



**FCC CFR47 PART 15 SUBPART E  
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-Q22C  
MODEL NUMBER: BCM94322MC  
FCC ID: QDS-BRCM1036  
IC: 4324A-BRCM1036**

**REPORT NUMBER: 08U11713-4  
ISSUE DATE: APRIL 22, 2008**

*Prepared for*

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

*Prepared by*

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**NVLAP LAB CODE 200065-0**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	4-22-08	Initial Issue	Sunny Shih

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS</b> .....	<b>5</b>
<b>2. TEST METHODOLOGY</b> .....	<b>6</b>
<b>3. FACILITIES AND ACCREDITATION</b> .....	<b>6</b>
<b>4. CALIBRATION AND UNCERTAINTY</b> .....	<b>6</b>
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i> .....	6
4.2. <i>MEASUREMENT UNCERTAINTY</i> .....	6
<b>5. EQUIPMENT UNDER TEST</b> .....	<b>7</b>
5.1. <i>DESCRIPTION OF EUT</i> .....	7
5.2. <i>DESCRIPTION OF CLASS II CHANGE</i> .....	7
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i> .....	7
5.4. <i>SOFTWARE AND FIRMWARE</i> .....	7
5.5. <i>WORST-CASE CONFIGURATION AND MODE</i> .....	7
5.6. <i>DESCRIPTION OF TEST SETUP</i> .....	8
<b>6. TEST AND MEASUREMENT EQUIPMENT</b> .....	<b>10</b>
<b>7. RADIATED TEST RESULTS</b> .....	<b>11</b>
7.1. <i>LIMITS AND PROCEDURE</i> .....	11
7.2. <i>TRANSMITTER ABOVE 1 GHz IN THE 5.15 – 5.25 GHz BAND</i> .....	12
7.2.1. 802.11a MODE.....	12
7.2.2. 802.11n HT20 MODE .....	13
7.2.3. 802.11n HT40 MODE .....	14
7.3. <i>TRANSMITTER ABOVE 1 GHz IN THE 5.25 – 5.35 GHz BAND</i> .....	17
7.3.1. 802.11a MODE.....	17
7.3.2. 802.11n HT20 MODE .....	18
7.3.3. 802.11n HT40 MODE .....	19
7.4. <i>TRANSMITTER ABOVE 1 GHz IN THE 5.47 – 5.725 GHz BAND</i> .....	22
7.4.1. 802.11a MODE.....	22
7.4.2. 802.11n HT20 MODE .....	23
7.4.3. 802.11n HT40 MODE .....	24
7.5. <i>RECEIVER ABOVE 1 GHz IN THE 5.47 – 5.725 GHz BAND</i> .....	25
7.5.1. 802.11n HT40 MODE .....	25
7.6. <i>WORST-CASE BELOW 1 GHz</i> .....	26
<b>8. AC POWER LINE CONDUCTED EMISSIONS</b> .....	<b>30</b>

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**9. SETUP PHOTOS..... 33**

# 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

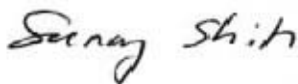
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass
RSS-210 Issue 7 Annex 9 and RSS-GEN Issue 2	Pass

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:

Tested By:



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SUNNY SHIH  
EMC SUPERVISOR  
COMPLIANCE CERTIFICATION SERVICES

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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, FCC MO&O 06-96, 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:

<u>Antenna Supplier</u>	<u>Type</u>	<u>Model number</u>	<u>Max Peak gain (dBi)</u>	
			<u>2.4GHz</u>	<u>5GHz</u>
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 was determined at Mobile configuration for 2.4GHz Band and X position for the 5GHz band.

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 802.11n 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

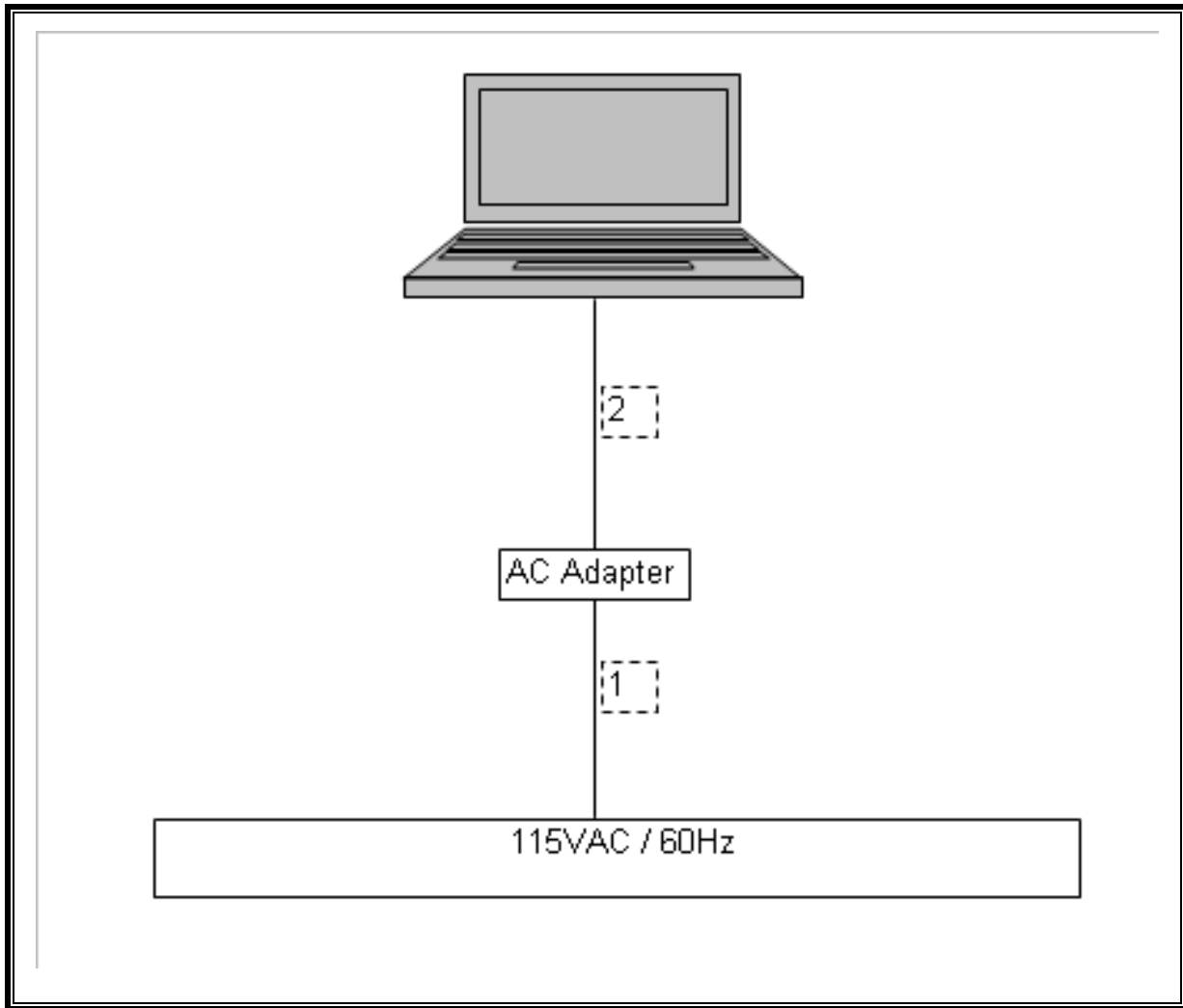
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US115V	Unshielded	2.0m	N/A
2	DC	1	DC	Unshielded	2.0m	N/A

### 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	7/15/2008
Bilog Antenna	Sundt 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, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

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 IN THE 5.15 – 5.25 GHz BAND

### 7.2.1. 802.11a MODE

#### 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, a mode, 5.2GHz Lower Band																																												
<b>Test Equipment:</b>																																														
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																		
T60; S/N: 2238 @3m			T145 Agilent 3008A0050			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		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz																																	
			Ninous 202575001			Can 187209002			HPF_7.6GHz																																					
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Ftr 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>LOW CHANNEL, 5180MHz</b>																																														
15.540	3.0	46.5	33.7	38.0	6.7	-32.3	0.0	0.7	59.7	46.9	74	54	-14.3	-7.1	H																															
15.540	3.0	47.0	34.0	38.0	6.7	-32.3	0.0	0.7	60.2	47.2	74	54	-13.8	-6.8	V																															
<b>MID CHANNEL, 5200MHz</b>																																														
15.600	3.0	45.4	33.0	38.0	6.7	-32.3	0.0	0.7	58.6	46.2	74	54	-15.4	-7.8	H																															
15.600	3.0	46.0	33.4	38.0	6.7	-32.3	0.0	0.7	59.2	46.6	74	54	-14.8	-7.4	V																															
<b>HIGH CHANNEL, 5240MHz</b>																																														
15.720	3.0	45.5	33.2	37.9	6.8	-32.3	0.0	0.7	58.7	46.4	74	54	-15.3	-7.6	H																															
15.720	3.0	45.8	33.3	37.9	6.8	-32.3	0.0	0.7	59.0	46.5	74	54	-15.0	-7.5	V																															
<table border="0"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																	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		
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. 802.11n HT20 MODE

#### 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, HT20 mode, 5.2GHz Lower Band

Test Equipment:

Horn 1-18GHz T60; S/N: 2238 @3m	Pre-amplifer 1-26GHz T145 Agilent 3008A005c	Pre-amplifer 26-40GHz T88 Miteq 26-40GHz	Horn > 18GHz T39; ARA 18-26GHz; S/N:1013	Limit FCC 15.205
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Hi Frequency Cables

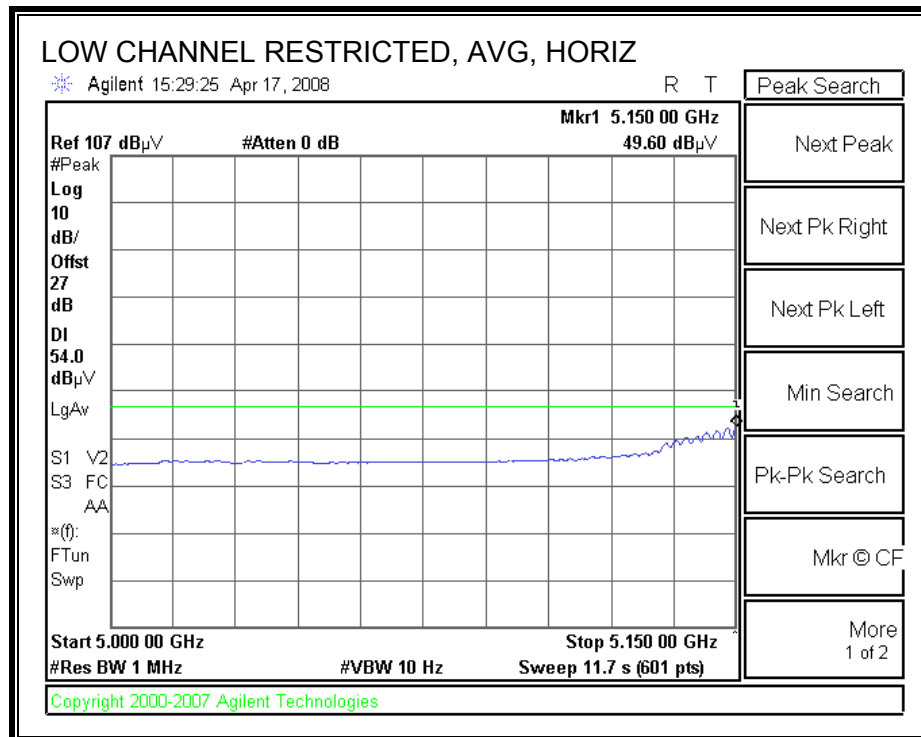
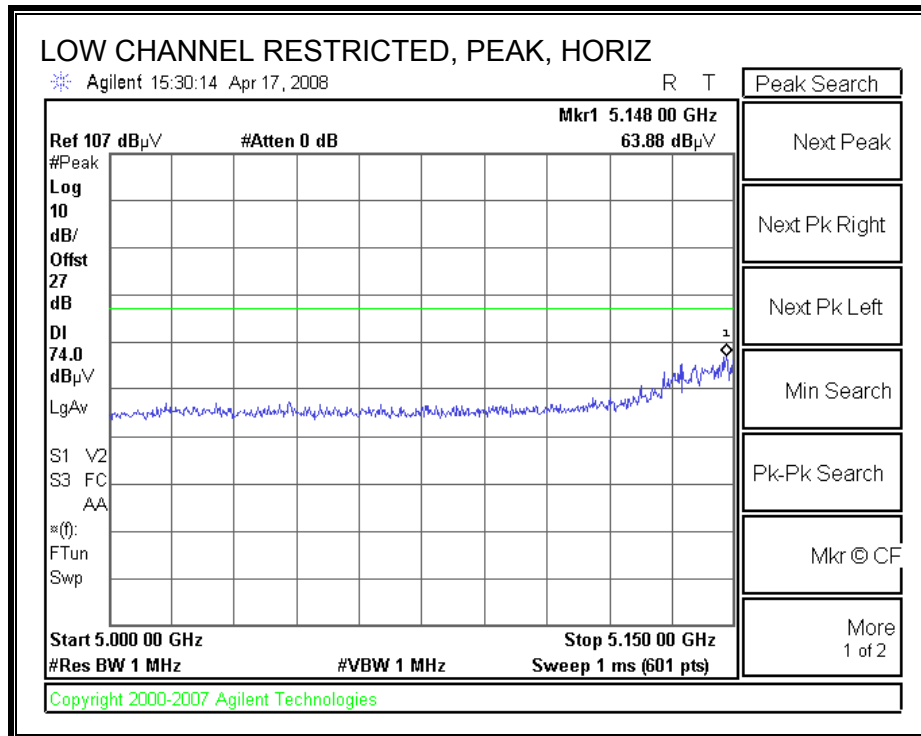
2 foot cable	3 foot cable Ninous 202575001	12 foot cable Can 187209002	HPF HPF_7.6GHz	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz
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f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fldr 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>LOW CHANNEL, 5180MHz</b>															
15.540	3.0	46.4	33.4	38.0	6.7	-32.3	0.0	0.7	59.6	46.6	74	54	-14.4	-7.4	H
15.540	3.0	46.8	33.7	38.0	6.7	-32.3	0.0	0.7	60.0	46.9	74	54	-14.0	-7.1	V
<b>MID CHANNEL, 5200MHz</b>															
15.600	3.0	46.0	33.2	38.0	6.7	-32.3	0.0	0.7	59.2	46.4	74	54	-14.8	-7.6	H
15.600	3.0	47.2	34.0	38.0	6.7	-32.3	0.0	0.7	60.4	47.2	74	54	-13.6	-6.8	V
<b>HIGH CHANNEL, 5240MHz</b>															
15.720	3.0	45.6	32.8	37.9	6.8	-32.3	0.0	0.7	58.8	46.0	74	54	-15.2	-8.0	H
15.720	3.0	46.3	33.0	37.9	6.8	-32.3	0.0	0.7	59.5	46.2	74	54	-14.5	-7.8	V

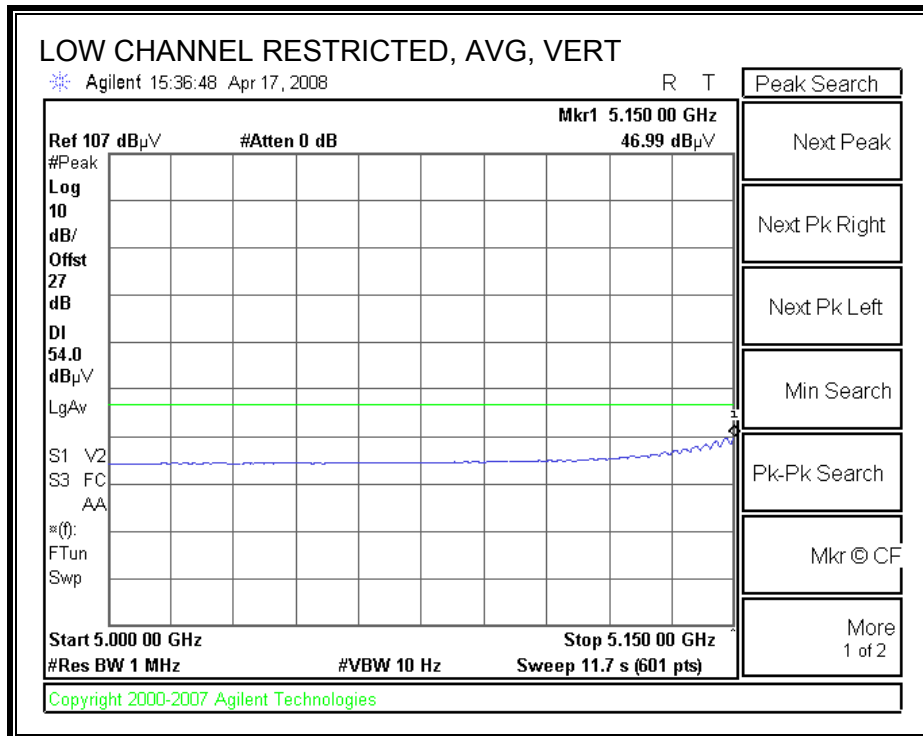
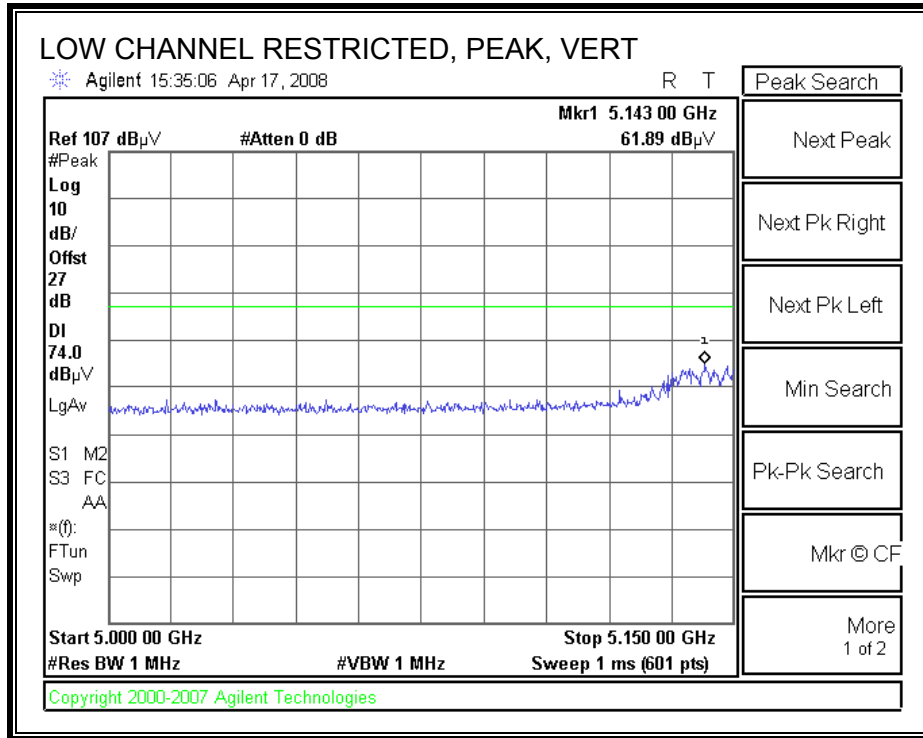
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field 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)**



**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 mode, 5.2GHz Lower Band														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 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		Peak Measurements RBW=VBW=1MHz			
			Ninoux 202575001			Can 187209002			HPF_7.6GHz				Average Measurements RBW=1MHz; VBW=10Hz			
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fldr	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 CHANNEL, 5190MHz																
15.570	3.0	45.6	33.3	38.0	6.7	-32.3	0.0	0.7	58.8	46.5	74	54	-15.2	-7.5	H	
15.570	3.0	46.0	33.7	38.0	6.7	-32.3	0.0	0.7	59.2	46.9	74	54	-14.8	-7.1	V	
HIGH CHANNEL, 5230MHz																
15.690	3.0	46.0	33.6	37.9	6.8	-32.3	0.0	0.7	59.2	46.8	74	54	-14.8	-7.2	H	
15.690	3.0	45.8	33.4	37.9	6.8	-32.3	0.0	0.7	59.0	46.6	74	54	-15.0	-7.4	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								



### 7.3. TRANSMITTER ABOVE 1 GHz IN THE 5.25 – 5.35 GHz BAND

#### 7.3.1. 802.11a MODE

#### 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, a mode, 5.3GHz Upper Band																																												
<b>Test Equipment:</b>																																														
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																		
T60; S/N: 2238 @3m			T145 Agilent 3008A005C			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		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz																																	
			Ninous 202575001			Can 187209002			HPF_7.6GHz																																					
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Ftr 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>LOW CHANNEL, 5280MHz</b>																																														
15.840	3.0	45.3	32.7	37.9	6.8	-32.2	0.0	0.7	58.4	45.8	74	54	-15.6	-8.2	H																															
15.840	3.0	46.0	33.0	37.9	6.8	-32.2	0.0	0.7	59.1	46.1	74	54	-14.9	-7.9	V																															
<b>MID CHANNEL, 5300MHz</b>																																														
15.900	3.0	45.2	32.4	37.9	6.8	-32.2	0.0	0.7	58.3	45.5	74	54	-15.7	-8.5	H																															
15.900	3.0	46.4	33.1	37.9	6.8	-32.2	0.0	0.7	59.5	46.2	74	54	-14.5	-7.8	V																															
<b>HIGH CHANNEL, 5320MHz</b>																																														
15.960	3.0	45.5	32.6	37.8	6.8	-32.2	0.0	0.7	58.6	45.7	74	54	-15.4	-8.3	H																															
15.960	3.0	46.5	33.2	37.8	6.8	-32.2	0.0	0.7	59.6	46.3	74	54	-14.4	-7.7	V																															
<table border="0"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																	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		
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																																											

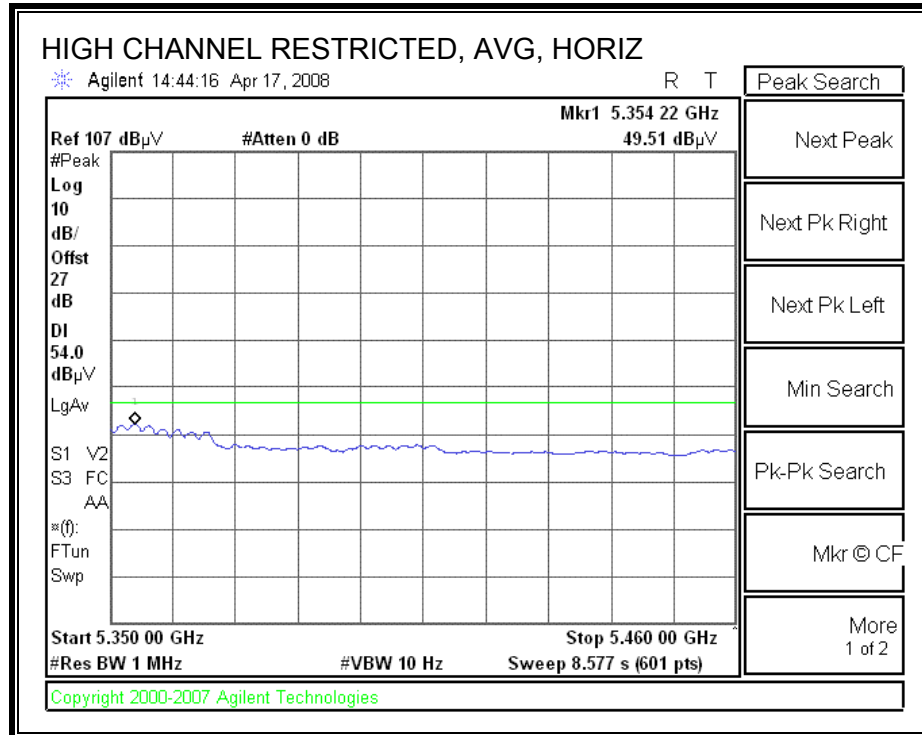
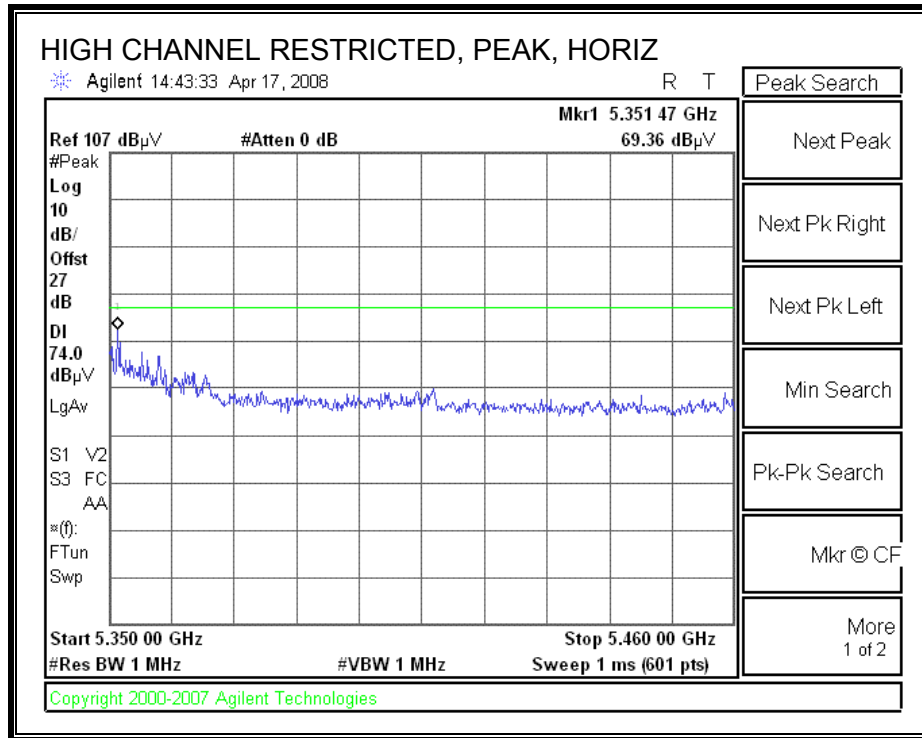
### 7.3.2. 802.11n HT20 MODE

#### HARMONICS AND SPURIOUS EMISSIONS

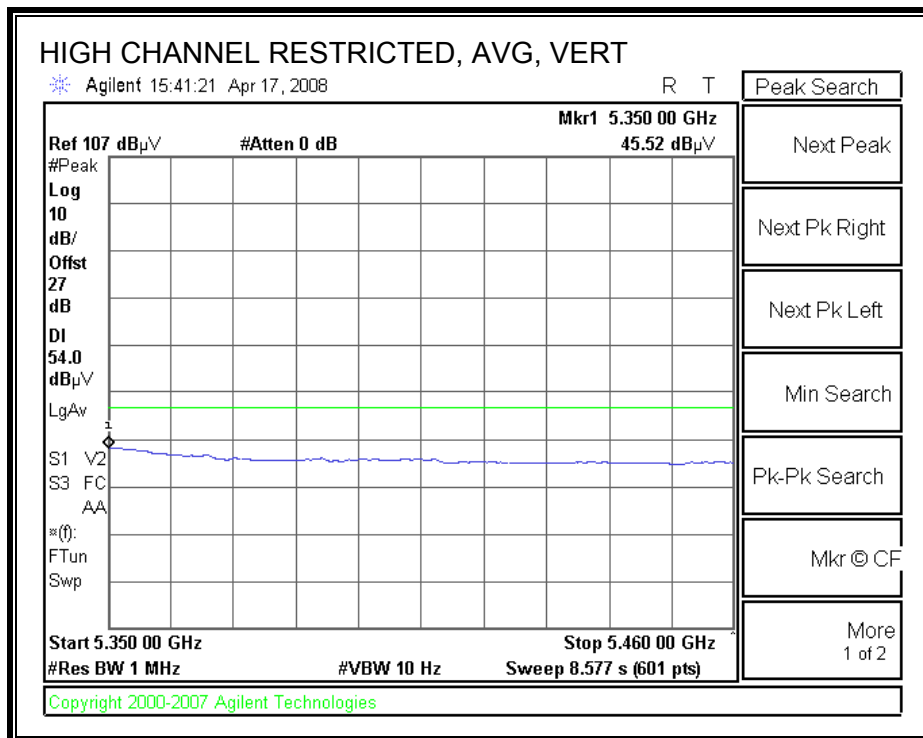
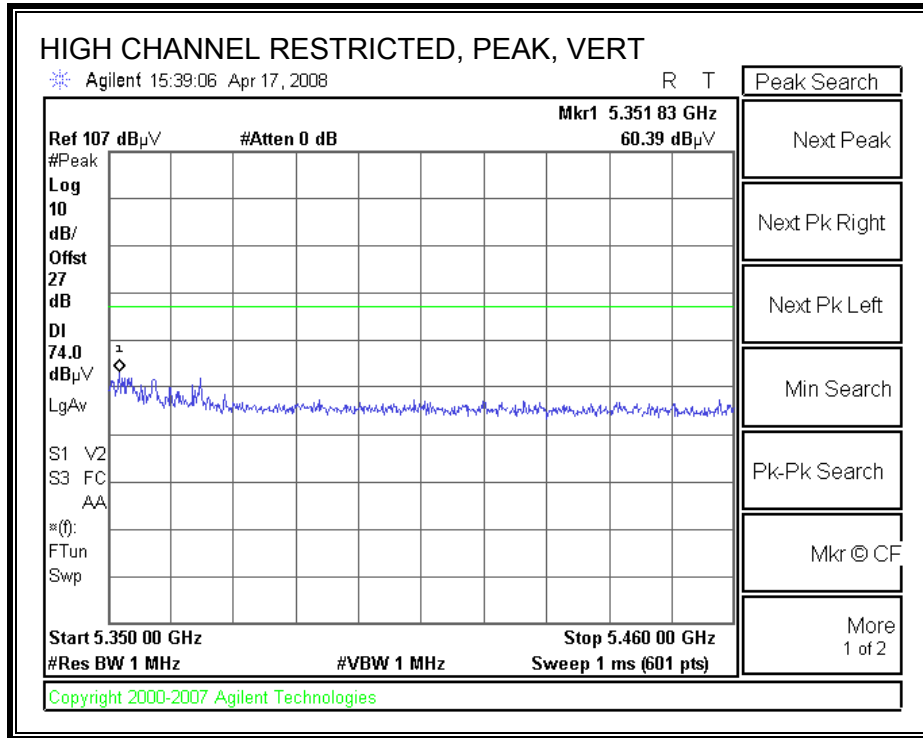
High Frequency Measurement																																														
Compliance Certification Services, 3 Meter_C Chamber																																														
Company:		Broadcom																																												
Project #:		08U11713																																												
Date:		4/18/2008																																												
Test Engineer:		Chin Pang																																												
Configuration:		EUT insides HP platform (Soyuz)																																												
Mode:		Tx, HT20 mode, 5.3GHz Upper Band																																												
<b>Test Equipment:</b>																																														
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																		
T60; S/N: 2238 @3m			T145 Agilent 3008A0050			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		Peak Measurements RBW=VBW=1MHz																																	
			Ninous 202575001			Can 187209002			HPF_7.6GHz				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	Ftr 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>LOW CHANNEL, 5280MHz</b>																																														
15.840	3.0	46.5	33.4	37.9	6.8	-32.2	0.0	0.7	59.6	46.5	74	54	-14.4	-7.5	H																															
15.840	3.0	47.6	34.2	37.9	6.8	-32.2	0.0	0.7	60.7	47.3	74	54	-13.3	-6.7	V																															
<b>MID CHANNEL, 5300MHz</b>																																														
15.900	3.0	46.3	33.5	37.9	6.8	-32.2	0.0	0.7	59.4	46.6	74	54	-14.6	-7.4	H																															
15.900	3.0	47.4	34.0	37.9	6.8	-32.2	0.0	0.7	60.5	47.1	74	54	-13.5	-6.9	V																															
<b>HIGH CHANNEL, 5320MHz</b>																																														
15.960	3.0	45.6	32.5	37.8	6.8	-32.2	0.0	0.7	58.7	45.6	74	54	-15.3	-8.4	H																															
15.960	3.0	46.0	32.8	37.8	6.8	-32.2	0.0	0.7	59.1	45.9	74	54	-14.9	-8.1	V																															
<table style="width:100%; border: none;"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																	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		
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																																											

**7.3.3. 802.11n HT40 MODE**

**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**



**RESTRICTED BANDEGE (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 mode, 5.3GHz Upper Band																																												
Test Equipment:																																														
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 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		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz																																	
			Ninous 202575001			Can 187209002			HPF_7.6GHz																																					
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)																															
<b>LOW CHANNEL, 5270MHz</b>																																														
15.810	3.0	45.3	32.3	37.9	6.8	-32.2	0.0	0.7	58.4	45.4	74	54	-15.6	-8.6	H																															
15.810	3.0	46.0	33.0	37.9	6.8	-32.2	0.0	0.7	59.1	46.1	74	54	-14.9	-7.9	V																															
<b>HIGH CHANNEL, 5310MHz</b>																																														
15.690	3.0	45.4	32.3	37.9	6.8	-32.3	0.0	0.7	58.6	45.5	74	54	-15.4	-8.5	H																															
15.690	3.0	45.8	32.7	37.9	6.8	-32.3	0.0	0.7	59.0	45.9	74	54	-15.0	-8.1	V																															
<table style="width:100%; border: none;"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																	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		
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																																											

## 7.4. TRANSMITTER ABOVE 1 GHz IN THE 5.47 – 5.725 GHz BAND

### 7.4.1. 802.11a MODE

#### 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, a mode, 5.6GHz Band																																											
<b>Test Equipment:</b>																																													
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																	
T60; S/N: 2238 @3m			T145 Agilent 3008A005C			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		Peak Measurements																																
			Ninous 202575001			Can 187209002			HPF_7.6GHz				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	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)																														
<b>LOW CHANNEL, 5500MHz</b>																																													
11.000	3.0	44.0	31.7	37.3	5.6	-33.8	0.0	0.7	53.9	41.6	74	54	-20.1	-12.4	H																														
11.000	3.0	44.3	31.6	37.3	5.6	-33.8	0.0	0.7	54.2	41.5	74	54	-19.8	-12.5	V																														
<b>MID CHANNEL, 5600MHz</b>																																													
11.200	3.0	44.0	31.8	37.3	5.7	-33.5	0.0	0.7	54.2	42.0	74	54	-19.8	-12.0	H																														
11.200	3.0	43.7	31.5	37.3	5.7	-33.5	0.0	0.7	53.9	41.7	74	54	-20.1	-12.3	V																														
<b>HIGH CHANNEL, 5700 MHz</b>																																													
11.400	3.0	43.7	31.5	37.4	5.7	-33.2	0.0	0.7	54.3	42.1	74	54	-19.7	-11.9	H																														
11.400	3.0	43.5	31.3	37.4	5.7	-33.2	0.0	0.7	54.1	41.9	74	54	-19.9	-12.1	V																														
<table border="0"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																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		
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AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit																																								
CL	Cable Loss	HPF	High Pass Filter																																										

### 7.4.2. 802.11n HT20 MODE

#### 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, HT20 mode, 5.6GHz Band																																												
<b>Test Equipment:</b>																																														
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																		
T60; S/N: 2238 @3m			T145 Agilent 3008A0050			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		Peak Measurements RBW=VBW=1MHz																																	
			Ninous 202575001			Can 187209002			HPF_7.6GHz				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	Ftr 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>LOW CHANNEL, 5500MHz</b>																																														
11.000	3.0	43.9	31.5	37.3	5.6	-33.8	0.0	0.7	53.8	41.4	74	54	-20.2	-12.6	H																															
11.000	3.0	44.5	31.8	37.3	5.6	-33.8	0.0	0.7	54.4	41.7	74	54	-19.6	-12.3	V																															
<b>MID CHANNEL, 5600MHz</b>																																														
11.200	3.0	44.3	31.7	37.3	5.7	-33.5	0.0	0.7	54.5	41.9	74	54	-19.5	-12.1	H																															
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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																																											

### 7.4.3. 802.11n HT40 MODE

#### 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 mode, 5.6GHz Band																																												
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Hi Frequency Cables																																														
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			Ninous 202575001			Can 187209002			HPF_7.6GHz																																					
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)																															
<b>LOW CHANNEL, 5510MHz</b>																																														
11.020	3.0	44.5	31.5	37.3	5.6	-33.7	0.0	0.7	54.4	41.4	74	54	-19.6	-12.6	H																															
11.020	3.0	45.0	32.0	37.3	5.6	-33.7	0.0	0.7	54.9	41.9	74	54	-19.1	-12.1	V																															
<b>MID CHANNEL, 5590MHz</b>																																														
11.180	3.0	45.0	32.0	37.3	5.7	-33.5	0.0	0.7	55.2	42.2	74	54	-18.8	-11.8	H																															
11.180	3.0	45.5	32.4	37.3	5.7	-33.5	0.0	0.7	55.7	42.6	74	54	-18.3	-11.4	V																															
<b>HIGH CHANNEL, 5690 MHz</b>																																														
11.380	3.0	44.8	31.7	37.4	5.7	-33.3	0.0	0.7	55.3	42.2	74	54	-18.7	-11.8	H																															
11.380	3.0	45.6	32.5	37.4	5.7	-33.3	0.0	0.7	56.1	43.0	74	54	-17.9	-11.0	V																															
<table style="width:100%; border: none;"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																	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		
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																																											



## 7.5. RECEIVER ABOVE 1 GHz IN THE 5.47 – 5.725 GHz BAND

### 7.5.1. 802.11n HT40 MODE

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, 5.6GHz Band																																												
<b>Test Equipment:</b>																																														
Horn 1-18GHz			Pre-amplifer 1-26GHz			Pre-amplifer 26-40GHz			Horn > 18GHz			Limit																																		
T60; S/N: 2238 @3m			T145 Agilent 3008A0050									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																																	
			Ninous 202575001			Can 187209002																																								
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)																															
1.146	3.0	58.0	38.6	25.8	2.2	-36.0	0.0	0.0	50.0	30.6	74	54	-24.0	-23.4	V																															
1.500	3.0	51.3	44.2	26.7	2.4	-35.8	0.0	0.0	44.6	37.5	74	54	-29.4	-16.5	V																															
1.533	3.0	61.2	35.2	26.8	2.4	-35.7	0.0	0.0	54.6	28.6	74	54	-19.4	-25.4	V																															
1.910	3.0	57.5	35.3	27.7	2.6	-35.5	0.0	0.0	52.4	30.2	74	54	-21.6	-23.8	V																															
3.440	3.0	55.6	33.0	31.3	3.2	-35.0	0.0	0.0	55.2	32.6	74	54	-18.8	-21.4	V																															
4.400	3.0	58.5	34.0	32.7	3.6	-34.8	0.0	0.0	60.0	35.5	74	54	-14.0	-18.5	V																															
1.146	3.0	57.4	36.7	25.8	2.2	-36.0	0.0	0.0	49.4	28.7	74	54	-24.6	-25.3	H																															
1.500	3.0	50.0	40.0	26.7	2.4	-35.8	0.0	0.0	43.3	33.3	74	54	-30.7	-20.7	H																															
1.530	3.0	54.3	40.0	26.8	2.4	-35.7	0.0	0.0	47.7	33.4	74	54	-26.3	-20.6	H																															
1.908	3.0	55.7	34.2	27.7	2.6	-35.5	0.0	0.0	50.6	29.1	74	54	-23.4	-24.9	H																															
4.400	3.0	54.0	33.6	32.7	3.6	-34.8	0.0	0.0	55.5	35.1	74	54	-18.5	-18.9	H																															
<table border="0"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																	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		
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																																											

## 7.6. WORST-CASE BELOW 1 GHz

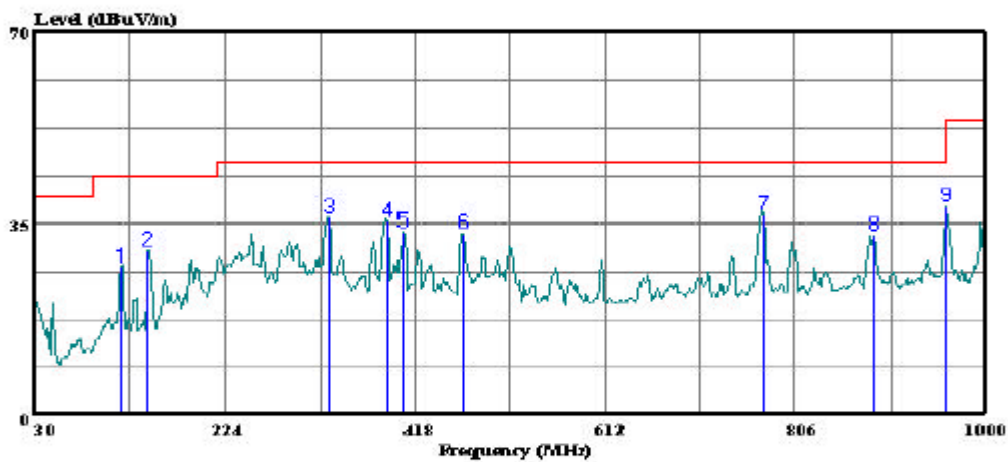
### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

#### HORIZONTAL PLOT



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

Data#: 8      File#: 08U11713\_Soyuz.EMI  
Date: 04-21-2008    Time: 08:25:32



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

HORIZONTAL DATA

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

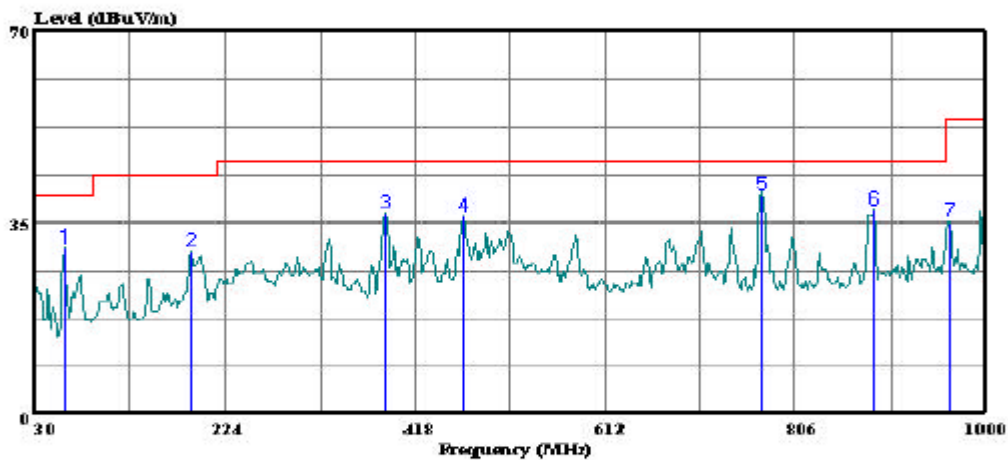
**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**

VERTICAL PLOT



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

Data#: 6 File#: 08U11713\_Soyuz.EMI Date: 04-21-2008 Time: 08:14:00



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

VERTICAL DATA

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

## 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

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

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

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

### RESULTS

#### 6 WORST EMISSIONS

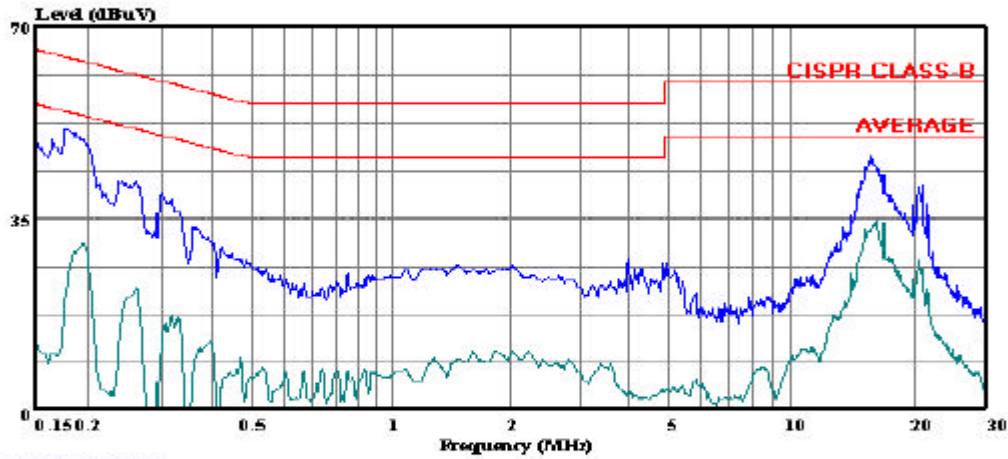
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	EN B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.18	51.13	--	30.33	0.00	64.44	54.44	-13.31	-24.11	L1
0.26	41.52	--	22.29	0.00	61.34	51.34	-19.82	-29.05	L1
13.97	45.75	--	34.43	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 Date: 04-21-2008 Time: 09:40:34



(Line Conduction)

Trace: 19

Ref Trace:

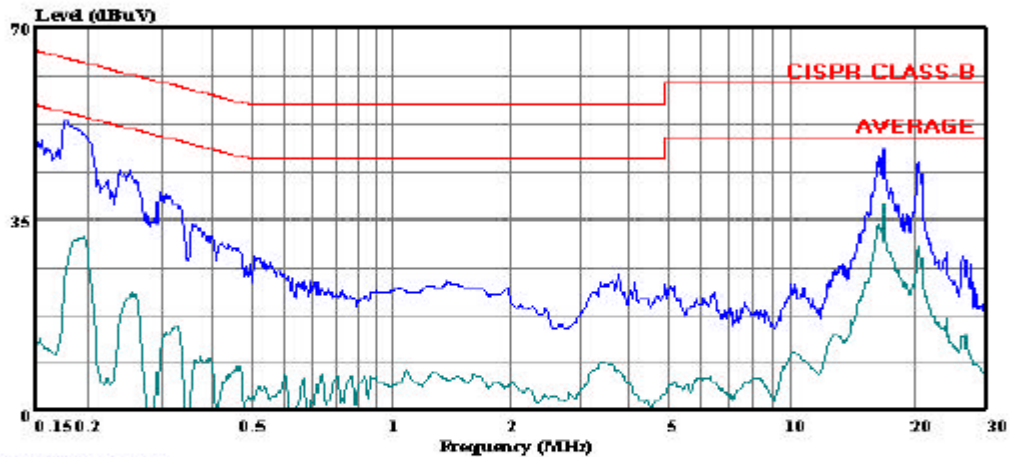
Condition: CISPR CLASS-B  
Test Operator:: Chin Pang  
Project #: : 08U11713\_Soyuz  
Company: : Broadcom  
Configuration:: BUT inside Soyuz Laptop  
Mode: : TX ( Mid Ch )  
Target: : FCC Class B  
Voltage: : 115VAC / 60Hz  
: Line 1: Peak (Blue); Average (Green)

**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