



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8
CLASS II PERMISSIVE CHANGE**

CERTIFICATION TEST REPORT

FOR

802.11a/g/n 3x3 MIMO WLAN + BT COMBO PCI-E MINI CARD

MODEL NUMBER: BCM94331PCIEBT4

**FCC ID: QDS-BRCM1055
IC: 4324A-BRCM1055**

REPORT NUMBER: 11U14192-5

ISSUE DATE: JANUARY 20, 2012

Prepared for

**BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, 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**



NVLAP LAB CODE 200065-0

Revision History

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--	01/20/12	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, USA

EUT DESCRIPTION: 802.11a/g/n 3x3 MIMO WLAN + BT Combo PCI-E Mini Card

MODEL: BCM94331PCIEBT4

SERIAL NUMBER: 2 (P300)

DATE TESTED: JANUARY 03 – 19, 2012

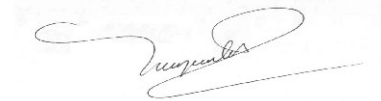
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

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:



THU CHAN
ENGINEERING MANAGER
UL CCS

VIEN TRAN
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, 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 <http://www.ccsemc.com>.

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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/g/n 3x3 MIMO WLAN + BT Combo PCI-E Mini Card with Low Energy mode (LE).

The radio module is manufactured by Broadcom.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 – 2480	Low Energy (BLE)	-2.40	0.58

5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is:

The Bluetooth Low Energy functionality (BLE) is added to the Bluetooth chipset. The modified chipset is pin for pin compatible and the BT functionality, the maximum output power and frequencies of operation remain the same as the original approval.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a Bluetooth antenna, with a maximum gain of -2.95 dBi.

5.1. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom Bluetooth Version 5.1.0.1400

The test utility software used during testing was Bluetool, rev. 1.5.2.8.

5.2. WORST-CASE CONFIGURATION AND MODE

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

5.3. DESCRIPTION OF TEST SETUP

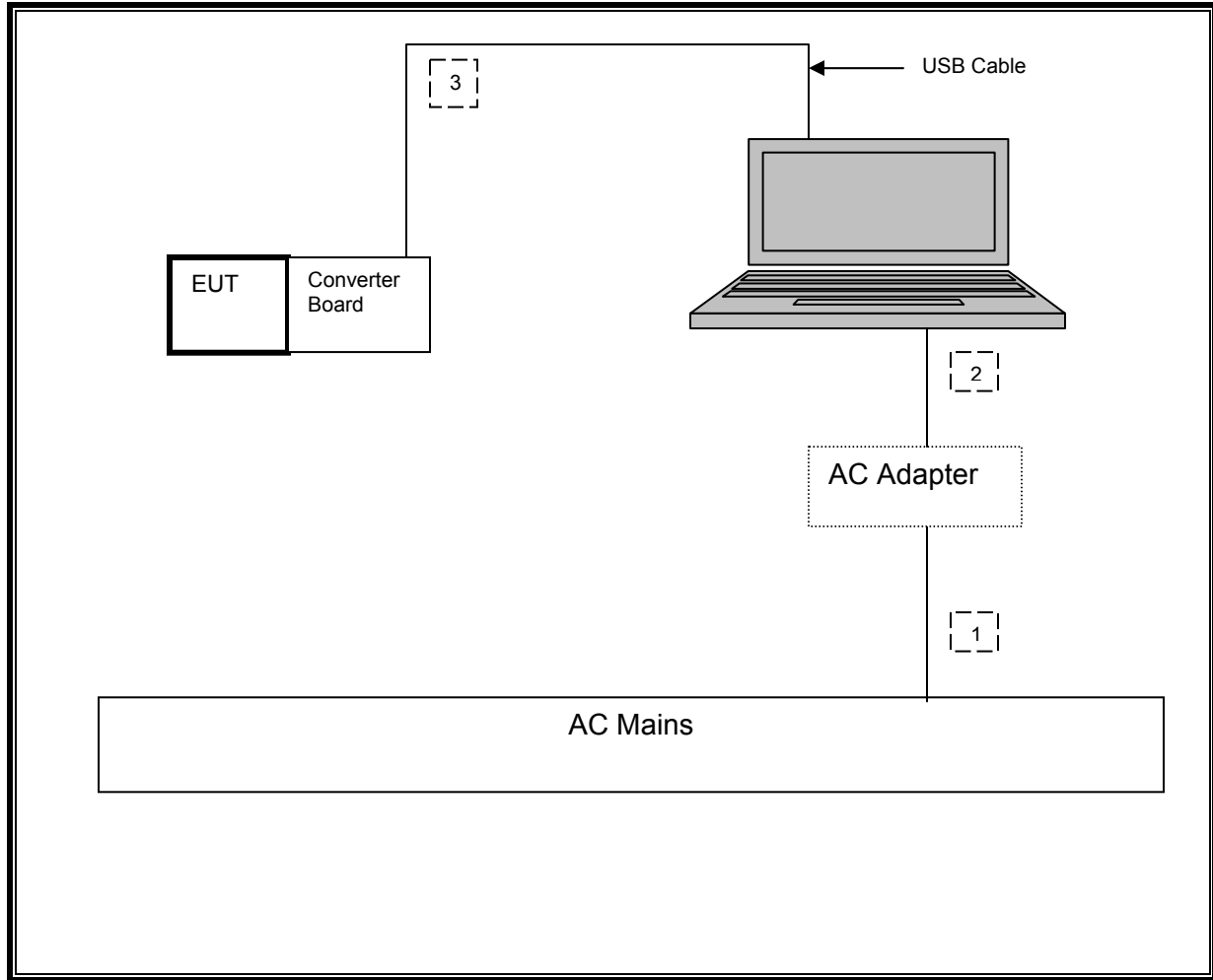
SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	Pavillion DV6000	CNF6463KP7	DoC
AC Adapter	HP	PPP009L	592C40CRGUBR9B	DoC
Converter Board	Broadcom	BCM94331PCIEBT4HAD	276	N/A
USB Cable	N/A	N/A	N/A	N/A

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Shielded	1.5m	NA
2	DC	1	DC	Un-shielded	1.5m	Ferrite at laptop's end
4	USB	1	USB	Un-shielded	1.8m	NA

SETUP DIAGRAM



TEST SETUP

The EUT was tested as an external module that installed on a converter board connected to a host Laptop PC via USB cable.

6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	08/10/12
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01159	05/11/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01171	07/16/12
Antenna, Horn, 18 GHz	EMCO	3115	C00872	06/29/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	01/27/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	07/18/12
Highpass Filter, 4.0 GHz	Micro-Tronics	HPM13351	N02709	CNR
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	07/05/12
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	12/13/12
Peak Power Meter	Agilent / HP	E4416A	C00963	03/22/12

7. ANTENNA PORT TEST RESULTS - LE MODE

7.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

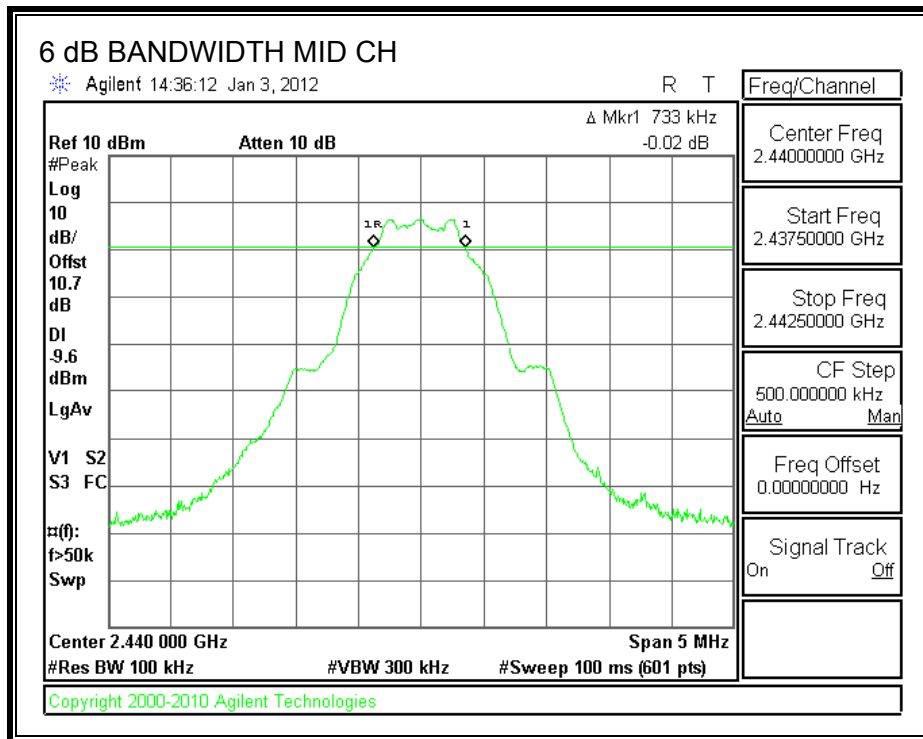
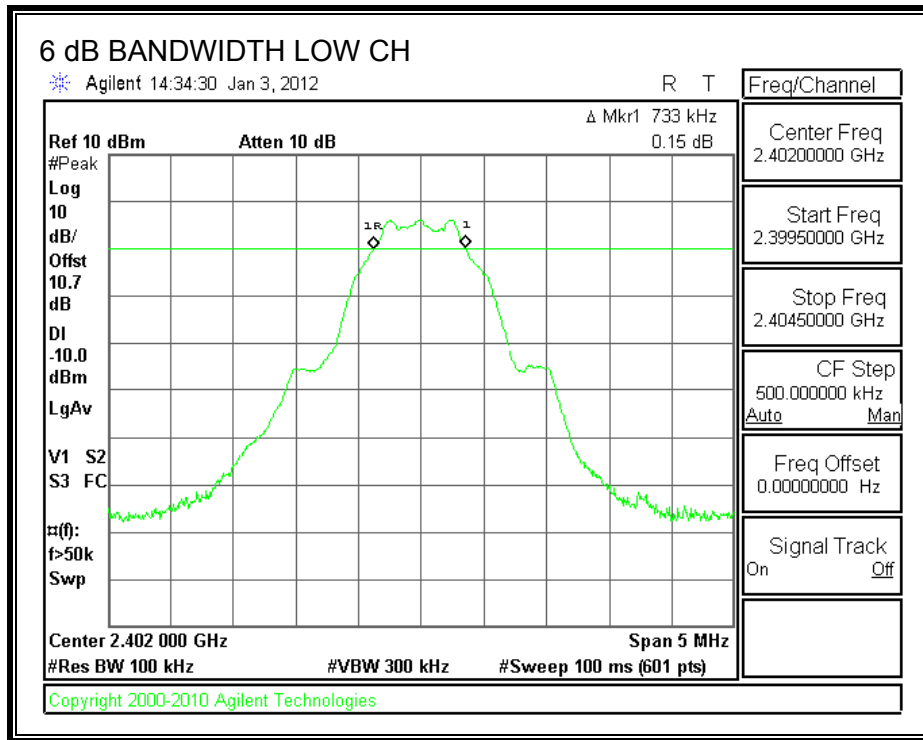
TEST PROCEDURE

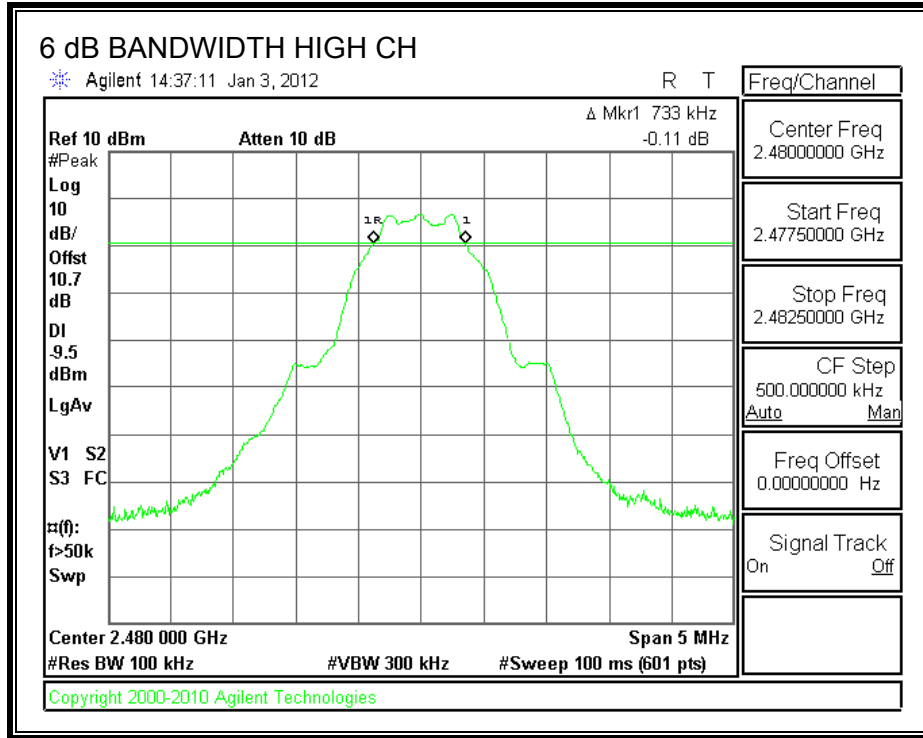
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.733	0.5
Middle	2440	0.733	0.5
High	2480	0.733	0.5

6 dB BANDWIDTH





7.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

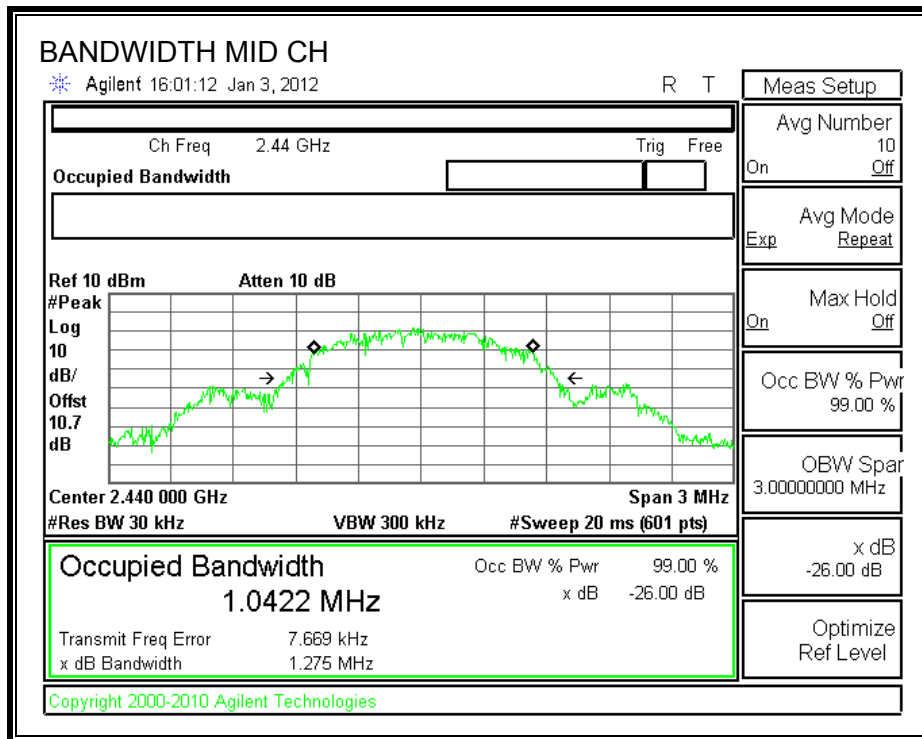
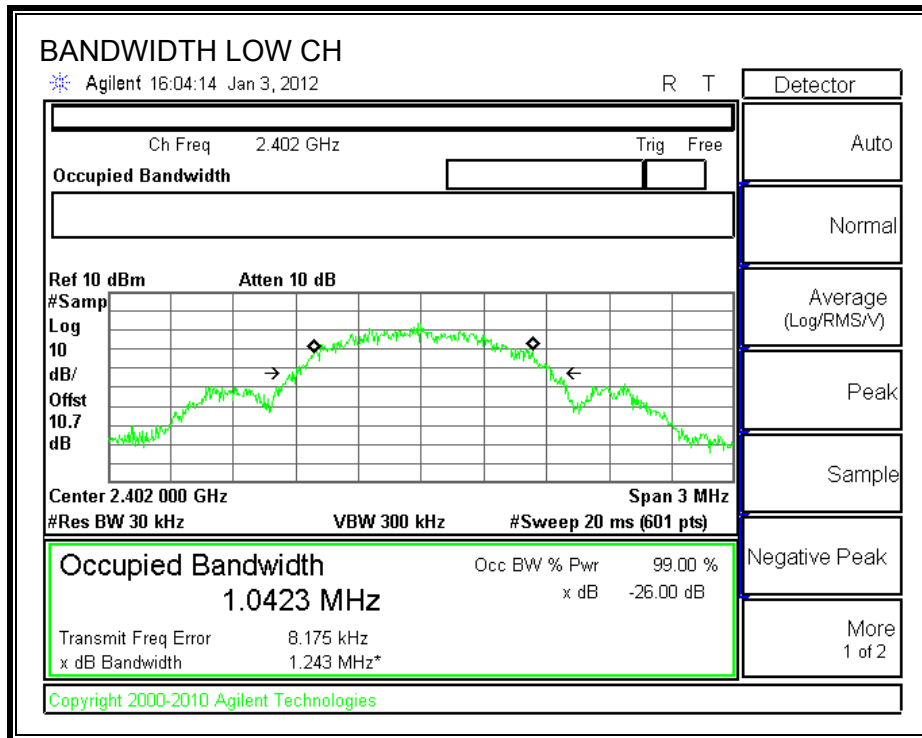
TEST PROCEDURE

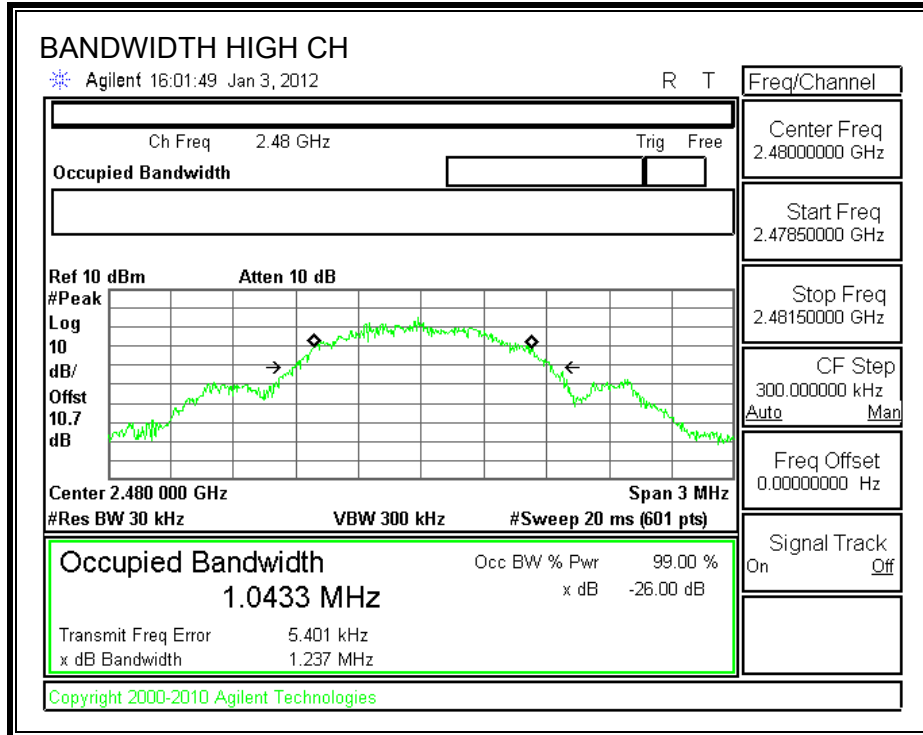
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 99% bandwidth. The VBW is set to \geq RBW. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0423
Middle	2440	1.0422
High	2480	1.0433

99% BANDWIDTH





7.3. OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

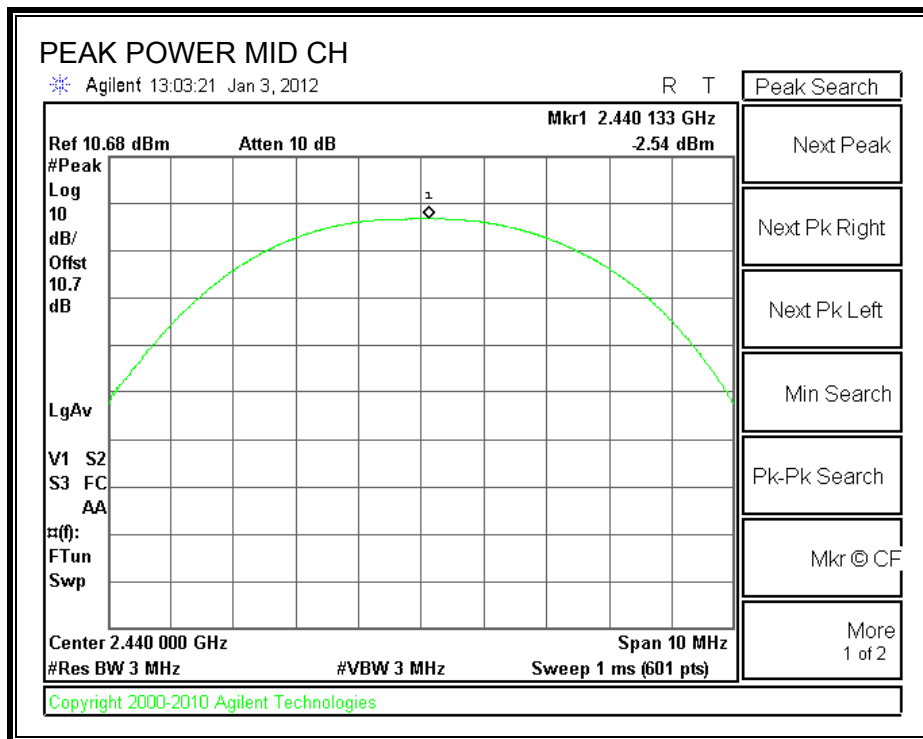
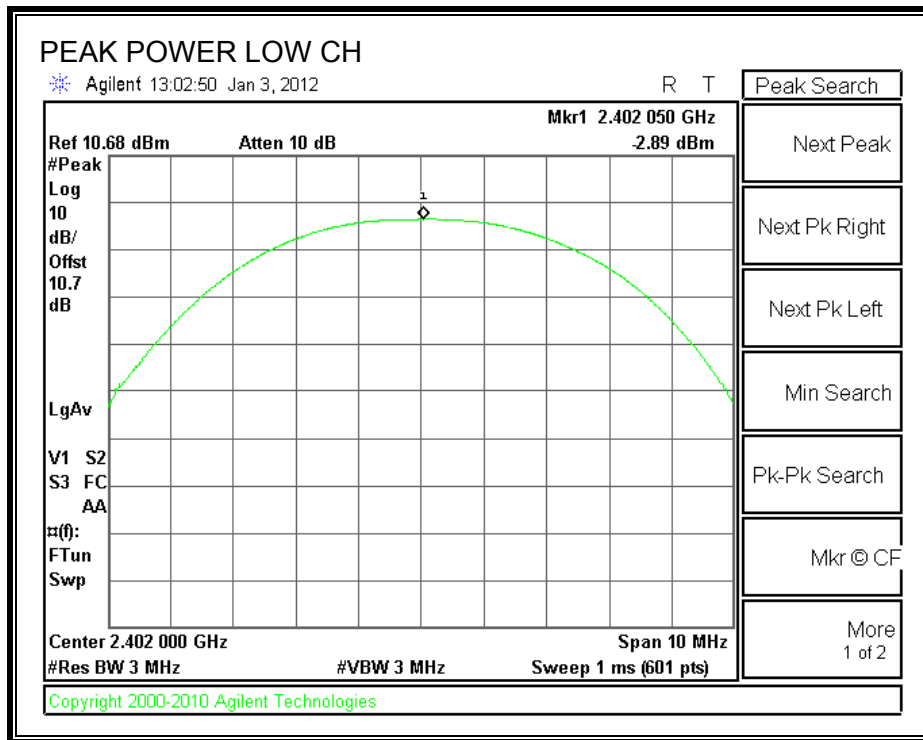
The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

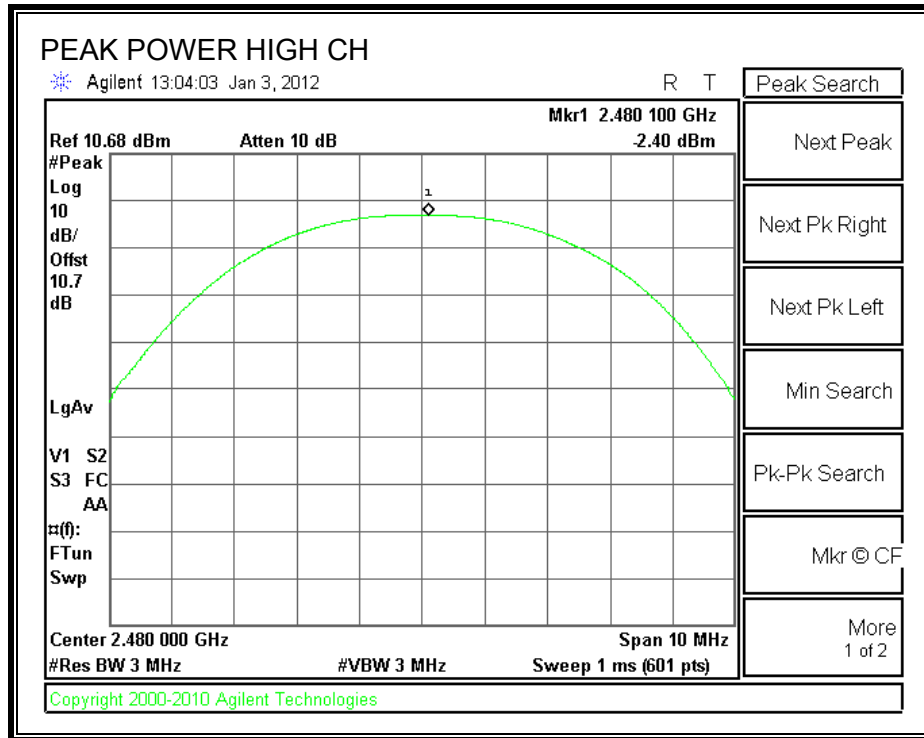
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-2.89	30	-32.89
Middle	2440	-2.54	30	-32.54
High	2480	-2.40	30	-32.40





7.4. 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.

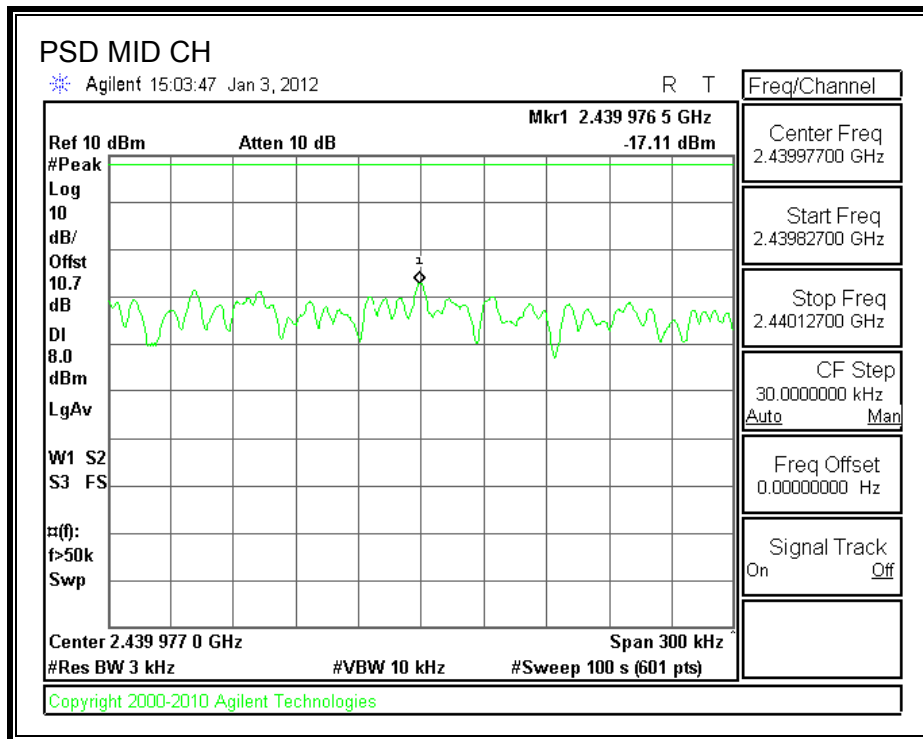
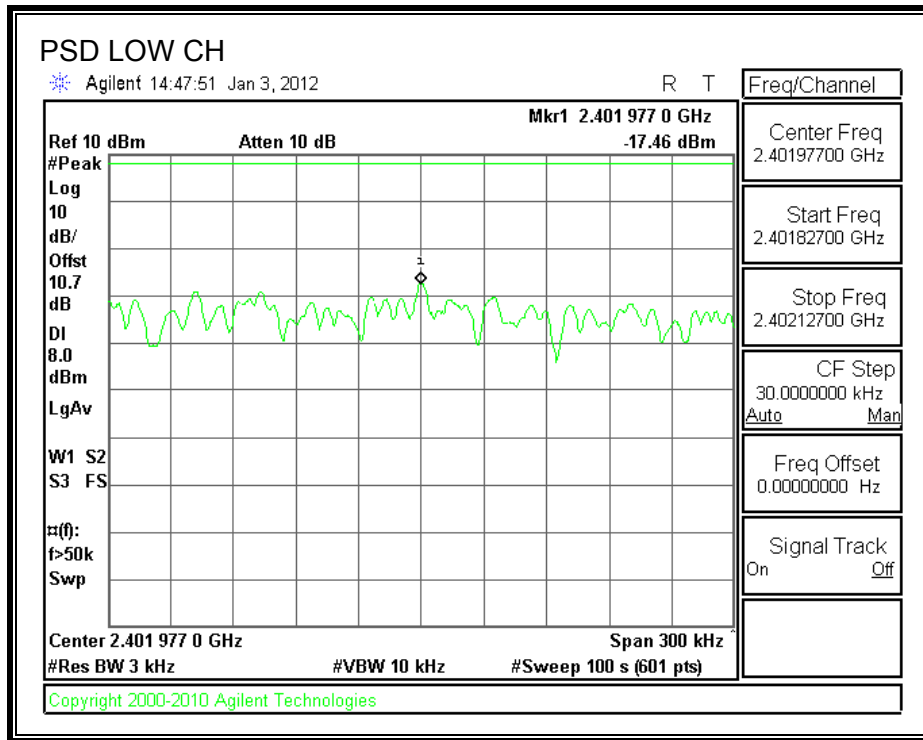
TEST PROCEDURE

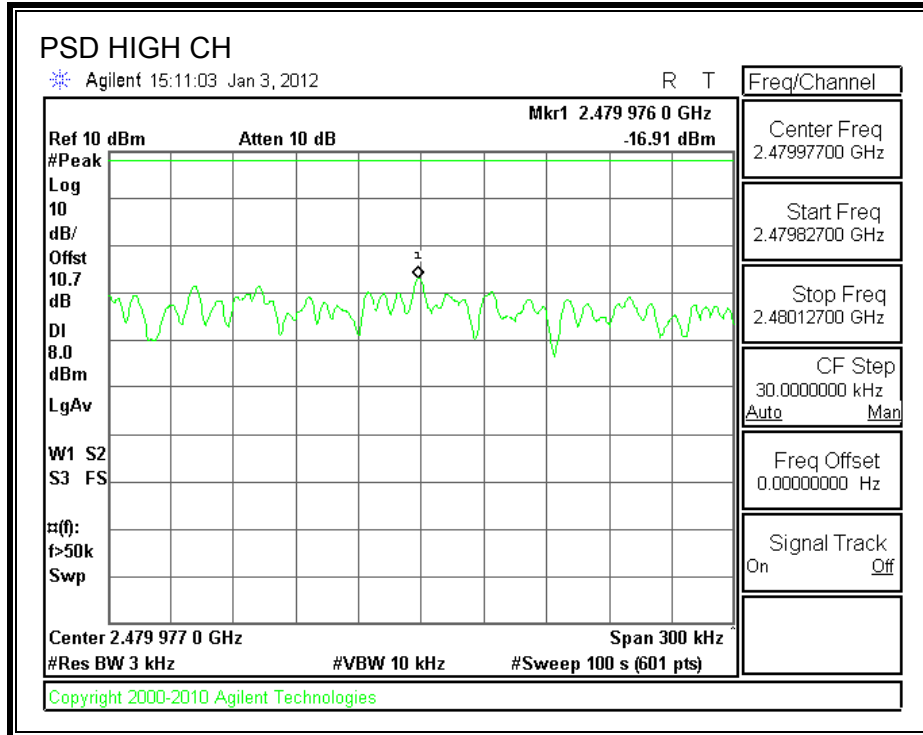
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-17.46	8	-25.46
Middle	2440	-17.11	8	-25.11
High	2480	-16.91	8	-24.91

POWER SPECTRAL DENSITY





7.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

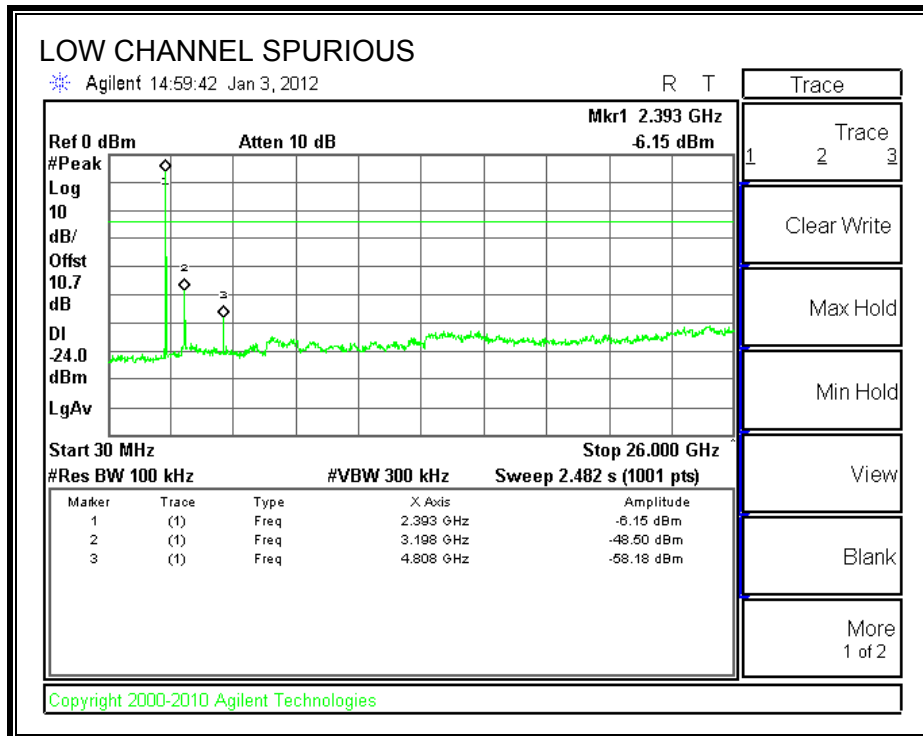
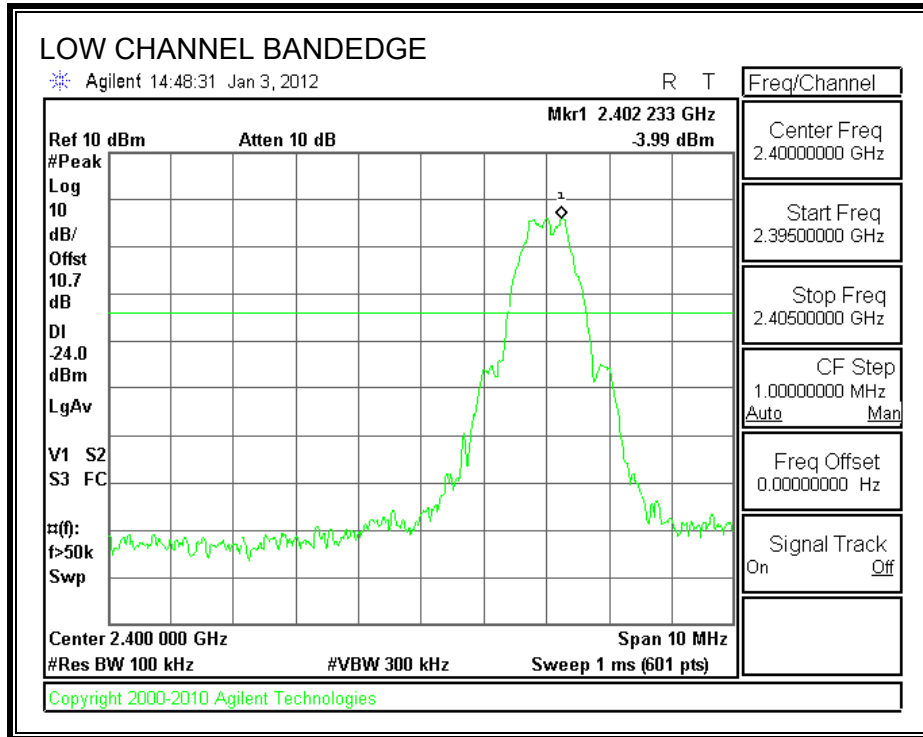
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

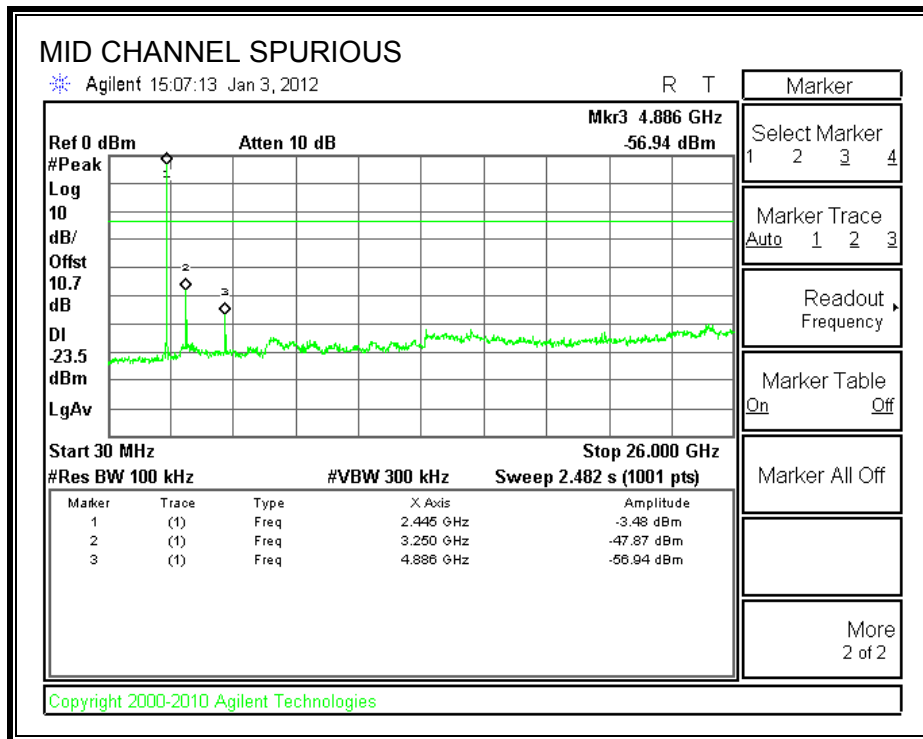
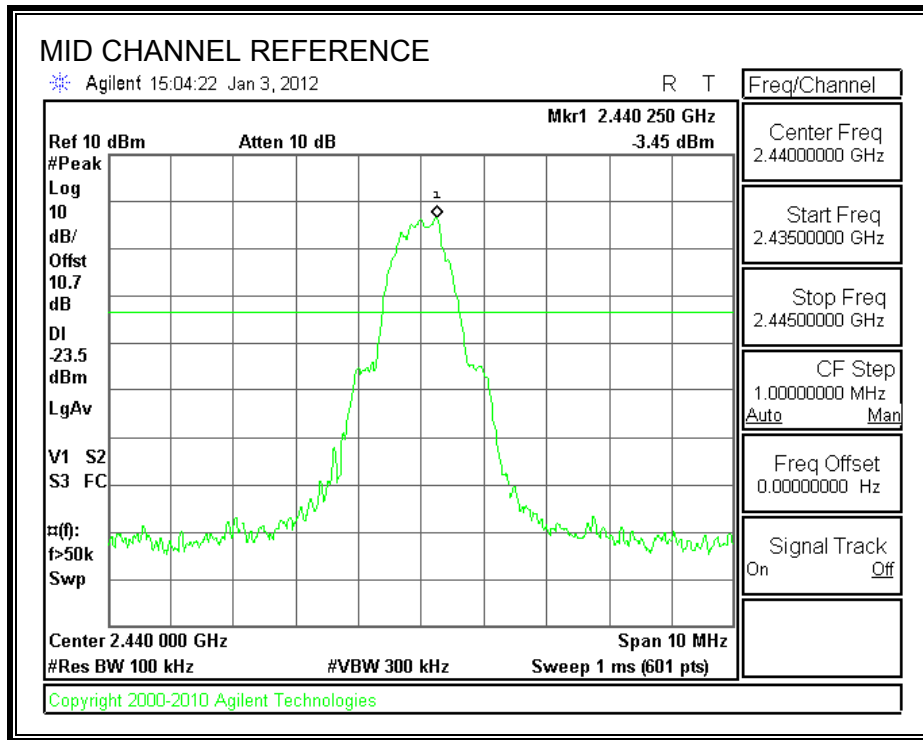
The band edges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

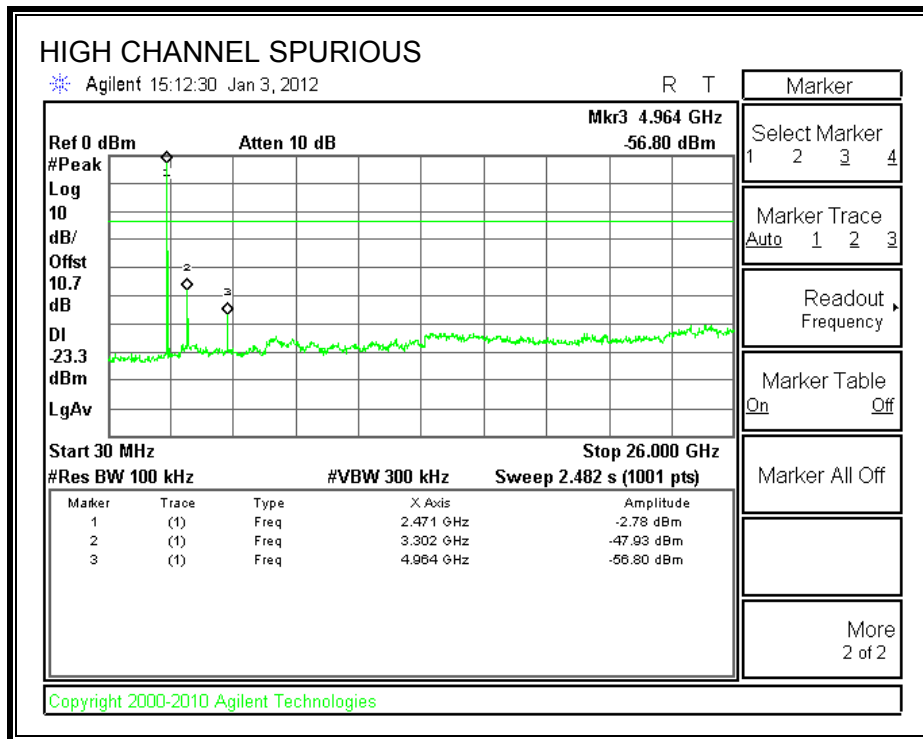
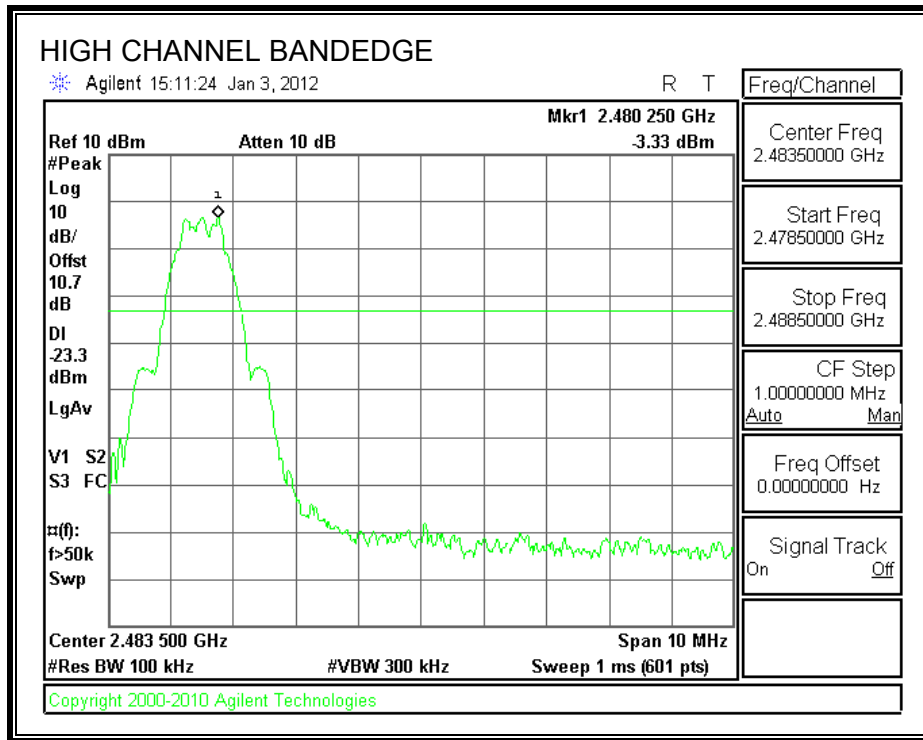
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



8. RADIATED TEST RESULTS - LE MODE

8.1. LIMITS AND PROCEDURE

LIMITS

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.

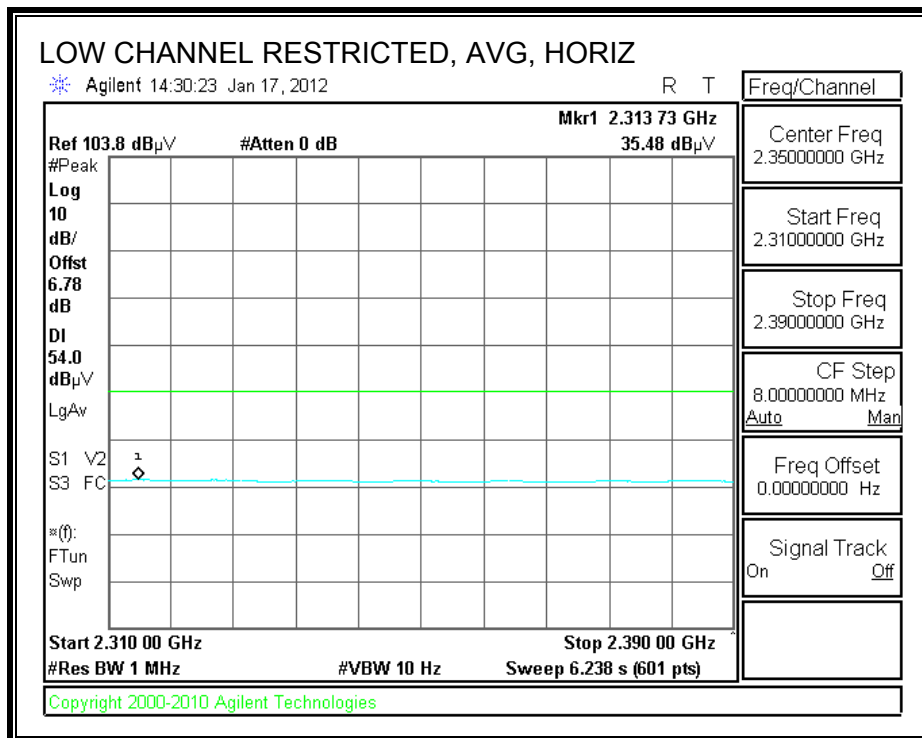
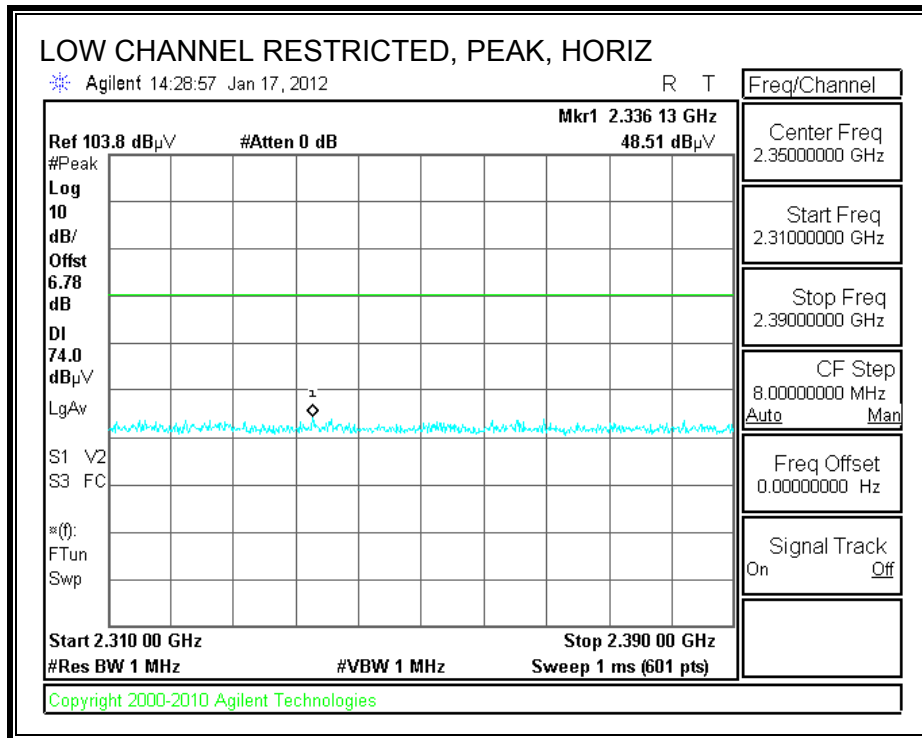
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

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.

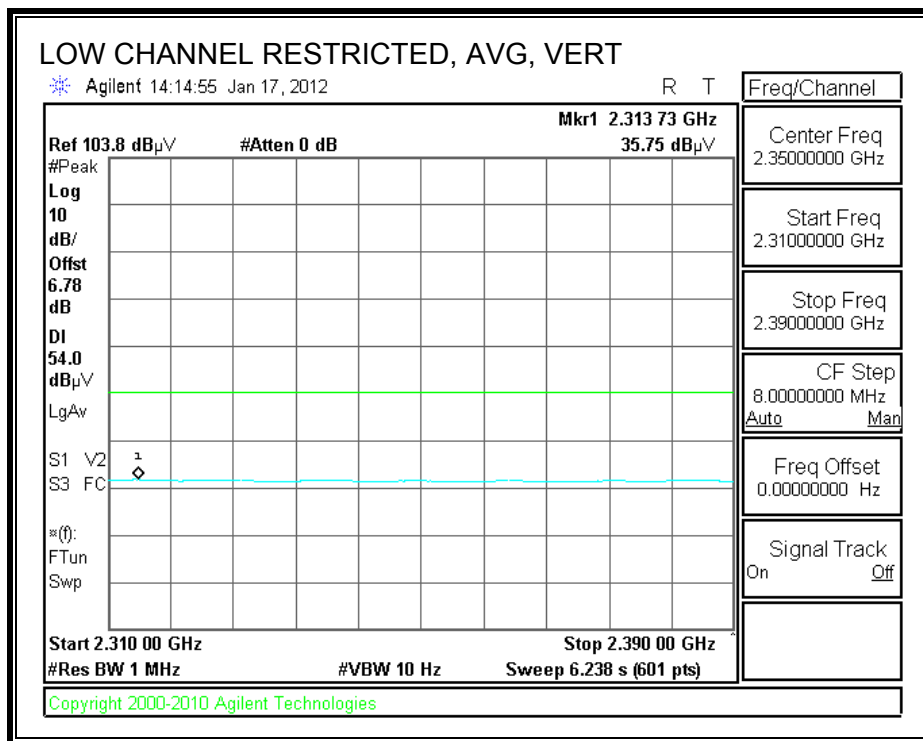
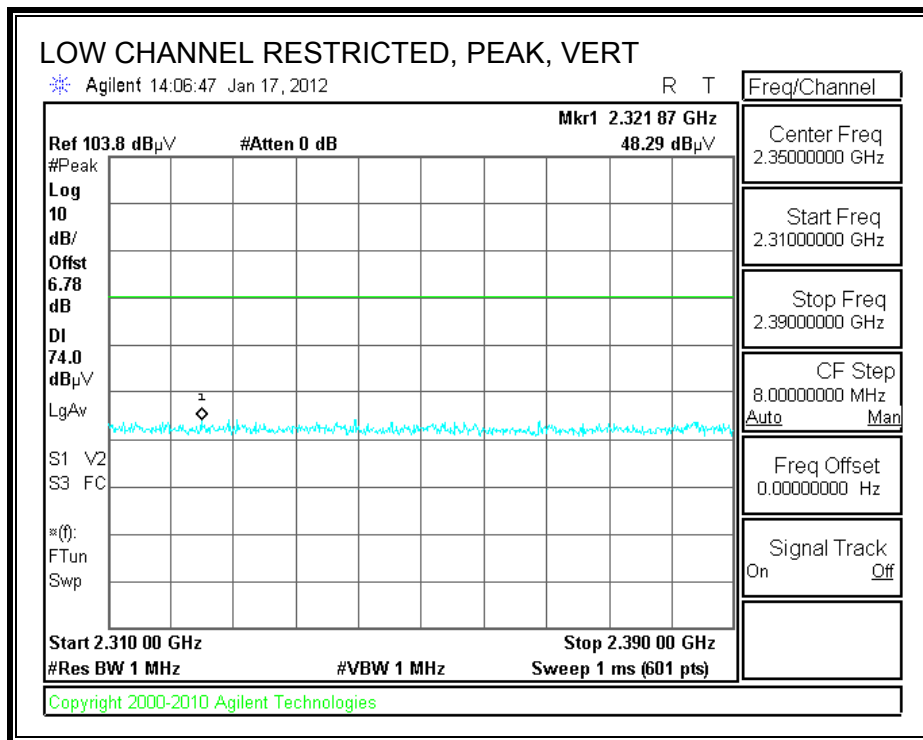
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.1. TRANSMITTER ABOVE 1 GHz

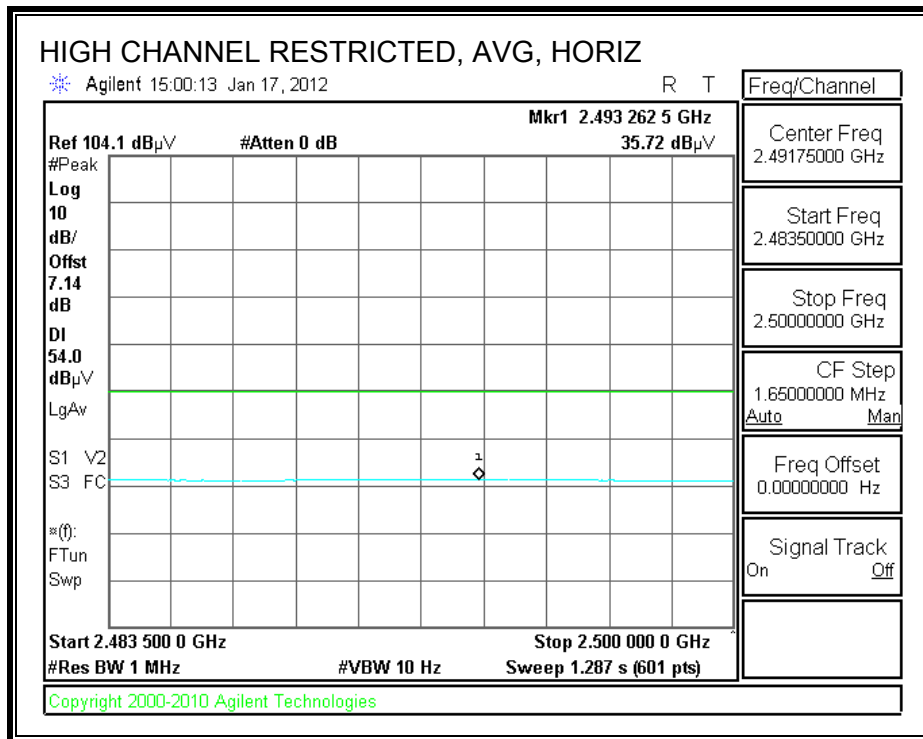
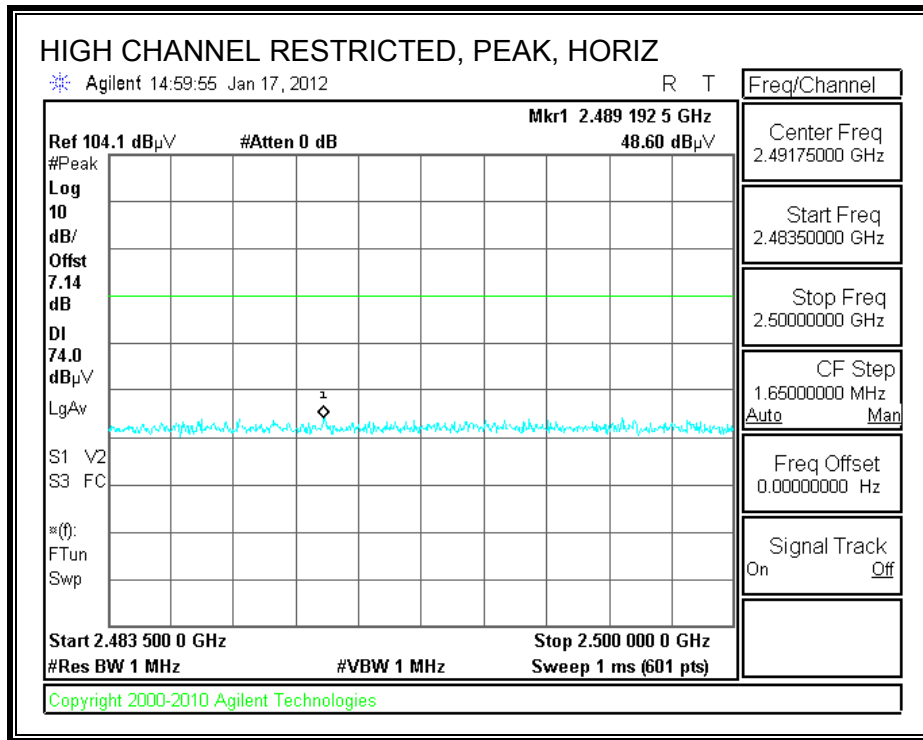
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



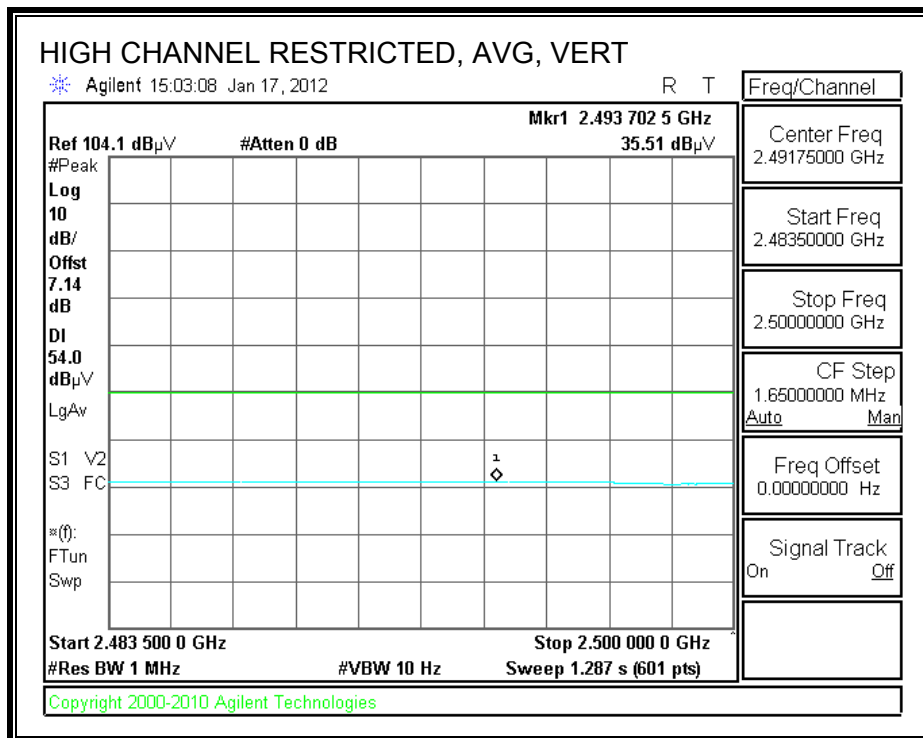
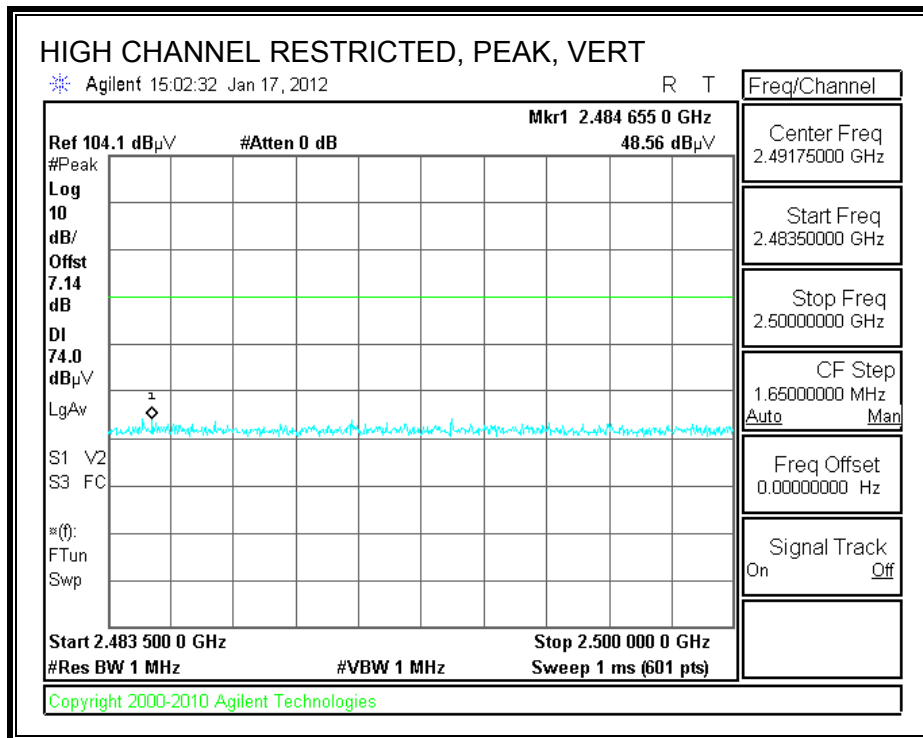
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 3m Chamber															
Test Engr:		Vien Tran													
Date:		01/17/12													
Project #:		11U14192													
Company:		Broadcom													
Test Target:		FCC 15.247													
Mode Oper:		Tx BLE (Bluetooth Low Energy) Mode													
f	Measurement Frequency		Amp	Preamp Gain		Average Field Strength Limit									
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Peak Field Strength Limit									
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Margin vs. Average Limit									
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Margin vs. Peak Limit									
CL	Cable Loss		HPF	High Pass 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 CHANNEL, 2402MHz															
4.804	3.0	43.5	33.1	6.8	-34.8	0.0	0.0	48.5	74.0	-25.5	V	P	102.0	351.0	
4.804	3.0	33.4	33.1	6.8	-34.8	0.0	0.0	38.4	54.0	-15.6	V	A	102.0	351.0	
4.804	3.0	40.2	33.1	6.8	-34.8	0.0	0.0	45.3	74.0	-28.7	H	P	98.0	166.0	
4.804	3.0	29.7	33.1	6.8	-34.8	0.0	0.0	34.8	54.0	-19.2	H	A	98.0	166.0	
MID CHANNEL, 2440MHz															
4.880	3.0	39.3	33.2	6.8	-34.8	0.0	0.0	44.5	74.0	-29.6	V	P	98.0	356.0	
4.880	3.0	28.2	33.2	6.8	-34.8	0.0	0.0	33.3	54.0	-20.7	V	A	98.0	356.0	
7.320	3.0	35.4	36.3	9.1	-34.1	0.0	0.0	46.7	74.0	-27.3	V	P	110.0	135.0	
7.320	3.0	23.0	36.3	9.1	-34.1	0.0	0.0	34.3	54.0	-19.7	V	A	110.0	135.0	
4.880	3.0	36.9	33.2	6.8	-34.8	0.0	0.0	42.0	74.0	-32.0	H	P	98.0	7.0	
4.880	3.0	25.2	33.2	6.8	-34.8	0.0	0.0	30.3	54.0	-23.7	H	A	98.0	7.0	
7.320	3.0	35.5	36.3	9.1	-34.1	0.0	0.0	46.8	74.0	-27.2	H	P	106.0	241.0	
7.320	3.0	22.9	36.3	9.1	-34.1	0.0	0.0	34.3	54.0	-19.7	H	A	106.0	241.0	
HIGH CHANNEL, 2480MHz															
4.960	3.0	39.4	33.2	6.9	-34.8	0.0	0.0	44.6	74.0	-29.4	V	P	98.0	11.0	
4.960	3.0	29.0	33.2	6.9	-34.8	0.0	0.0	34.2	54.0	-19.8	V	A	98.0	11.0	
7.440	3.0	35.8	36.5	9.1	-34.1	0.0	0.0	47.3	74.0	-26.7	V	P	177.0	231.0	
7.440	3.0	22.8	36.5	9.1	-34.1	0.0	0.0	34.3	54.0	-19.7	V	A	177.0	231.0	
4.960	3.0	36.3	33.2	6.9	-34.8	0.0	0.0	41.5	74.0	-32.5	H	P	98.0	71.0	
4.960	3.0	24.0	33.2	6.9	-34.8	0.0	0.0	29.3	54.0	-24.7	H	A	98.0	71.0	
7.440	3.0	35.8	36.5	9.1	-34.1	0.0	0.0	47.4	74.0	-26.6	H	P	132.0	202.0	
7.440	3.0	23.2	36.5	9.1	-34.1	0.0	0.0	34.7	54.0	-19.3	H	A	132.0	202.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2. RECEIVER ABOVE 1 GHz

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Broadcom
Project #: 11U14192
Date: 01/25/12
Test Engineer: Vien Tran
Configuration: EUT / Laptop / Antenna
Mode: Rx Mode_Worst Case

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			RX RSS 210

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurement RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurement RBW=1MHz ; VBW=1MHz

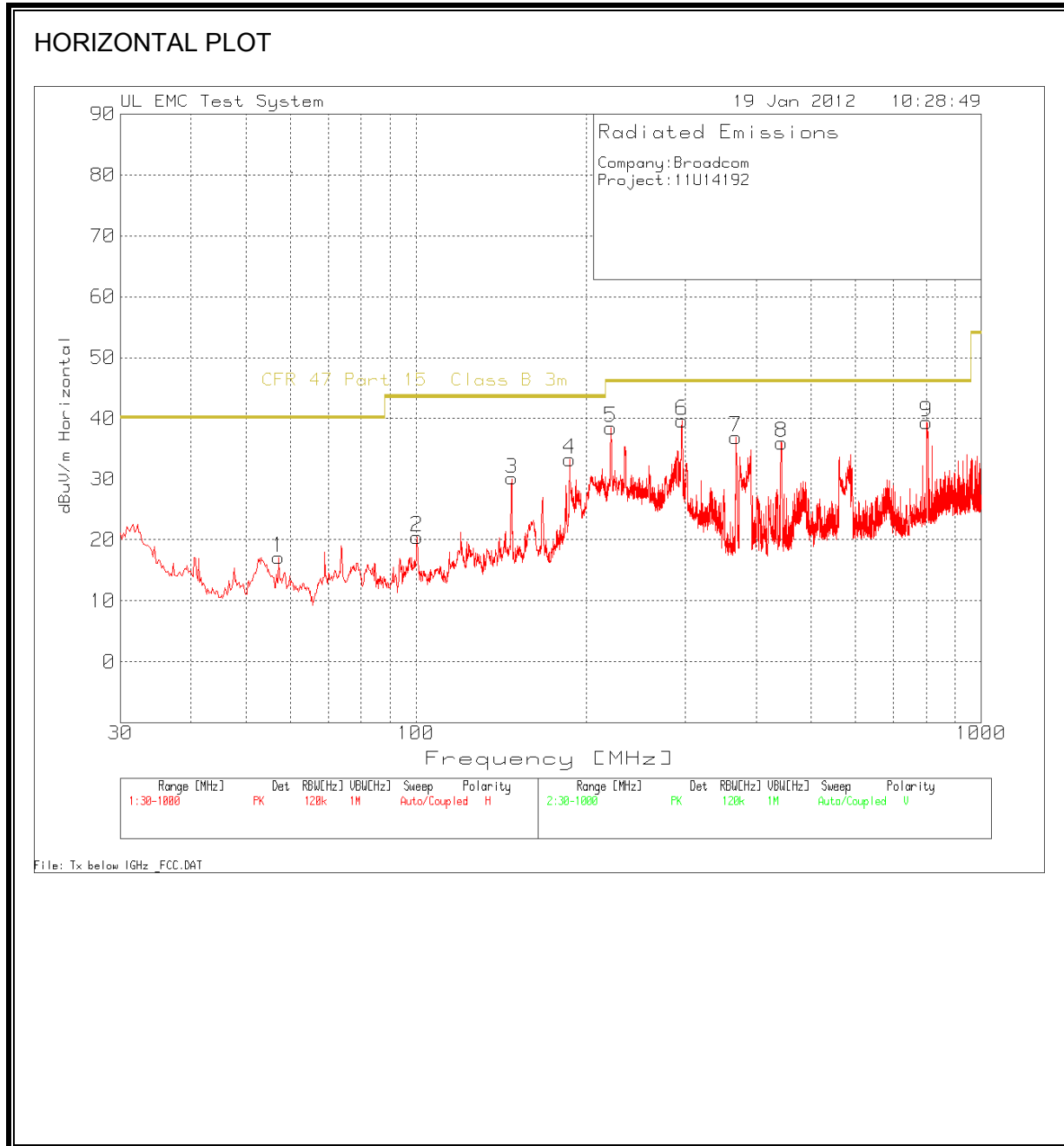
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.050	3.0	48.9	37.8	24.6	2.4	-38.2	0.0	0.0	37.8	26.6	74	54	-36.2	-27.4	H
1.607	3.0	46.9	35.8	26.5	3.1	-37.4	0.0	0.0	39.0	27.9	74	54	-35.0	-26.1	H
1.933	3.0	45.7	34.6	27.6	3.4	-37.0	0.0	0.0	39.7	28.6	74	54	-34.3	-25.4	H
3.000	3.0	44.1	33.0	29.7	4.3	-35.9	0.0	0.0	42.2	31.1	74	54	-31.8	-22.9	H
1.050	3.0	47.5	36.4	24.6	2.4	-38.2	0.0	0.0	36.4	25.2	74	54	-37.6	-28.8	V
1.607	3.0	46.3	35.2	26.5	3.1	-37.4	0.0	0.0	38.4	27.3	74	54	-35.6	-26.7	V
1.933	3.0	45.2	34.1	27.6	3.4	-37.0	0.0	0.0	39.2	28.1	74	54	-34.8	-25.9	V
3.000	3.0	43.8	32.7	29.7	4.3	-35.9	0.0	0.0	41.9	30.8	74	54	-32.1	-23.2	V

No other emissions were detected above system noise floor

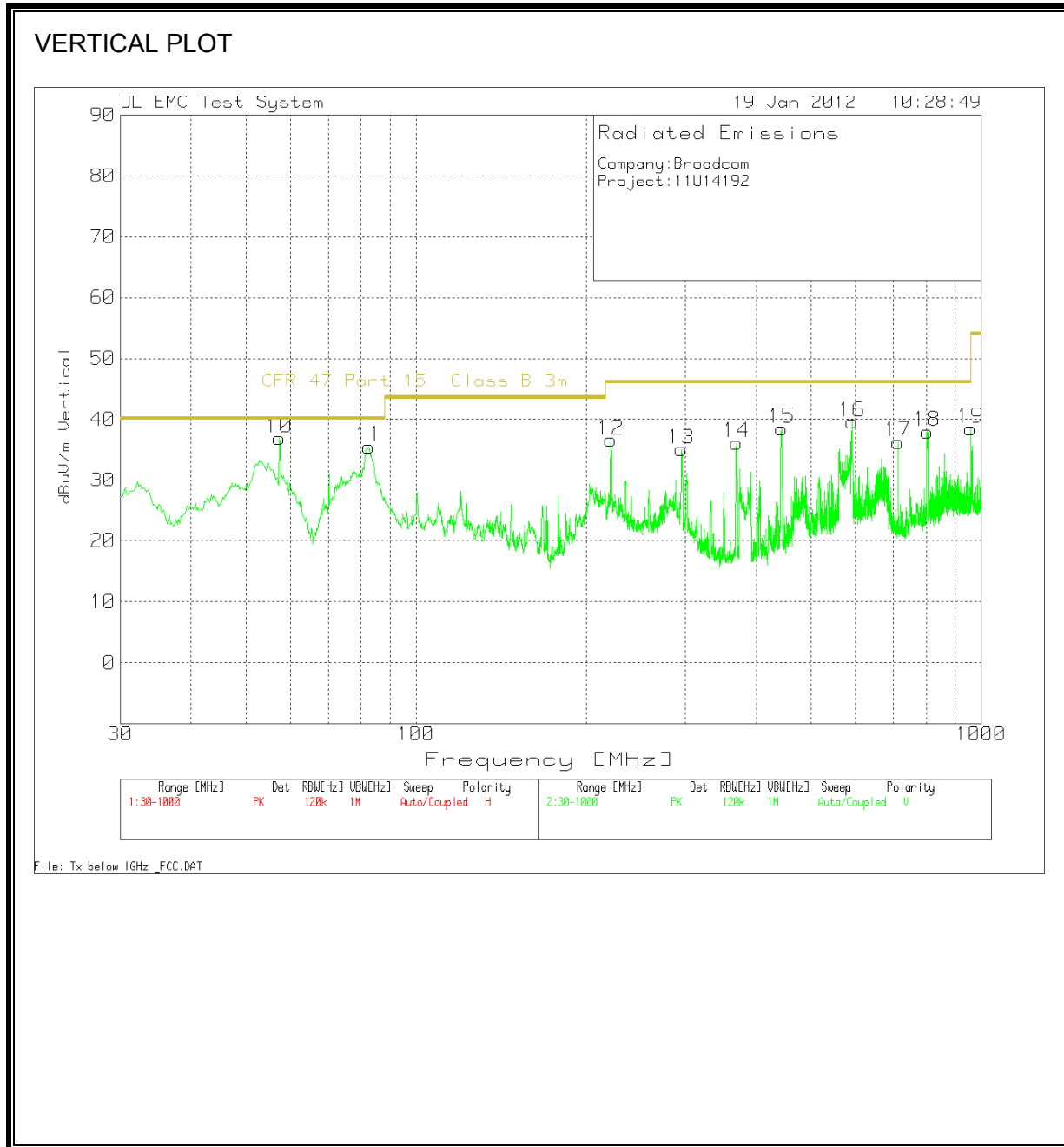
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

8.3. WORST-CASE BELOW 1 GHz

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



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



HORIZONTAL AND VERTICAL DATA

COMPANY: BROADCOM						TEST ENGINEER: VIEN TRAN			
PROJECT NUMBER: 11U14192						DATE TESTED: 01/19/2012			
30 - 1000MHz - HORIZONTAL									
Test Frequency	Meter Reading	Detector	25MHz-1Ghz Chamber B Amp [dB]	T130 Bilog Factors. TXT [dB]	dBuVolts/ meter	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
57.1383	38.22	PK	-29.0	7.9	17.12	40	-22.88	100	Horz
100.5596	38.88	PK	-28.6	10.2	20.48	43.5	-23.02	200	Horz
147.6639	45.53	PK	-28.1	12.7	30.13	43.5	-13.37	200	Horz
187.0144	49.89	PK	-27.7	11.1	33.29	43.5	-10.21	200	Horz
221.3249	53.99	PK	-27.4	11.9	38.49	46	-7.51	100	Horz
295.9552	53.4	PK	-26.9	13.2	39.7	46	-6.30	100	Horz
368.2594	49.27	PK	-26.8	14.5	36.97	46	-9.03	100	Horz
444.0528	47.25	PK	-27.0	15.8	36.05	46	-9.95	200	Horz
801.8905	43.81	PK	-25.4	21.0	39.41	46	-6.59	100	Horz
30 - 1000MHz - VERTICAL									
Test Frequency	Meter Reading	Detector	25MHz-1Ghz Chamber B Amp [dB]	T130 Bilog Factors. TXT [dB]	dBuVolts/ meter	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
57.3321	58.06	PK	-29.0	7.9	36.96	40	-3.04	109	Vert
82.532	56.58	PK	-28.7	7.6	35.48	40	-4.52	109	Vert
221.5188	52.12	PK	-27.4	11.9	36.62	46	-9.38	200	Vert
294.986	48.87	PK	-26.9	13.1	35.07	46	-10.93	200	Vert
369.6163	48.49	PK	-26.8	14.5	36.19	46	-9.81	109	Vert
443.6651	49.71	PK	-27.0	15.8	38.51	46	-7.49	109	Vert
591.9564	48.11	PK	-26.6	18.1	39.61	46	-6.39	109	Vert
714.0787	42.85	PK	-26.0	19.5	36.35	46	-9.65	109	Vert
803.4412	42.37	PK	-25.4	21.0	37.97	46	-8.03	109	Vert
959.6803	40.66	PK	-24.3	22.2	38.56	46	-7.44	109	Vert
PK - Peak detector QP - Quasi-Peak detector LnAv - Linear Average detector LgAv - Log Average detector Av - Average detector CAV - CISPR Average detector RMS - RMS detection CRMS - CISPR RMS detection									

9. AC POWER LINE CONDUCTED EMISSIONS - LE MODE

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted 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

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

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

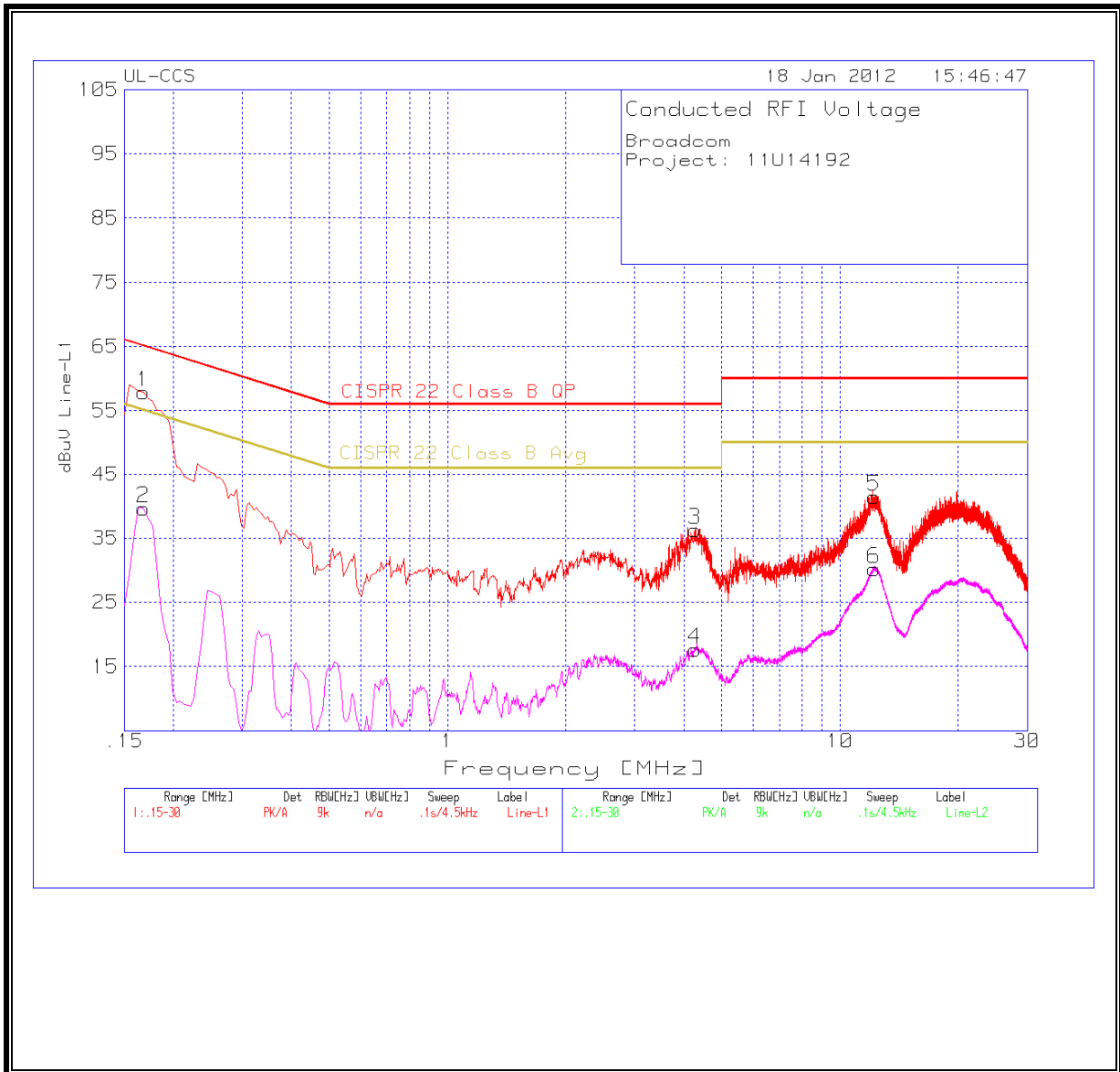
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Broadcom						Test Engineer: Vien Tran			
Project: 11U14192						Date: 01/18/2012			
Line-L1 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT [dB]	LC Cables 1&3.TXT [dB]	dBuV	CISPR 22 Class B QP	Margin	CISPR 22 Class B Avg	Margin
0.168	57.72	PK	0.1	0	57.82	65.10	-7.28	-	-
0.168	39.53	Av	0.1	0	39.63	-	-	55.10	-15.47
4.263	36.06	PK	0.1	0.1	36.26	56.00	-19.74	-	-
4.263	17.39	Av	0.1	0.1	17.59	-	-	46.00	-28.41
12.2325	41.07	PK	0.2	0.2	41.47	60.00	-18.53	-	-
12.2325	29.80	Av	0.2	0.2	30.20	-	-	50.00	-19.80
Line-L2 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT [dB]	LC Cables 1&3.TXT [dB]	dBuV	CISPR 22 Class B QP	Margin	CISPR 22 Class B Avg	Margin
0.1905	51.58	PK	0.1	0	51.68	64.00	-12.32	-	-
0.1905	34.88	Av	0.1	0	34.98	-	-	54.00	-19.02
4.245	37.62	PK	0.1	0.1	37.82	56.00	-18.18	-	-
4.245	18.32	Av	0.1	0.1	18.52	-	-	46.00	-27.48
11.9895	42.89	PK	0.2	0.2	43.29	60.00	-16.71	-	-
11.9895	29.25	Av	0.2	0.2	29.65	-	-	50.00	-20.35
PK - Peak detector QP - Quasi-Peak detector LnAv - Linear Average detector LgAv - Log Average detector Av - Average detector CAV - CISPR Average detector RMS - RMS detection CRMS - CISPR RMS detection									

LINE 1 RESULTS



LINE 2 RESULTS

