

FCC CFR47 PART 15 SUBPART E INDUSTRY CANADA RSS-210 ISSUE 7 CLASS II PERMISSIVE CHANGE CERTIFICATION TEST REPORT

FOR

INTEL WIFI LINK 5300 SERIES

FCC MODEL: 533AN_MMW IC MODEL: 533ANMU

FCC ID: PD9533ANMU IC: 1000M-533ANMU

REPORT NUMBER: 08U11946-2A

ISSUE DATE: NOVEMBER 7, 2008

Prepared for INTEL CORPORATION 2111 N.E. 25th AVE HILLSBORO, OR 97124-5961

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(R)

NVLAP LAB CODE 200065-0

Revision History

Rev.	lssue Date	Revisions	Revised By
	09/29/08	Initial Issue	T. Chan
A	11/07/08	Added model numbers to section 5.3	A. Zaffar

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1. ATTESTATION OF TEST RESULTS

	APPLICABLE STANDARDS
DATE TESTED:	JULY 02-14, and SEPTEMBER 27, 2008
SERIAL NUMBER:	14" LAPTOP (PK292009L0081500085); 15" LAPTOP (PK292009L0081500071)
IC MODEL:	533ANMU
FCC MODEL:	533AN_MMW
EUT DESCRIPTION:	INTEL WIFI LINK 5300 SERIES
COMPANY NAME:	INTEL CORPORATION 2111 NE 25TH AVENUE HILLSBORO, OREGON 97124, USA

APPLICABLE STANDARDS						
STANDARD	TEST RESULTS					
CFR 47 Part 15 Subpart E	Pass					
INDUSTRY CANADA RSS-210 Issue 7 Annex 9	Pass					
INDUSTRY CANADA 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 indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of 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:

THU CHAN EMC SUPERVISOR COMPLIANCE CERTIFICATION SERVICES

Vallian Zhuay

WILLIAM ZHUANG EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES

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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 <u>http://www.ccsemc.com</u>.

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%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11n 3x3 Intel WiFI Link 5300 Series. The radio module is manufactured by Intel Corporation.

5.2. MAXIMUM OUTPUT POWER

The test measurement passed within \pm 0.5dBm of the original output power.

5.3. DESCRIPTION OF CLASS II CHANGE

The change filed under this application is added PIFA antennas with 3x3 Module inside Portable Laptop (14 inch/Lenovo 3000 G430 and 15inch/Lenovo 3000 G530).

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of 3.46 dBi for 2.4GHZ Band, 3.3 dBi for 5150-5350MHz band, 2.75 dBi for 5470-5725MHz band, and 2.31 dBi for 5.725 – 5850MHz band.

5.5. SOFTWARE AND FIRMWARE

The EUT test utility software used during testing was CRTU version 5.0.62.0

5.6. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power and less marginal from the previous table of summary results.

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST							
Description	Description Manufacturer Model Serial Number FCC ID						
14" Laptop	Lenovo	Lenovo 3000 G430	NA	DoC			
15" Laptop	Lenovo	Lenovo 3000 G530	NA	DoC			
AC Adapter	Lenovo	ADP-65YBB	36-001309-A01-	DoC			

I/O CABLES

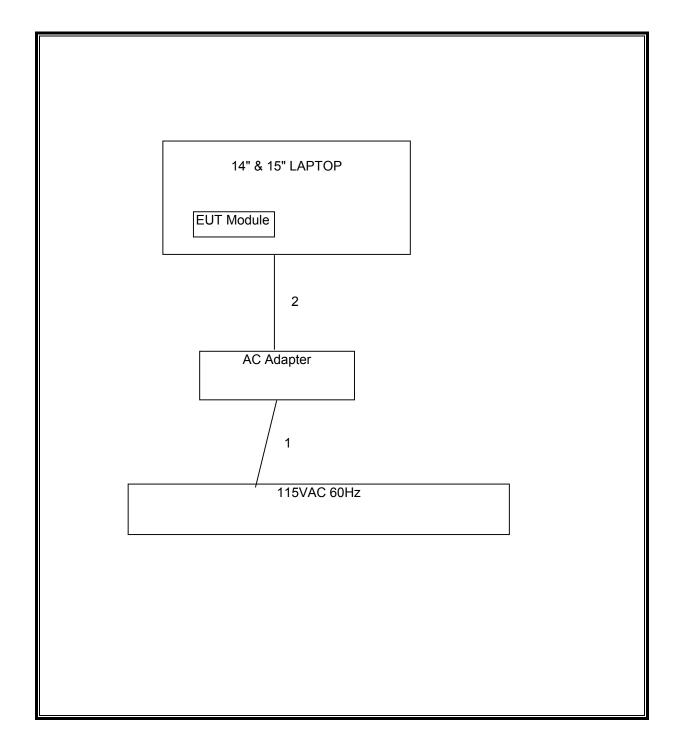
	I/O CABLE LIST								
Cable No.	Port	# of Identica Ports	Connector Type	Cable Type	Cable Length	Remarks			
1	AC	1	US 115V	Un-shielded	2m	N/A			
2	DC	1	DC	Un-shielded	2m	N/A			

TEST SETUP

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

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SETUP DIAGRAM FOR TESTS



COMPLIANCE CERTIFICATION SERVICES FORM NO: CCSUP4031B 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of CCS.

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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	
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	5/2/2006	3/3/2009	
Peak Power Meter	Agilent / HP	E4416A	C00963	2/14/2006	12/2/2008	
Power Senser	Agilent	E9327A	C00964	2/14/2006	12/2/2008	
Antenna, Horn, 18 GHz	EMCO	3115	C00872	4/15/2007	4/15/2009	
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	8/3/2007	9/27/2008	
EMI Receiver, 2.9 GHz	Agilent / HP	8542E	C00957	2/6/2007	6/12/2009	
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	2/6/2007	6/12/2009	
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	1/0/1900	2/11/2009	
Preamplifier, 1300 MHz	Agilent / HP	8447D	NA	5/9/2007	5/9/2009	
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	10/16/2006	1/27/2009	
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	9/15/2006	10/25/2008	
7.6 GHz High Pass Filter	Micro Tronics	HPM13350	N/A	N/A	N/A	
5.75 - 5.8 Reject Filter	Micro Tronics	BRC13192	N⁄A	N/A	N/A	

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7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

<u>LIMITS</u>

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 each appplicable 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 (14 INCHES LAPTOP)

7.2.1. TRANSMITTER ABOVE 1 GHz FOR 802.11a MODE IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL), CHAIN C

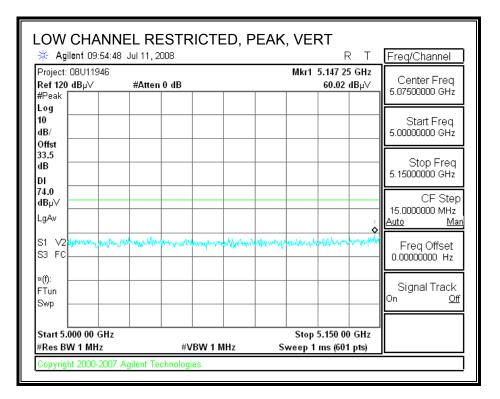
Agilent 09:59:00			Mind 4	R T 5.137 50 GHz	Freq/Channe
oject: 08U11946 ≇ f 120 dB µ∨ Peak	#Atten 0 dB			58.72 dBµ∀	Center Fre 5.07500000 GH
9 8/					Start Fre 5.0000000 GH
.5					Stop Fre 5.1500000 GH
.0 ₿µ√ Av					CF St 15.0000000 MH
	all and a for the second	mandrahapenela	washing and and a	ı hallanda yaşıradır. Alanı yaşıradır.	<u>Auto</u> Freq Offse 0.00000000 H
): i'un vp					Signal Trac On
art 5.000 00 GHz tes BW 1 MHz	#VBW	1 MHz	•	5.150 00 GHz ms (601 pts)	

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	11,2008	RT	Freq/Channel
#Peak	Atten 0 dB	Mkr1 5.150 00 GHz 47.22 dBµ∨	Center Freq 5.07500000 GHz
Log 10 dB/ Offst			Start Freq 5.0000000 GHz
33.5 dB DI			Stop Freq 5.1500000 GHz
54.0 dBµ∨			CF Step 15.000000 MHz
LgAv S1 V2 S3 FC			Auto Man Freq Offset 0.0000000 Hz
×(f): FTun Swp			Signal Track On <u>Off</u>
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 5.150 00 GHz Sweep 11.7 s (601 pts)	

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL), CHAIN C



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		ED, AVG, VERT	Б т	
🔆 Agilent 09:55:4	48 Jul 11, 2008		RΤ	Freq/Channel
Project: 08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB		150 00 GHz I8.25 dBµ∨	Center Freq 5.07500000 GHz
Log 10 dB/ Offst				Start Freq 5.0000000 GHz
33.5 dB				Stop Freq 5.1500000 GHz
54.0 dBµ∀				CF Step 15.000000 MHz
LgAv				<u>Auto Man</u>
S1 V2 S3 FC				Freq Offset 0.00000000 Hz
×(f): FTun Swp				Signal Track ^{On <u>Off</u>}
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10		150 00 GHz	
	7 Agilent Technologies	•	· · /	

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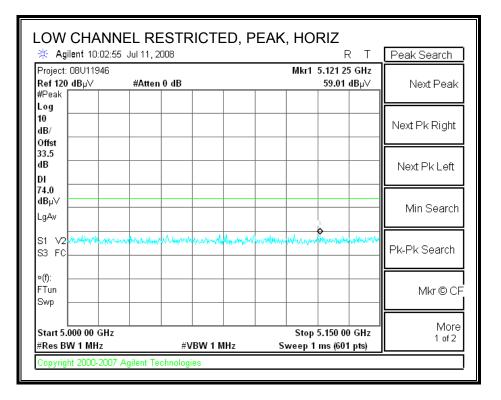
HARMONICS AND SPURIOUS EMISSIONS

	uipmen orn 1.	18GHz	Pre-ar	nplifer	1-26GH	z	Pre-am	plifer	26-40GH	z	н	orn > 18	GHz		Limit
	5/N: 223			8449B		•				•				-	FCC 15.205
	quency Ca 2 foot			footca	able		121	foot c	able		HPF	B	eject Filte	Peal	. Measurements
	unh 1770		•			•	C-5m C						_002	RB Avera	W=VBW=1MHz ge Measurements 1MHz ; VBW=10Hz
f ;Hz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m			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)
			Hz, Chain C												(
540 540	3.0 3.0	41.7 42.1	29.5 29.4	38.0 38.0		32.2 32.2	0.0 0.0	0.0 0.0	48.2 48.6	36.0 35.9	74 74	54 54	-25.8 -25.4	-18.0 -18.1	V H
7. 4.12.	f Dist	Measureme Distance to Analyzer R Antenna Fa Cable Loss	eading actor	7	D Av Pe		Average	Correc Field S d Peak	ct to 3 mete Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin vs	Field Strengt d Strength L . Average L . Peak Limit	imit imit
					п.		rugn ras	s ruter							

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7.2.2. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL), CHAIN C

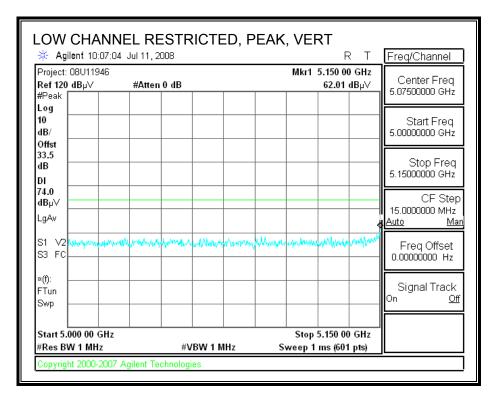


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Agilent 10:03:		ED, AVG, HORIZ	Peak Search
Project: 08U11946 Ref 120 dB µ∀ #Peak	#Atten 0 dB	Mkr1 5.150 00 GH: 47.41 dBµ∖	
Log 10 dB/ Offst			Next Pk Right
dB			Next Pk Left
54.0 dBµ∨ LgAv			Min Search
S1 V2 S3 FC			Pk-Pk Search
×(f): FTun Swp			Mkr © CF
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10	Stop 5.150 00 GH: Hz Sweep 11.7 s (601 pts)	More 1 of 2

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL), CHAIN C



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		, AVG, VERI R T	Freq/Channel
Project: 08∪11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB	Mkr1 5.150 00 GHz 48.12 dBµ∀	Center Freq 5.07500000 GHz
Log 10 dB/ Offst			Start Freq 5.0000000 GHz
33.5 dB DI			Stop Freq 5.1500000 GHz
54.0 dBμV			CF Step 15.000000 MHz
S1 V2			<u>Auto Man</u> Freq Offset 0.00000000 Hz
*(f): FTun Swp			Signal Track ^{On <u>Off</u>}
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 5.150 00 GHz Sweep 11.7 s (601 pts)	

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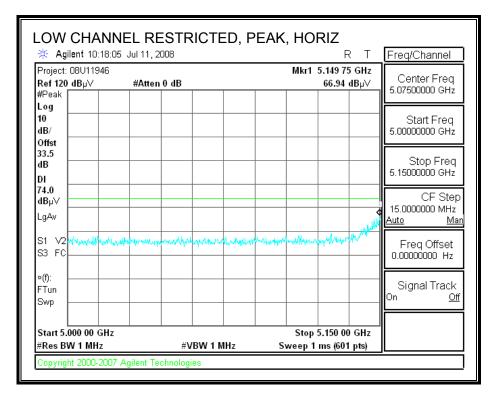
HARMONICS AND SPURIOUS EMISSIONS

$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Horn 1-18GHz Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Limit Too; S.N: 2238 @3m T34 HP 8449B T34 HP 8449B Taget HP requency Cables FCC 15.205 FCC 15.205 Pre-amplifer 2 foot cable 3 foot cable 12 foot cable Pre-amplifer Pre	onfigur ode: 5																
T60; S/N: 2238 @3m T34 HP 8449B FCC 15.205 FIFrequency Cables Peak Measurements Thanh 177079008 Peak Measurements The frequency Cables Peak Measurements The frequency Cable Peak Measurements Thanh 177079008 Peak Measurements Toto cable HPF Reject Filter Peak Measurements Thanh 177079008 Peak Masurements RBW=VBW=10HIZ Toto cable C-5m Chamber Peak Marg Measurements RBW=VBW=10HIZ TO Dot cable C2 monomer Peak Avg Pk Lim Avg Mar Avg Mar Notes GHz (m) Bud Mar Avg Mar Notes GHZ Peak Avg AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Mar Marg Notes GHZ (m) Avg Mar Avg Mar Notes GHZ OD OD 48.4 36.1 74 54 -25.6 <th col<="" th=""><th>T60: S/N: 2238 @3m , T34 HP 8449B , T34 HP 8449B , T54 HP 8449B H</th><th></th><th></th><th>-</th><th>Pre-a</th><th>mplifer</th><th>1-260</th><th>GHz</th><th>Pre-am</th><th>plifer</th><th>26-40GH</th><th>Iz</th><th>н</th><th>orn > 18</th><th>GHz</th><th></th><th>Limit</th></th>	<th>T60: S/N: 2238 @3m , T34 HP 8449B , T34 HP 8449B , T54 HP 8449B H</th> <th></th> <th></th> <th>-</th> <th>Pre-a</th> <th>mplifer</th> <th>1-260</th> <th>GHz</th> <th>Pre-am</th> <th>plifer</th> <th>26-40GH</th> <th>Iz</th> <th>н</th> <th>orn > 18</th> <th>GHz</th> <th></th> <th>Limit</th>	T60: S/N: 2238 @3m , T34 HP 8449B , T34 HP 8449B , T54 HP 8449B H			-	Pre-a	mplifer	1-260	GHz	Pre-am	plifer	26-40GH	Iz	н	orn > 18	GHz		Limit
2 foot cable 3 foot cable 12 foot cable HPF Reject Filter Peak Measurements RBW=VBW=1MHz, Average Measurements RBW=1MHz, VBW=10H f Dist Read Pk Read Avg. dBuV AF CL Amp D Corr Fitr Peak Avg Pk Lin Average Measurements RBW=1MHz, VBW=10H f Dist Read Pk Read Avg. dBuV AF CL Amp D Corr Fitr Peak Avg Pk Lin Avg Lin Pk Mar Avg Mar Notes GHz (m) dBuV dBuV dB dB dB dB dB dB dB dVm average Notes GHz (m) dBuV dBuV dB dB dB dB dB dB dB dVm dB dWm Notes GHz (m) dBuV dB dB dB dB dB dB dWm Notes dWm dWm dWm Mag Avg Mar Notes dWm dWm dWm dWm dWm dWm dWm dWm dWm <th>2 foot cable 3 foot cable 12 foot cable HPF Reject Filter Peak Measurements RBW=VBW=1MHz 1 <t< th=""><th>T60; S</th><th>/N: 223</th><th>3 @3m</th><th></th><th>-</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>-</th><th>FCC 15.205</th></t<></th>	2 foot cable 3 foot cable 12 foot cable HPF Reject Filter Peak Measurements RBW=VBW=1MHz 1 <t< th=""><th>T60; S</th><th>/N: 223</th><th>3 @3m</th><th></th><th>-</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>-</th><th>FCC 15.205</th></t<>	T60; S	/N: 223	3 @3m		-										-	FCC 15.205	
f Dist Read Pk Read Avg. dBuV AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes GHz (m) dBuV dBuV dB'n dB dB dB dB dB dB dB dB dB'nV/m dBuV/m dBuV/m dB'nV/m	f Dist Read Pk Read Avg. AF CL Amp D Corr Flt Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes GHz (m) dBuV dBuV dB dB dB dB dB dB V/m dBuV/m dBuV/m dBuV/m dBuV/m dB dB (V/H) 1 <th></th> <th></th> <th></th> <th>3</th> <th>3 foot c</th> <th>able</th> <th></th> <th>12</th> <th>foot c</th> <th>able</th> <th></th> <th>HPF</th> <th>R</th> <th>eject Filto</th> <th></th> <th></th>				3	3 foot c	able		12	foot c	able		HPF	R	eject Filto			
GHz (m) dBuV dBuV dB dV/m dBuV/m dBuV/m dB dB (V/H) T2020 Mode Low Ch. 5180MHz, Chain C Image: Chain C	GHz (m) dBuV dB/V dB/dB dB dB dB dB dB dV/m dBuV/m dB dB dB (V/H) 1	Tha	nh 1770	79008	•			•	C-5m C	Chamb (er 🔽			▼ R	_002			
5540 30 41.9 29.6 38.0 0.8 -32.2 0.0 0.0 48.4 36.1 74 54 -25.6 -17.9 V 5540 30 42.2 29.5 38.0 0.8 -32.2 0.0 0.0 48.8 36.0 74 54 -25.2 -18.0 H 1	540 30 41.9 29.6 38.0 0.8 -32.2 0.0 0.0 48.4 36.1 74 54 -25.6 -17.9 V 540 3.0 42.2 29.5 38.0 0.8 -32.2 0.0 0.0 48.8 36.0 74 54 -25.6 -17.9 V 540 3.0 42.2 29.5 38.0 0.8 -32.2 0.0 0.0 48.8 36.0 74 54 -25.2 -18.0 H v.4127					1		-	1	1	1				1			
rv. 4.12.7 f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor Peak Calculated Peak Field Strength Pied	rv. 4.12.7 f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit	.540	3.0	41.9	29.6	38.0												
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	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	. 24U	3.0	42.2	293	38.0	0.8	-32.2	0.0	0.0	48.8	2010	74	24	-20.2	-18.0	H	
CL Cable Loss HPF High Pass Filter	CL Cable Loss HPF High Pass Filter		Dist Read AF	Distance to Analyzer R Antenna F	Antenna leading actor	у		D Corr Avg Peak	Distance Average Calculate	Corre Field S ed Peal	Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin v:	d Strength L s. Average L	imit imit	
			CL	Cable Los	5			HPF	High Pas	s Filter								

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7.2.3. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL), CHAIN A

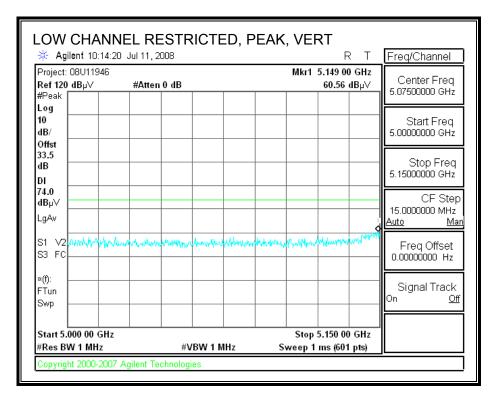


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OW CHANN	JEL RESTRICTED 2 Jul 11, 2008	D, AVG, HORIZ	Freq/Channel
Project: 08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB	Mkr1 5.150 00 GHz 52.46 dBµ∨	Center Freq 5.07500000 GHz
Log 10 dB/ Offst			Start Freq 5.0000000 GHz
33.5 dB DI			Stop Freq 5.1500000 GHz
54.0 dBµ∨			CF Step 15.000000 MHz
LgAv			<u>Auto Man</u>
S1 V2 S3 FC			Freq Offset 0.00000000 Hz
×(f): FTun Swp			Signal Track ^{On <u>Off</u>}
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 5.150 00 GHz Sweep 11.7 s (601 pts)	

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL), CHAIN A



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LOW CHANN	EL RESTRICTEI Jul 11, 2008	D, AVG, VERT	Freq/Channel
Project: 08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB	Mkr1 5.150 00 GHz 49.39 dBμ∀	Center Freq 5.07500000 GHz
Log 10 dB/ Offst			Start Freq 5.00000000 GHz
33.5 dB DI			Stop Freq 5.15000000 GHz
54.0 dBµ∨ LgAv			CF Step 15.0000000 MHz
S1 V2			Auto Man Freq Offset 0.00000000 Hz
×(f): FTun Swp			Signal Track On <u>Off</u>
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10 H:	Stop 5.150 00 GHz z Sweep 11.7 s (601 pts)	a de la companya de la compa

Page 24 of 60

HARMONICS AND SPURIOUS EMISSIONS

Complia			Measurem Services, Fr		5m Ch	amber									
Project Date: 7/ Fest En Configu		11946 3 William Zh Laptop star													
	luipmen	_					_								
		18GHz	Pre-ar	nplifer P 8449B		GHz	Pre-am	plifer	26-40GH		H	orn > 180	GHz		Limit
	S/N: 223	•	• 134 H	° 8449B		•				-				•	FCC 13.203
	quency Cal		3	foot c	able		121	foot c	able		HPF	Re	eiect Filte		Measurements
Tha	anh 1770	79008				_	C-5m C	hambo	er _				<u> </u>	RB'	W=VBW=1MHz ge Measurements
Tha	anh 1770	79008	•			•	C-5m C	hambo	er 🗸				002	RB' Avera	W=VBW=1MHz
f	Dist		Read Avg. dBuV	AF dB/m	CL	• Amp dB	C-5m C D Corr dB		Peak	Avg dBuV/m	Pk Lim	• R_	002	RB' Avera	W=VBW=1MHz ge Measurements 1MHz; VBW=10Hz Notes
f GHz	Dist (m)	Read Pk dBuV	-	dB/m		Amp	D Согг	Fltr	Peak	Avg dBuV/m	Pk Lim	• R_	002 Pk Mar	RB [*] Avera RBW=	W=VBW=1MHz ge Measurements 1MHz ; VBW=10Hz
f GHz HT40 N 5.570	Dist (m) /Iode, L 3.0	Read Pk dBuV ow Ch. 519 41.2	dBuV 0MHz, Cha 28.8	dB/m in A, 38.0	dB 0.8	Amp dB -32.2	D Corr dB	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	R_ Avg Lim dBuV/m	002 Pk Mar dB -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz (V/H) V
f GHz HT40 N 15570	Dist (m) /Iode, L	Read Pk dBuV ow Ch. 519	dBuV 0MHz, Cha	dB/m in A,	dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	dBuV/m	Pk Lim dBuV/m	R_ Avg Lim dBuV/m	002 Pk Mar dB	RB [™] Avera RBW= Avg Mar dB	W=VBW=1MHz <u>ge Measurements</u> 1MHz; VBW=10Hz Notes (V/H)
f GHz HT40 N 5570	Dist (m) /Iode, L 3.0	Read Pk dBuV ow Ch. 519 41.2	dBuV 0MHz, Cha 28.8	dB/m in A, 38.0	dB 0.8	Amp dB -32.2	D Corr dB	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	R_ Avg Lim dBuV/m	002 Pk Mar dB -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz (V/H) V
f GHz HT40 N 15570	Dist (m) /Iode, L 3.0	Read Pk dBuV ow Ch. 519 41.2	dBuV 0MHz, Cha 28.8	dB/m in A, 38.0	dB 0.8	Amp dB -32.2	D Corr dB	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	R_ Avg Lim dBuV/m	002 Pk Mar dB -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz (V/H) V
f GHz HT40 N 15570	Dist (m) /Iode, L 3.0	Read Pk dBuV ow Ch. 519 41.2	dBuV 0MHz, Cha 28.8	dB/m in A, 38.0	dB 0.8	Amp dB -32.2	D Corr dB	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	R_ Avg Lim dBuV/m	002 Pk Mar dB -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz (V/H) V
f GHz HT40 N 15570	Dist (m) Jode, L 3.0 3.0	Read Pk dBuV ow Ch. 519 41.2	dBuV 0MHz, Cha 28.8	dB/m in A, 38.0	dB 0.8	Amp dB -32.2	D Corr dB	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	R_ Avg Lim dBuV/m	002 Pk Mar dB -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz (V/H) V
f GHz HT40 N 15570	Dist (m) Jode, L 3.0 3.0	Read Pk dBuV ow Ch. 519 41.2	dBuV 0MHz, Cha 28.8	dB/m in A, 38.0	dB 0.8	Amp dB -32.2	D Corr dB	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	R_ Avg Lim dBuV/m	002 Pk Mar dB -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz (V/H) V
f GHz HT40 N 15570	Dist (m) /Iode, L 3.0 3.0 7	Read Pk dBuV ow Ch. 519 41.2 41.3	dBuV 0MHz, Cha 28.8 28.7	dB/m in A, 38.0 38.0	dB 0.8	Amp dB -32.2 -32.2	D Corr dB 0.0 0.0	Fltr dB 0.0	Peak dBuV/m 47.8	dBuV/m 35.3	Pk Lim dBuV/m 74	Avg Lim dBuV/m 54 54	002 Pk Mar dB -26.2 -26.2	Avera RBW=	W=VBW=1MHz <u>ge Measwements</u> 1MHz ; VBW=10Hz Notes (V/H) V H
f GHz HT40 N 5570	Dist (m) /Iode, L 3.0 3.0 7	Read Pk dBuV ow Ch. 519 41.2 41.3 Measurem	dBuV 0MHz, Cha 28.8 28.7 ent Frequency	dB/m in A, 38.0 38.0	dB 0.8	Amp dB -32.2 -32.2 -32.2 -32.2	D Corr dB 0.0 0.0 Preamp (Fltr dB 0.0 0.0	Peak dBuV/m 47.8 47.8	dBuV/m 35.3 35.3	Pk Lim dBuV/m 74	Avg Lim	002 Pk Mar dB -26.2 -26.2 -26.2	RB ³ Avera RBW= Avg Mar dB - 18.7 - 18.7 - 18.7	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz Notes (V/H) V H h Limit
f GHz HT40 N 5570	Dist (m) Jode, L 3.0 3.0 7	Read Pk dBuV ow Ch. 519 41.2 41.3 Measurement Distance to	dBuV 0MHz, Cha 28.8 28.7 ent Frequenc; Antenna	dB/m in A, 38.0 38.0	dB 0.8	Amp dB -32.2 	D Corr dB 0.0 0.0 0.0 Preamp (Distance	Fltr dB 0.0 0.0 Jain	Peak dBuV/m 47.8 47.8	dBuV/m 35.3 35.3	Pk Lim dBuV/m 74	• R Avg Lim BuV/m 54 54 54 Avg Lim Pk Lim	002 Pk Mar dB -26.2 -26.2 -26.2 Average I Peak Fiel	 RB³ Avera RBW= Avg Mar dB -18.7 -18.7<td>W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz Notes (V/H) V H h Limit imit</td>	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz Notes (V/H) V H h Limit imit
f GHz	Dist (m) Jode, L 3.0 3.0 7	Read Pk dBuV ow Ch. 519 41.2 41.3 Measurem	dBuV 0MHz, Cha 28.8 28.7 ent Frequency Antenna eading	dB/m in A, 38.0 38.0	dB 0.8	Amp dB -32.2 -32.2 -32.2 -32.2	D Corr dB 0.0 0.0 Preamp (Distance Average	Fltr dB 0.0 0.0 Gain Correct	Peak dBuV/m 47.8 47.8	dBuV/m 35.3 35.3 35.3 ers 3 m	Pk Lim dBuV/m 74 74	• R Avg Lim dBuV/m 54 54 54 Avg Lim Pk Lim Avg Mar	002 Pk Mar dB -26.2 -26.2 -26.2 Average I Peak Fiel Margin vs	RB ³ Avera RBW= Avg Mar dB - 18.7 - 18.7 - 18.7	W=VBW=1MHz <u>ge Measurements</u> 1MHz ; VBW=10Hz Notes (V/H) <u>V</u> H h Limit imit

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7.3. TRANSMITTER ABOVE 1 GHz (15 INCHES LAPTOP)

7.3.1. TRANSMITTER ABOVE 1 GHz FOR 802.11a MODE IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL), CHAIN A

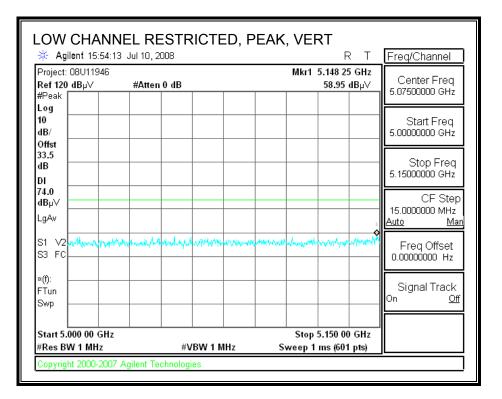
,	39 Jul 10, 2008			R T	Freq/Channel
roject: 08U11946 ef 120 dB µ∨ ⊃eak	#Atten 0 dB		Mkr1 5.149 62.	900 GHz 79 dBµ∨	Center Freq 5.07500000 GHz
og					
) B/					Start Freq 5.0000000 GHz
ffst 3.5 B				_	Stop Freq
					5.15000000 GHz
l.0 Bµ∀					CF Step
βΑν				d	15.0000000 MHz <u>Auto Ma</u>
1 V2 3 FC	everthe provingent the residence	manuple	na hulha power makeur an h	www.	Freq Offset 0.00000000 Hz
f):					
run Mip					Signal Track On <u>Ot</u>
tart 5.000 00 GHz			Stop 5.150	00 GHz	

Page 26 of 60

		ED, AVG, HORIZ	
🔆 Agilent 15:49:0	1 JULIO, 2008		Freq/Channel
Project:08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB	Mkr1 5.150 00 GHz 49.05 dBµ∨	Center Freq 5.07500000 GHz
Log 10 dB/ Offst			Start Freq 5.0000000 GHz
33.5 dB			- Stop Freq 5.15000000 GHz
54.0 dBµ∨			CF Step 15.000000 MHz
LgAv			<u>Auto Man</u>
S1 V2 S3 FC			Freq Offset
×(f): FTun Swp			Signal Track
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10	Stop 5.150 00 GHz Hz Sweep 11.7 s (601 pts)	
	Agilent Technologies		

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



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LOW CHANI		TED, A	VG, VERT	- RT	
	11 Julio, 2000				Freq/Channel
Project: 08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB		Mkr1 5	5.150 00 GHz 47.58 dBµ∨	Center Freq 5.07500000 GHz
Log 10 dB/ Offst					Start Freq 5.00000000 GHz
33.5 dB DI					Stop Freq 5.1500000 GHz
54.0 dBµ∀					CF Step 15.000000 MHz
LgAv					<u>Auto Man</u>
S1 V2 S3 FC					Freq Offset 0.00000000 Hz
×(f): FTun Swp					Signal Track
Start 5.000 00 GHz #Res BW 1 MHz		/ 10 Hz	Stop 5 Sweep 11.7	5.150 00 GHz s (601 pts)	
Copyright 2000-2007	7 Agilent Technologies		•	/	

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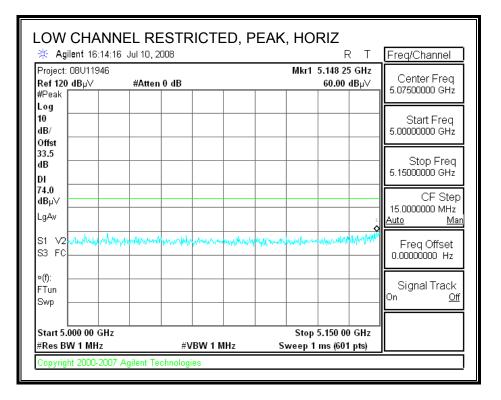
HARMONICS AND SPURIOUS EMISSIONS

Complia	~		y Measuren Services, Fi		5m (1	amher									
Compan Project Date: 7/ Cest En Configu	ny: Inte #: 08U /14/200 ngineer: ration:	l 11946	huang	emont		lander									
est Eq	uipmer	<u>it:</u>													
н	orn 1	18GHz	Pre-ar	nplifer	1-26	GHz	Pre-am	plifer	26-40GH	z	н	orn > 18	GHz		Limit
T60; S	S/N: 223	8 @3m	▼ T34 H	P 8449B		-				-				-	FCC 15.205 🗸
	nh 177(• Read Avg.	ofoot o	cL	Amp	12 C-5m C D Corr			Avg	HPF Pk Lim	• R	002	RBV Averag	<u>Measurements</u> V=VBW=1MHz <u>ze Measurements</u> MHz; VBW=10Hz Notes
t GHz	Dist (m)	dBuV	Read Avg. dBuV	AF dB/m		Amp dB	dB	dB		Avg dBuV/m	1		1	Avg Mar dB	Notes (V/H)
		· · · · · · · · · · · · · · · · · · ·	Hz, Chain A												
5.540 5.540	3.0 3.0	42.9 43.8	29.8 29.9	38.0 38.0	0.8 0.8	-32.2 -32.2	0.0 0.0	0.0 0.0	49.4 50.4	36.3 36.4	74 74	54 54	-24.6 -23.6	-17.7 -17.6	 Н
				1											
	7														
ev. 4.12.															
ev. 4.12.															
ev. 4.12.	f		ent Frequenc	у		Amp	Preamp					Avg Lim	-	Field Strength	
ev. 4.12.	f Dist	Distance to	Antenna	у		D Corr	Distance	Corre	ct to 3 mete			Pk Lim	Peak Fiel	d Strength Li	nit
v. 4.12.	f Dist		Antenna Reading	у		D Corr Avg	Distance Average	Corre Field S	ct to 3 mete Strength @ k Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin vs	0	nit

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7.3.2. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL), CHAIN C

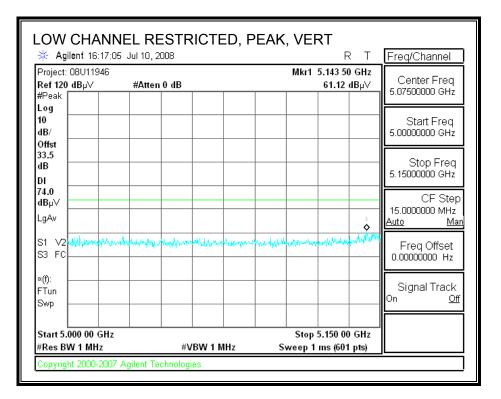


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LOW CHAN	NEL RESTRIC 9 Jul 10, 2008	TED, A	VG, HORI	I Z RT	Freq/Channel
Project: 08∪11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB		Mkr1 5	5.150 00 GHz 48.29 dBµ∀	Center Freq 5.07500000 GHz
Log 10 dB/ Offst					Start Freq 5.00000000 GHz
33.5 dB DI					Stop Freq 5.1500000 GHz
54.0 dBµ∨ LgAv					CF Step 15.000000 MHz <u>Auto Man</u>
S1 V2 S3 FC					Freq Offset
»(f): FTun Swp					Signal Track On <u>Off</u>
Start 5.000 00 GHz #Res BW 1 MHz	#VBW	10 Hz	Stop 5 Sweep 11.7	5.150 00 GHz s (601 pts)	ń
Copyright 2000-2007	Agilent Technologies				

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



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		ED, AVG, VER		
🔆 Agilent 16:18:00	J JULIO, 2008		RT	Freq/Channel
Project: 08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB	Mkr1	5.150 00 GHz 48.20 dBµ∀	Center Freq 5.07500000 GHz
Log 10 dB/ Offst				Start Freq 5.0000000 GHz
33.5 dB				Stop Freq 5.1500000 GHz
54.0 dBµ∀ LgAv				CF Step 15.000000 MHz Auto Man
S1 V2 S3 FC				Freq Offset 0.00000000 Hz
»(f): FTun Swp				Signal Track On <u>Off</u>
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10		5.150 00 GHz 7 s (601 pts)	
Copyright 2000-2007	Agilent Technologies			

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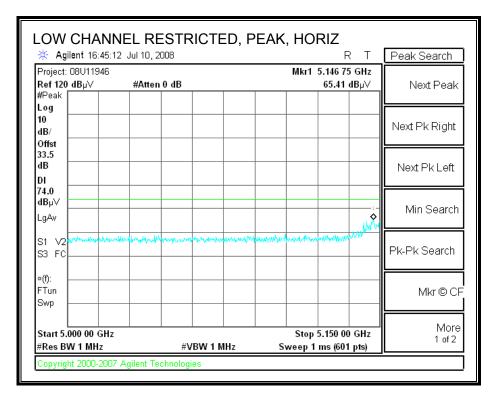
HARMONICS AND SPURIOUS EMISSIONS

	#: 08U 14/2008 gineer: ration: 1 5.2GHz	11946 3 William Zhu Laptop stand Tx On													
Horn 1-18GHz			Pre-an	Pre-amplifer 1-26GHz			Pre-amplifer 26-40GHz			Horn > 18GHz				Limit	
T60; S	/N: 223	3@3m 🚽	T34 HF	9 8449B		-				-				-	FCC 15.205
	2 foot nh 1770		3	foot c	able	•	12 1 C-5m C	foot c hambe			HPF		ject Filte 002	RB	<u>k Measurements</u> W=VBW=1MHz age Measurements =1MHz ; VBW=10Hz
f GHz	Dist (m)	Read Pk I 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	<u> </u>	Pk Mar dB	Avg Mar dB	Notes (V/H)
		ow Ch. 5180			<u>س</u>			ι	ubuv/m	ubu v/m	ubu v/m	and the second s	<u>س</u>		(1/11)
5.540 5.540	3.0 3.0	42.1 42.4	29.8 29.6	38.0 38.0	0.8 0.8	-32.2 -32.2	0.0 0.0	0.0 0.0	48.6 48.9	36.3 36.1	74 74	54 54	-25.4 -25.1	-17.7 -17.9	V H
	f Dist	Measuremen Distance to A Analyzer Rea	Antenna	7		Amp D Corr Avg Peak	Average	Corre Field S	ct to 3 mete Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin vs	Field Strengt d Strength L . Average L . Peak Limit	.imit .imit

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7.3.3. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL), CHAIN A

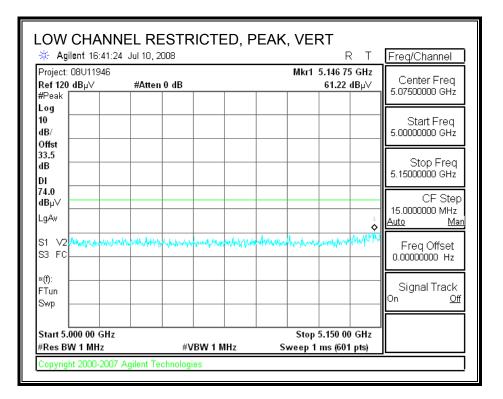


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🔆 Agilent 16:46	NEL RESTRIC	120,7		R T	Peak Search
Project: 08U11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB		Mkr1 5	5.150 00 GHz 51.19 dBµ∨	Next Peak
Log 10 dB/					Next Pk Right
Offst 33.5 dB DI					Next Pk Left
54.0 dBµ∨ LgAv					Min Search
S1 V2 S3 FC					Pk-Pk Search
×(f): FTun Swp					Mkr © CF
Start 5.000 00 GH #Res BW 1 MHz	z #VBW	10 Hz	Stop 5 Sweep 11.7	.150 00 GHz s (601 pts)	More 1 of 2

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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



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LOW CHANNE	EL RESTRICTED Jul 10, 2008	D, AVG, VERT	Freq/Channel
Project: 08∪11946 Ref 120 dB µ∨ #Peak	#Atten 0 dB	Mkr1 5.150 00 GHz 49.20 dBμ∀	Center Freq 5.07500000 GHz
Log 10 dB/ Offst			Start Freq 5.00000000 GHz
33.5 dB DI			Stop Freq 5.15000000 GHz
54.0 dBµ∨			CF Step 15.000000 MHz
LgAv			<u>Auto Man</u>
S1 V2 S3 FC			Freq Offset
×(f): FTun Swp			Signal Track On <u>Off</u>
Start 5.000 00 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 5.150 00 GHz Sweep 11.7 s (601 pts)	

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HARMONICS AND SPURIOUS EMISSIONS

- Compai	ny: Intel	l	Services, Fr	chione	on on	amoer									
	#: 08U /14/200														
		, William Zł	uona												
		Laptop star													
~	5.2 GHz														
est Ec	puipmen	<u>t:</u>													
		18GHz	Draw	nplifer	4.000	211-	Dra and		26-40GH	_		orn > 18(Limit
н	iorn 1-	18GHZ	Pre-ar	npiirer	1-260	JHZ	Pre-am	piirer	26-40GH	z	н	orn > 180	JHZ		
T60;	S/N: 223	8 @3m	T34 H	P 8449B		-				-				-	FCC 15.205
	quency Ca						1								-
- Hi Fre	quency Ca	Dies													
	2 foot	cable	3	foot o	able		121	foot c	able		HPF	Re	ject Filte		<u>k Measurements</u> W=VBW=1MHz
The	anh 1770	79009					C-5m C	hamh	o.r.				002		w=vBw=1MHz ige Measurements
""		15000	•			-		namb	•			• R_	002		1MHz; VBW=10Hz
1		-					1								,
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fltr	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)
		v	0MHz, Cha												
5.570	3.0	41.4	29.2	38.0	0.8	-32.2	0.0	0.0	48.0	35.7	74	54	-26.0	-18.3	<u>v</u>
5.570	3.0	41.5	29.2	38.0	0.8	-32.2	0.0	0.0	48.0	35.8	74	54	-26.0	-18.2	H
		ļ	<u> </u>			ļ			<u> </u>		ļ			<u> </u>	
ev. 4.12	.7														
	_		_				_								
	f		ent Frequency	У		Amp	Preamp (-	-	Field Strengt	
	Dist	Distance to							ct to 3 mete					d Strength L	
		Analyzer R	0			Avg	_		Strength @			-	-	. Average L	
	AF	Antenna Fa				Peak			c Field Stre	ngth		Pk Mar	Margin vs	. Peak Limit	;
	CL	Cable Loss				HPF	High Pas	e Filter							

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7.4. RECEIVER ABOVE 1 GHz

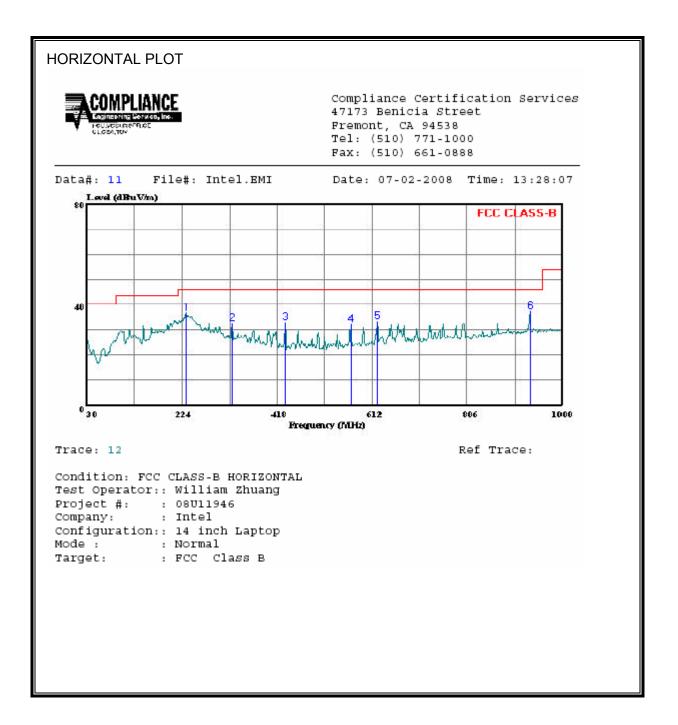
Note: No emissions were found within above 1GHz of 20dB below the system noise.

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7.5. WORST-CASE BELOW 1 GHz

14 NCHES LAPTOP

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



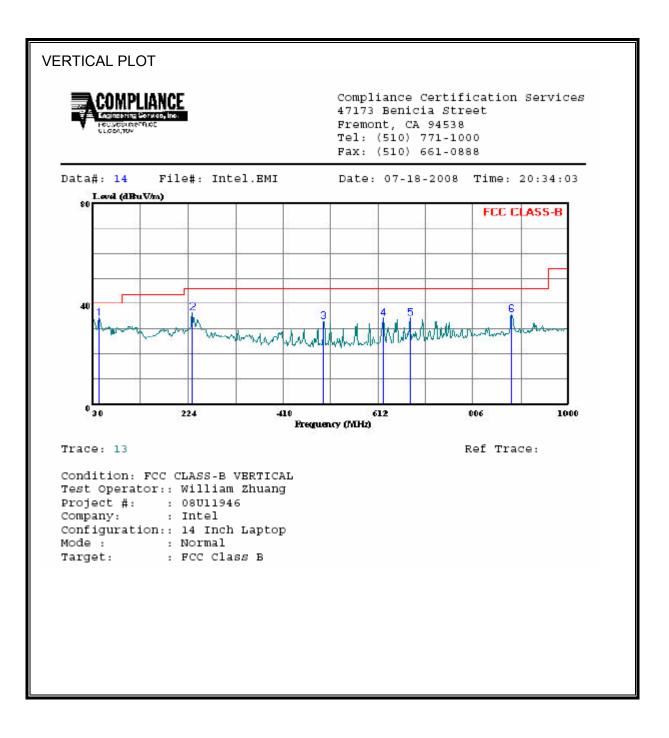
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HORIZ	ONTAL DATA							
	Freq	Read Level	Factor	Level	Limit Line		Remark	
	MHz	dBuV	dB	dBuV/m	dBuV/m	db		
1 2 3 4 5 6	324.880	42.64 41.19 38.29 38.60	-9.97 -8.27 -6.16 -5.35	32.67 32.92 32.13 33.25	46.00	-13.33 -13.08 -13.87 -12.75	Peak Peak Peak Peak	

COMPLIANCE CERTIFICATION SERVICES FORM NO: CCSUP4031B 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of CCS.

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



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VERTI	CAL DATA						
	Freq	Read Level	Factor	Level		Over Limit	Remark
	MHz	dBuV	db	dBuV/m	\overline{dBuV}/m	db	
1				34.15			
2 3	232.730 499.480	40.12	-7.19	32.93	46.00	-13.07	Peak
4 5	623.640 676.990						
6	885.540						

 COMPLIANCE CERTIFICATION SERVICES
 FORM NO: CCSUP4031B

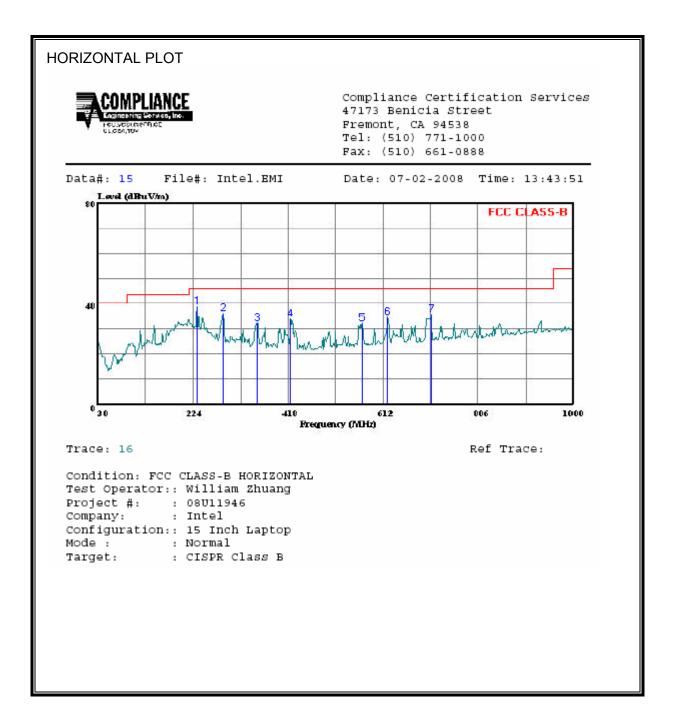
 47173 BENICIA STREET, FREMONT, CA 94538, USA
 TEL: (510) 771-1000
 FAX: (510) 661-0888

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15 INCHES LAPTOP

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



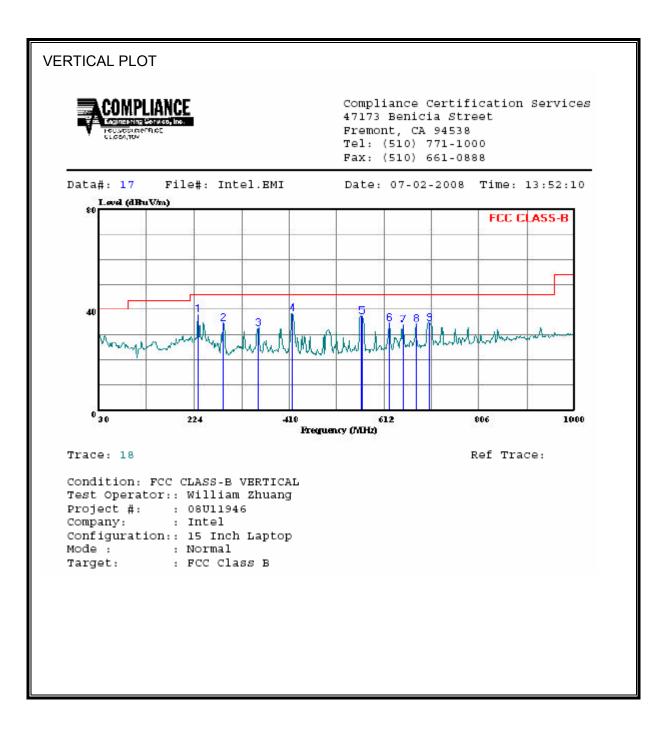
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HORIZO	ONTAL DATA						
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	db	₫BuV/m	dBuV/m	dB	
1 2 3 4 5 6	286.080 353.980 421.880	47.22 41.71 42.27 38.45	-11.14 -9.53 -8.45 -6.16	36.08 32.18 33.82 32.29	46.00 46.00	-9.92 -13.82 -12.18 -13.71	Peak Peak Peak Peak
7					46.00		

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



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VERTIC	VERTICAL DATA									
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark			
	MHz	dBuV	dB	₫BuV/m	\overline{dBuV}/m	db				
1 2 3 4 5 6 7 8 9	284.140 353.980	45.87 42.08 47.00 43.67 39.85 38.88 38.68	-5.35 -4.97	34.64 32.55 38.59 37.51 34.50 33.91 34.26	46.00 46.00 46.00 46.00 46.00 46.00	-13.45 -7.41 -8.49 -11.50 -12.09	Peak Peak Peak Peak Peak Peak Peak			

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8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted I	.imit (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

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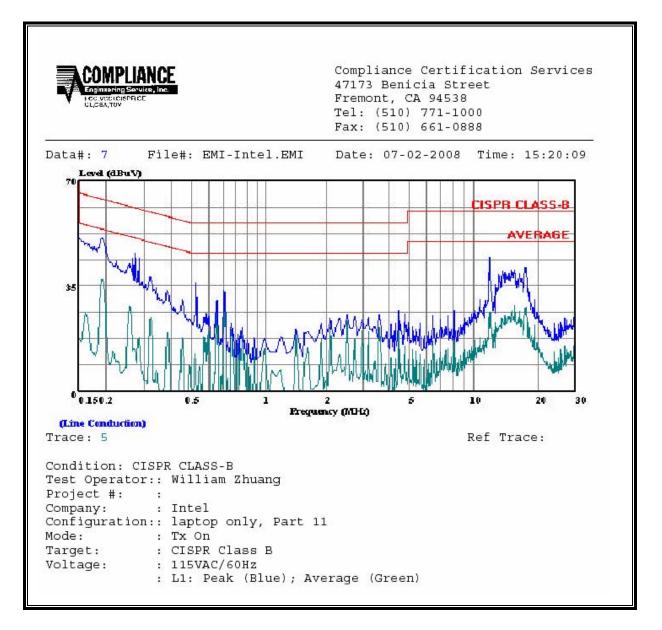
14 INCHES LAPTOP

<u>6 WORST EMISSIONS</u>

	CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq.	Reading			Reading		Closs	Limit	FCC_B	Marg	Remark	
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV(dB)	L1/L2		
0.19	50.81		37.15	0.00	63.95	53.95	-13.14	-16.80	L1		
12.00	44.50		26.40	0.00	60.00	50.00	-15.50	-23.60	L1		
17.66	41.28		28.54	0.00	60.00	50.00	-18.72	-21.46	L1		
0.29	52.16		21.76	0.00	60.41	50.41	-8.25	-28.65	L2		
12.00	44.60		26.16	0.00	60.00	50.00	-15.40	-23.84	L2		
17.66	42.26		27.76	0.00	60.00	50.00	-17.74	-22.24	L2		
6 Worst I	Data										

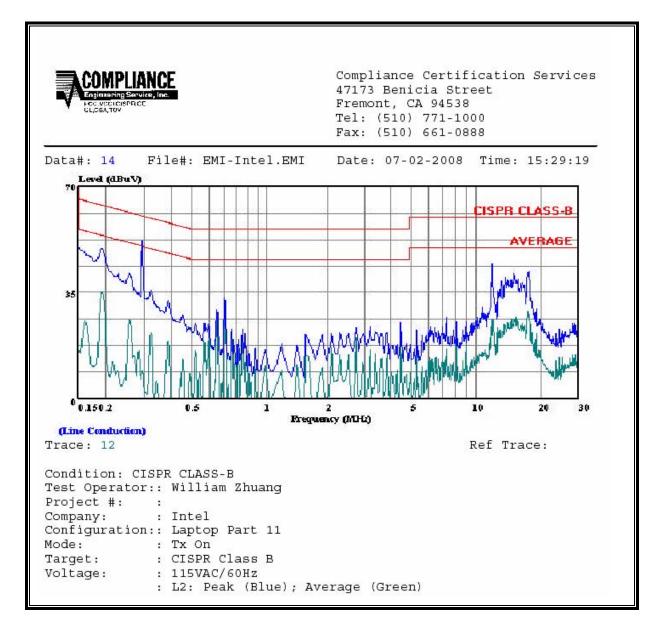
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LINE 1 RESULTS



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LINE 2 RESULTS



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1

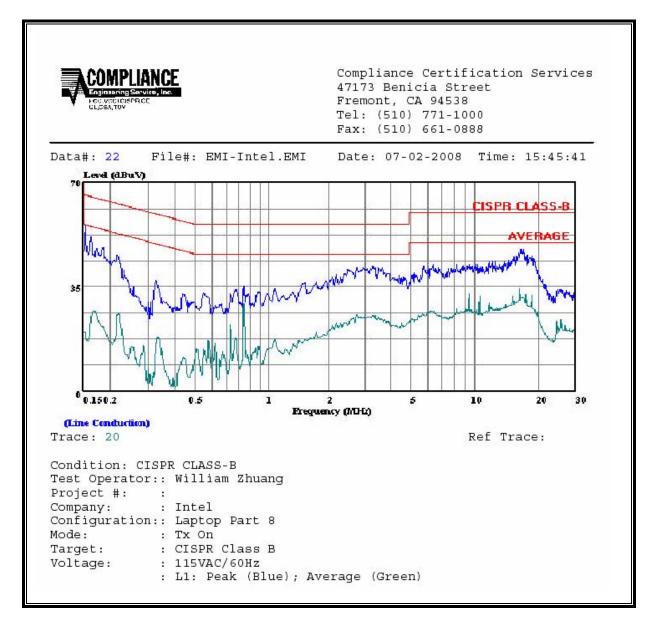
15 INCHES LAPTOP

<u>6 WORST EMISSIONS</u>

	CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq.	Reading			eading Closs Limit FCC B Margin			;iл	Remark			
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV(dB)	L1/L2		
0.15	55.67		26.97	0.00	65.94	55.94	-10.27	-28.97	L1		
0.16	51.88		29.42	0.00	65.31	55.31	-13.43	-25.89	L1		
16.75	47.50		34.50	0.00	60.00	50.00	-12.50	-15.50	L1		
0.16	49.07		25.49	0.00	65.41	55.41	-16.34	-29.92	L2		
16.40	47.60		31.21	0.00	60.00	50.00	-12.40	-18.79	L2		
18.43	46.63		29.38	0.00	60.00	50.00	-13.37	-20.62	L2		
6 Worst I	Data										

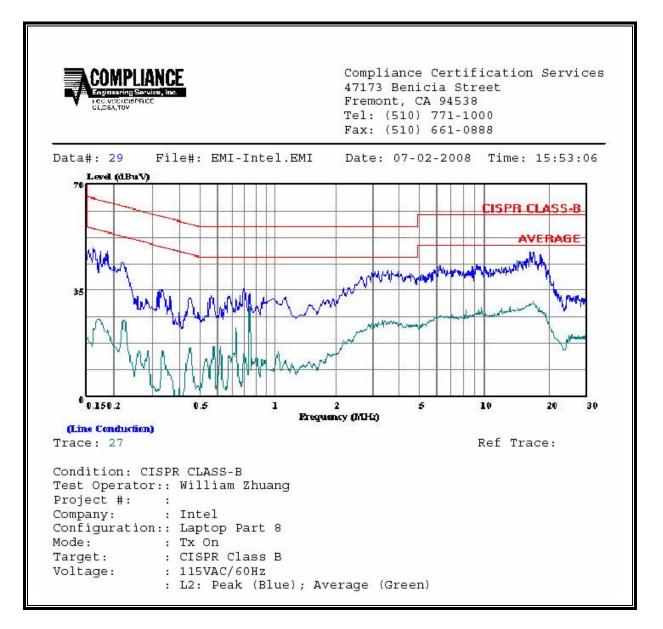
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LINE 1 RESULTS



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LINE 2 RESULTS



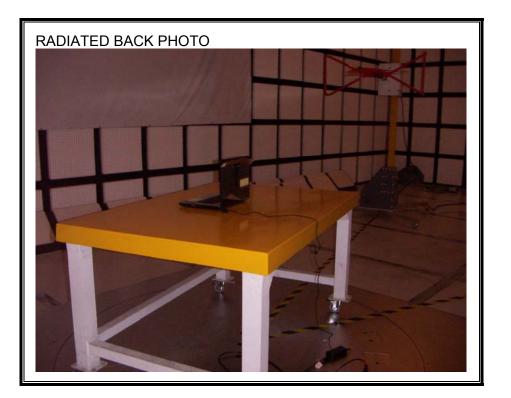
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9. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP



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POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



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END OF REPORT

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