



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

FOR

INTEL PRO/WIRELESS 3945ABG NETWORK CONNECTION

MODEL NUMBER: WM3945ABG

FCC ID: PD9LEN3945ABG

REPORT NUMBER: 07U10903-1

ISSUE DATE: MARCH 20, 2007

Prepared for
**INTEL CORPORATION
2111 N.E.25TH AVE.
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Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	03/20/07	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: INTEL CORPORATION
2111 N.E. 25TH AVE.
HILLSBORO, OR 97124, USA

EUT DESCRIPTION: INTEL PRO/WIRELESS 3945ABG NETWORK CONNECTION

MODEL: WM3945ABG

SERIAL NUMBER: LV-00452

DATE TESTED: FEBRUARY 6-11, 2007

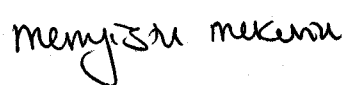
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

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

MENGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

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

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g transceiver that is installed inside an IBM Thinkpad (Lenovo) Laptop of model ThinkPad X61 Tablet Series.

The radio module is manufactured by Intel Corporation.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The change filed under this application is:

1. Add WLAN Main 25.90424.001 Ant
2. Add ThinkPad X61 Tablet (DL2-12.1inch)

5.3. MAXIMUM OUTPUT POWER

The transmitter has the same maximum conducted output power as original.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two PIFA for diversity, each with a maximum gain of 1.52dBi for 2.4GHz Band and 2.97dBi for 5.8GHz Band.

5.5. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was CRTU, rev. 10.0.0.111.

The test utility software used during testing was CRTU Version 4.0.14.0000

5.6. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output powers for both a mode of 5.8GHz Band and b mode were at the high channel, but for g mode, it was at the mid channel.

The worst-case data rate for these channels is determined to be 1 Mb/s for b mode and 6 Mb/s for g and a modes base on previous experience with WLAN product design architectures.

The worst-case configurations have been evaluated for g and b modes at which the EUT was in mobile position. On the other side, the worst-case configuration for a mode was in the Y position.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	IBM	Lenovo X61	LV-00452	DoC
AC Adapter	IBM	92P1156	11S92P1156Z1ZBGFBCKH7G	DoC

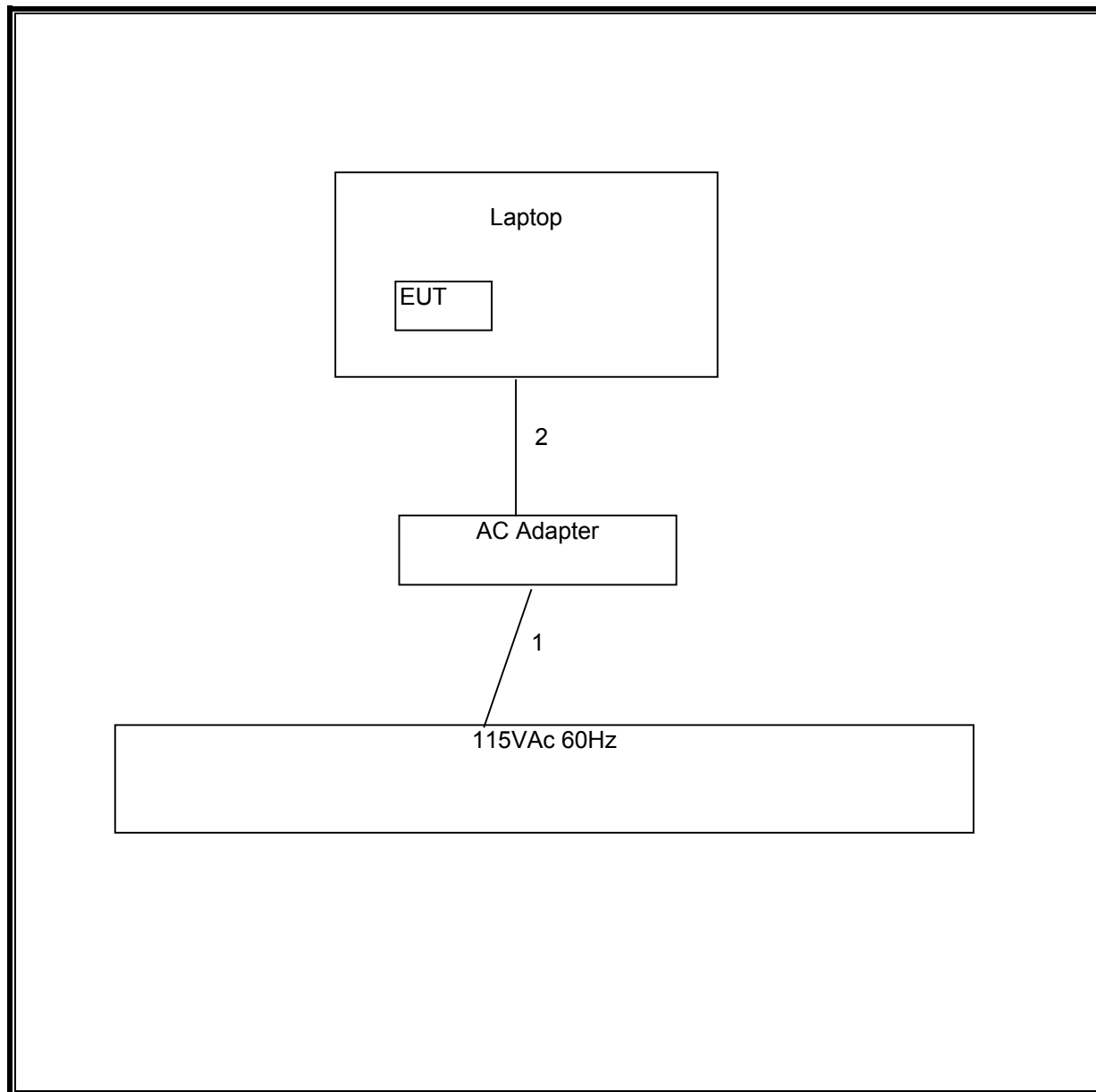
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	N/A
2	DC	1	DC	Un-shielded	2m	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	Serial Number	Cal Due
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A0022704	9/3/2007
Preamplifier, 1300 MHz	Agilent / HP	8447D	1937A02062	1/23/2008
SA Display Section 2	Agilent / HP	85662A	2816A16696	4/7/2008
SA RF Section, 1.5 GHz	Agilent / HP	85680B	2814A04227	1/7/2008
Quasi-Peak Adaptor	Agilent / HP	85650A	3145A01654	1/21/2008
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY43360112	5/3/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00931	6/24/2007
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	9/12/2007
Preamplifier, 26 ~ 40 GHz	Miteq	NSP4000-SP2	924343	8/18/2007
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	4/22/2007
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/2/2007
Peak / Average Power Sensor	Agilent	E9327A	US40440755	12/2/2007
7.6 GHz High Pass Filter	Micro Tronics	HPM13350	1	N/A
4.0 High Pass Filter	Micro Tronics	HPM13351	3	N/A

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

7.1.1. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11b Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	17.50
Middle	2437	18.06
High	2462	18.23

802.11g Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	16.47
Middle	2437	17.55
High	2462	15.20

7.2. CHANNEL TESTS FOR THE 5725 TO 5850 MHz BAND

7.2.1. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11a Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	5745	17.53
Middle	5785	17.00
High	5825	18.16

7.3. RADIATED EMISSIONS

7.3.1. 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.

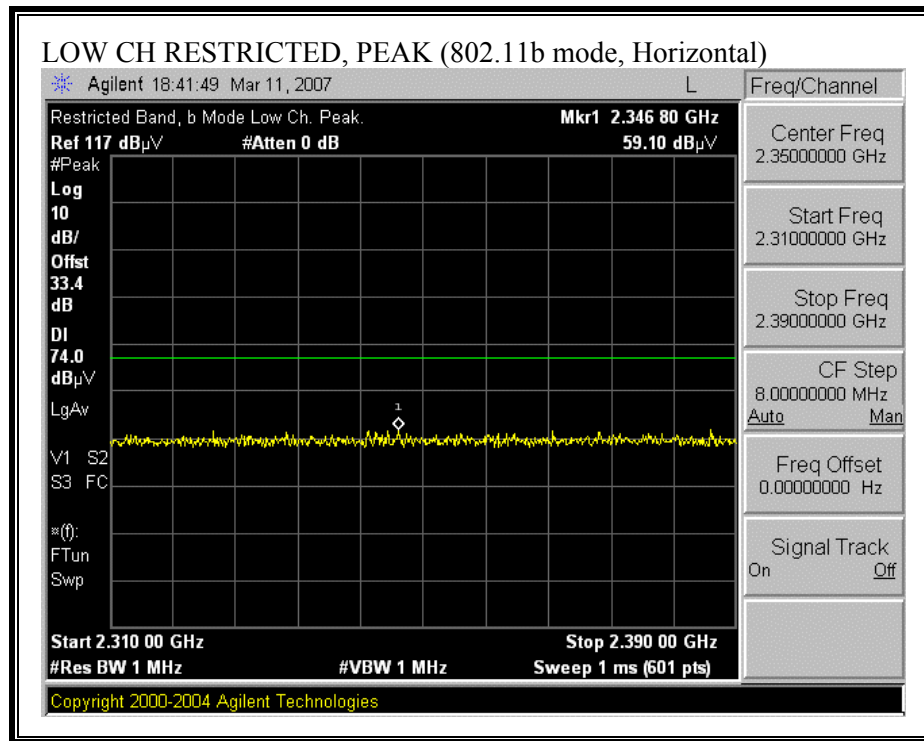
For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

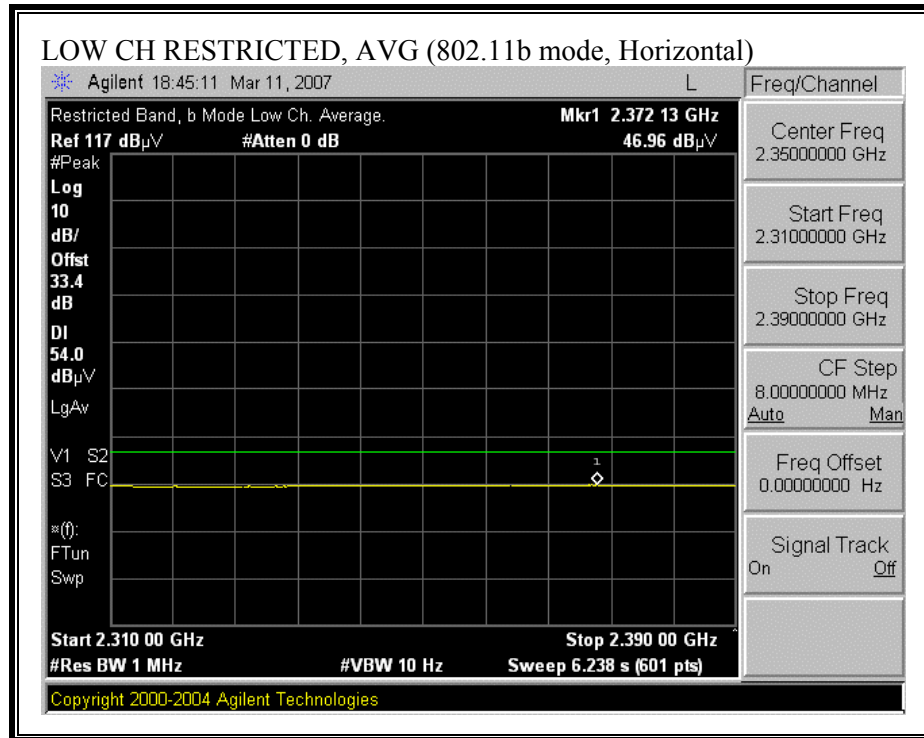
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

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.

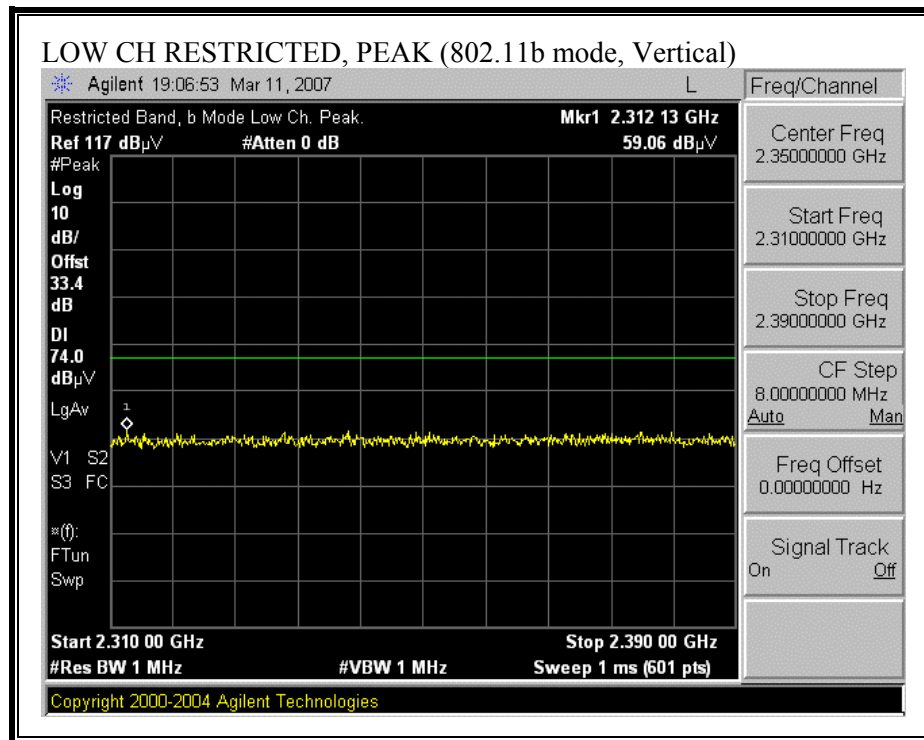
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

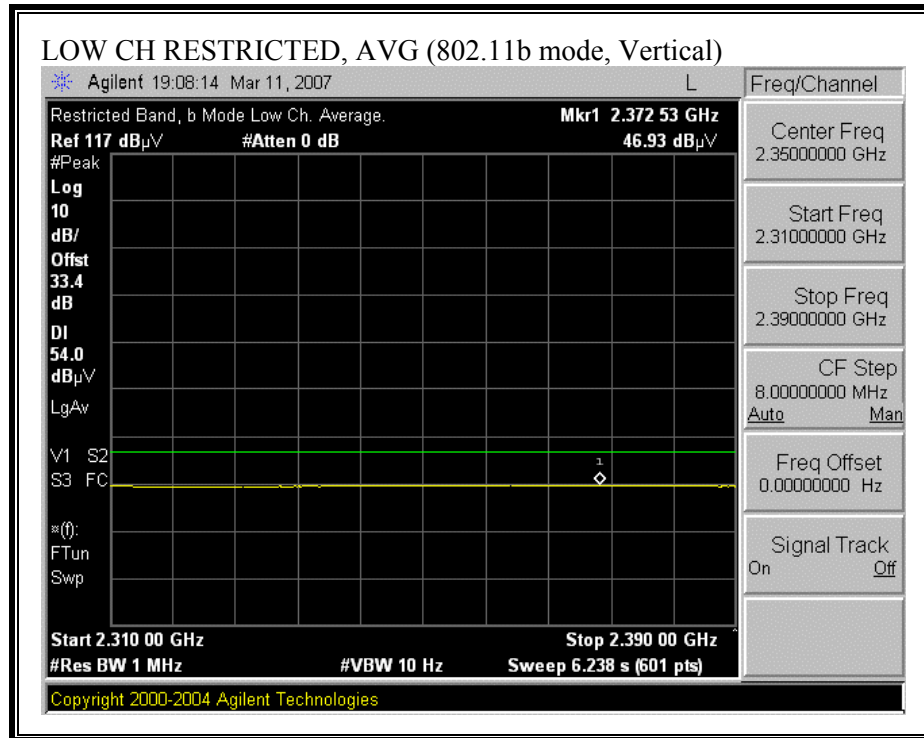
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.3.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND**RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)**

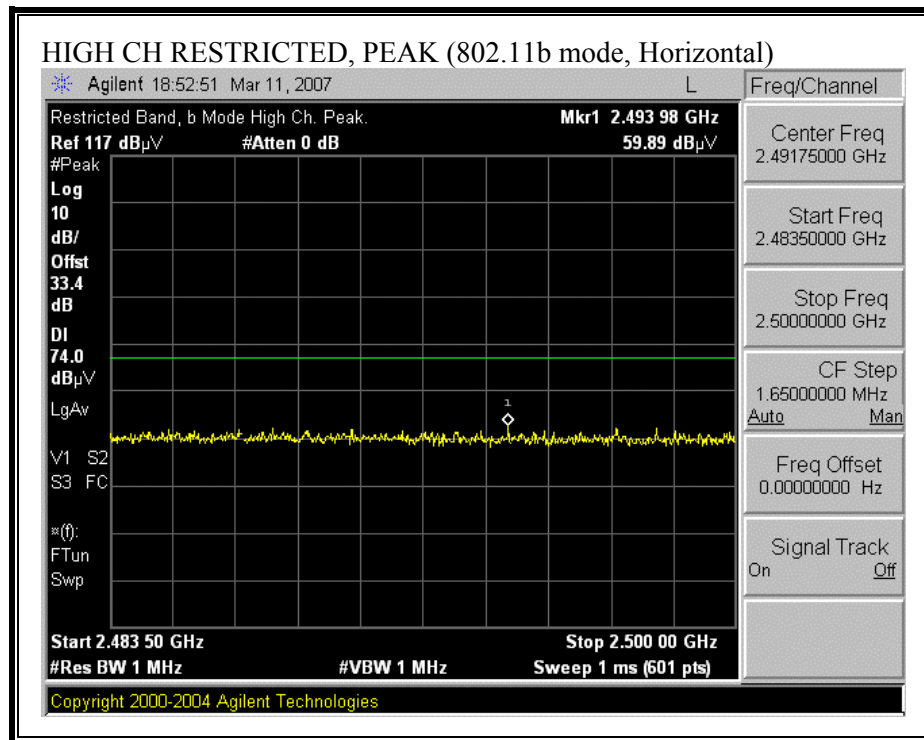


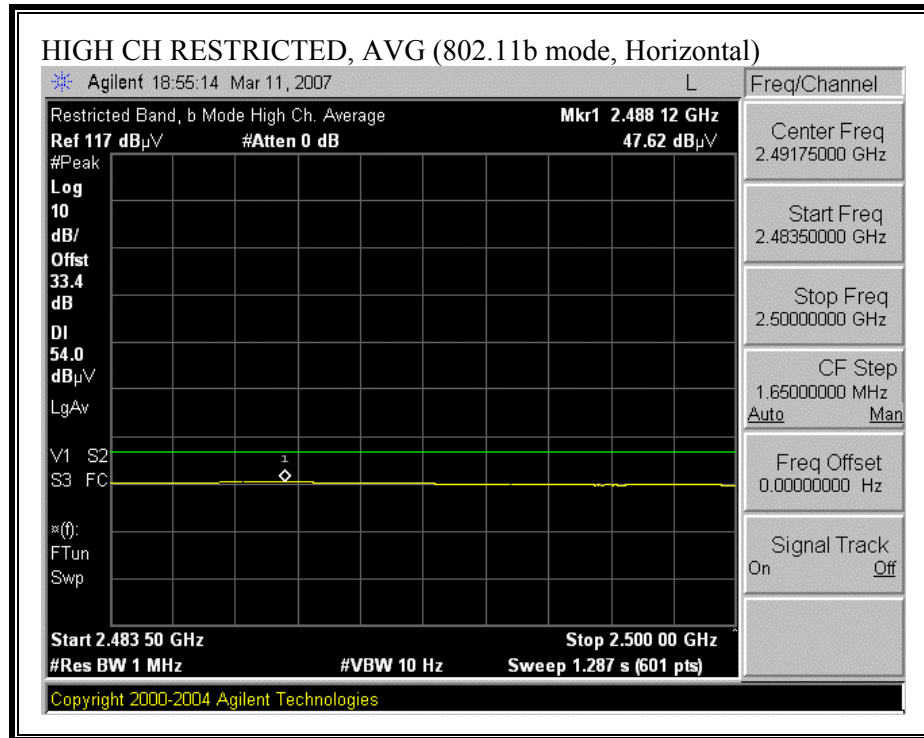
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)



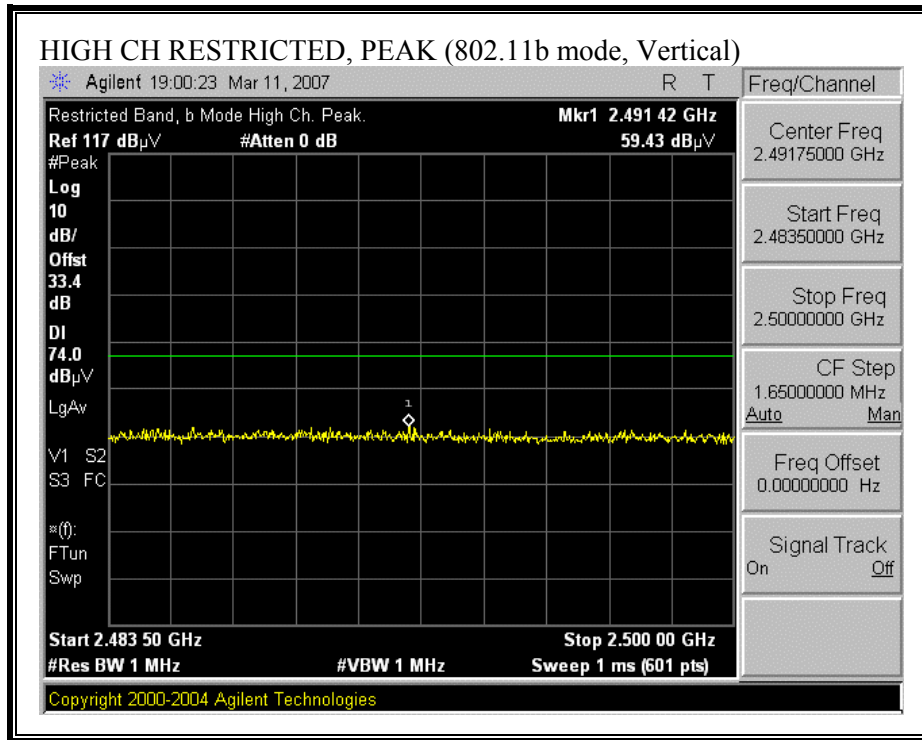


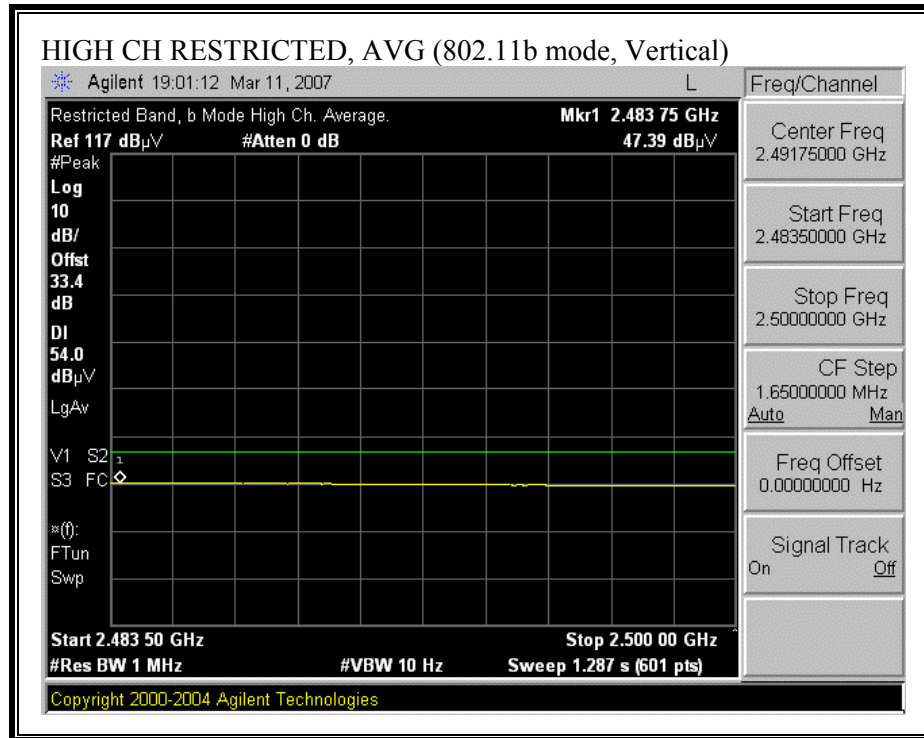
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

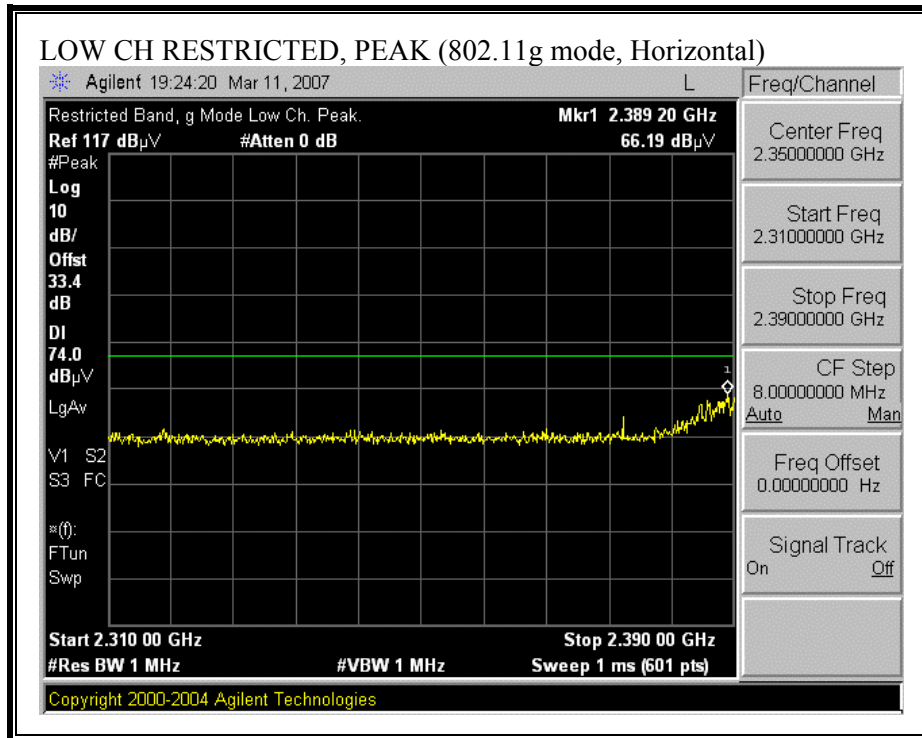


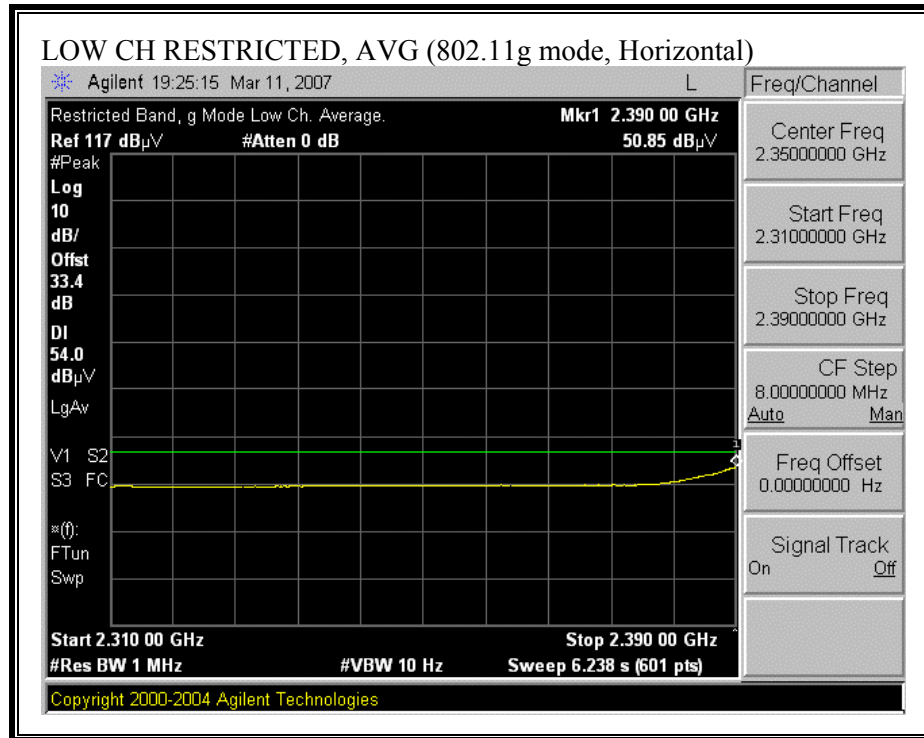


HARMONICS AND SPURIOUS EMISSIONS (b MODE)

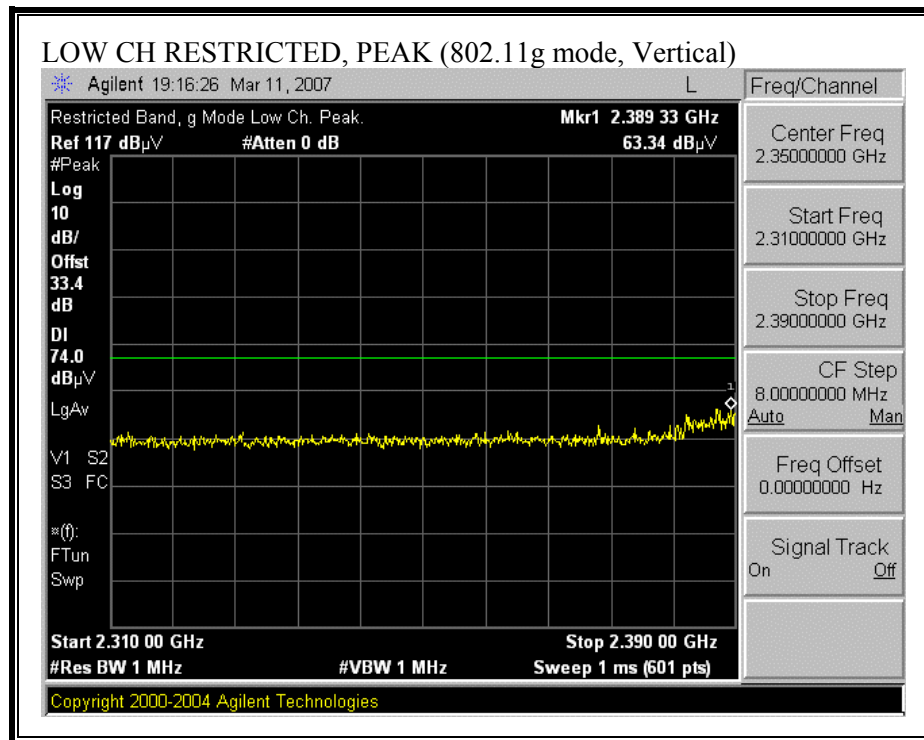
High Frequency Measurement																
Compliance Certification Services, Fremont Chamber A																
Company:		Intel														
Project #:		07U10903														
Date:		03-11-2007, 03-12-2007														
Test Engineer:		Mengsitu Mekuria, Frank Ibrahim														
Configuration:		Stand Alone EUT														
Mode of operation:		Transmitting in 11b Mode, 2.4GHz Band														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T119; S/N: 29301 @3m			T144 Miteq 3008A00931									FCC 15.205				
Hi Frequency Cables																
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter		Peak Measurements		
						Gordon 203134001			HPF_2.7GHz					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 Ch																
4.824	3.0	50.9	48.1	33.7	6.9	-36.5	0.0	0.5	55.5	52.7	74	54	-18.5	-1.3	V	
4.824	3.0	20.9	13.7	33.3	6.9	0.0	0.0	0.0	61.1	53.9	74	54	-12.9	-0.1	H	
Mid Ch																
4.874	3.0	49.5	45.9	33.7	6.9	-36.5	0.0	0.5	54.2	50.6	74	54	-19.8	-3.4	V	
7.311	3.0	45.2	40.0	35.2	8.4	-36.2	0.0	0.5	53.0	47.8	74	54	-21.0	-6.2	V	
12.185	3.0	41.6	30.1	37.4	12.2	-35.4	0.0	0.8	56.5	45.0	74	54	-17.5	-9.0	V	
4.874	3.0	50.7	48.2	33.7	6.9	-36.5	0.0	0.5	55.4	52.9	74	54	-18.6	-1.1	H	
7.311	3.0	44.1	34.2	35.2	8.4	-36.2	0.0	0.5	52.0	42.1	74	54	-22.0	-11.9	H	
High Ch																
4.924	3.0	18.2	9.5	33.4	7.0	0.0	0.0	0.0	58.6	49.9	74	54	-15.4	-4.1	V	
7.386	3.0	44.3	35.3	35.2	8.4	-36.2	0.0	0.5	52.2	43.2	74	54	-21.8	-10.8	V	
12.310	3.0	24.6	32.8	37.4	12.2	-35.4	0.0	0.8	39.5	47.7	74	54	-34.5	-6.3	V	
4.924	3.0	19.8	11.1	33.4	7.0	0.0	0.0	0.0	60.2	51.5	74	54	-13.8	-2.5	H	
7.386	3.0	45.3	36.9	35.2	8.4	-36.2	0.0	0.5	53.2	44.8	74	54	-20.8	-9.2	H	
12.310	3.0	41.7	29.4	37.4	12.2	-35.4	0.0	0.8	56.7	44.4	74	54	-17.3	-9.6	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									

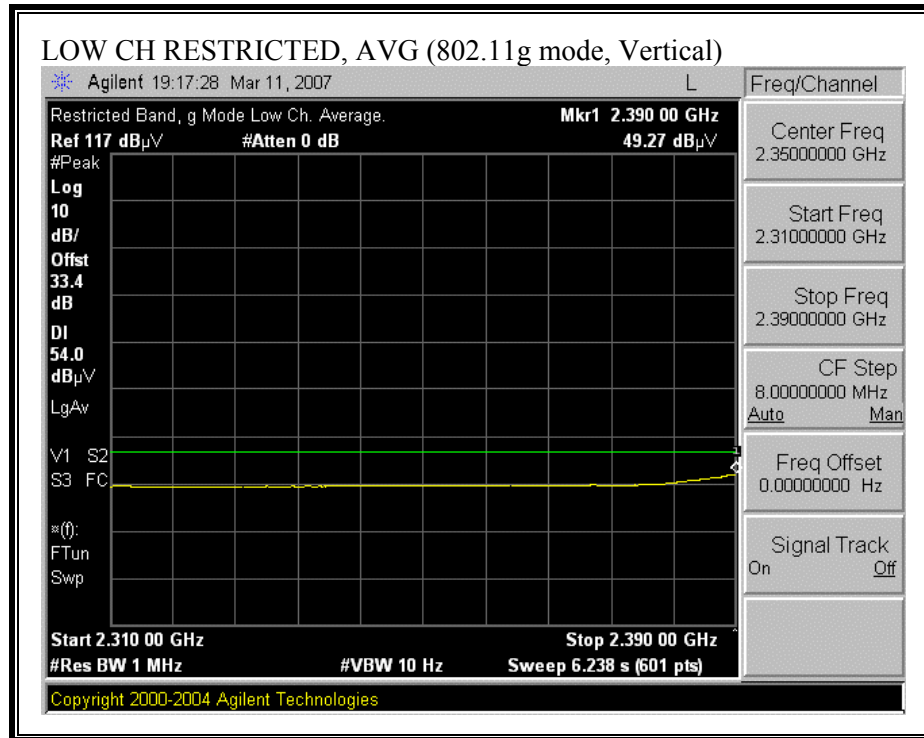
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)



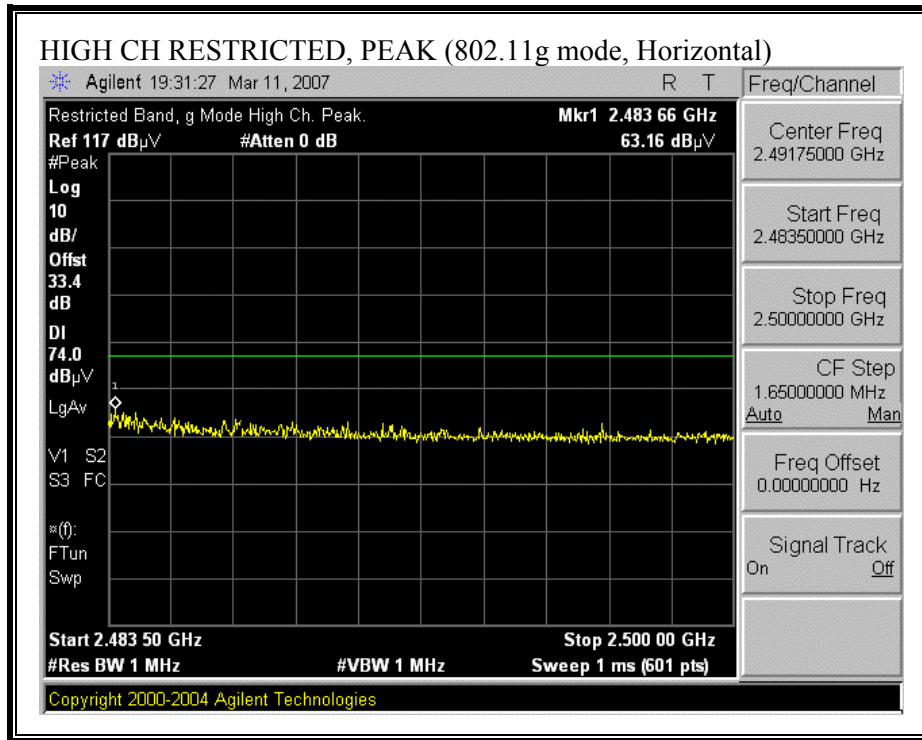


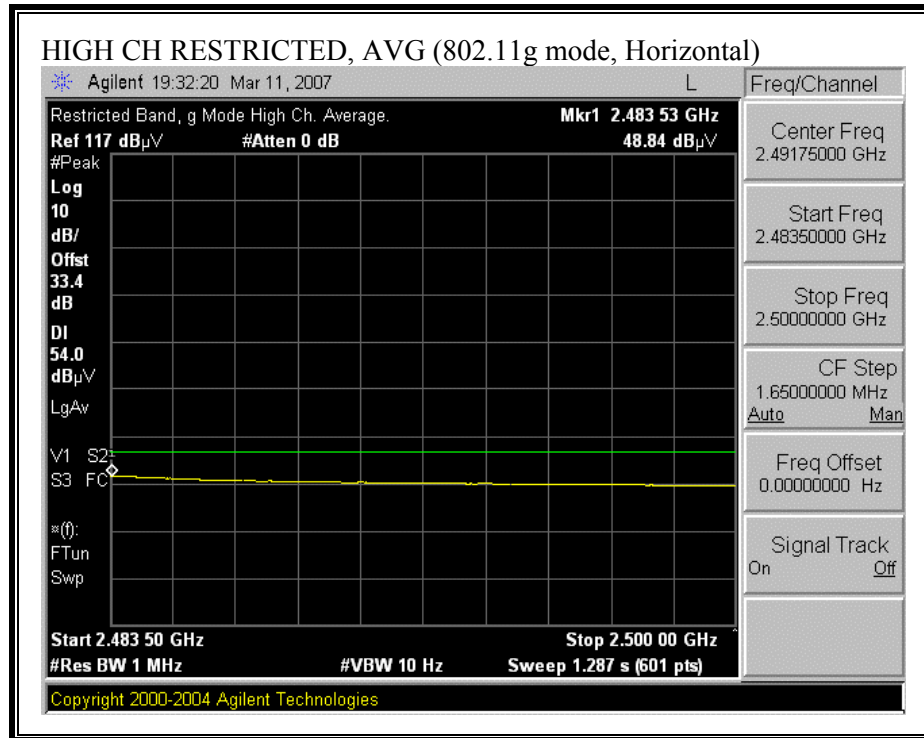
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)



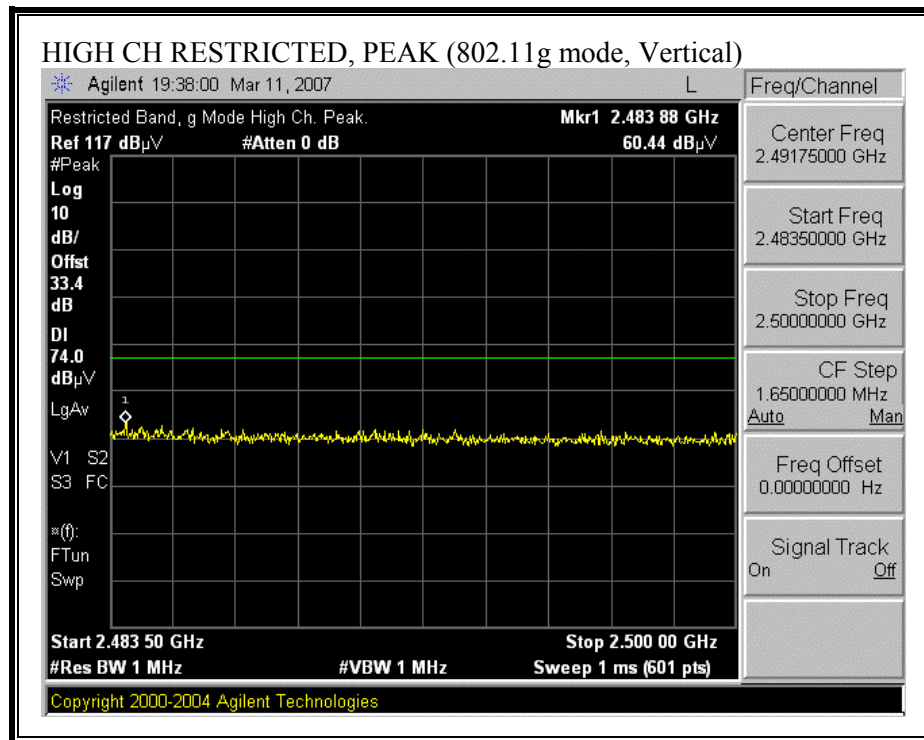


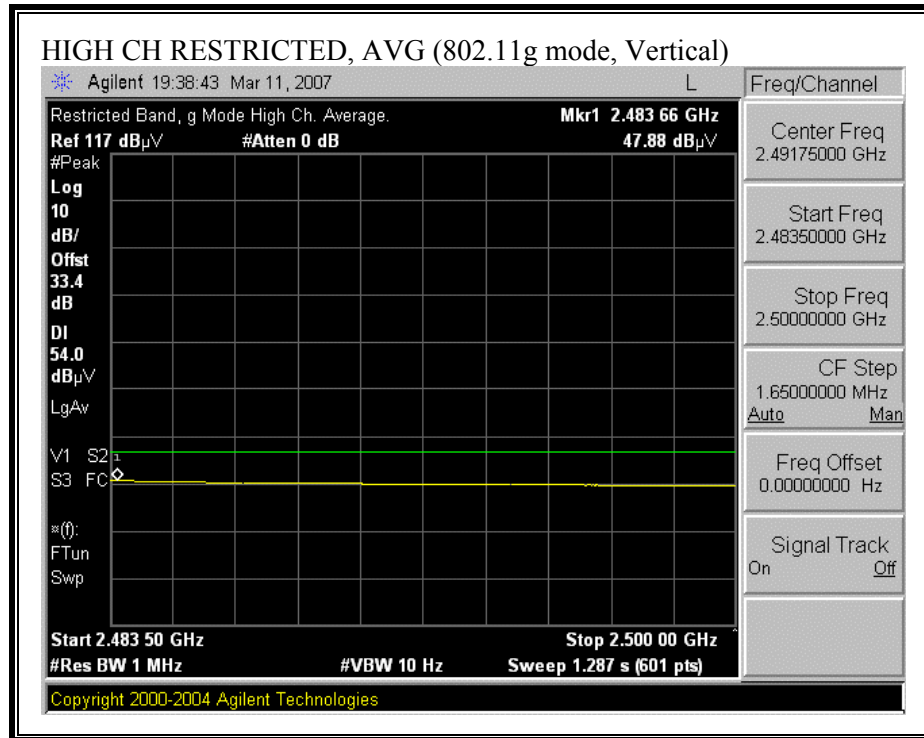
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (g MODE)

High Frequency Measurement																																														
Compliance Certification Services, Fremont Chamber A																																														
Company:		Intel																																												
Project #:		07U10903																																												
Date:		03/11/07																																												
Test Engineer:		Mengsitu Mekuria																																												
Configuration:		EUT Only																																												
Mode of Operation:		Transmitting in 11g Mode, 2.4GHz Band																																												
Test Equipment:																																														
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																		
T119; S/N: 29301 @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																															
						Gordon 203134001			HPF_2.7GHz																																					
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)																															
Low Ch																																														
4.824	3.0	49.6	35.5	33.7	6.9	-36.5	0.0	0.5	54.2	40.1	74	54	-19.8	-13.9	V																															
4.824	3.0	46.0	32.8	33.7	6.9	-36.5	0.0	0.5	50.7	37.4	74	54	-23.3	-16.6	H																															
Mid Ch																																														
4.874	3.0	51.4	38.1	33.7	6.9	-36.5	0.0	0.5	56.1	42.8	74	54	-17.9	-11.2	V																															
7.311	3.0	44.1	31.7	35.2	8.4	-36.2	0.0	0.5	52.0	39.6	74	54	-22.0	-14.4	V																															
4.874	3.0	52.8	39.4	33.7	6.9	-36.5	0.0	0.5	57.5	44.1	74	54	-16.5	-9.9	H																															
7.311	3.0	49.0	34.7	35.2	8.4	-36.2	0.0	0.5	56.8	42.5	74	54	-17.2	-11.5	H																															
High Ch																																														
4.924	3.0	49.4	35.2	33.8	7.0	-36.5	0.0	0.5	54.3	40.0	74	54	-19.7	-14.0	V																															
7.386	3.0	42.5	29.6	35.2	8.4	-36.2	0.0	0.5	50.4	37.5	74	54	-23.6	-16.5	V																															
4.924	3.0	50.5	36.8	33.8	7.0	-36.5	0.0	0.5	55.3	41.6	74	54	-18.7	-12.4	H																															
7.386	3.0	44.1	30.4	35.2	8.4	-36.2	0.0	0.5	52.0	38.3	74	54	-22.0	-15.7	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																																											

7.3.3. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND

HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE)

High Frequency Measurement																																													
Compliance Certification Services, Fremont Chamber A																																													
Company:		Intel																																											
Project #:		07U10903																																											
Date:		03/11/07																																											
Test Engineer:		Mengsitu Mekuria																																											
Configuration:		EUT Only																																											
Mode:		Transmitting in 11a Mode, 5.8GHz Band																																											
Test Equipment:																																													
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit																																					
T119; S/N: 29301 @3m		T144 Miteq 3008A00931		T88 Miteq 26-40GHz		T89; ARA 18-26GHz; S/N:1049		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																																			
				Gordon 203134001		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)																														
Low Ch 5745Mhz																																													
11.490	1.0	42.0	30.2	37.2	11.6	-35.9	-9.5	0.0	45.4	33.6	74	54	-28.6	-20.4	V																														
11.490	1.0	49.1	39.2	37.2	11.6	-35.9	-9.5	0.7	53.2	43.3	74	54	-20.8	-10.7	H																														
Mid Ch 5785Mhz																																													
11.570	1.0	41.0	29.0	37.2	11.7	-35.8	-9.5	0.7	45.3	33.2	74	54	-28.7	-20.8	V																														
11.570	1.0	45.2	33.8	37.2	11.7	-35.8	-9.5	0.7	49.5	38.1	74	54	-24.5	-15.9	H																														
High Ch 5825MHz																																													
11.650	1.0	47.4	33.0	37.2	11.8	-35.7	-9.5	0.7	51.9	37.4	74	54	-22.1	-16.6	V																														
11.650	1.0	52.8	37.3	37.2	11.8	-35.7	-9.5	0.7	57.3	41.7	74	54	-16.7	-12.3	H																														
<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																																										

7.3.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

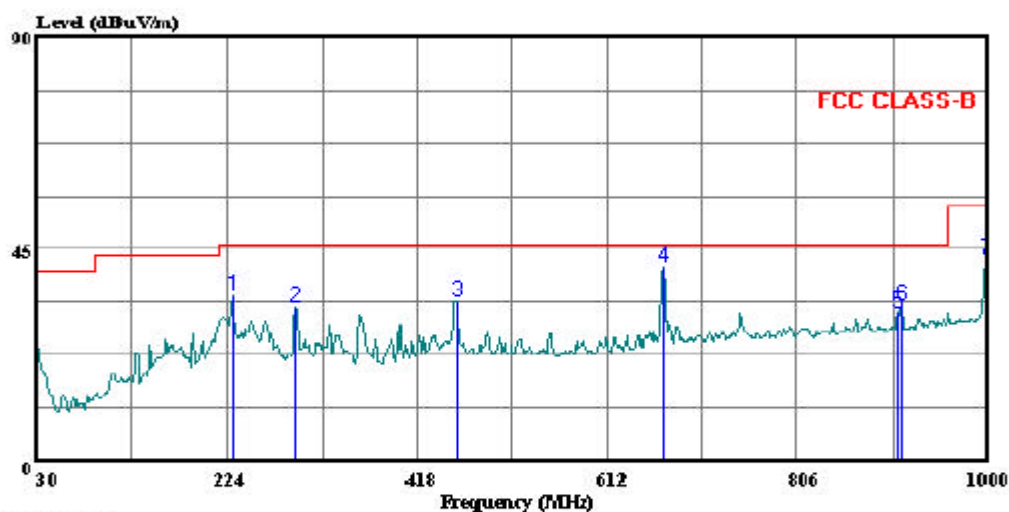
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1052
Fax: (510) 661-0888

Data#: 2 File#: 07U10903emi.EMI Date: 03-06-2007 Time: 19:25:01



(Auxiliary ATC)

Trace: 1

Ref Trace:

Condition: FCC CLASS-B 3m A-5M CHAMBER 012007 HORIZONTAL
Test Operator: : Mengistu Mekuria
Company: : Intel
Project #: : 07U10903
Configuration: : EUT Alone
Mode of Operation: : Tx (Worst Case)
Target: : FCC Class B

HORIZONTAL DATA

	Freq	Read Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	230.790	53.50	11.65	1.60	31.65	35.10	46.00	-10.90	Peak
2	293.840	48.59	13.72	1.84	31.54	32.61	46.00	-13.39	Peak
3	458.740	45.84	17.22	2.32	31.63	33.75	46.00	-12.25	Peak
4	669.230	50.00	20.18	2.89	31.92	41.15	46.00	-4.85	Peak
5	906.880	36.43	22.81	3.43	31.12	31.55	46.00	-14.45	Peak
6	911.730	38.11	22.85	3.44	31.13	33.27	46.00	-12.73	Peak
7	997.090	45.56	23.64	3.58	30.08	42.70	54.00	-11.30	Peak

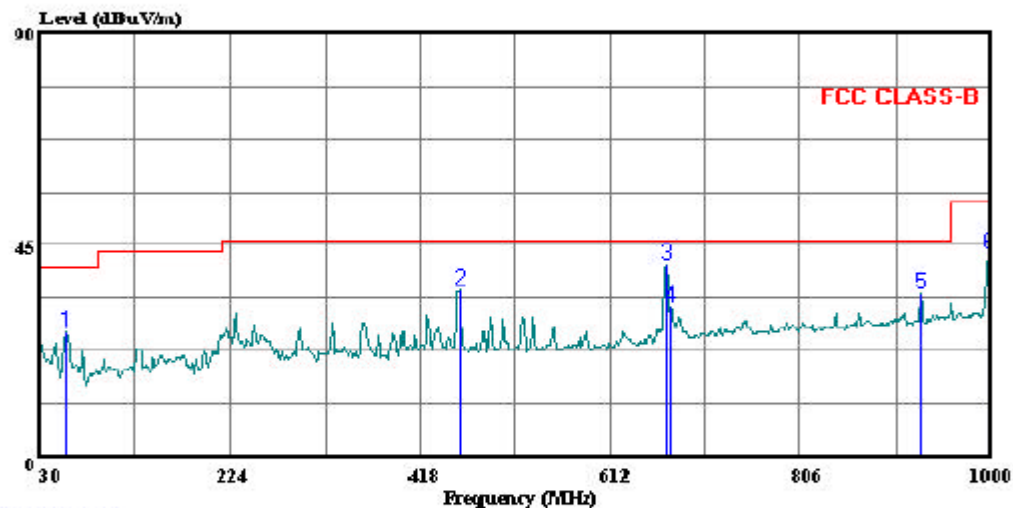
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1052
Fax: (510) 661-0888

Data#: 4 File#: 07U10903emi.EMI Date: 03-06-2007 Time: 19:42:42



(Auxiliary ATC)

Trace: 3

Ref Trace:

Condition: FCC CLASS-B 3m A-5M CHAMBER 012007 VERTICAL
Test Operator: : Mengistu Mekuria
Company: : Intel
Project #: : 07U10903
Configuration: : EUT Alone
Mode of Operation: : Tx (Worst Case)
Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	58.130	49.66	7.99	0.79	31.79	26.65	40.00	-13.36	Peak
2	458.740	47.45	17.22	2.32	31.63	35.36	46.00	-10.64	Peak
3	669.230	49.63	20.18	2.89	31.92	40.78	46.00	-5.22	Peak
4	674.080	40.80	20.25	2.90	32.03	31.92	46.00	-14.08	Peak
5	929.190	39.18	23.02	3.53	30.96	34.77	46.00	-11.23	Peak
6	997.090	45.97	23.64	3.58	30.08	43.11	54.00	-10.89	Peak

7.4. 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

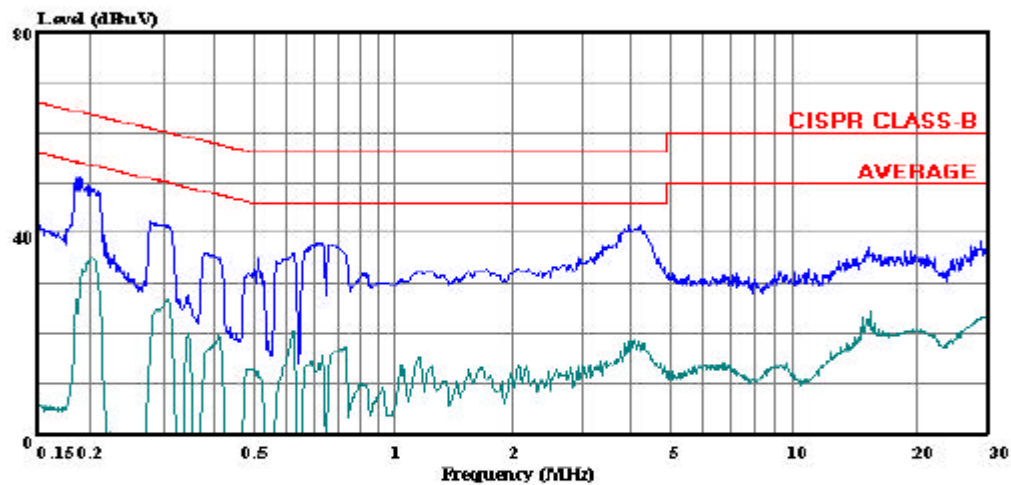
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.19	51.24	51.24	--	0.00	64.08	54.08	-12.84	-2.84	L1
0.28	42.12	42.12	--	0.00	60.76	50.76	-18.64	-8.64	L1
4.05	41.70	41.70	--	0.00	56.00	46.00	-14.30	-4.30	L1
0.19	53.87	35.62	--	0.00	64.21	54.21	-28.59	-18.59	L2
0.28	44.18	44.18	--	0.00	60.73	50.73	-16.55	-6.55	L2
4.27	42.84	42.84	--	0.00	56.00	46.00	-13.16	-3.16	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#: 35 File#: 07U10903LC.EMI Date: 03-06-2007 Time: 23:55:29



Trace: 33

Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Mengistu Mekuria
Project #: : 07U10903
Company: : Intel
EUT: : 802.11a/b/g card installed in Laptop
Configuration: : EUT Alone
Mode of Operation: : Tx g mode
Standard: : FCC Part 15, Class B
: 115VAC/60HZ
: L1: Peak (Green), AVG (Blue)

LINE 2 RESULTS

