



FCC CFR47 CERTIFICATION

PART 22H and 24E

TEST REPORT

FOR

800/1800/1900MHZ TRIBAND GSM/GPRS PC CARD

MODEL: AIRCARD 755

FCC ID: N7NAC755

REPORT NUMBER: 03U2359-2

ISSUE DATE: DECEMBER 03, 2003

Prepared for

**SIERRA WIRELESS INC., YW
13811 WIRELESS WAY
RICHMOND, BRITISH COLUMBIA
CANADA**

Prepared by

**COMPLIANCE CERTIFICATION SERVICES
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TABLE OF CONTENT

1.	TEST RESULT CERTIFICATION.....	3
2.	EUT DESCRIPTION.....	4
3.	TEST METHODOLOGY.....	4
4.	TEST FACILITY.....	4
5.	ACCREDITATION AND LISTING.....	4
6.	MEASURING INSTRUMENT CALIBRATION	4
7.	TEST SETUP, PROCEDURE AND RESULT	5
7.1.	SECTION 2.1046: RF POWER OUTPUT.....	5
7.2.	SECTION 2.1053: FIELD STRENGTH OF SPURIOUS RADIATION	15
7.3.	RADIATED EMISSION.....	20
7.4.	POWERLINE CONDUCTED EMISSION.....	28
8.	APENDIX	35
8.1.	EXTERNAL & INTERNAL PHOTOS.....	35
8.2.	SCHEMATICS.....	35
8.3.	BLOCK DIAGRAM.....	35
8.4.	USER MANUAL	35

1. TEST RESULT CERTIFICATION

COMPANY NAME: SIERRA WIRELESS INC., YW
13811 WIRELESS WAY
RICHMOND, BRISTISH COLUMBIA
CANADA

EUT DESCRIPTION: 800/1800/1900MHz TRIBAND GSM/GPRS PC CARD

MODEL NAME: AIRCARD 755

DATE TESTED: DECEMBER 03, 2003

TYPE OF EQUIPMENT	INTENTIONAL RADIATOR
EQUIPMENT TYPE	LICENSED TX MODULE IN MOBILE APPLICATION
MEASUREMENT PROCEDURE	ANSI 63.4 / 2001, TIA/EIA 603
PROCEDURE	CERTIFICATION
FCC RULE	CFR 47 PART 22 SUBPART H AND PART 24 SUBPART E

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirement set forth in CFR 47, PART 22 Subpart H and PART 24 subpart E Cellular Radiotelephone Service. The equipment in the configuration described in this report, shows the measured emission levels emanating from the equipment do not exceed the specified limit.

Note : This document reports conditions under which testing was conducted and results of tests performed. 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.

Tested By:



VIEN TRAN
EMC TECHNICIAN
COMPLIANCE CERTIFICATION SERVICES

Released For CCS By:



THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

2. EUT DESCRIPTION

800/1800/1900MHz TRIBAND GSM/GPRS PC CARD is installed inside the laptop. It can operate (transmit) at two different frequency bands in North America.

The 800MHz band has:

- an output power 32.76dBm (1.888W_ERP)
- and the transmitting of frequency range 824 ~ 849MHz

And the 1900MHz band has:

- an output power 31.5dBm (1.413W_EIRP)
- and the transmitting of frequency range 1850 ~ 1910MHz.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures documented on chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

4. TEST FACILITY

The sites and measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2))

6. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

7. TEST SETUP, PROCEDURE AND RESULT

7.1. SECTION 2.1046: RF POWER OUTPUT

INSTRUMENTS LIST

TEST EQUIPMENT LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/2004
Antenna, Bicon/Log, 25 ~ 2000 MHz	ARA	LPB-2520/A	1185	3/6/2004
Amplifier 1-26GHz	MITEQ	NSP2600-SP	924342	4/25/2004
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	10/13/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004
Line Filter	Lindgren	LMF-3489	497	CNR
2.0 HPF	MicroTronic		1	CNR
Spectrum Analyzer 20 Hz ~ 44 GHz	Agilent	E4446A	US42070220	1/13/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	2/4/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	2/4/2004
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004

MEASUREMENT PROCEDURE

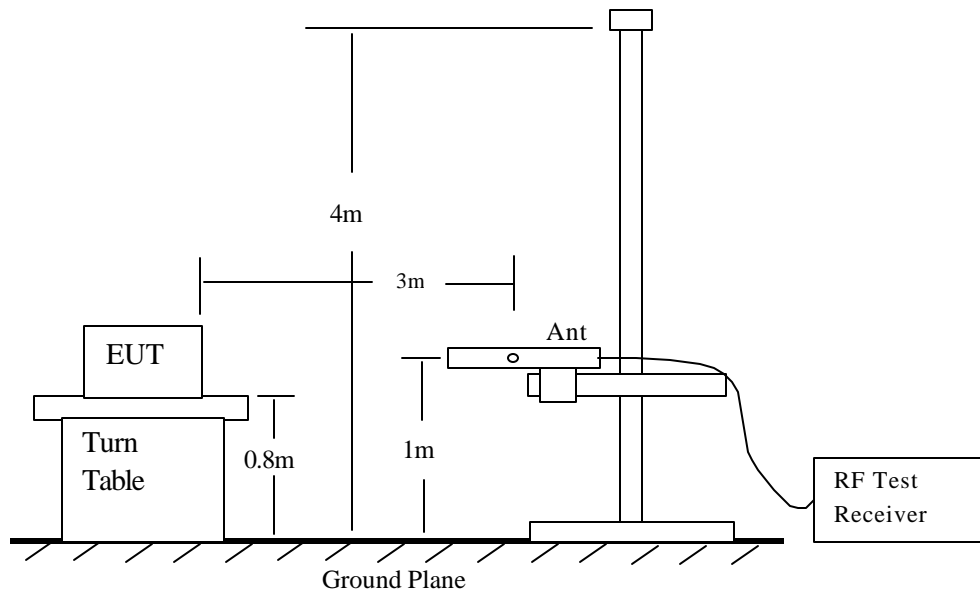
- 1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
- 2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the frequency of the transmitter.
- 3). The output of the test antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- 4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 6). The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 8). The maximum signal level detected by the measuring receiver shall be noted.
- 9). The transmitter shall be replaced by a tuned dipole (substitution antenna).
- 10). The substitution antenna shall be oriented for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- 11). The substitution antenna shall be connected to a calibrated signal generator.
- 12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- 13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

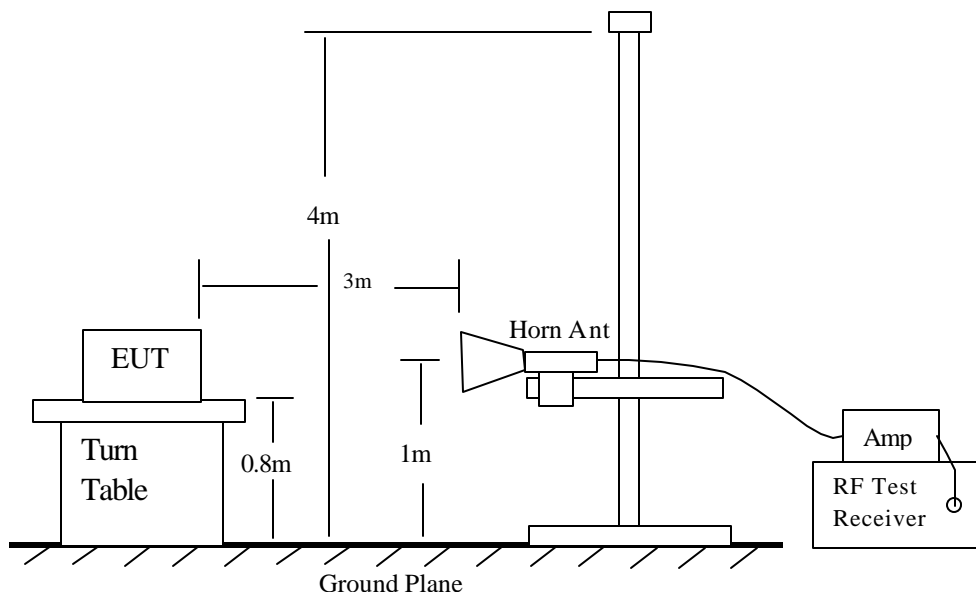
15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

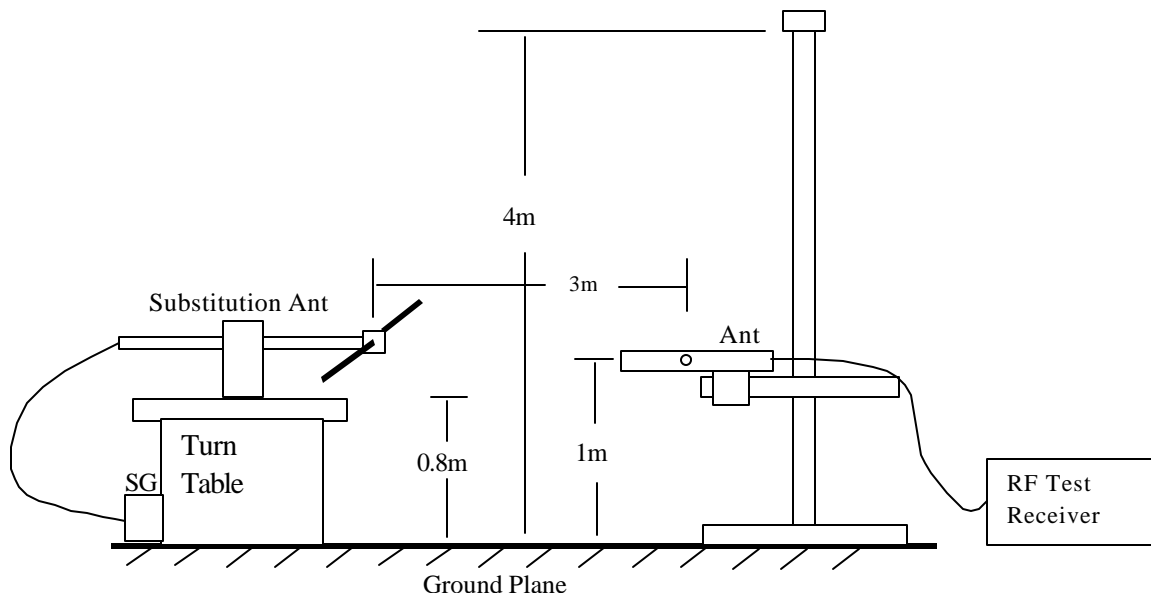
17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.



Radiated Emission Measurement 30 to 1000 MHz



Radiated Emission Above 1000 MHz



Radiated Emission – Substitution Method Set-up

MEASUREMENT RESULT:

800MHz and 1900MHz Output Power Measurement:

	FREQUENCY	ERP
		PEAK
800 MHz	(MHz)	(dBm)
LOW	824.2	31.85
MID	836.5	32.40
HI	848.8	32.76
THE ANTENNA GAIN IS 2dBi		

	FREQUENCY	EIRP
		PEAK
1900 MHz	(MHz)	(dBm)
LOW	1850.2	31.20
MID	1880.0	30.50
HI	1909.8	31.50
THE ANTENNA GAIN IS 2dBi		

Radiated Emissions

800MHZ / 1900MHz FREQUENCY BAND: The antenna of EUT at Y worst-case position Front view



Back view



Output Power (ERP), 800MHZ - Low / Mid / High Channels:

11/25/2003	Below 1GHz Frequency Measurement																																																																																																					
Compliance Certification Services, Mogan Hill Open Field Site																																																																																																						
Test Engineer: VIEN TRAN Project #: 03U2359-2 Company: Sierra Wireless Inc. YW. EUT Description: Dual Band GSM Card 850/1900MHz in the Laptop EUT M/N: AIRCARD 755 Test Target: FCC PART 22 (850MHz) Mode Operation: Tx- FUNDAMENTAL _ SUBSTITUTION _ LOW, MID, HI CHANNELS The antenna of EUT at Y worst-case position																																																																																																						
Test Equipment:																																																																																																						
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Biconical Antenna</div> <div style="border: 1px solid black; padding: 2px;">94455-1,S/N1197</div>		<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Adjustable Dipole</div> <div style="border: 1px solid black; padding: 2px;">3121C</div>																																																																																																				
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Pre-amplifier 0.9-1.3GHz</div> <div style="border: 1px solid black; padding: 2px;">T5,8447D</div>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Signal Generator</div> <div style="border: 1px solid black; padding: 2px;">R&S SMP04</div>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Bi-log Antenna</div> <div style="border: 1px solid black; padding: 2px;">LPB-25210A,S/N1185</div>																																																																																																				
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Frequency (MHz)</th> <th>Reading level (dBuV)</th> <th>Antenna Polarization</th> <th>EUT Polarization</th> <th>S.G. (dBm)</th> <th>Cable loss (dB)</th> <th>Ant.Gain (dBd)</th> <th>Emission level (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> </tr> </thead> <tbody> <tr> <td colspan="10">LOW CH FUNDAMENTAL</td> </tr> <tr> <td>824.20</td> <td>135.15</td> <td>V</td> <td>Y</td> <td>36.01</td> <td>2.89</td> <td>-1.56</td> <td>31.57</td> <td>37.00</td> <td>-5.43</td> </tr> <tr> <td>824.20</td> <td>135.43</td> <td>H</td> <td>Y</td> <td>36.29</td> <td>2.89</td> <td>-1.56</td> <td>31.85</td> <td>37.00</td> <td>-5.15</td> </tr> <tr> <td colspan="10">MID CH _ FUNDAMENTAL</td> </tr> <tr> <td>836.50</td> <td>135.60</td> <td>V</td> <td>Y</td> <td>36.83</td> <td>2.88</td> <td>-1.55</td> <td>32.40</td> <td>37.00</td> <td>-4.60</td> </tr> <tr> <td>836.50</td> <td>134.93</td> <td>H</td> <td>Y</td> <td>36.16</td> <td>2.88</td> <td>-1.55</td> <td>31.73</td> <td>37.00</td> <td>-5.27</td> </tr> <tr> <td colspan="10">HI CH FUNDAMENTAL</td> </tr> <tr> <td>848.80</td> <td>135.60</td> <td>V</td> <td>Y</td> <td>37.19</td> <td>2.87</td> <td>-1.55</td> <td>32.76</td> <td>37.00</td> <td>-4.24</td> </tr> <tr> <td>848.80</td> <td>135.20</td> <td>H</td> <td>Y</td> <td>36.79</td> <td>2.87</td> <td>-1.55</td> <td>32.36</td> <td>37.00</td> <td>-4.64</td> </tr> </tbody> </table>			Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	EUT Polarization	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBd)	Emission level (dBm)	Limit (dBm)	Margin (dB)	LOW CH FUNDAMENTAL										824.20	135.15	V	Y	36.01	2.89	-1.56	31.57	37.00	-5.43	824.20	135.43	H	Y	36.29	2.89	-1.56	31.85	37.00	-5.15	MID CH _ FUNDAMENTAL										836.50	135.60	V	Y	36.83	2.88	-1.55	32.40	37.00	-4.60	836.50	134.93	H	Y	36.16	2.88	-1.55	31.73	37.00	-5.27	HI CH FUNDAMENTAL										848.80	135.60	V	Y	37.19	2.87	-1.55	32.76	37.00	-4.24	848.80	135.20	H	Y	36.79	2.87	-1.55	32.36	37.00	-4.64
Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	EUT Polarization	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBd)	Emission level (dBm)	Limit (dBm)	Margin (dB)																																																																																													
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RBW = VBW = 3 MHz																																																																																																						

Output Power (EIRP), 1900MHz - Low / Mid / High Channels

11/25/2003 Compliance Certification Services, Morgan Hill Open Field Site									
Test Engineer: Chin Pang Project #: 03U2359-2 Company: Sierra Wireless Inc. YW. EUT Description: Dual Band GSM Card 850/1900MHz in the Laptop EUT M/N: AIRCARD 755 Test Target: PART 24 (1900MHz) Mode Operation: Tx- FUNDAMENTAL & SUBSTITUTION (Worst Case) _ LOW, MID, HI CHANNELS The antenna of EUT at Y worst-case position									
Test Equipment:									
EMCO Horn 1-18GHz T73: S/N: 6717 @ 3r		Pre-amplifier 1-26GHz 		Spectrum Analyzer Agilent E4446A Analyzer		Horn > 18GHz 		Limit EIRP	
Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input checked="" type="checkbox"/> (4 ~ 6 ft) <input type="checkbox"/> (12 ft)									
Peak Measurements: Fundamental: RBW>99% or 26dB Emissions BW Bandedge: RBW=>1% Emissions BW Spurious RBW=1MHz VBW=RBW VBW=> 3*RBW VBW=1MHz									
f GHz	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH									
1.850	89.0	23.8	0.4	7.8	0.0	31.2	33.0	-1.8	V (Y-Position)
1.850	97.7	16.0	0.4	7.8	0.0	23.4	33.0	-9.6	H (Y-Position)
MID CH									
1.880	90.2	23.1	0.4	7.9	0.0	30.5	33.0	-2.5	V (Y-Position)
1.880	95.8	14.9	0.4	7.9	0.0	22.3	33.0	-10.7	H (Y-Position)
HI CH									
1.910	92.5	24.0	0.4	7.9	0.0	31.5	33.0	-1.5	V (Y-Position)
1.910	95.8	15.8	0.4	7.9	0.0	23.3	33.0	-9.7	H (Y-Position)
RBW=VBW=3MHz									

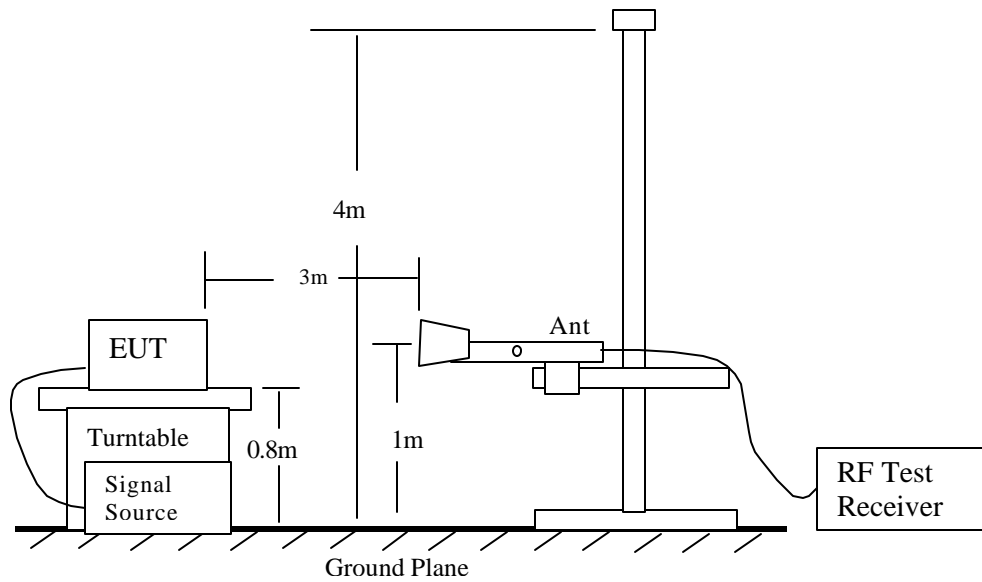
7.2. SECTION 2.1053: FIELD STRENGTH OF SPURIOUS RADIATION

INSTRUMENTS LIST

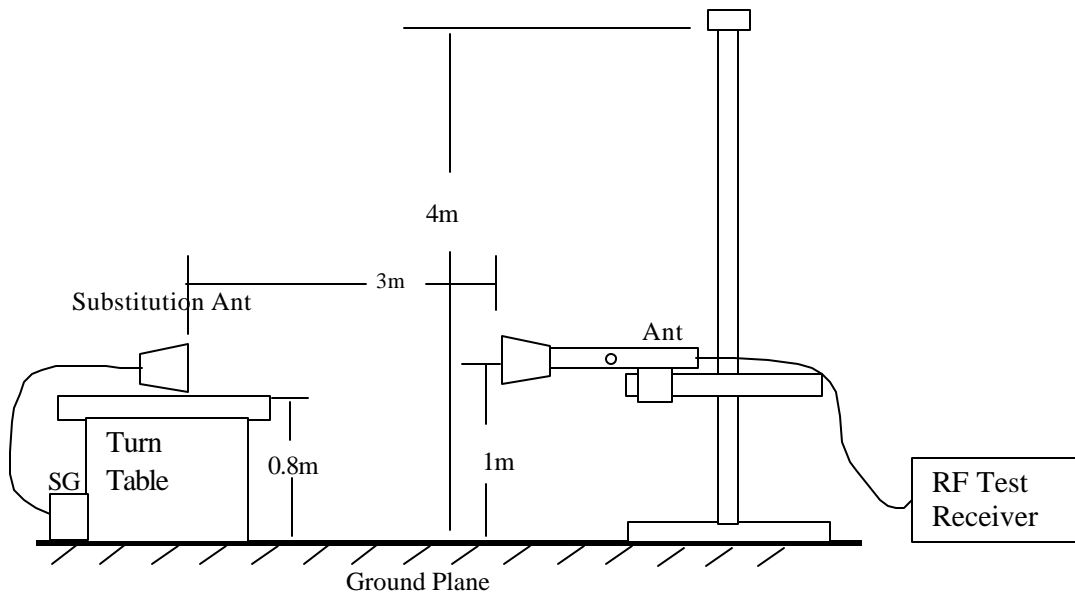
TEST EQUIPMENT LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/2004
Antenna, Bicon/Log, 25 ~ 2000 MHz	ARA	LPB-2520/A	1185	3/6/2004
Amplifier 1-26GHz	MITEQ	NSP2600-SP	924342	4/25/2004
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	10/13/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004
Line Filter	Lindgren	LMF-3489	497	CNR
2.0 HPF	MicroTronic		1	CNR
Spectrum Analyzer 20 Hz ~ 44 GHz	Agilent	E4446A	US42070220	1/13/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	2/4/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	2/4/2004
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
Above 1000	<input checked="" type="checkbox"/> Peak	<input checked="" type="checkbox"/> 1 MHz	<input checked="" type="checkbox"/> 1 MHz
	<input type="checkbox"/> Average	<input type="checkbox"/> 1 MHz	<input type="checkbox"/> 10 Hz



Radiated Emission Measurement



Radiated Emission – Substitution Method set-up

TEST PROCEDURE

- 1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
- 2). The test antenna shall be oriented initially for vertical polarization located 1m from the EUT to correspond to the frequency of the transmitter.
- 3). The output of the test antenna shall be connected to the measuring receiver and either a peak or average detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- 4). The transmitter shall be placed 0.80 meter above the ground plane, the X, Y, and Z positions shall be tested and the worst case reported. The transmitter shall be switched on with typical modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 8). The maximum signal level detected by the measuring receiver shall be noted.
- 9). The transmitter shall be replaced by a substitution antenna.
- 10). The substitution antenna shall be oriented for vertical polarization.
- 11). The substitution antenna shall be connected to a calibrated signal generator.
- 12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- 13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- 14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- 15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- 16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
- 17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

MEASUREMENT RESULT

No non-compliance noted, as shown below

800MHz Band - Harmonics / Spurious and Substitution Emissions, Low / Mid / High Channels:

11/25/2003 Compliance Certification Services, Morgan Hill Open Field Site									
Test Engr: VIEN TRAN									
Project #: 03u2359-2									
Company: Sierra Wireless Inc. YW									
EUT Descrip.: Dual Band Card 850/1900MHz in the Laptop									
EUT M/N: AIRCARD 755									
Test Target: FCC Class B _ PART 22 (850MHz)									
Mode Oper: SUBSTITUTION FOR HARMONIC, SPUR _ LOW, MID and HI CHANNELS_TX @ Worst Case									
Test Equipment:									
EMCO Horn 1-18GHz		Pre-amplifier 1-26GHz		Spectrum Analyzer		Horn > 18GHz		Limit	
T73: S/N: 6717 @ 31		T63 Mited 646456		Agilent E4446A Analyzer				ERP	
Hi Frequency Cables									
<input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input checked="" type="checkbox"/> (4 ~ 6 ft) <input type="checkbox"/> (12 ft)									
Peak Measurements:									
Fundamental: RBW>99% or 26dB Emissions BW									
Bandedge: RBW=>1% Emissions BW									
Spurious: RBW=1MHz									
VBW=RBW									
VBW=> 3*RBW									
VBW=1MHz									
f GHz	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH=824.2MHz									
1.648	73.2	-38.6	0.4	7.5	5.4	-33.6	-13.0	-20.6	V
2.473	62.3	-51.2	0.6	8.6	6.4	-45.4	-13.0	-32.4	V
3.297	62.5	-44.0	0.7	9.3	7.2	-37.6	-13.0	-24.6	V, NOISE FLOOR
MID CH=836MHz									
1.648	66.5	-47.2	0.4	7.5	5.4	-42.2	-13.0	-29.2	H
2.473	58.6	-42.5	0.6	8.6	6.4	-36.7	-13.0	-23.7	H
3.297	59.8	-44.7	0.7	9.3	7.2	-38.2	-13.0	-25.2	H, NOISE FLOOR
HI CH=848.8MHz									
1.673	71.3	-41.6	0.4	7.6	5.4	-36.6	-13.0	-23.6	V
2.510	61.7	-48.6	0.6	8.6	6.4	-42.7	-13.0	-29.7	V
3.346	60.3	-46.4	0.8	9.3	7.2	-40.0	-13.0	-27.0	V, NOISE FLOOR
1.673	67.9	-45.1	0.4	7.6	5.4	-40.1	-13.0	-27.1	H
2.510	59.2	-53.8	0.6	8.6	6.4	-47.9	-13.0	-34.9	H
3.346	58.8	-46.2	0.8	9.3	7.2	-39.8	-13.0	-26.8	H, NOISE FLOOR
HI CH=848.8MHz									
1.698	75.9	-36.3	0.4	7.6	5.5	-31.2	-13.0	-18.2	V
2.547	63.6	-49.6	0.6	8.6	6.5	-43.7	-13.0	-30.7	V
3.396	59.3	-54.0	0.8	9.4	7.2	-47.5	-13.0	-34.5	V, NOISE FLOOR
1.698	68.4	-44.3	0.4	7.6	5.5	-39.2	-13.0	-26.2	H
2.547	60.1	-48.7	0.6	8.6	6.5	-42.8	-13.0	-29.8	H
3.396	58.2	-52.9	0.8	9.4	7.2	-46.4	-13.0	-33.4	H, NOISE FLOOR

Note: Completed Scan from 30MHz to 10th Harmonic.

1900MHz Band- Harmonics / Spurious and Substitution Emissions, Low / Mid / High Channels:

11/25/2003 Compliance Certification Services, Morgan Hill Open Field Site									
Test Engr: VIEN TRAN									
Project #: 03u2359-2									
Company: Sierra Wireless Inc. YW									
EUT Descr.: Dual Band Card 850/1900MHz in the Laptop									
EUT M/N: AIRCARD 755									
Test Target: FCC Class B _ PART 24 (1900MHz)									
Mode Oper: SUBSTITUTION FOR HARMONIC, SPUR _ LOW, MID and HI CHANNELS									
TX @ Worst Case(EUT Antenna @ Y Polarization									
Test Equipment:									
EMCO Horn 1-18GHz		Pre-amplifier 1-26GHz		Spectrum Analyzer		Horn > 18GHz		Limit	
T73: S/N: 6717 @ 3n		T73: S/N: 6717 @ 3n		Agilent E4446A Analyzer				EIRP	
HI Frequency Cable:									
<input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input checked="" type="checkbox"/> (4 ~ 6 ft) <input type="checkbox"/> (12 ft)									
Peak Measurements:									
Fundamental: RBW>99% or 26dB Emissions BW VBW=RBW									
Bandedge: RBW=>1% Emissions BW VBW=> 3*RBW									
Spurious RBW=1MHz VBW=1MHz									
f GHz	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH=1850MHz									
3.700	61.4	-44.0	0.8	9.6	7.4	-35.2	-13.0	-22.2	V
5.550	74.4	-32.1	1.0	11.1	9.0	-22.0	-13.0	-9.0	V
7.400	65.0	-40.3	1.2	11.6	9.4	-29.9	-13.0	-16.9	V, NOISE FLOOR
3.700	57.4	-47.5	0.8	9.6	7.4	-38.8	-13.0	-25.8	H
5.550	62.9	-40.6	1.0	11.1	9.0	-30.5	-13.0	-17.5	H
7.400	62.2	-42.0	1.2	11.6	9.4	-31.6	-13.0	-18.6	H, NOISE FLOOR
Mid Ch=1880MHz									
3.760	59.4	-45.3	0.8	9.6	7.4	-36.5	-13.0	-23.5	V
5.640	76.2	-29.3	1.0	11.2	9.0	-19.1	-13.0	-6.1	V
7.519	61.0	-54.7	1.2	11.5	9.4	-44.4	-13.0	-31.4	V, NOISE FLOOR
3.760	57.2	-47.8	0.8	9.6	7.4	-39.0	-13.0	-26.0	H
5.640	65.0	-38.2	1.0	11.2	9.0	-28.0	-13.0	-15.0	H
7.520	60.3	-40.1	1.2	11.5	9.4	-29.8	-13.0	-16.8	H, NOISE FLOOR
High Ch=1909.8MHz									
3.820	59.4	-45.4	0.8	9.6	7.5	-36.6	-13.0	-23.6	V
5.729	72.3	-32.7	1.0	11.3	9.1	-22.5	-13.0	-9.5	V
7.639	60.9	-43.0	1.2	11.5	9.3	-32.8	-13.0	-19.8	V, NOISE FLOOR
3.820	55.9	-49.3	0.8	9.6	7.5	-40.5	-13.0	-27.5	H
5.729	69.7	-34.4	1.0	11.2	9.1	-24.2	-13.0	-11.2	H
7.639	59.6	-43.3	1.2	11.5	9.3	-33.1	-13.0	-20.1	H, NOISE FLOOR

Note: Completed Scan from 30MHz to 10th Harmonic.

7.3. RADIATED EMISSION

TEST EQUIPMENT LIST

TEST EQUIPMENT LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/2004
Antenna, Bicon/Log, 25 ~ 2000 MHz	ARA	LPB-2520/A	1185	3/6/2004
Amplifier 1-26GHz	MTIEQ	NSP2600-SP	924342	4/25/2004
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	10/13/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004
Line Filter	Lindgren	LMF-3489	497	CNR
2.0 HPF	MicroTronic		1	CNR
Spectrum Analyzer 20 Hz ~ 44 GHz	Agilent	E4446A	US42070220	1/13/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	2/4/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	2/4/2004
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004

TEST PERIPHERALS

TEST PERIPHERALS				
Device Type	Manufacturer	Model Number	Serial Number	FCC ID
Laptop	Compaq	ARMADA E500	NA	DoC
AC Adapter	Compaq	PPP05L	J1054	DoC
Modem	ACEEX	1414	9013537	IFAXDM1414
Printer	HP	2225C	2541S41679	BS46XU2225C
Mouse	Trekker	X04-81530	90318-OEM-1068751	DoC

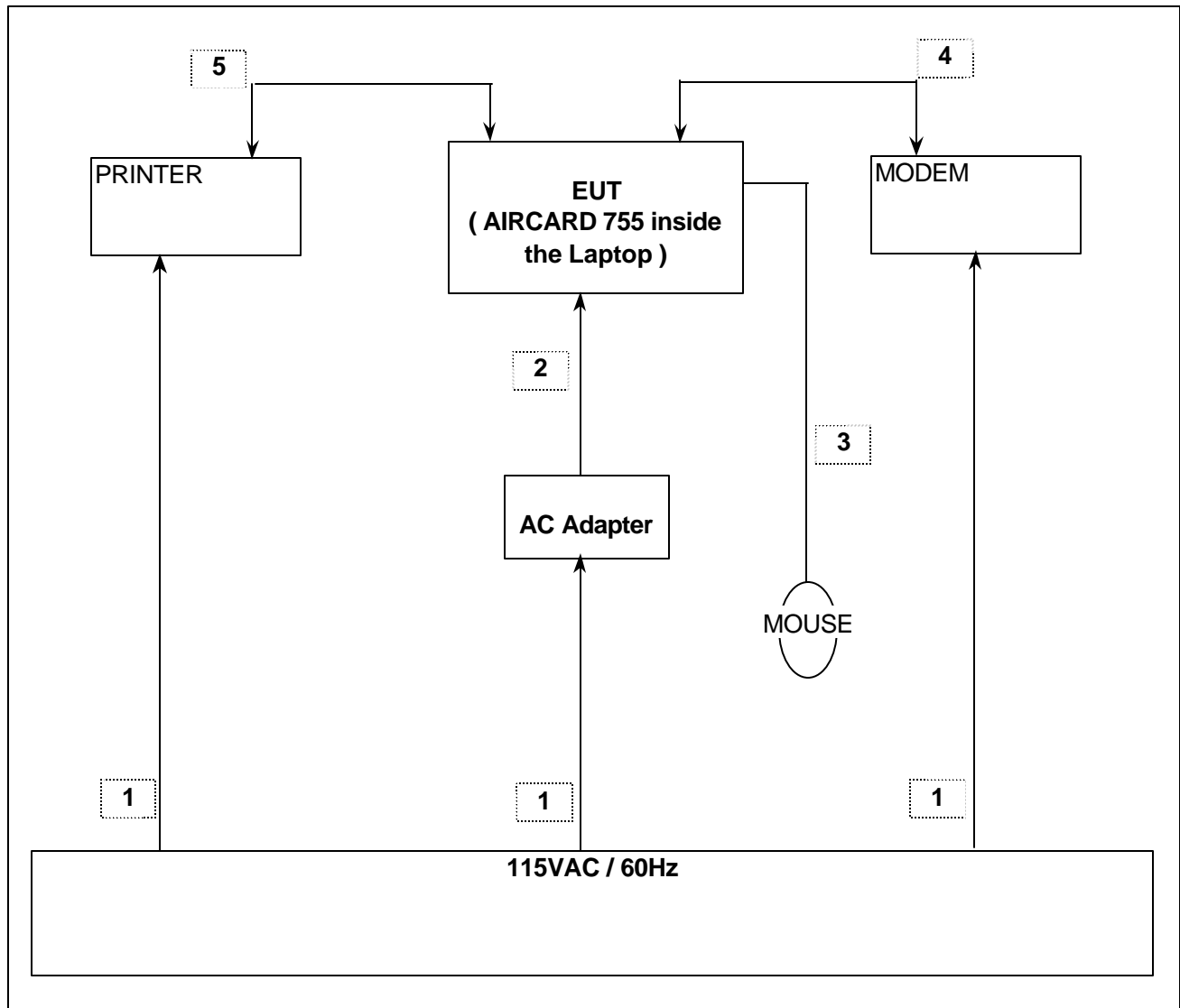
TEST I/O CABLES

Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	3	US 115V	Un-shielded	2m	No	No	Bundled AC Cable for LC test NA N/A N/A N/A
2	DC	1	DC	Un-shielded	1m	No	No	
3	Mouse	1	PS/2	Un-shielded	2m	Yes	No	
4	Serial	1	DB9	Shielded	1m	Yes	No	
5	Parallel	1	DB25	Shielded	2m	Yes	Yes	

Detector Setting of Spectrum Analyzer

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	<input checked="" type="checkbox"/> Peak	<input checked="" type="checkbox"/> 100 KHz	<input checked="" type="checkbox"/> 100 KHz
	<input checked="" type="checkbox"/> Quasi Peak	<input checked="" type="checkbox"/> 1 MHz	<input checked="" type="checkbox"/> 1 MHz

TEST SETUP



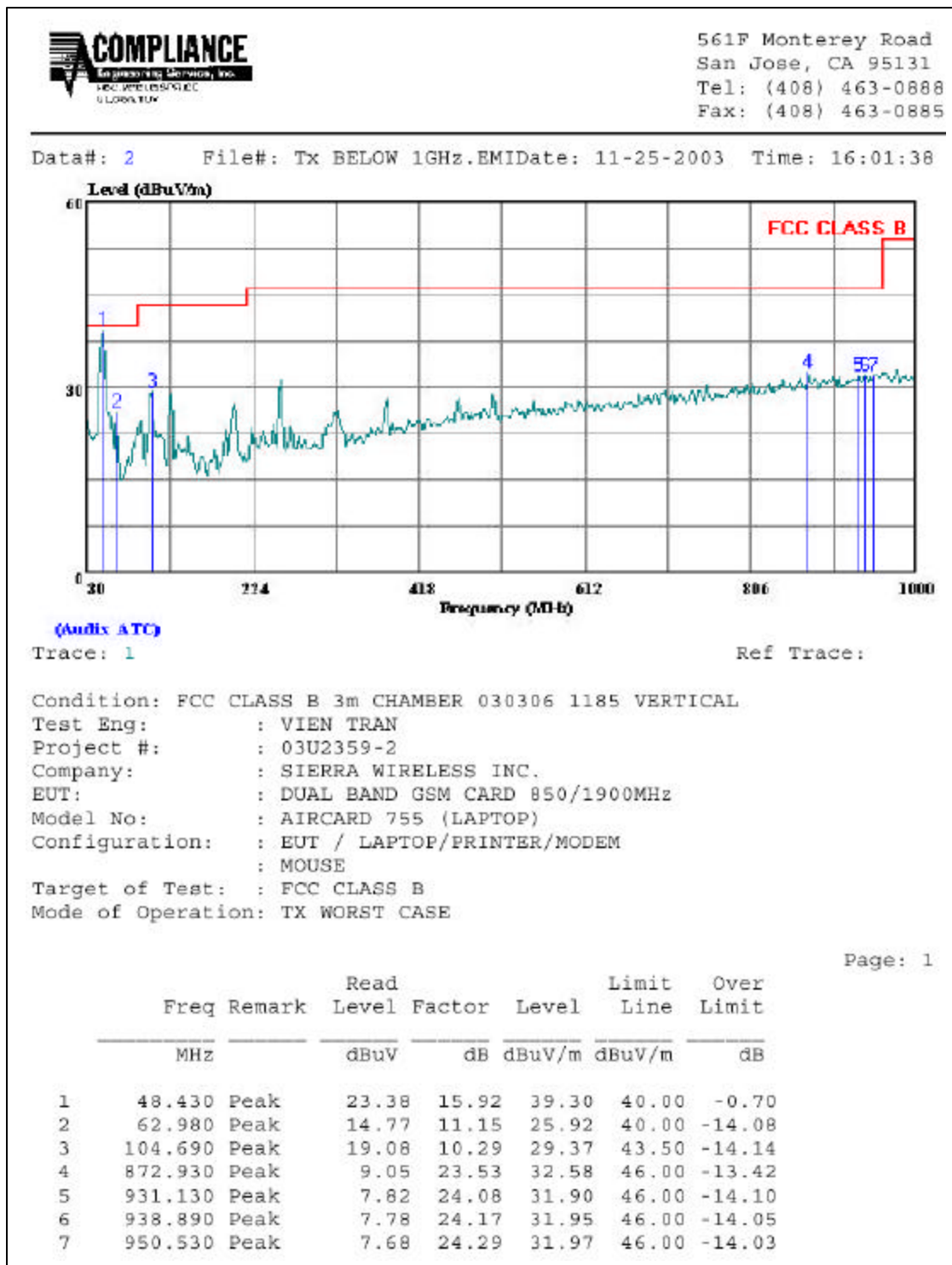
TEST PROCEDURE

1. The EUT was placed on the turn table 0.8 meter above ground inside 3 meter Anechoic Chamber.
2. Set the resolution bandwidth to 120KHz in the test receiver and select Peak function to scan the frequency below 1 GHz.
3. Shift the interference-receiving antenna located in antenna tower upwards and downwards between 1 and 4 meters above ground and find out the local peak emission on frequency domain.
4. Locate the interference-receiving antenna at the position where the local peak reach the maximum emission.
5. Rotate the turn table and stop at the angle where the measurement device has maximum reading
6. Shift the interference-receiving antenna again to detect the maximum emission of the local peak
7. If the reading of the local peak under Peak function is lower than limit by 6dB, then Quasi Peak detection is not needed and this reading should be recorded. And if it is higher than Peak limit, then the test is fail. Others, switch the receiver to Quasi Peak function, set the resolution bandwidth to 100kHz and repeat the procedures (3)~(6). If the reading is lower than limit, this reading should be recorded, otherwise, the test is fail.

MEASUREMENT RESULT

No non-compliance noted, as shown below.

**800MHz AND 1900MHz BANDS FROM 30MHz TO 1000MHz
VERTICAL**

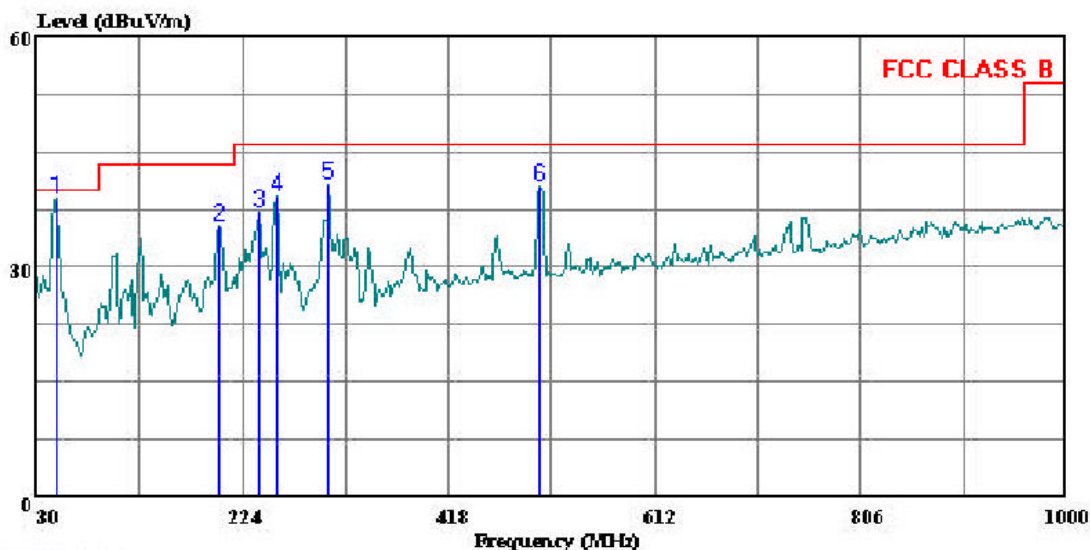


HORIZONTAL



561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 4 File#: Tx BELOW 1GHz.EMIDate: 11-25-2003 Time: 16:11:46



(Auxiliary ATC)

Trace: 3

Ref Trace:

Condition: FCC CLASS B 3m CHAMBER 030306 1185 HORIZONTAL
Test Eng: : VIEN TRAN
Project #: : 03U2359-2
Company: : SIERRA WIRELESS INC.
EUT: : DUAL BAND GSM CARD 850/1900MHz
Model No: : AIRCARD 755 (LAPTOP)
Configuration: : EUT / LAPTOP/PRINTER/MODEM
: MOUSE
Target of Test: : FCC CLASS B
Mode of Operation: TX WORST CASE

Page: 1

	Freq	Remark	Read Level	Factor	Level	Limit	Over
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	48.430	Peak	22.99	15.92	38.91	40.00	-1.09
2	201.690	Peak	24.82	10.46	35.28	43.50	-8.22
3	240.490	Peak	24.42	12.83	37.25	46.00	-8.75
4	256.980	Peak	25.81	13.42	39.23	46.00	-6.77
5	305.480	Peak	26.84	13.96	40.80	46.00	-5.20
6	504.330	Peak	21.73	18.91	40.64	46.00	-5.36

Radiated Emission photos

Front view



Back view

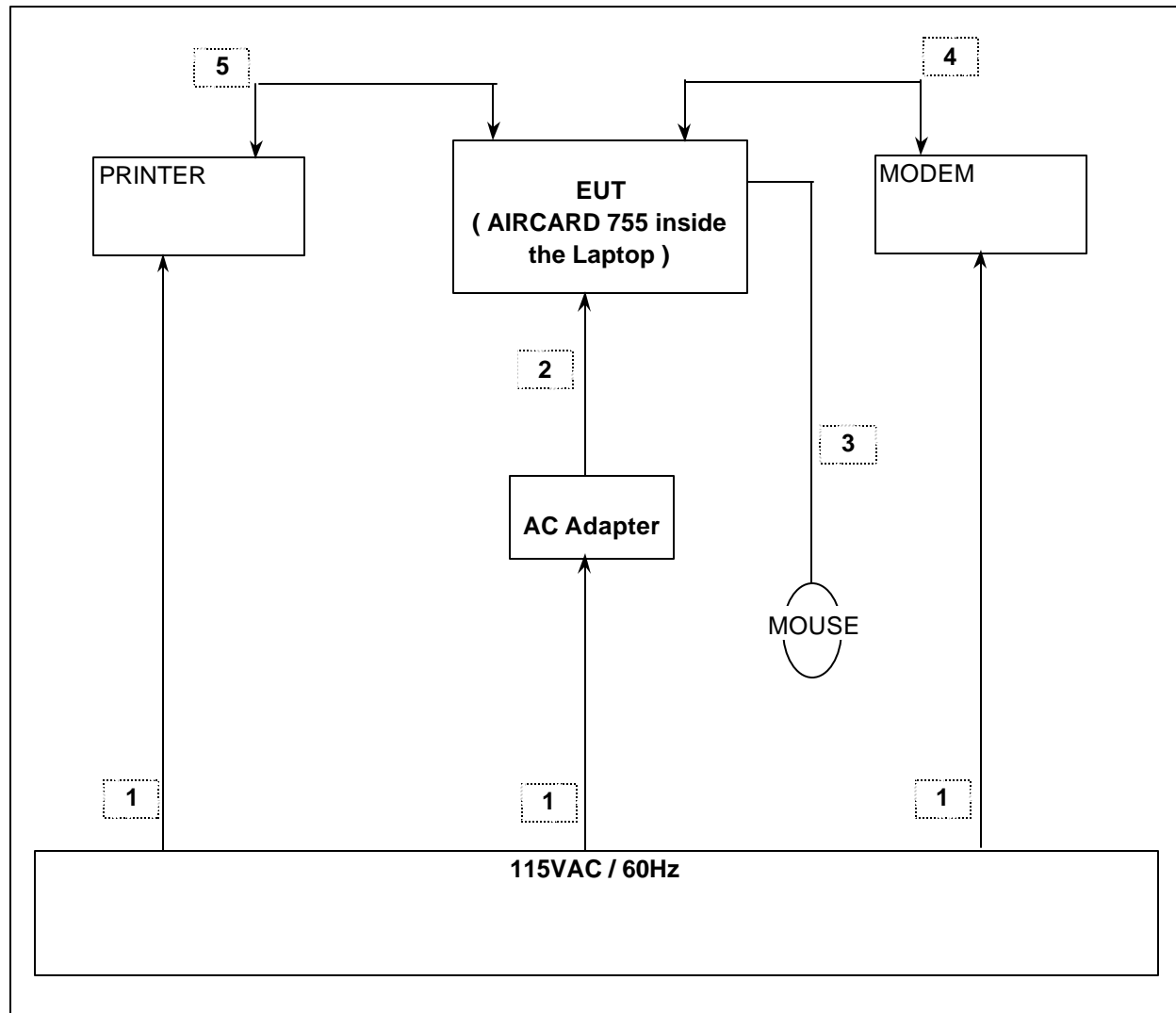


7.4. POWERLINE CONDUCTED EMISSION

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
150 KHz to 30 MHz	<input checked="" type="checkbox"/> Peak <input type="checkbox"/> CISPR Quasi Peak	<input checked="" type="checkbox"/> 9 KHz	<input checked="" type="checkbox"/> 9 KHz

TEST SETUP

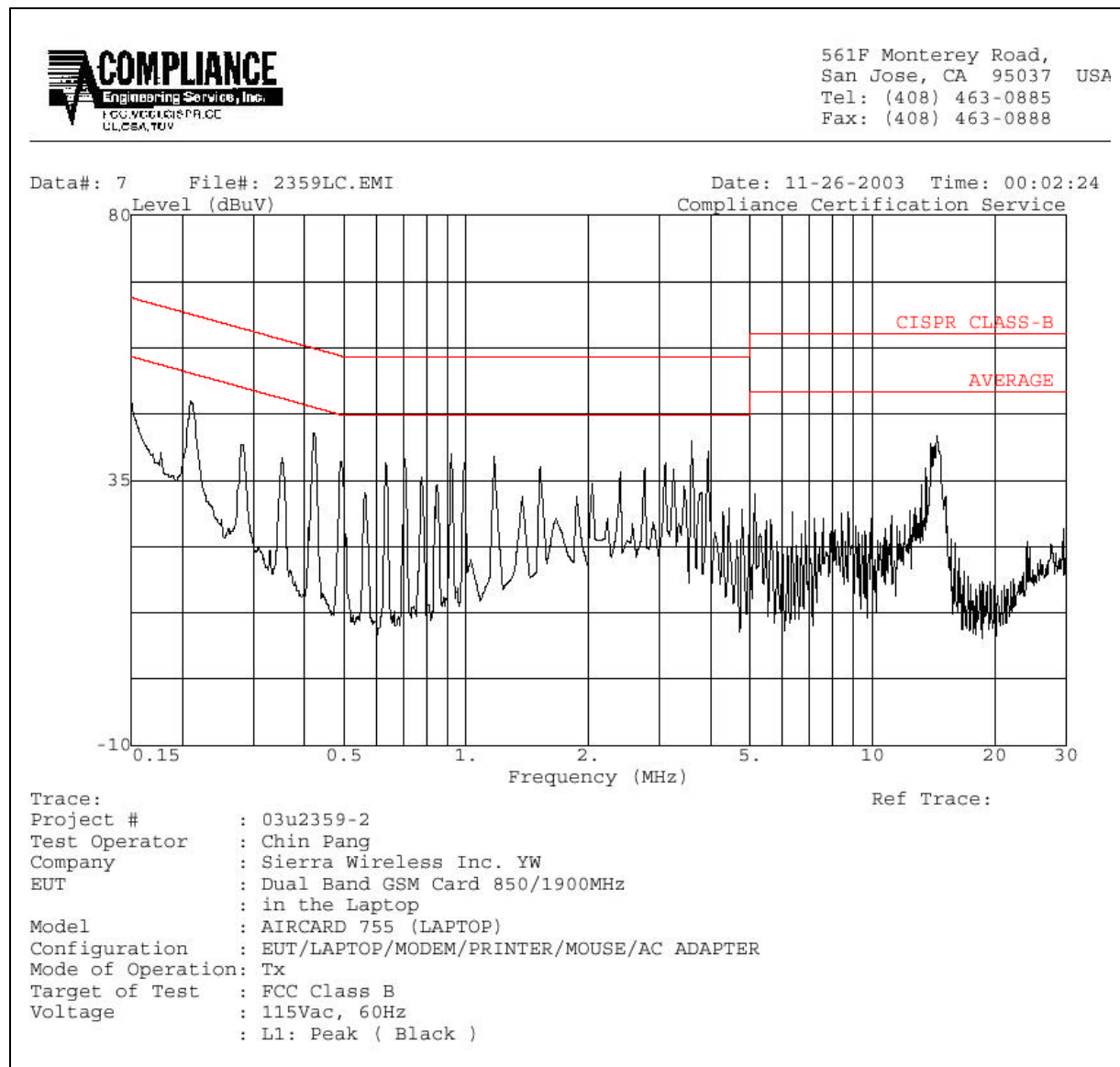


TEST PROCEDURE

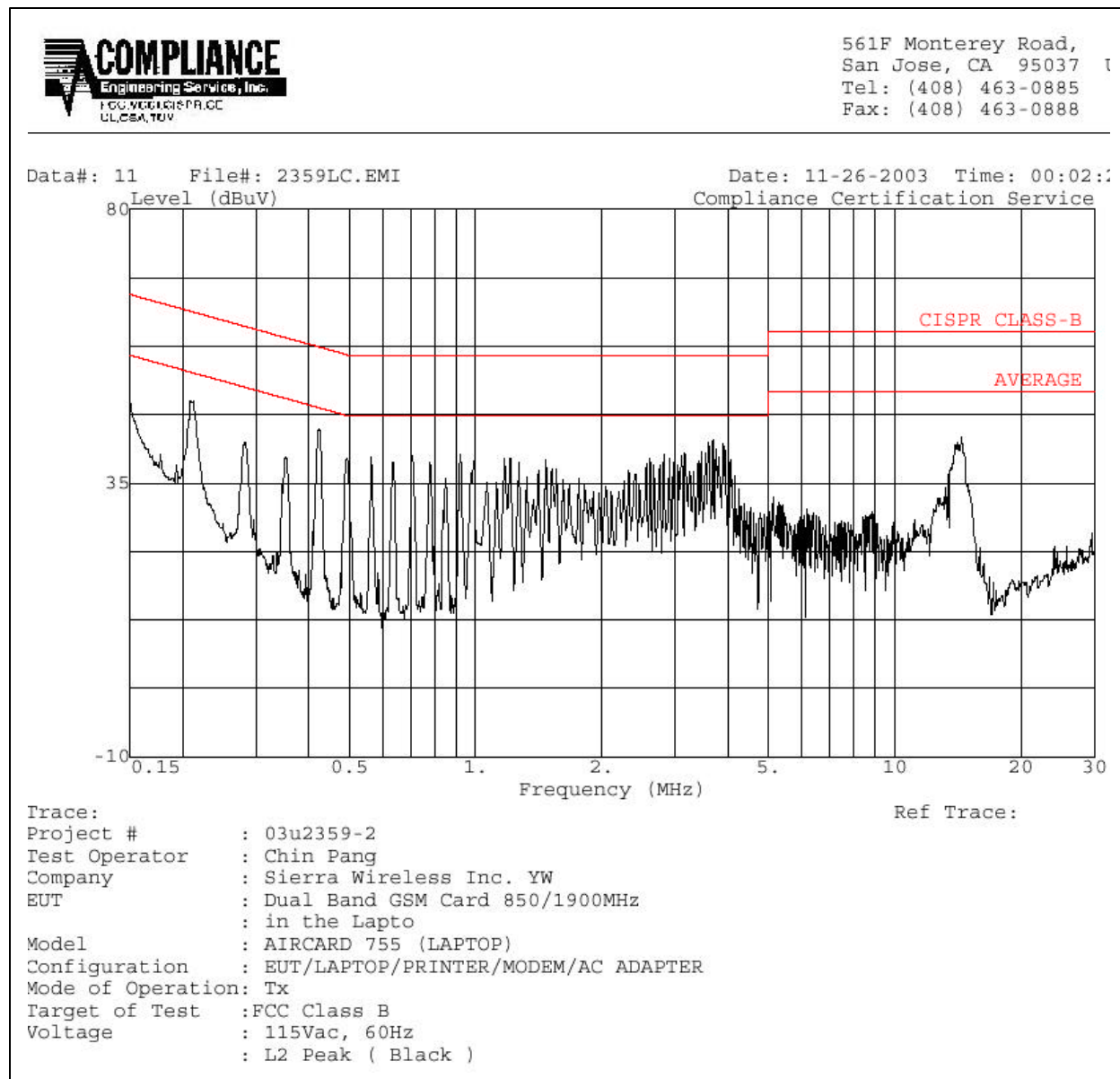
1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in a continuous mode.
2. Line conducted data was recorded for both NEUTRAL and HOT lines.

MEASUREMENT RESULT (FOR BOTH 800MHz AND 1900MHz BANDS)

LINE 1



LINE 2



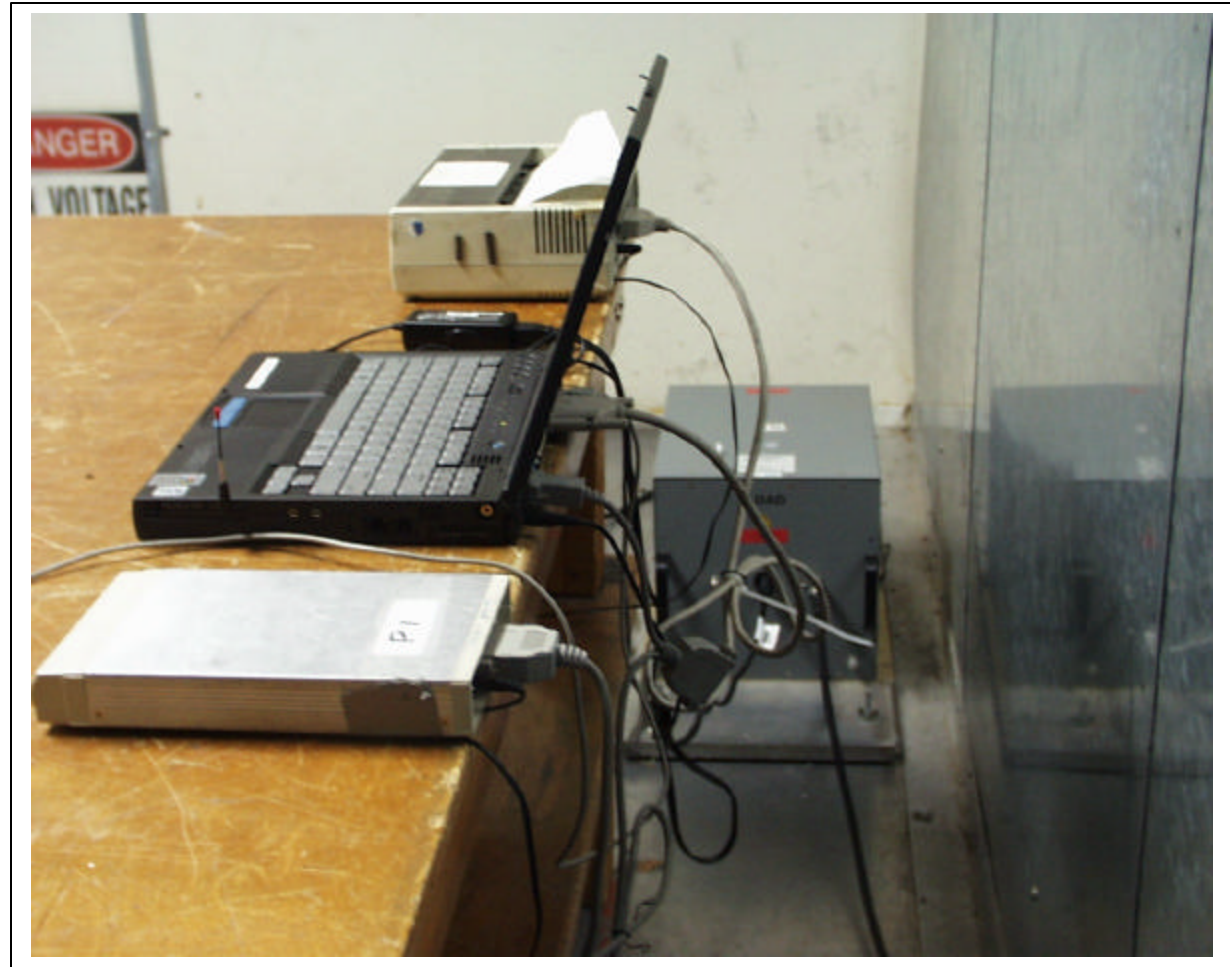
LINE CONDUCTION DATA (FOR BOTH 800MHz AND 1900MHz BANDS)

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
0.21	48.44	--	--	0.00	64.31	54.31	-15.87	-5.87	L1
3.58	42.72	--	--	0.00	56.00	46.00	-13.28	-3.28	L1
14.36	41.90	--	--	0.00	60.00	50.00	-18.10	-8.10	L1
0.21	50.44	--	--	0.00	64.31	54.31	-13.87	-3.87	L2
0.42	44.68	--	--	0.00	58.26	48.26	-13.58	-3.58	L2
14.36	40.90	--	--	0.00	60.00	50.00	-19.10	-9.10	L2
6 Worst Data									

LINE CONDUCTION - FRONT



LINE CONDUCTION - BACK



8. APENDIX

- 8.1. EXTERNAL & INTERNAL PHOTOS**
- 8.2. SCHEMATICS**
- 8.3. BLOCK DIAGRAM**
- 8.4. USER MANUAL**

END OF REPORT