



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

FOR

802.11ag /DRAFT 802.11n WIRELESS LAN PCI-E MINI CARD

MODEL NUMBER: BCM94321MC

FCC ID: QDS-BRCM1022

REPORT NUMBER: 07U11122-1, REVISION B

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Prepared for
**BROADCOM CORPORATION
190 MATHILDA PLACE
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/07/07	Initial Issue	T. Chan
B	07/19/07	Corrected antenna information per client review.	S. Radecki

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: 802.11ag /DRAFT 802.11n WIRELESS LAN PCI-E MINI CARD

MODEL: BCM94321MC

SERIAL NUMBER: 107 & 316

DATE TESTED: JUNE 18-- JUNE 28, 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
Radiated Emission, Above 200 MHz	+/- 4.3 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 802.11n MIMO transceiver chipset. The chipset is installed on a Mini PCI-E card, model number BCM94321MC.

The radio module is manufactured by Broadcom Corp.

5.2. CLASS II PERMISSIVE CHANGE DESCRIPTION

The Class II change is to add a portable platform, Dell XPS Series (PP06XA) laptop.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The EUT has 2 Tx/Rx antennas that are automatically selected for use as per the MCS index and STF mode selections. Preliminary testing was performed on all antennas to determine the worst case. Final testing was performed on the worst case (Amphenol).

- ACON, AMP8P-700022, Stamped Metal Sheet Antenna: 0.3dBi @ 2.4GHz, 2.6dBi @ 5GHz.
- Hitachi, HMGTO2-DL12, Stamped Metal Sheet Antenna: 2.1dBi @ 2.4GHz, 2.0dBi @ 5GHz.
- Foxconn, WDAN-DWDS1-001-DF, PCB Antenna: 4.04dBi @ 2.4GHz, 2.606dBi @ 5GHz.
- Amphenol, WT0581-11-001-R, WT0581-11-002-R, WT0581-11-003-R: 1.9dBi @ 2.4GHz, 5.26dBi @ 5GHz.

5.4. SOFTWARE AND FIRMWARE

The EUT was tested in the following manner:

- "epi_tcp.exe" was used to transmit UDP packets to a broadcast IP address (192.168.66.255) – i.e. no ACK required. This test mode sends a continuous packetized data stream with duty cycles that vary dependent upon data rate/MCS Index selected.
- "wl ampdu" and "frameburst" were enabled to ensure worst case data packet transfer and duty cycle.
- Worst case packet length has also been used to ensure max duty cycle.

5.5. WORST-CASE CONFIGURATION AND MODE

Operating modes were changed directly in software with no other changes to the set up. Power levels were verified across all the MCS Index at the start of test and as required throughout testing.

Prior to each test a power meter was used to tune the gated average power within a Tx packet. The channel gates on the meter were set to ensure that, at the time of recording, only packet power was captured without including duty cycle off time.

Power was tuned for different modes, channels and antennas based on the power tuning table contained in the Operational Description submitted under the same filing.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	Dell	Inspiron 0000	CN-901014-70166-57K-01JT	DOC
AC Adapter	Dell	PA-1600-06D1	F9710	DOC

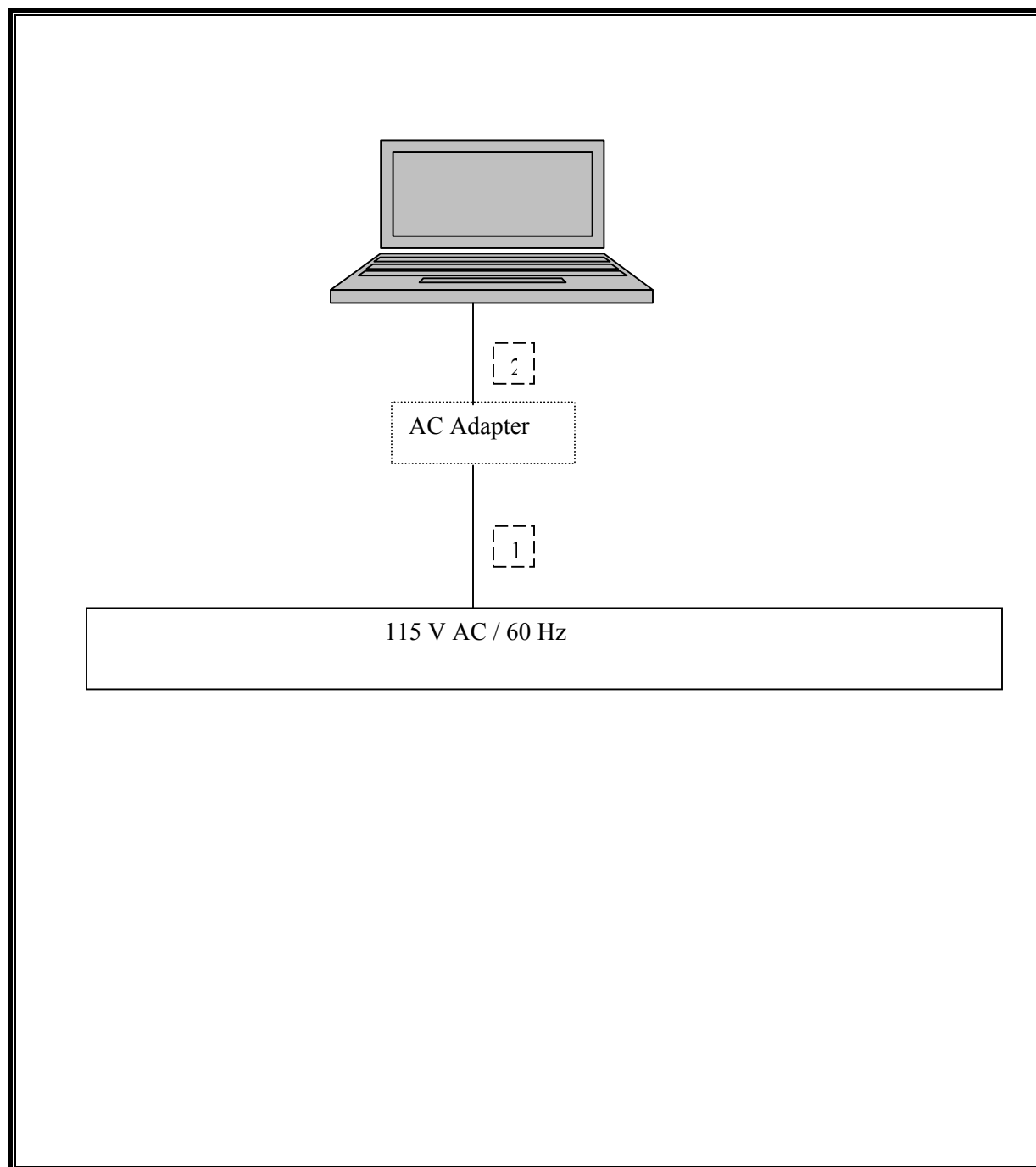
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	Unshielded	1.2 m	N/A
2	DC	1	DC	Unshielded	1.2 m	N/A

TEST SETUP

The EUT is installed in a host laptop computer during the tests.

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	Serial Number	Cal Due
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42510266	11/26/07
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	08/06/07
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/03/07
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	09/15/07
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	09/15/07
EMI Test Receiver	R & S	ESHS 20	827129/006	09/26/07
AC Power Source, 10 kVA	ACS	AFC-10K-AFC-2	J1568	CNR
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	01/27/08
RF Filter Section	Agilent / HP	85420E	3705A00256	06/12/08
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	08/13/07
4.0 High Pass Filter	Micro Tronics	HPM13351	3	CNR
2.4 - 2.5 Band Reject Filter	Micro Tronics	N/A	1	CNR
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/02/07
5.75 - 5.8 Reject Filter	Micro Tronics	BRC13192	2	CNR

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
¹ 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	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² 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.

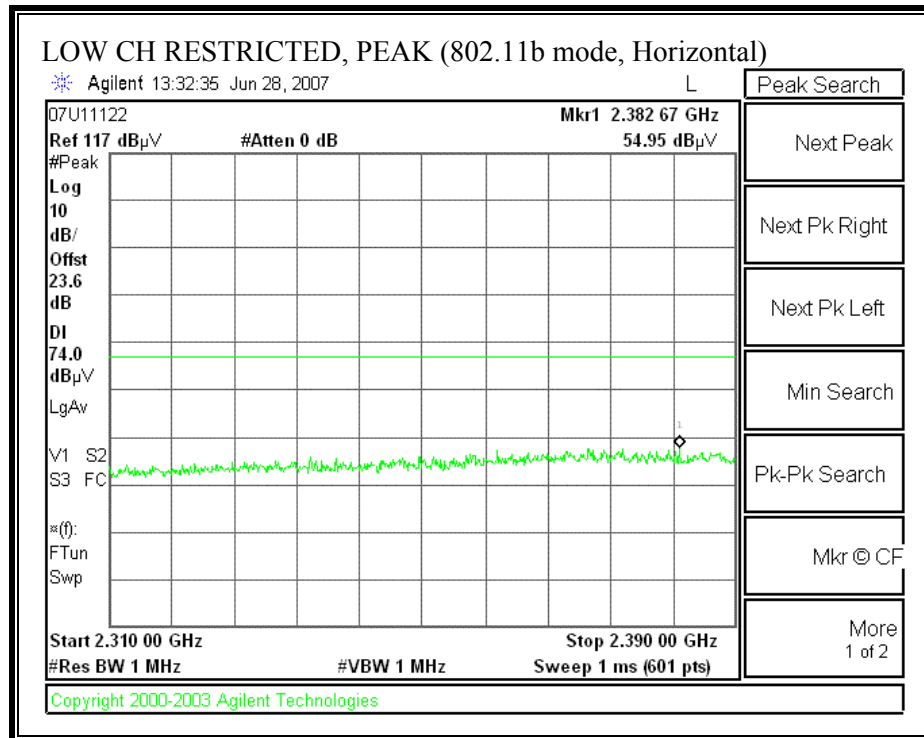
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

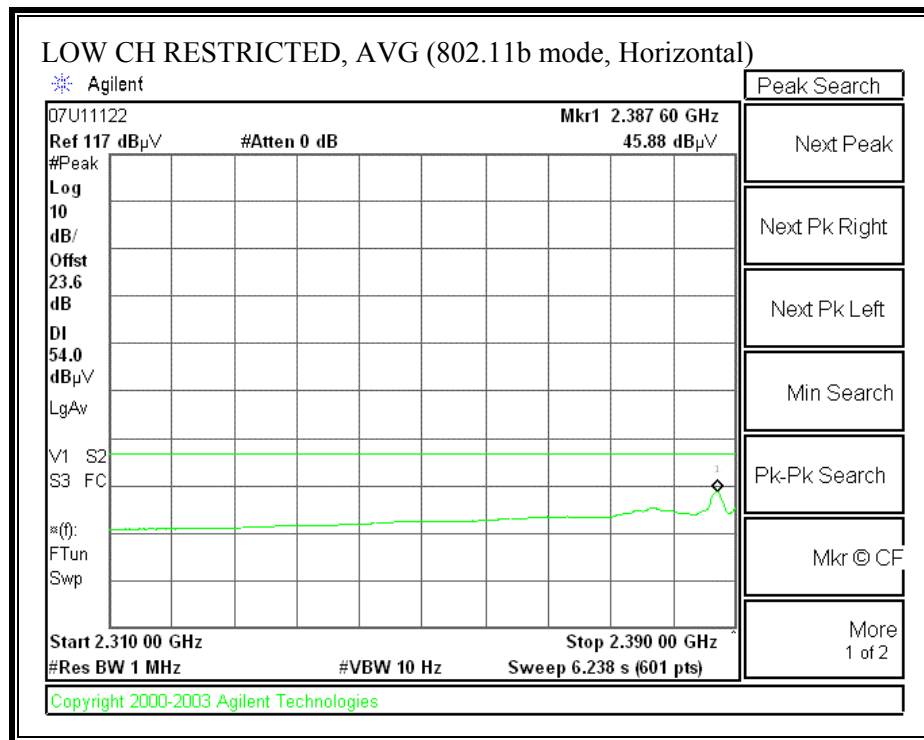
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

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

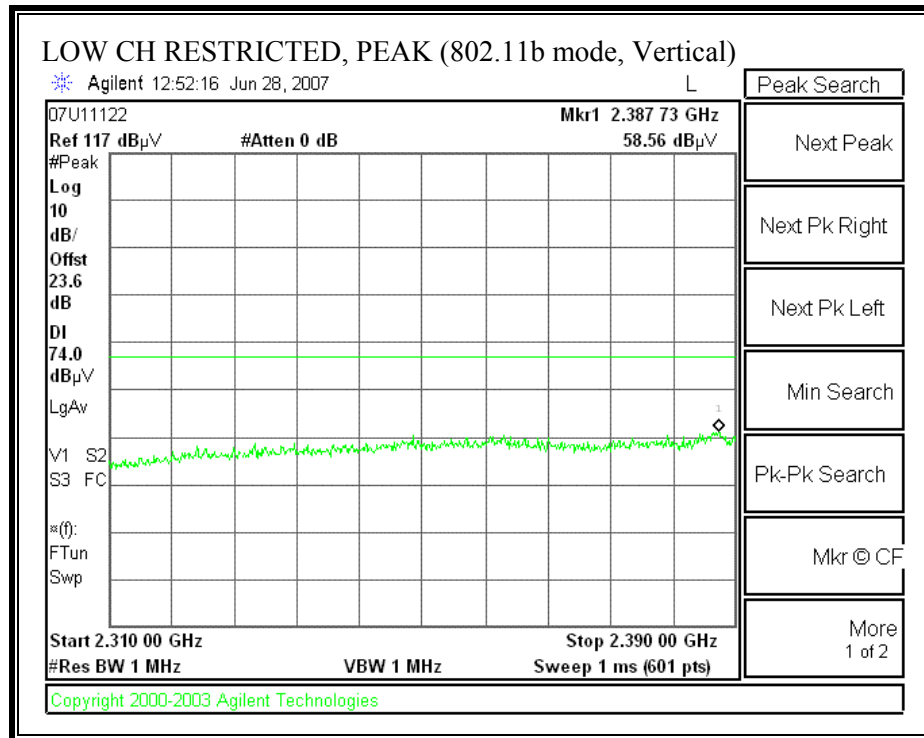
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2412MHz, HORIZONTAL)

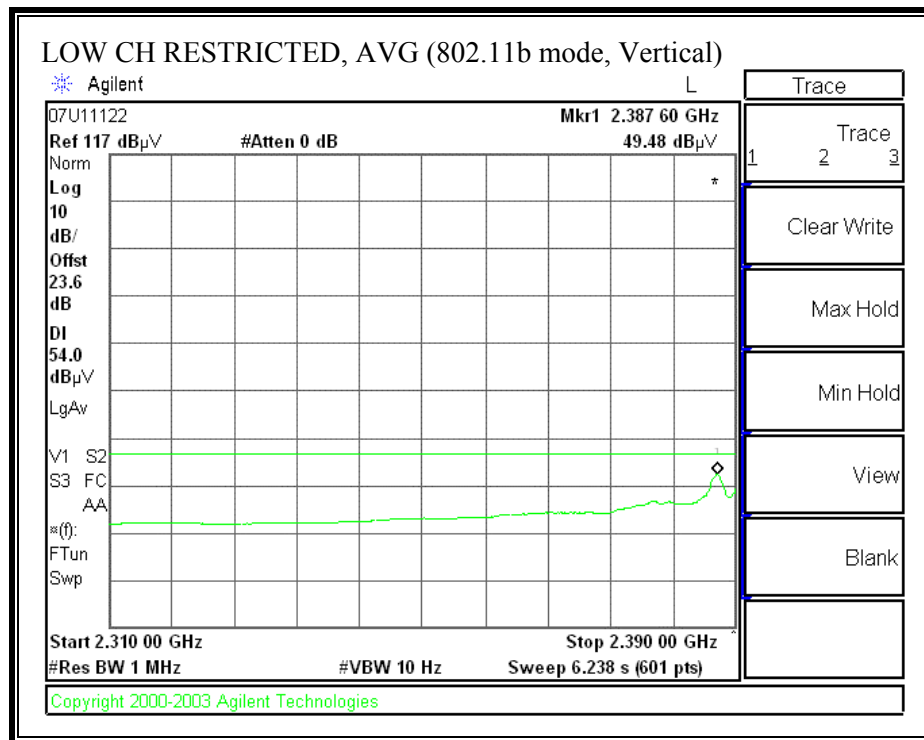
Aux Antenna



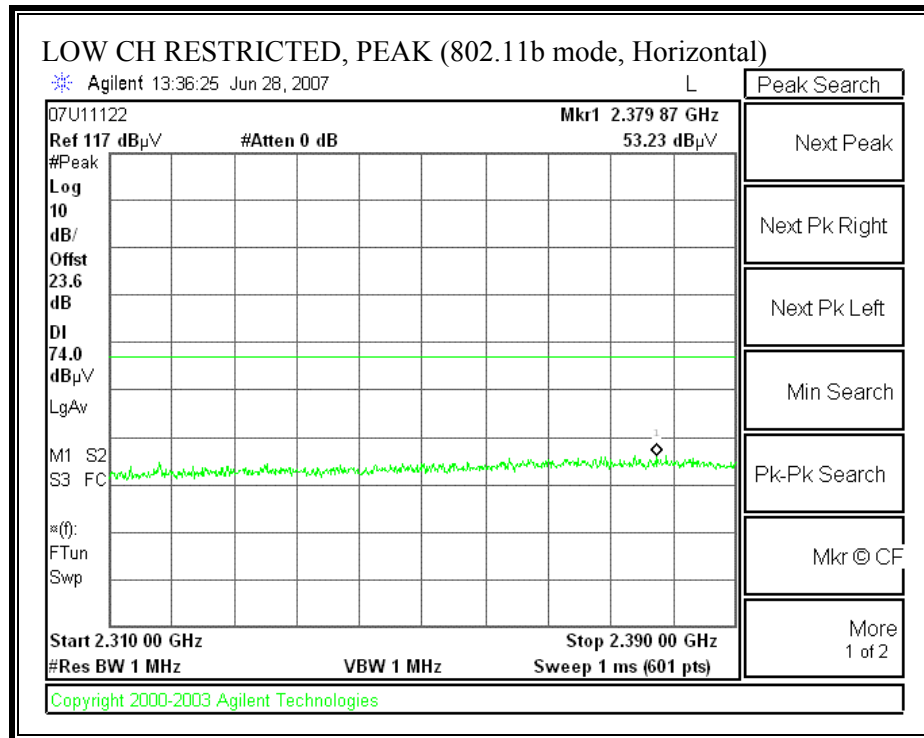


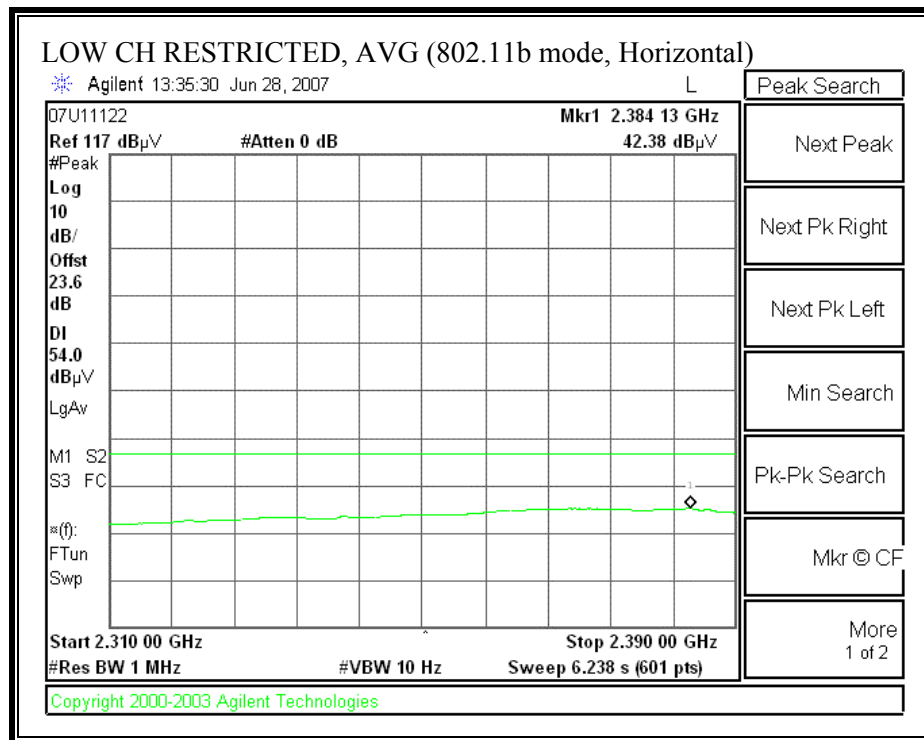
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2412MHz, VERTICAL)



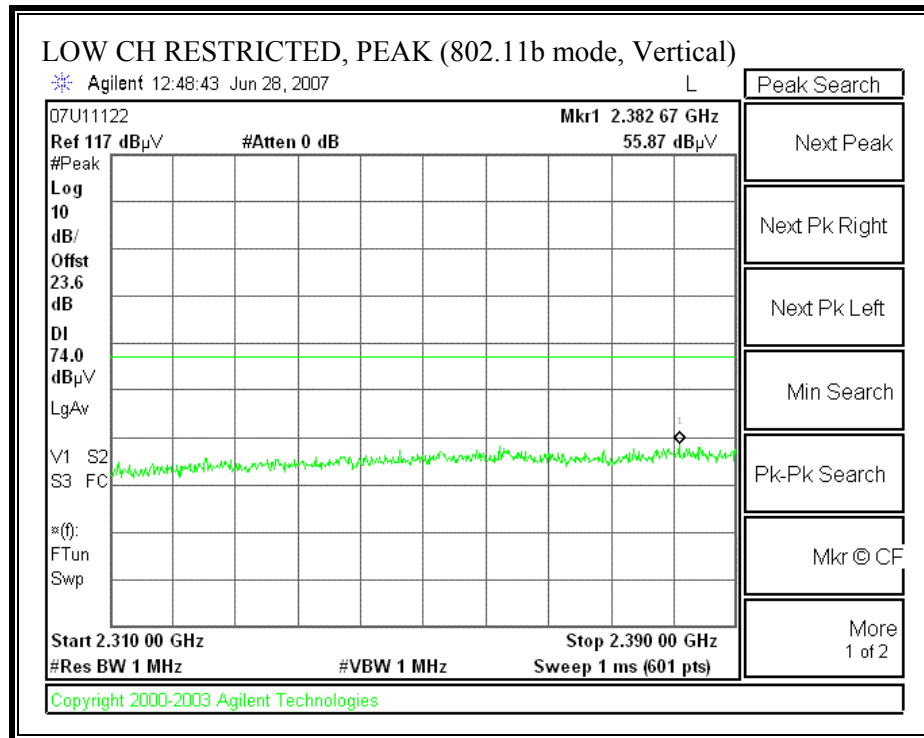


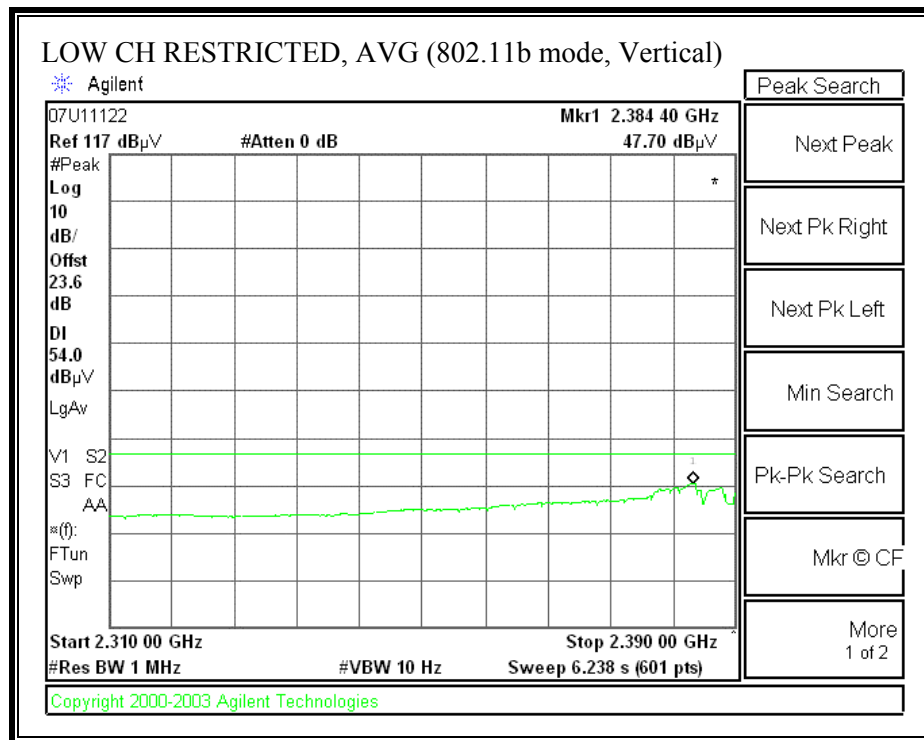
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2417MHz, HORIZONTAL)



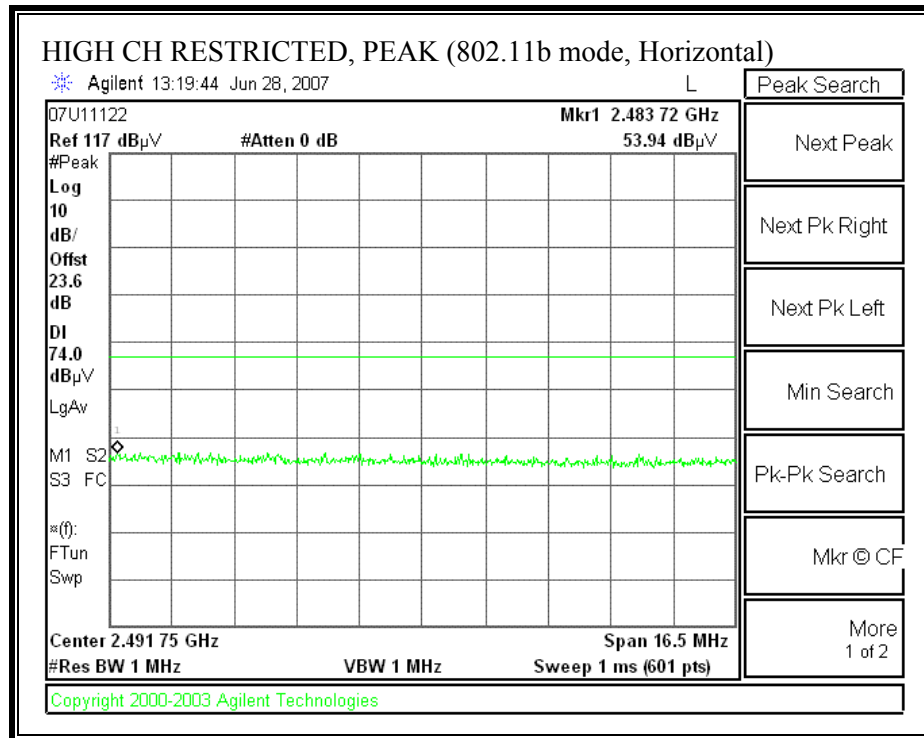


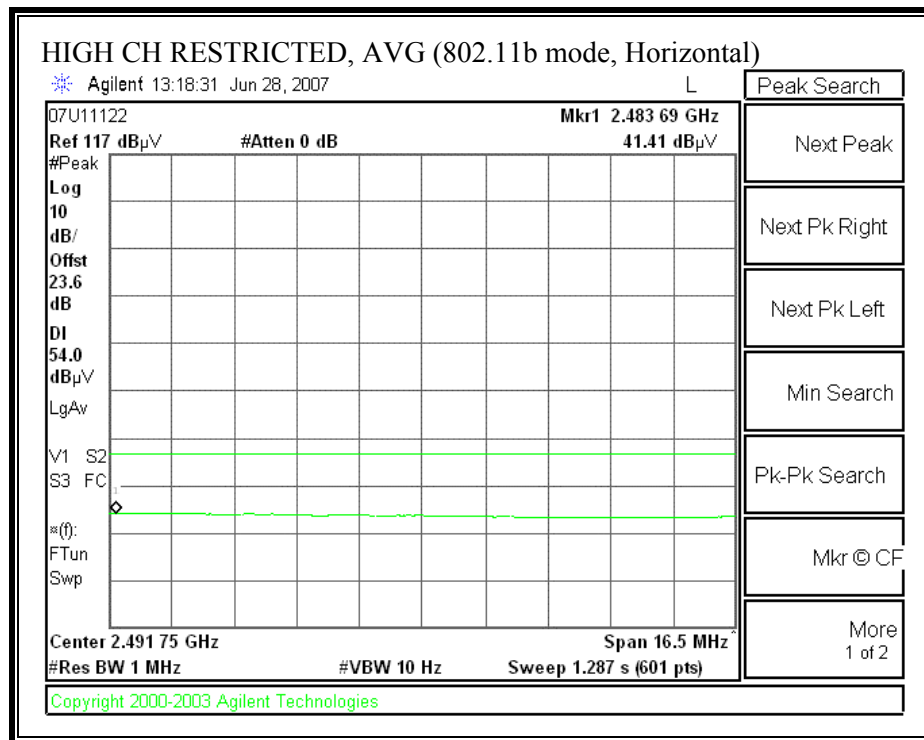
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2417MHz, VERTICAL)



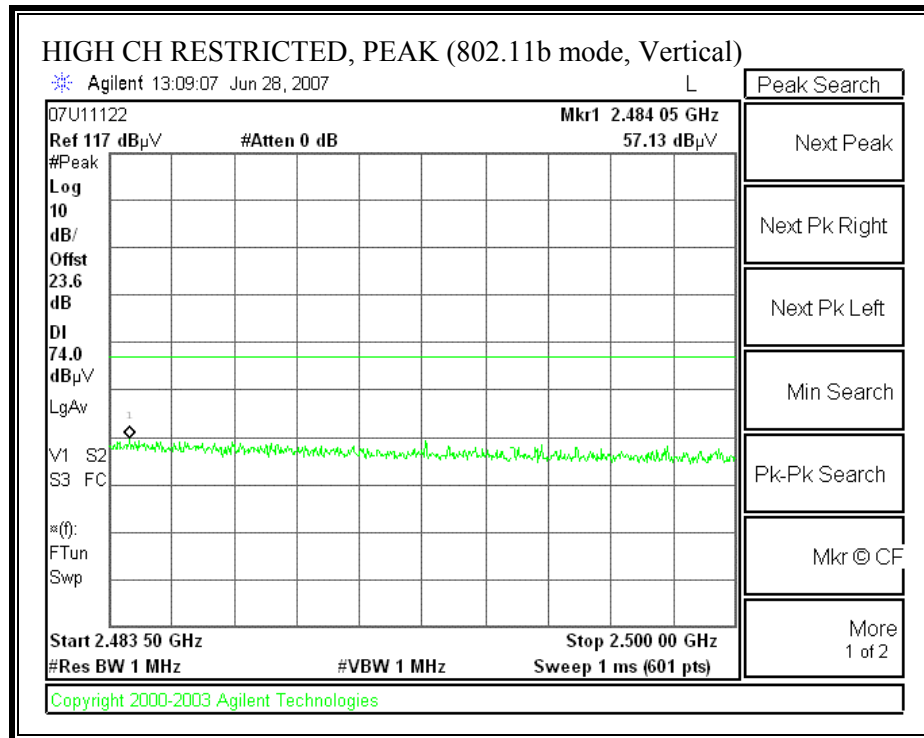


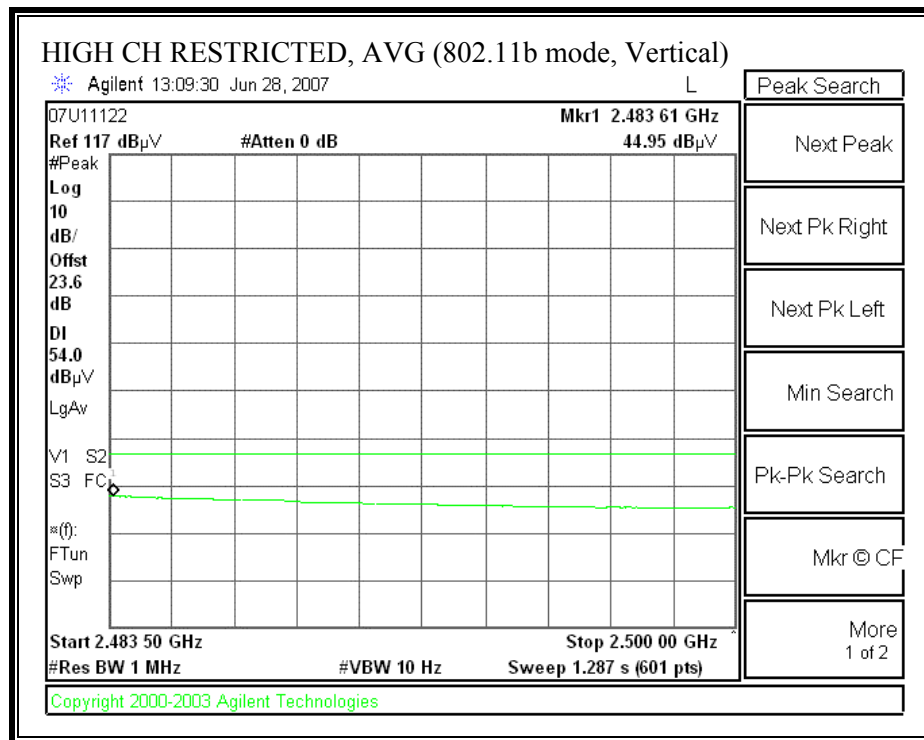
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, 2457MHz, HORIZONTAL)

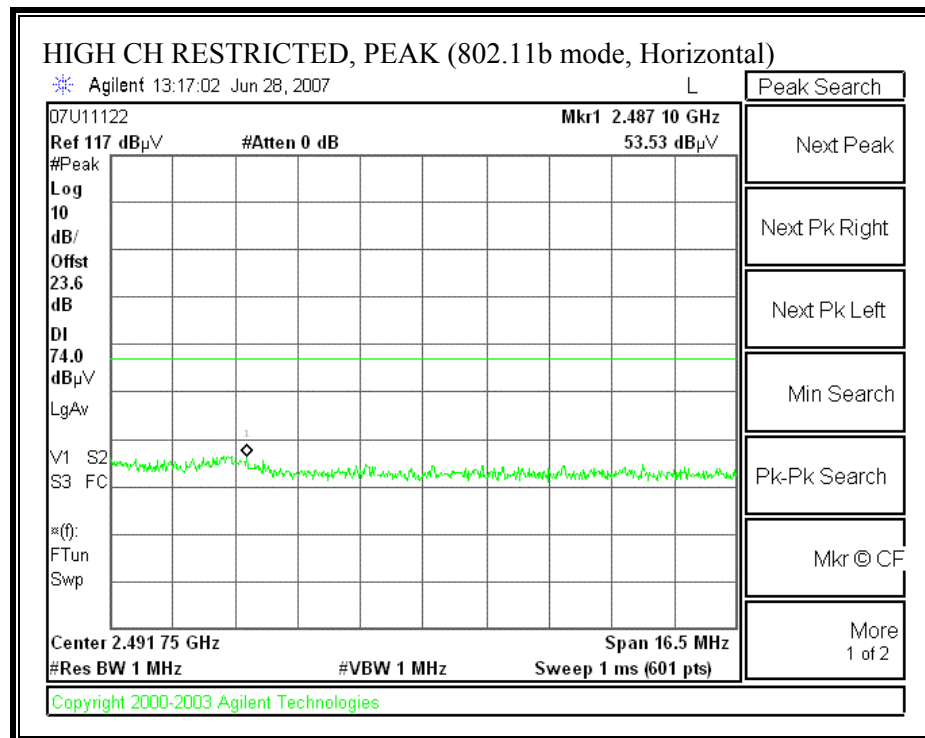


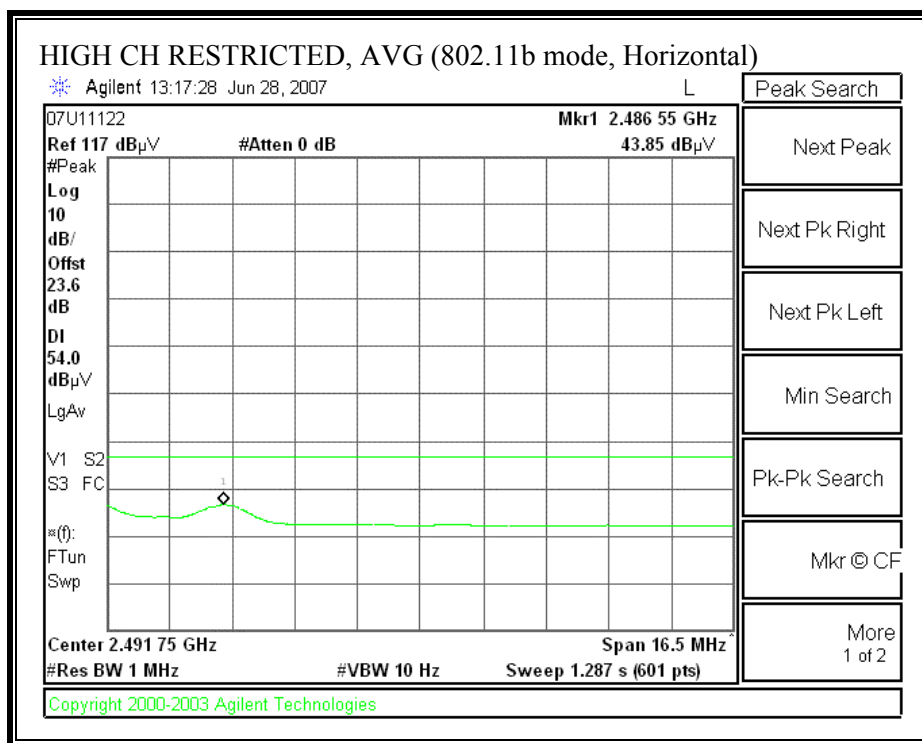


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, 2457MHz, VERTICAL)

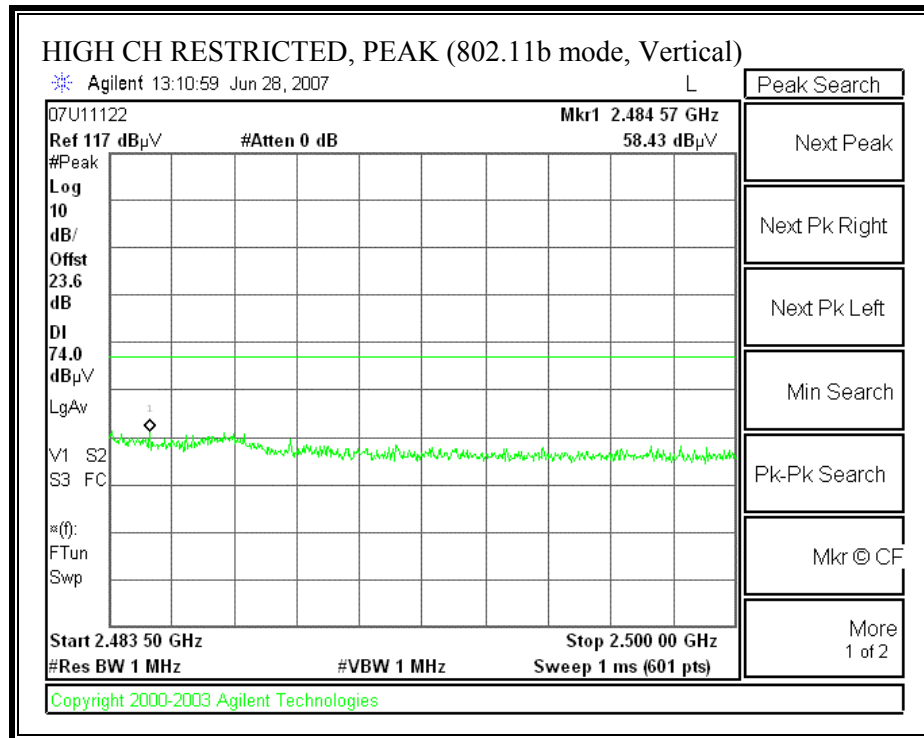


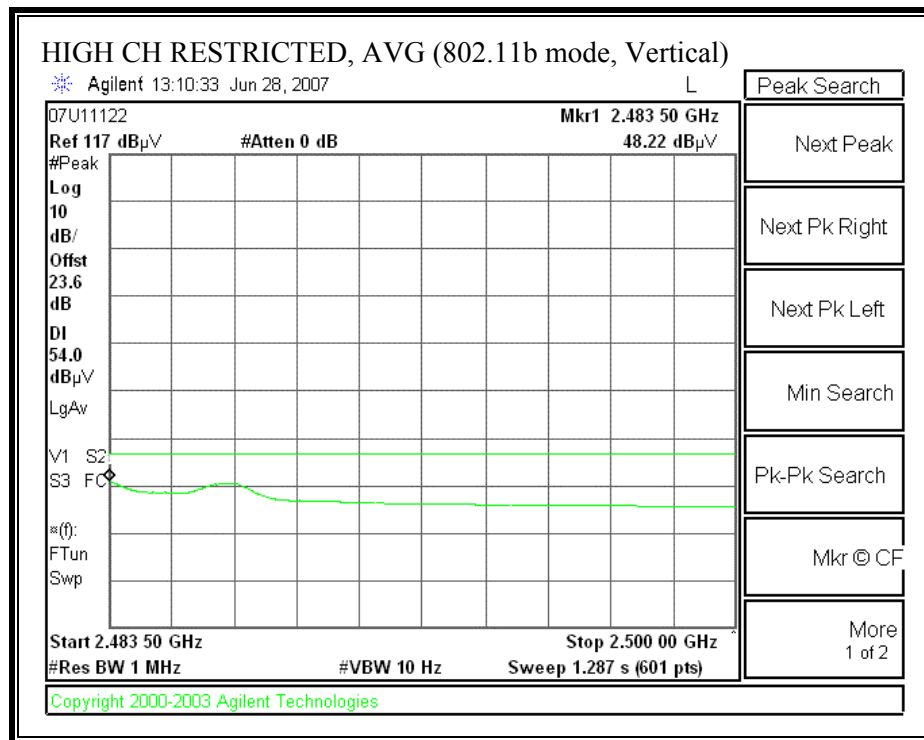






RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, 2462MHz, VERTICAL)



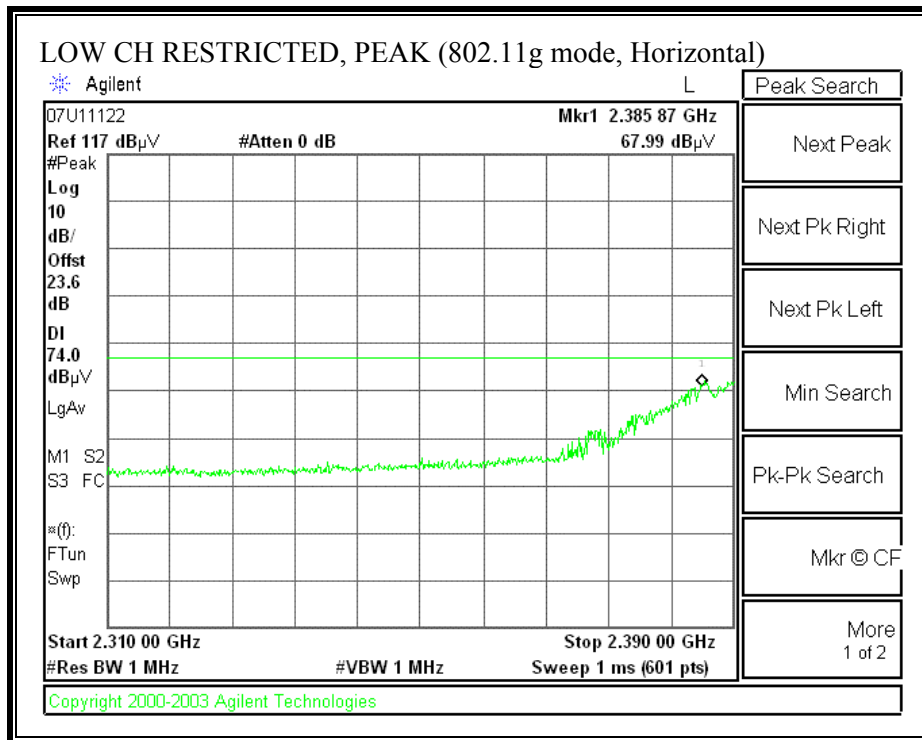


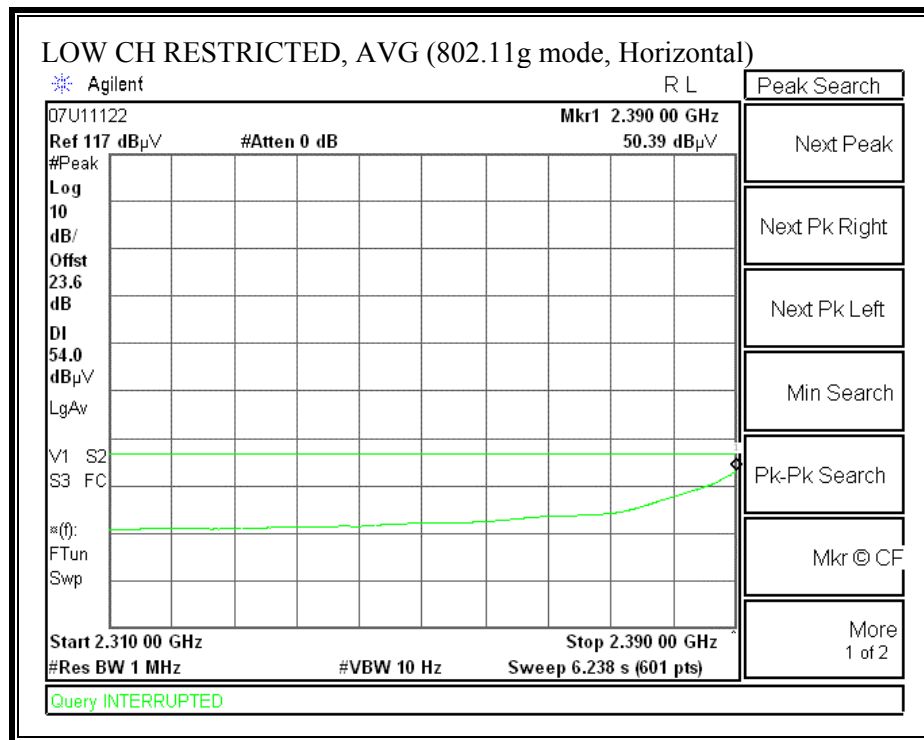
HARMONICS AND SPURIOUS EMISSIONS (b MODE, Aux Antenna)

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company: Broadcom																
Project #: 07U11122																
Date: 6/21/2007																
Test Engineer: Keith Ng																
Configuration: EUT only																
Mode: Tx 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						
				A-5m Chamber				R_001								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	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)	
LO (2412MHz)																
1.100	3.0	56.7	41.0	28.2	3.1	-38.1	0.0	0.0	49.9	34.3	74	54	-24.1	-19.7	H	
1.326	3.0	58.4	40.6	29.1	3.4	-37.8	0.0	0.0	53.1	35.3	74	54	-20.9	-18.7	H	
4.824	3.0	44.5	35.0	33.7	6.9	-34.8	0.0	0.0	50.2	40.8	74	54	-23.8	-13.2	H	
1.097	3.0	56.0	41.3	28.2	3.1	-38.1	0.0	0.0	49.2	34.5	74	54	-24.8	-19.5	V	
1.315	3.0	54.7	35.7	29.0	3.4	-37.8	0.0	0.0	49.4	30.3	74	54	-24.6	-23.7	V	
4.824	3.0	43.7	35.6	33.7	6.9	-34.8	0.0	0.0	49.5	41.4	74	54	-24.5	-12.6	V	
MID(2437MHz)																
1.097	3.0	54.5	40.1	28.2	3.1	-38.1	0.0	0.0	47.7	33.3	74	54	-26.3	-20.7	V	
1.317	3.0	54.6	36.8	29.0	3.4	-37.8	0.0	0.0	49.2	31.4	74	54	-24.8	-22.6	V	
4.874	3.0	44.9	40.0	33.7	6.9	-34.8	0.0	0.0	50.8	45.9	74	54	-23.2	-8.1	V	
1.098	3.0	56.0	40.8	28.2	3.1	-38.1	0.0	0.0	49.2	34.0	74	54	-24.8	-20.0	H	
1.320	3.0	58.5	37.3	29.1	3.4	-37.8	0.0	0.0	53.2	31.9	74	54	-20.8	-22.1	H	
4.874	3.0	44.8	34.9	33.7	6.9	-34.8	0.0	0.0	50.6	40.8	74	54	-23.4	-13.2	H	
HI(2462MHz)																
1.097	3.0	56.5	41.8	28.2	3.1	-38.1	0.0	0.0	49.7	35.0	74	54	-24.3	-19.0	H	
1.323	3.0	54.2	36.9	29.1	3.4	-37.8	0.0	0.0	48.9	31.6	74	54	-25.1	-22.4	H	
4.924	3.0	45.9	41.1	33.8	7.0	-34.8	0.0	0.0	51.9	47.1	74	54	-22.1	-6.9	H	
7.386	3.0	44.3	30.7	35.2	8.4	-34.1	0.0	0.0	53.9	40.3	74	54	-20.1	-13.7	H	
1.080	3.0	53.9	39.7	28.2	3.1	-38.1	0.0	0.0	47.0	32.8	74	54	-27.0	-21.2	V	
1.316	3.0	54.1	35.9	29.0	3.4	-37.8	0.0	0.0	48.7	30.5	74	54	-25.3	-23.5	V	
4.924	3.0	46.1	41.3	33.8	7.0	-34.8	0.0	0.0	52.0	47.3	74	54	-22.0	-6.7	V	
7.386	3.0	45.1	34.2	35.2	8.4	-34.1	0.0	0.0	54.6	43.7	74	54	-19.4	-10.3	V	
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									

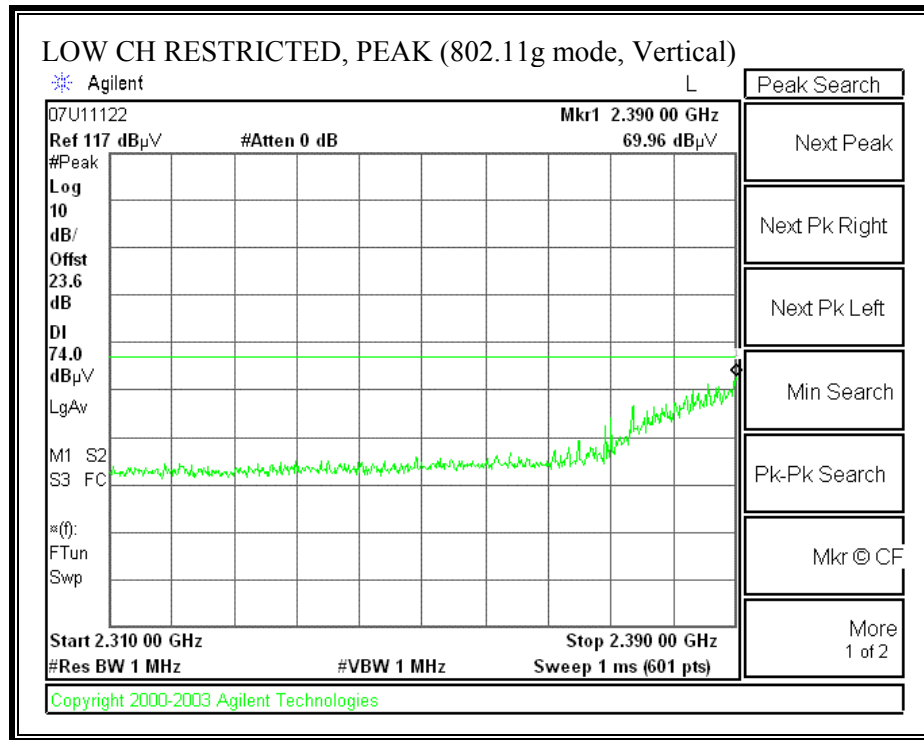
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2412MHz, HORIZONTAL)

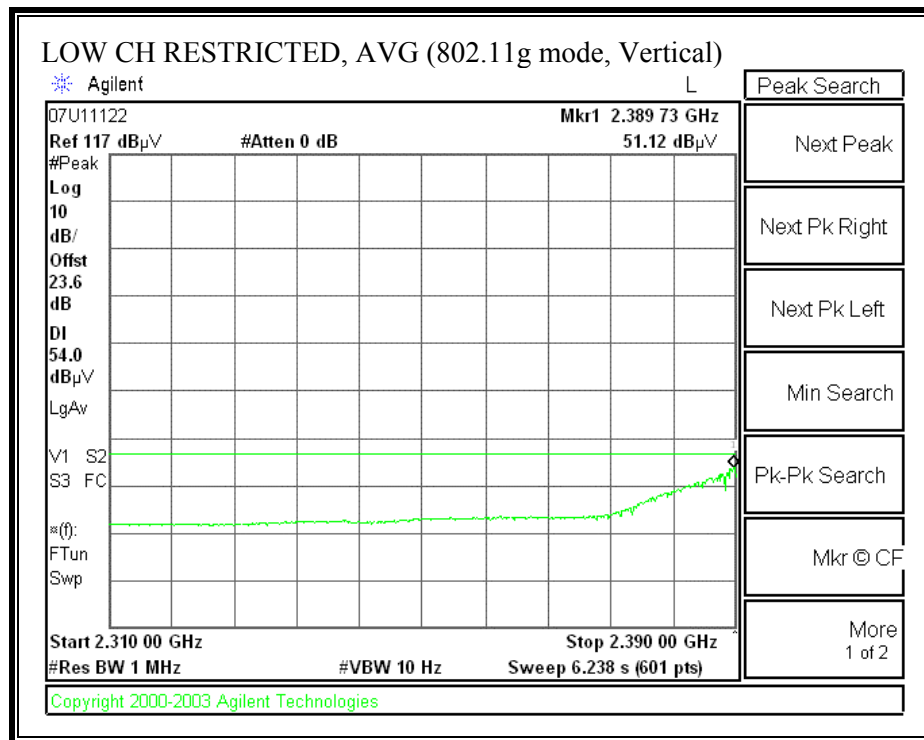
Aux Antenna



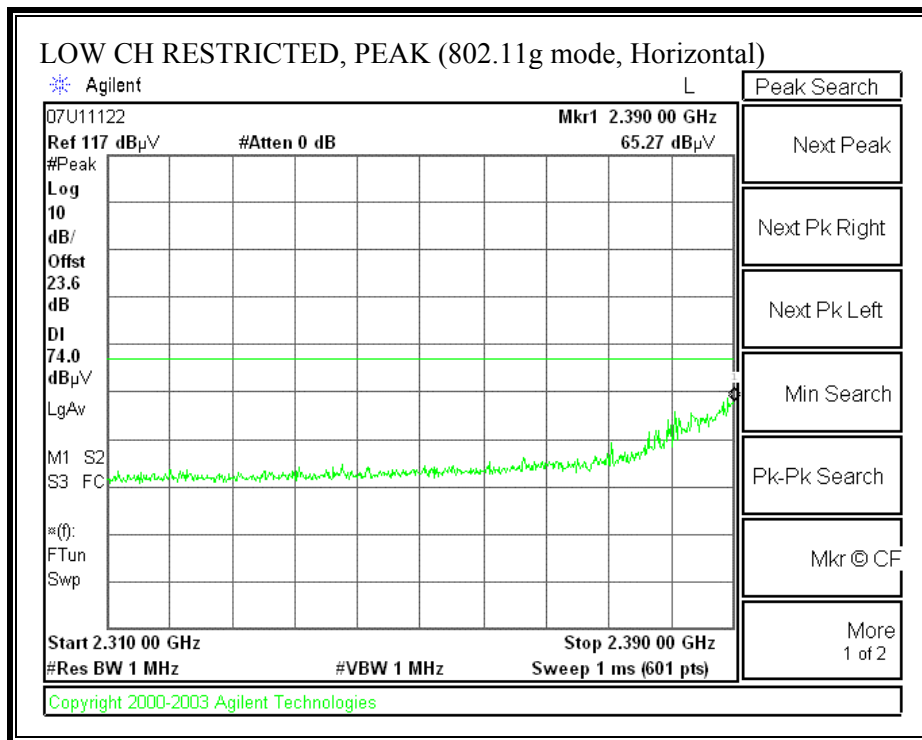


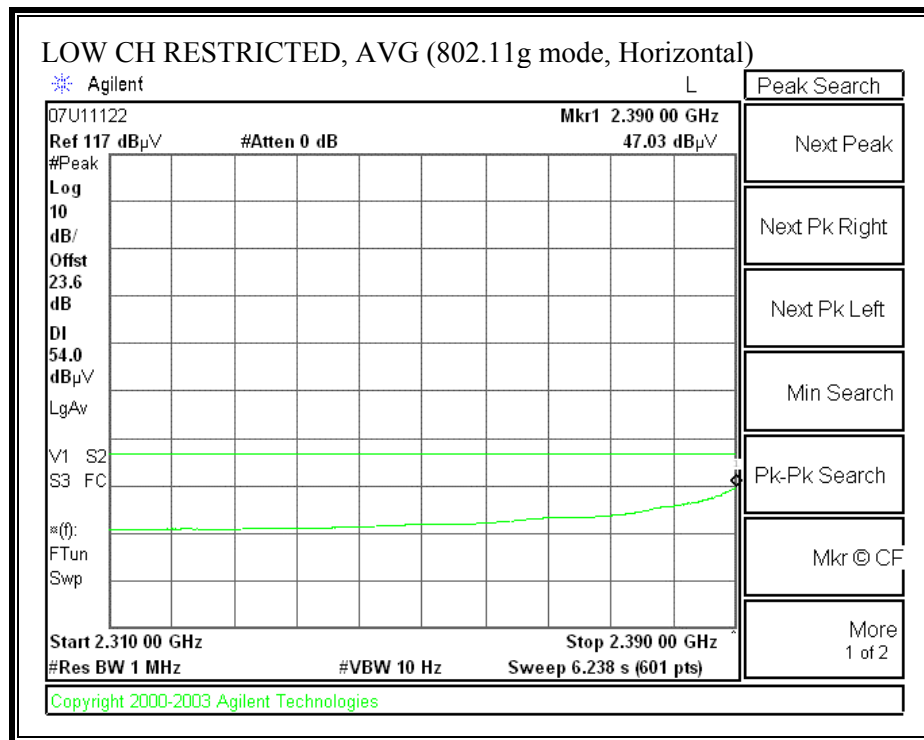
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2412MHz, VERTICAL)



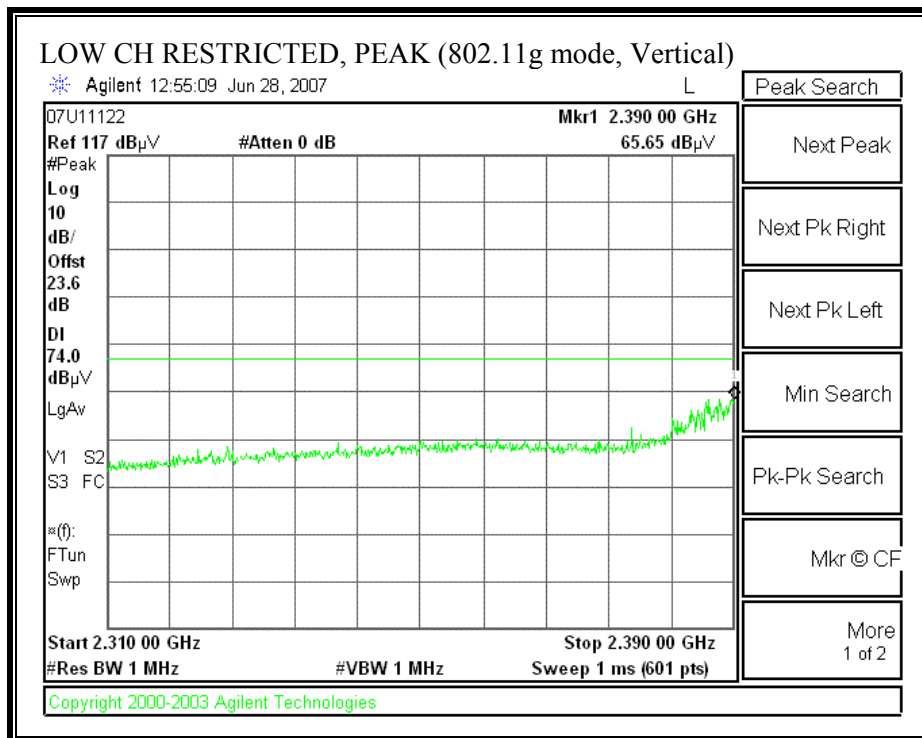


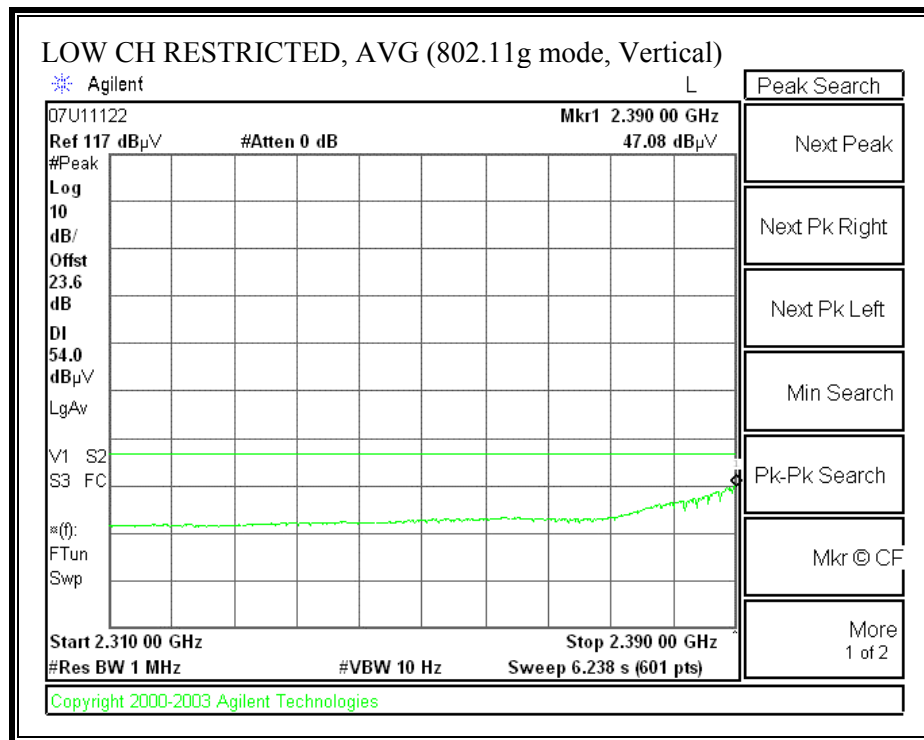
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2417MHz, HORIZONTAL)



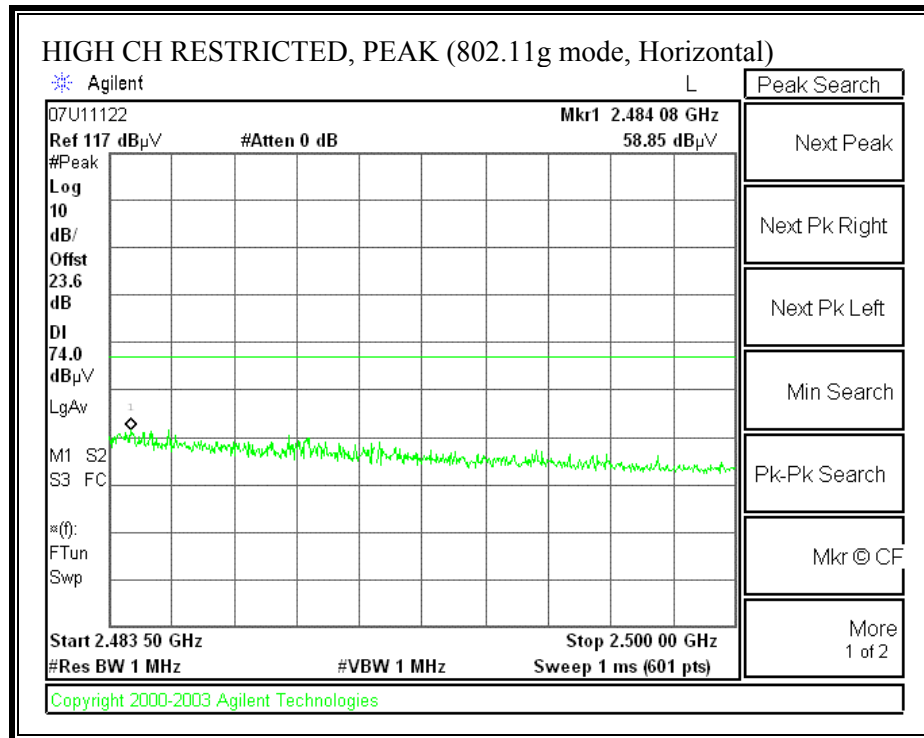


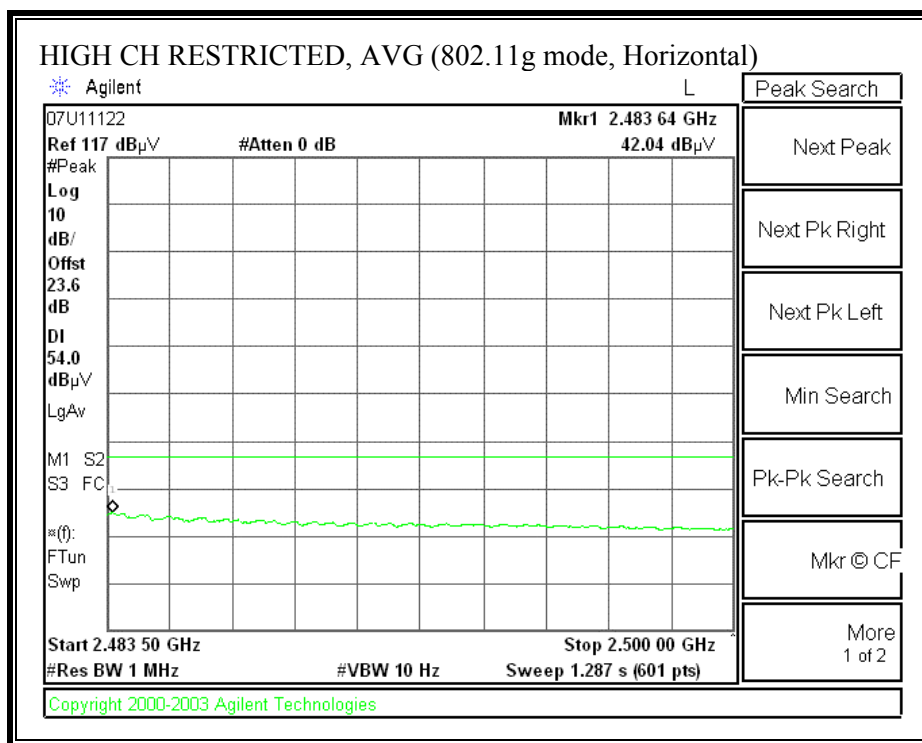
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2417MHz, VERTICAL)



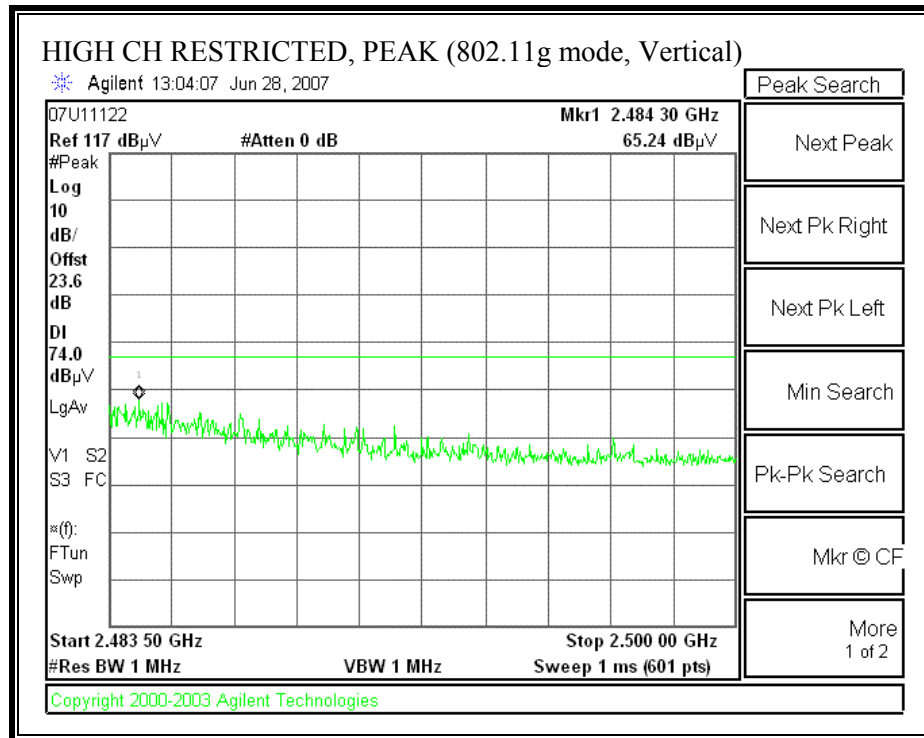


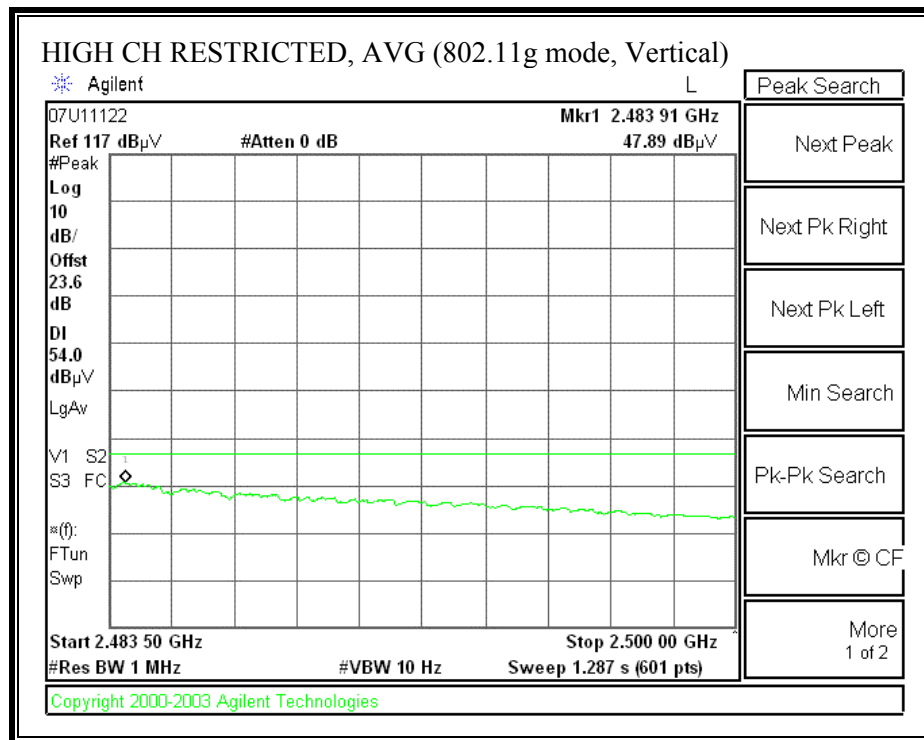
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2457MHz, HORIZONTAL)



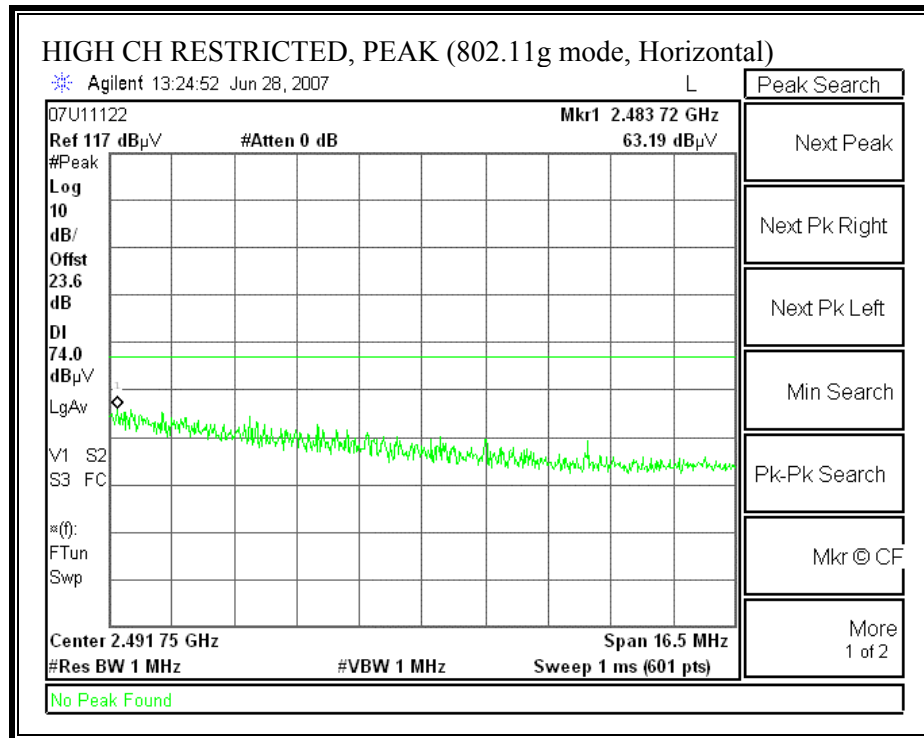


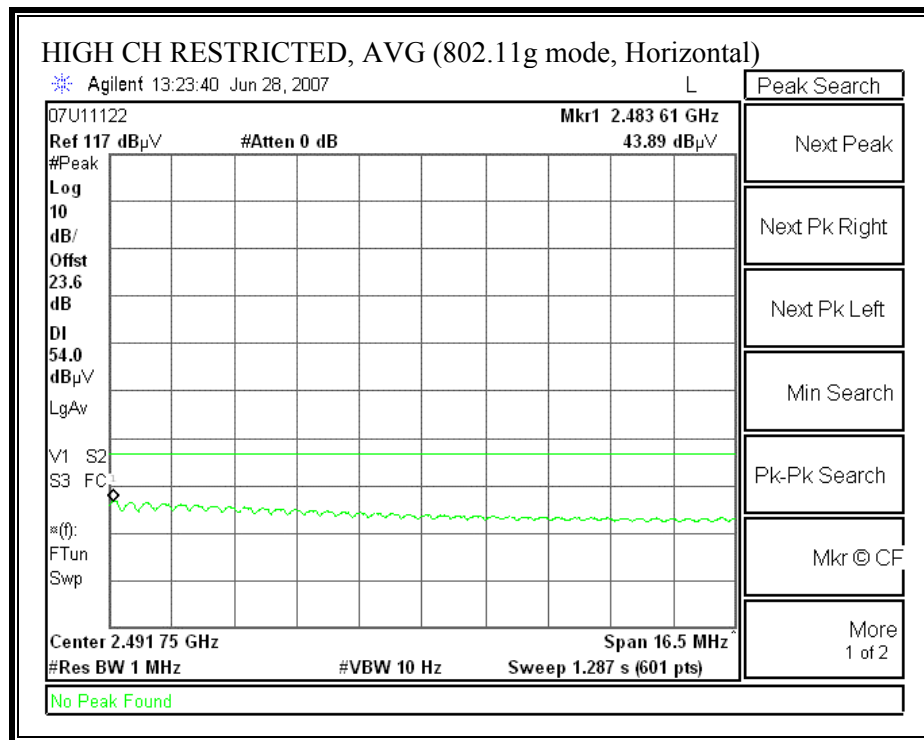
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2457MHz, VERTICAL)



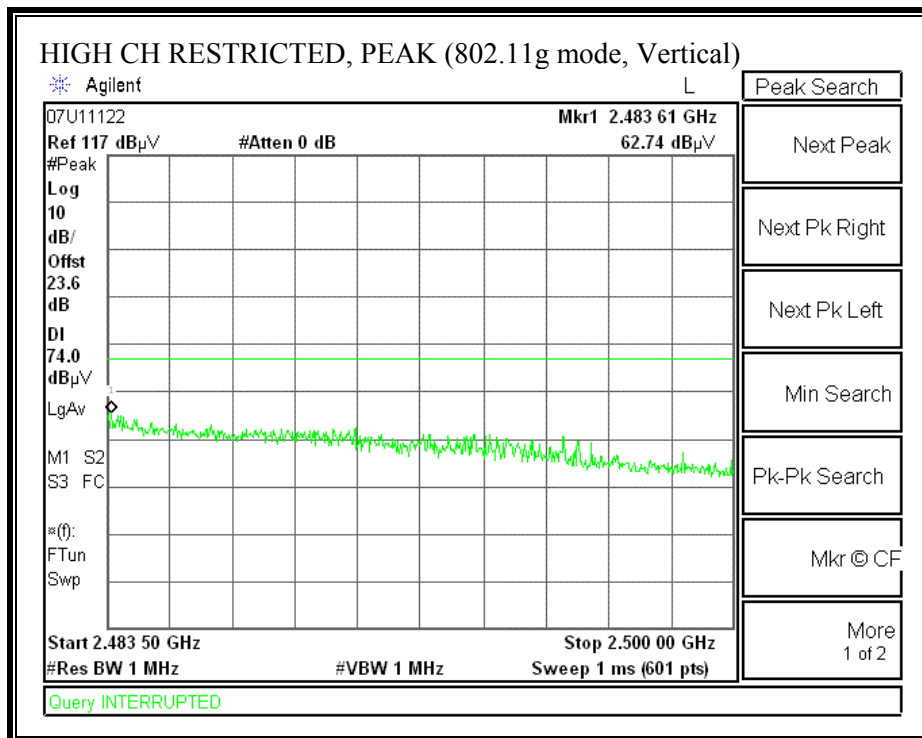


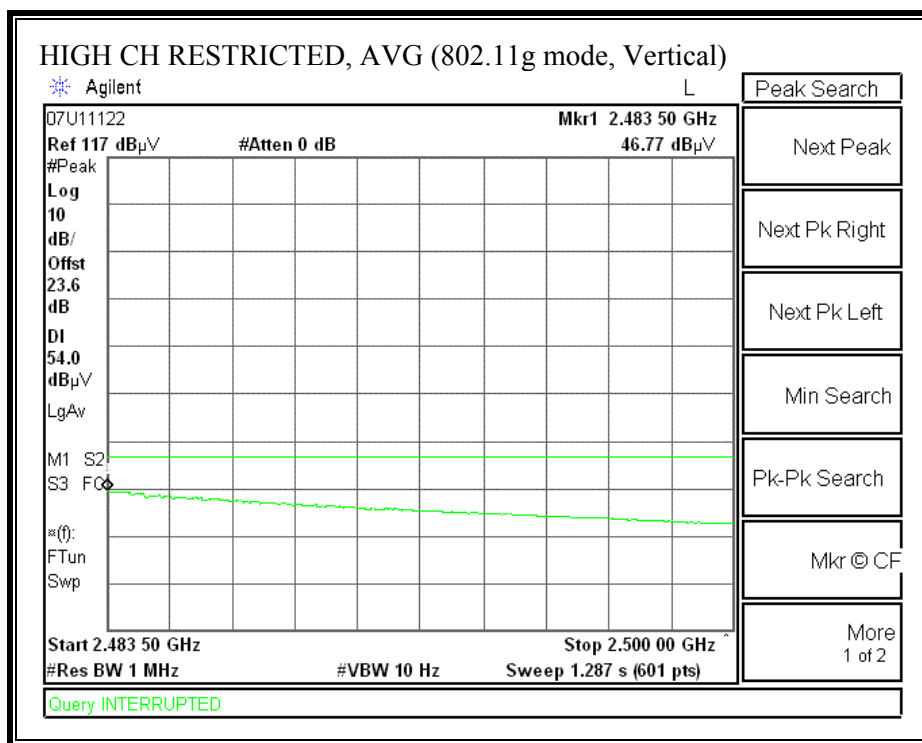
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2462MHz, HORIZONTAL)





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

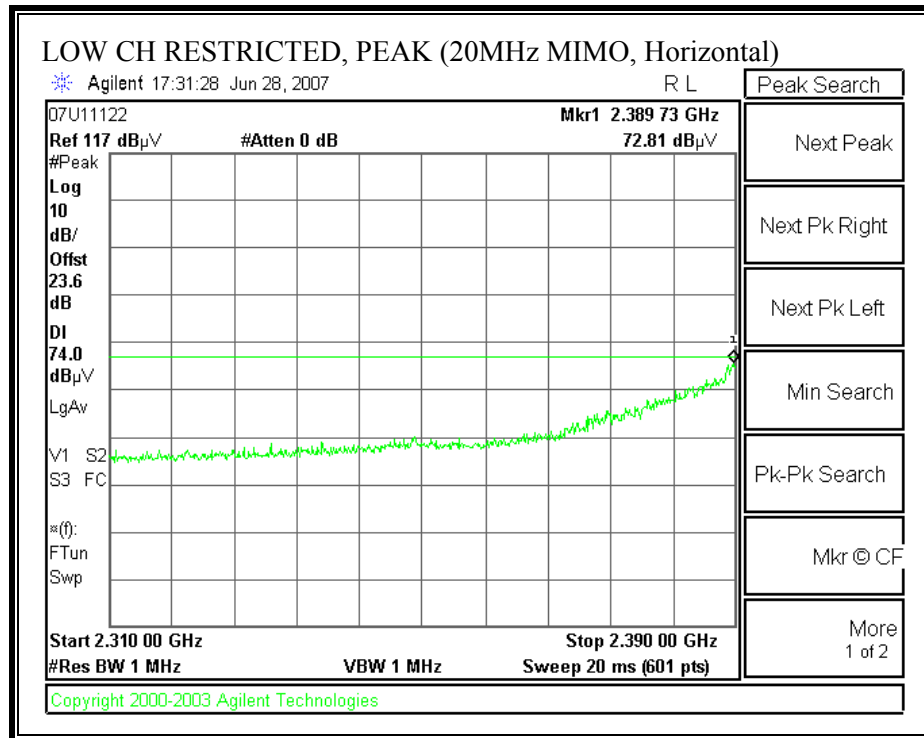


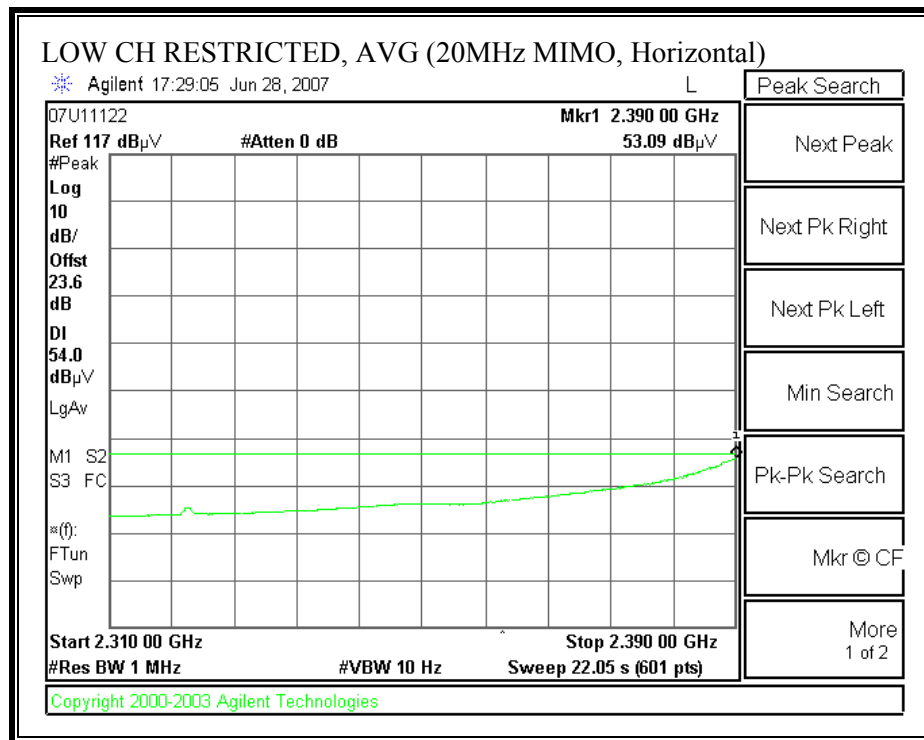


HARMONICS AND SPURIOUS EMISSIONS (g MODE, Aux Antenna)

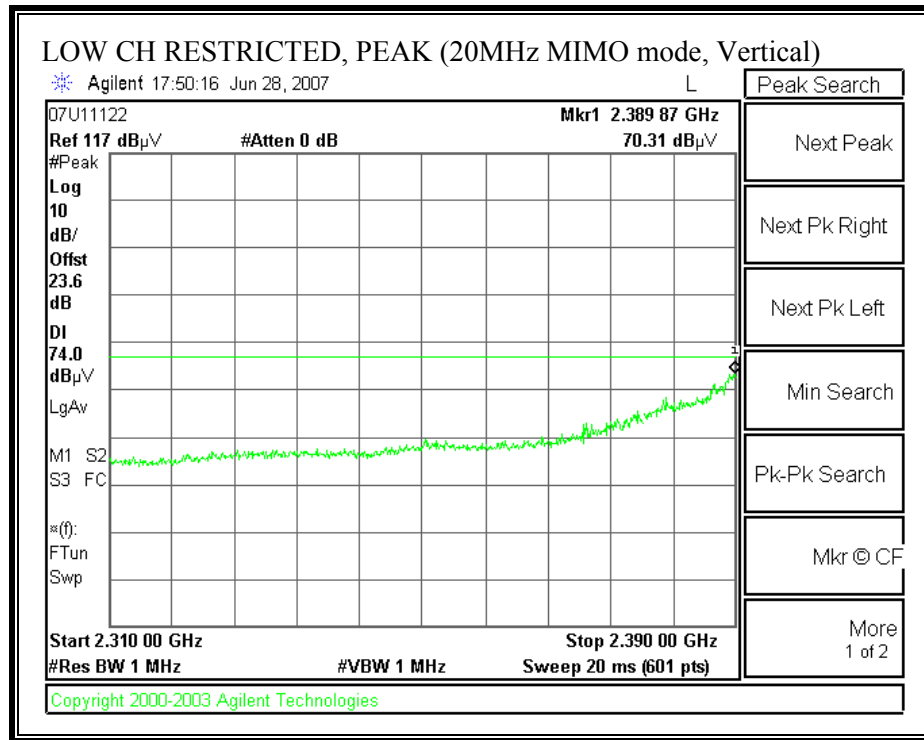
High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company:		Broadcom														
Project #:		07U11122														
Date:		6/18/2007														
Test Engineer:		Mengistu Mekuria														
Configuration:		EUT Alone														
Mode:		Tx g mode														
Test Equipment:																
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit								
T73; S/N: 6717 @3m		T144 Miteq 3008A00931						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						
				A-5m Chamber				R_001								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	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)	
Low Ch(2412MHz)																
1.095	3.0	60.6	43.4	24.1	3.1	-39.4	0.0	0.0	48.5	31.3	74	54	-25.5	-22.7	V	
1.365	3.0	50.8	35.6	25.1	3.5	-39.0	0.0	0.0	40.4	25.2	74	54	-33.6	-28.8	V	
4.824	3.0	43.9	30.3	33.3	6.9	-36.5	0.0	0.0	47.6	34.0	74	54	-26.4	-20.0	V	
1.095	3.0	58.3	42.1	24.1	3.1	-39.4	0.0	0.0	46.3	30.0	74	54	-27.7	-24.0	H	
1.333	3.0	53.9	36.3	25.0	3.4	-39.0	0.0	0.0	43.3	25.7	74	54	-30.7	-28.3	H	
4.824	3.0	44.8	31.8	33.3	6.9	-36.5	0.0	0.0	48.6	35.5	74	54	-25.4	-18.5	H	
Mid Ch (2437MHz)																
1.095	3.0	60.9	43.9	24.1	3.1	-39.4	0.0	0.0	48.8	31.8	74	54	-25.2	-22.2	V	
1.326	3.0	54.2	37.0	25.0	3.4	-39.0	0.0	0.0	43.6	26.4	74	54	-30.4	-27.6	V	
4.874	3.0	48.9	35.0	33.4	6.9	-36.5	0.0	0.0	52.7	38.8	74	54	-21.3	-15.2	V	
1.095	3.0	59.0	42.6	24.1	3.1	-39.4	0.0	0.0	46.9	30.5	74	54	-27.1	-23.5	H	
1.325	3.0	53.6	36.5	25.0	3.4	-39.0	0.0	0.0	43.0	25.8	74	54	-31.0	-28.2	H	
4.874	3.0	49.9	36.1	33.4	6.9	-36.5	0.0	0.0	53.7	39.9	74	54	-20.3	-14.1	H	
Hi Ch (2462MHz)																
1.095	3.0	61.0	54.1	24.1	3.1	-39.4	0.0	0.0	48.9	42.0	74	54	-25.1	-12.0	V	
1.327	3.0	55.7	38.0	25.0	3.4	-39.0	0.0	0.0	45.0	27.4	74	54	-29.0	-26.6	V	
4.924	3.0	47.1	32.1	33.4	7.0	-36.5	0.0	0.0	51.0	36.0	74	54	-23.0	-18.0	V	
7.386	3.0	46.0	31.1	35.0	8.4	-36.2	0.0	0.0	53.3	38.4	74	54	-20.7	-15.6	V	
1.095	3.0	58.7	42.4	24.1	3.1	-39.4	0.0	0.0	46.6	30.3	74	54	-27.4	-23.7	H	
1.327	3.0	53.2	35.9	25.0	3.4	-39.0	0.0	0.0	42.6	25.3	74	54	-31.4	-28.7	H	
4.924	3.0	49.7	33.4	33.4	7.0	-36.5	0.0	0.0	53.6	37.3	74	54	-20.4	-16.7	H	
7.386	3.0	42.7	29.6	35.0	8.4	-36.2	0.0	0.0	49.9	36.9	74	54	-24.1	-17.1	H	
Rev. 4.12.7																
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									

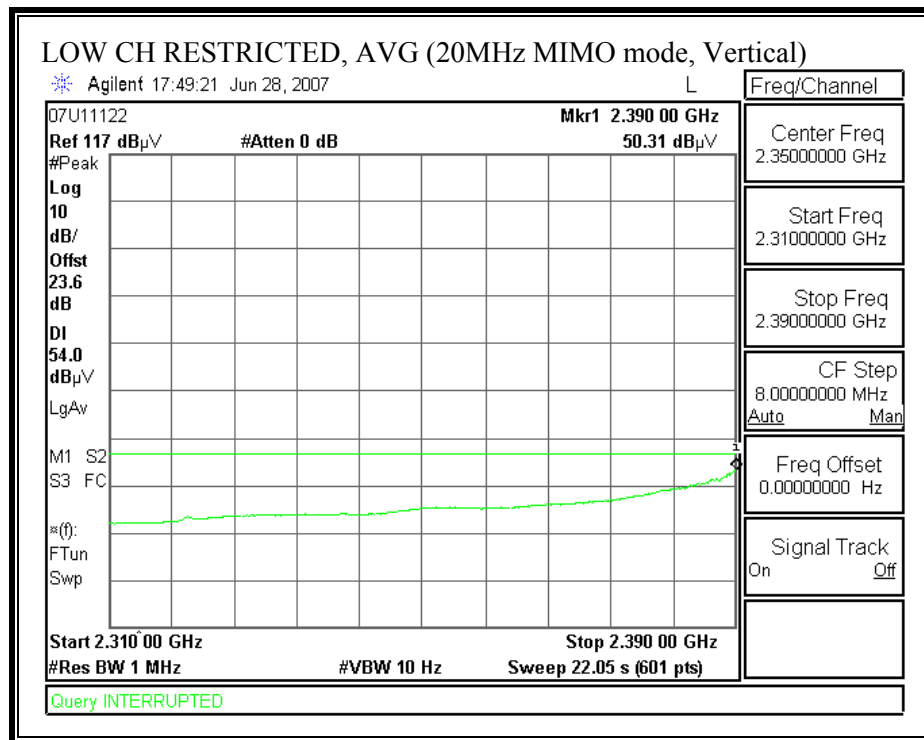
RESTRICTED BANDEDGE (20MHz MIMO MODE, LOW CHANNEL, 2412MHz, HORIZONTAL)



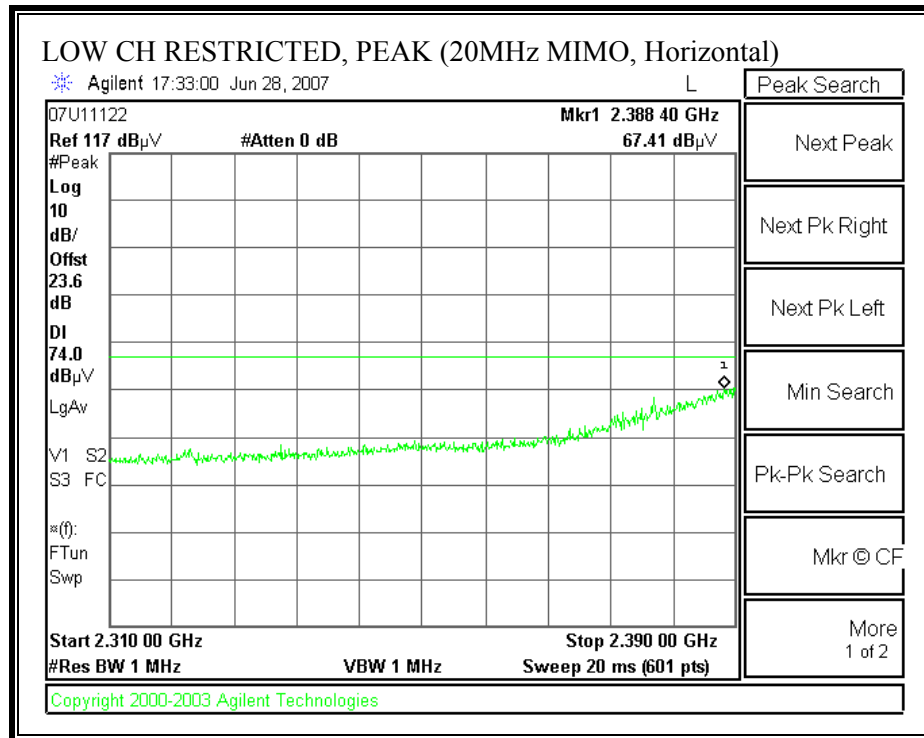


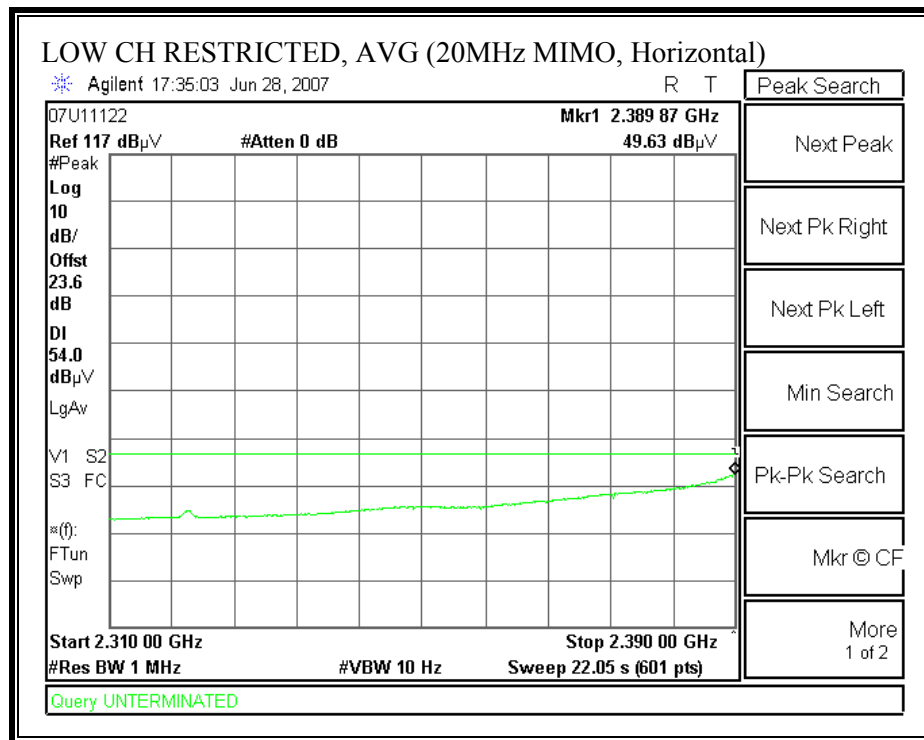
RESTRICTED BANDEDGE 20MHz MIMO MODE, LOW CHANNEL, 2412MHz, VERTICAL)



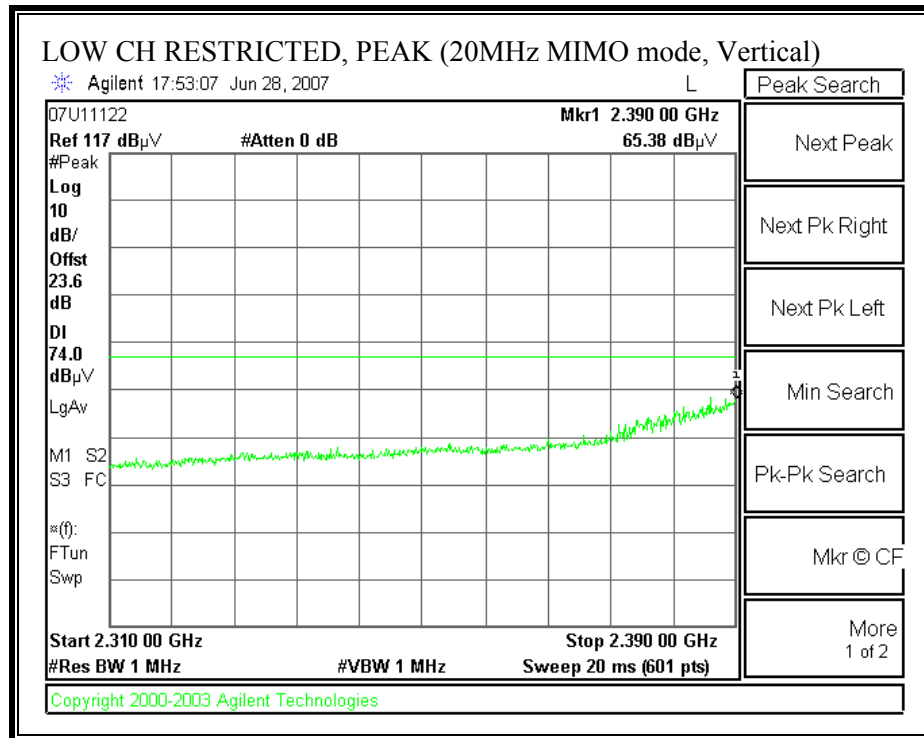


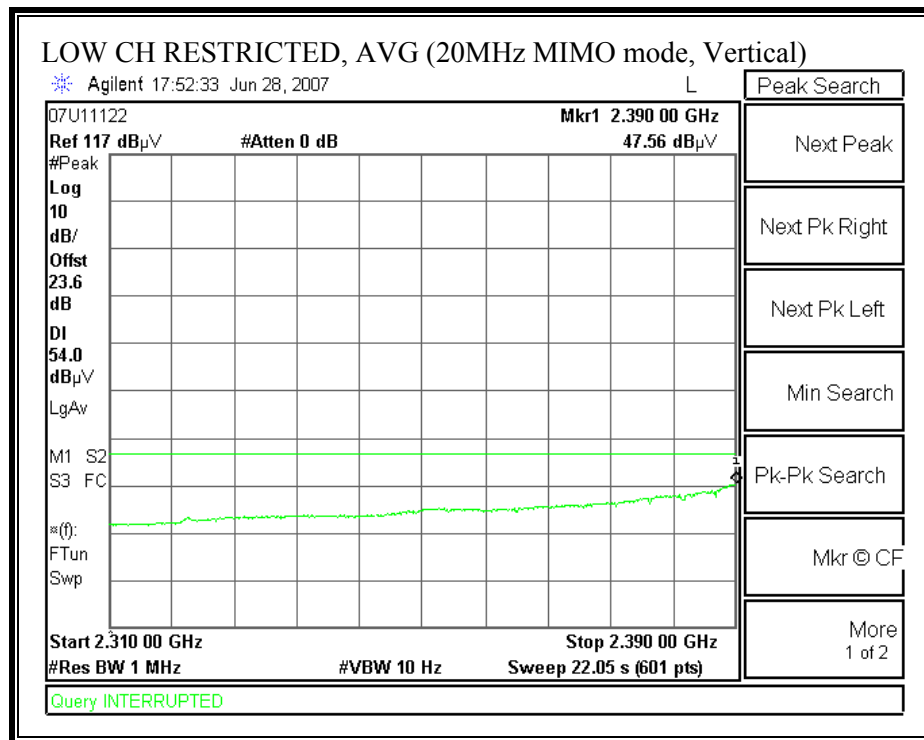
RESTRICTED BANDEDGE (20MHz MIMO MODE, LOW CHANNEL, 2417MHz, HORIZONTAL)



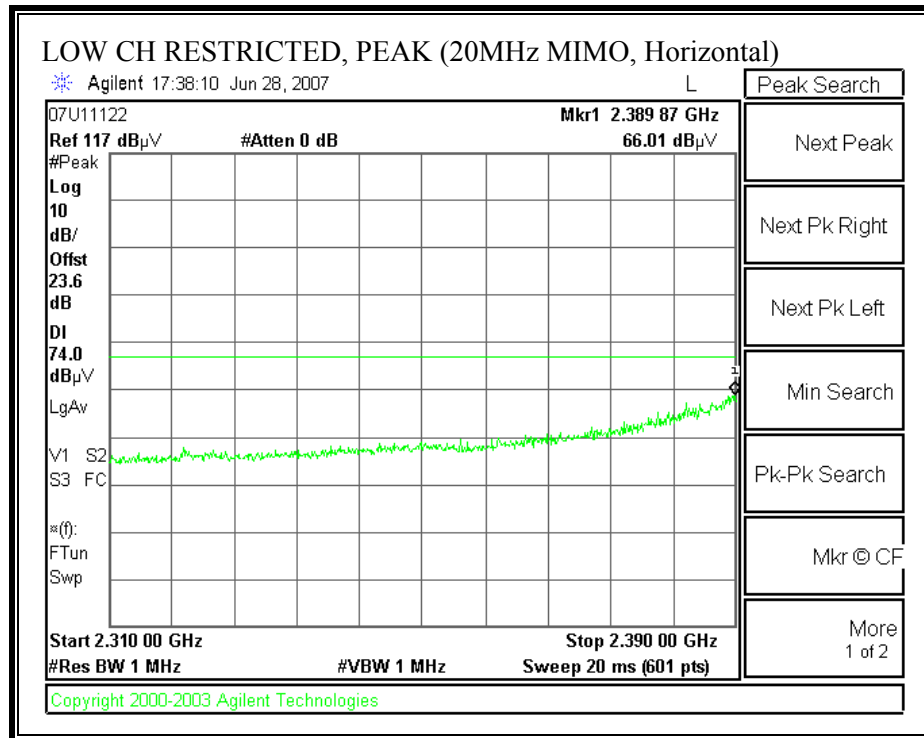


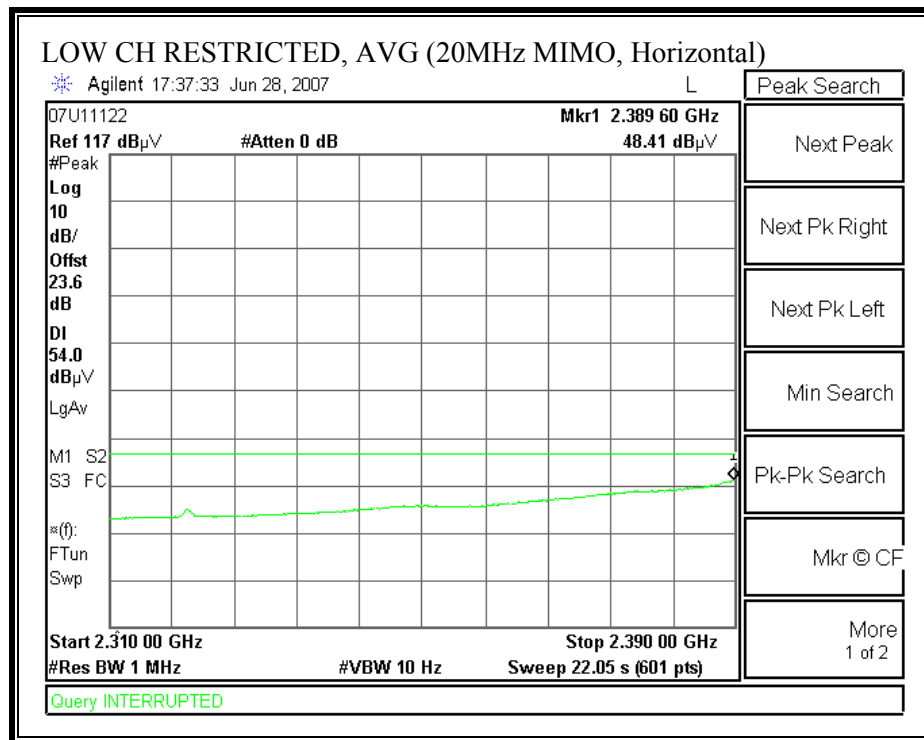
RESTRICTED BANDEDGE 20MHz MIMO MODE, LOW CHANNEL, 2417MHz, VERTICAL)



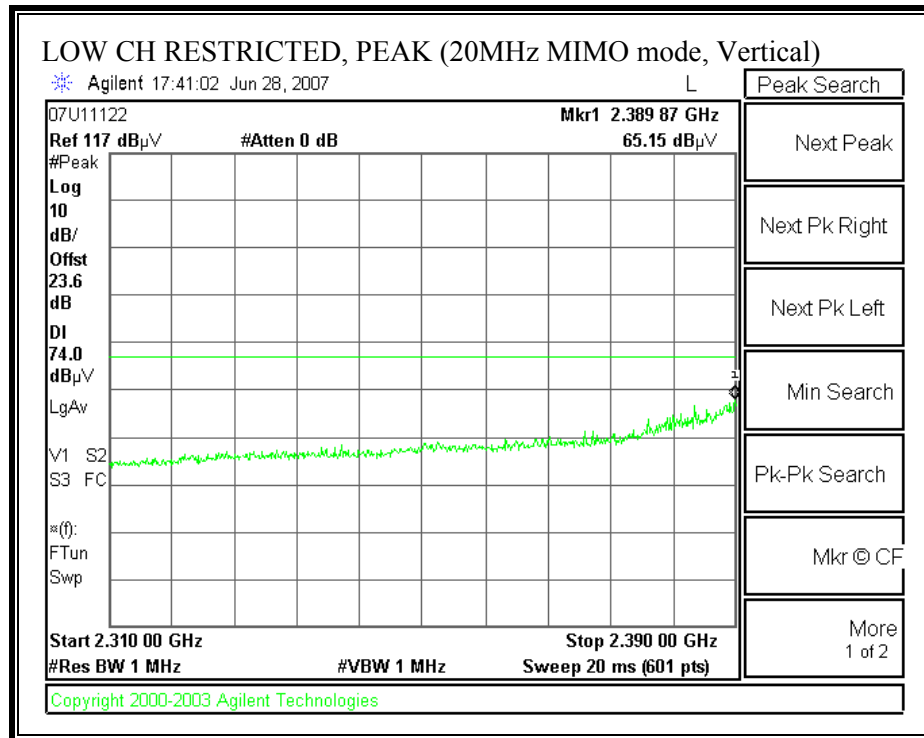


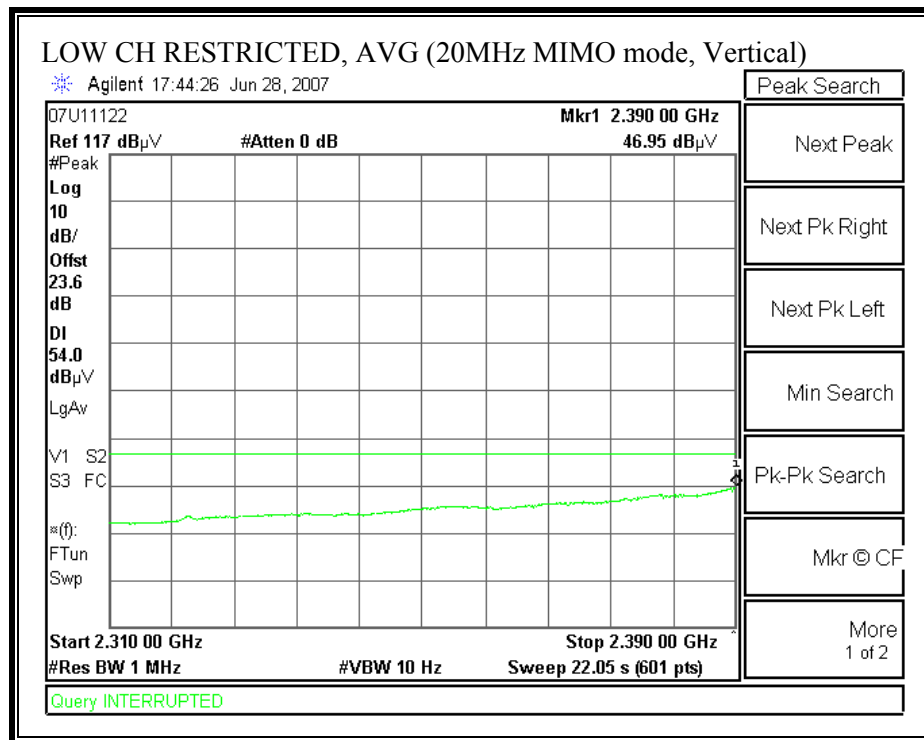
RESTRICTED BANDEDGE (20MHz MIMO MODE, LOW CHANNEL, 2422MHz, HORIZONTAL)



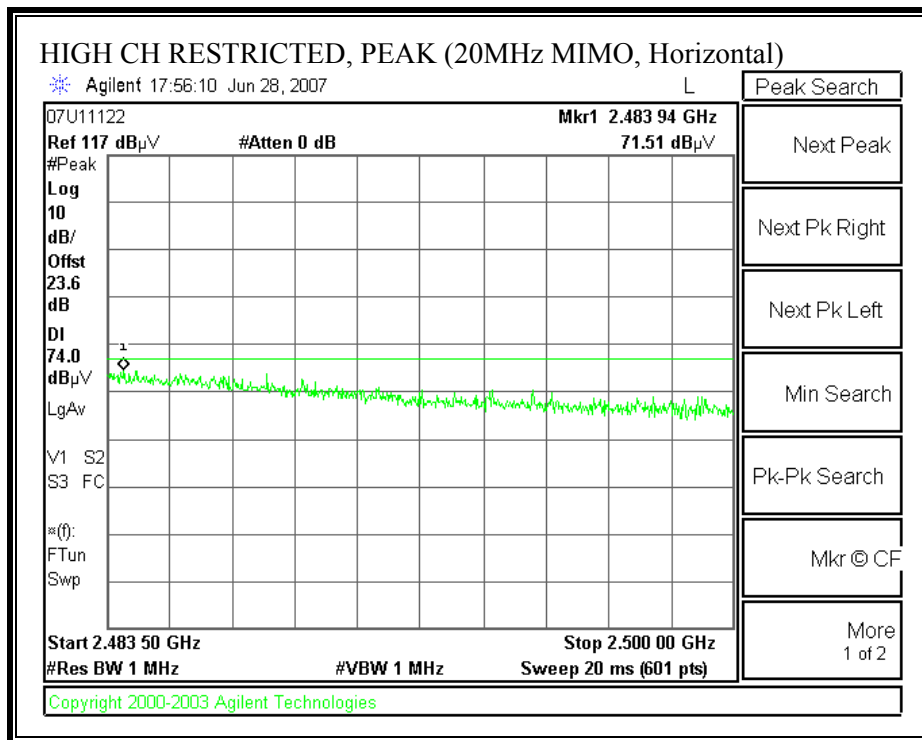


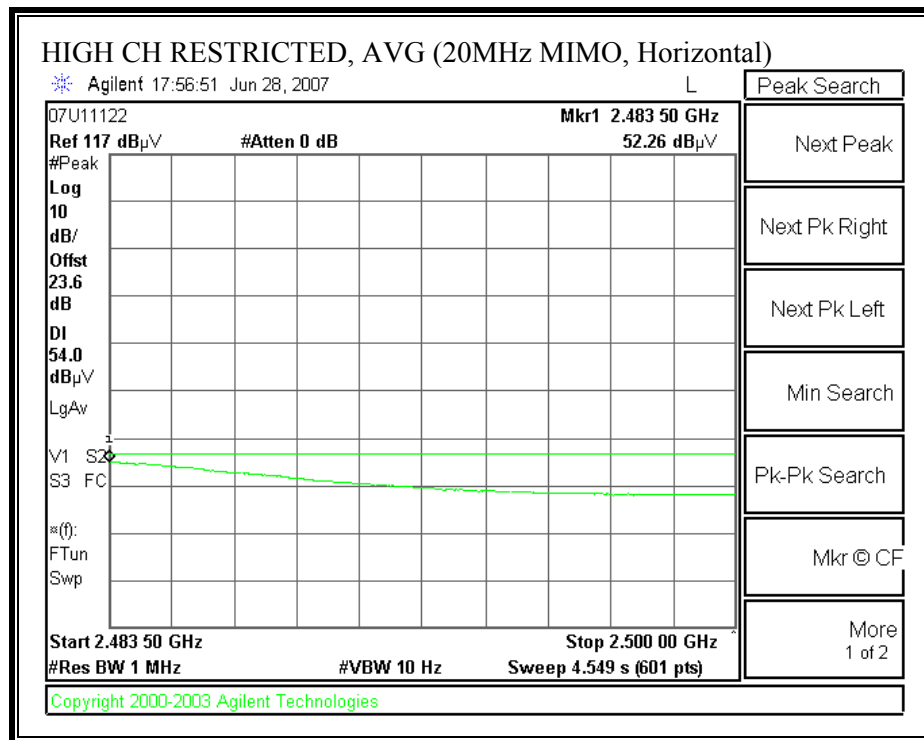
RESTRICTED BANDEDGE 20MHz MIMO MODE, LOW CHANNEL, 2422MHz, VERTICAL)



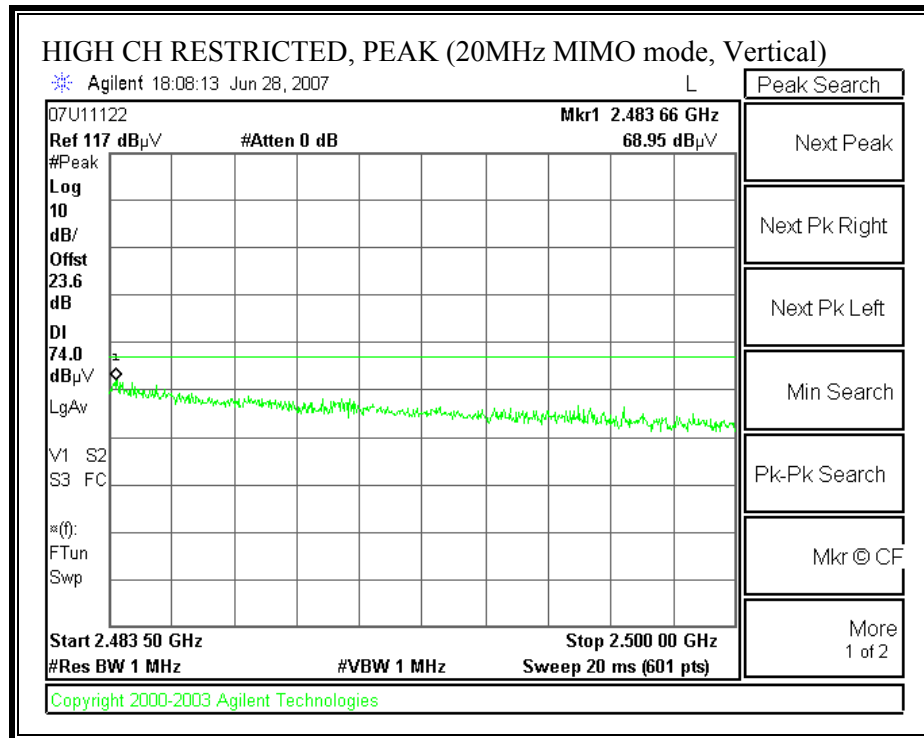


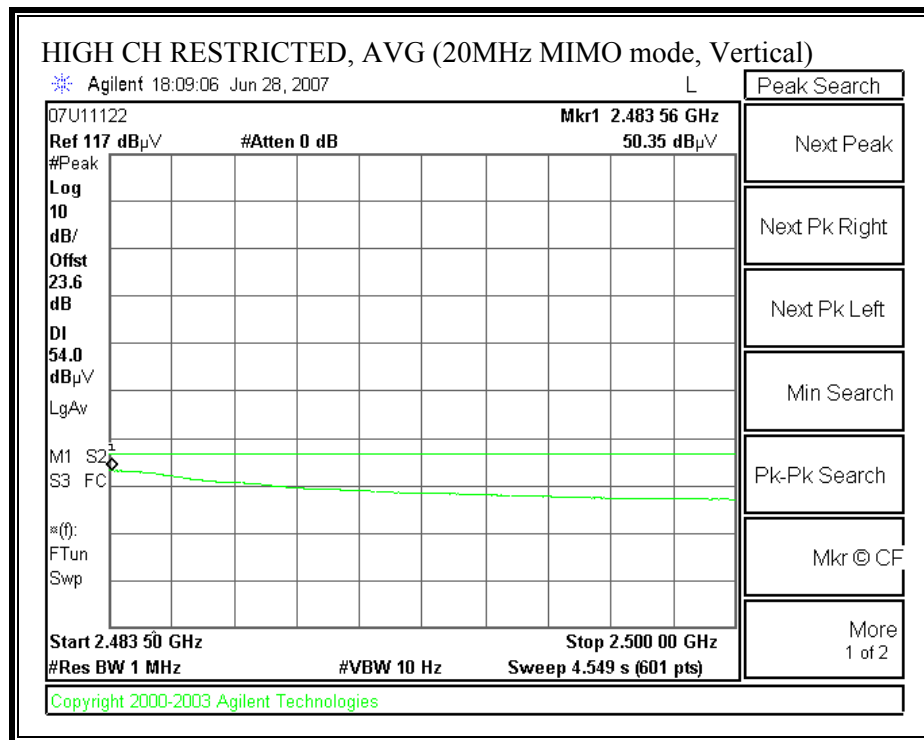
RESTRICTED BANDEDGE (20MHz MIMO MODE, HIGH CHANNEL, 2457MHz, HORIZONTAL)



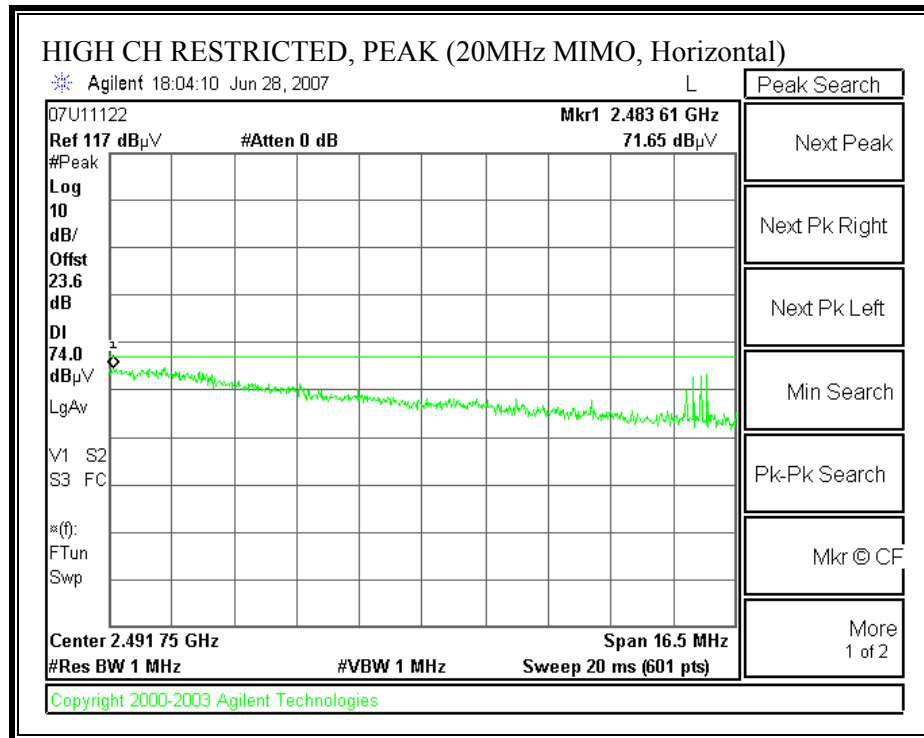


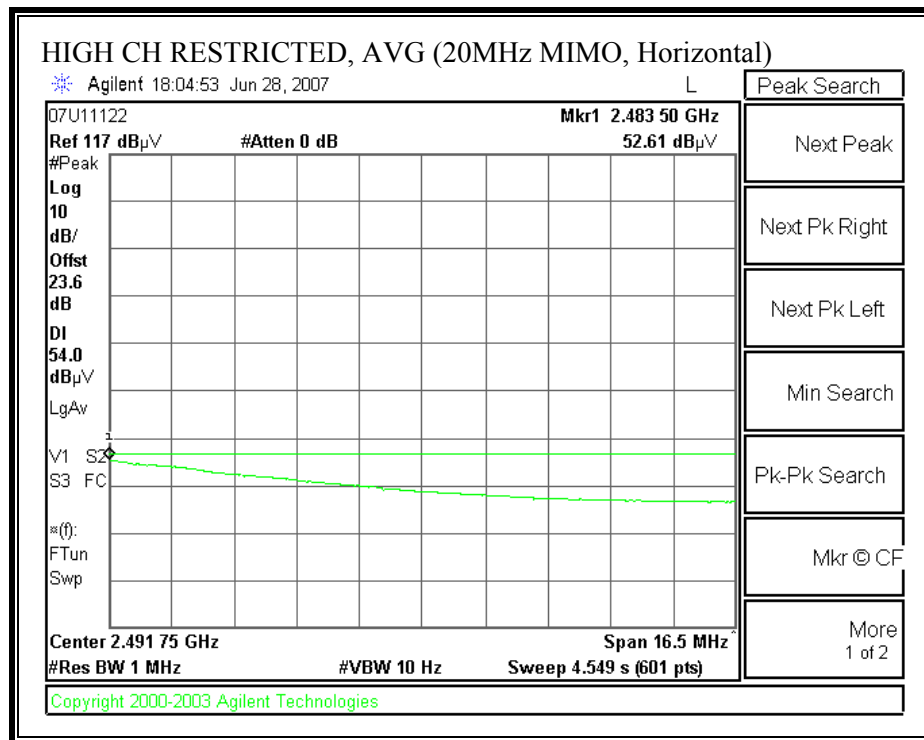
RESTRICTED BANDEDGE (20MHz MIMO MODE, HIGH CHANNEL, 2457MHz, VERTICAL)



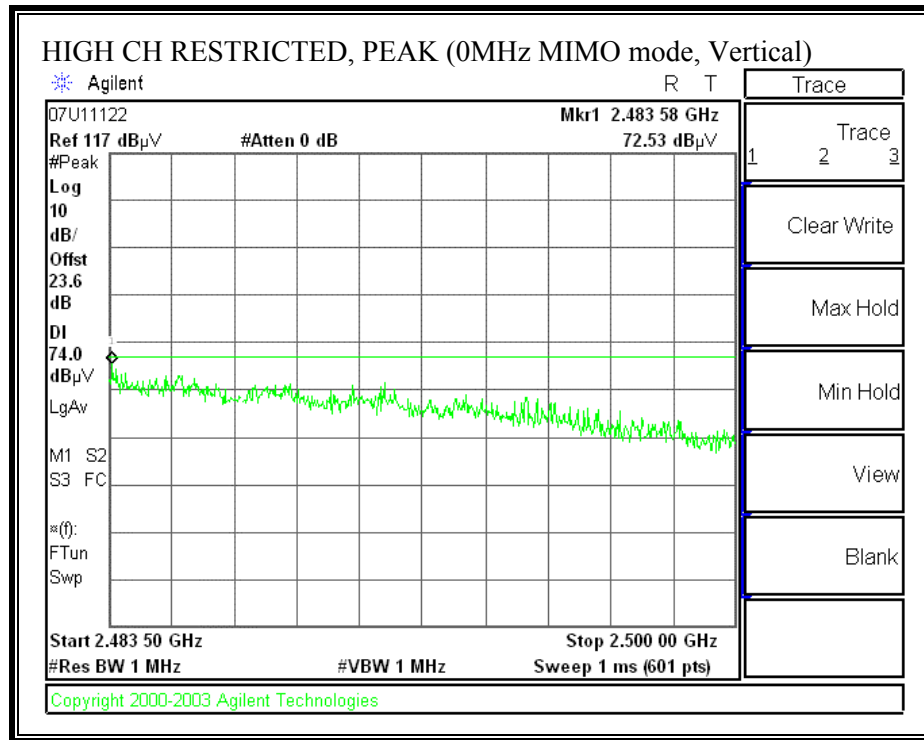


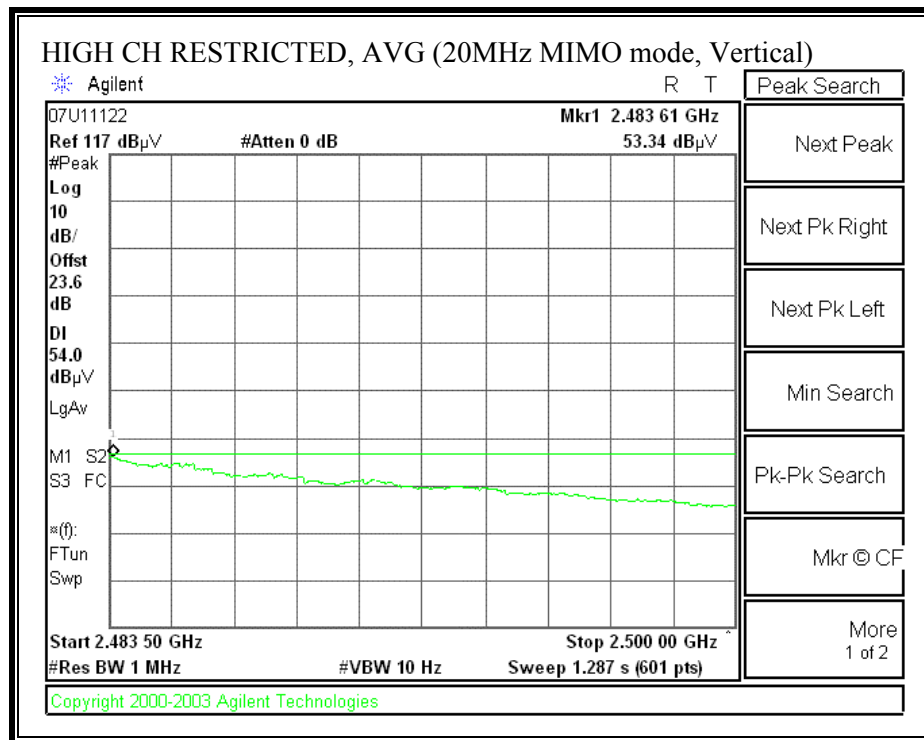
RESTRICTED BANDEDGE (20MHz MIMO MODE, HIGH CHANNEL, 2462MHz, HORIZONTAL)





RESTRICTED BANDEDGE (20MHz MIMO MODE, HIGH CHANNEL, 2462MHz, VERTICAL)

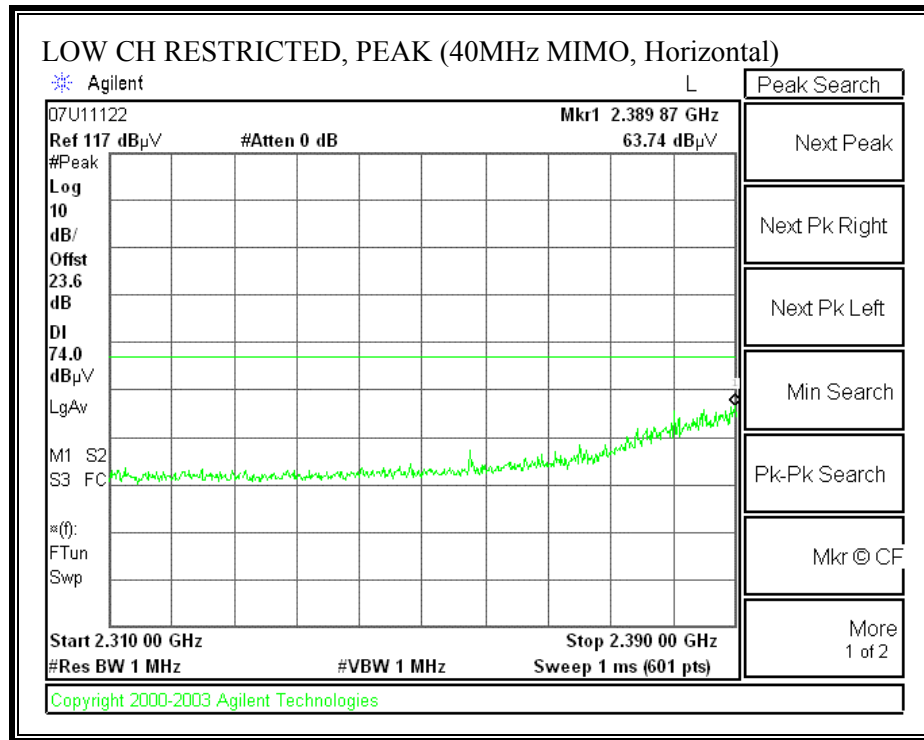


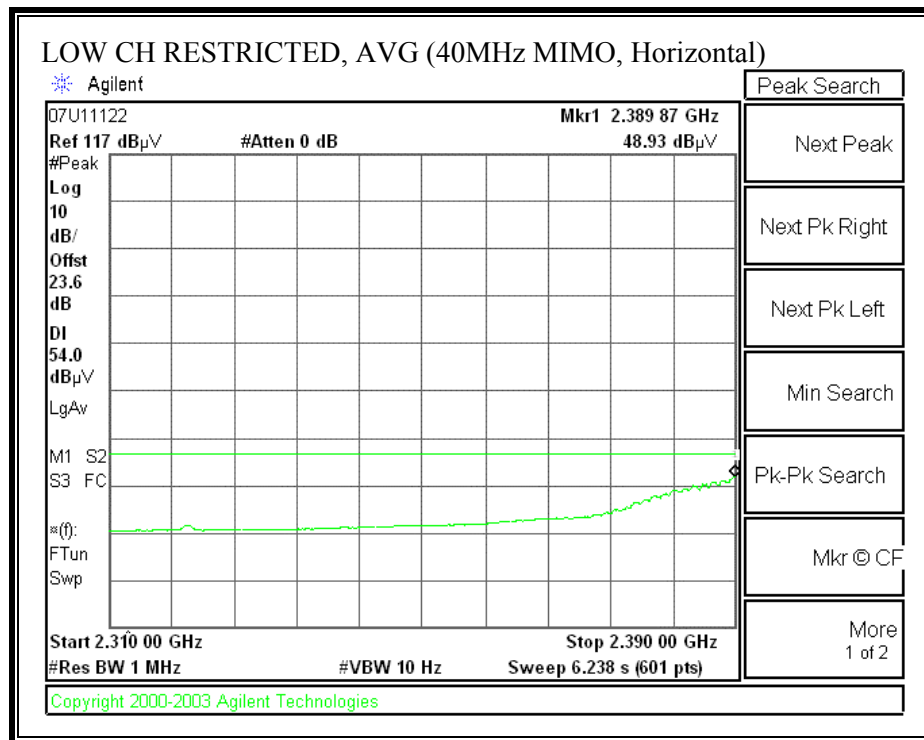


HARMONICS AND SPURIOUS EMISSIONS (20MHz MIMO MODE)

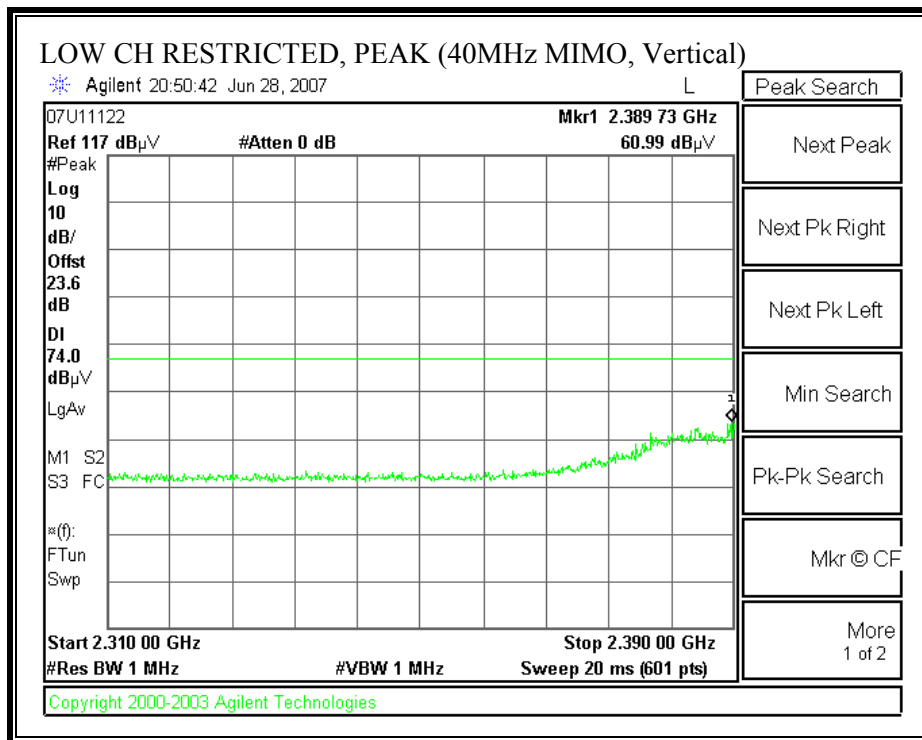
High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company:		Broadcom														
Project #:		07U11122														
Date:		6/18/2007														
Test Engineer:		Mengistu Mekuria														
Configuration:		EUT Alone														
Mode:		Tx 20MHz MIMO mode														
Test Equipment:																
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit								
T73; S/N: 6717 @3m		T144 Miteq 3008A00931						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						
				A-5m Chamber				R_001								
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Filt	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
Low Ch(2412MHz)																
1.095	3.0	60.2	44.3	24.1	3.1	-39.4	0.0	0.0	48.1	32.2	74	54	-25.9	-21.8	V	
1.365	3.0	51.1	35.9	25.1	3.5	-39.0	0.0	0.0	40.7	25.5	74	54	-33.3	-28.5	V	
4.824	3.0	43.5	30.5	33.3	6.9	-36.5	0.0	0.0	47.2	34.2	74	54	-26.8	-19.8	V	
1.095	3.0	59.0	43.2	24.1	3.1	-39.4	0.0	0.0	46.9	31.1	74	54	-27.1	-22.9	H	
1.333	3.0	53.5	36.4	25.0	3.4	-39.0	0.0	0.0	43.0	25.9	74	54	-31.0	-28.1	H	
4.824	3.0	44.6	31.6	33.3	6.9	-36.5	0.0	0.0	48.3	35.4	74	54	-25.7	-18.6	H	
Mid Ch (2437MHz)																
1.095	3.0	60.6	43.7	24.1	3.1	-39.4	0.0	0.0	48.5	31.6	74	54	-25.5	-22.4	V	
1.326	3.0	54.3	38.1	25.0	3.4	-39.0	0.0	0.0	43.7	27.4	74	54	-30.3	-26.6	V	
4.874	3.0	45.4	32.5	33.4	6.9	-36.5	0.0	0.0	49.2	36.3	74	54	-24.8	-17.7	V	
1.095	3.0	59.2	42.7	24.1	3.1	-39.4	0.0	0.0	47.1	30.6	74	54	-26.9	-23.4	H	
1.325	3.0	53.8	37.4	25.0	3.4	-39.0	0.0	0.0	43.2	26.8	74	54	-30.8	-27.2	H	
4.874	3.0	47.2	33.5	33.4	6.9	-36.5	0.0	0.0	51.0	37.3	74	54	-23.0	-16.7	H	
Hi Ch (2462MHz)																
1.095	3.0	61.1	54.2	24.1	3.1	-39.4	0.0	0.0	49.0	42.1	74	54	-25.0	-11.9	V	
1.327	3.0	55.6	37.3	25.0	3.4	-39.0	0.0	0.0	45.0	26.6	74	54	-29.0	-27.4	V	
4.924	3.0	45.9	29.5	33.4	7.0	-36.5	0.0	0.0	49.8	33.4	74	54	-24.2	-20.6	V	
7.386	3.0	42.7	29.9	35.0	8.4	-36.2	0.0	0.0	50.0	37.1	74	54	-24.0	-16.9	V	
1.095	3.0	59.0	43.2	24.1	3.1	-39.4	0.0	0.0	46.9	31.1	74	54	-27.1	-22.9	H	
1.327	3.0	53.3	35.7	25.0	3.4	-39.0	0.0	0.0	42.7	25.1	74	54	-31.3	-28.9	H	
4.924	3.0	46.8	32.1	33.4	7.0	-36.5	0.0	0.0	50.7	36.0	74	54	-23.3	-18.0	H	
7.386	3.0	41.9	28.7	35.0	8.4	-36.2	0.0	0.0	49.2	35.9	74	54	-24.8	-18.1	H	
Rev. 4127																
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									

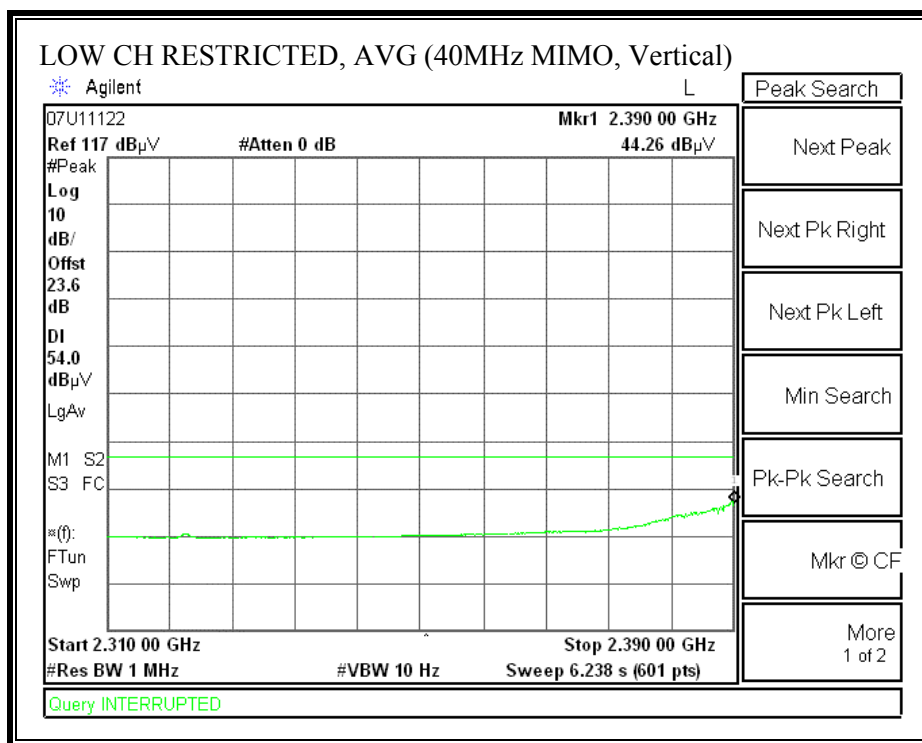
RESTRICTED BANDEDGE (40MHz MIMO MODE, LOW CHANNEL, 2422MHz, HORIZONTAL)



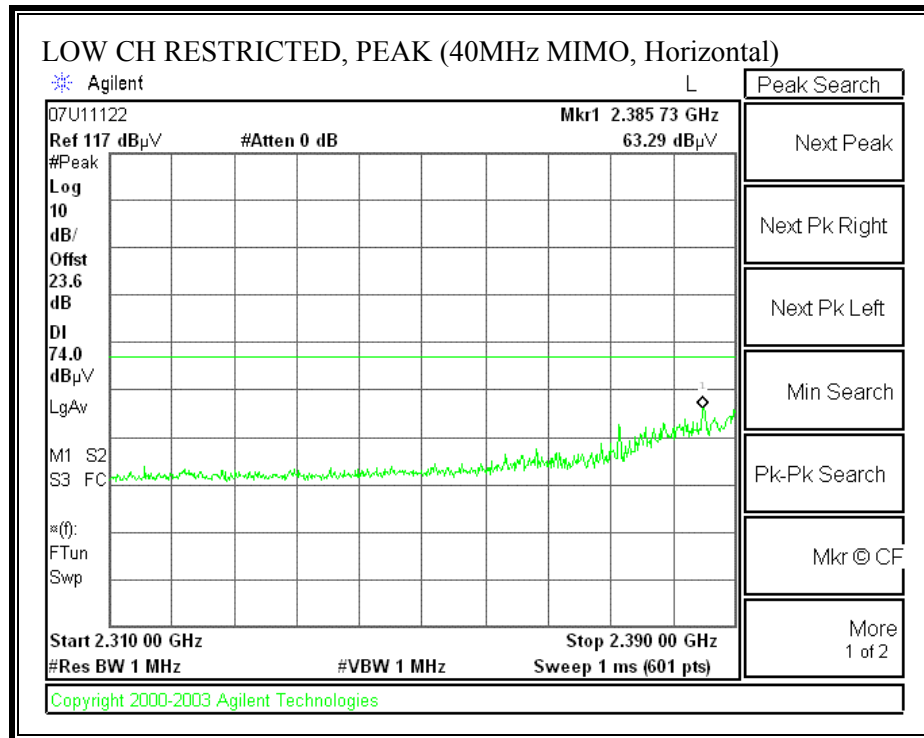


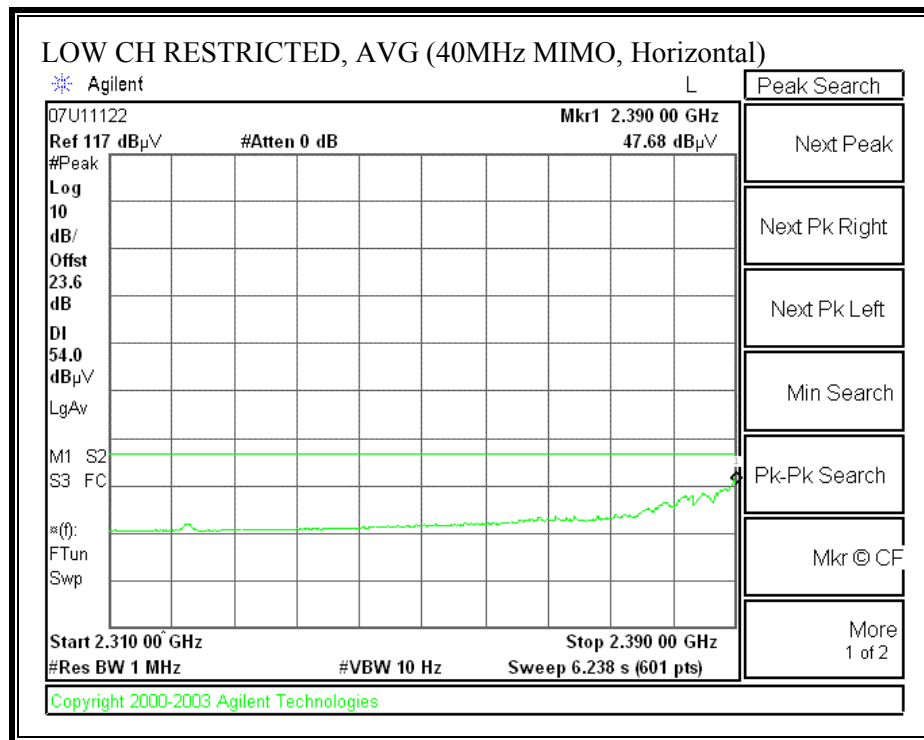
RESTRICTED BANDEDGE (40MHz MIMO MODE, LOW CHANNEL, 2422MHz VERTICAL)



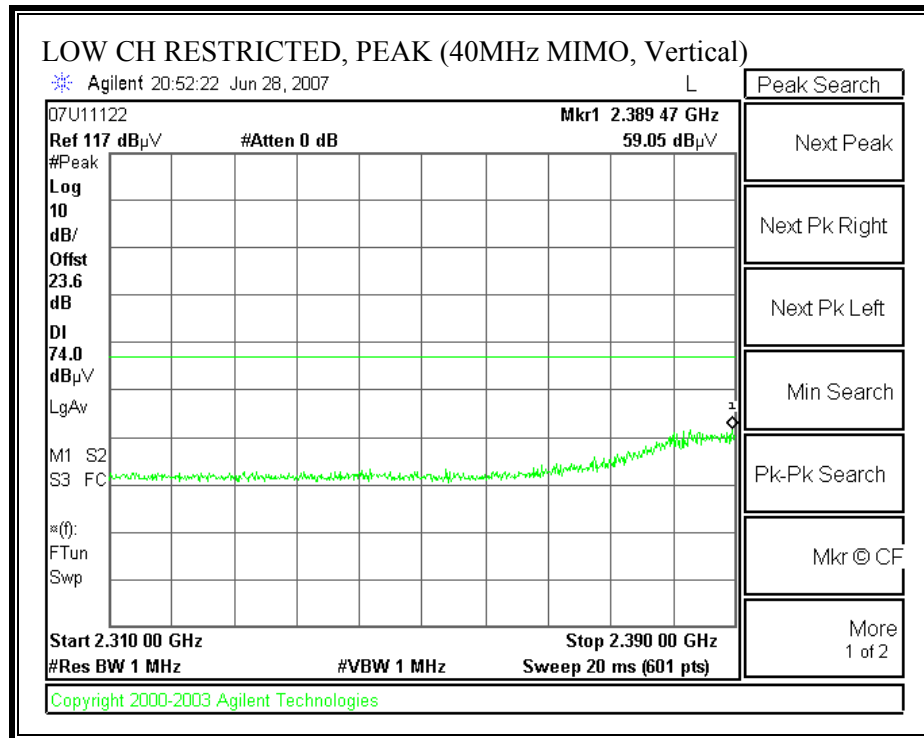


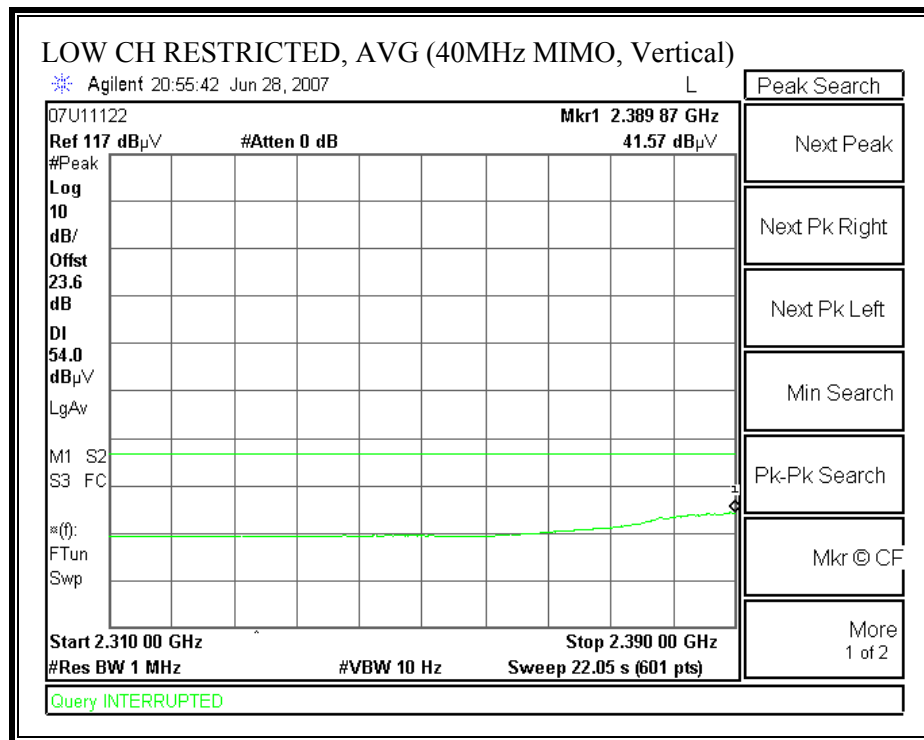
RESTRICTED BANDEDGE (40MHz MIMO MODE, LOW CHANNEL, 2427MHz, HORIZONTAL)



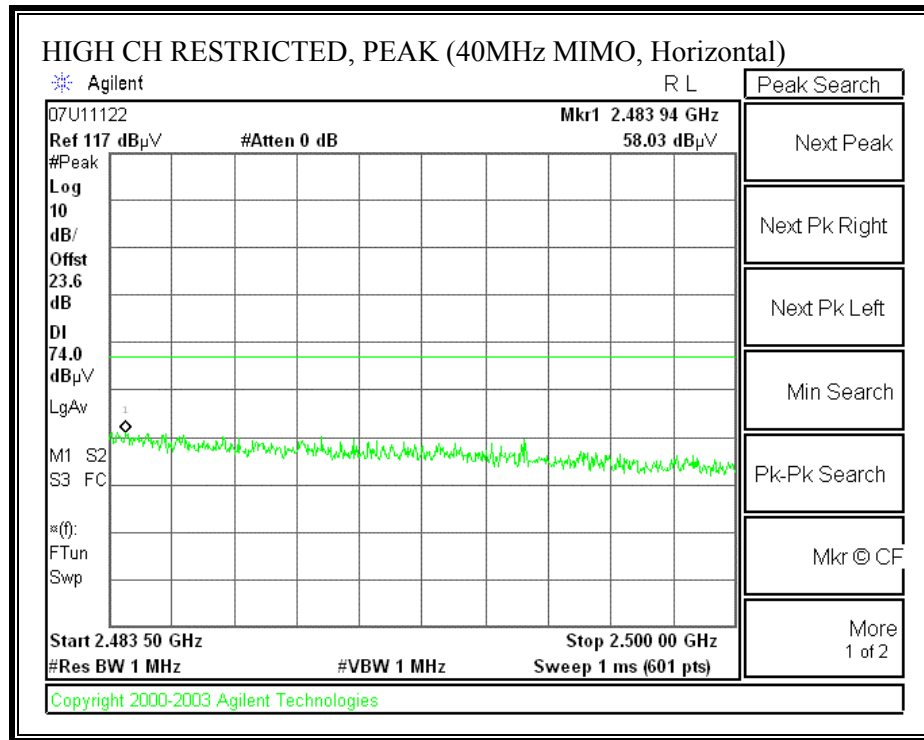


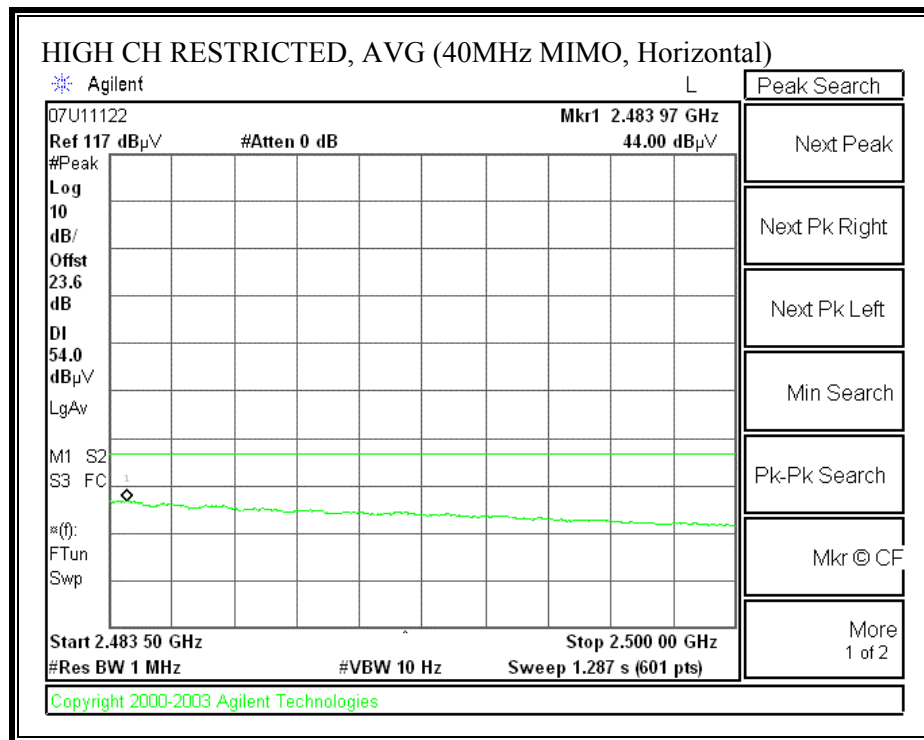
RESTRICTED BANDEDGE (40MHz MIMO MODE, LOW CHANNEL, 2427MHz VERTICAL)



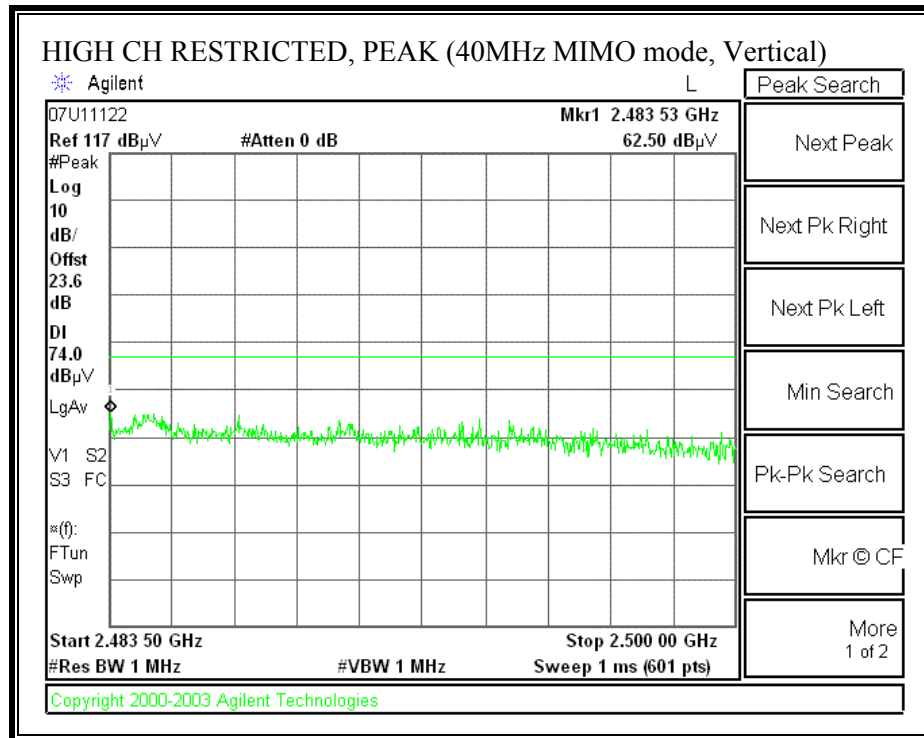


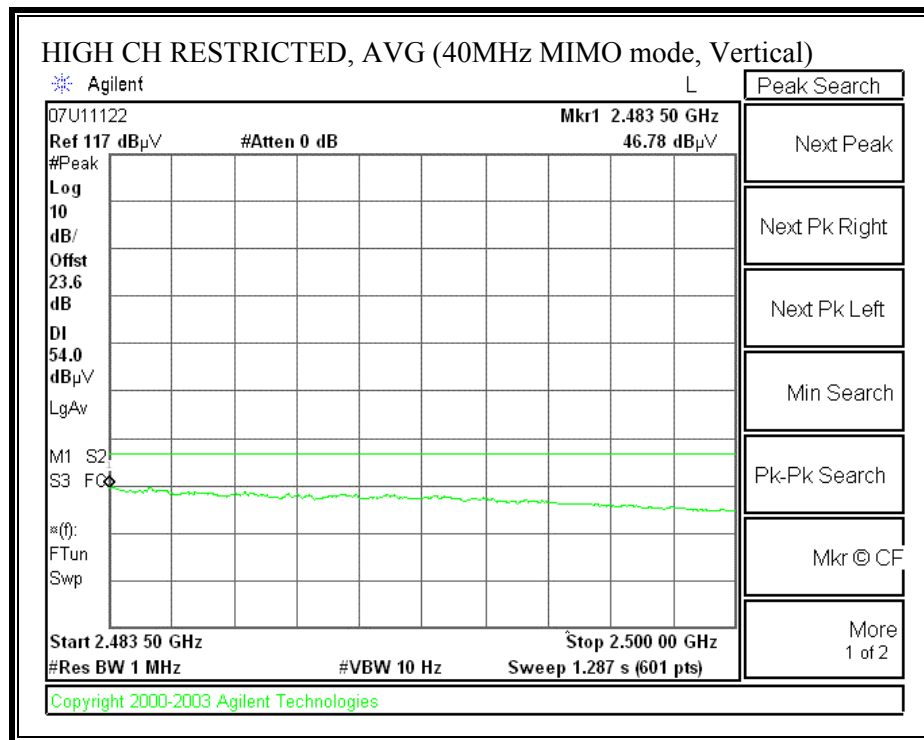
RESTRICTED BANDEDGE (40MHz MIMO MODE, HIGH CHANNEL, 2447MHz, HORIZONTAL)



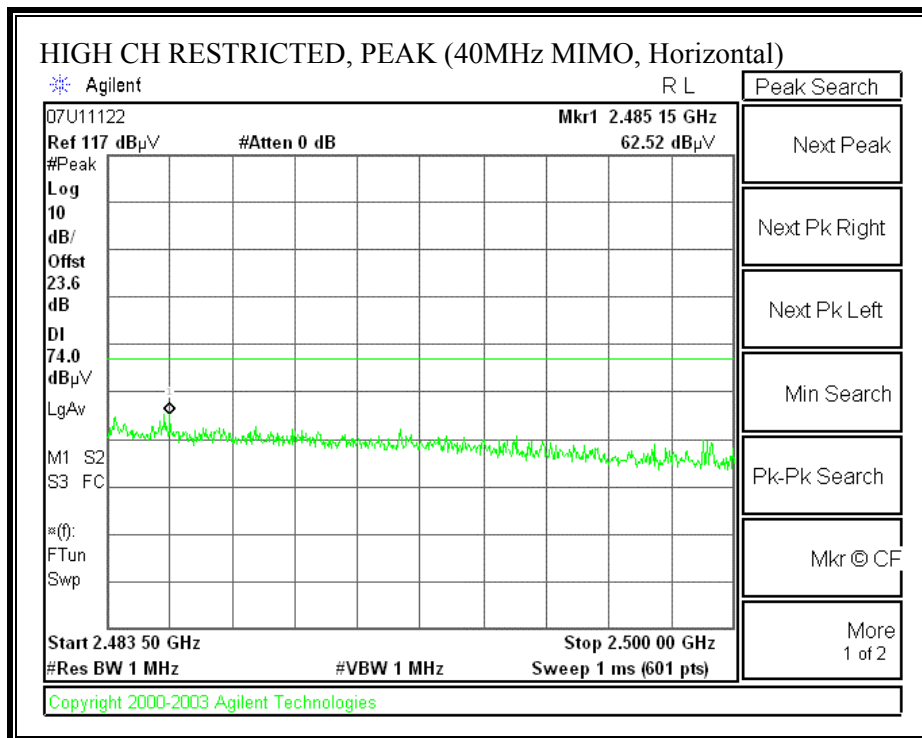


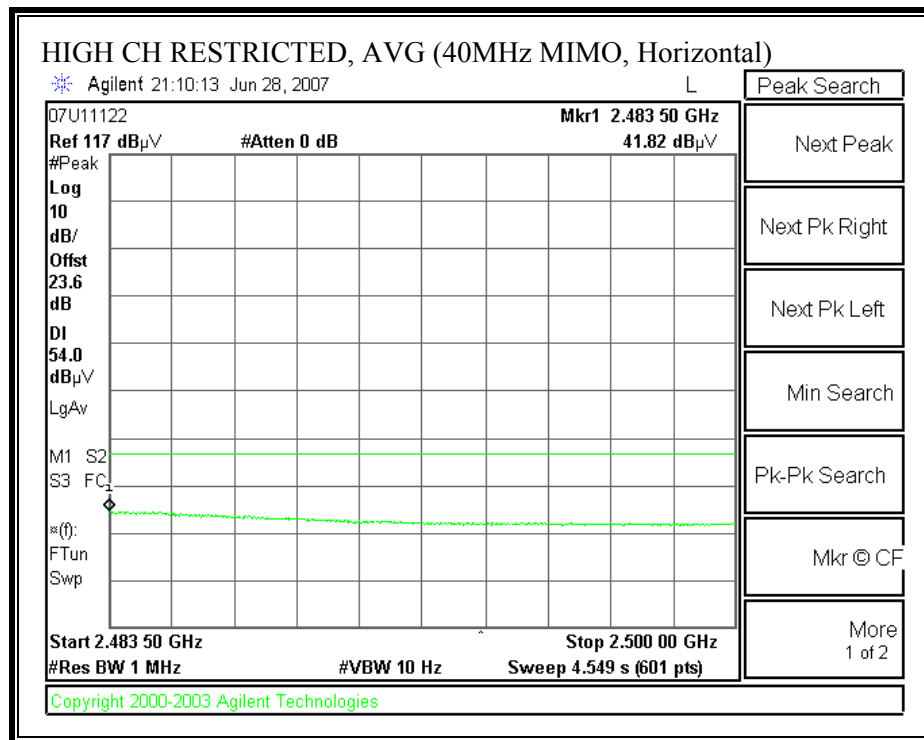
RESTRICTED BANDEDGE (40MHz MIMO MODE, HIGH CHANNEL, 2447MHz, VERTICAL)



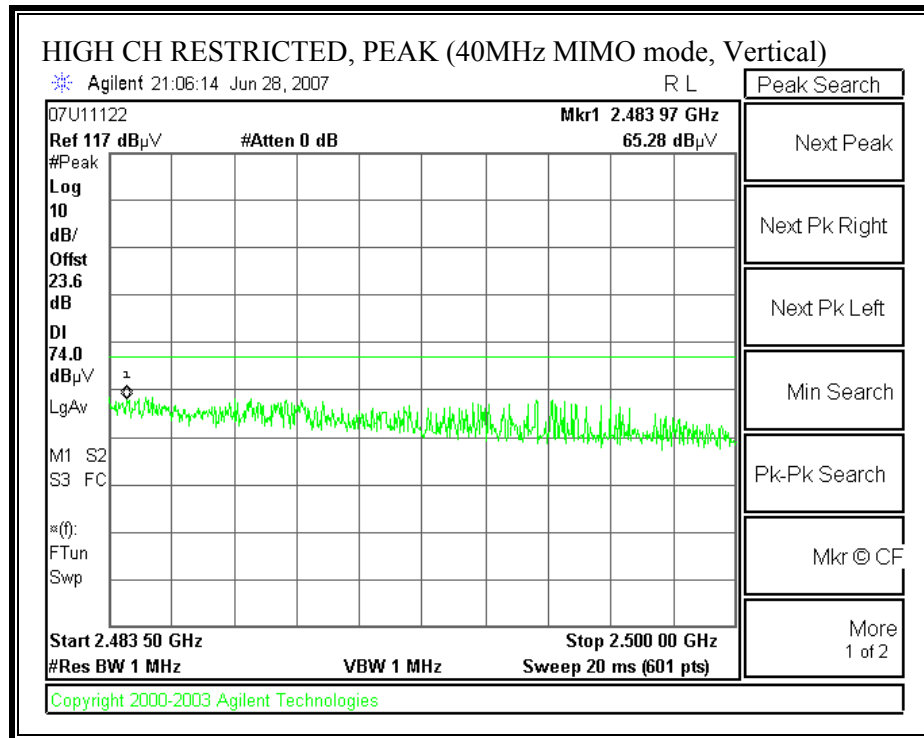


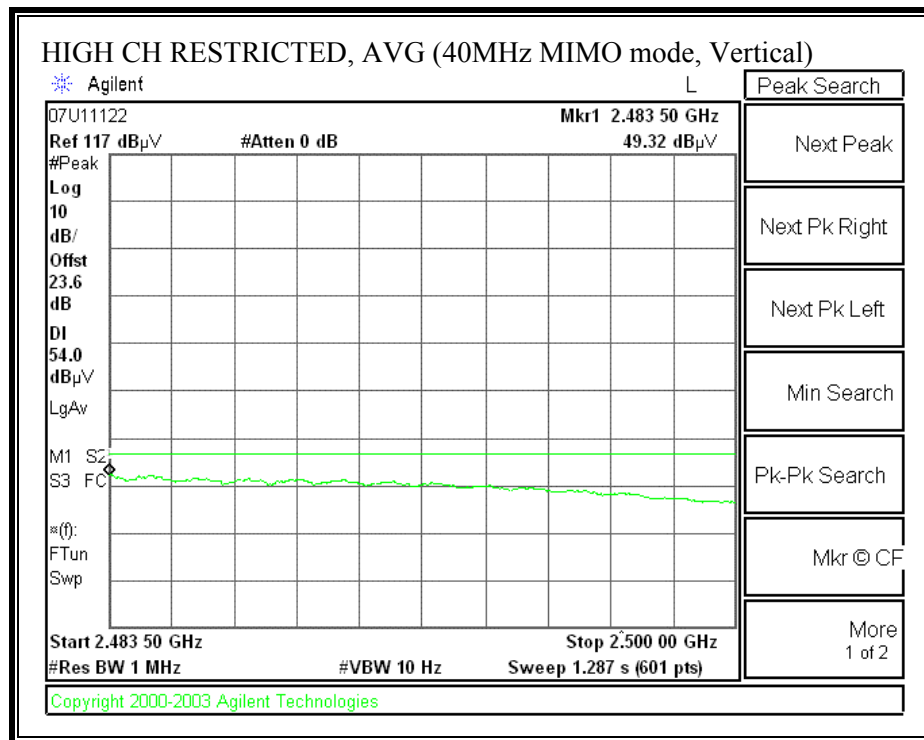
RESTRICTED BANDEDGE (40MHz MIMO MODE, HIGH CHANNEL, 2452MHz, HORIZONTAL)





RESTRICTED BANDEDGE (40MHz MIMO MODE, HIGH CHANNEL, 2452MHz, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (40MHz MIMO MODE)

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company:		Broadcom													
Project #:		07U11122													
Date:		6/18/2007													
Test Engineer:		Mengistu Mekuria													
Configuration:		EUT Alone													
Mode:		Tx 40MHz MIMO mode													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T144 Miteq 3008A00931						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					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	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)
Low Ch(2422MHz)															
1.095	3.0	59.7	44.1	24.1	3.1	-39.4	0.0	0.0	47.7	32.0	74	54	-26.3	-22.0	V
1.365	3.0	51.6	35.2	25.1	3.5	-39.0	0.0	0.0	41.2	24.9	74	54	-32.8	-29.1	V
4.824	3.0	44.2	31.5	33.3	6.9	-36.5	0.0	0.0	47.9	35.2	74	54	-26.1	-18.8	V
1.095	3.0	59.1	43.9	24.1	3.1	-39.4	0.0	0.0	47.0	31.8	74	54	-27.0	-22.2	H
1.333	3.0	53.6	36.7	25.0	3.4	-39.0	0.0	0.0	43.0	26.1	74	54	-31.0	-27.9	H
4.824	3.0	43.4	30.6	33.3	6.9	-36.5	0.0	0.0	47.1	34.3	74	54	-26.9	-19.7	H
Mid Ch (2437MHz)															
1.095	3.0	60.5	43.3	24.1	3.1	-39.4	0.0	0.0	48.4	31.2	74	54	-25.6	-22.8	V
1.326	3.0	55.1	38.7	25.0	3.4	-39.0	0.0	0.0	44.5	28.1	74	54	-29.5	-25.9	V
4.874	3.0	41.5	29.1	33.4	6.9	-36.5	0.0	0.0	45.3	32.9	74	54	-28.7	-21.1	V
1.095	3.0	59.2	42.4	24.1	3.1	-39.4	0.0	0.0	47.1	30.3	74	54	-26.9	-23.7	H
1.325	3.0	53.6	37.9	25.0	3.4	-39.0	0.0	0.0	43.0	27.3	74	54	-31.0	-26.7	H
4.874	3.0	41.4	28.6	33.4	6.9	-36.5	0.0	0.0	45.2	32.4	74	54	-28.8	-21.6	H
Hi Ch (2452MHz)															
1.095	3.0	61.0	45.3	24.1	3.1	-39.4	0.0	0.0	48.9	33.2	74	54	-25.1	-20.8	V
1.327	3.0	56.3	37.8	25.0	3.4	-39.0	0.0	0.0	45.7	27.2	74	54	-28.3	-26.8	V
4.904	3.0	42.0	30.1	33.4	7.0	-36.5	0.0	0.0	45.9	33.9	74	54	-28.1	-20.1	V
1.095	3.0	60.3	44.2	24.1	3.1	-39.4	0.0	0.0	48.3	32.1	74	54	-25.7	-21.9	H
1.327	3.0	53.8	36.4	25.0	3.4	-39.0	0.0	0.0	43.1	25.8	74	54	-30.9	-28.2	H
4.904	3.0	41.8	29.9	33.4	7.0	-36.5	0.0	0.0	45.7	33.7	74	54	-28.3	-20.3	H
Rev. 4.12.7															
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. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND

HARMONICS AND SPURIOUS EMISSIONS (Aux Antenna, Legacy MODE)

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company:		Broadcom														
Project #:		07U11122														
Date:		7/2/2007														
Test Engineer:		Keith Ng														
Configuration:		EUT Only														
Mode:		Tx Legacy 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 15.209				
Hi Frequency Cables																
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz	
						A-5m Chamber						R_002			Average Measurements RBW=1MHz ; VBW=10Hz	
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	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)	
LO (5745MHz)																
1.137	3.0	60.6	39.2	28.4	3.2	-38.1	0.0	0.0	54.0	32.6	74	54	-20.0	-21.4	V	
1.325	3.0	57.3	36.6	29.1	3.4	-37.8	0.0	0.0	51.9	31.2	74	54	-22.1	-22.8	V	
11.490	3.0	40.7	27.3	37.6	11.6	-32.5	0.0	0.0	57.4	44.0	74	54	-16.6	-10.0	V	
17.235	3.0	40.1	28.1	40.2	13.3	-32.0	0.0	0.0	61.6	49.5	74	54	-12.4	-4.5	V	
1.095	3.0	52.9	39.0	28.2	3.1	-38.1	0.0	0.0	46.1	32.2	74	54	-27.9	-21.8	H	
1.330	3.0	57.9	36.0	29.1	3.4	-37.8	0.0	0.0	52.6	30.7	74	54	-21.4	-23.3	H	
11.490	3.0	41.5	28.6	37.6	11.6	-32.5	0.0	0.0	58.2	45.3	74	54	-15.8	-8.7	H	
17.235	3.0	40.7	28.7	40.2	13.3	-32.0	0.0	0.0	62.2	50.2	74	54	-11.8	-3.8	H	
MID(5785MHz)																
1.095	3.0	55.8	41.9	28.2	3.1	-38.1	0.0	0.0	49.0	35.1	74	54	-25.0	-18.9	V	
1.332	3.0	51.3	35.9	29.1	3.4	-37.8	0.0	0.0	46.0	30.6	74	54	-28.0	-23.4	V	
11.570	3.0	40.2	27.8	37.6	11.7	-32.5	0.0	0.0	57.0	44.6	74	54	-17.0	-9.4	V	
17.355	3.0	40.1	27.7	40.3	13.3	-32.1	0.0	0.0	61.7	49.3	74	54	-12.3	-4.7	V	
1.100	3.0	58.0	45.6	28.2	3.1	-38.1	0.0	0.0	51.2	38.9	74	54	-22.8	-15.1	H	
1.317	3.0	54.3	36.1	29.0	3.4	-37.8	0.0	0.0	48.9	30.7	74	54	-25.1	-23.3	H	
11.570	3.0	42.2	28.8	37.6	11.7	-32.5	0.0	0.0	59.0	45.6	74	54	-15.0	-8.4	H	
17.355	3.0	40.2	28.8	40.3	13.3	-32.1	0.0	0.0	61.8	50.4	74	54	-12.2	-3.6	H	
HI(5825MHz)																
1.097	3.0	56.5	44.1	28.2	3.1	-38.1	0.0	0.0	49.7	37.3	74	54	-24.3	-16.7	V	
1.331	3.0	52.1	36.0	29.1	3.4	-37.8	0.0	0.0	46.9	30.7	74	54	-27.1	-23.3	V	
11.650	3.0	41.4	28.8	37.7	11.8	-32.5	0.0	0.0	58.3	45.8	74	54	-15.7	-8.2	V	
17.475	3.0	40.5	28.8	40.5	13.4	-32.1	0.0	0.0	62.2	50.5	74	54	-11.8	-3.5	V	
1.095	3.0	58.8	43.4	28.2	3.1	-38.1	0.0	0.0	52.0	36.6	74	54	-22.0	-17.4	H	
1.315	3.0	53.8	36.2	29.0	3.4	-37.8	0.0	0.0	48.4	30.8	74	54	-25.6	-23.2	H	
11.650	3.0	41.7	29.0	37.7	11.8	-32.5	0.0	0.0	58.6	45.9	74	54	-15.4	-8.1	H	
17.475	3.0	41.0	28.8	40.5	13.4	-32.1	0.0	0.0	62.7	50.5	74	54	-11.3	-3.5	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											

HARMONICS AND SPURIOUS EMISSIONS (20MHz MIMO MODE)

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company:		Broadcom													
Project #:		07U11122													
Date:		7/2/2007													
Test Engineer:		Keith Ng													
Configuration:		EUT Only													
Mode:		Tx 20MHz MIMO 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 15.209							
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_002							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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(5745MHz)															
1.097	3.0	55.6	40.7	28.2	3.1	-38.1	0.0	0.0	48.8	34.0	74	54	-25.2	-20.0	V
1.985	3.0	51.3	34.1	31.5	4.3	-36.9	0.0	0.0	50.2	33.0	74	54	-23.8	-21.0	V
11.490	3.0	46.7	32.7	37.6	11.6	-32.5	0.0	0.0	63.4	49.4	74	54	-10.6	-4.6	V
17.235	3.0	40.2	28.0	40.2	13.3	-32.0	0.0	0.0	61.7	49.5	74	54	-12.3	-4.5	V
1.096	3.0	53.2	38.8	28.2	3.1	-38.1	0.0	0.0	46.4	32.0	74	54	-27.6	-22.0	H
1.332	3.0	57.1	36.9	29.1	3.4	-37.8	0.0	0.0	51.8	31.6	74	54	-22.2	-22.4	H
11.490	3.0	46.2	32.2	37.6	11.6	-32.5	0.0	0.0	62.9	48.9	74	54	-11.1	-5.1	H
17.235	3.0	41.2	28.1	40.2	13.3	-32.0	0.0	0.0	62.7	49.6	74	54	-11.3	-4.4	H
MID(5785MHz)															
1.094	3.0	52.5	40.0	28.2	3.1	-38.1	0.0	0.0	45.6	33.2	74	54	-28.4	-20.8	V
1.333	3.0	52.0	37.8	29.1	3.4	-37.8	0.0	0.0	46.7	32.6	74	54	-27.3	-21.4	V
11.570	3.0	47.7	33.3	37.6	11.7	-32.5	0.0	0.0	64.5	50.1	74	54	-9.5	-3.9	V
17.355	3.0	40.4	27.7	40.3	13.3	-32.1	0.0	0.0	62.0	49.3	74	54	-12.0	-4.7	V
1.097	3.0	53.9	39.1	28.2	3.1	-38.1	0.0	0.0	47.1	32.3	74	54	-26.9	-21.7	H
1.314	3.0	54.5	35.5	29.0	3.4	-37.8	0.0	0.0	49.2	30.1	74	54	-24.8	-23.9	H
11.570	3.0	46.4	32.0	37.6	11.7	-32.5	0.0	0.0	63.2	48.8	74	54	-10.8	-5.2	H
17.355	3.0	40.3	27.7	40.3	13.3	-32.1	0.0	0.0	61.9	49.3	74	54	-12.1	-4.7	H
HI(5825MHz)															
1.092	3.0	57.5	42.3	28.2	3.1	-38.1	0.0	0.0	50.7	35.5	74	54	-23.3	-18.5	V
1.310	3.0	52.6	35.7	29.0	3.4	-37.8	0.0	0.0	47.1	30.3	74	54	-26.9	-23.7	V
11.650	3.0	49.4	35.2	37.7	11.8	-32.5	0.0	0.0	66.3	52.1	74	54	-7.7	-1.9	V
17.475	3.0	40.1	27.7	40.5	13.4	-32.1	0.0	0.0	61.8	49.4	74	54	-12.2	-4.6	V
1.097	3.0	59.4	46.1	28.2	3.1	-38.1	0.0	0.0	52.6	39.4	74	54	-21.4	-14.6	H
1.315	3.0	52.7	34.7	29.0	3.4	-37.8	0.0	0.0	47.3	29.3	74	54	-26.7	-24.7	H
11.650	3.0	47.9	33.7	37.7	11.8	-32.5	0.0	0.0	64.8	50.6	74	54	-9.2	-3.4	H
17.475	3.0	40.6	27.7	40.5	13.4	-32.1	0.0	0.0	62.3	49.4	74	54	-11.7	-4.6	H
Rev. 4.12.7															
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										

HARMONICS AND SPURIOUS EMISSIONS (40MHz MIMO MODE)

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company:		Broadcom														
Project #:		07U11122														
Date:		7/2/2007														
Test Engineer:		Keith Ng														
Configuration:		EUT Only														
Mode:		Tx 40MHz MIMO 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 15.209				
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		
						A 5m Chamber						R_002				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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(5755MHz)																
1.096	3.0	56.5	44.5	28.2	3.1	-38.1	0.0	0.0	49.7	37.7	74	54	-24.3	-16.3	V	
1.332	3.0	52.2	35.6	29.1	3.4	-37.8	0.0	0.0	47.0	30.3	74	54	-27.0	-23.7	V	
11.510	3.0	43.1	29.9	37.6	11.6	-32.5	0.0	0.0	59.8	46.6	74	54	-14.2	-7.4	V	
17.265	3.0	40.3	28.4	40.3	13.3	-32.0	0.0	0.0	61.8	49.9	74	54	-12.2	-4.1	V	
1.096	3.0	58.1	45.8	28.2	3.1	-38.1	0.0	0.0	51.4	39.0	74	54	-22.6	-15.0	H	
1.334	3.0	54.2	36.3	29.1	3.4	-37.8	0.0	0.0	49.0	31.0	74	54	-25.0	-23.0	H	
11.510	3.0	42.9	29.9	37.6	11.6	-32.5	0.0	0.0	59.6	46.6	74	54	-14.4	-7.4	H	
17.265	3.0	42.1	28.3	40.3	13.3	-32.0	0.0	0.0	63.6	49.8	74	54	-10.4	-4.2	H	
HI(5795MHz)																
1.093	3.0	57.1	43.3	28.2	3.1	-38.1	0.0	0.0	50.3	36.5	74	54	-23.7	-17.5	V	
1.332	3.0	51.9	35.6	29.1	3.4	-37.8	0.0	0.0	46.6	30.3	74	54	-27.4	-23.7	V	
11.590	3.0	41.6	29.9	37.6	11.7	-32.5	0.0	0.0	58.5	46.8	74	54	-15.5	-7.2	V	
17.385	3.0	40.1	28.0	40.4	13.3	-32.1	0.0	0.0	61.7	49.6	74	54	-12.3	-4.4	V	
1.095	3.0	58.7	45.6	28.2	3.1	-38.1	0.0	0.0	51.9	38.8	74	54	-22.1	-15.2	H	
1.314	3.0	53.5	35.9	29.0	3.4	-37.8	0.0	0.0	48.1	30.5	74	54	-25.9	-23.5	H	
11.590	3.0	43.2	30.2	37.6	11.7	-32.5	0.0	0.0	60.0	47.0	74	54	-14.0	-7.0	H	
17.385	3.0	40.1	28.0	40.4	13.3	-32.1	0.0	0.0	61.7	49.6	74	54	-12.3	-4.4	H	
Rev. 4.12.7																
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									

7.1.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

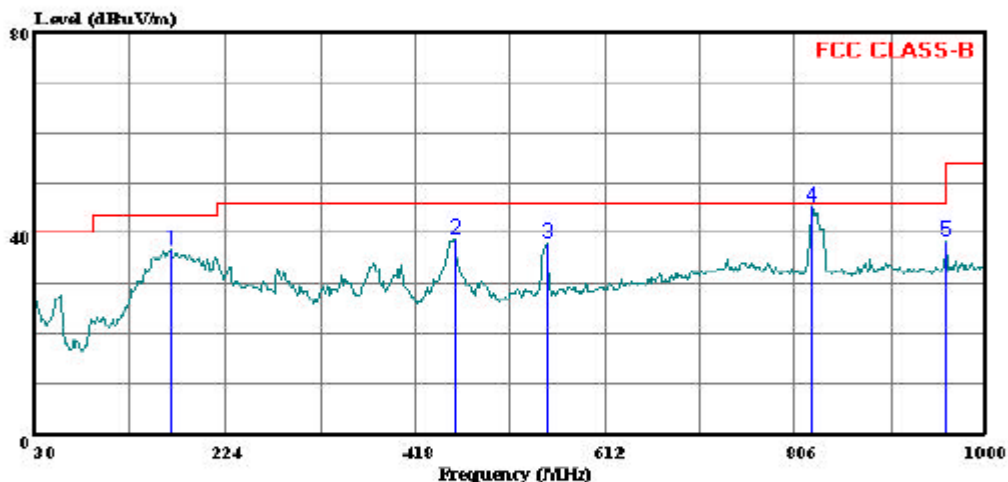
SPURIOUS EMISSIONS 30 TO 1000 MHz (2.4GHz Band, WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 2 File#: 07U11122A.EMI Date: 06-19-2007 Time: 10:24:27



Trace: 1

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT only
Mode : : Tx
Target: : FCC class B

HORIZONTAL DATA

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT only
Mode : : Tx
Target: : FCC class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Probe Factor	Cable Loss	Preamp Factor
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	dB	dB	dB
1	168.710	51.47	-14.58	36.88	43.50	-6.62	12.23	1.36	28.17
2	458.740	47.16	-8.36	38.80	46.00	-7.20	17.22	2.32	27.90
3	552.830	44.24	-6.30	37.94	46.00	-8.06	18.69	2.58	27.58
4	822.490	47.12	-1.90	45.22	46.00	-0.78	21.95	3.18	27.02
5	960.230	39.25	-0.67	38.58	54.00	-15.42	23.31	3.61	27.59

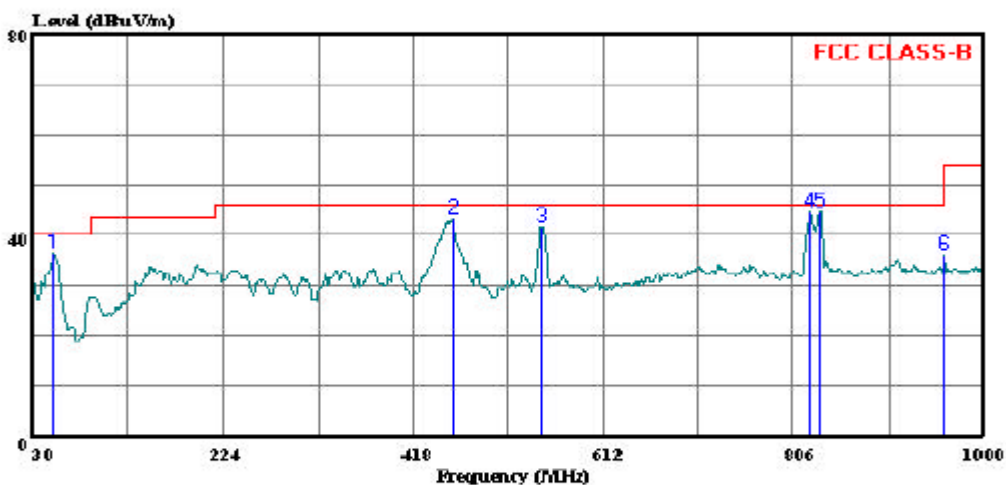
SPURIOUS EMISSIONS 30 TO 1000 MHz (2.4GHz Band, WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 4 File#: 07U11122A.EMI Date: 06-19-2007 Time: 10:36:46



Trace: 3

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration: EUT only
Mode : : TX, 2.4GHZ Band
Target: : FCC class B

VERTICAL DATA

Condition: FCC CLASS-B VERTICAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT only
Mode : : Tx
Target: : FCC class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Probe Factor	Cable Loss	Preamp Factor
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	dB	dB	dB
1	51.340	55.40	-19.13	36.27	40.00	-3.73	8.50	0.73	28.36
2	458.740	51.50	-8.36	43.14	46.00	-2.86	17.22	2.32	27.90
3	549.920	47.84	-6.36	41.47	46.00	-4.53	18.66	2.57	27.59
4	822.490	46.51	-1.90	44.61	46.00	-1.39	21.95	3.18	27.02
5	832.190	46.43	-1.74	44.69	46.00	-1.31	22.05	3.26	27.05
6	960.230	36.69	-0.67	36.02	54.00	-17.98	23.31	3.61	27.59

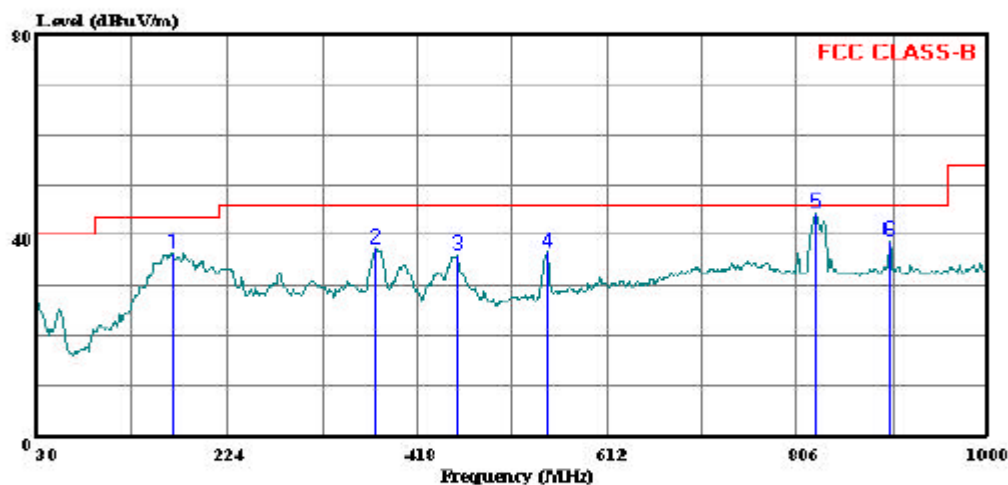
SPURIOUS EMISSIONS 30 TO 1000 MHz (5GHz Band, WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 10 File#: 07U11122A.EMI Date: 06-19-2007 Time: 11:52:29



Trace: 9

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT only
Mode : : Tx, 5.8GHz Band
Target: : FCC class B

HORIZONTAL DATA

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT only
Mode : : Tx
Target: : FCC class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Probe Factor	Cable Loss	Preamp Factor
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	dB	dB	dB
1	167.740	50.80	-14.52	36.28	43.50	-7.22	12.29	1.36	28.17
2	376.290	47.78	-10.42	37.36	46.00	-8.64	15.54	2.10	28.06
3	458.740	44.33	-8.36	35.97	46.00	-10.03	17.22	2.32	27.90
4	550.890	43.18	-6.36	36.82	46.00	-9.18	18.67	2.56	27.58
5	824.430	46.09	-1.86	44.23	46.00	-1.77	21.97	3.20	27.03
6	900.090	39.86	-1.02	38.84	46.00	-7.16	22.74	3.49	27.25

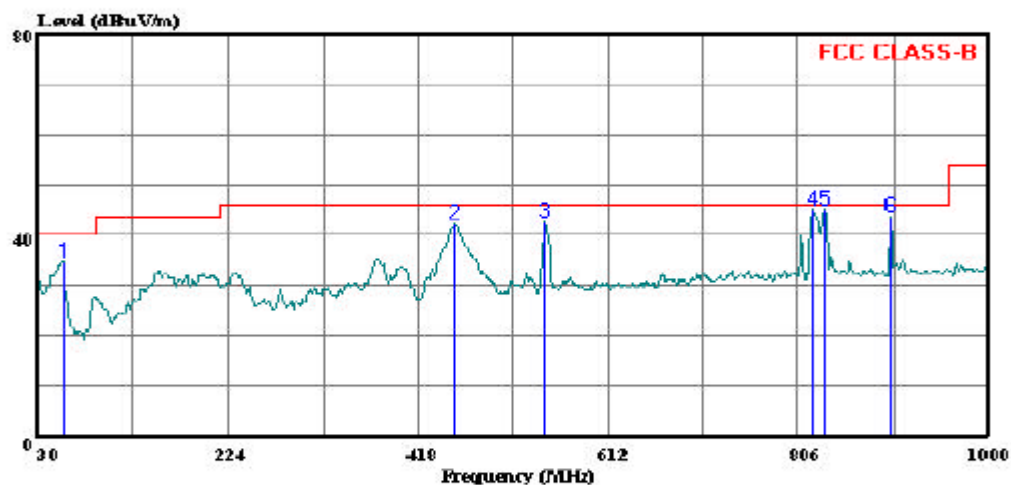
SPURIOUS EMISSIONS 30 TO 1000 MHz (5GHz Band, WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



Compliance Certification Services
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Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 12 File#: 07U11122A.EMI Date: 06-19-2007 Time: 11:59:22



Trace: 11

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Keith Ng
Project #: 07U11122
Company: Broadcom
Configuration:: BUT only
Mode: Tx, 5.8GHz Band
Target: FCC class B

VERTICAL DATA

Condition: FCC CLASS-B VERTICAL
Test Operator:: Keith Ng
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT only
Mode : : Tx
Target: : FCC class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Probe Factor	Cable Loss	Preamp Factor
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	dB	dB	dB
1	56.190	54.29	-19.49	34.80	40.00	-5.20	8.13	0.74	28.36
2	455.830	50.54	-8.40	42.14	46.00	-3.86	17.15	2.35	27.91
3	547.980	48.86	-6.38	42.48	46.00	-3.52	18.63	2.58	27.60
4	819.580	46.84	-1.92	44.92	46.00	-1.08	21.92	3.18	27.02
5	832.190	46.80	-1.74	45.06	46.00	-0.94	22.05	3.26	27.05
6	900.090	44.63	-1.02	43.61	46.00	-2.39	22.74	3.49	27.25

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 μ 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.

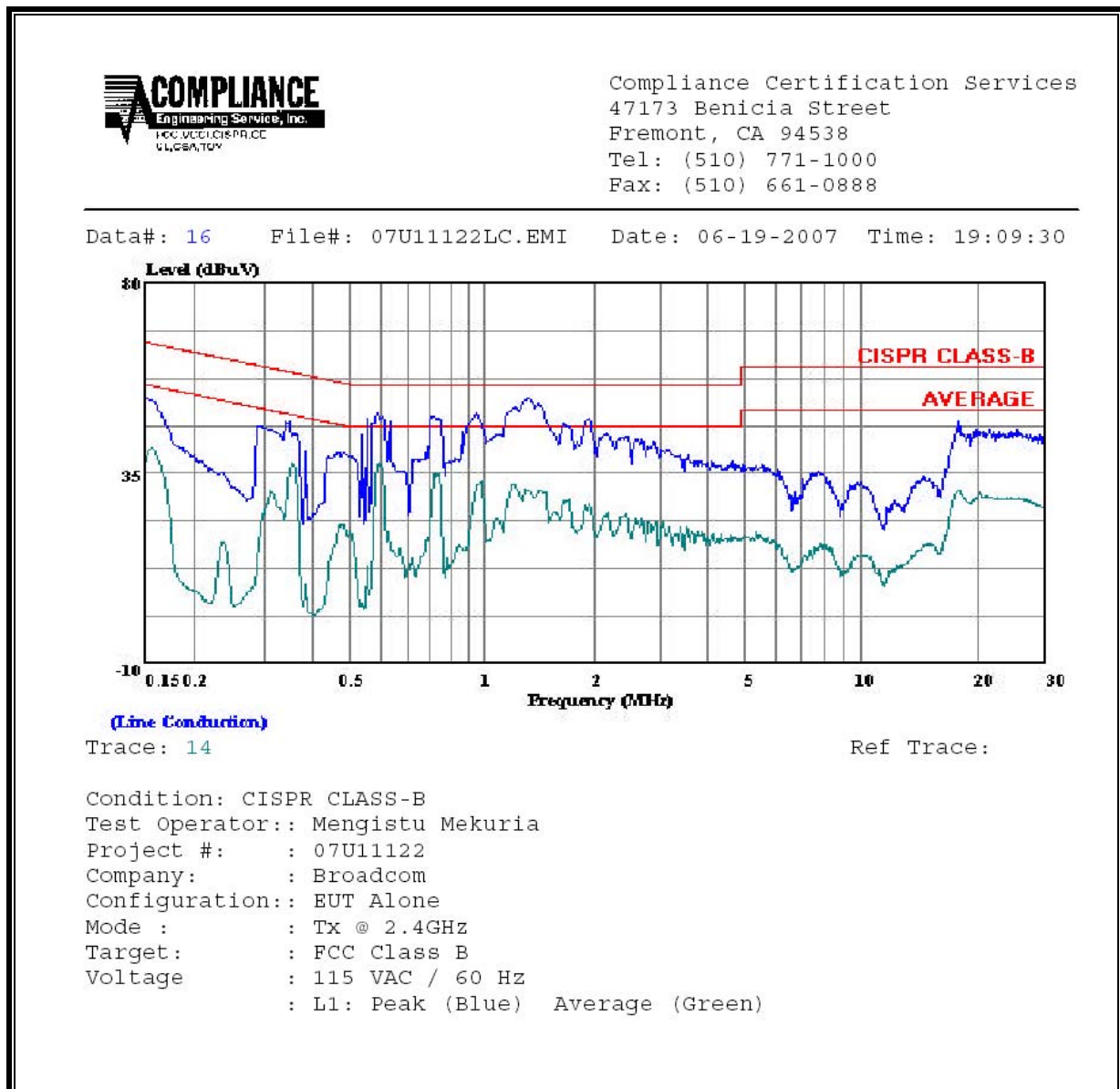
RESULTS

No non-compliance noted:

6 WORST EMISSIONS (2.4GHz Band)(Worst Case)

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
0.59	49.34	--	37.32	0.00	56.00	46.00	-6.66	-8.68	L1
1.05	49.10	--	33.19	0.00	56.00	46.00	-6.90	-12.81	L1
1.43	52.70	--	31.17	0.00	56.00	46.00	-3.30	-14.83	L1
0.53	46.48	--	34.61	0.00	56.00	46.00	-9.52	-11.39	L2
0.61	46.98	--	30.85	0.00	56.00	46.00	-9.02	-15.15	L2
1.52	51.76	--	31.91	0.00	56.00	46.00	-4.24	-14.09	L2
6 Worst Data									

LINE 1 RESULTS

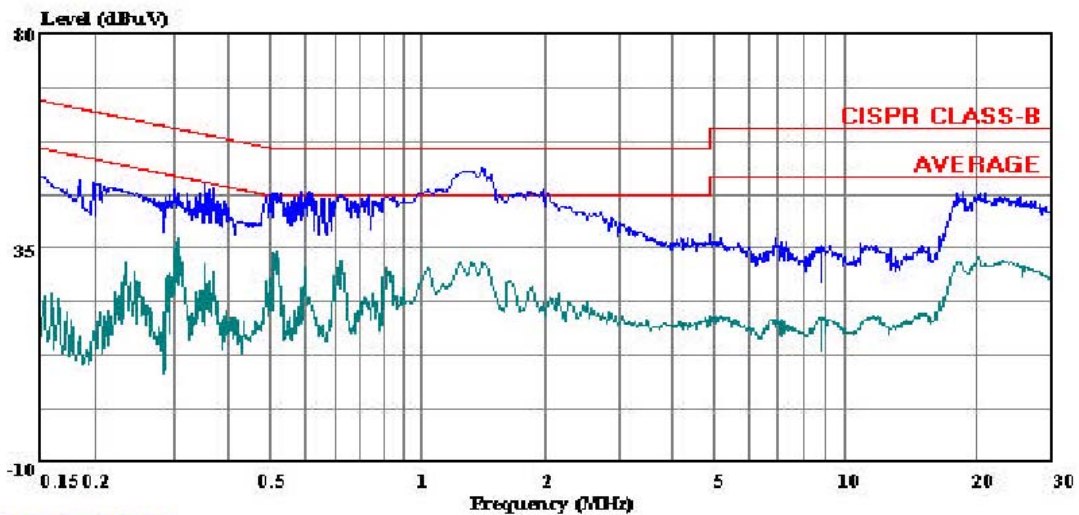


LINE 2 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 9 File#: 07U11122LC.EMI Date: 06-19-2007 Time: 18:30:56



(Line Conduction)

Trace: 7

Ref Trace:

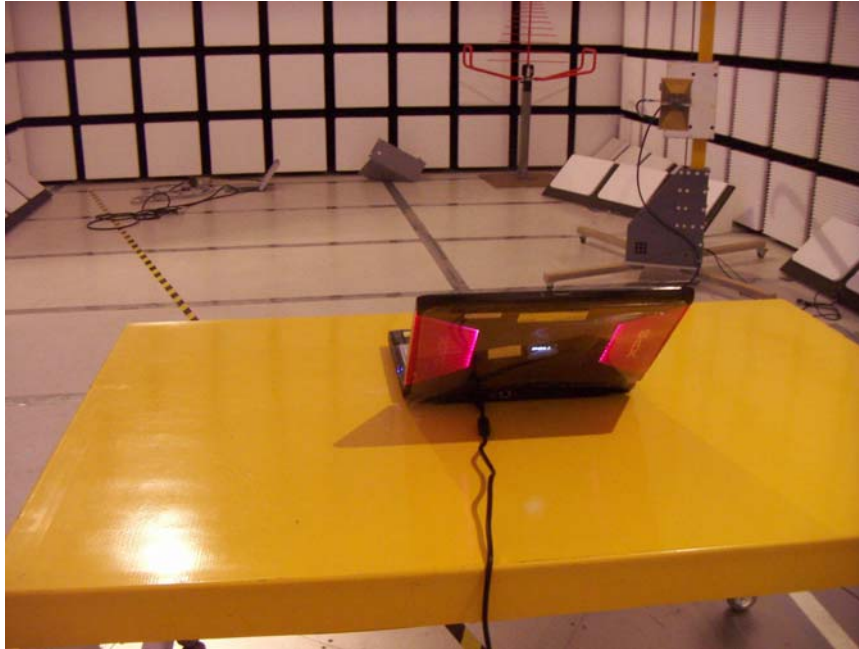
Condition: CISPR CLASS-B
Test Operator:: Mengistu Mekuria
Project #: : 07U11122
Company: : Broadcom
Configuration:: EUT Alone
Mode : : Tx @ 2.4GHz
Target: : FCC Class B
Voltage : : 115 VAC / 60 Hz
: L2: Peak (Blue) Average (Green)

8. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP



RADIATED BACK PHOTO

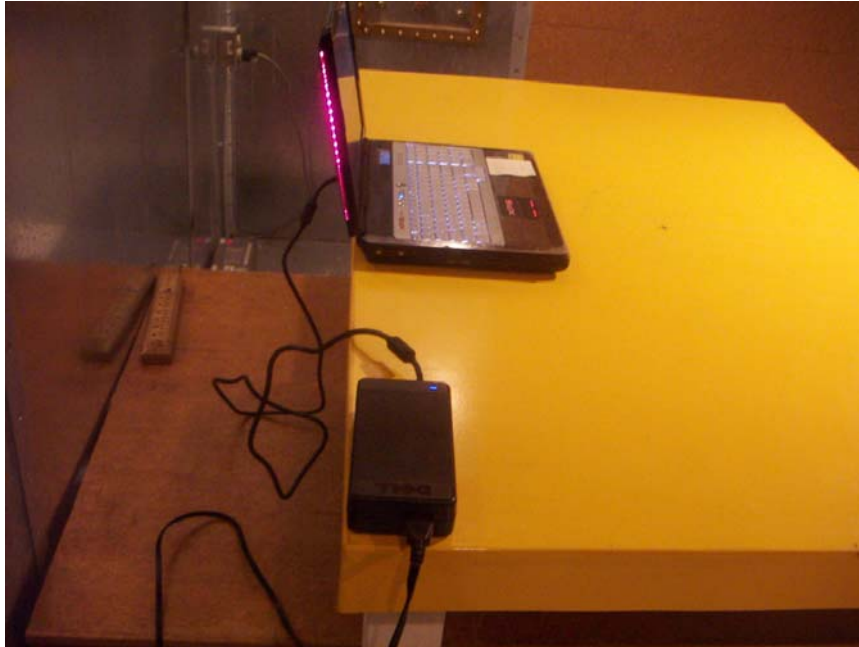


POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP

LINE CONDUCTED FRONT PHOTO



LINE CONDUCTED BACK PHOTO



END OF REPORT