



**FCC CFR47 PART 15 SUBPART B
ICES-003 ISSUE 4, 2004-02**

**DECLARATION OF CONFORMITY TEST REPORT
FOR**

WIRELESS USB CDMA MODEM MODULE

MODEL NUMBER: AC595U

REPORT NUMBER: 06U10743-3

ISSUE DATE: FEBRUARY 03, 2007

Prepared for
**SIERRA WIRELESS
2290 COSMOS CT.
CARLSBAD, CA 92010 USA**

Prepared by
**COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
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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>
--	02/03/07	Initial Issue	T.C.

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SIERRA WIRELESS
2290 COSMOS CT.
CARLSBAD, CA 92011, USA

EUT DESCRIPTION: WIRELESS USB CDMA MODEM MODULE

MODEL: AC595U

SERIAL NUMBER: 108

DATE TESTED: JANUARY 22-26, 2007

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART B	NO NON-COMPLIANCE NOTED
ICES-003 ISSUE 4, 2004-02	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

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 and ICES-003 ISSUE 4, 2004-02.

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 a dual band 800 / 1900MHz USB CDMA modem module and the module is manufactured by Sierra Wireless, Inc.

The module AC595U supports CDMA 1xRTT, and 1xEV-DO. REV A. Device capabilities are documented in the theory of operation.

LAPTOP GENERAL INFORMATION

CHASSIS MATERIAL	PLASTIC
ENCLOSURE MATERIAL	PLASTIC
POWER REQUIREMENTS	100-240 VAC / 50-60 Hz
POWERLINE FILTER MANUFACTURER AND MODEL	BUILT-IN
LIST OF ALL OSCILLATOR FREQUENCIES GREATER THAN OR EQUAL TO 9 kHz	CPU: 1.70GHz, 980MHz

5.2. TEST CONFIGURATION

The following configuration was investigated during testing:

EUT Configuration	Description
Typical Configuration	EUT plugged into the laptop USB port, laptop connected to printer, modem, USB Mouse

5.3. PRELIMINARY TEST CONFIGURATIONS

The following configurations were investigated during preliminary testing:

EUT Configuration	Description
Normal	EUT with and without cradle and basic peripheral support equipment

The worst-case configuration was determined to be EUT with cradle connected to Laptop

5.4. MODE(s) OF OPERATION

Mode	Description
EMCTest & Receiving	Receiving & I/O ports activated with H' patterns scrolling on the screen display.

5.5. SOFTWARE AND FIRMWARE

The test software used during the test was EMCTest software.

5.6. MODIFICATIONS

No modifications were made during testing.

5.7. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT & PERIPHERALS

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Sony	PCG-6P2L	C3LMW276	DoC
AC Adapter	Sony	VGP-AC19V13	1.47968E+15	DoC
Printer	OKI DATA	Microline 186	NA	DoC
Modem	U.S. Robotics	5686	2ABLYCKF2684	CJEMUL-35730-M5-E
USB Mouse	Microsoft	Microsoft	083416-1	DoC

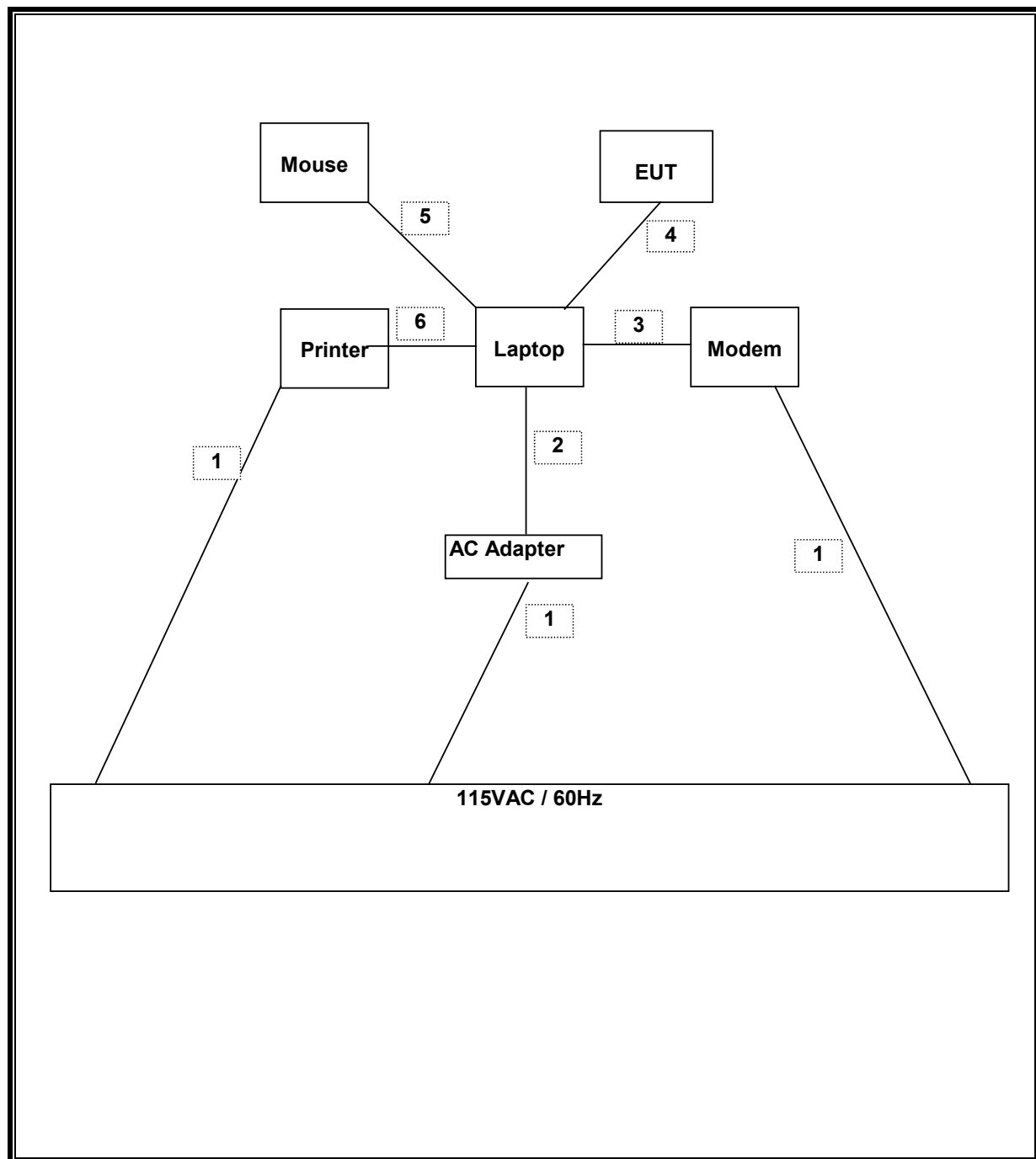
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	3	US 115V	Un-shielded	2m	N/A
2	DC	1	DC	Un-shielded	2m	N/A
3	RJ11	1	Modem	Un-shielded	1m	N/A
4	USB	1	USB Modem	Shielded	2m	With ferrite at both end
5	USB	1	Mouse	Shielded	2m	N/A
6	Parallel	1	DB25	Shielded	2m	N/A

TEST SETUP

The EUT is installed in a typical configuration. Test software exercised the EUT.

TEST SETUP DIAGRAM



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
Preamplifier, 1300 MHz	Agilent / HP	8447D	2944A06589	9/1/2007
Quasi-Peak Adaptor	Agilent / HP	85650A	2521A01038	1/11/2008
SA Display Section 3	Agilent / HP	85662A	2314A04793	12/17/07
SA RF Section, 1.5 GHz	Agilent / HP	85680A	2314A02604	3/17/2007
Antenna, Log Periodic 200 ~ 1000	EMCO	3146	2120	3/1/2007
Antenna, Biconical	Eaton	94455-1	1197	3/1/2007
Spectrum Analyzer 3 Hz ~ 44	Agilent / HP	E4446A	MY43360112	5/3/2007
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/2007
EMI Test Receiver	R & S	ESHS 20	827129/006	6/3/2007

APPLICABLE LIMITS AND TEST RESULTS

6.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 1.70 GHz, therefore the frequency range was investigated from 30 MHz to 10 GHz.

LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB μ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

RESULTS

No non-compliance noted:

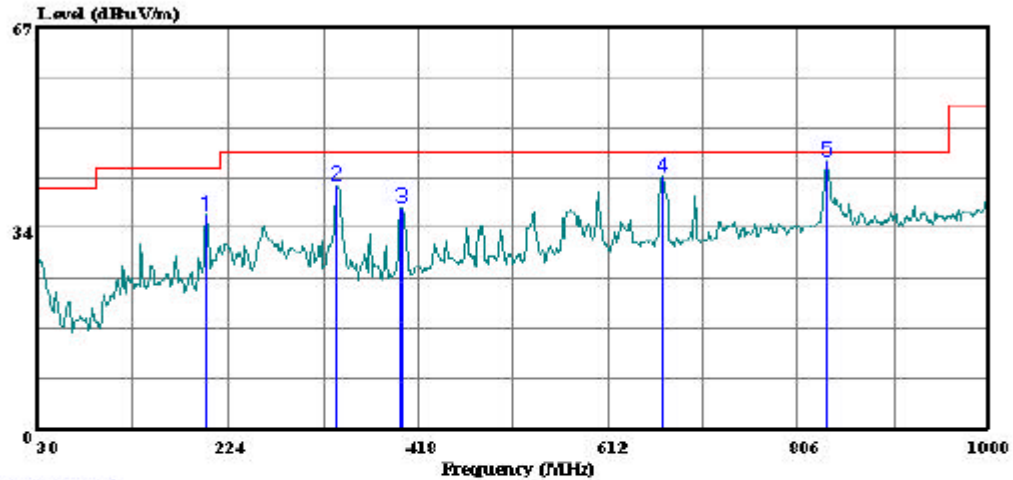
SPURIOUS EMISSIONS 30 TO 1000 MHz, HORIZONTAL



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

Data#: 10 File#: 30-1000 MHz FCC B.EMI

Date: 01-29-2007 Time: 09:04:30



Trace: 9

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: Yu-Chien Ho
Company: Sierra Wireless
Project #: 06U10743
Configuration: Normal Configuration with peripherals
Mode of Operation: Normal. EMC Test Program
Target: FCC Class B

Page: 1

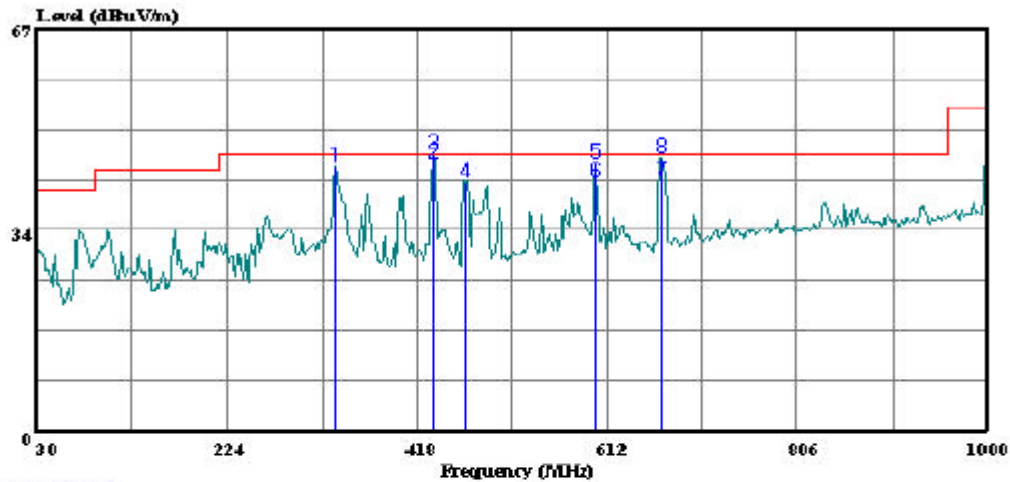
		Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	201.690	21.06	14.53	35.59	43.50	-7.91	Peak
2	334.580	23.96	16.65	40.61	46.00	-5.39	Peak
3	400.540	18.61	18.15	36.76	46.00	-9.24	Peak
4	667.290	18.91	23.01	41.92	46.00	-4.08	Peak
5	834.130	19.33	25.33	44.66	46.00	-1.34	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz, VERTICAL



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

Data#: 8 File#: 30-1000 MHz FCC B.EMI Date: 01-29-2007 Time: 08:58:20



(Audio: ATC)

Trace: 5

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Yu-Chien Ho
Company: : Sierra Wireless
Project #: : 06U10743
Configuration: : Normal Configuration with peripherals
Mode of Operation: : Normal. EMC Test Program
Target: : FCC Class B

Page: 1

	Freq	Read		Limit	Over	
	MHz	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	334.580	27.38	16.65	44.03	46.00	-1.97 Peak
2	434.490	25.64	19.01	44.65	46.00	-1.35 QP
3 *	434.490	27.05	19.01	46.06	46.00	0.06 Peak
4	467.470	21.86	19.72	41.58	46.00	-4.42 Peak
5	599.390	22.83	21.96	44.79	46.00	-1.21 Peak
6	599.390	19.43	21.96	41.39	46.00	-4.61 QP
7	667.290	18.85	23.01	41.86	46.00	-4.14 QP
8	667.290	22.65	23.01	45.66	46.00	-0.34 Peak

High Frequency Measurement																																																																																																																																																																																
Compliance Certification Services, Morgan Hill Open Field Site																																																																																																																																																																																
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Test Equipment:																																																																																																																																																																																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																																																																																																																																																				
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<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>f GHz</th><th>Dist (m)</th><th>Read Pk dBuV</th><th>Read Avg. dBuV</th><th>AF dB/m</th><th>CL dB</th><th>Amp dB</th><th>D Corr dB</th><th>Filtr dB</th><th>Peak dBuV/m</th><th>Avg dBuV/m</th><th>Pk Lim dBuV/m</th><th>Avg Lim dBuV/m</th><th>Pk Mar dB</th><th>Avg Mar dB</th><th>Notes (V/H)</th></tr> </thead> <tbody> <tr><td>1.330</td><td>3.0</td><td>58.9</td><td>45.7</td><td>25.0</td><td>1.6</td><td>-39.0</td><td>0.0</td><td>0.0</td><td>46.4</td><td>33.2</td><td>74</td><td>54</td><td>-27.6</td><td>-20.8</td><td>V</td></tr> <tr><td>1.660</td><td>3.0</td><td>57.3</td><td>43.2</td><td>26.2</td><td>1.7</td><td>-38.5</td><td>0.0</td><td>0.0</td><td>46.7</td><td>32.6</td><td>74</td><td>54</td><td>-27.3</td><td>-21.4</td><td>V</td></tr> <tr><td>2.490</td><td>3.0</td><td>55.6</td><td>40.5</td><td>28.6</td><td>2.1</td><td>-37.5</td><td>0.0</td><td>0.0</td><td>48.8</td><td>33.7</td><td>74</td><td>54</td><td>-25.2</td><td>-20.3</td><td>V</td></tr> <tr><td>1.332</td><td>3.0</td><td>57.4</td><td>43.2</td><td>25.0</td><td>1.6</td><td>-39.0</td><td>0.0</td><td>0.0</td><td>45.0</td><td>30.8</td><td>74</td><td>54</td><td>-29.0</td><td>-23.2</td><td>H</td></tr> <tr><td>1.662</td><td>3.0</td><td>55.8</td><td>42.6</td><td>26.2</td><td>1.7</td><td>-38.5</td><td>0.0</td><td>0.0</td><td>45.2</td><td>32.0</td><td>74</td><td>54</td><td>-28.8</td><td>-22.0</td><td>H</td></tr> <tr><td>2.493</td><td>3.0</td><td>53.5</td><td>40.1</td><td>28.6</td><td>2.1</td><td>-37.5</td><td>0.0</td><td>0.0</td><td>46.7</td><td>33.3</td><td>74</td><td>54</td><td>-27.3</td><td>-20.7</td><td>H</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>																	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)	1.330	3.0	58.9	45.7	25.0	1.6	-39.0	0.0	0.0	46.4	33.2	74	54	-27.6	-20.8	V	1.660	3.0	57.3	43.2	26.2	1.7	-38.5	0.0	0.0	46.7	32.6	74	54	-27.3	-21.4	V	2.490	3.0	55.6	40.5	28.6	2.1	-37.5	0.0	0.0	48.8	33.7	74	54	-25.2	-20.3	V	1.332	3.0	57.4	43.2	25.0	1.6	-39.0	0.0	0.0	45.0	30.8	74	54	-29.0	-23.2	H	1.662	3.0	55.8	42.6	26.2	1.7	-38.5	0.0	0.0	45.2	32.0	74	54	-28.8	-22.0	H	2.493	3.0	53.5	40.1	28.6	2.1	-37.5	0.0	0.0	46.7	33.3	74	54	-27.3	-20.7	H																																																
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<table style="width: 100%;"> <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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6.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.4

LIMIT

§15.107 (a) Except for Class A digital devices, for equipment 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 band edges.

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

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
0.15	62.30	--	36.60	0.00	66.00	56.00	-3.70	-19.40	L1
0.22	57.51	--	41.60	0.00	62.71	52.71	-5.20	-11.11	L1
0.60	48.10	--	36.00	0.00	56.00	46.00	-7.90	-10.00	L1
0.15	59.28	--	36.64	0.00	66.00	56.00	-6.72	-19.36	L2
0.22	51.43	--	40.97	0.00	62.71	52.71	-11.28	-11.74	L2
0.60	46.77	--	35.30	0.00	56.00	46.00	-9.23	-10.70	L2
6 Worst Data									

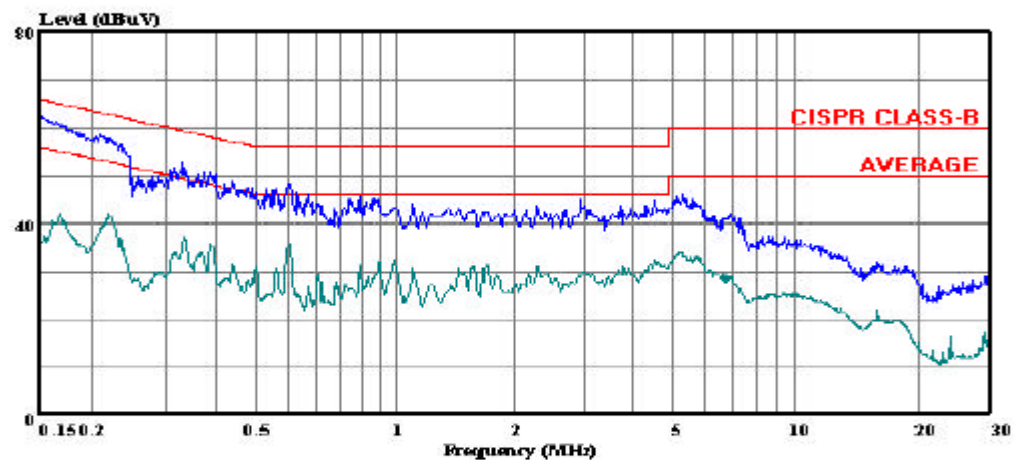
LINE 1 RESULTS



Compliance Certification Services
47173 BENICIA STREET
FREMONT, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: sierra wireless.EMI

Date: 01-25-2007 Time: 15:32:29



Trace: 12

Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Yu-Chien Ho
Project # : 06U10743
Company : Sierra Wireless

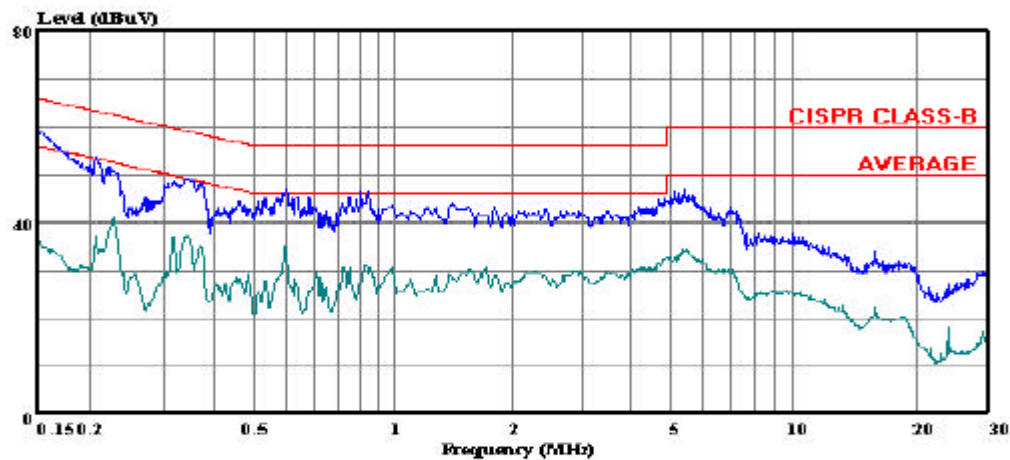
Configuration : Laptop and Peripherals
Mode of operation: Normal. EMC Test Program
Power Source : 115 VAC, 60 Hz
: L1: Peak (Blue), Avg (Green)

LINE 2 RESULTS



Compliance Certification Services
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Data#: 7 File#: sierra wireless.BMI
Date: 01-25-2007 Time: 15:13:20



Trace: 5

Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Yu-Chien Ho
Project # : 06U10743
Company : Sierra Wireless

Configuration : Laptop and Peripherals
Mode of operation: Normal. EMC Test Program
Power Source : 115 VAC, 60 Hz
: L2: Peak (Blue), Avg (Green)