



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

TEST REPORT

FOR

USB WIRELESS MODEM

FCC ID:N7N-MC8775U

MODEL NUMBER: AIRCARD 875U

REPORT NUMBER: 07U10801-3

ISSUE DATE: FEBRUARY 05, 2007

Prepared for
**13811 WIRELESS WAY
RICHMOND, BC V6V3A4
CANADA**

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>
--	02/05/07	Initial Issue	T.C.

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SIERRA WIRELESS, INC.
13811 WIRELESS WAY
RICHMOND, BC V6V3A4
CANADA.

EUT DESCRIPTION: USB WIRELESS MODEM

MODEL: AIRCARD 875U

SERIAL NUMBER: N0108

DATE TESTED: JANUARY 18 & FEBRUARY 05, 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:



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SENIOR EMC SUPERVISOR
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 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 multiband wireless modem operating on the GSM/GPRS/EDGE/UMTS network. In the US and Canada, only cellular and PCS bands are used for GSM/GPRS/UMTS operation, so this test report only contains data for these two bands (850MHz and 1900MHz). The EUT was tested in both modes of operation: GMSK Modulation, 8PSK and WCDMA modulation.

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: 3.0 GHz, 798MHz

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	Compaq	Presario R3000	CND5011HNJ	DoC
AC Adapter	HP	PPP017L	4Z01237302	DoC
Printer	OKI DATA	Microline 186	NA	DoC
Modem	U.S. Robotics	5686	2ABLYCKF2684	DoC
USB Mouse	Microsoft	Microsoft	083416-1	DoC

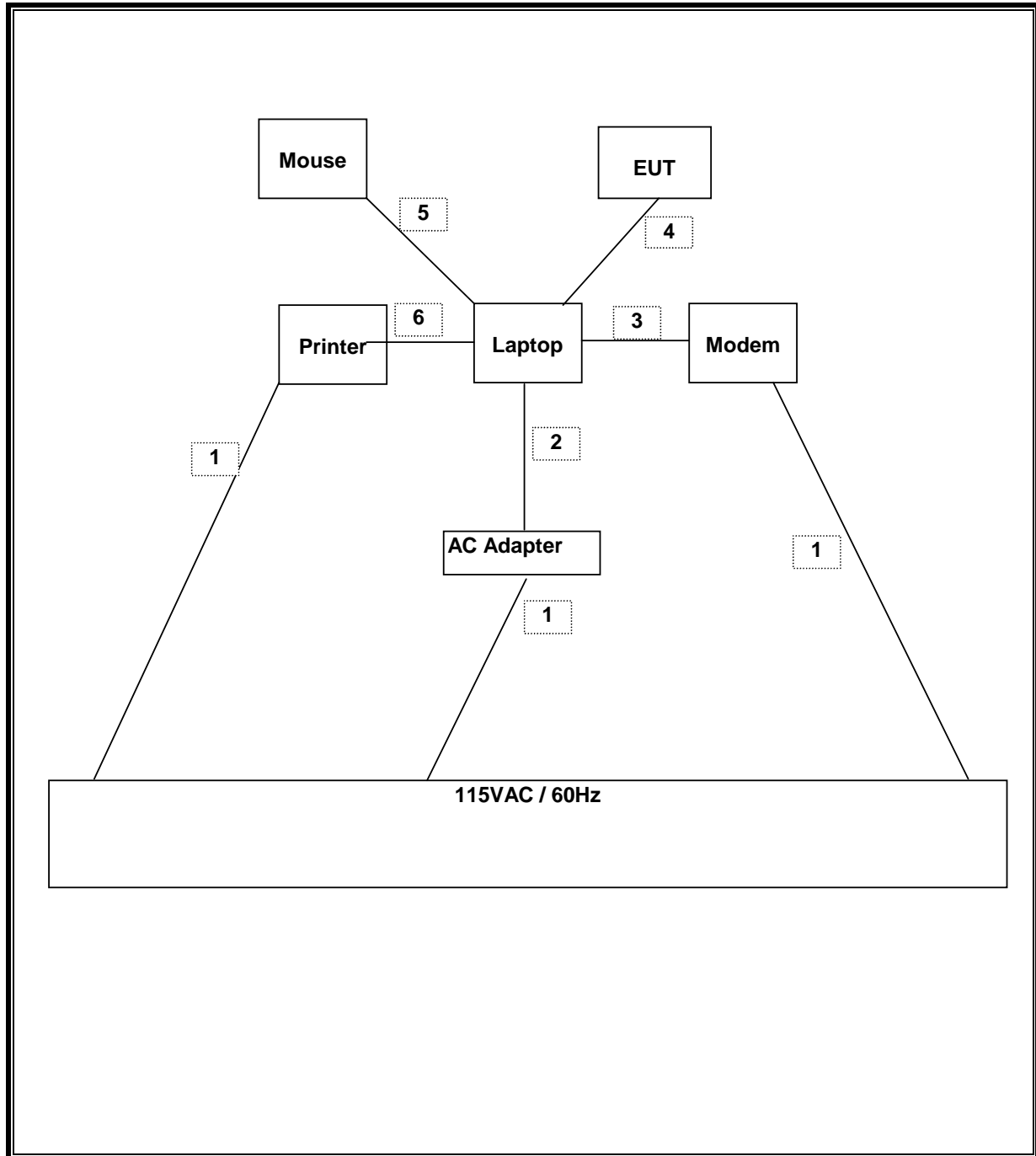
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	N/A
2	DC	1	DC	Un-shielded	2m	N/A
3	RJ11	1	Modem	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 (WORSE CASE)



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 3 GHz, therefore the frequency range was investigated from 30 MHz to 15 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 (WITH CRADLE)



FCC, VCCI, CISPR, CE, AUSTEL, NZ
 UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
 PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 07U10801

Report #: 010118C1

Date & Time: 01/18/07

Test Engr: Chin Pang

Company: Sierra Wireless

EUT Description: USB Wireless Modem

Test Configuration: EUT / Support Equipment


Type of Test: FCC Class B

Mode of Operation: EMCtest/Standby mode

<< Main Sheet

Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
415.00	47.80	15.39	3.35	27.20	39.34	46.00	-6.66	3mH	0.00	1.50	P
130.00	49.30	12.82	0.50	27.02	35.60	43.50	-7.90	3mV	0.00	1.00	P
240.00	52.00	11.02	1.40	26.46	37.96	46.00	-8.04	3mH	0.00	2.00	P
130.00	47.90	12.82	0.50	27.02	34.20	43.50	-9.30	3mH	0.00	2.00	P
415.00	45.00	15.39	3.35	27.20	36.54	46.00	-9.46	3mV	0.00	2.00	P
250.00	48.20	10.95	1.51	26.41	34.25	46.00	-11.75	3mH	0.00	1.50	P
6 Worst Data											

SPURIOUS EMISSIONS 30 TO 1000 MHz (WITHOUT CRADLE)



FCC, VCCI, CISPR, CE, AUSTEL, NZ
 UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
 PHONE: (408) 463-0885 FAX: (408) 463-0888

Company: Sierra Wireless

EUT Description: USB Wireless Modem

Test Configuration: EUT / Support Equipment

Type of Test: FCC Class B

Mode of Operation: EMCtest/Standby mode

Project #: 07U10801

Report #: 020507CA

Date & Time: 02/05/07

Test Engr: Chin Pang

[<< Main Sheet](#)

Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
415.00	46.53	16.30	2.24	26.71	38.36	46.00	-7.64	3mV	0.00	1.00	P
415.00	46.24	16.30	2.24	26.71	38.07	46.00	-7.93	3mH	0.00	1.50	P
138.64	45.93	13.77	1.24	26.71	34.23	43.50	-9.27	3mH	0.00	1.00	P
240.00	48.71	11.89	1.64	26.06	36.18	46.00	-9.82	3mH	0.00	2.00	P
125.00	44.78	14.03	1.17	26.85	33.13	43.50	-10.37	3mV	0.00	1.00	P
235.00	47.16	11.77	1.62	26.17	34.38	46.00	-11.62	3mV	0.00	1.00	P
6 Worst Data											

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.

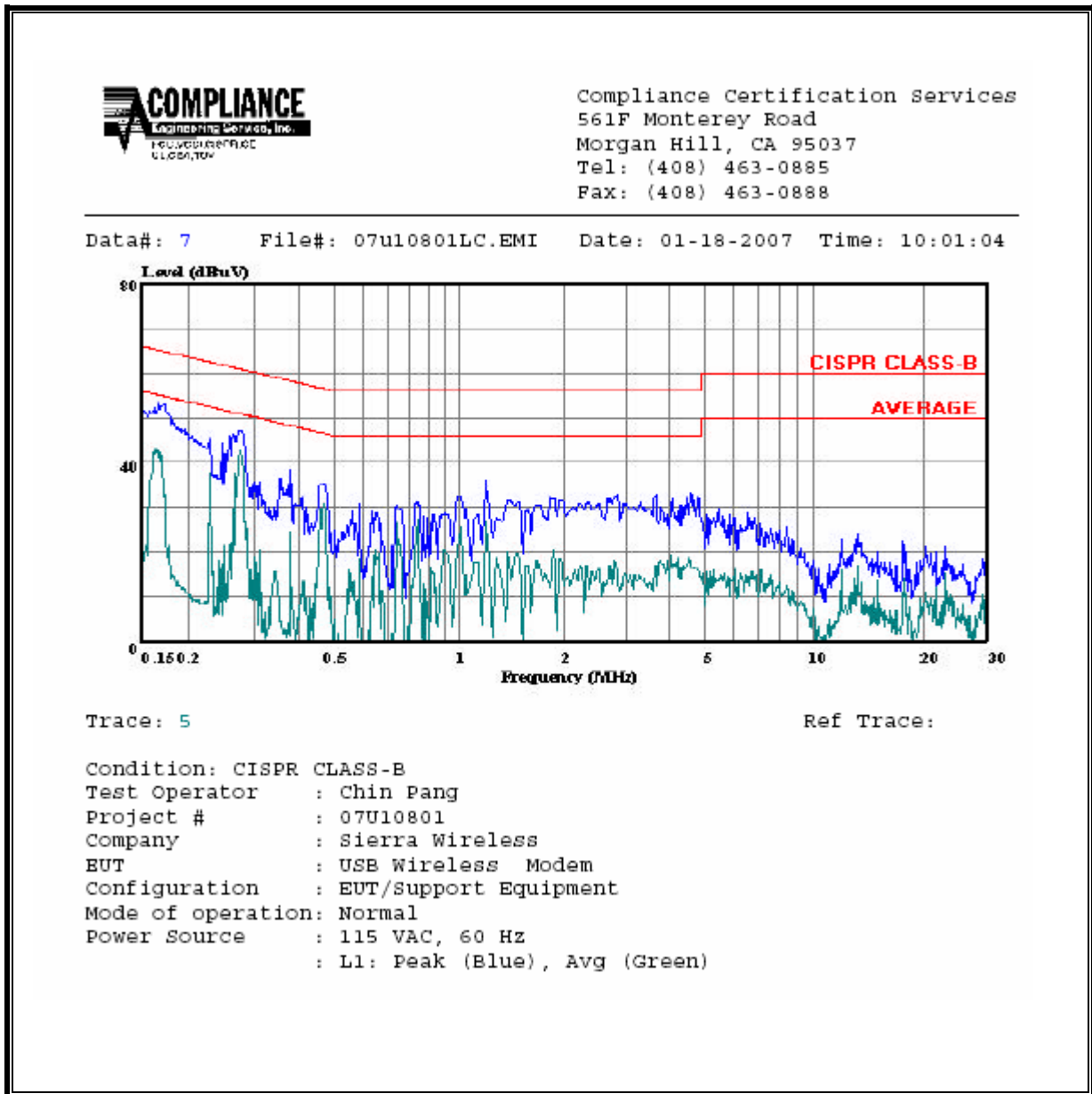
RESULTS

No non-compliance noted:

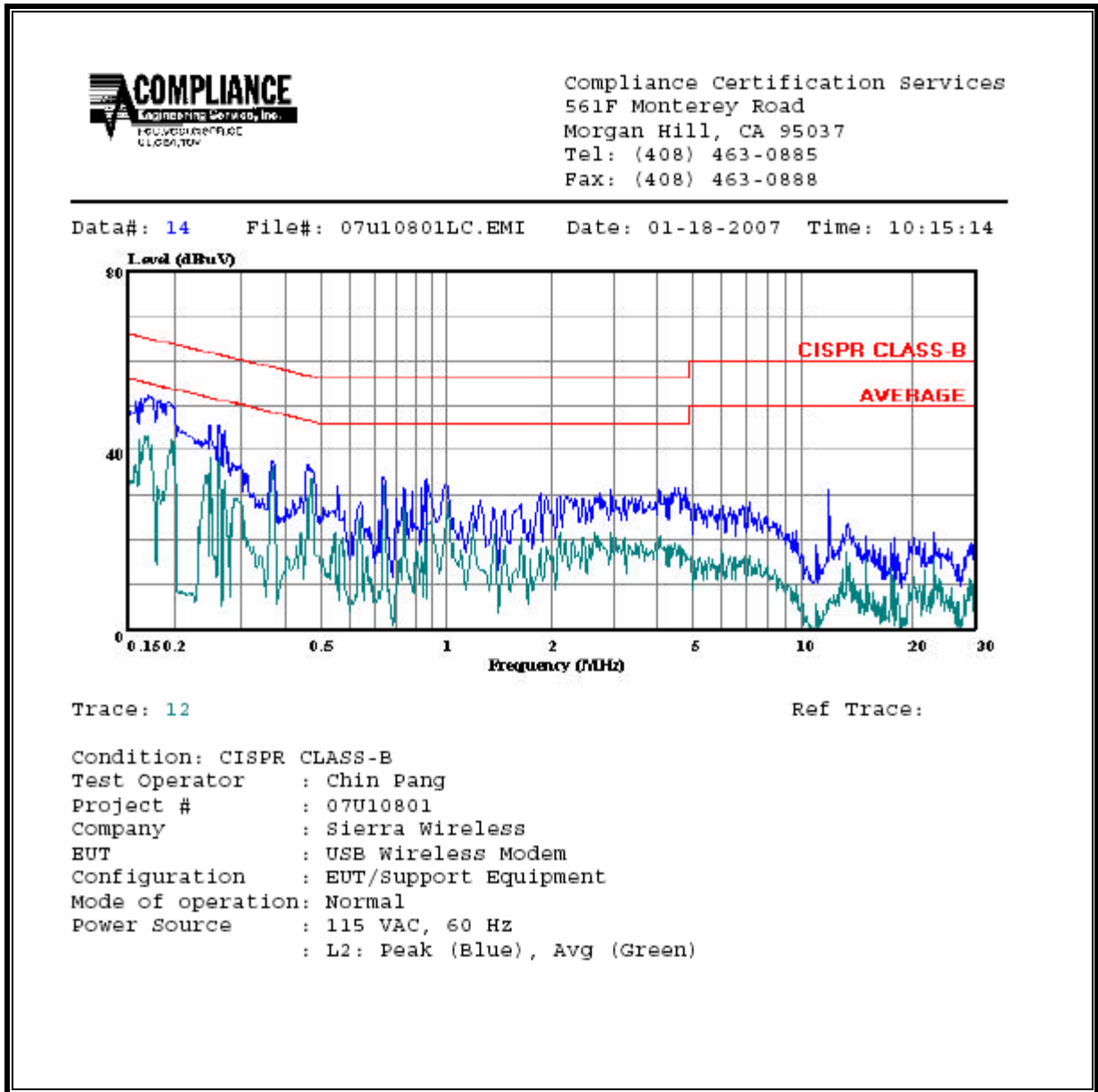
6 WORST EMISSIONS

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
0.17	52.85	--	42.92	0.00	64.86	54.86	-12.01	-11.94	L1
0.28	47.01	--	42.49	0.00	60.85	50.85	-13.84	-8.36	L1
8.29	36.06	--	26.93	0.00	60.00	50.00	-23.94	-23.07	L1
0.17	51.73	--	43.25	0.00	65.16	55.16	-13.43	-11.91	L2
0.27	45.75	--	39.11	0.00	61.24	51.24	-15.49	-12.13	L2
0.97	33.57	--	28.44	0.00	56.00	46.00	-22.43	-17.56	L2
6 Worst Data									

LINE 1 RESULTS



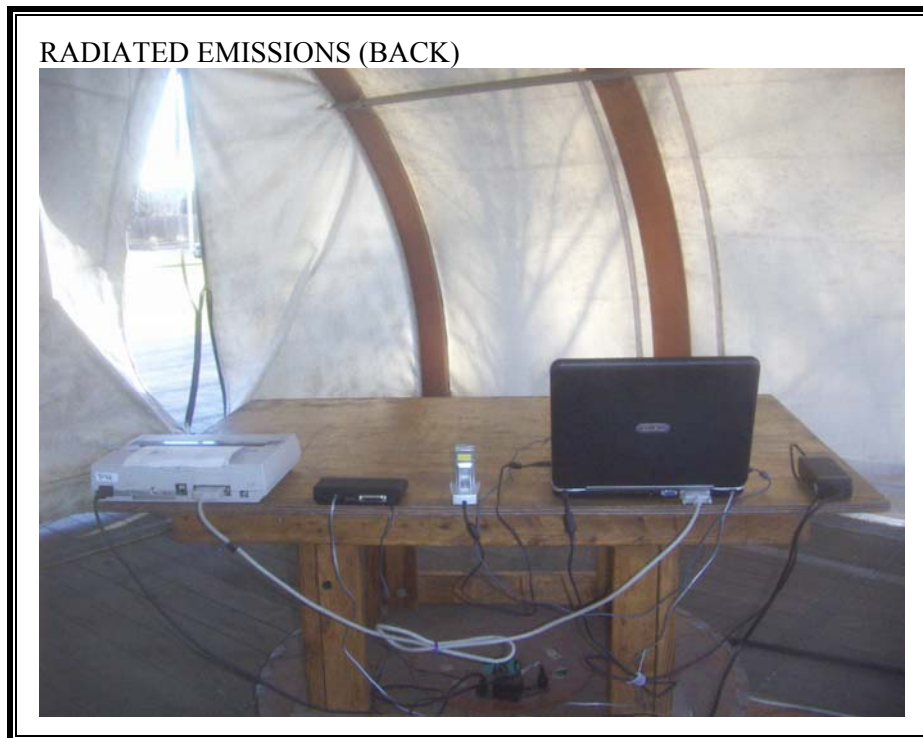
LINE 2 RESULTS



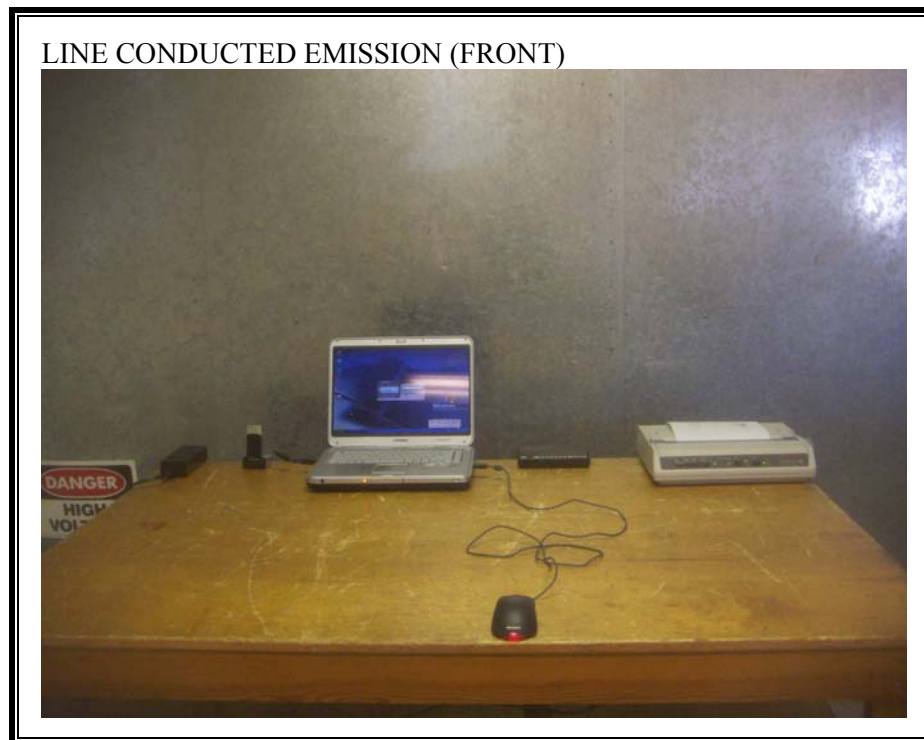
7. SETUP PHOTOS

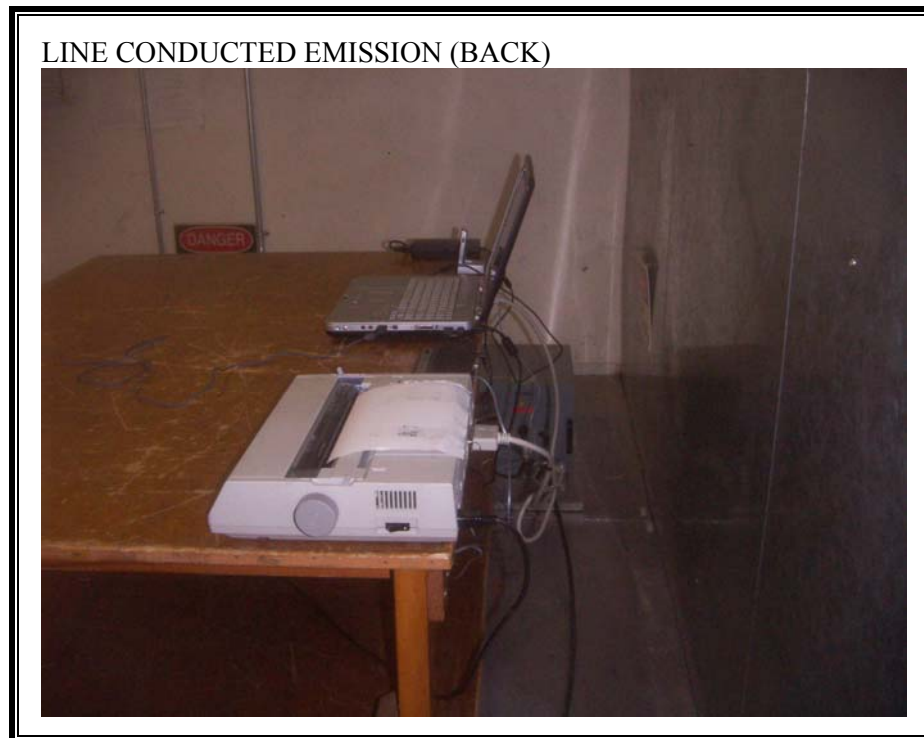
RADIATED EMISSION WITH CRADLE (WORSE CASE)





AC MAINS LINE CONDUCTED EMISSION





END OF REPORT