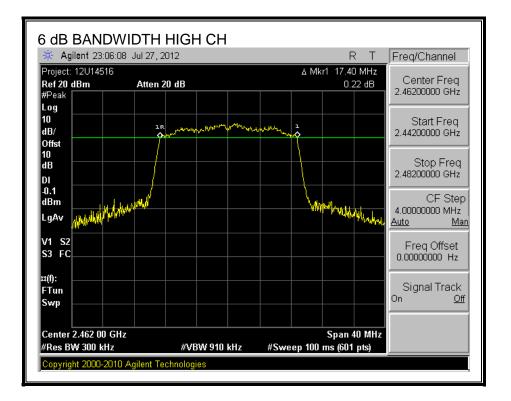
6 dB BANDWIDTH



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7.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

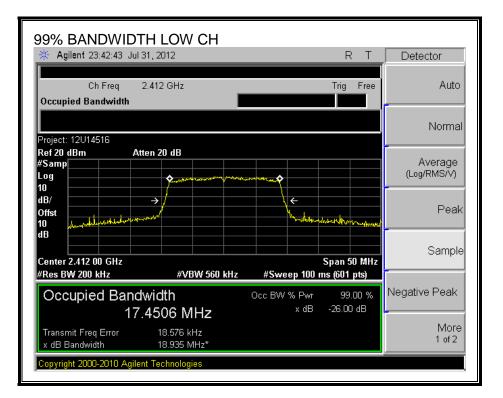
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

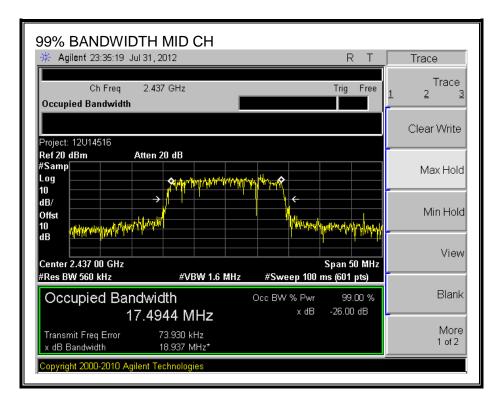
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	2412	17.4506
Middle	2437	17.4944
High	2462	17.4531

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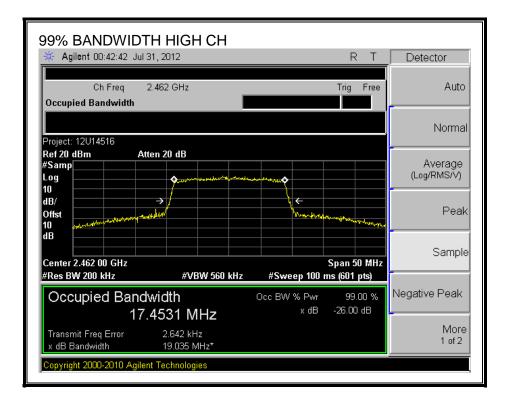
99% BANDWIDTH



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7.3.3. OUTPUT POWER

<u>LIMITS</u>

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

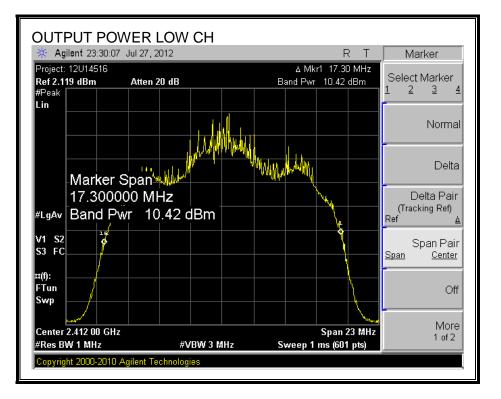
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

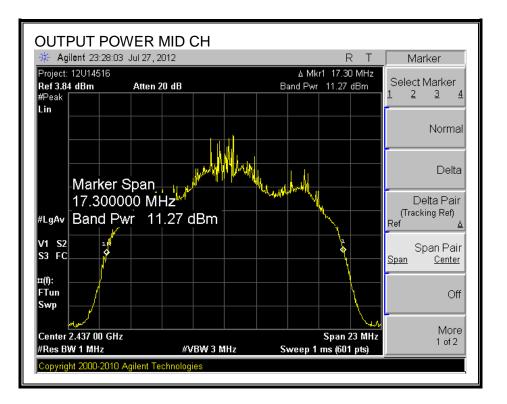
Channel	Frequency	Measured	Offset	Output	Limit	Margin
		Reading		Power		
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Low	2412	10.42	10	20.42	30	-9.58
Middle	2437	11.27	10	21.27	30	-8.73
High	2462	11.51	10	21.51	30	-8.49

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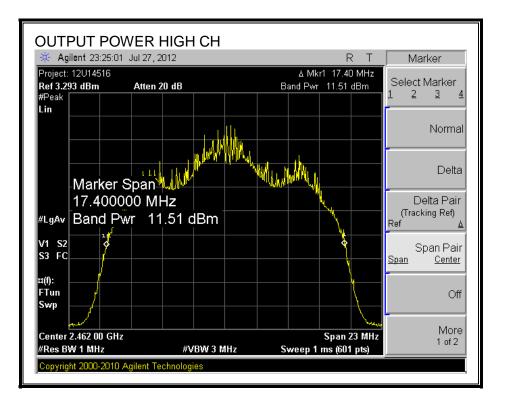
OUTPUT POWER



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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 10 dB (including 10 dB pad and 0 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	12.70
Middle	2437	13.40
High	2462	13.90

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7.3.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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

TEST PROCEDURE

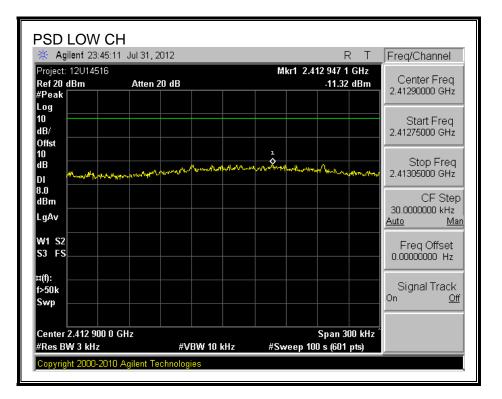
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

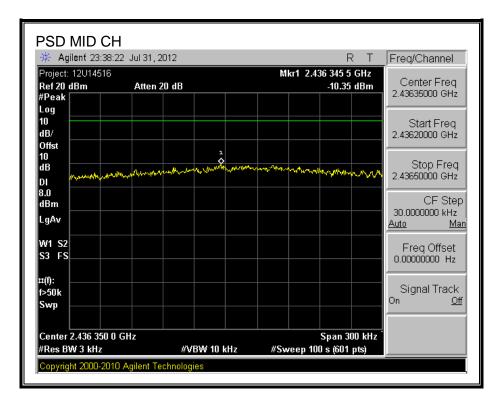
Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	-11.32	8	-19.32
Middle	2437	-10.35	8	-18.35
High	2462	-10.08	8	-18.08

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POWER SPECTRAL DENSITY



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PSD HIGH				RΤ	Freq/Channel
Project: 12U14518 Ref 20 dBm #Peak	Atten 20 dB		Mkr1 2.461	1 344 0 GHz -10.08 dBm	Center Freq 2.46135000 GHz
Log 10 dB/ Offst					Start Freq 2.46120000 GHz
10 dB DI	Mut human and we	and the post of	emprillantleteranen	MAN ANA	Stop Freq 2.46150000 GHz
8.0 dBm LgAv					CF Step 30.0000000 kHz <u>Auto Man</u>
W1 S2 S3 FS					Freq Offset 0.00000000 Hz
¤(f): f>50k Swp					Signal Track On <u>Off</u>
Center 2.461 350 #Res BW 3 kHz		VBW 10 kHz	S Sweep 100	5pan 300 kHz ´ s (601 pts)	

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7.3.6. CONDUCTED SPURIOUS EMISSIONS

<u>LIMITS</u>

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

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

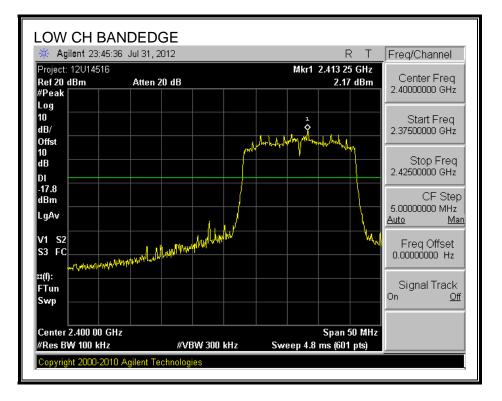
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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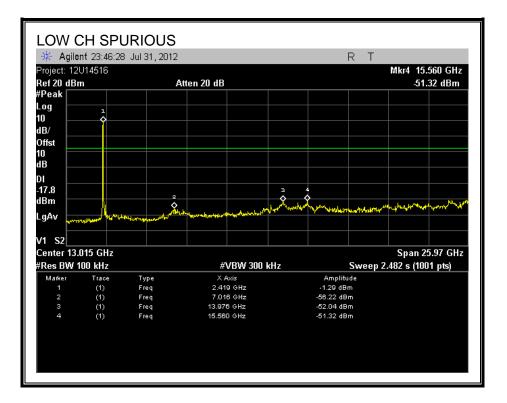
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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

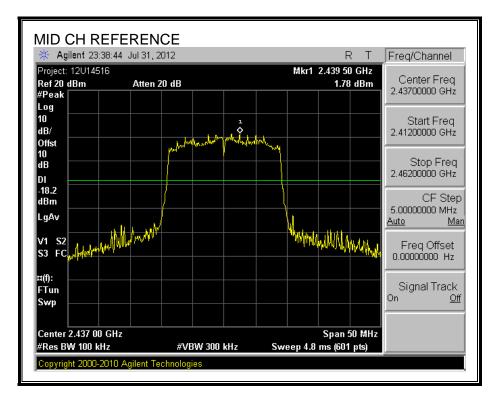


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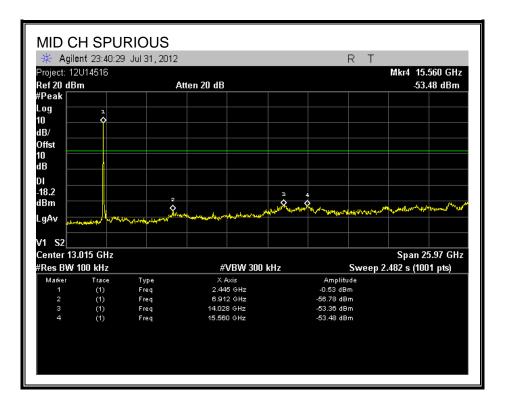


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SPURIOUS EMISSIONS, MID CHANNEL

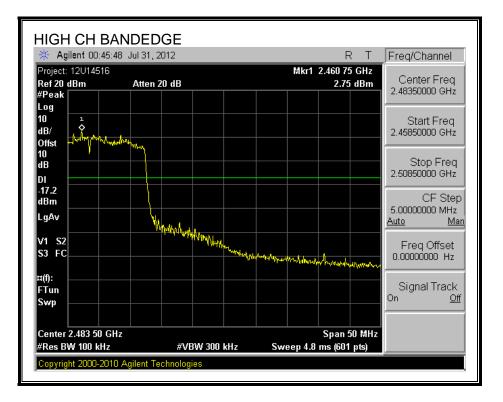


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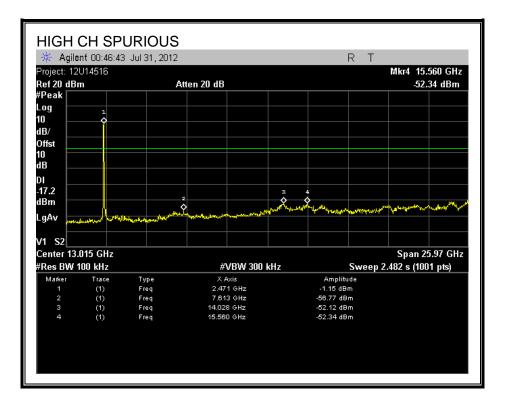


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SPURIOUS EMISSIONS, HIGH CHANNEL



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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

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 6dB BW and the VBW is set to \geq 3 times the RBW. The sweep time is coupled.

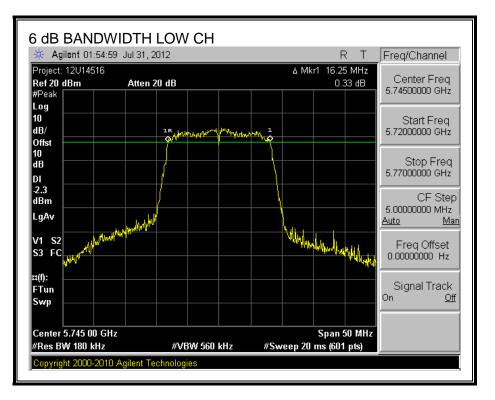
<u>RESULTS</u>

Channel	Frequency 6 dB Bandwic		Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5745	16.25	0.5
Middle	5785	15.67	0.5
High	5825	16.25	0.5

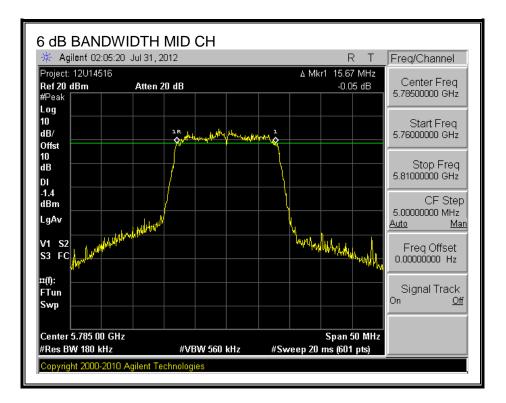
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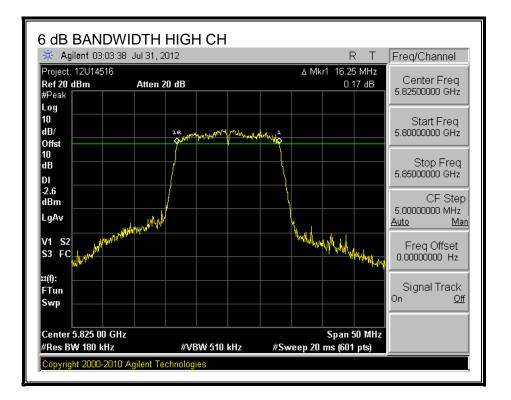
6 dB BANDWIDTH



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7.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

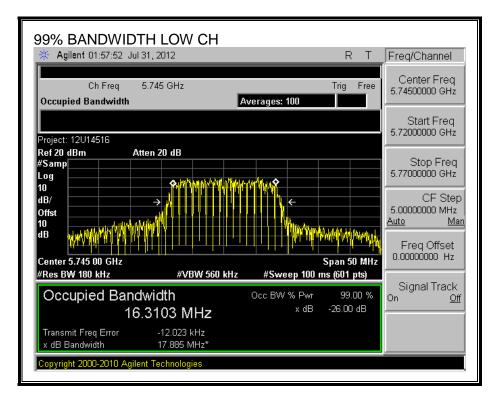
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

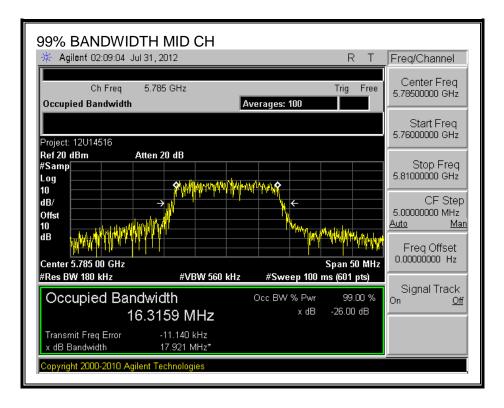
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	16.3103
Middle	5785	16.3159
High	5825	16.3034

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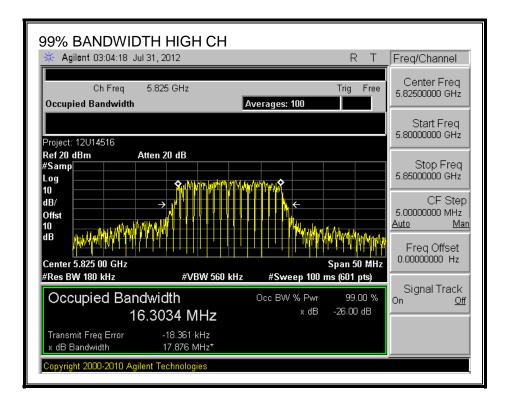
99% BANDWIDTH



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7.4.3. OUTPUT POWER

<u>LIMITS</u>

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

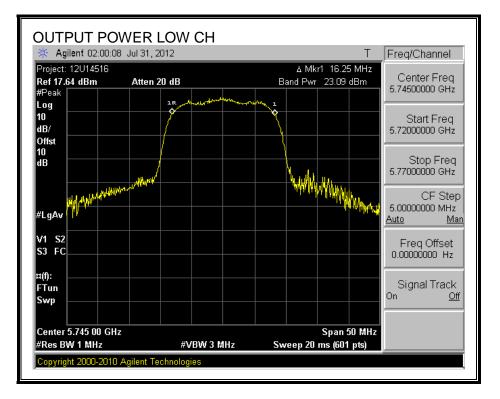
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

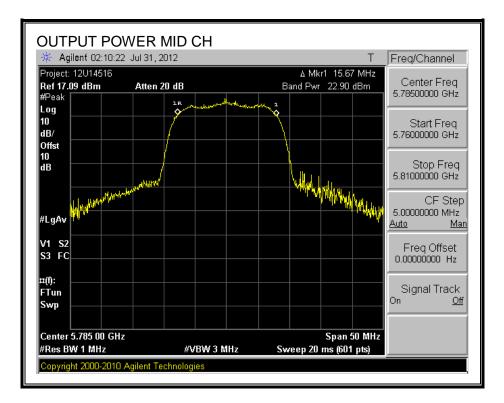
Channel	Frequency	Output	Limit	Margin
		Power		
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	23.09	30	-6.91
Middle	5785	22.90	30	-7.10
High	5825	22.93	30	-7.07

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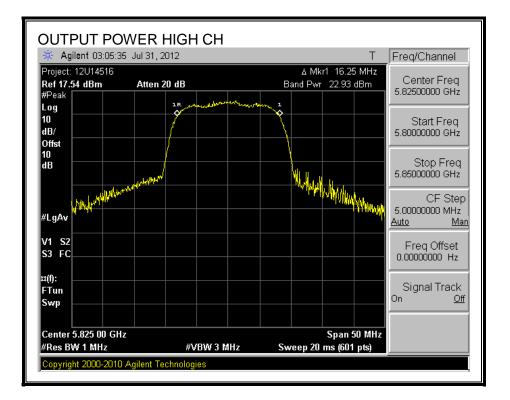
OUTPUT POWER



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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 10 dB (including 10 dB pad and 0 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	14.00
Middle	5785	13.90
High	5825	13.80

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7.4.5. POWER SPECTRAL DENSITY

<u>LIMITS</u>

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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

TEST PROCEDURE

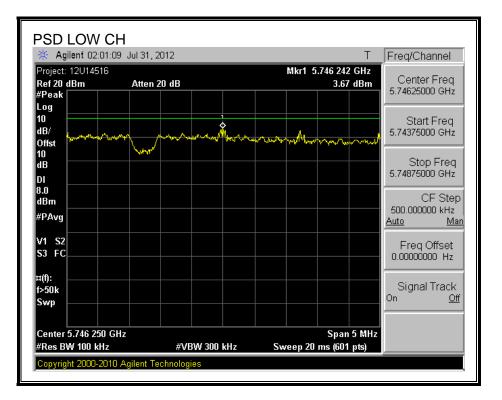
KDB 558074 dated 01/18/12.

RESULTS

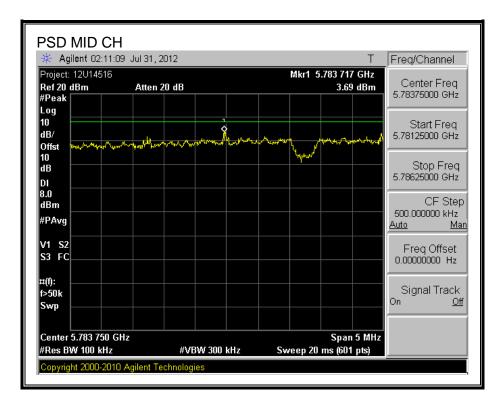
Channel	Frequency	Marker	10 log(3kHz/100kHz)	PPSD	Limit	Margin
	(MHz)	Reading		(dBm)	(dBm)	(dB)
Low	5745	3.67	15.2	-11.53	8	-19.53
Middle	5785	3.69	15.2	-11.51	8	-19.51
High	5825	2.54	15.2	-12.66	8	-20.66

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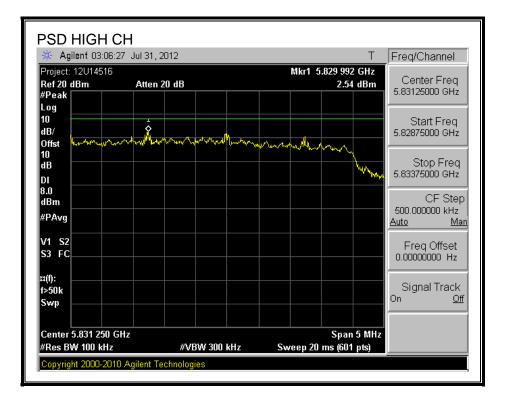
POWER SPECTRAL DENSITY



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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

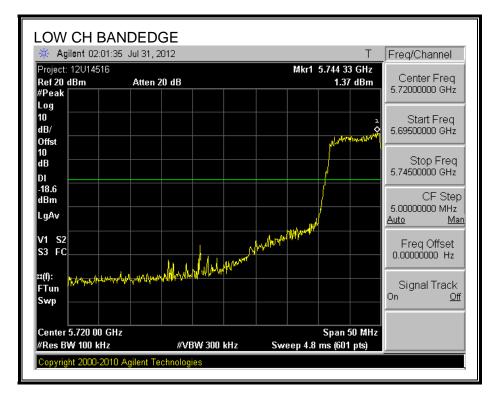
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

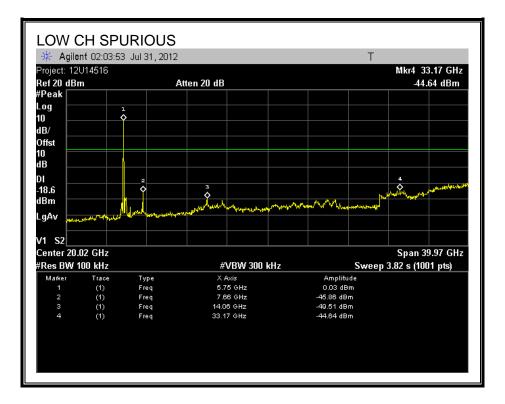
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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

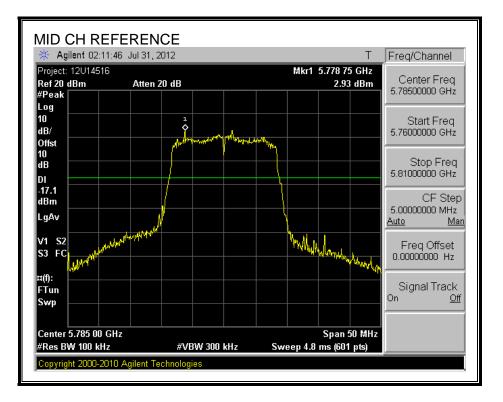


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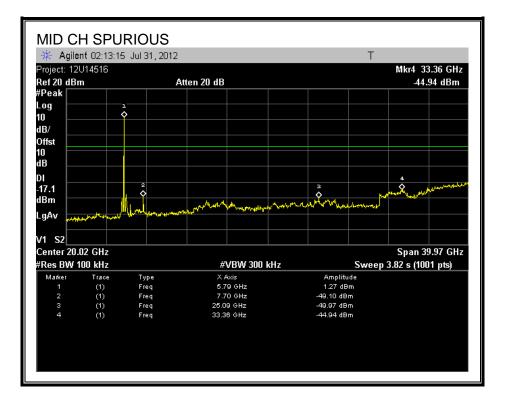


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SPURIOUS EMISSIONS, MID CHANNEL

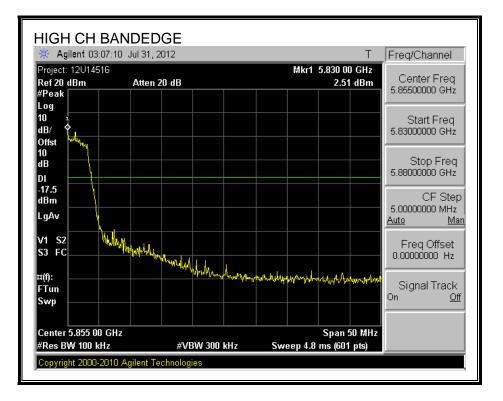


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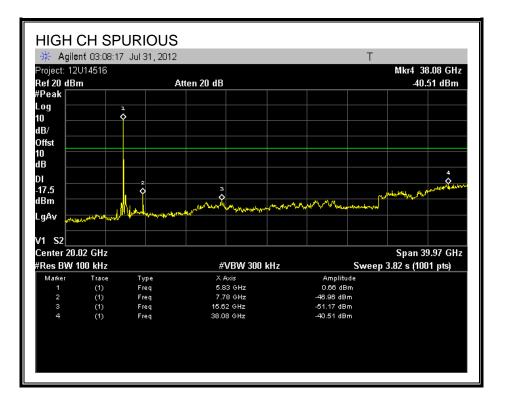


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SPURIOUS EMISSIONS, HIGH CHANNEL



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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

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 6dB BW and the VBW is set to \geq 3 times the RBW. The sweep time is coupled.

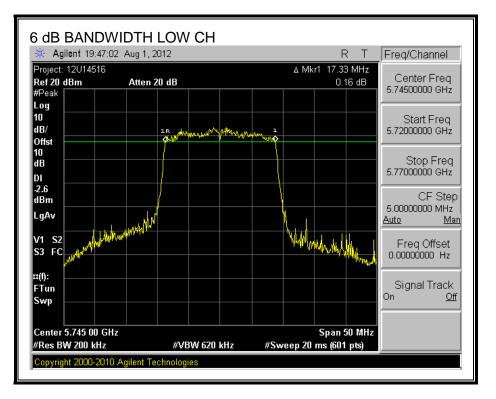
RESULTS

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5745	17.33	0.5
Middle	5785	17.42	0.5
High	5825	17.33	0.5

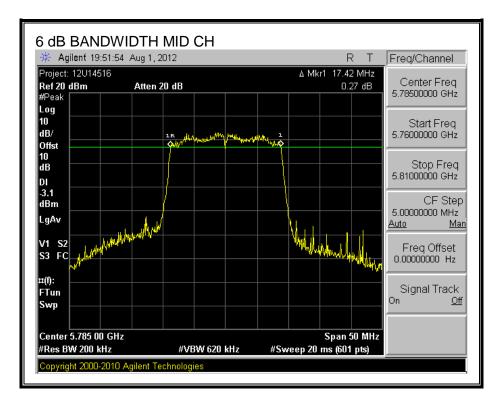
UL LLC FORM NO: CCSUP4701D 1285 WALT WHITMAN RD, MELVILLE, NY 11747, USA TEL: (631) 271-6200 FAX: (877) 854-3577 This report shall not be reproduced except in full, without the written approval of Underwriters Laboratories Inc.

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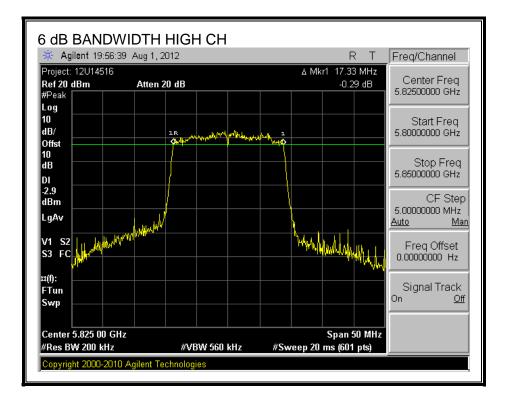
6 dB BANDWIDTH



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7.5.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

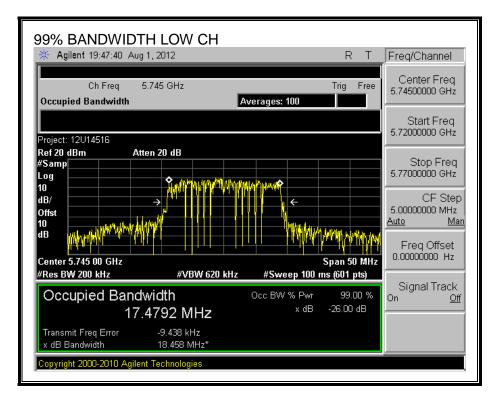
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

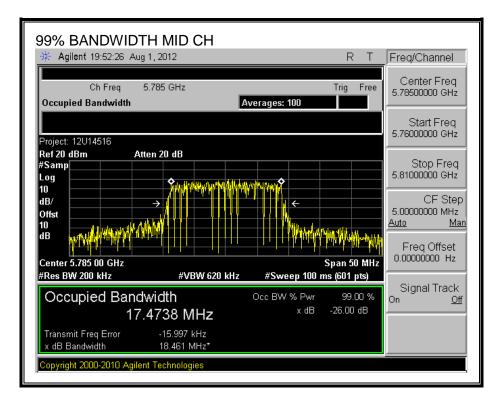
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	17.4792
Middle	5785	17.4738
High	5825	17.47

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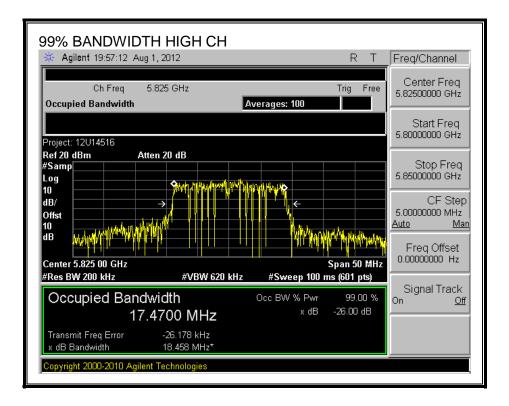
99% BANDWIDTH



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7.5.3. OUTPUT POWER

<u>LIMITS</u>

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

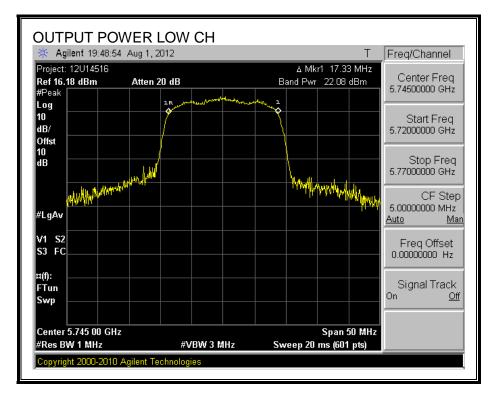
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

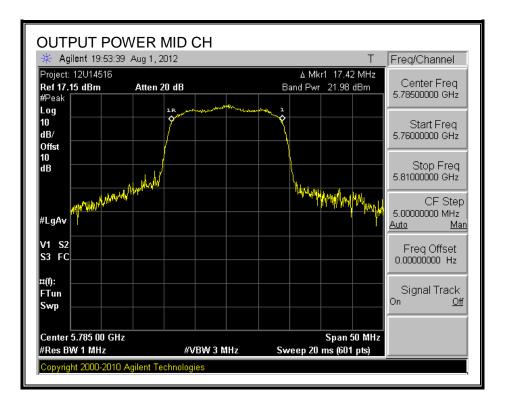
Channel	Frequency	Output	Limit	Margin
		Power		
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	22.08	30	-7.92
Middle	5785	21.98	30	-8.02
High	5825	21.89	30	-8.11

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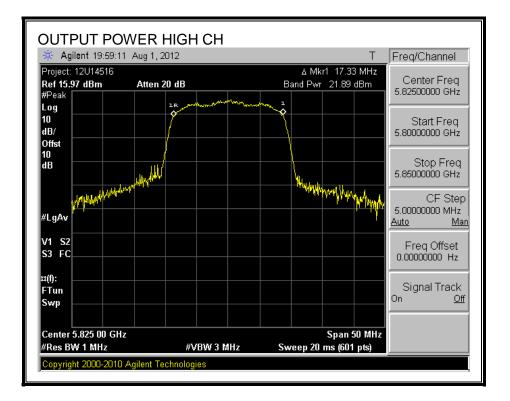
OUTPUT POWER



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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 10 dB (including 10 dB pad and 0 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	13.00
Middle	5785	12.90
High	5825	12.80

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7.5.5. POWER SPECTRAL DENSITY

<u>LIMITS</u>

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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

TEST PROCEDURE

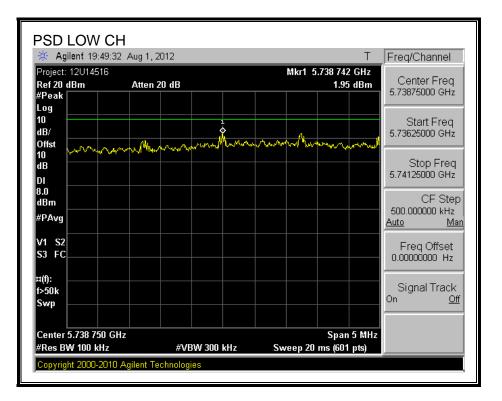
KDB 558074 dated 01/18/12.

RESULTS

Channel	Frequency	Marker	10 log(3kHz/100kHz)	PPSD	Limit	Margin
	(MHz)	Reading		(dBm)	(dBm)	(dB)
Low	5745	1.95	15.2	-13.25	8	-21.25
Middle	5785	1.86	15.2	-13.34	8	-21.34
High	5825	2.63	15.2	-12.57	8	-20.57

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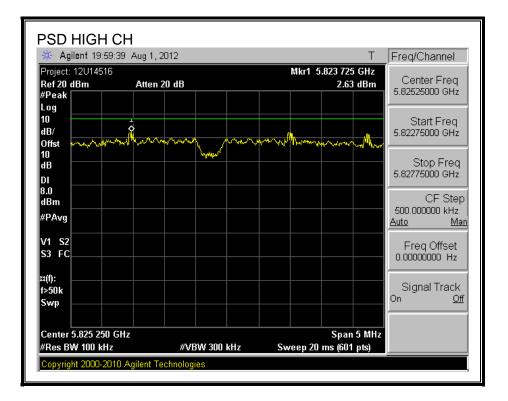
POWER SPECTRAL DENSITY



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PSD MID C	Н		
🔆 Agilent 19:54	:05 Aug 1, 2012	Т	Freq/Channel
Project: 12U14516 Ref 20 dBm #Peak Log	Atten 20 dB	Mkr1 5.789 992 GHz 1.86 dBm	Center Freq 5.79000000 GHz
10 dB/	when the hard a straight of the	man Man dans	Start Freq 5.78750000 GHz
10 dB DI			Stop Freq 5.79250000 GHz
8.0 dBm #PAvg			CF Step 500.000000 kHz <u>Auto Man</u>
V1 S2 S3 FC			Freq Offset 0.00000000 Hz
¤(f): f>50k Swp			Signal Track On <u>Off</u>
Center 5.790 000 #Res BW 100 kHz		Span 5 MHz Hz Sweep 20 ms (601 pts)	
Copyright 2000-20	10 Agilent Technologies		

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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

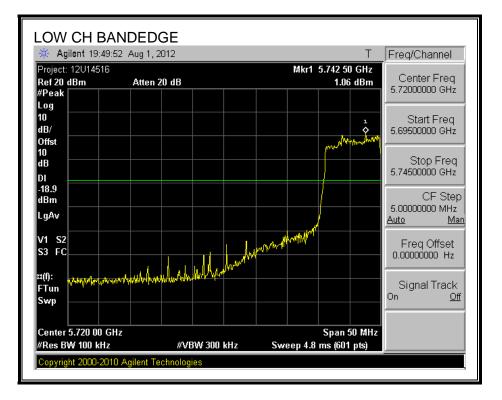
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

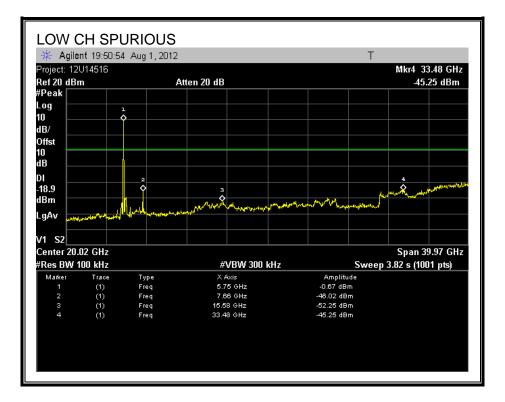
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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL

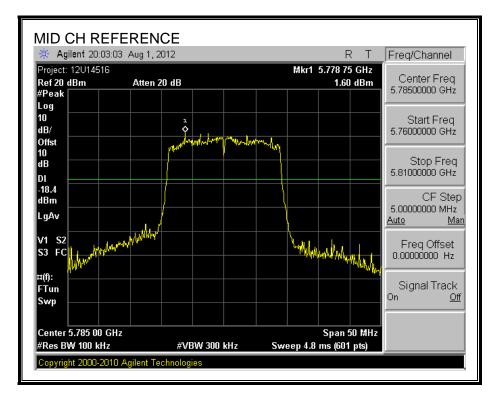


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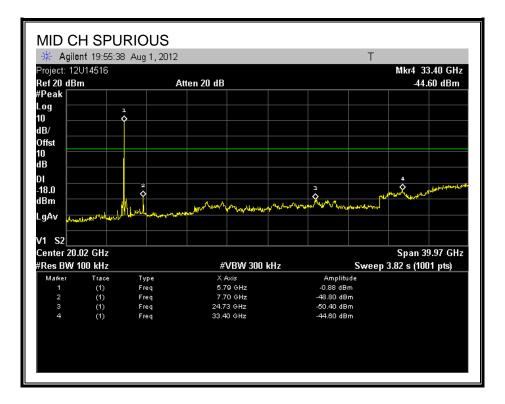


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SPURIOUS EMISSIONS, MID CHANNEL

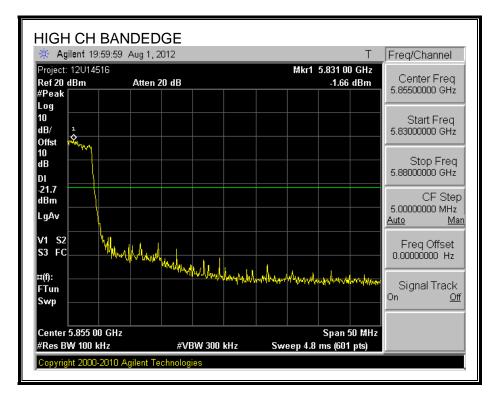


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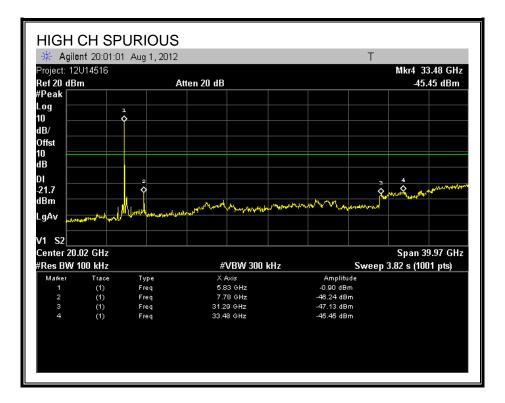


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SPURIOUS EMISSIONS, HIGH CHANNEL



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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 appplicable 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)

UL EMC - Melville	27 Jul 2012 10:03:31
	Restricted Bandedge
]	Manufacturer:LG Electronics Device:BT & ULAN Phone Madel:P769 - 882.ILb IMope Jube:12014856
)	Tested by:MA
Restricted Band - Peak	
l	<i>//\</i>
Restricted Bond - Avg	hand have been and have have been ha
)	
10	24
10	Frequency [MHz]
Ronge (MHz) Det RBU(Hz) UBU(Hz) Sweep Lobe 1:2318-2415 PK/SA IN IM .055/sogent Per	

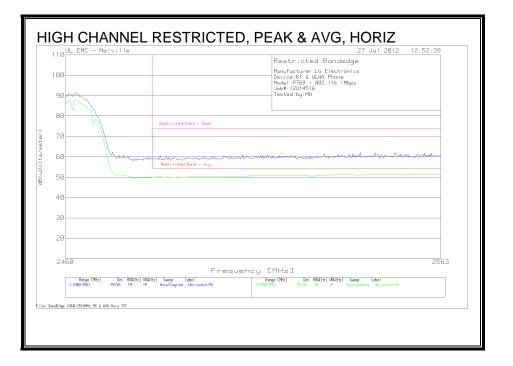
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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

0	MC - Melville	27 Jul 2012 10:31:20 Restricted Bandedge
10-		Monufacturer:LG Electronics Device:BT & WLAN Phone
0-		Model:P769 - 882.11b 1Mbps Jabě:12114516 Testad by:MA Vertical
ø		
3	ostnicted Band - Peak	/\
	Anna Anna Anna Anna - Anna	
-	Journand and - Avg	www.www.www.www.www.www.www.
a —		
0-		
a		
a —		
310		2415
		requency [MHz]
	Range (MHz) Det R&U(Hz) U&U(Hz) Sweep Label -2415 PK/SA IM IM .85s/sgant Peak	Range (Mtz.) Det RBL(Tz) UBU(Tz) Sweep Label 2:2318-2415 PK/SA IM 10 .BSs/sgant Average

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

UL EMC - Melville		Restricted Bandedge	
)		Nonufacturer:LG Electronics Device:011 & ULBN Phone Hode:17703 = 622.115 /Mpcs Loss Tested by:M4 Tested by:M4	
<u></u>	Restricted Band - Peak		
3 (hommon	Restricted Bend - Ryg	and a characteristic and the and	and the second s
a			
)			
460	Frequ	ency [MHz]	2563
Range (NHz) Det R&U(Hz) 1:2460-2563 PK/SA IM	VBU[Hz] Sweep Label	Ronge (Mtz) Det RBUCHz) UBU(Hz) Sweep Label 2:2460-2563 PK/SA IM 10 Auto/Coupled Vertical-Av	

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HARMONICS AND SPURIOUS EMISSIONS

Manufacturer:L0	G Electronics											
Device:BT & WLA	AN Phone			1		1		1		1	· · · · · ·	
Model:P769-80	2.11b 1Mbps			1		1	1	1		1	· · · · ·	
Job#:12U14516				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				· · · · · ·	
Tested by:DC				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	[]	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	
							· · · · · · · · · · · · · · · · · · ·				[]	
Low Channel - 24	412MHz											
						FCC Part 15		FCC Part 15				
			AF-48106			Subpart C		Subpart C		Azimuth	-	
	Meter Reading				dB(uVolts/meter)		Margin			[Degs]	[cm]	Polarity
4823.9422			27.1						-29.57			Horz
4823.9422			27.1				-14.27		-34.27			Horz
4823.9583			27.1						-27.04			Vert
4823.9583	68.38	Av	27.1	-52.45	43.03	54	-10.97	74	-30.97	138	291	Vert
Mid Channel - 24	1078 AU-			<u> </u> '		<u> </u> '				<u> </u>		
Mid Channel - 24	37MHz								<u> </u>			
Test Eroquancy	Meter Reading	Detector	AF-48106		dB(uVolts/meter)	FCC Part 15 Subpart C	Margin	FCC Part 15 Subpart C Peak		Azimuth [Degs]	-	Polarity
4873.978	-		[dB] 27.2				Margin -11.13		Margin -31.13			Horz
48/3.9/8			27.2				-11.13		-31.13			Horz
48/3.9/8			27.2						-37.26			Vert
48/3.9/8			27.2				-9.24		-29.24			Vert
10/0.0.0	60.00	Av	£1.2	-52.02			-14.22		-24.22		20-	Verc
High Channel - 24	462MHz											
			AF-48106			FCC Part 15 Subpart C		FCC Part 15 Subpart C		Azimuth	-	
	Meter Reading				dB(uVolts/meter)		Margin		-	[Degs]		Polarit
4923.9689			27.2				-10.37		-30.37	-		Horz
4923.9689			27.2				-15.93		-35.93	-		Horz
4923.9689			27.2						-29.06			Vert
4923.9689	65.5	Av	27.2	-52.52	40.18	54	-13.82	/~	-33.82	154	241	Vert
PK - Peak detect	or											
Av - Average det				1	,	1	· · · · · ·	1	· · · · · · · · · · · · · · · · · · ·	1	· · · · ·	

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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)

10	C - Melville 27 Jul 2012 10:42:36 Restricted Bondedge
00-	Manufacturer:LG Electronics Device:DT & WLAN Phone
90	Model:1769 - 802.11g 6Mopis Jubis: ZU14516 Tested by:MA
80	
	inisted Bond - Peak
70	
60 ~~~	Manage and a sing
50	
40	
30	
20	
2310	241
	Frequency [MHz] ver (Mtz) Det RRu(Hz) VRu(Hz) Sweep Label Ronge (Mtz) Det RRu(Hz) VRu(Hz) Sweep Label
1:23	

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

0UL EMC - Melville		Restricted Banc	27 Jul 2012 10:54:
3		Monufacturer:LG Elect Device:BT & WLAN Phon Model:P769 - 882.11g Jab‡:12U14516 Tested by:MA	ronics
3			
Restricted Bond - Peok			
Restricted Bond - Avg	made and the second	Mary Marine Mark	man and a second and
3			
3			
3			
3			
310	Frequenc	y [MHz]	
Range (MHz) Det R&U(Hz) U&U(Hz) 1:2310-2415 PK/SA IN IM	Sweep Label	Ronge (MHz] Det RBW[Hz] VBW[H 2:2318-2415 PK/SA IM 10	z] Sweep Label .85s/sgant Venticel-Av
e 2318–2415MHz PK & AUG Vent.TST			

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

10 CERC - Herville		27 Jul 2012 12: Restricted Bandedge	43:24
90		Nanufacturer:LG Electronics Device:BT & ULAN Phone Node:17759 = 802.11g GMbps Job#:121.4516 Tested by:MA	
	Restricted Band - Peak		
70			
50 Muy	mannon	have a second and a	ممم
	Restricted Bond - Avg		
50			
40			
30			
20			
2460	Frequ	wency [MHz]	2563
Range [MHz] Det R&U(Hz] UB 1:2468-2563 PK/SA IN IN		Ronge (1412) Det 1880(142) UBU(142) Sweep Label 2:24580-256.3 PK/SA IM 10 Auto/Coupled Harizontal-Av	
L			

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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

UL EMC - Melvill		27 Jul 2012 12:38:09 Restricted Bandedge
winny		MonufactureriLG Electronics Devices ULAN Minner ULAN 1775 ULAN Minner ULAN 1775 ULAN Minner Landerizute 1862. Hig Offices Tested by:MA
$ \rightarrow $		
	Restricted Band - Peak	
	how many many many	www.www.thathatachanangenthatachanathanathanathanathanathanathan
	Restricted Bond - Avg	
160		256.
		equency [MHz]
Ronge [NHz] Det 1:2468-2563 PK/SA	RBU[Hz]UBU[Hz]Sweep Label IM IM Auto/Coupled Verticol-Pk	Ronge (MHz) Det RBW[Hz]UBW[Hz]Sweep Lobel 2:2460-2563 PK/SA 1M 10 Ruto/Coupled Ventical-Av
2468-2563MHz PK & AUG Vert.TS	T	

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HARMONICS AND SPURIOUS EMISSIONS

Manufacturer:LO	G Electronics											
Device:BT & WL	AN Phone											
Model:P769 - 80	2.11g 6Mbps											
Job#:12U14516	/						· · · · · · · · · · · · · · · · · · ·				/	
Tested by:MA												
Low Channel - 24	412MHz											
Test Frequency	Meter Reading	Detector	AF-48106 [dB]		dB(uVolts/meter)	FCC Part 15 Subpart C 15.209		FCC Part 15 Subpart C Peak		Azimuth [Degs]	-	Polarit
4823.2926	53.51	Av	27.1	-52.53	28.08	54	-25.92	74	-45.92	106	375	Horz
4823.2926	66.48	PK	27.1	-52.53	41.05	54	-12.95	74	-32.95	106	375	Horz
4823.2926	68.93	PK	27.1	-52.53	43.5	54	-10.5	74	-30.5	106	375	Horz
4823.2926	69.44	PK	27.1	-52.53	44.01	. 54	-9.99	74	-29.99	34	305	Vert
4823.2926	53.34	Av	27.1	-52.53	27.91	54	-26.09	74	-46.09	34	305	Vert
Mid Channel - 24	437MHz											
Test Frequency	Meter Reading	Detector	AF-48106 [dB]		dB(uVolts/meter)	FCC Part 15 Subpart C 15.209		FCC Part 15 Subpart C Peak		Azimuth [Degs]		Polari
4875.1924	-		27.2				-10.73		-30.73			Horz
4875.1924		Av	27.2				-26.45		-46.45			Horz
4875.1924	70.27	PK	27.2	-52.65	44.82	54	-9.18	74	-29.18	129	290	Vert
4875.1924	54.61	Av	27.2	-52.65	29.16	54	-24.84		-44.84		290	Vert
High Channel - 24	462MHz											
	Meter Reading			Factor [dB]	dB(uVolts/meter)		Margin		Margin		[cm]	Polar
4925.002			27.3				-11.37		-31.37			Horz
4925.002			27.3				-26.92		-46.92			Horz
4925.002			27.3						-28.87			Vert
4925.002	54.49	Av	27.3	-52.57	29.22	54	-24.78	74	-44.78	130	282	Vert
PK - Peak detect	tor											
Av - Average det	tector											

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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)

		F	estricted Bande	dae	
80		C	onufacturer:LG Electro evice:BT & WLAN Phone odel:P769 - 802.11n 6		
90			ab‡:12U14516 ested by:MA		
80					month
Restricted Band - Peak					
70					<u> </u>
50	w-month	······································	manuth	mannah	
50					
10					
30					
20					
2318					2415
	F	requency EM	Hz]		
Range [MHz] Det RBUD 1:2310-2415 PK/SA IN	Hz]UBU[Hz]Sweep Label IM .85s/sgmt Horizontol-Pk	Range 2:2318-2415	CMHz] Det RBNCHz]UBW[Hz] PK/SA IM 10	Sweep Label .85s/sgmt Horizontal-A	·

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

0UL EMC - Melville	Restricted Bandedge
ø	Monufacturer:LG Electronics Device:BT & MLRN Phone Mode: 17702 - 682.1 in 6.5Mbps Josef 17219 - 482.4 in 6.5Mbps Josef Up:MA
a	
Restricted Bond - Peak	
Restricted Bond - Avg	Munimum manager the strategy and the str
0	
ø	
Ø	
0	
310	2415 Frequency [MHz]
Range [NHz] Det R&U(Hz] U&U(Hz] Sweep 1:2310-2415 PK/SA IN IM .05s/samt	Integrating Ronge (MHz) Det RBA(Hz) (BM(Hz) Sweep Lobel UntriceI-PK 2:2010-2415 PK/26 1M 10 R5a/spint VerticeI-Priv
i calorento invan in in .005/sgint	Vensioaime c.coloronio incon in 10 .coologint Ventical-W
pe 2318-2415MHz PK & AVG Vent.TST	

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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

UL EMC - Melville		Restricted Bandedge
muntu		Mound acturerLG Electron is Device:BT SULAN Phone Model:P769 - 882.11n 6.5Mbps Jobs:1214781.11n 6.5Mbps Jobs:121478
	Restricted Band - Peak	
how	man	- Marine Marine and the second s
	Restricted Bond - Avg	
60	_	2563
Ronge [MHz] Det RB	⊢r−e U(Hz)V8U(Hz) Sweep Label	equency [MHz] Range (Mtz) Det RBU(Hz) (BU(Hz) Sweep Label
1:2460-2563 PK/SA 1N		2:2468-2563 PK/SA IM 18 Auto/Coupled Horizontal-Av
2468-2563MHz PK & AUG Horz.TST		

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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

Restricted Band - Peak Restricted Band - Peak Restricted Band - Peak Restricted Band - Peak		Desta tatad Destadas	11:49:02
		Device:8T & WLAN Phone Model:P769 - 802.11n 6.5Mbps Job#:12014516	
	mmy		
- have a second and the second and t	\sim	Restricted Band - Peak	
	hanna		amaahna
68	0		256
Frequency [MHz]	0	Frequency [MHz]	200.
Ronge (MHz) Det RBU[Hz) Userp Label 112489-2503 PU/SA IM Ante/Copiled Vertical-Pk 2:2469-2563 PU/SA 10 Auto/Copiled Vertical-Pk			

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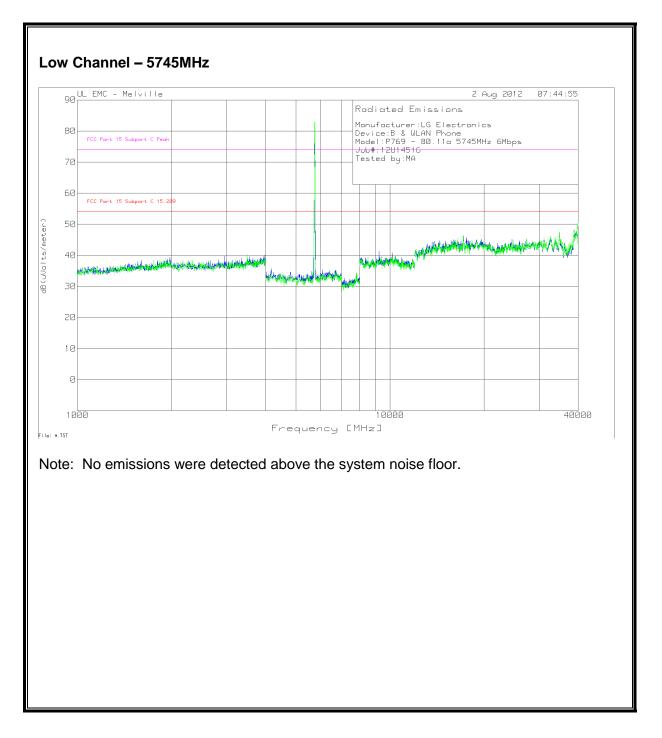
HARMONICS AND SPURIOUS EMISSIONS

Electronics											
N Phone					· · · · · · · · · · · · · · · · · · ·			/			
2.11n 6.5Mbps					/			()			
					/	[(· · · · · ·	
			1		· · · · · ·			('	1	· · · · · ·	
	[· · · · · ·						
12MHz					· · · · ·	((/			
	[1			('			
					FCC Part 15		FCC Part 15		1	· · · · · · · · · · · · · · · · · · ·	
		AF-8932	BOMS		Subpart C		Subpart C		Azimuth	Height	
Meter Reading	Detector			dB(uVolts/meter)		Margin				[cm]	Polarity
-						-		-			Horz
		37.3									Horz
		37.3									Vert
		37.3									Vert
				-	1			(/			-
37MHz			1			[]		(/		[]	
7	[1	1				('	-	(
	[1		FCC Part 15		FCC Part 15	('	-	()	
		AF-48106	BOMS						Azimuth	Height	
Meter Reading	Detector			dB(uVolts/meter)		Margin				-	Polarit
-						-					Horz
		27.2									Horz
		27.2									Vert
											Vert
	Priv .					-21.20	• •				Vers
62MHz						('		[]		('	
1211112			(((/	-	('	-
					FCC Part 15		FCC Part 15			('	
		AF-48106	BOMS						Azimuth	Height	
Meter Reading	Detector									-	Polarit
-						-					Horz
											Horz
											Vert
		27.3									Vert
				-				(/			
	[('		()	
					/	[(/		· · · · · ·	
r							-				
3	Meter Reading 58.85 44.54 59.37 44.54 77MHz Meter Reading 67.23 51.43 67.53 52.16 52MHz Meter Reading 65.77 50.84 68.18	Meter Reading Detector 58.85 PK 44.54 Av 59.37 PK 44.54 Av 37MHz Meter Reading Detector 67.23 PK 51.43 Av 67.53 PK 52.16 Av 52.16 Av	Meter Reading Detector AF-8932 [dB] 58.85 PK 37.3 44.54 Av 37.3 59.37 PK 37.3 44.54 Av 37.3 67.23 PK 27.2 51.43 Av 27.2 52.16 Av 27.2 52.16 Av 27.2 52.16 Av 27.2 52.16 Av 27.2 52MHz	Meter Reading Detector AF-8932 BOMS 58.85 PK 37.3 -49.16 44.54 Av 37.3 -49.16 59.37 PK 37.3 -49.19 44.54 Av 37.3 -49.19 47MHz Interesting -49.19 -49.19 67.73 PK 27.2 -52.62 51.43 Av 27.2 -52.62 52.16 Av 27.2 -52.62 52.16 Av 27.2 -52.62 52.16 Av 27.2 -52.62 52.16 Av 27.2	Meter Reading Detector AF-8932 [dB] BOMS Factor [dB] dB(uVolts/meter) 58.85 PK 37.3 -49.16 46.99 44.54 Av 37.3 -49.16 32.68 59.37 PK 37.3 -49.19 32.65 59.37 PK 37.3 -49.19 32.65 59.37 PK 37.3 -49.19 32.65 57MHz Av 37.3 -49.19 32.65 67MHz Detector AF-48106 BOMS Factor [dB] dB(uVolts/meter) 67.23 PK 27.2 -52.62 26.01 67.53 PK 27.2 -52.62 26.74 52.116 Av 27.2 -52.62 26.74 52.116 Av 27.2 -52.62 26.74	Meter Reading Detector AF-8932 [dB] BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C 15.209 58.85 PK 37.3 -49.16 46.99 54 44.54 Av 37.3 -49.16 32.68 54 59.37 PK 37.3 -49.19 32.65 54 44.54 Av 37.3 -49.19 32.65 54 44.54 Av 37.3 -49.19 32.65 54 7MHz Av 37.3 -49.19 32.65 54 67.01 Detector [dB] FCC Part 15 Subpart C 67.23 PK 27.2 -52.62 41.81 54 52.16 Av 27.2 -52.62 26.01 54 52.16 Av 27.2 -52.62 26.01 54 52.16 Av 27.2 -52.62 26.71 54 52.16 Av 27.2 -52.62 26.71 54 <	Meter Reading Detector IdB AF-8932 BOMS BOMS FCC Part 15 Subpart C 44.54 Av 37.3 -49.16 46.99 54 -7.01 44.54 Av 37.3 -49.16 32.68 54 -21.32 59.37 PK 37.3 -49.19 32.65 54 -21.32 59.37 PK 37.3 -49.19 32.65 54 -21.32 59.37 PK 37.3 -49.19 32.65 54 -21.32 44.54 Av 37.3 -49.19 32.65 54 -21.35 7MHz Image: Comparison of the state of the sta	Meter Reading Luc AF-8932 BOMS Factor [dB] GBUVOIts/meter) FCC Part 15 Subpart C Margin Margin FCC Part 15 Subpart C 58.85 PK 37.3 -49.16 32.68 54 -7.01 74 44.54 Av 37.3 -49.16 32.68 54 -21.32 74 59.37 PK 37.3 -49.19 37.68 54 -6.52 74 44.54 Av 37.3 -49.19 32.65 54 -6.52 74 57 PK 27.2 -52.62 46.11 54 -12.19 74 51.43<	Meter Reading Detector [dB] AF-8932 BOMS FCC Part 15 Subpart C Margin Margin <t< td=""><td>Meter Reading Detector [dB] AF-8932 BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C Margin Pash FCC Part 15 Pash Subpart C Pash Atimuth M44.54 Av 37.3 49.19 32.65 54 -21.35 774 41.32 282 44.54 Av 37.3 49.19 32.65 54 -21.35 774 41.35 282 470Hz Image AF-48106 BOMS Af-48106 BOMS Image FCC Part 15 Subpart C Subpart C Margin FCC Part 15 Pash Subpart C Margin Image Image Image Image</td></t<> <td>Meter Reading Detector AF-8932 [dB] BOMS Factor [dB] defue def bluVolts/meter) FCC Part 15 Subpart C Azimuth Height [cm] 58.85 PK 37.3 49.16 46.69 54 -7.01 74 -27.01 284 241 59.37 PK 37.3 -49.19 47.48 54 -6.52 74 41.35 282 312 44.54 Av 37.3 -49.19 32.65 54 -21.35 74 41.35 282 312 77MHz Av 37.3 -49.19 32.65 54 -21.35 74 41.35 282 312 77MHz Av 37.3 -49.19 32.65 54 -21.35 74 41.35 282 312 77MHz Av Ar Pr -21.35</td>	Meter Reading Detector [dB] AF-8932 BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C Margin Pash FCC Part 15 Pash Subpart C Pash Atimuth M44.54 Av 37.3 49.19 32.65 54 -21.35 774 41.32 282 44.54 Av 37.3 49.19 32.65 54 -21.35 774 41.35 282 470Hz Image AF-48106 BOMS Af-48106 BOMS Image FCC Part 15 Subpart C Subpart C Margin FCC Part 15 Pash Subpart C Margin Image Image Image Image	Meter Reading Detector AF-8932 [dB] BOMS Factor [dB] defue def bluVolts/meter) FCC Part 15 Subpart C Azimuth Height [cm] 58.85 PK 37.3 49.16 46.69 54 -7.01 74 -27.01 284 241 59.37 PK 37.3 -49.19 47.48 54 -6.52 74 41.35 282 312 44.54 Av 37.3 -49.19 32.65 54 -21.35 74 41.35 282 312 77MHz Av 37.3 -49.19 32.65 54 -21.35 74 41.35 282 312 77MHz Av 37.3 -49.19 32.65 54 -21.35 74 41.35 282 312 77MHz Av Ar Pr -21.35

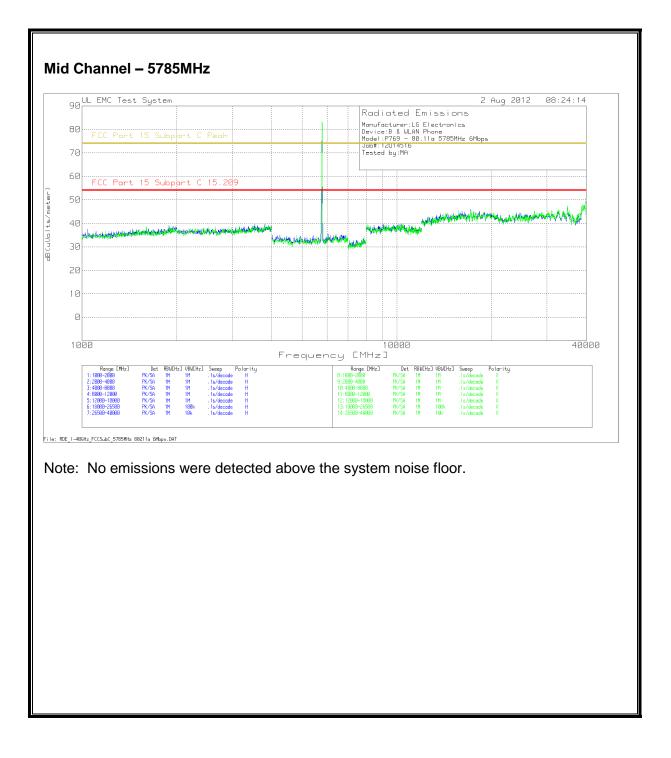
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8.2.4. TRANSMITTER ABOVE 1 GHz FOR 802.11a MODE IN THE 5.8 GHz BAND

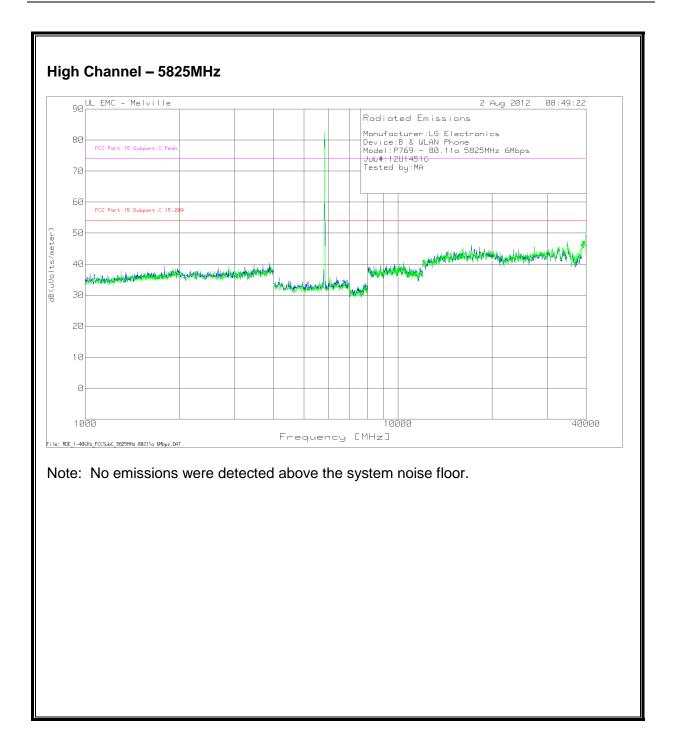
HARMONICS AND SPURIOUS EMISSIONS



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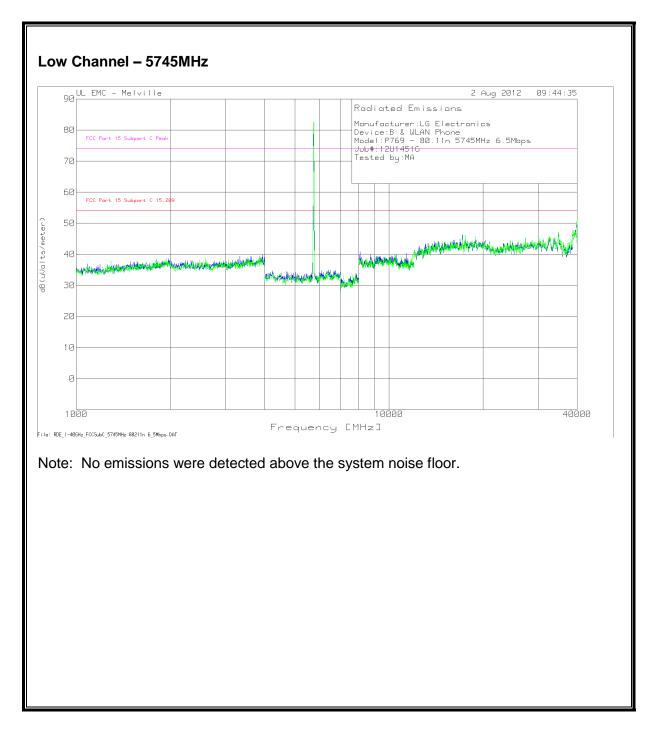
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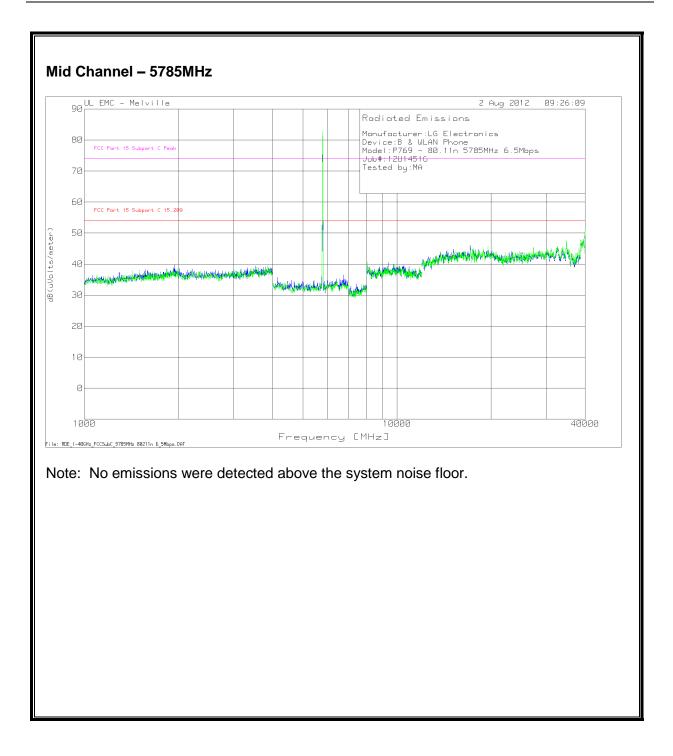
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8.2.5. TRANSMITTER ABOVE 1 GHz FOR 802.11n MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

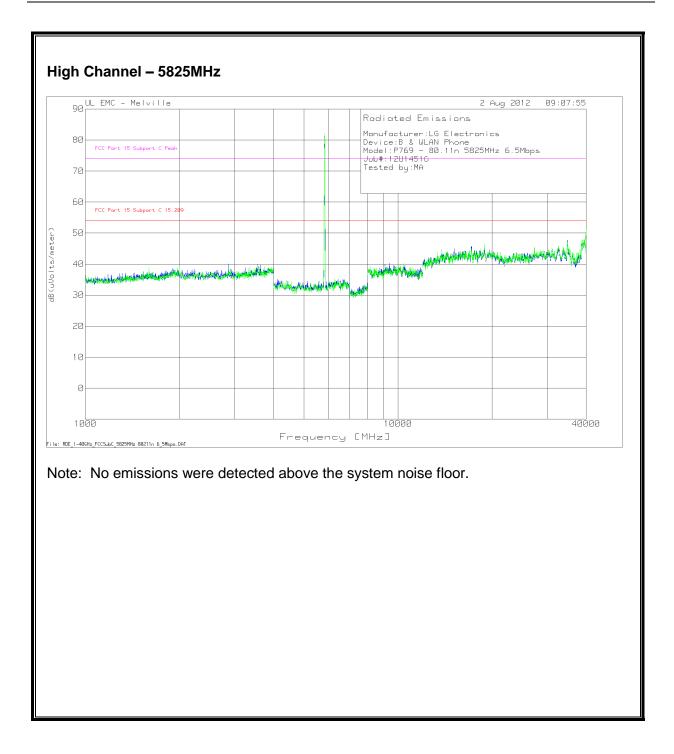


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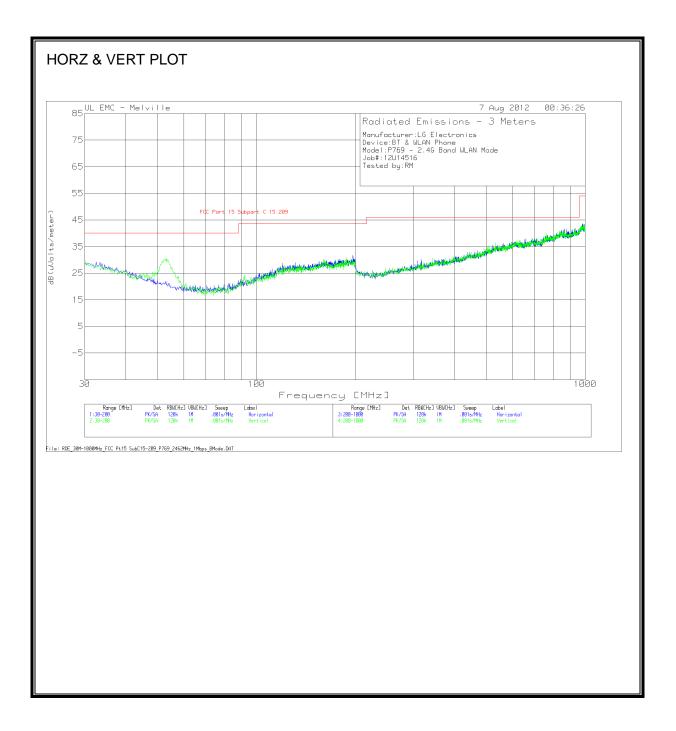
UL LLC FORM NO: CCSUP4701D 1285 WALT WHITMAN RD, MELVILLE, NY 11747, USA TEL: (631) 271-6200 FAX: (877) 854-3577 This report shall not be reproduced except in full, without the written approval of Underwriters Laboratories Inc.

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8.3. WORST-CASE BELOW 1 GHz

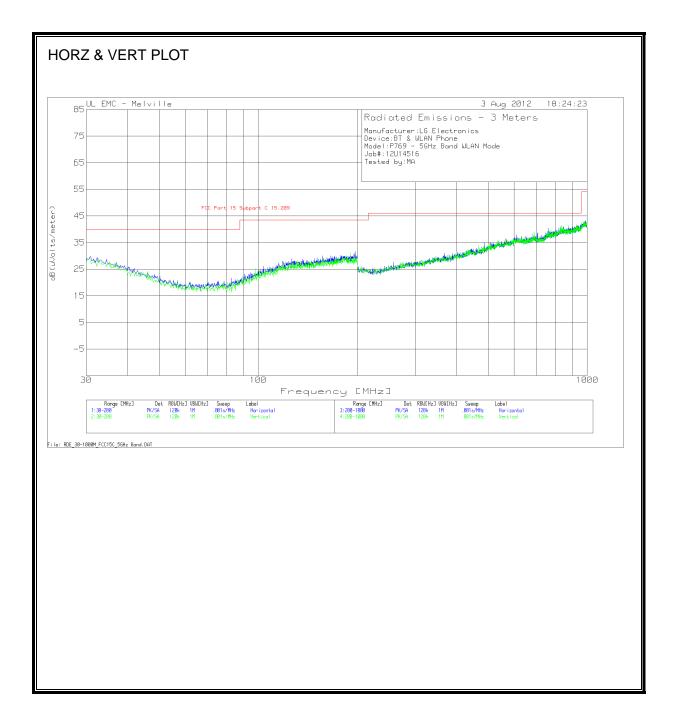
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE - 2.4GHz BAND, HORZ & VERT)



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Manufactur	er:LG Electronic	5									
Device:BT &	WLAN Phone										
Model:P769	- 2.4G Band WL	AN Mode									
Job#:12U14	516										
Tested by:R	м										
Horizontal 3	30 - 200MHz										
Marker No.	Test Frequency	Meter Reading	Detector	AF-54 (dB)	GL-3M (dB)	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin	Azimuth [Degs]		Polarity
1	33.4034	-		16.4		29.14		-10.86			Horz
2	120.02	14.27	PK	13.4	1.1	28.77	43.5	-14.73	70	100	Horz
3	195.7457	14.69	PK	15.5	1.5	31.69	43.5	-11.81	307	399	Horz
Vertical 30							FCC Part 15 Subpart C		Azimuth	Height	
		-				dB(uVolts/meter)		-	[Degs]	[cm]	Polarity
4	53.3133	21.47	РК	8.4	0.7	30.57	40	-9.43	100	100	Vert
Uncinented (200 - 1000MHz										
		Meter Reading	Detector	AF-44067	GL-2M (dB)	dB(uVolts/meter)	FCC Part 15 Subpart C		Azimuth [Degs]	-	Polarity
5		-		19.2		36.25		-9.75			Horz
6				20		37.83		-8.17			Horz
Vertical 200	0 - 1000MHz										
Marker No.	Test Frequency	Meter Reading	Detector	AF-44067 (dB)	GL-3M (dB)	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin	Azimuth [Degs]	-	Polarity
7	532.5663			18.8		36.43		-9.57			Vert
8	987.5938	14.86	РК	24.4	3.7	42.96	54	-11.04	207	400	Vert
PK - Peak de	tector										

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Manufactu	rer:LG Electronic	-									
	WLAN Phone	>									
	9 - 5GHz Band WL	AN Mode									
Job#:12U14											
Tested by:	/A										
Horizontal	30 - 200MHz										
Marker No.	Test Frequency	Meter Reading	Detector	AF-54 (dB)	GL-3M (dB)	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin	Azimuth [Degs]	-	Polarity
1	126.3163	14.03	PK	13.8	1.2	29.03	43.5	-14.47	2	400	Horz
2	195.2352	13.66	PK	15.5	1.5	30.66	43.5	-12.84	8	200	Horz
Horizontal	200 - 1000MHz										
				AF-44067			FCC Part 15 Subpart C		Azimuth	-	
	Test Frequency	-				dB(uVolts/meter)		_			
3				17.4				-10.9			Horz
4	012.2001			20.2				-9.79			Horz
5	707.8539	15.5	РК	20.2	3	38.7	46	-7.3	301	100	Horz
Vertical 20	0 - 1000MHz										
	Test Frequency	Meter Reading	Detector	AF-44067 (dB)	GL-3M (dB)	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin	Azimuth [Degs]	-	Polarity
6	980.7904	14.37	РК	24.8	3.7	42.87		-11.13			Vert
PK - Peak de	etector										

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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	Limit (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

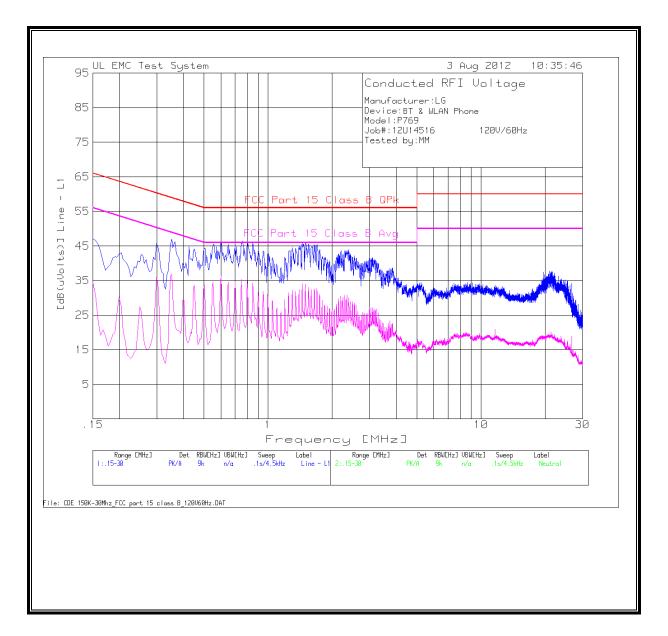
ANSI C63.4

RESULTS

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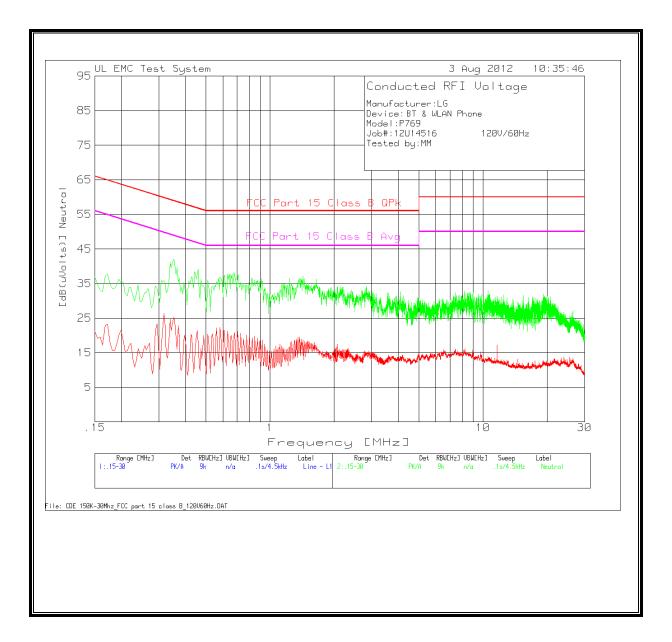
6 WORST EMISSIONS

LINE 1 RESULTS



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LINE 2 RESULTS



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NUMERICAL RESULTS

Manufacturer:L	.G							
	with BT & WLAN							
Model:P769								
ob#:12U14516	120V/60Hz							
ested by:MM								
ine - L1 . 15 - 30	MH ₇							
			LISN					
			5A636 L1		FCC Part 15		FCC Part 15	
est Frequency	Meter Reading	Detector		[dB(uVolts)]		Margin	Class B Avg	Margin
0.2985	-		10			-14.65		-4.65
0.2985			10	35.88		-24.42		-14.42
0.3525			10	46.95		-11.95		
0.3525			10	36.81		-22.09		-12.09
0.555			10.1	45.6		-10.4		
0.555			10.1	29.97		-26.03		-16.03
0.6495			10.1	45.61		-10.39		
0.6495			10.1	34.61		-21.39		-11.39
0.7575			10.1	46.4	56			
0.7575			10.1	26.5	56		46	
0.8475			10.1	45.88		-10.12		
0.8475			10.1	34.24		-21.76		-11.76
1.446			10.1	45.9		-10.1		
1.446			10.1	34.07		-21.93		-11.93
1.698			10.1	45.45		-10.55		
1.698			10.1	31.4	56		46	
1.050	21.5	~	10.1	51.4	50	-24.0	-0	-14.0
leutral .15 - 30	MHz							
est Frequency	Meter Reading	Detector	LISN 5A636 L2 [dB]	[dB(uVolts)]	FCC Part 15 Class B OPk	Margin	FCC Part 15 Class B Avg	Margin
0.3525	_		10	42.07		-16.83		
0.3525			10	25.32		-33.58		-23.58
0.4605			10.1	39.16		-17.54		
0.4605			10.1	17.64		-39.06		-29.06
0.6765			10.1	38.3		-17.7		
0.6765			10.1	19.82		-36.18		-26.18
0.8205			10.1	36.8		-19.2		-9.2
0.8205			10.1	17.95		-38.05		-28.05
1.167			10.1	34.87		-21.13		-11.13
			10.1	12.9		-43.1		-33.1
			10.1	37.16		-18.84		-8.84
1.167	27.06	PK						
			10.1	18.65		-37.35	46	-27.35
1.167 1.4235	8.55					-37.35	46	-27.35

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