FCC CFR47 PART 15 SUBPART C

INDUSTRY CANADA RSS-210 ISSUE 7

CLASS II PERMISSIVE CHANGE

TEST REPORT

FOR

802.11AG/DRAFT 802.11N WLAN PCI-E MINI CARD
INSTALLED INSIDE HP SOYUZ, MODEL: HSTNN-Q22CC
MODEL NUMBER: BCM94322MC
FCC ID: QDS-BRCM1036
IC: 4324A-BRCM1036

REPORT NUMBER: 08U11713-3

ISSUE DATE: APRIL 22, 2008

Prepared for

BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, USA

Prepared by

COMPLIANCE CERTIFICATION SERVICES
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	4-22-08	Initial Issue	Sunny Shih

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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 802n WLAN PCI-E MINI CARD (INSTALLED INSIDE HP SOYUZ, MODEL: HSTNN-Q22C)
MODEL:	BCM94322MC
SERIAL NUMBER:	395514-001(EUT), CNF807001K (LAPTOP)
DATE TESTED:	April 16-21, 2008

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C and Subpart E	Pass
RSS-210 Issue 7 Annex 8 and RSS-GEN Issue 2	Pass

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All expressions of Pass/Fail in this report are opinions expressed by CCS based on interpretations of the test results. 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS 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:

SUNNY SHIH
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

CHIN PANG
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, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11ag/Draft 802.11n Wireless LAN Transceiver module and manufactured by Broadcom. Model number is BCM94322MC installed inside HP SOYUZ, MODEL: HSTNN-Q22C

5.2. DESCRIPTION OF CLASS II CHANGE

The major changes filed under this application are:

Added portable platform, HSTNN-Q22C

The EUT was tested and certified under CCS project # 07U11529, Therefore, only the Radiated Emission and AC mains line conduction tests are performed.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The following antenna was added:

			Max Peak gain (dBi)	
Antenna Supplier	Type	Model number	2.4GHz	5GHz
Foxconn	IFA	WDAN-HQTT8001-DF (Main)	0.49	1.9
	IFA	WDAN-HQTT8003-DF (Aux)		
WNC	IFA	81.EGG15.003 (Main)		3.58
	IFA	81.EGG15.004 (Aux)	-0.42	

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was BCMWL5, rev. 4.170.67.0.

The test utility software used during testing was wl_tool, rev. 4.170 RC67.0.

5.5. WORST-CASE CONFIGURATION AND MODE

Mobile (Normal Notebook) and Portable (Tablet PC) configurations have been investigated. The worst case is to evaluate at Mobile configuration.

The worst-case data rate for each mode is determined to be as follows, based on preliminary tests of the chipset utilized in this radio.

All final tests in the 802.11b mode were made at 1 Mb/s.

All final tests in the 802.11g mode were made at 6 Mb/s.

All final tests in the 802.11n HT40 mode were made at MCS0.

All final tests in the 802.11n HT40 mode were made at MCS32.

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

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	HP	Soyuz2.0	CNF807001K	N/A
AC Adapter	HP	PPP0090	1UW0804072744633A	N/A

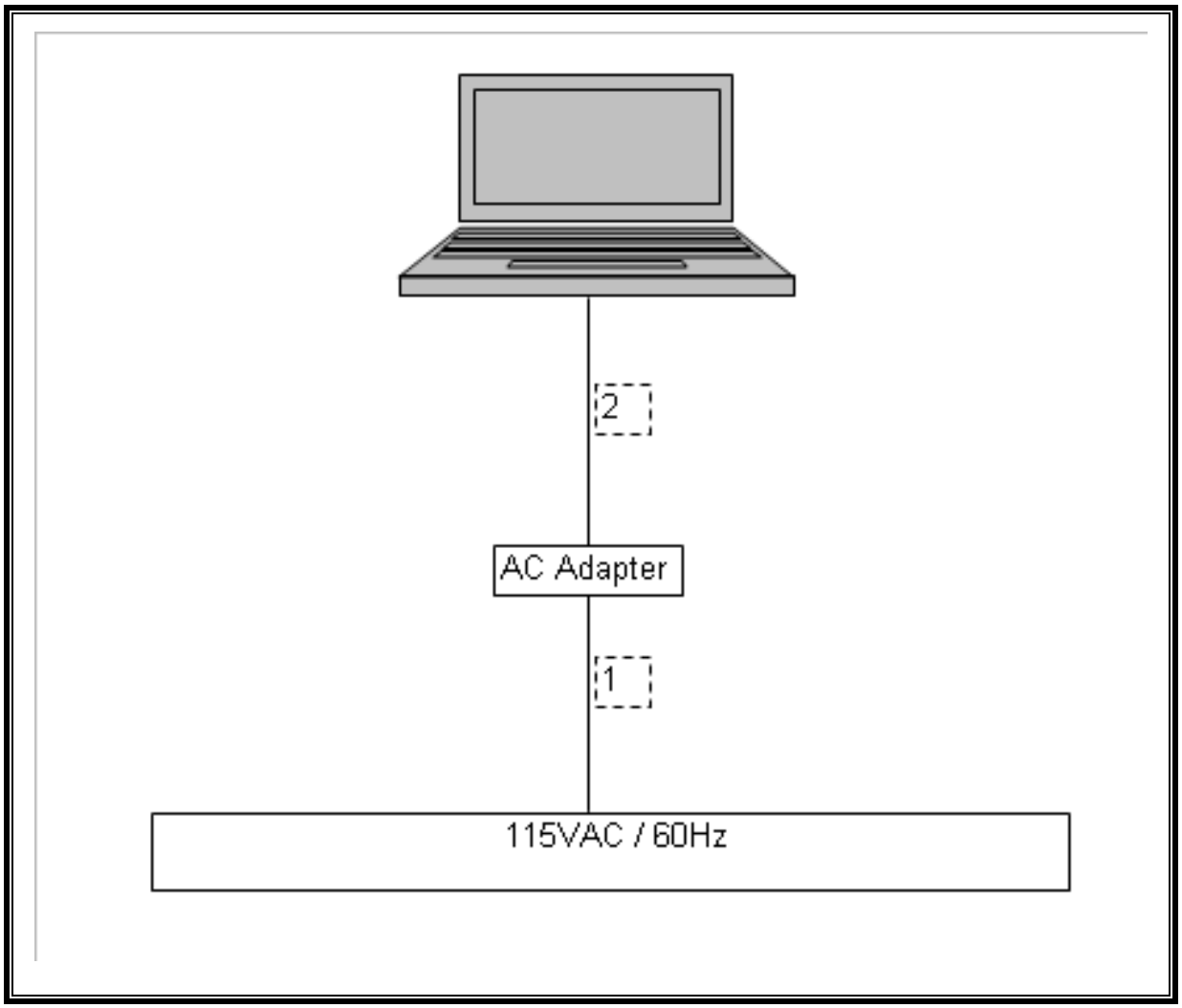
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	US115V	Unshielded	2.0m	N/A
2	DC	1	DC	Unshielded	2.0m	N/A

TEST SETUP

The EUT is installed in a host laptop computer 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**	**Asset**	**Cal Date**	**Cal Due**
Antenna, Horn, 18 GHz	EMCO	3115	C00945	4/15/2007	4/15/2008
Bilog Antenna	Sunol Sciences	JB1	C01016	10/13/2007	10/13/2008
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	8/3/2007	9/27/2008
Preamplifier, 1300 MHz	Agilent / HP	8447D	C01064	5/9/2007	5/9/2008
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	2/6/2007	6/12/2008
Peak Power Meter	Agilent / HP	E4416A	C00963	2/14/2007	12/2/2008
Peak / Average Power Sensor	Agilent	E9327A	C00964	2/14/2007	12/2/2008
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	10/16/2007	1/27/2009
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	9/15/2006	9/15/2008
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	9/15/2006	9/15/2008
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	5/2/2006	8/7/2008

7. RADIATED TEST RESULTS

7.1. 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.

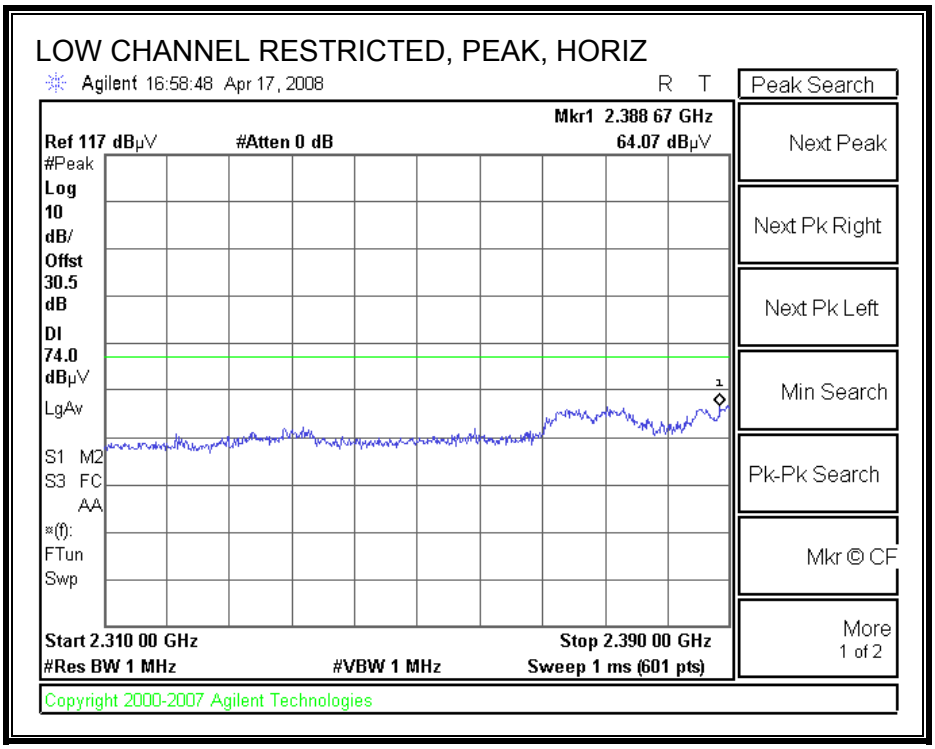
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 5 GHz band.

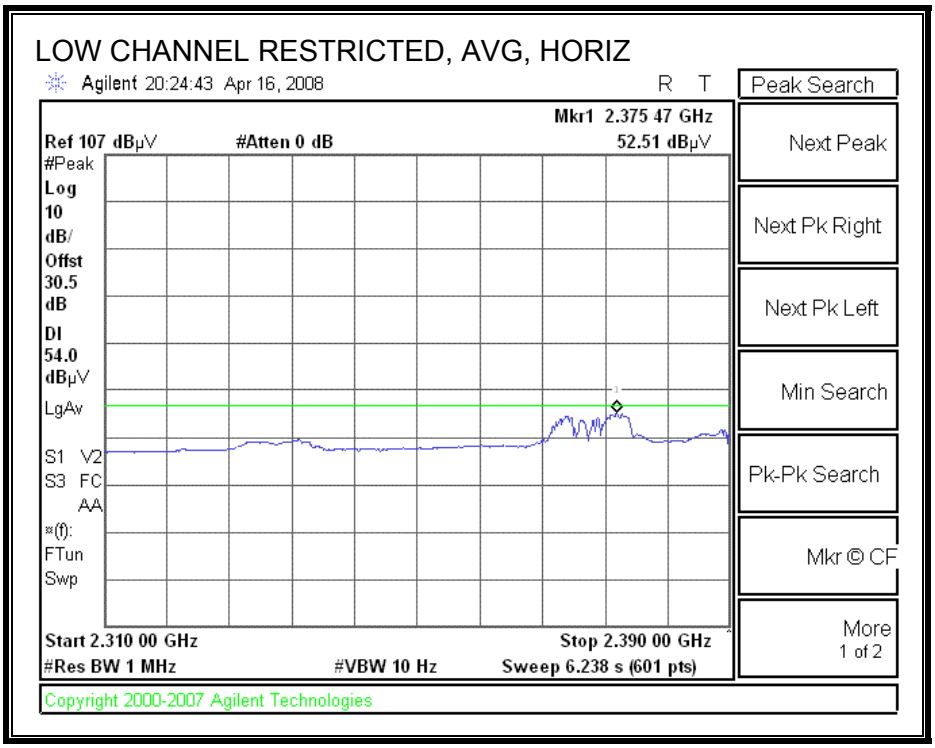
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2. TRANSMITTER ABOVE 1 GHz

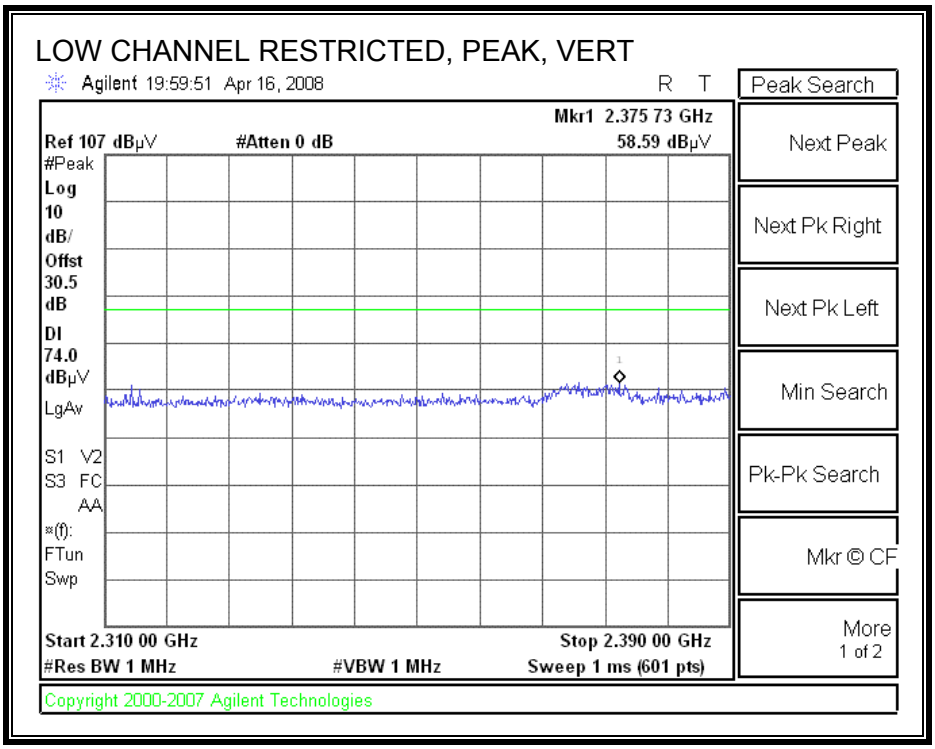
7.2.1. 802.11b MODE

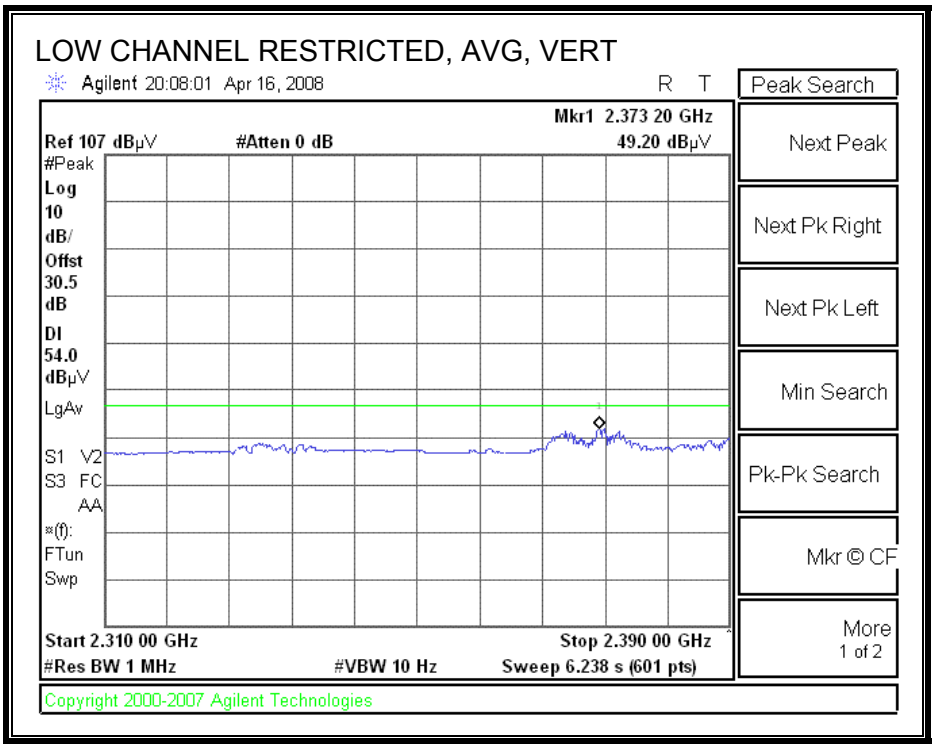
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



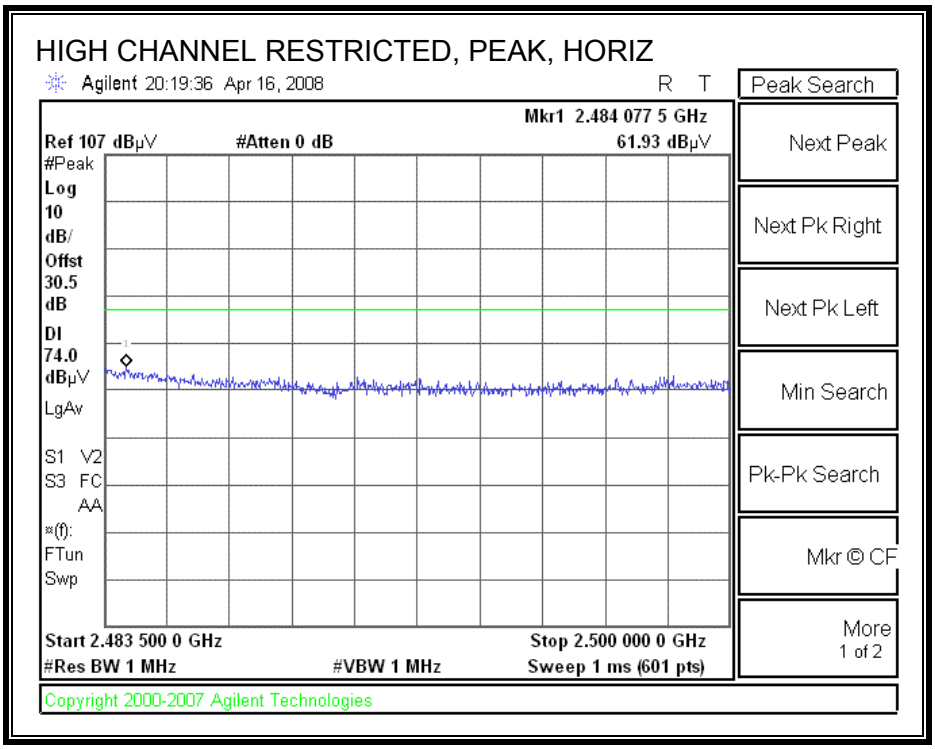


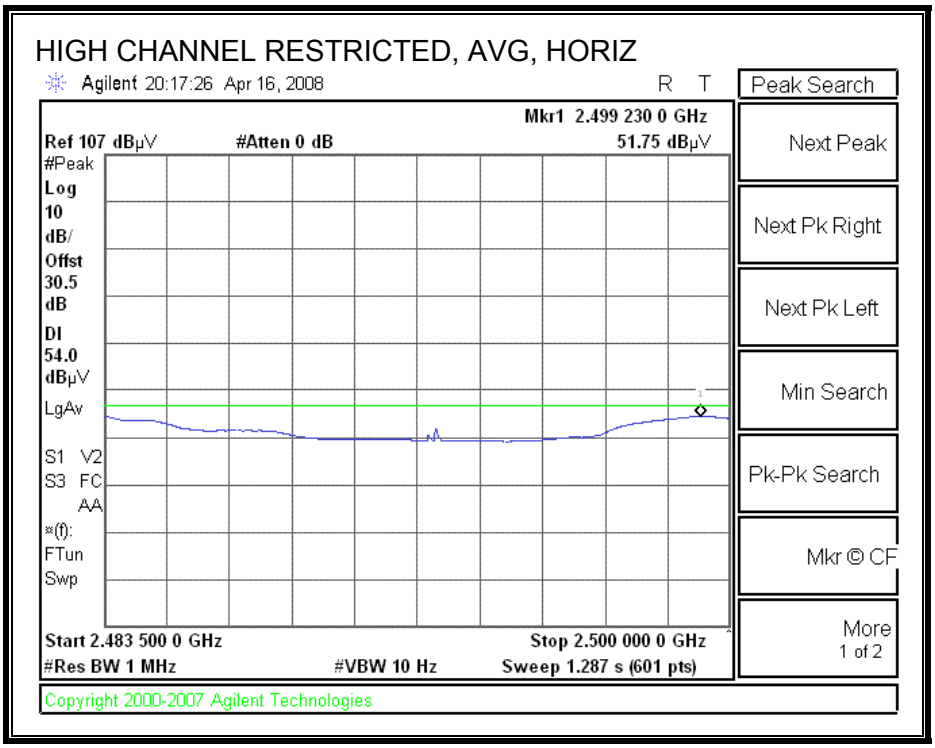
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





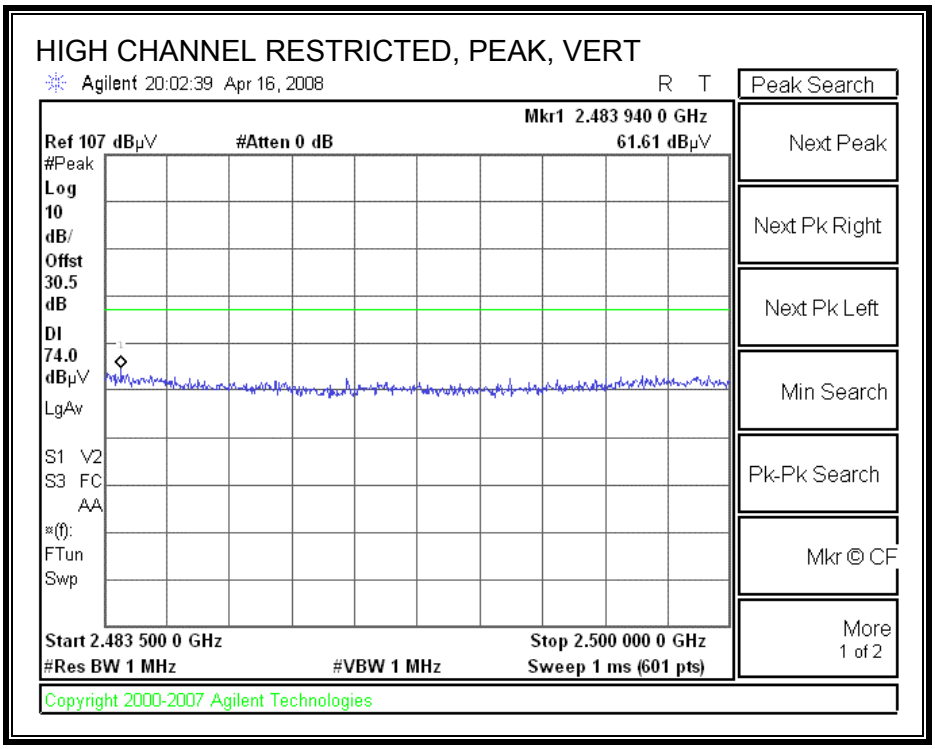
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



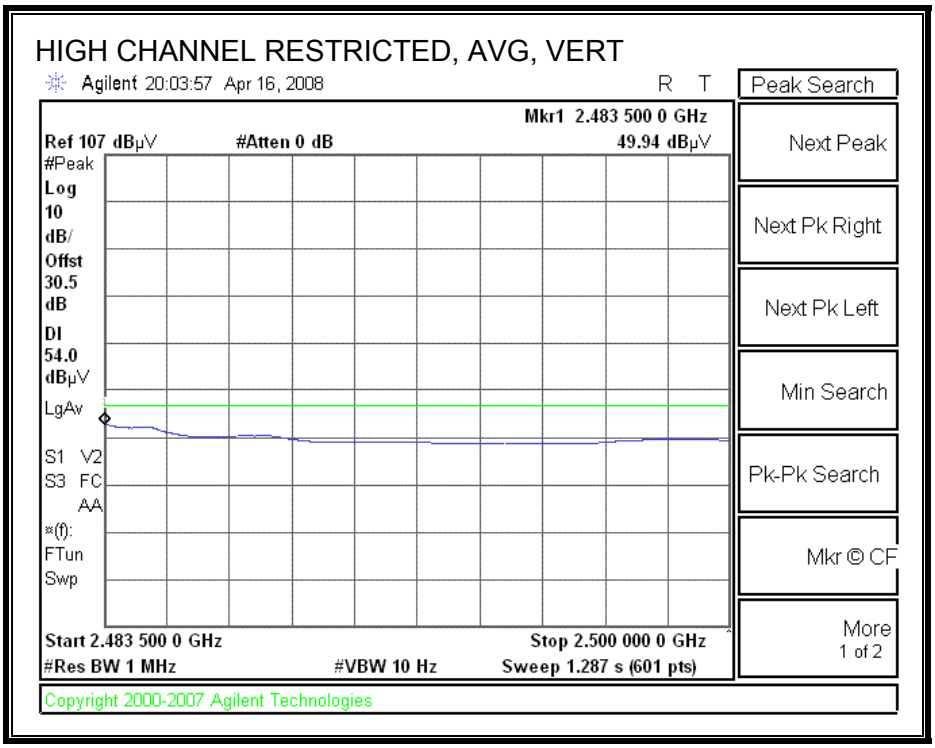


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, 3 Meter_C Chamber

Company:	Broadcom
Project #:	08U11713
Date:	4/17/2008
Test Engineer:	Chin Pang
Configuration:	EUT insides HP platform (Soyuz)
Mode:	Tx 11b

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Ninous 202575001	Can 187209002		R_001

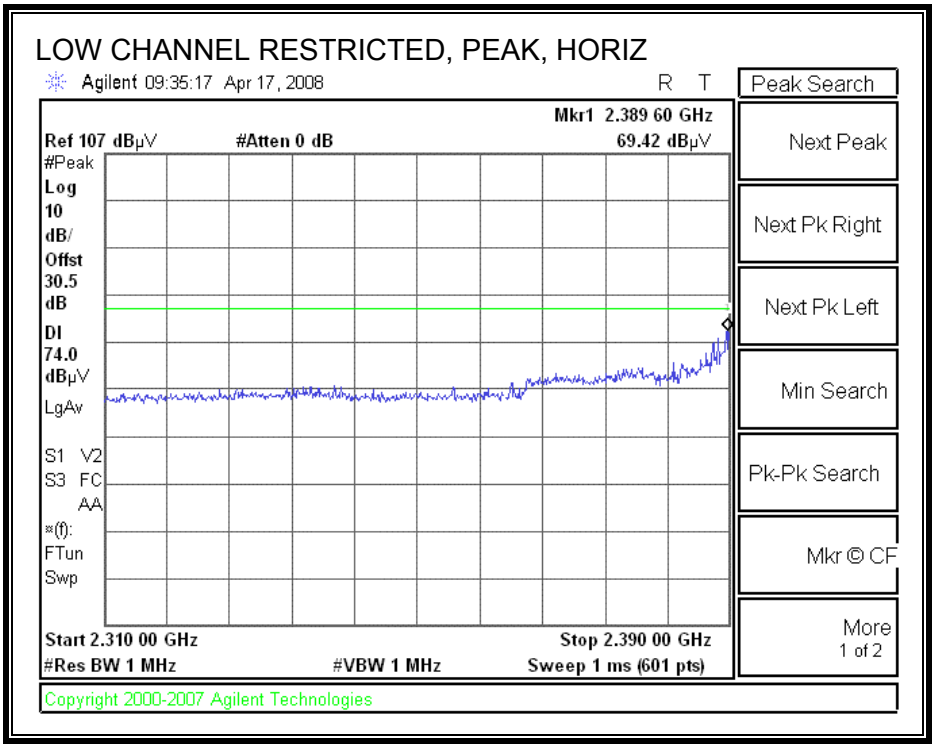
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

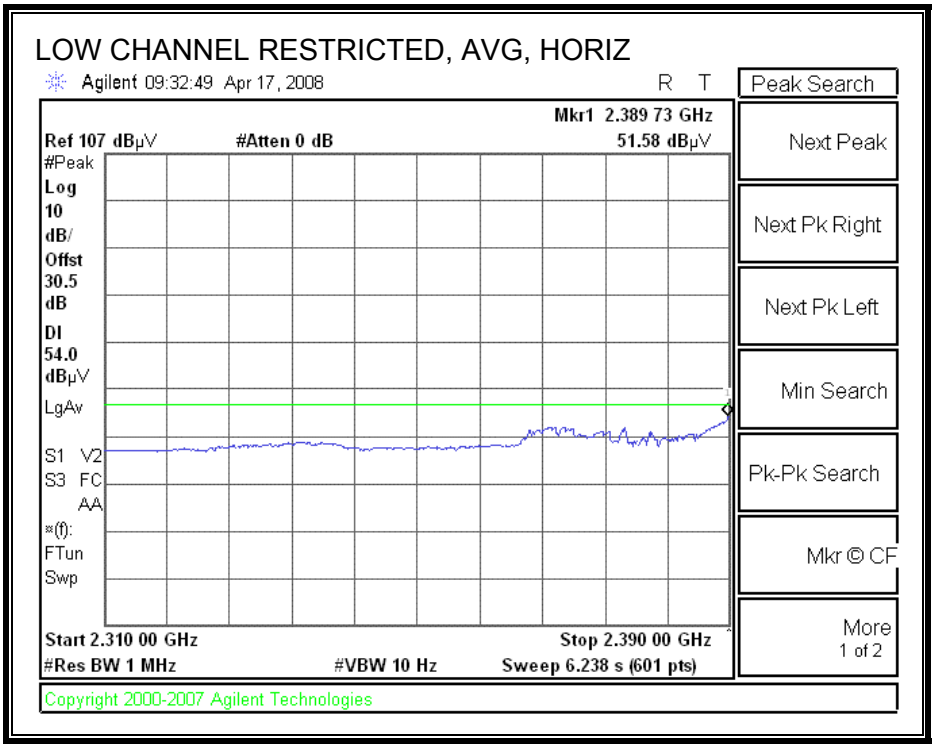
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, 2412MHz															
4.824	3.0	49.5	42.0	33.0	3.7	-34.8	0.0	0.0	51.4	43.9	74	54	-22.6	-10.1	H
4.824	3.0	47.6	41.0	33.0	3.7	-34.8	0.0	0.0	49.5	42.9	74	54	-24.5	-11.1	V
MID CHANNEL, 2437 MHz															
4.874	3.0	48.0	42.1	33.1	3.7	-34.9	0.0	0.0	49.9	44.0	74	54	-24.1	-10.0	H
7.311	3.0	47.4	38.4	35.5	4.5	-34.7	0.0	0.0	52.7	43.7	74	54	-21.3	-10.3	H
4.874	3.0	47.0	40.4	33.1	3.7	-34.9	0.0	0.0	48.9	42.3	74	54	-25.1	-11.7	V
7.311	3.0	49.5	42.3	35.5	4.5	-34.7	0.0	0.0	54.8	47.6	74	54	-19.2	-6.4	V
HIGH CHANNEL, 2462 MHz															
4.924	3.0	47.0	40.4	33.1	3.7	-34.9	0.0	0.0	49.0	42.4	74	54	-25.0	-11.6	H
7.386	3.0	46.3	36.6	35.6	4.5	-34.6	0.0	0.0	51.8	42.1	74	54	-22.2	-11.9	H
4.924	3.0	46.6	39.5	33.1	3.7	-34.9	0.0	0.0	48.6	41.4	74	54	-25.4	-12.6	V
7.386	3.0	48.0	39.3	35.6	4.5	-34.6	0.0	0.0	53.5	44.8	74	54	-20.5	-9.2	V

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		

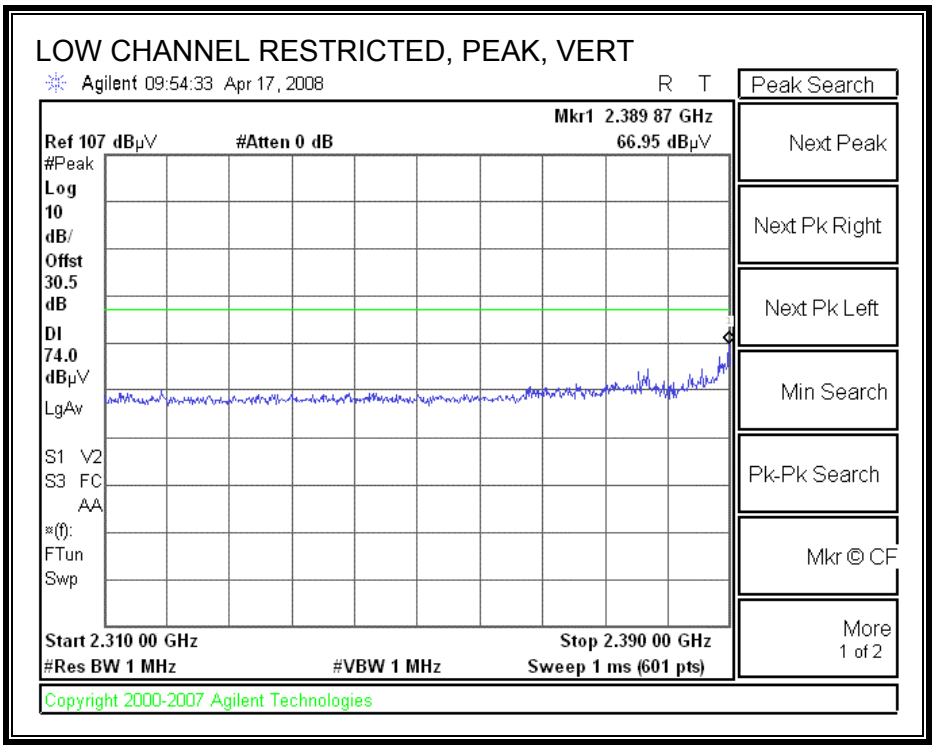
7.2.2. 802.11g MODE

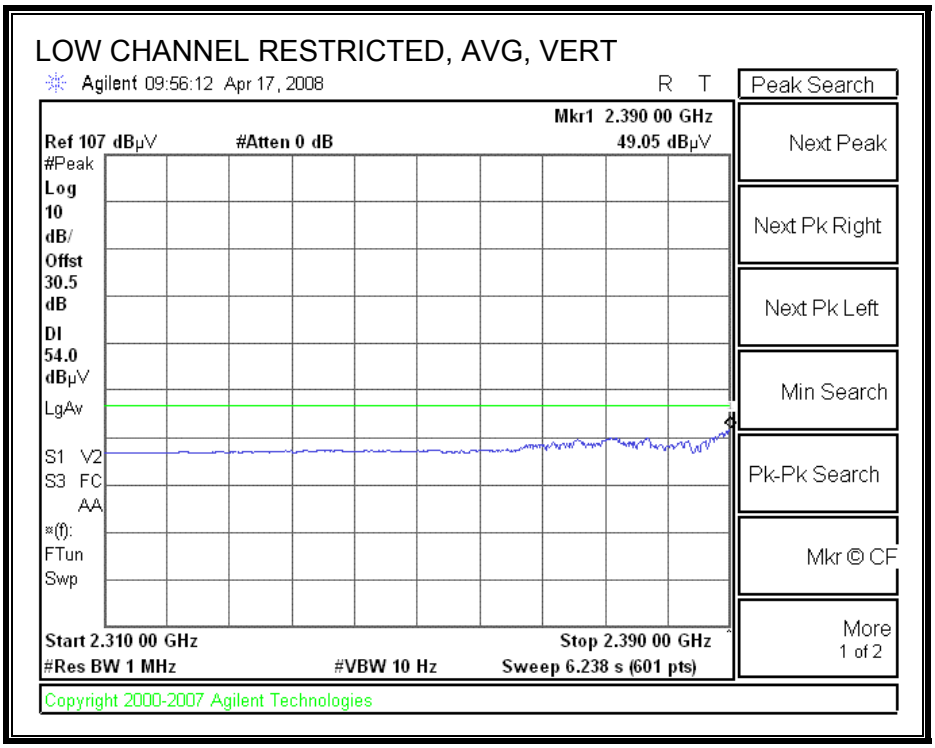
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



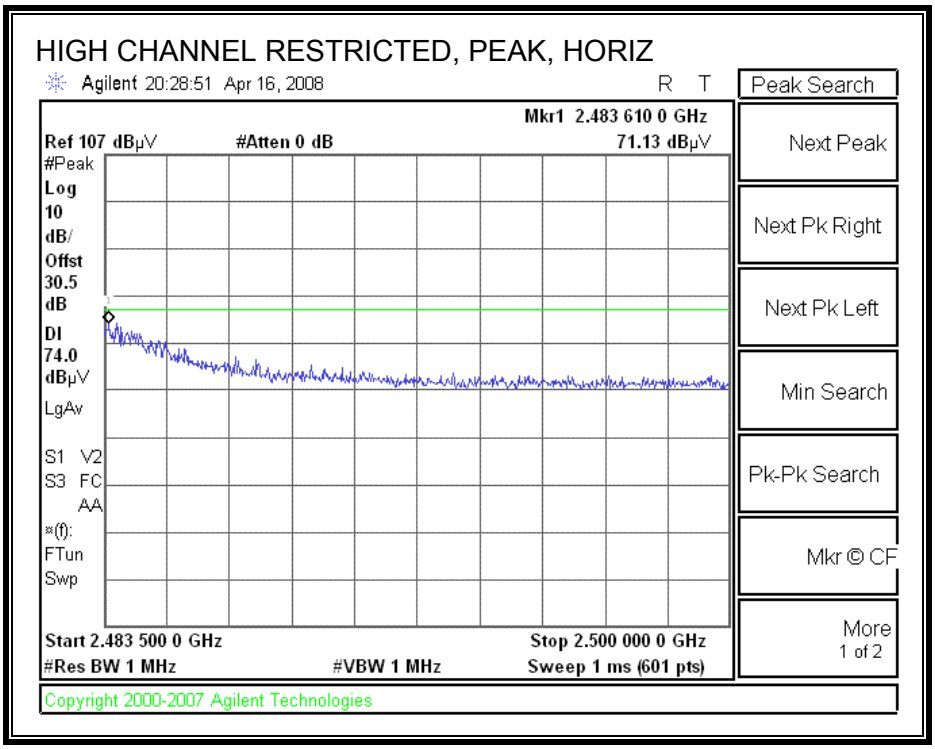


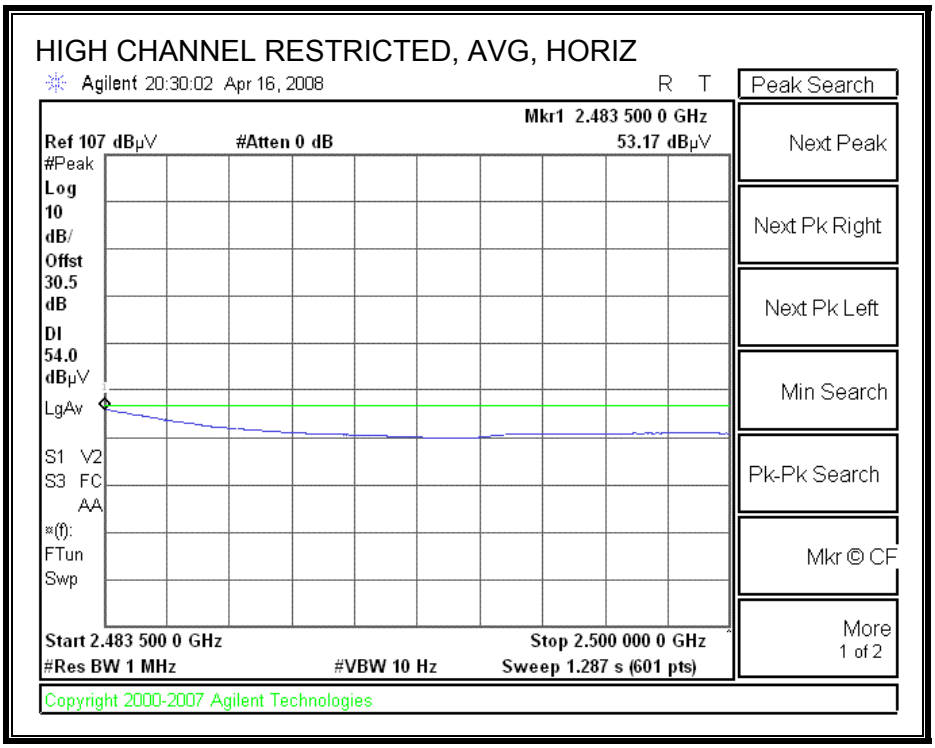
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



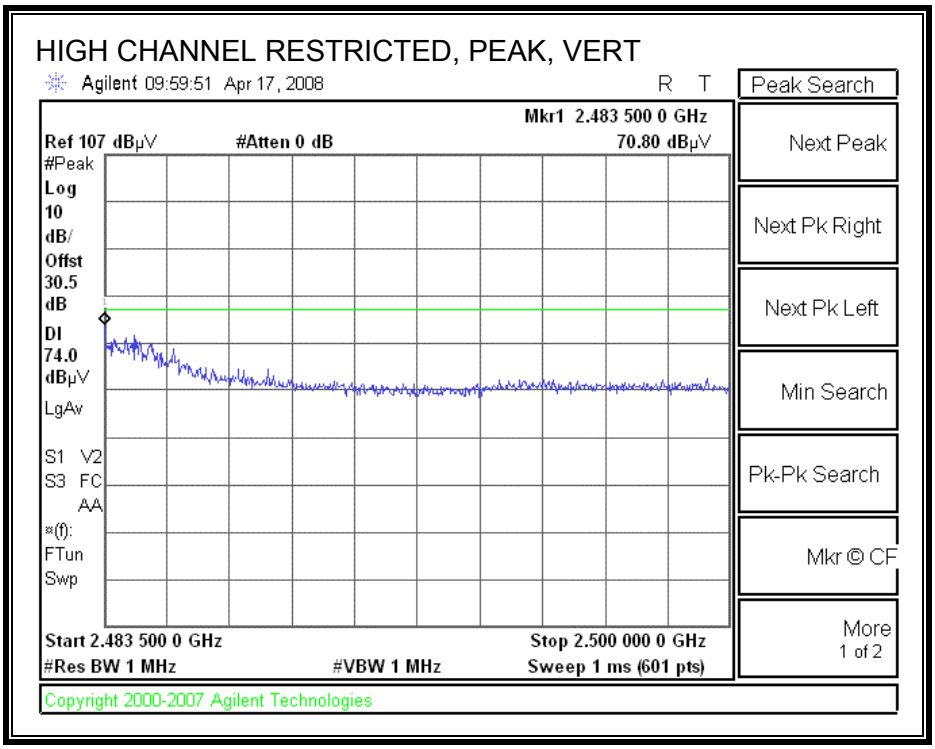


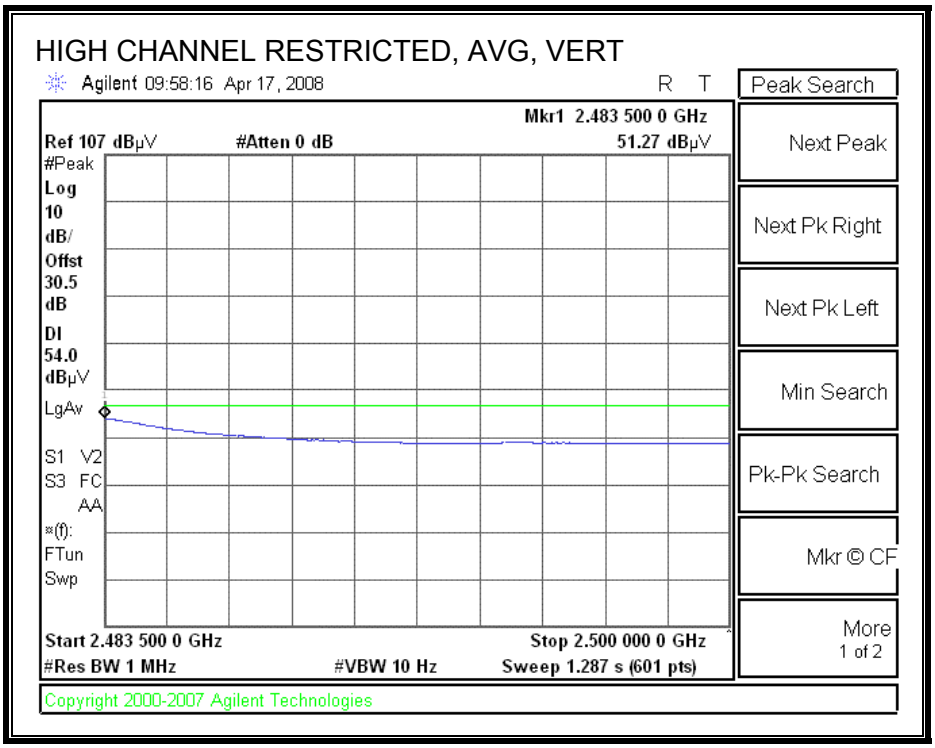
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, 3 Meter_C Chamber

Company: Broadcom
Project #: 08U11713
Date: 4/17/2008
Test Engineer: Chin Pang
Configuration: EUT insides HP platform (Soyuz)
Mode: Tx 11g

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Ninous 202575001	Can 187209002		R_001

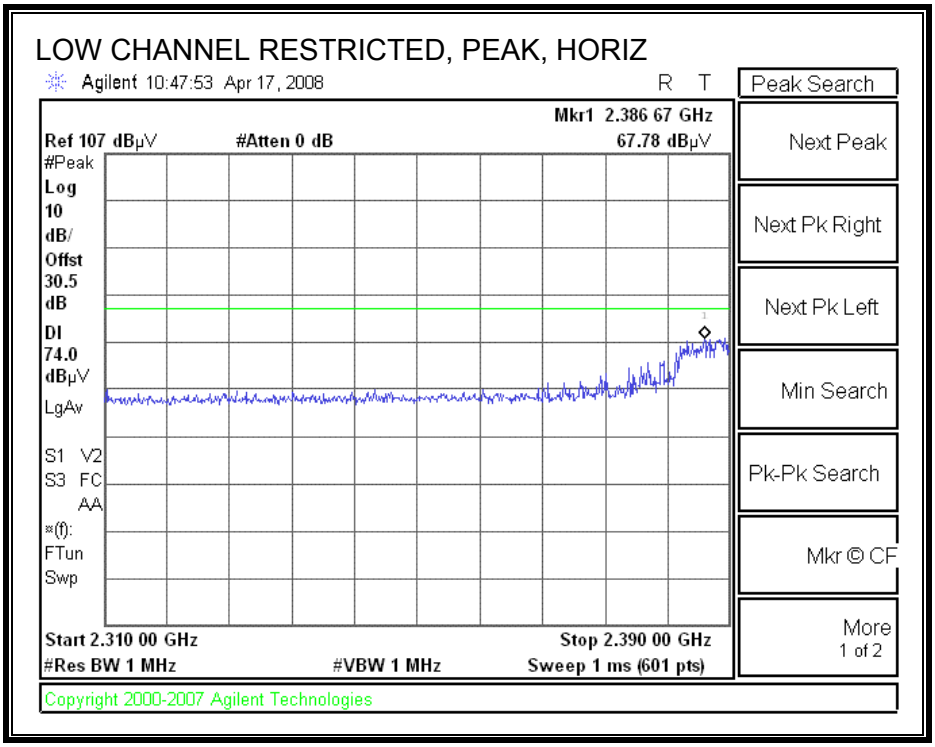
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

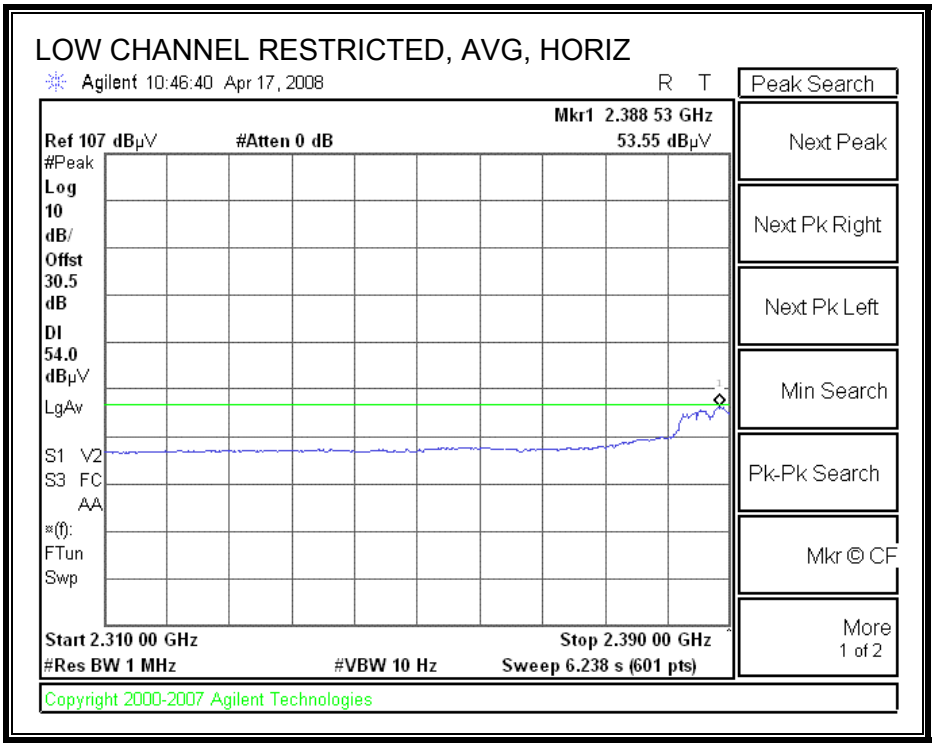
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, 2412MHz															
4.824	3.0	47.2	35.0	33.0	3.7	-34.8	0.0	0.0	49.1	36.9	74	54	-24.9	-17.1	H
4.824	3.0	45.6	33.4	33.0	3.7	-34.8	0.0	0.0	47.5	35.3	74	54	-26.5	-18.7	V
MID CHANNEL, 2437 MHz															
4.874	3.0	46.5	34.4	33.1	3.7	-34.9	0.0	0.0	48.4	36.3	74	54	-25.6	-17.7	H
7.311	3.0	46.7	34.5	35.5	4.5	-34.7	0.0	0.0	52.0	39.8	74	54	-22.0	-14.2	H
4.874	3.0	45.0	33.0	33.1	3.7	-34.9	0.0	0.0	46.9	34.9	74	54	-27.1	-19.1	V
7.311	3.0	46.7	35.0	35.5	4.5	-34.7	0.0	0.0	52.0	40.3	74	54	-22.0	-13.7	V
HIGH CHANNEL, 2462 MHz															
4.924	3.0	46.0	34.0	33.1	3.7	-34.9	0.0	0.0	48.0	36.0	74	54	-26.0	-18.0	H
7.386	3.0	47.3	36.0	35.6	4.5	-34.6	0.0	0.0	52.8	41.5	74	54	-21.2	-12.5	H
4.924	3.0	45.0	33.5	33.1	3.7	-34.9	0.0	0.0	47.0	35.5	74	54	-27.0	-18.5	V
7.386	3.0	47.0	35.5	35.6	4.5	-34.6	0.0	0.0	52.5	41.0	74	54	-21.5	-13.0	V

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		

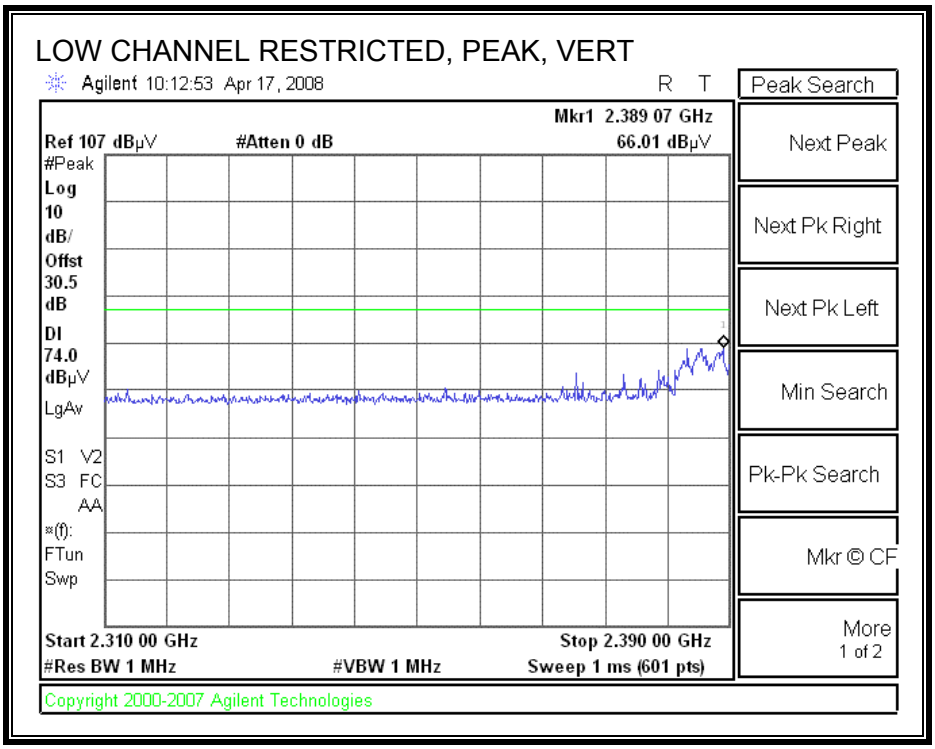
7.2.3. 802.11n HT40 MODE

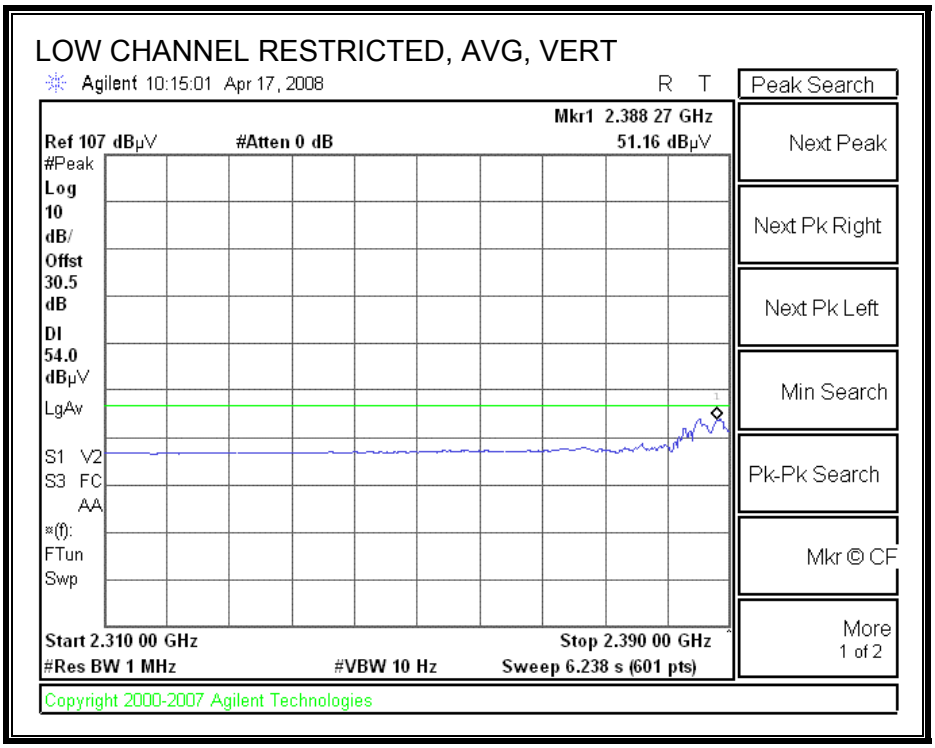
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



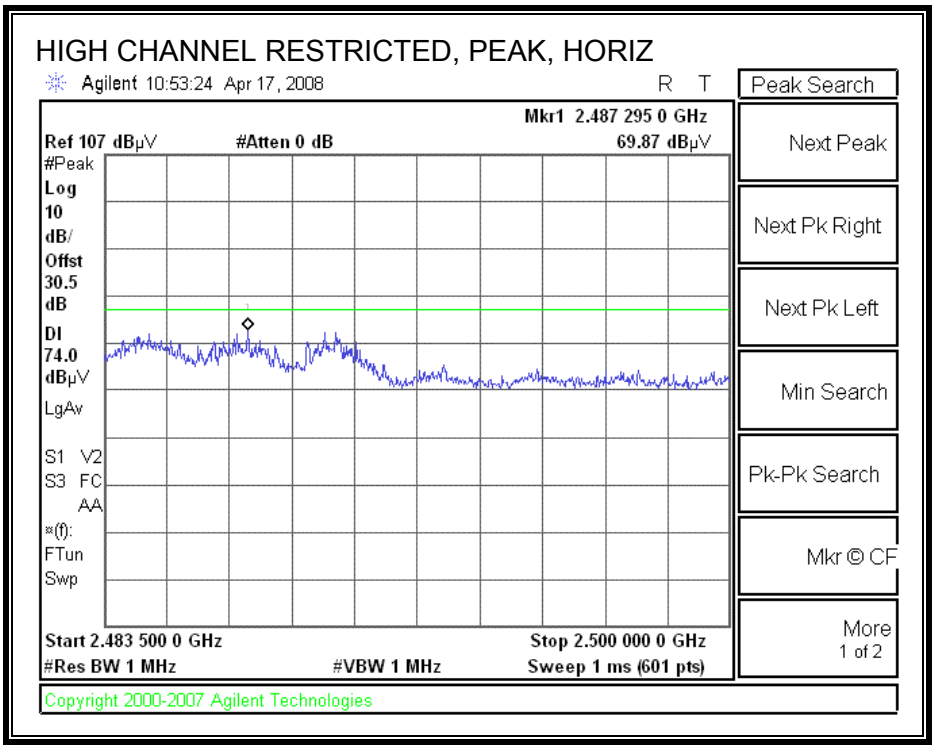


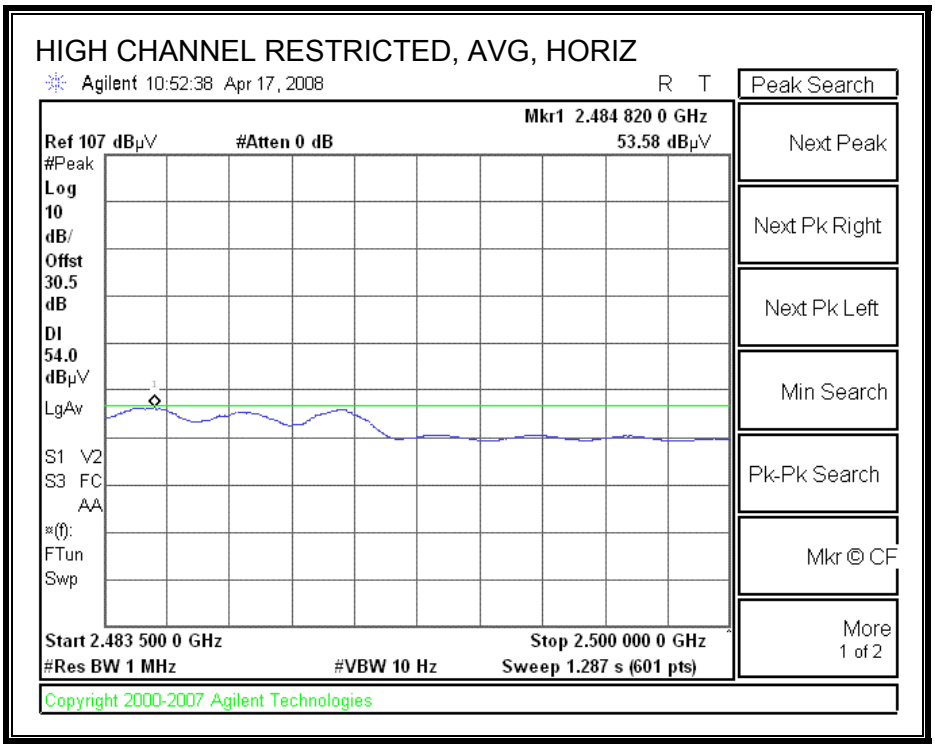
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



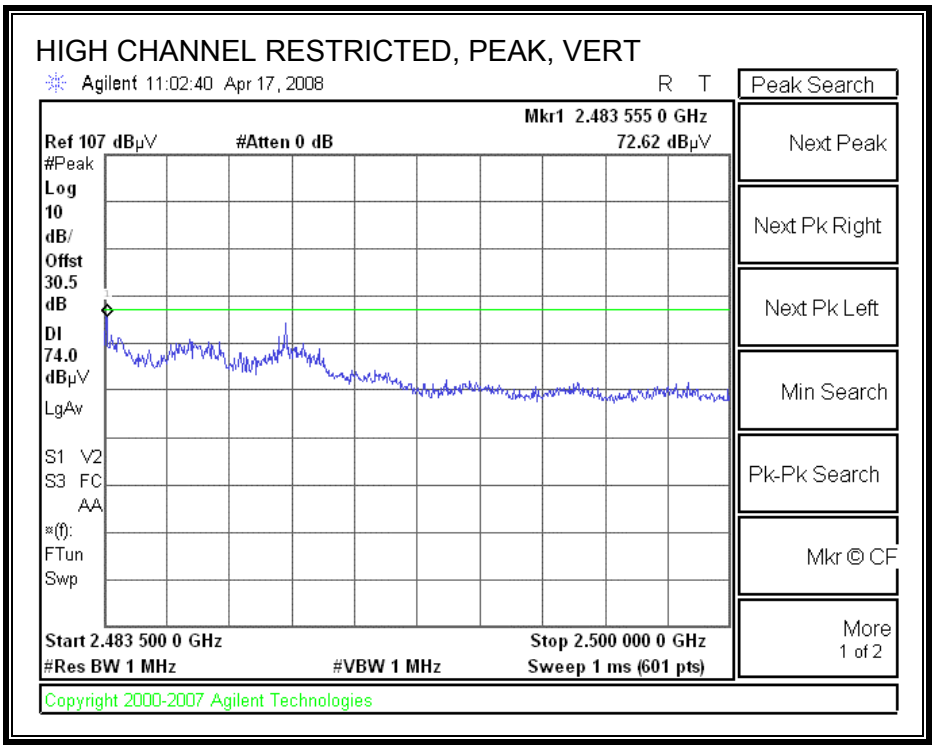


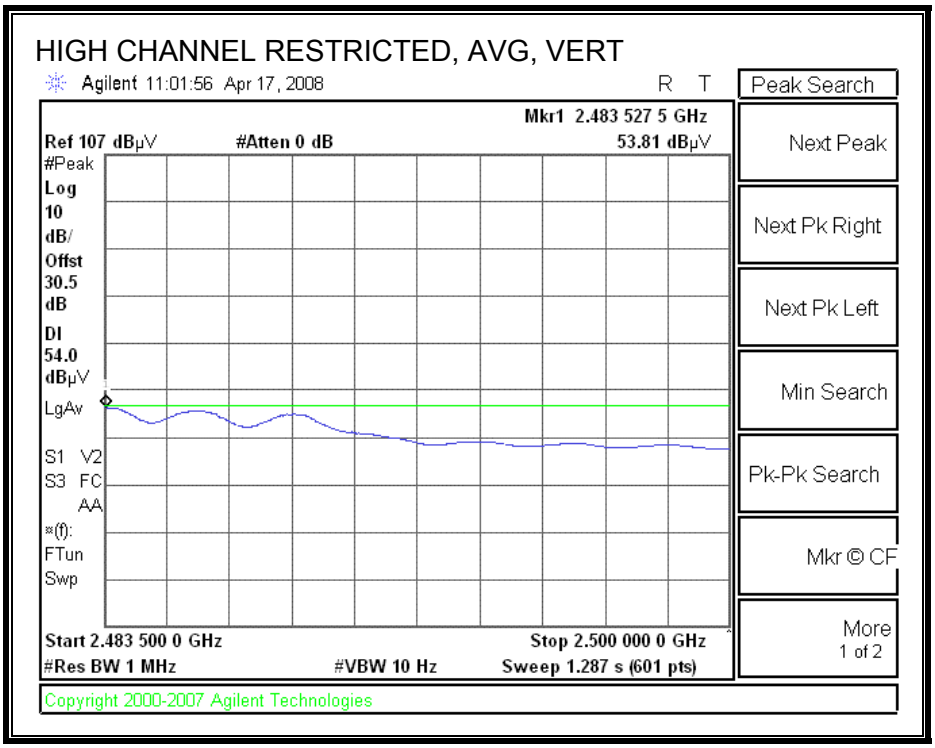
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, 3 Meter_C Chamber

Company:	Broadcom
Project #:	08U11713
Date:	4/18/2008
Test Engineer:	Chin Pang
Configuration:	EUT insides HP platform (Soyuz)
Mode:	Tx, HT40, 2.4GHZ Band

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Ninous 202575001	Can 187209002		R_001

Peak Measurements
RBW=VBW=1MHz
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	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)
LOW CHANNEL, 2422MHz															
4.824	3.0	45.0	32.0	33.0	3.7	-34.8	0.0	0.0	46.9	33.9	74	54	-27.1	-20.1	H
4.844	3.0	44.5	31.7	33.0	3.7	-34.8	0.0	0.0	46.4	33.6	74	54	-27.6	-20.4	V
HIGH CHANNEL, 2452 MHz															
4.904	3.0	44.2	31.5	33.1	3.7	-34.9	0.0	0.0	46.2	33.5	74	54	-27.8	-20.5	H
7.356	3.0	45.6	32.7	35.5	4.5	-34.6	0.0	0.0	51.0	38.1	74	54	-23.0	-15.9	H
4.904	3.0	44.1	31.4	33.1	3.7	-34.9	0.0	0.0	46.1	33.4	74	54	-27.9	-20.6	V
7.356	3.0	45.0	32.4	35.5	4.5	-34.6	0.0	0.0	50.4	37.8	74	54	-23.6	-16.2	V

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		

7.2.4. 802.11n HT40 MODE IN THE 5.8 GHz

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, 3 Meter_C Chamber

Company:	Broadcom
Project #:	08U11713
Date:	4/21/2008
Test Engineer:	Chin Pang
Configuration:	EUT insides HP platform (Soyuz)
Mode:	Tx 11n HT40_5.8 GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(	T88 Miteq 26-40GHz	T39; ARA 18-26GHz; S/N:1013	FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Ninous 202575001	Can 187209002	HPF_7.6GHz	

Peak Measurements
RBW=VBW=1MHz
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	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)
LOW CHANNEL, 5755 MHz															
11.510	3.0	45.0	32.0	37.4	5.7	-33.1	0.0	0.7	55.7	42.7	74	54	-18.3	-11.3	H
11.510	3.0	44.4	31.7	37.4	5.7	-33.1	0.0	0.7	55.1	42.4	74	54	-18.9	-11.6	V
HIGH CHANNEL, 5795 MHz															
11.590	3.0	45.2	32.0	37.4	5.7	-33.0	0.0	0.7	56.1	42.9	74	54	-17.9	-11.1	H
11.590	3.0	44.6	31.8	37.4	5.7	-33.0	0.0	0.7	55.5	42.7	74	54	-18.5	-11.3	V

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		

7.2.5. WORST-CASE BELOW 1 GHz

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

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

Data#: 2 File#: 08U11713_Soyuz.EMI
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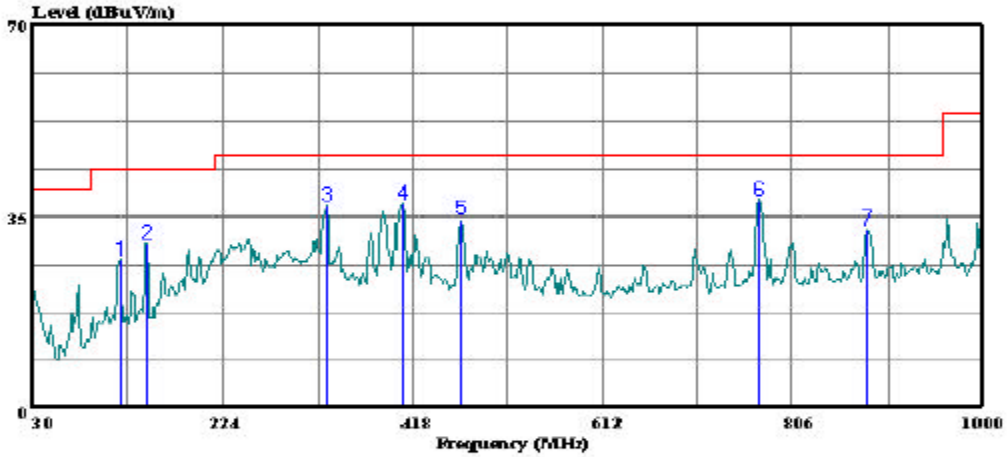

Trace: 1 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Chin Pang
Project #: : 08U11713
Company: : Broadcom
Model: : BCM94322MC
Configuration:: EUT in Soyuz Laptop
Mode : : TX(Mid Ch)
Target: : FCC Class B
: 2.4GHz Band

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	119.240	40.71	-13.32	27.39	43.50	-16.11	Peak
2	147.370	43.88	-13.68	30.21	43.50	-13.29	Peak
3	329.730	48.58	-11.57	37.01	46.00	-8.99	Peak
4	407.330	47.06	-9.87	37.19	46.00	-8.81	Peak
5	468.440	42.88	-8.19	34.69	46.00	-11.31	Peak
6	772.050	40.91	-3.03	37.88	46.00	-8.12	Peak
7	882.630	34.16	-1.35	32.81	46.00	-13.19	Peak

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

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

Data#: 4 File#: 08U11713_Soyuz.EMI
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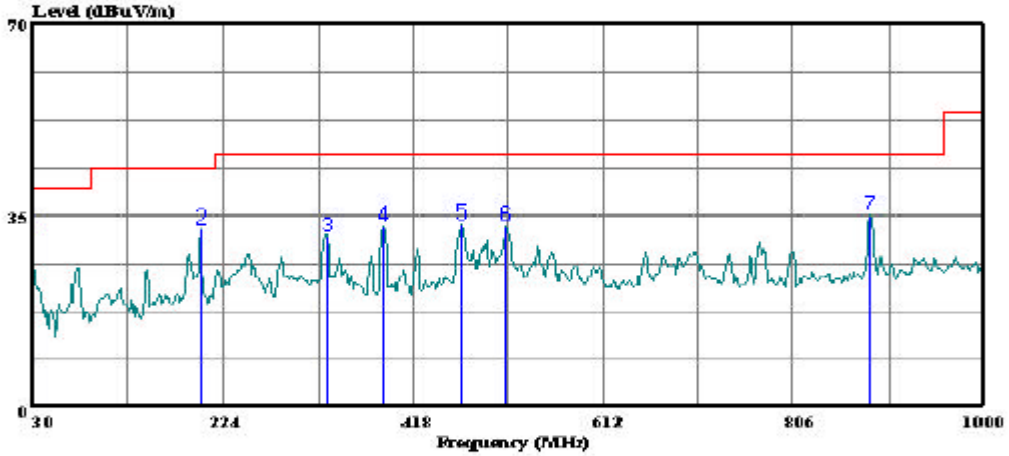

Trace: 3 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Chin Pang
Project #: : 08U11713
Company: : Broadcom
Model: : BCM94322MC
Configuration:: EUT in Soyuz Laptop
Mode : : TX (Mid Ch)
Target: : FCC Class B
: 2.4GHz Band

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	37.56	-5.75	31.81	40.00	-8.19	Peak
2	201.690	46.25	-13.55	32.70	43.50	-10.80	Peak
3	329.730	42.95	-11.57	31.38	46.00	-14.62	Peak
4	387.930	43.39	-10.19	33.20	46.00	-12.80	Peak
5	468.440	41.71	-8.19	33.52	46.00	-12.48	Peak
6	512.090	40.36	-7.17	33.19	46.00	-12.81	Peak
7	885.540	36.46	-1.18	35.28	46.00	-10.72	Peak

5.8GHz BAND
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

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

Data#: 8 File#: 08U11713_Soyuz.EMI
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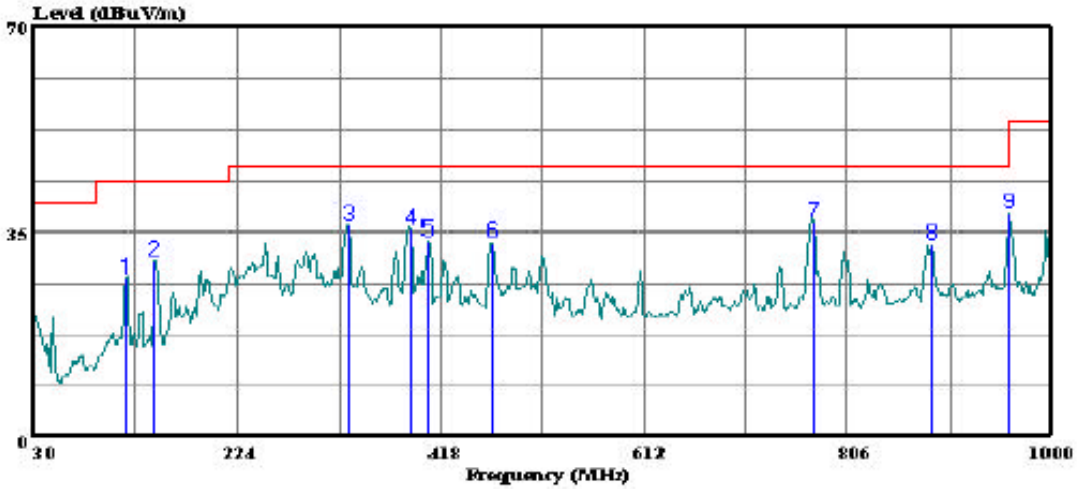

Trace: 7 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Chin Pang
Project #: : 08U11713
Company: : Broadcom
Model: : BCM94322MC
Configuration:: EUT in Soyuz Laptop
Mode : : Normal
Target: : FCC Class B
: 5GHz Band

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	118.270	40.69	-13.55	27.13	43.50	-16.37	Peak
2	145.430	43.97	-13.55	30.42	43.50	-13.08	Peak
3	329.730	47.60	-11.57	36.03	46.00	-9.97	Peak
4	389.870	45.57	-10.15	35.42	46.00	-10.58	Peak
5	405.390	43.66	-9.89	33.77	46.00	-12.23	Peak
6	467.470	41.47	-8.20	33.27	46.00	-12.73	Peak
7	773.990	39.81	-3.09	36.72	46.00	-9.28	Peak
8	887.480	34.07	-1.01	33.06	46.00	-12.94	Peak
9	960.230	38.96	-0.80	38.16	54.00	-15.84	Peak

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

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

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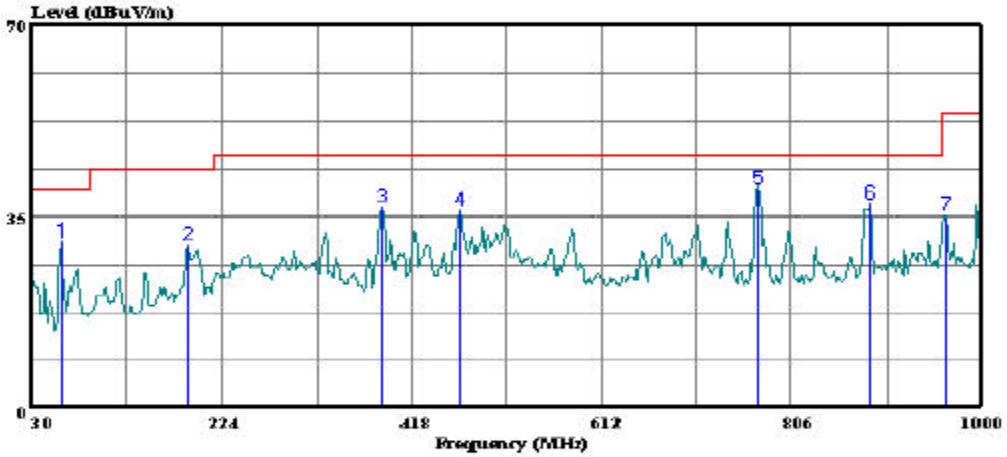

Trace: 5 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Chin Pang
Project #: : 08U11713
Company: : Broadcom
Model: : BCM94322MC
Configuration:: EUT in Soyuz Laptop
Mode : : Normal
Target: : FCC Class B
: 5GHz Band

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	61.040	50.10	-19.56	30.54	40.00	-9.46	Peak
2	189.080	44.66	-14.77	29.89	43.50	-13.61	Peak
3	387.930	47.00	-10.19	36.81	46.00	-9.19	Peak
4	468.440	44.34	-8.19	36.15	46.00	-9.85	Peak
5	772.050	43.05	-3.03	40.02	46.00	-5.98	Peak
6	887.480	38.14	-1.01	37.13	46.00	-8.87	Peak
7	964.110	35.97	-0.92	35.05	54.00	-18.95	Peak

7.2.6. RECEIVER ABOVE 1 GHz FOR 40 MHz BANDWIDTH IN THE 2.4 GHz

High Frequency Measurement
Compliance Certification Services, 3 Meter_C Chamber

Company:	Broadcom
Project #:	08U11713
Date:	4/18/2008
Test Engineer:	Chin Pang
Configuration:	EUT insides HP platform (Soyuz)
Mode:	RX, HT40, 2.4GHz Band

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Ninous 202575001	Can 187209002		

Peak Measurements
RBW=VBW=1MHz
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	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)
1.146	3.0	64.6	44.0	24.3	2.2	-36.0	0.0	0.0	55.1	34.5	74	54	-18.9	-19.5	V
1.533	3.0	62.5	39.0	25.7	2.4	-35.7	0.0	0.0	54.9	31.4	74	54	-19.1	-22.6	V
1.910	3.0	59.4	36.6	27.1	2.6	-35.5	0.0	0.0	53.6	30.8	74	54	-20.4	-23.2	V
3.618	3.0	55.6	32.8	31.6	3.3	-34.9	0.0	0.0	55.6	32.8	74	54	-18.4	-21.2	V
4.400	3.0	58.5	33.0	32.9	3.6	-34.8	0.0	0.0	60.2	34.7	74	54	-13.8	-19.3	V
1.146	3.0	60.3	36.7	24.3	2.2	-36.0	0.0	0.0	50.8	27.2	74	54	-23.2	-26.8	H
1.500	3.0	49.0	40.0	25.6	2.4	-35.8	0.0	0.0	41.2	32.2	74	54	-32.8	-21.8	H
1.530	3.0	56.2	33.6	25.7	2.4	-35.7	0.0	0.0	48.6	26.0	74	54	-25.4	-28.0	H
4.400	3.0	52.0	31.6	32.9	3.6	-34.8	0.0	0.0	53.7	33.3	74	54	-20.3	-20.7	H

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. AC POWER LINE CONDUCTED EMISSIONS

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

ANSI C63.4

RESULTS

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
0.18	51.13	--	30.33	0.00	64.44	54.44	-13.31	-24.11	L1
0.26	41.52	--	22.29	0.00	61.34	51.34	-19.82	-29.05	L1
13.97	45.75	--	34.43	0.00	60.00	50.00	-14.25	-15.57	L1
0.18	52.70	--	31.94	0.00	64.44	54.44	-11.74	-22.50	L2
0.25	43.79	--	21.24	0.00	61.66	51.66	-17.87	-30.42	L2
16.93	47.86	--	38.03	0.00	60.00	50.00	-12.14	-11.97	L2
6 Worst Data									

LINE 1 RESULTS

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

Data#: 21 File#: 08U11713_soyuz.EMI
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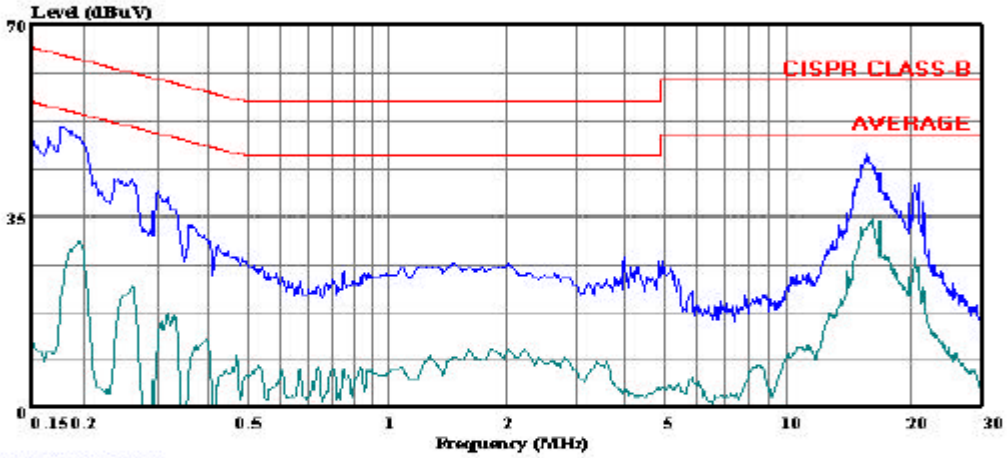


(Line Conduction)

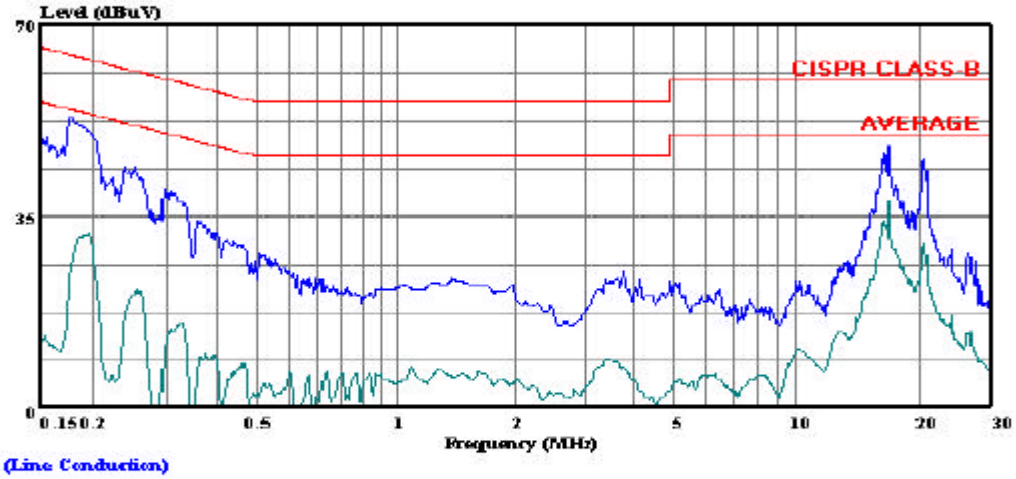
Trace: 19 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Chin Pang
Project #: : 08U11713_Soyuz
Company: : Broadcom
Configuration:: EUT inside Soyuz Laptop
Mode: : TX (Mid Ch)
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 1: Peak (Blue); Average (Green)
: 2.4GHz Band

LINE 2 RESULTS

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

Data#: 14 File#: 08U11713_soyuz.EMI
Date: 04-21-2008 Time: 09:15:39



(Line Conduction)

Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Chin Pang
Project #: : 08U11713_Soyuz
Company: : Broadcom
Configuration:: EUT inside Soyuz Laptop
Mode: : TX (Mid Ch)
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 2: Peak (Blue); Average (Green)
: 2.4GHz Band