



**FCC CFR47 PART 15 SUBPART C  
CLASS II PERMISSIVE CHANGE  
TEST REPORT**

**FOR**

**802.11g WIRELESS LAN PCI-E MINI CARD**

**MODEL NUMBER: BCM94311MCG**

**FCC ID: QDS-BRCM1020**

**REPORT NUMBER: 07U11110-1**

**ISSUE DATE: JULY 12, 2007**

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

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



**NVLAP LAB CODE 200065-0**

Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/12/07	Initial Issue	T. Chan

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** BROADCOM CORPORATION  
190 MATHILDA PLACE  
SUNNYVALE, CA 94086, U.S.A.

**EUT DESCRIPTION:** 802.11g WIRELESS LAN PCI-E MINI CARD

**MODEL:** BCM94311MCG

**SERIAL NUMBER:** TWJ5370082

**DATE TESTED:** JUNE 26 - JULY 10, 2007

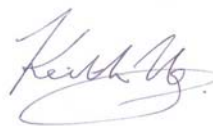
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. 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 Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



THU CHAN  
EMC SUPERVISOR  
COMPLIANCE CERTIFICATION SERVICES

KEITH NG  
EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 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 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

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

## **5. EQUIPMENT UNDER TEST**

### **5.1. DESCRIPTION OF EUT**

The EUT is an 802.11b/g transceiver operating in the 2400-2484 MHz band. The radio utilizes a dipole antenna, with a maximum gain of 1.8 dBi.

The radio module is manufactured by Broadcom Corp.

### **5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE**

Add additional antenna: Wha Yu dipole antenna, Peak gain: 1.8dBi

### **5.3. DESCRIPTION OF AVAILABLE ANTENNAS**

The radio utilizes one dipole antenna, Wha Yu C210-510185-A, with a peak gain of 1.8 dBi

### **5.4. SOFTWARE AND FIRMWARE**

The EUT driver software installed in the host support equipment during testing was BCM94311 , version. 3.100.53.0

The test utility software used during testing was wl\_tools.

### **5.5. WORST-CASE CONFIGURATION AND MODE**

The worst-case data rate for these channels are determined to be 1 Mb/s for 11b mode and 6 Mb/s for 11g mode, based on previous experience with WLAN product design architectures.

Thus all emissions tests were made in the 802.11b mode @ 1 Mb/s, and 802.11g mode @ 6 Mb/s.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	FCC ID
Laptop PC	Dell	Inspiron	CN-901006-70166-57K-01K2	DoC
AC/DC Adapter	Dell	ADP-60NH B	CN-0TD230-48661-57C-005B	N/A
Extension Card	Catalyst	384-0152-003- REV C	N/A	N/A

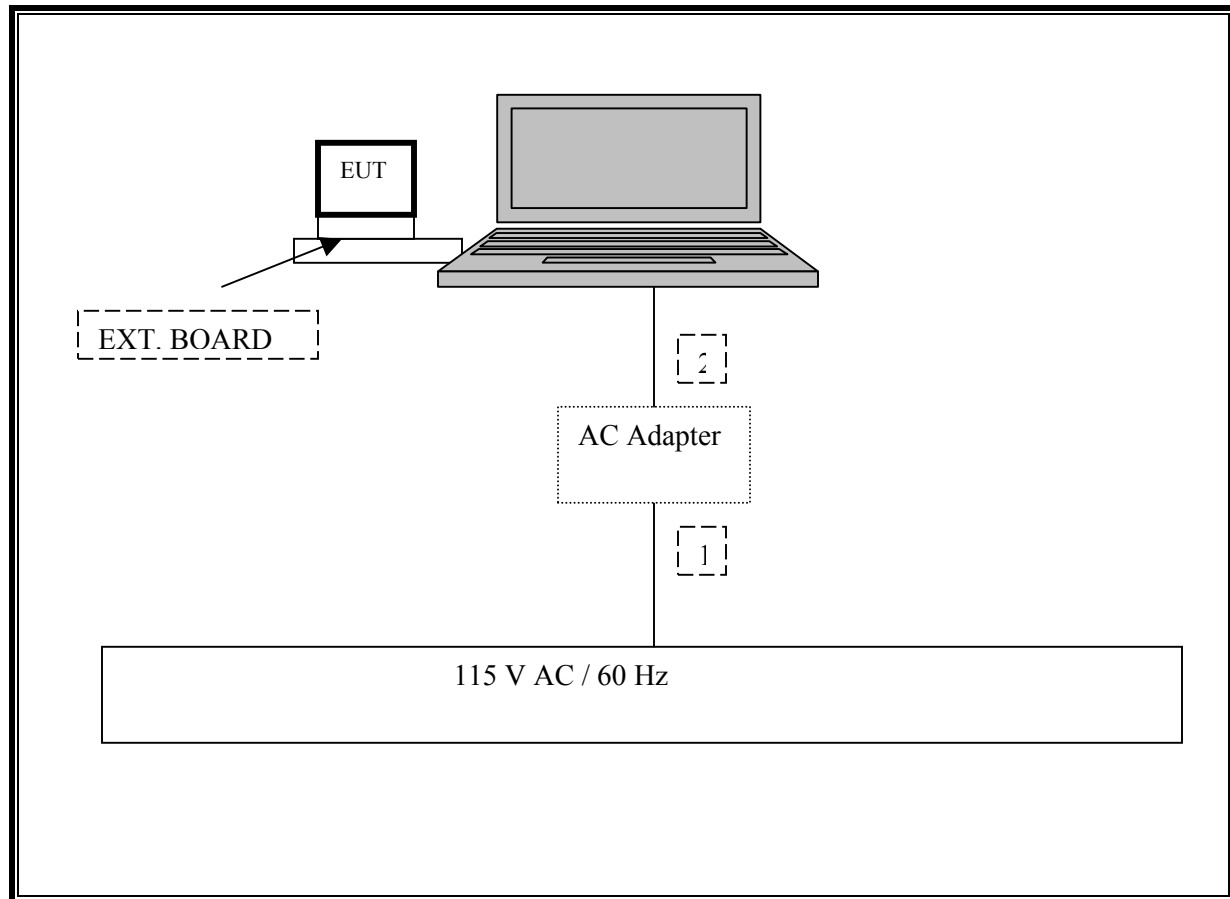
### I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	Unshielded	1.8m	N/A
2	DC	1	DC	Unshielded	1.8m	N/A

### TEST SETUP

The EUT is installed in a host laptop computer via an extension board during the tests. Test software exercised the radio card.

**SETUP DIAGRAM FOR TESTS**





## 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	S/N	Cal Due
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42070220	11/26/07
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	04/15/08
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	08/06/07
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/03/07
2.4-2.5 GHz Reject Filter	Micro-Tronics	BRM50702	1	CNR
SA Display Section 2	Agilent / HP	85662A	2816A16696	04/07/08
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/03/07
SA RF Section, 1.5 GHz	Agilent / HP	85680B	2814A04227	01/07/08
Antenna, Bilog 30 MHz ~ 2 GHz	Sunol Sciences	JB1	A121003	08/13/07
Preamp 30-1000MHz	Sonoma	310N	185623	01/20/08
EMI Test Receiver	R & S	ESHS 20	827129/006	01/27/08
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	09/15/07
Power Meter	Agilent / HP	438B	3125U09516	06/02/08
Power Sensor 10MHz - 18GHz	Agilent / HP	8481A	2237A31744	04/30/08

## 7. LIMITS AND RESULTS

### 7.1. RADIATED EMISSIONS

#### 7.1.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

##### LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

## **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.

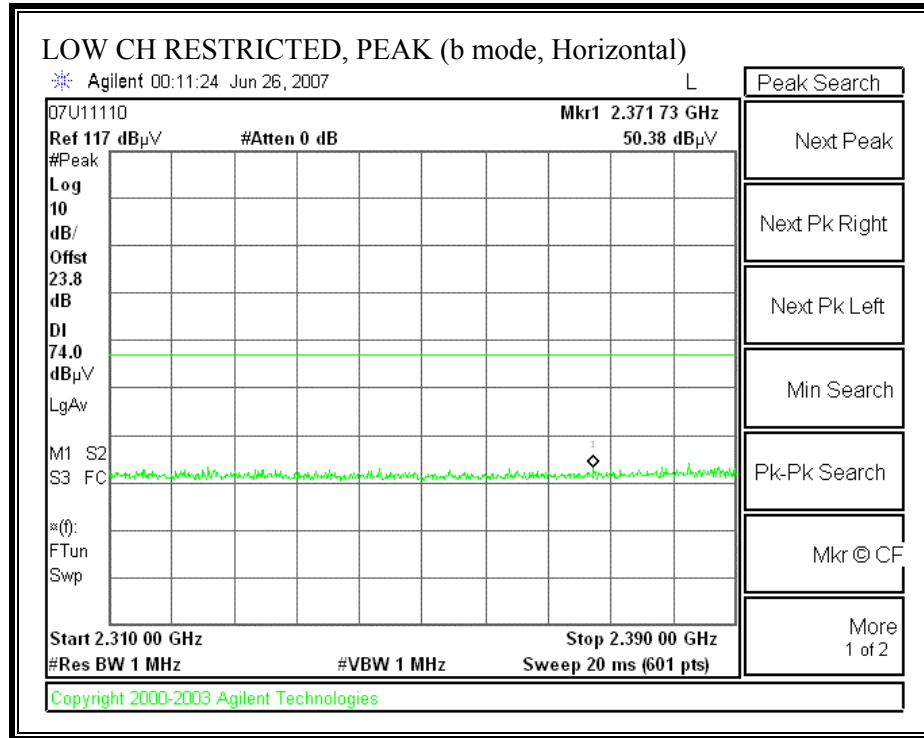
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

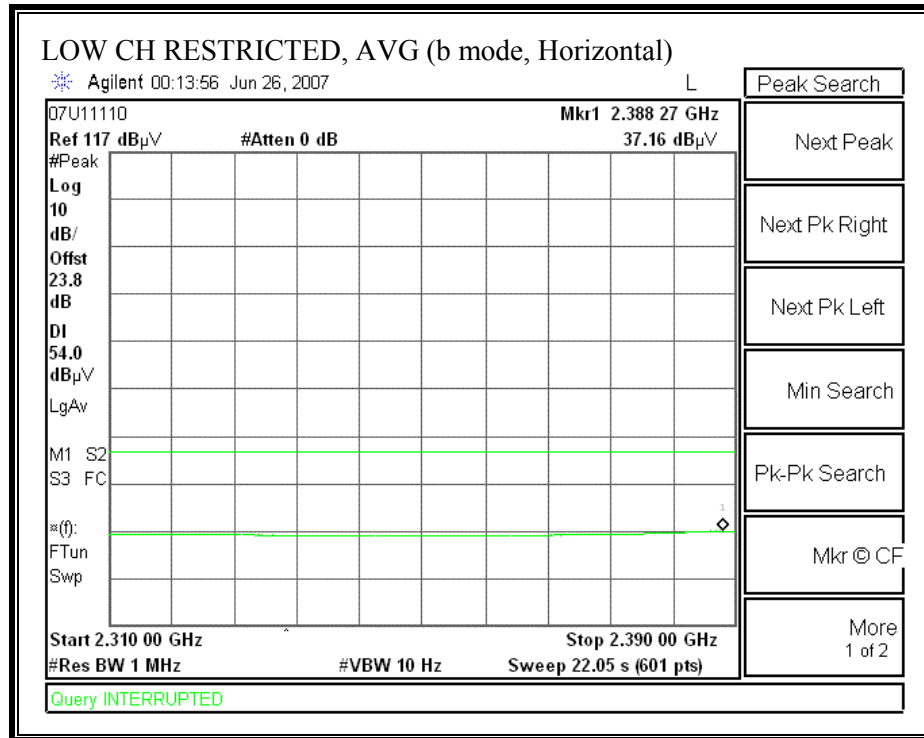
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

## 7.1.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

### RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2412MHz, HORIZONTAL)

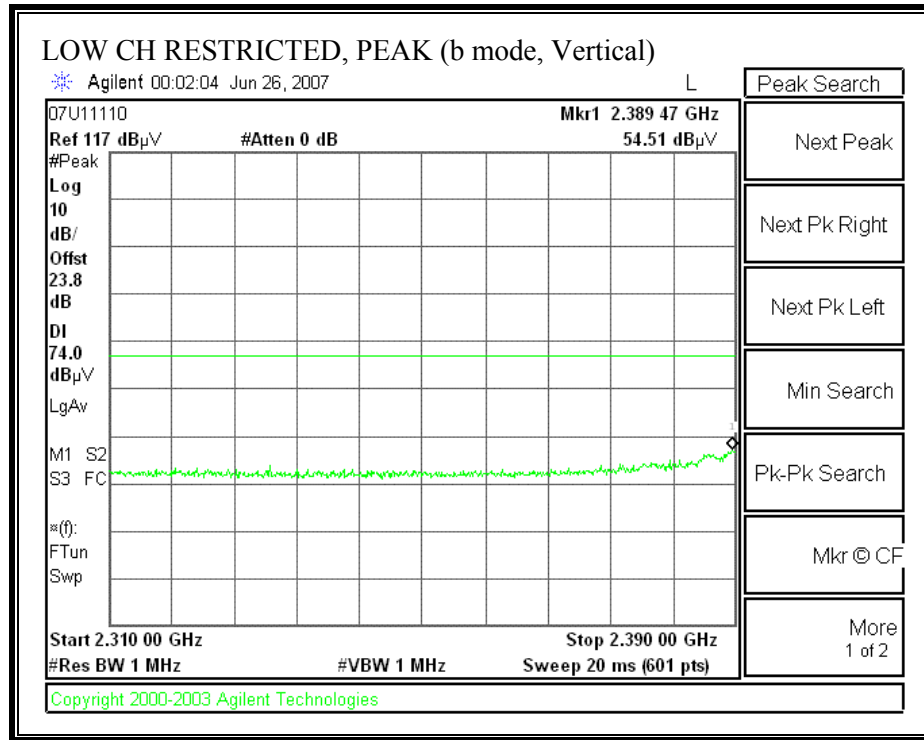
#### Channel 1

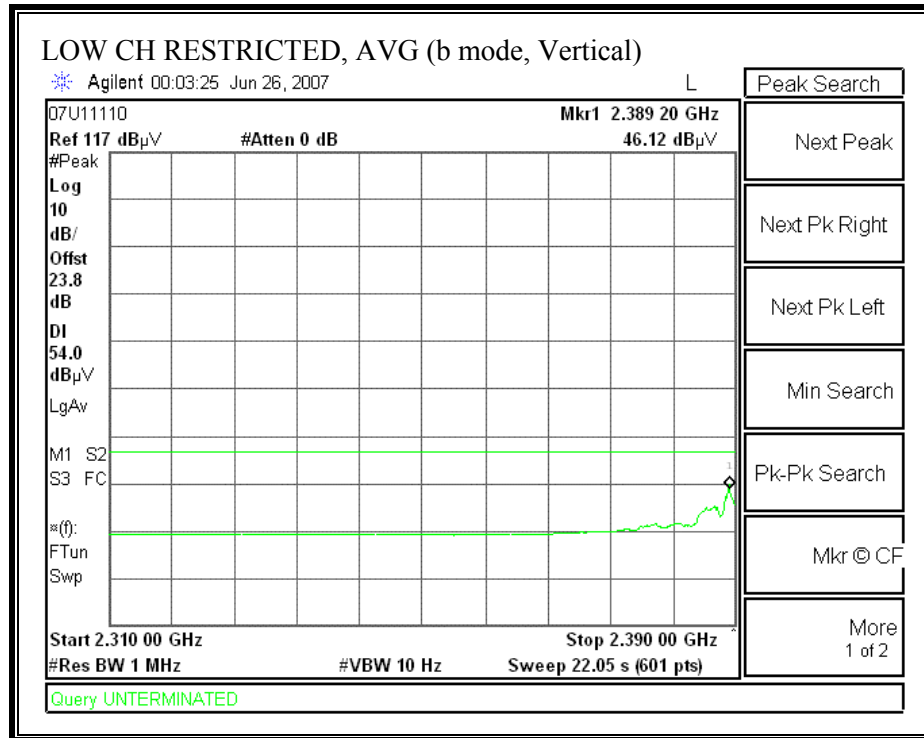




**RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2412MHz, VERTICAL)**

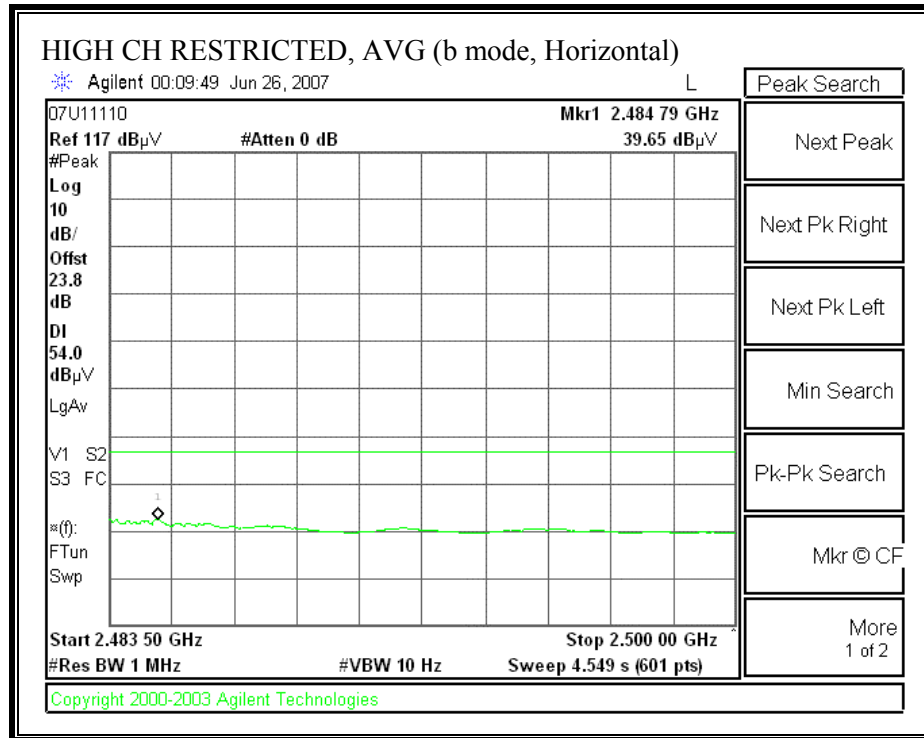
**Channel 1**





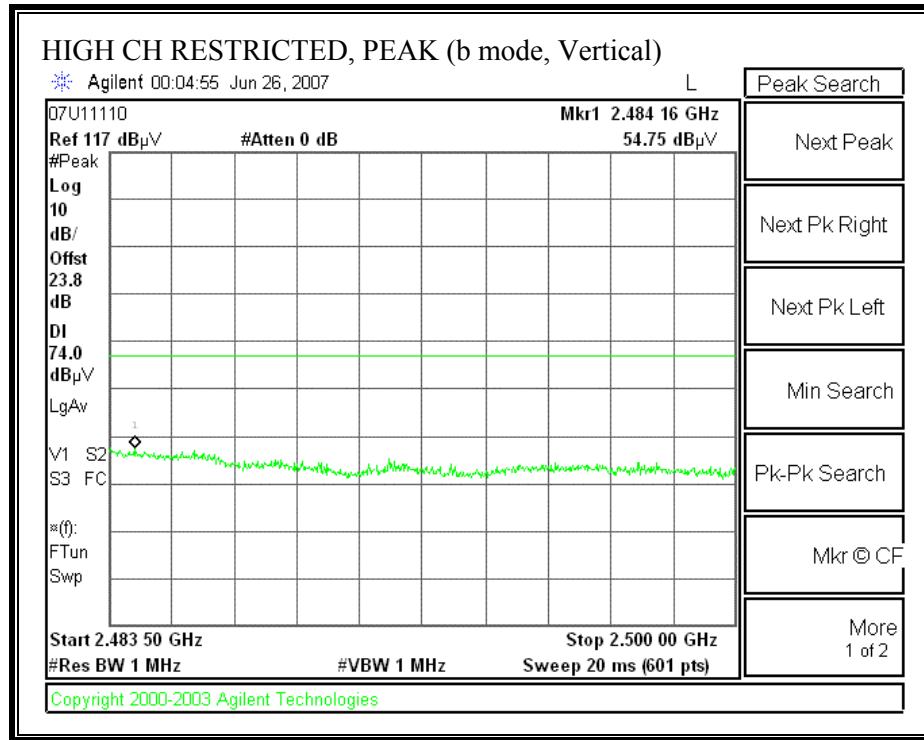


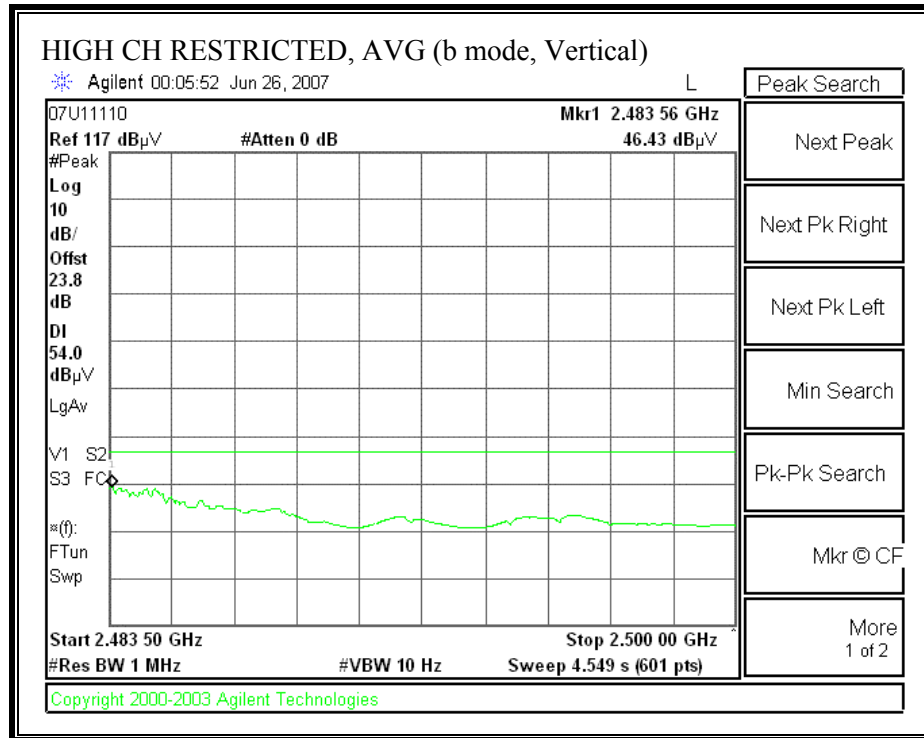




**RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, 2462MHz, VERTICAL)**

**Channel 11**



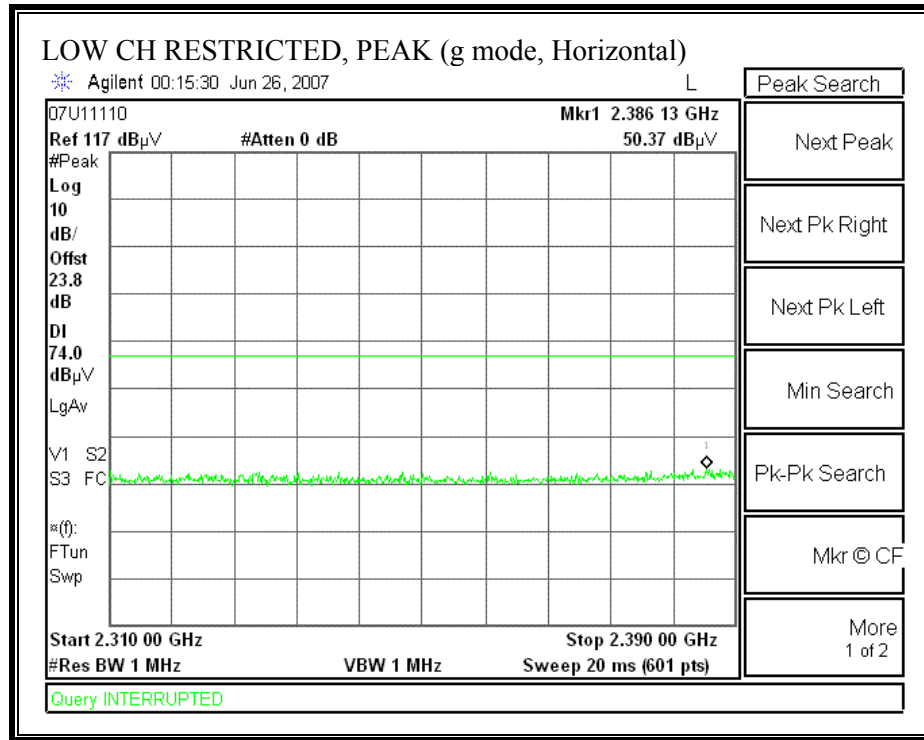


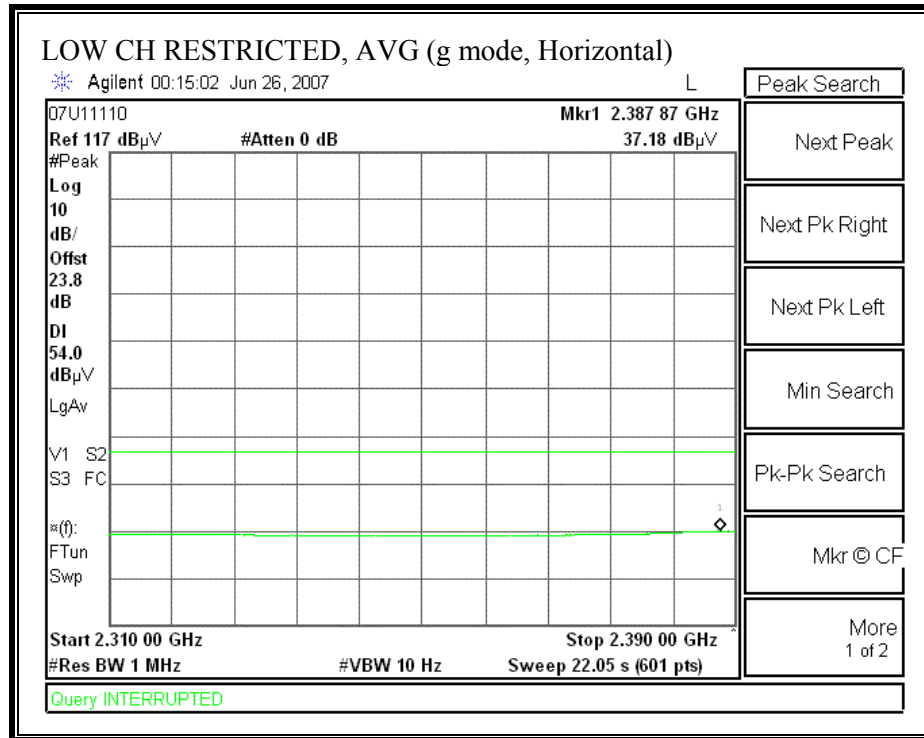
# HARMONICS AND SPURIOUS EMISSIONS (b MODE)

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Broadcom Project #: 07U11110 Date: 07/10/07 Test Engineer: Keith Ng Configuration: EUT only Mode: Tx 2.4GHz b Mode															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T120; S/N: 29310 @3m		T34 HP 8449B						FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
				A5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dBm	CL dB	Amp dB	D Corr dB	Fltn dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LO (2412MHz)															
1.318	3.0	56.3	35.4	29.0	3.4	-37.8	0.0	0.0	50.9	30.0	74	54	-23.1	-24.0	H
4.824	3.0	41.2	29.6	33.7	6.9	-34.8	0.0	0.0	46.9	35.3	74	54	-27.1	-18.7	H
1.065	3.0	51.2	35.6	28.1	3.1	-38.2	0.0	0.0	44.2	28.6	74	54	-29.8	-25.4	V
1.320	3.0	51.8	35.0	29.1	3.4	-37.8	0.0	0.0	46.5	29.7	74	54	-27.5	-24.3	V
4.824	3.0	42.7	29.9	33.7	6.9	-34.8	0.0	0.0	48.4	35.6	74	54	-25.6	-18.4	V
MID(2437MHz)															
1.320	3.0	57.2	35.9	29.1	3.4	-37.8	0.0	0.0	51.9	30.6	74	54	-22.1	-23.4	H
4.874	3.0	41.2	29.3	33.7	6.9	-34.8	0.0	0.0	47.0	35.2	74	54	-27.0	-18.8	H
1.051	3.0	50.9	35.6	28.0	3.1	-38.2	0.0	0.0	43.8	28.5	74	54	-30.2	-25.5	V
1.321	3.0	51.7	36.2	29.1	3.4	-37.8	0.0	0.0	46.3	30.8	74	54	-27.7	-23.2	V
4.874	3.0	40.9	30.0	33.7	6.9	-34.8	0.0	0.0	46.7	35.9	74	54	-27.3	-18.1	V
HI(2462MHz)															
1.063	3.0	50.6	36.4	28.1	3.1	-38.2	0.0	0.0	43.6	29.4	74	54	-30.4	-24.6	H
1.317	3.0	55.1	35.1	29.0	3.4	-37.8	0.0	0.0	49.7	29.7	74	54	-24.3	-24.3	H
4.924	3.0	39.1	28.6	33.8	7.0	-34.8	0.0	0.0	45.1	34.6	74	54	-28.9	-19.4	H
1.060	3.0	51.7	39.2	28.1	3.1	-38.2	0.0	0.0	44.7	32.2	74	54	-29.3	-21.8	V
1.300	3.0	53.7	36.7	29.0	3.4	-37.8	0.0	0.0	48.2	31.2	74	54	-25.8	-22.8	V
4.924	3.0	40.4	28.7	33.8	7.0	-34.8	0.0	0.0	46.3	34.6	74	54	-27.7	-19.4	V
f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor CL Cable Loss Amp Preamp Gain D Corr Distance Correct to 3 meters Avg Average Field Strength @ 3 m Peak Calculated Peak Field Strength HPF High Pass Filter Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit															

**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2412MHz, HORIZONTAL)**

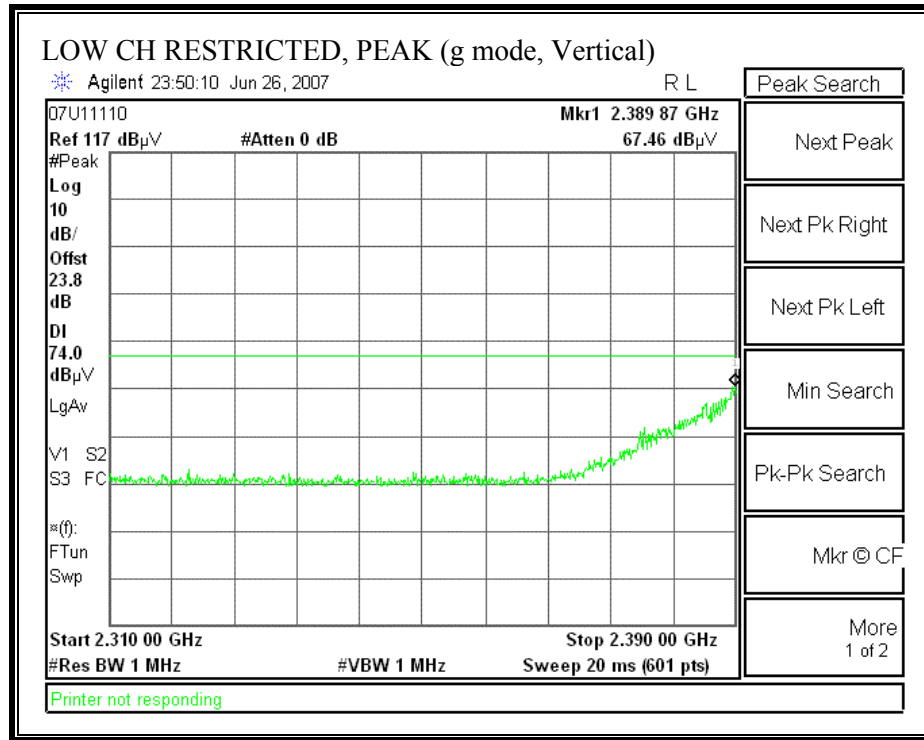
**Channel 1**

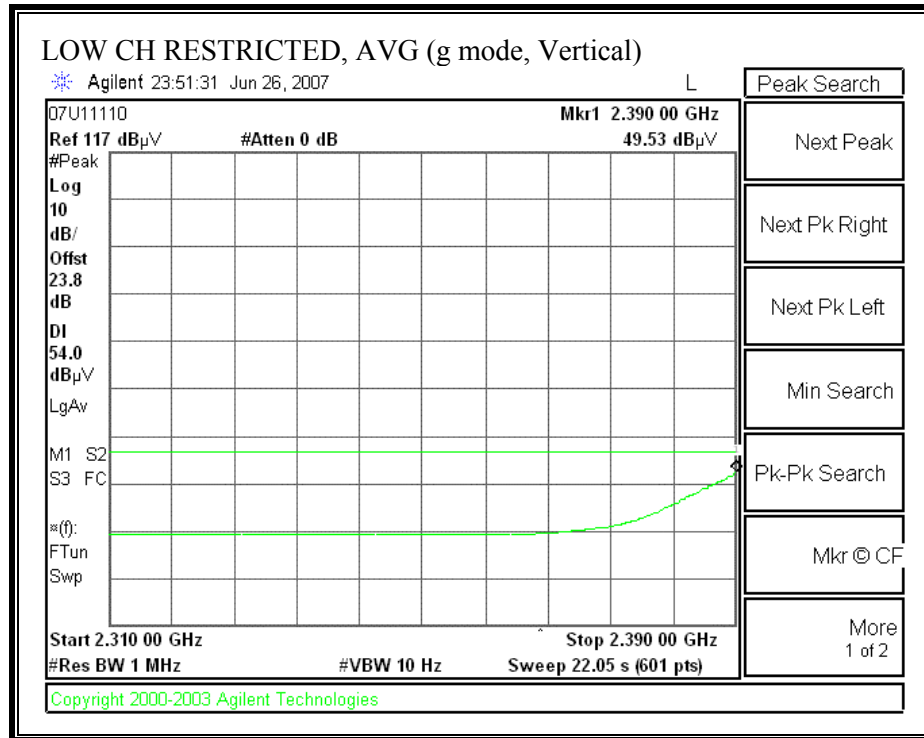




**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2412MHz, VERTICAL)**

**Channel 1**

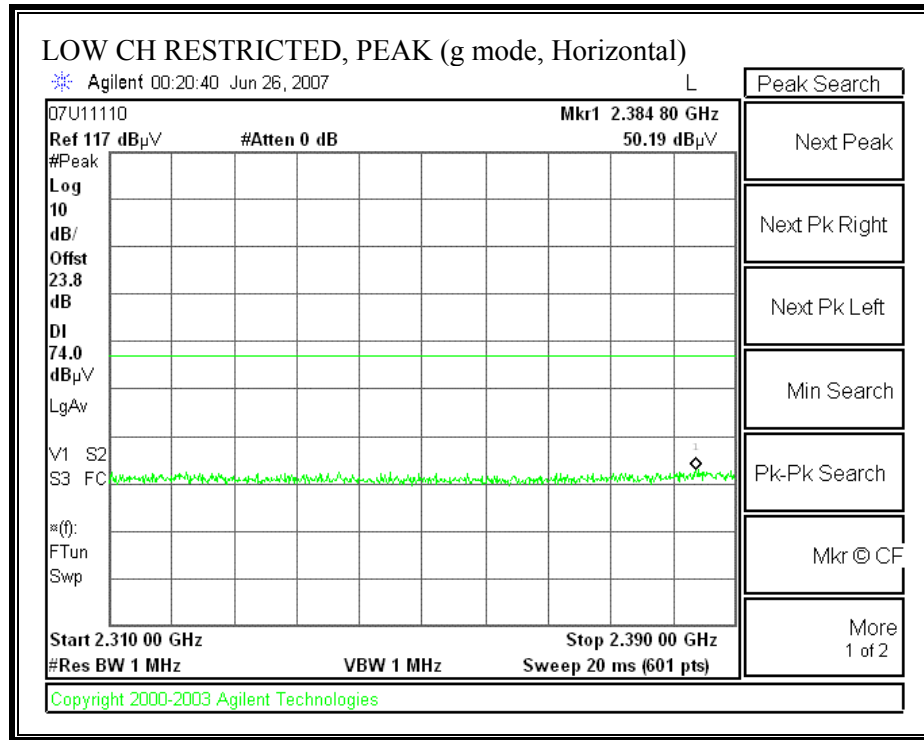


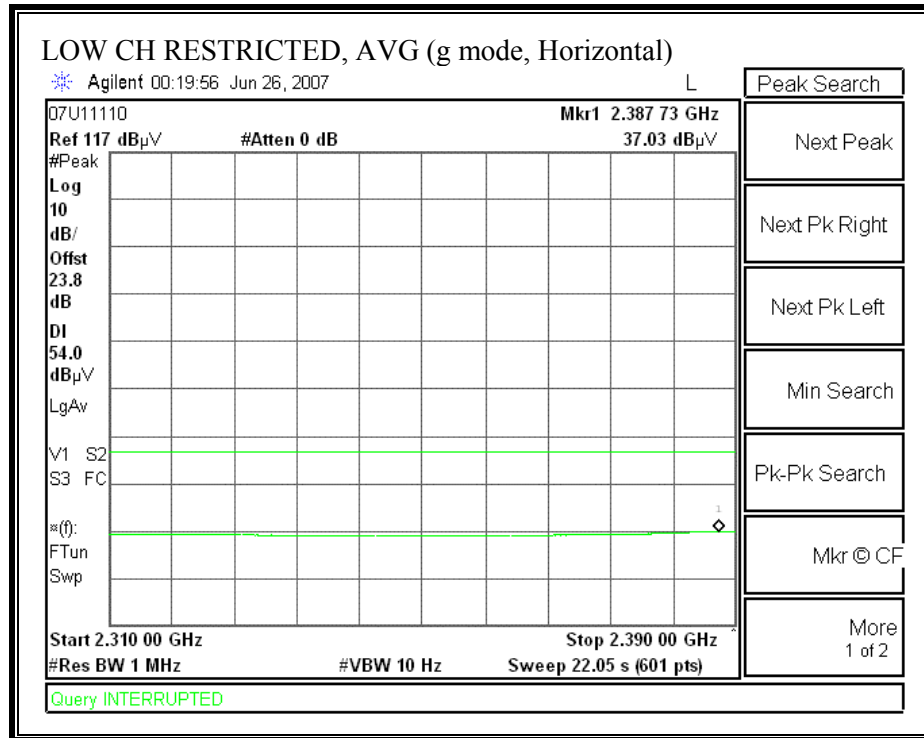




**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2417MHz,HORIZONTAL)**

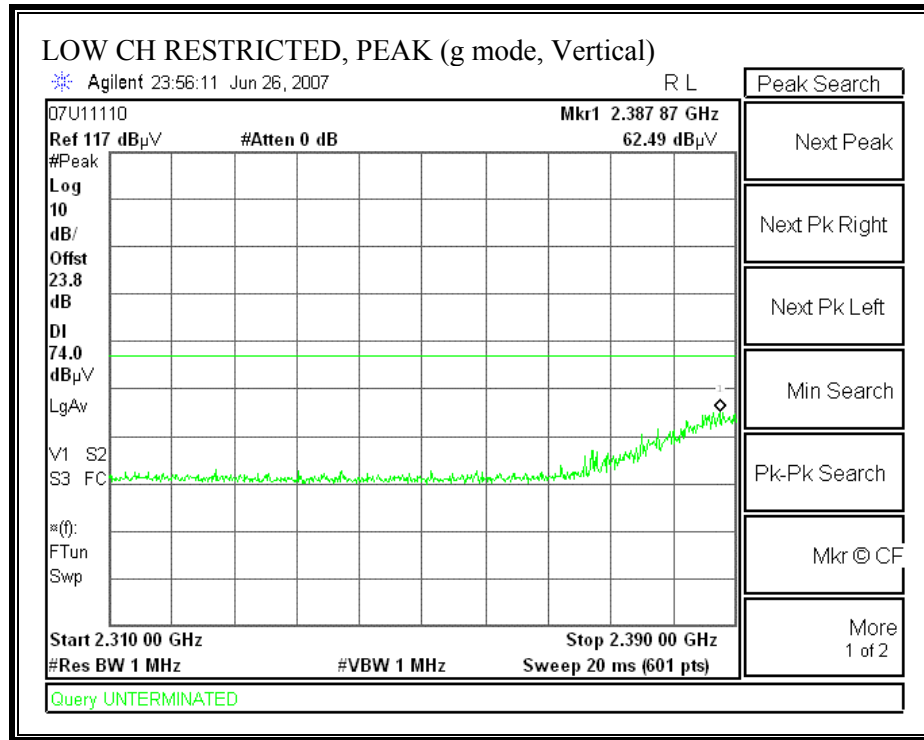
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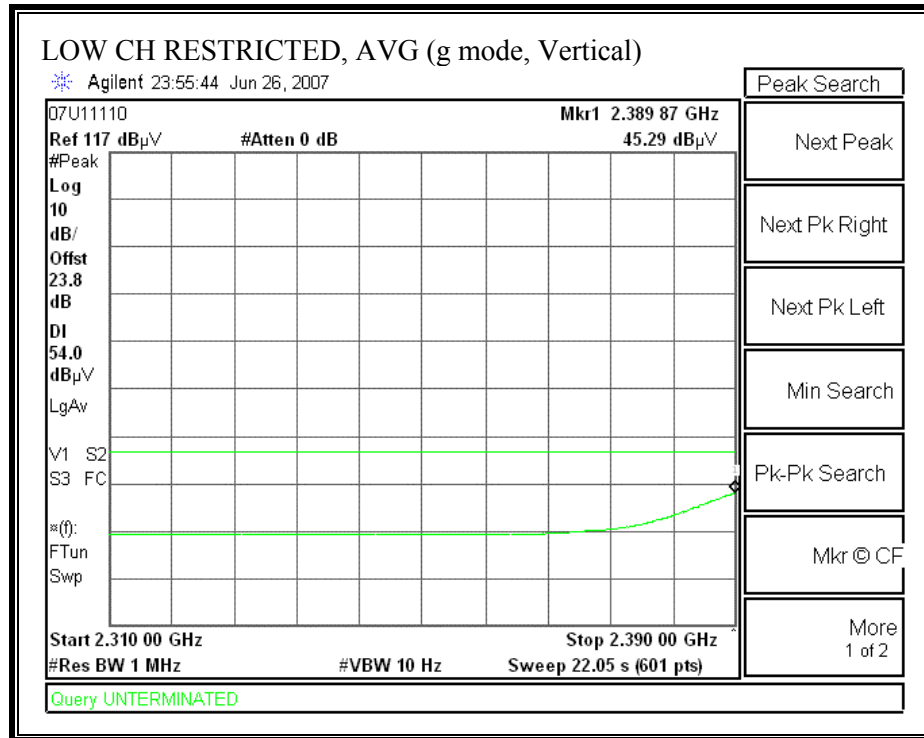




**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2417MHz, VERTICAL)**

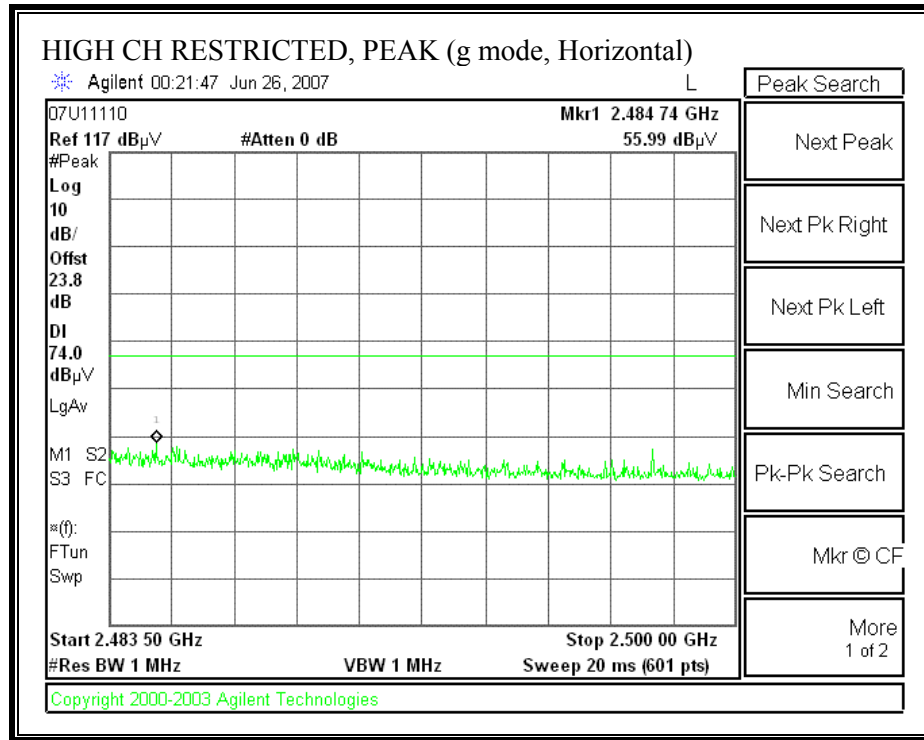
**Channel 2**

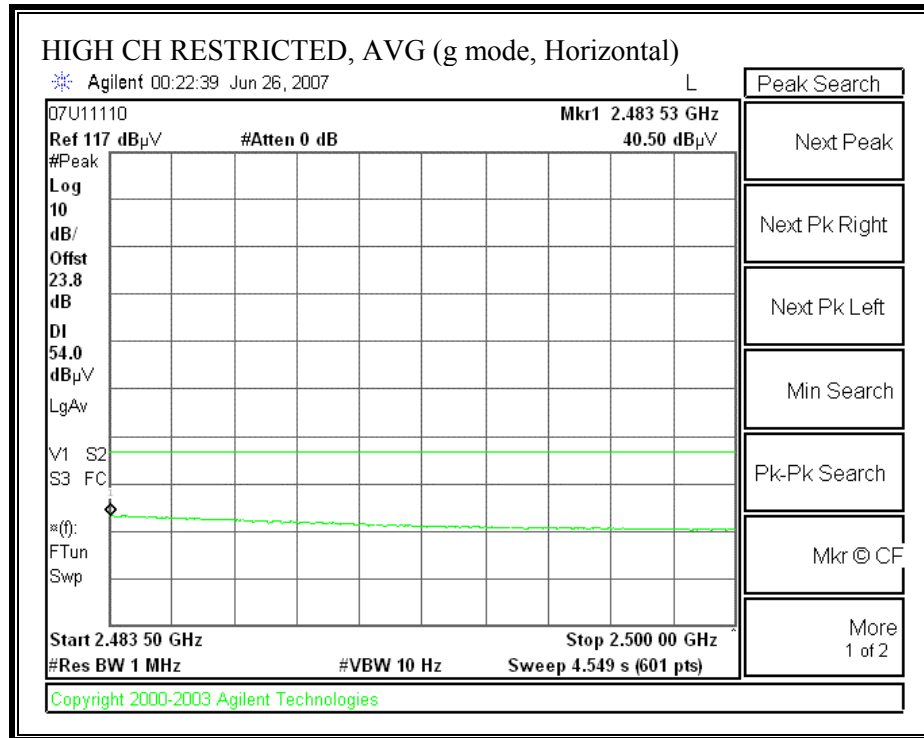




**RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2457MHz, HORIZONTAL)**

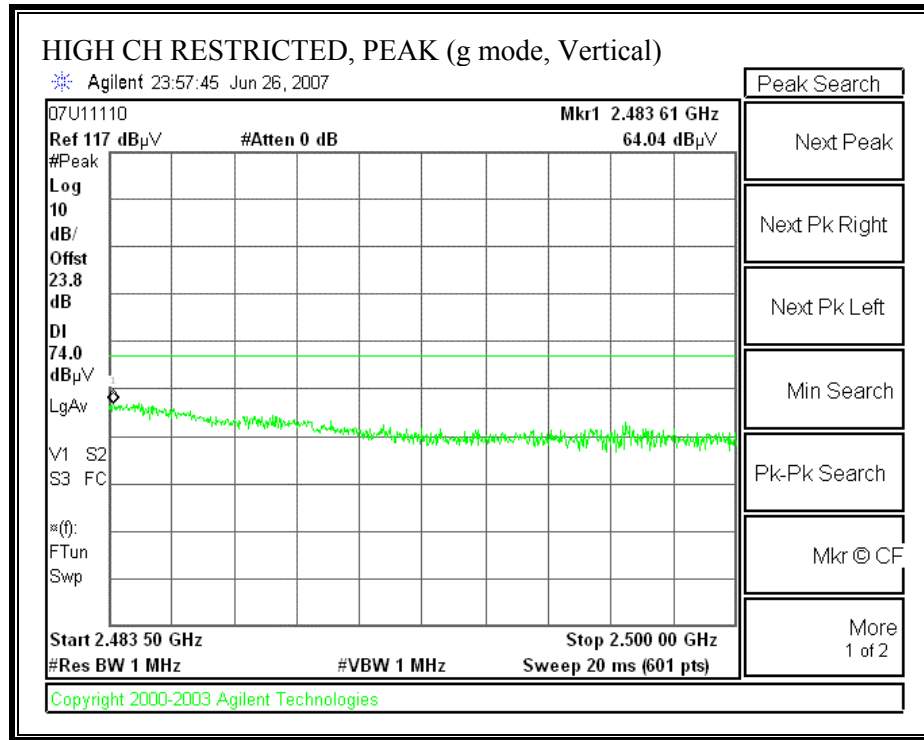
**Channel 10**

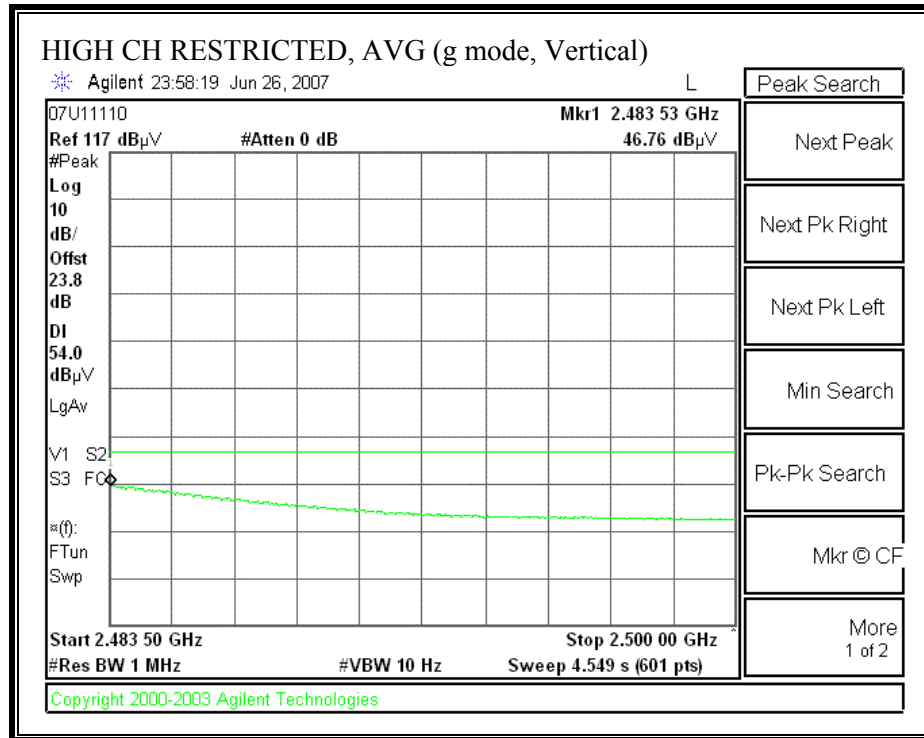




**RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2457MHz, VERTICAL)**

**Channel 10**

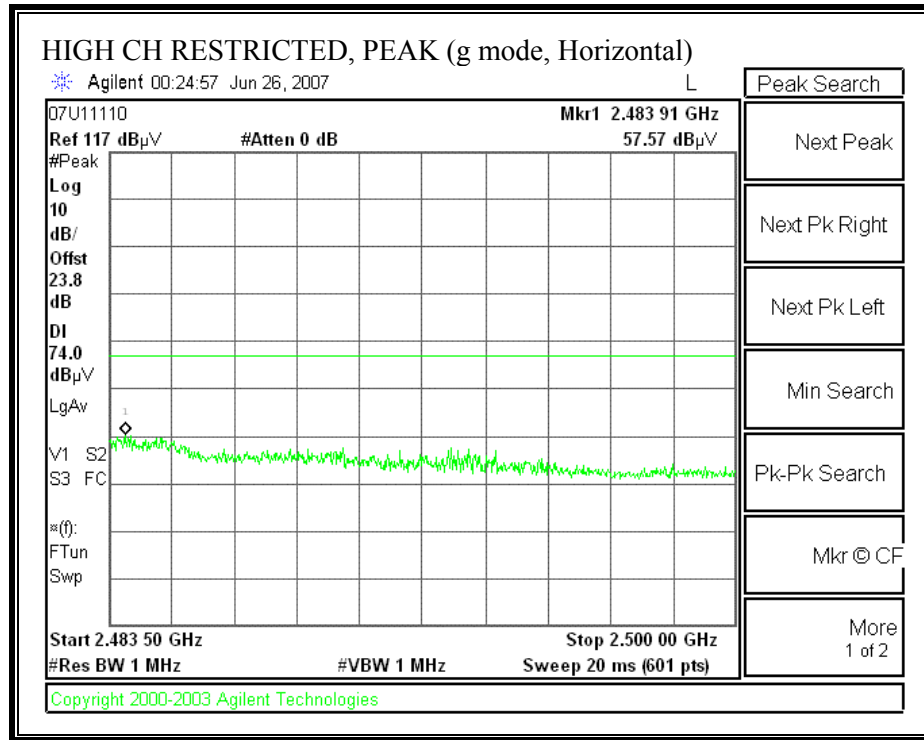


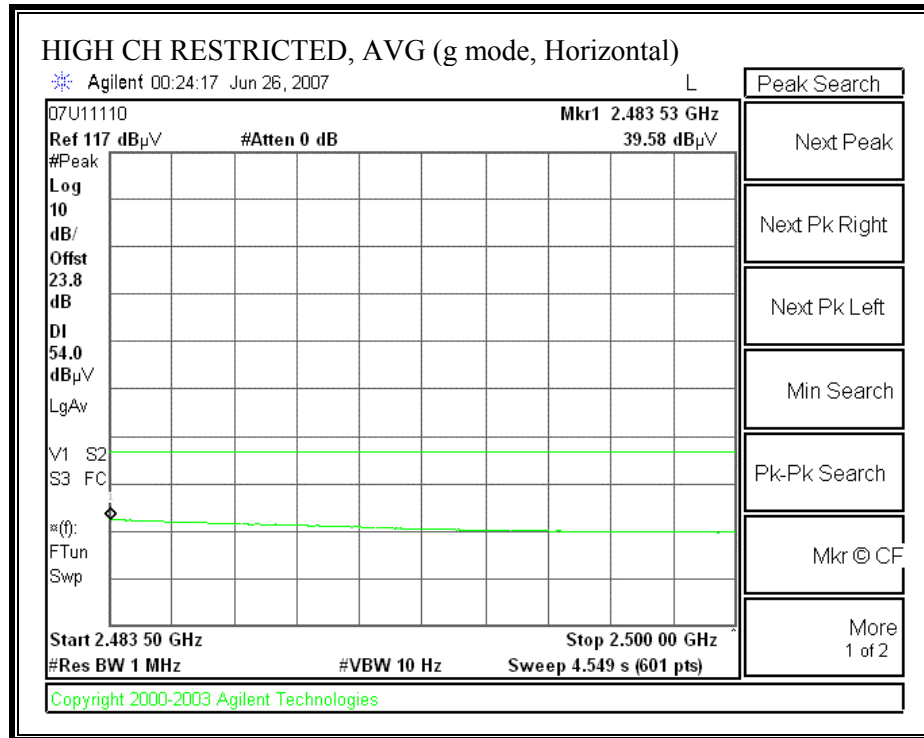




**RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2462MHz, HORIZONTAL)**

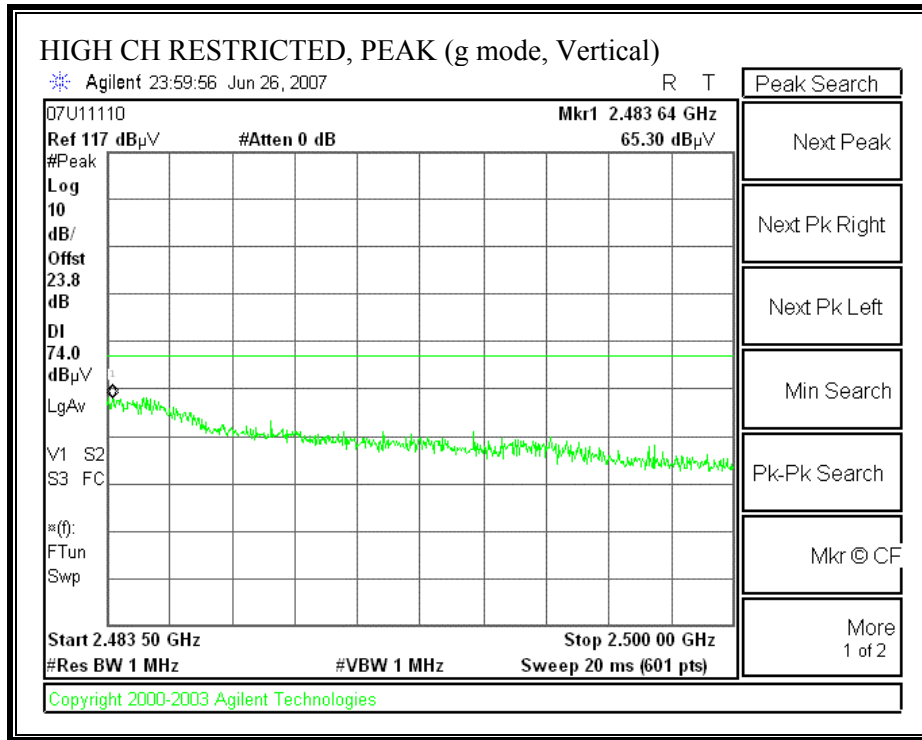
**Channel 11**

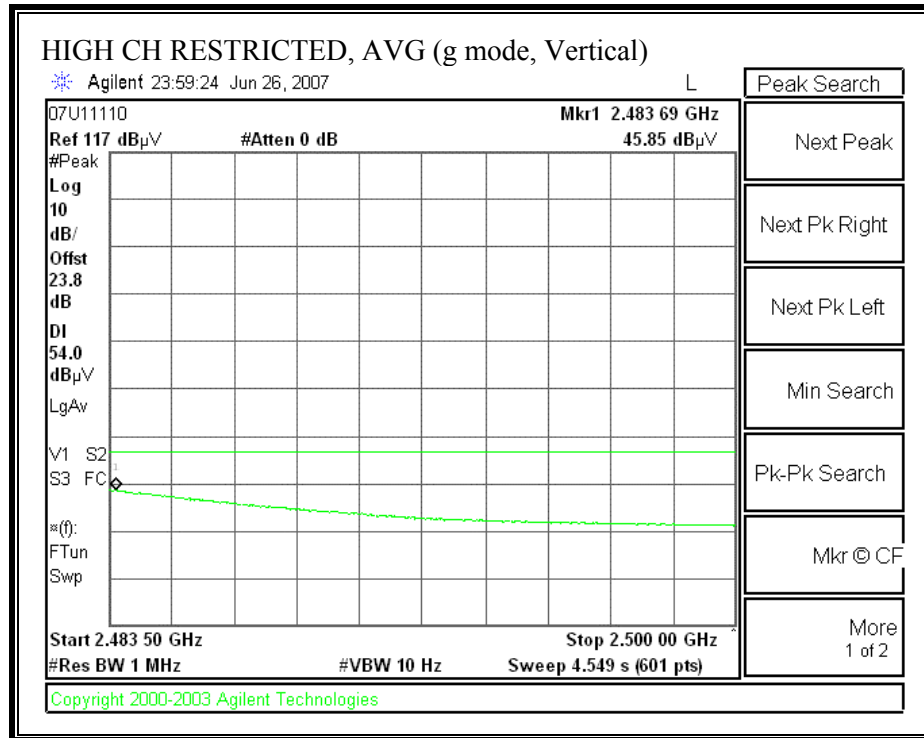




**RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2462MHz, VERTICAL)**

**Channel 11**





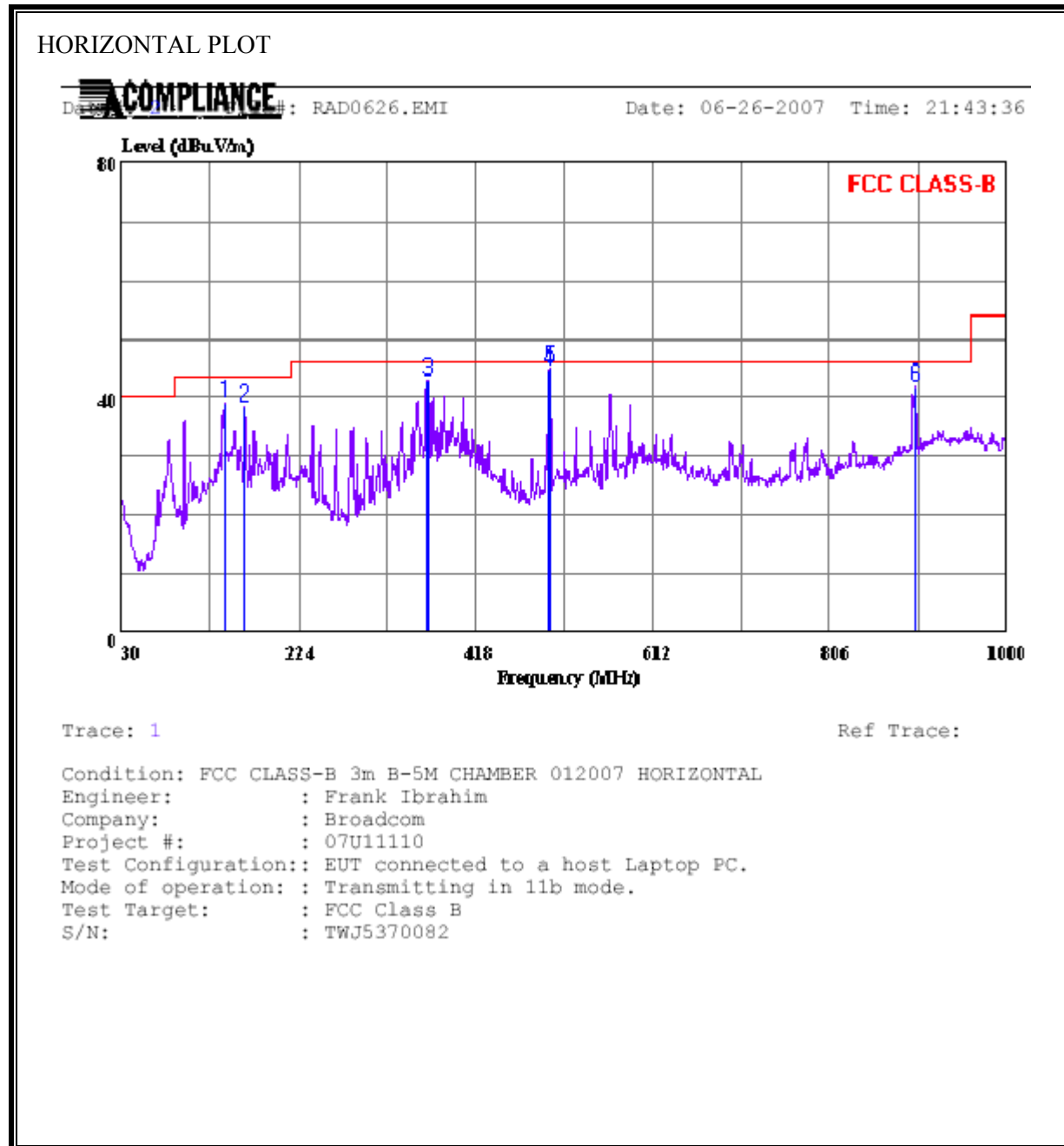
# **HARMONICS AND SPURIOUS EMISSIONS (g MODE)**

High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber																	
Company:		Broadcom															
Project #:		07U11110															
Date:		6/26/2007															
Test Engineer:		Keith Ng															
Configuration:		EUT Only															
Mode:		Tx 2.4GHz g mode															
Test Equipment:																	
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit	
T120; S/N: 29310 @3m				T34 HP 8449B												FCC 15.205	
Hi Frequency Cables																	
2 foot cable				3 foot cable				12 foot cable				HPF				Reject Filter	
								A5m Chamber								R_001	
<div> <div>Peak Measurements</div> <div>REW=VBW=1MHz</div> <div>Average Measurements</div> <div>RBW=1MHz ; VBW=10Hz</div> </div>																	
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dBm	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
<b>LO(2412MHz)</b>																	
1.066	3.0	59.2	39.6	28.1	3.1	-38.2	0.0	0.0	52.3	32.6	74	54	-21.7	-21.4	V		
1.318	3.0	55.1	39.3	29.0	3.4	-37.8	0.0	0.0	49.8	33.9	74	54	-24.2	-20.1	V		
4.824	3.0	62.2	45.6	33.7	6.9	-34.8	0.0	0.0	67.9	51.3	74	54	-6.1	-2.7	V		
1.067	3.0	59.3	40.2	28.1	3.1	-38.2	0.0	0.0	52.3	33.2	74	54	-21.7	-20.8	H		
1.323	3.0	57.4	38.8	29.1	3.4	-37.8	0.0	0.0	52.1	33.4	74	54	-21.9	-20.6	H		
4.824	3.0	56.1	40.4	33.7	6.9	-34.8	0.0	0.0	61.8	46.2	74	54	-12.2	-7.8	H		
<b>MID (2437MHz)</b>																	
1.060	3.0	59.1	40.6	28.1	3.1	-38.2	0.0	0.0	52.1	33.6	74	54	-21.9	-20.4	V		
1.319	3.0	57.4	38.0	29.0	3.4	-37.8	0.0	0.0	52.0	32.7	74	54	-22.0	-21.3	V		
4.874	3.0	60.4	43.0	33.7	6.9	-34.8	0.0	0.0	66.2	48.9	74	54	-7.8	-5.1	V		
7.311	3.0	45.0	31.9	35.2	8.4	-34.1	0.0	0.0	54.5	41.4	74	54	-19.5	-12.6	V		
1.066	3.0	58.7	42.1	28.1	3.1	-38.2	0.0	0.0	51.7	35.1	74	54	-22.3	-18.9	H		
1.320	3.0	59.0	40.4	29.1	3.4	-37.8	0.0	0.0	53.6	35.0	74	54	-20.4	-19.0	H		
4.874	3.0	55.7	38.9	33.7	6.9	-34.8	0.0	0.0	61.5	44.7	74	54	-12.5	-9.3	H		
7.311	3.0	42.3	30.0	35.2	8.4	-34.1	0.0	0.0	51.8	39.5	74	54	-22.2	-14.5	H		
<b>HI (2462MHz)</b>																	
1.064	3.0	57.9	40.1	28.1	3.1	-38.2	0.0	0.0	50.9	33.1	74	54	-23.1	-20.9	V		
1.314	3.0	54.2	39.5	29.0	3.4	-37.8	0.0	0.0	48.9	34.1	74	54	-25.1	-19.9	V		
4.924	3.0	52.4	35.7	33.8	7.0	-34.8	0.0	0.0	58.3	41.6	74	54	-15.7	-12.4	V		
7.386	3.0	39.5	28.5	35.2	8.4	-34.1	0.0	0.0	49.1	38.1	74	54	-24.9	-15.9	V		
1.056	3.0	60.5	41.4	28.1	3.1	-38.2	0.0	0.0	53.4	34.4	74	54	-20.6	-19.6	H		
1.317	3.0	61.1	38.9	29.0	3.4	-37.8	0.0	0.0	55.7	33.5	74	54	-18.3	-20.5	H		
4.924	3.0	54.0	36.0	33.8	7.0	-34.8	0.0	0.0	59.9	42.0	74	54	-14.1	-12.0	H		
7.386	3.0	45.7	33.4	35.2	8.4	-34.1	0.0	0.0	55.2	42.9	74	54	-18.8	-11.1	H		
Rev. 412.7																	
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										

### 7.1.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

11b MODE:

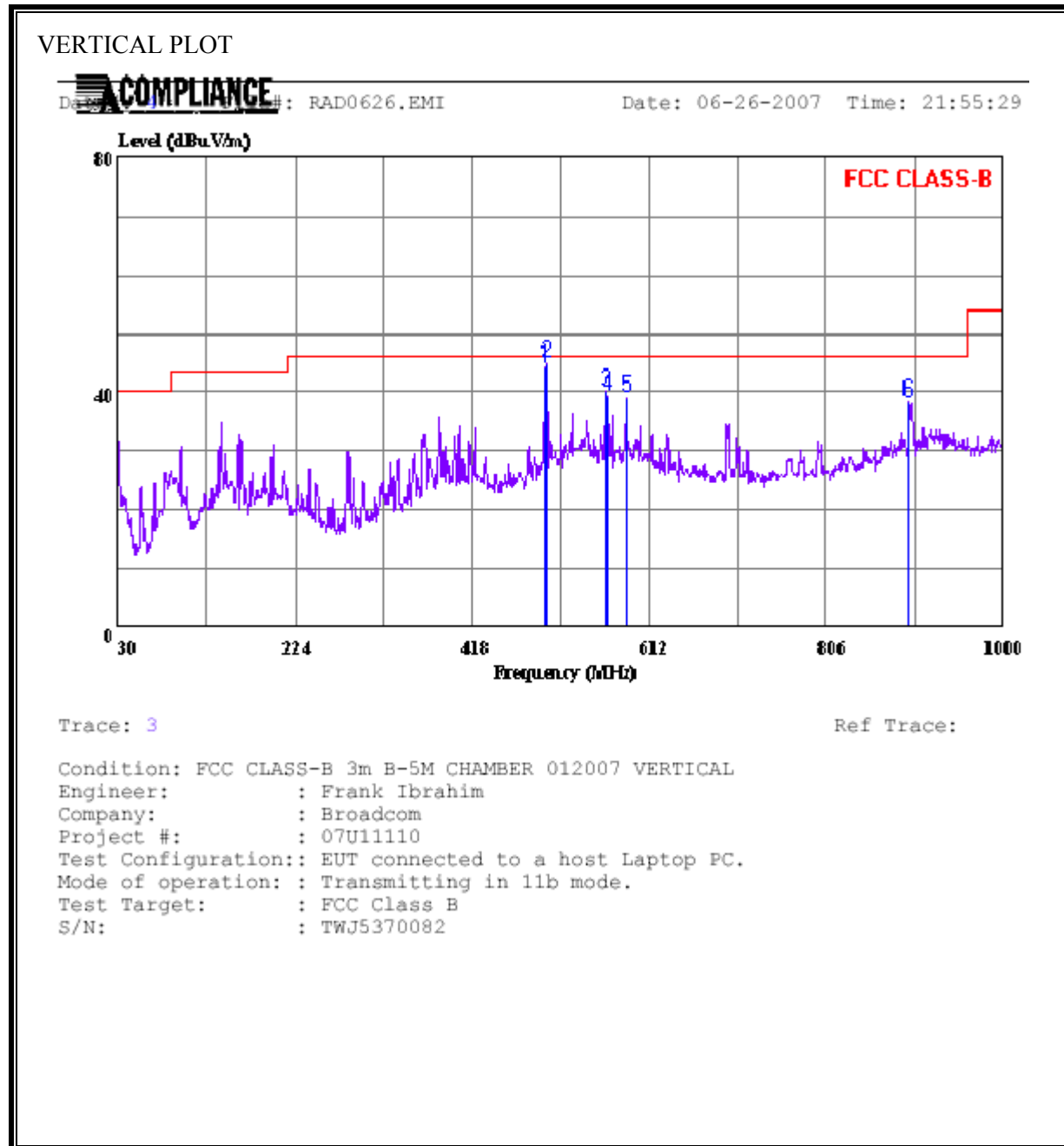
#### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



# HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	142.520	56.10	-16.90	39.20	43.50	-4.30	Peak
2	164.830	56.50	-17.89	38.61	43.50	-4.89	Peak
3	364.650	57.20	-14.11	43.09	46.00	-2.91	Peak
4	497.540	56.00	-11.40	44.60	46.00	-1.40	Peak
5	499.480	56.50	-11.33	45.17	46.00	-0.83	Peak
6	900.090	46.60	-4.77	41.83	46.00	-4.17	Peak

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



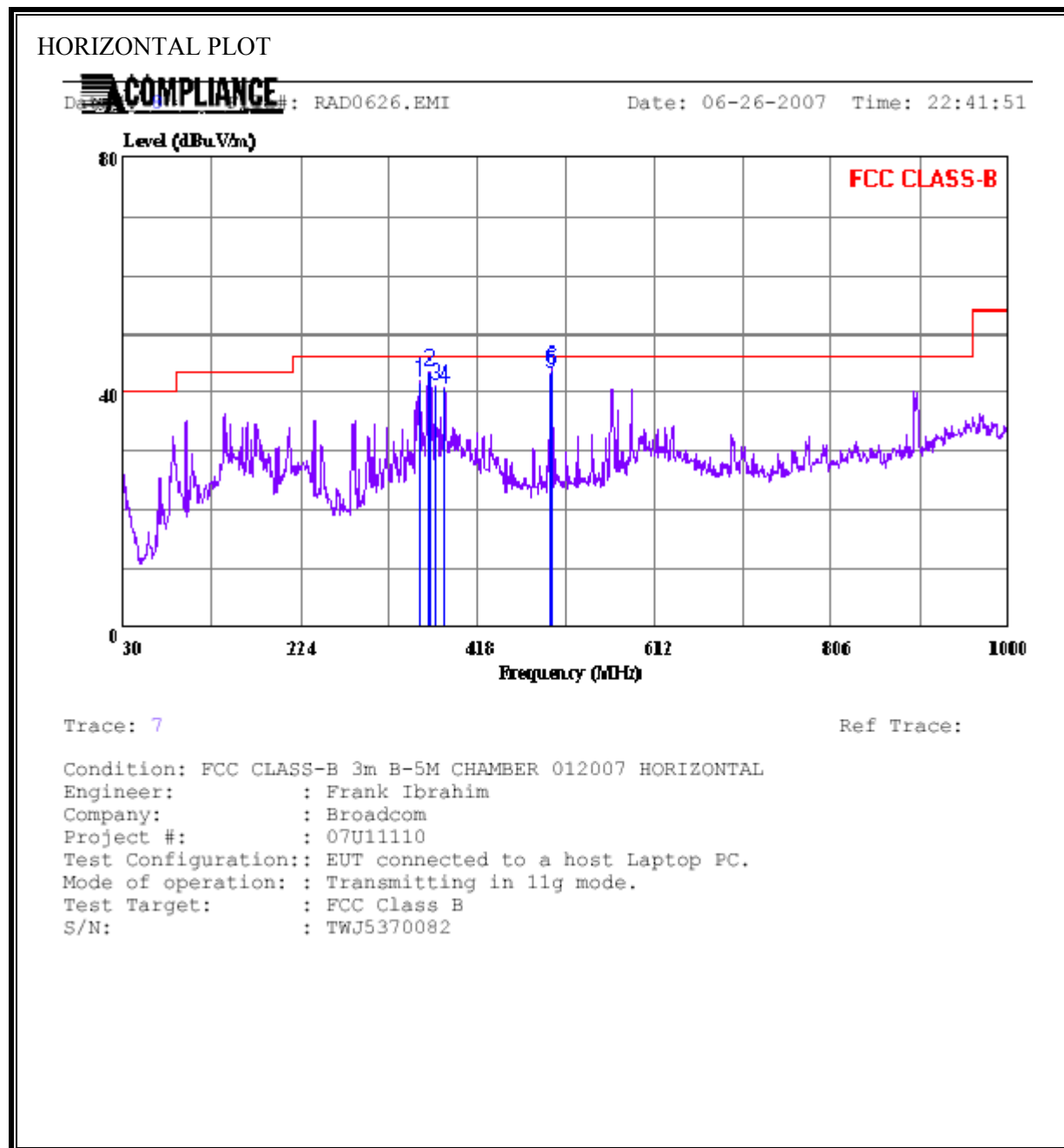


VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	497.540	55.80	-11.40	44.40	46.00	-1.60	Peak
2	499.480	56.30	-11.33	44.97	46.00	-1.03	Peak
3	563.500	50.70	-10.42	40.28	46.00	-5.72	Peak
4	566.410	50.00	-10.35	39.65	46.00	-6.35	Peak
5	586.780	49.10	-10.10	39.00	46.00	-7.00	Peak
6	896.210	43.60	-5.10	38.50	46.00	-7.50	Peak

**11g MODE:**

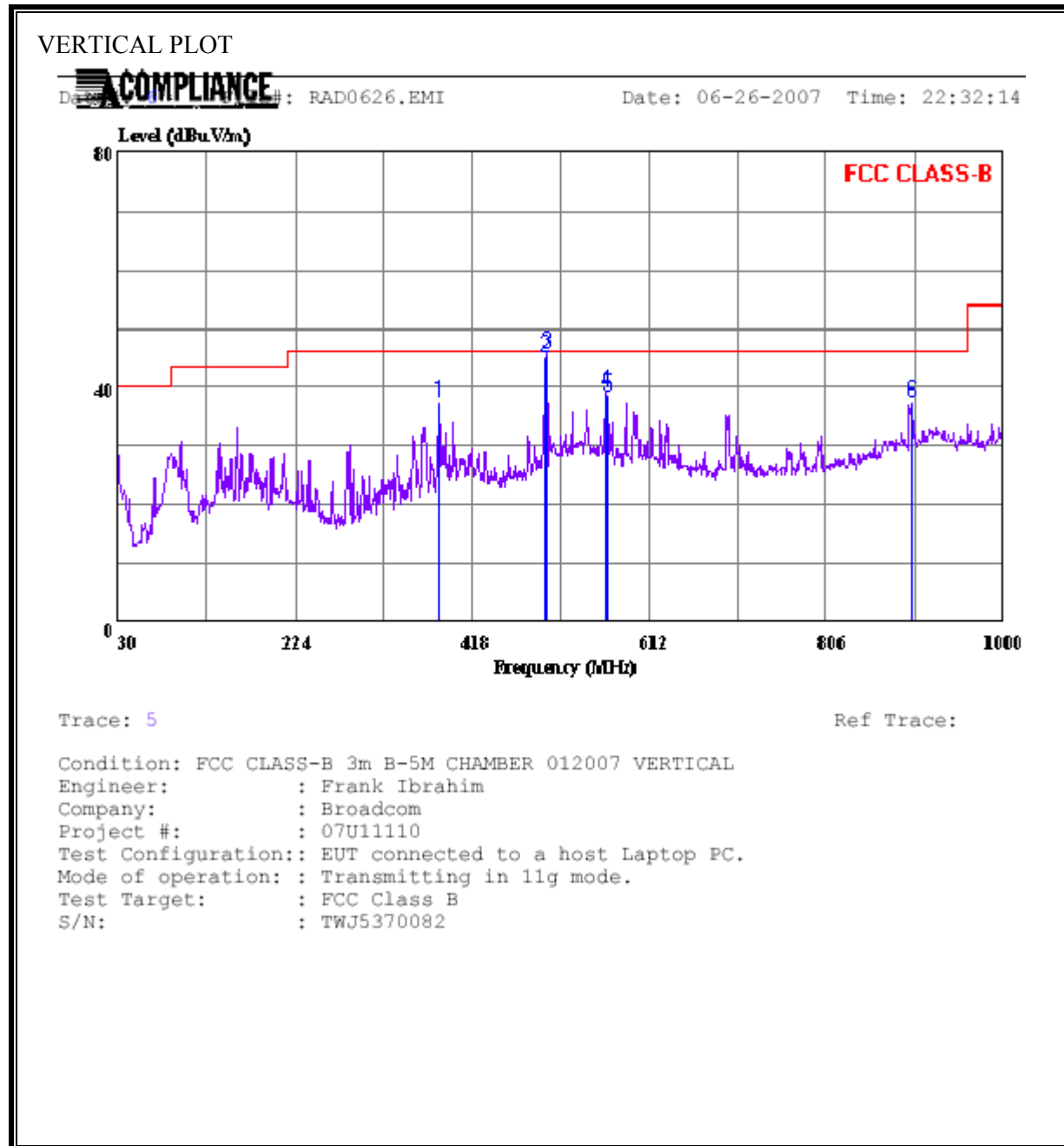
**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)**



HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	354.950	56.40	-14.46	41.94	46.00	-4.06	Peak
2	365.620	57.70	-14.14	43.56	46.00	-2.44	Peak
3	370.470	55.20	-14.10	41.10	46.00	-4.90	Peak
4	382.110	54.70	-13.72	40.98	46.00	-5.02	Peak
5	497.540	54.70	-11.40	43.30	46.00	-2.70	Peak
6	499.480	55.40	-11.33	44.07	46.00	-1.93	Peak

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



VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	381.140	51.10	-13.74	37.36	46.00	-8.64	Peak
2	497.540	56.40	-11.40	45.00	46.00	-1.00	Peak
3	499.480	57.10	-11.33	45.77	46.00	-0.23	Peak
4	563.500	49.50	-10.42	39.08	46.00	-6.92	Peak
5	566.410	48.90	-10.35	38.55	46.00	-7.45	Peak
6	900.090	42.30	-4.77	37.53	46.00	-8.47	Peak

## 7.2. POWERLINE CONDUCTED EMISSIONS

### LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

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 resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

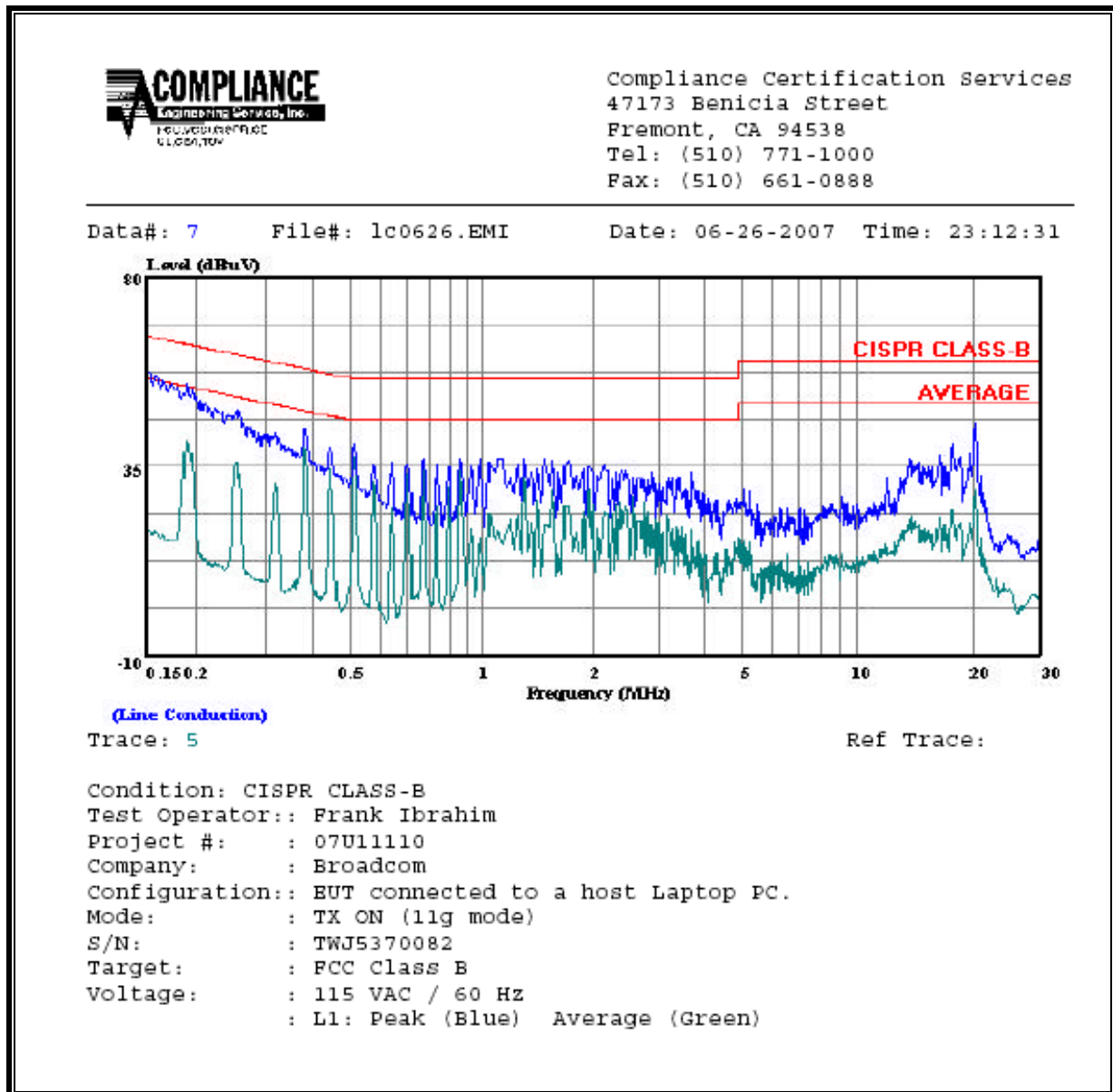
### RESULTS

No non-compliance noted:

# **6 WORST EMISSIONS**

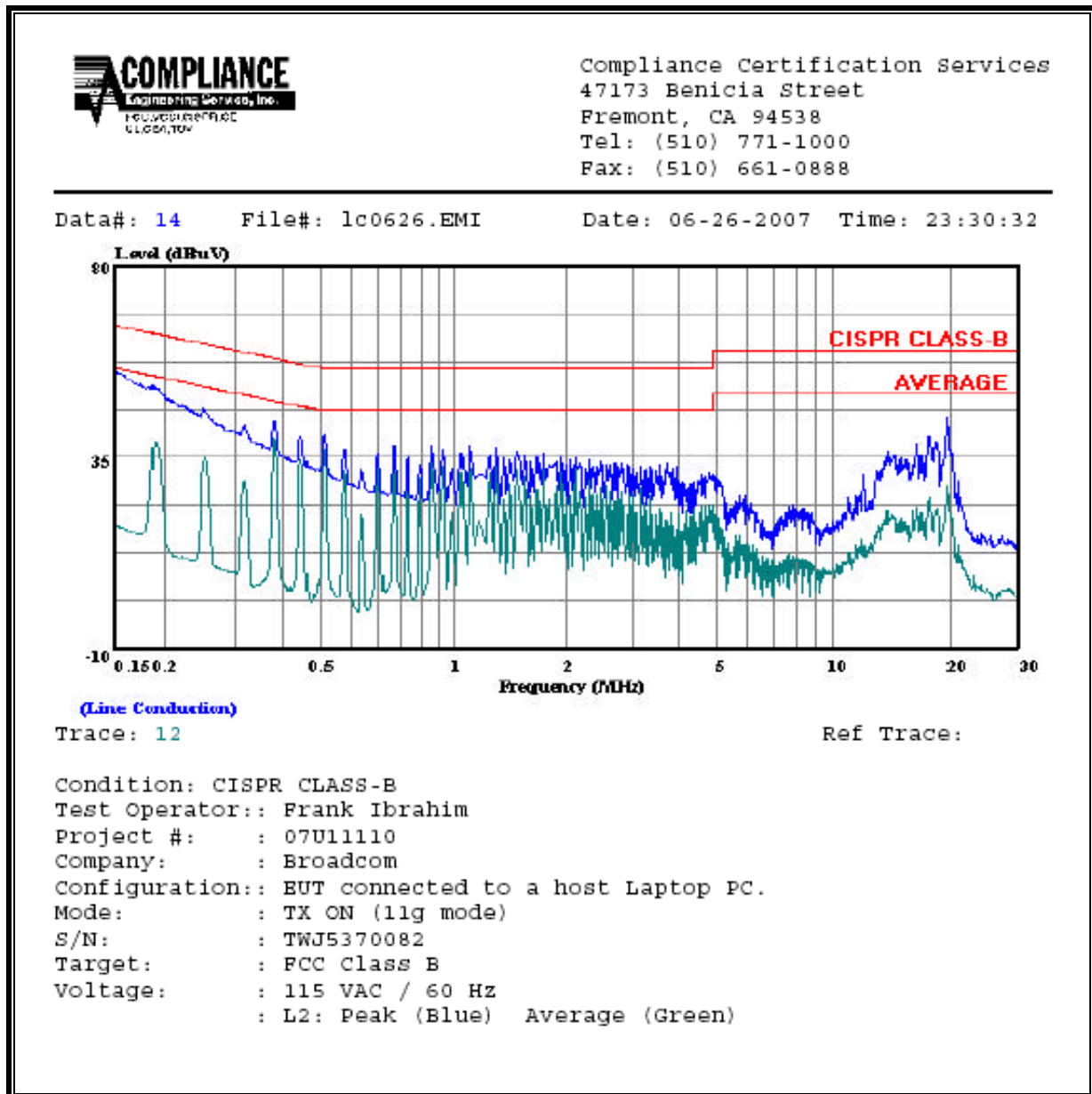
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.15	57.30	--	19.43	0.00	65.89	55.89	-8.59	-36.46	L1
0.19	54.82	--	41.20	0.00	64.08	54.08	-9.26	-12.88	L1
20.27	45.20	--	29.54	0.00	60.00	50.00	-14.80	-20.46	L1
0.15	55.14	--	19.21	0.00	66.00	56.00	-10.86	-36.79	L2
0.19	51.90	--	38.66	0.00	64.17	54.17	-12.27	-15.51	L2
19.74	44.54	--	28.09	0.00	60.00	50.00	-15.46	-21.91	L2
6 Worst Data									

## LINE 1 RESULTS





## LINE 2 RESULTS



## 8. SETUP PHOTOS

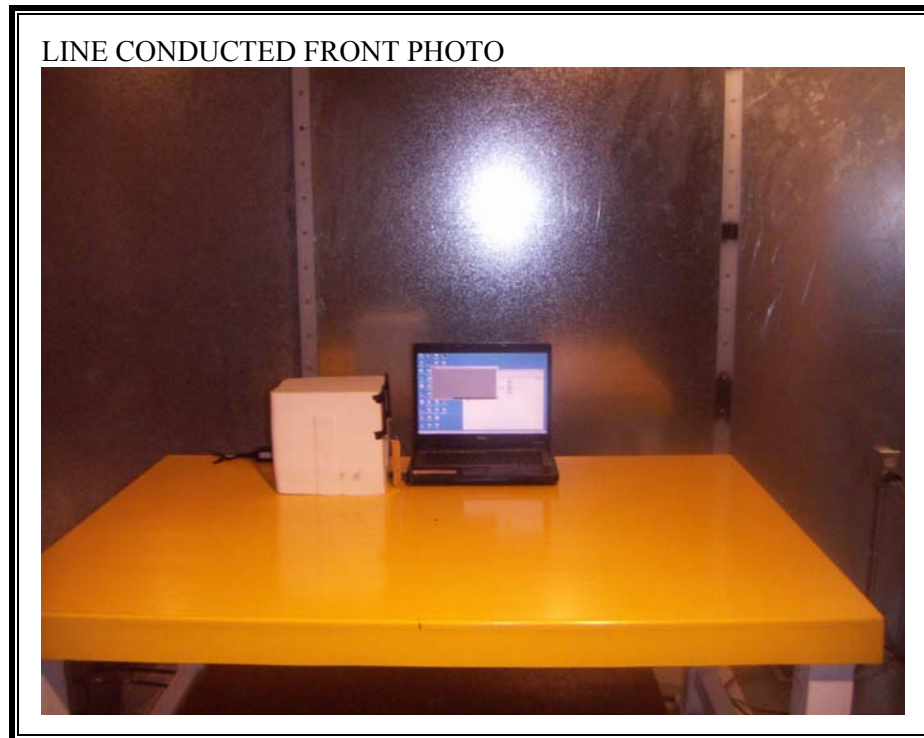
### RADIATED RF MEASUREMENT SETUP



RADIATED BACK PHOTO



**POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP**



LINE CONDUCTED BACK PHOTO



**END OF REPORT**