Engineering and Testing for EMC and Safety Compliance

FCC VERIFICATION OF A CLASS A DIGITAL DEVICE

TELETRONICS INTERNATIONAL, INC.
1803 RESEARCH BLVD, SUITE 404
ROCKVILLE, MD 20850
301-309-8500

MODELS:
WL-CPE-Router1
WL-CPE-Router2
WL-CPE-RouterANT15

May 21, 2002

This report concerns (check one):	**Class A Verification: X** **Class II Change:**
Equipment Type: CPE Router	
Deferred grant requested per 47 CFR 0.457 (d) (1) (ii)?	**Yes:** **No: X**
If yes, defer until:	_____ ***Date***
Company Name agrees to notify the Commission by:	_____**(date) of the intended date of announcement of the so that the grant can be issued on that date.**
Transition Rules Request per 15.37?	**Yes:** **No: X**
If no, assumed Part 15, subpart B for unintentional radiators - the new 47 CFR [10-1-90 Edition] provision.	

Test Engineers: Kinh Ly

Rhein Tech Laboratories, Inc.

Document Number: 2002105

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1 GENERAL INFORMATION

The following FCC Verification for a Class A Digital Device, is prepared on behalf of **Teletronics International, Inc.** in accordance with Part 2, and Part 15, Subparts A and B of the Federal Communications Commission's rules an regulations. The equipment under test (EUT) was: **WL-CPE-Router1, WL-CPE-Router2, WL-CPE-RouterANT15**. The test results reported in this document relate only to the items that were tested.

All measurements contained in this application were conducted in accordance with ANSI C63.4 Methods of Measurement of Radio Noise Emissions, 1992. The instrumentation utilized for the measurements conforms with the ANSI C63.4 standard for EMI and Field Strength Instrumentation. Some accessories are used to increase sensitivity and prevent overloading of the measuring instrument. These are explained in the appendix of this report. Calibration checks are performed regularly on the instruments, and all accessories including the high pass filter, preamplifier and cables.

All radiated and conducted emissions measurements were performed manually at Rhein Tech Laboratories, Inc. The radiated emissions measurements required by the rules were performed on the (three/ten) meter open field test range. Complete description and site attenuation measurement data has been placed on file with the Federal Communications Commission. The power line conducted emission measurements were performed in a shielded enclosure. Rhein Tech Laboratories is accepted by the FCC as a facility available to do measurement work for others on a contract basis.

1.1 RELATED SUBMITTALS & GRANTS

N/A. This is a Class A Device.

1.2 TEST METHODOLOGY

Both conducted and radiated tests were performed according to the procedures in ANSI 63.4 1992. Radiated testing was performed at an antenna to EUT distance of ten meters.

1.3 TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data is located on the parking lot of Rhein Tech Laboratories, Inc. 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing per ANSI C63.4 1992.

2 SYSTEM TEST CONFIGURATION

2.1 PRODUCT DESCRIPTION

Three CPE (Customer Premises Equipment) router models were tested. The differences between the models are as follows:

- WL-CPE-Router1 is housed in a rain-proof enclosure
- WL-CPE-Router2 is housed in a NEMA 4 enclosure
- WL-CPE-Router ANT15 is housed in a Smartant enclosure

Internal circuitry and wiring for the three models is identical.
General specifications are listed below.

Processor:	AMD 100 MHz
Memory:	16 MB SDRAM.
Compact Flash Card:	8 MB Compact Flash Card.
PCMCIA Slot:	Single PCMCIA card bus controller
Ethernet Adapter:	Realtek 8139C 10/100.
Serial Port:	9 Pins, RS-232.
RF Connector:	N-Female.
Power Consumption:	Board: 75mA ; Board + PCMCIA: 175mA.
AC Adaptor:	18V VDC, 1000mA Output.
Dimensions :	8.5" L x 11.25" W x 3" H
Weight:	6 lb (Box, Board, Adapter Cable, AC Adaptor, DC-Injector, RJ45).
Operating System:	Linux 2.4.13 Kernel.
Web Management:	Configuration, monitoring, information.
AC Adapter :	Input 120 VAC -- 60 Hz -- 250 mA Output 18 VDC -- 1000 mA
DC Injector :	Combine Power and Data Through a RJ-45 Cable
Cables :	3' Straight RJ-45 (Blue) , 1' Cross Over RJ-45 (Gray) RF Adapter Cable type N (Male or Female)

2.2 TESTED SYSTEM DETAILS

Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test.

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
CPE Router (EUT)	**Teletronics International, Inc.**	**WL-CPE-RouterANT15**	**0021791**	**Sample**	**Unshielded CAT5 I/O**	**014408**
CPE Router (EUT)	**Teletronics International, Inc.**	**WL-CPE-Router1**	**000221**	**Sample**	**Unshielded CAT5 I/O**	**014407**
CPE Router (EUT)	**Teletronics International, Inc.**	**WL-CPE-Router2**	**0021853**	**Sample**	**Unshielded CAT5 I/O**	**014406**
Power Supply (EUT)	**Teletronics International, Inc.**	**SCP48-180100**	**JM-1892-1**	**N/A**	**Unshielded**	**014409**
CPE Hub	Teletronics International, Inc.	CPE Hub	N/A	N/A	N/A	014410

Note: The three CPE Routers were tested independently

2.3 EUT EXERCISE SOFTWARE

The CPE Routers were configured for testing in a manner best simulating their typical environment. All ports were baded and power was supplied via AC mains through supplied AC/DC adapter. All internal circuitry, clocks, and oscillators were powered and functioning. The only I/O cable required by the routers is a single CAT5 ethernet cable. This cable was routed to a Teletronics CPE Hub which was connected via another CAT5 cable to an ethernet hub.

2.4 SPECIAL ACCESSORIES

The end user is advised to use the same type cables as mentioned in this report.

2.5 MODIFICATIONS

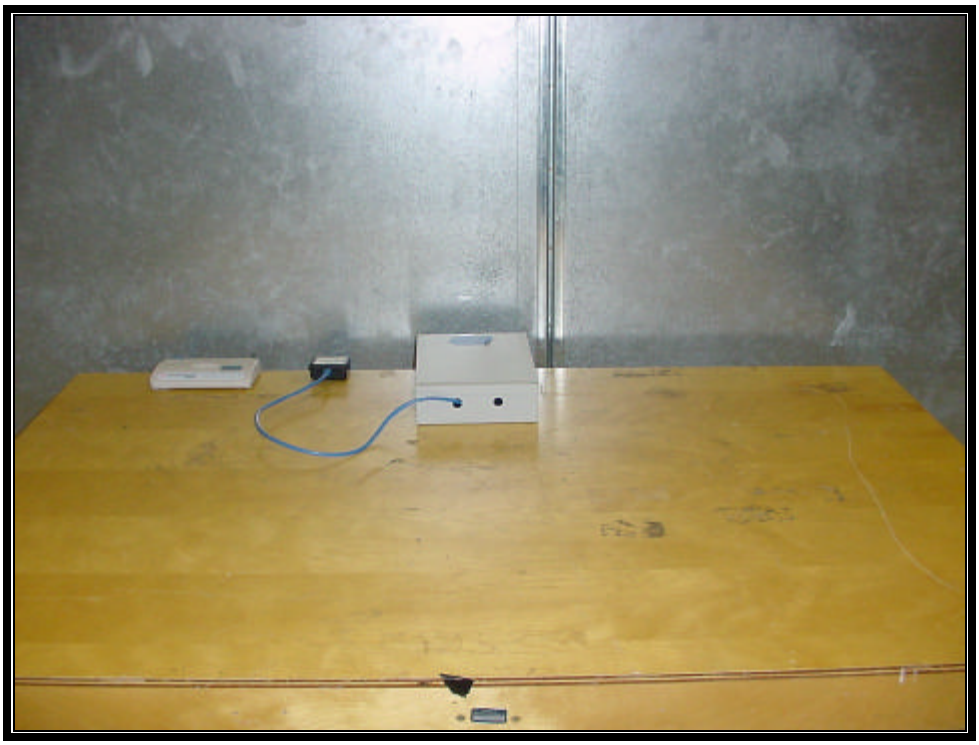
- Fair-Rite brand clamp-on ferrite installed on CAT5 cable internal to chassis. Ferrite serial number: 0444167281.
- Fair-Rite brand clamp-on ferrite installed on DC power cable at the connector end. The DC cable was passed through the ferrite 3 times. Ferrite serial number: 0444167281.

2.6 CONFIGURATION PHOTOGRAPHS OF DEVICE UNDER TEST

WL-CPE-RouterANT15

WL-CPE-Router1

WL-CPE-Router2



3 LABELLING

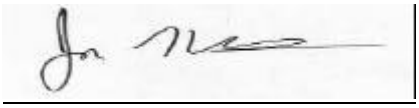
3.1 LABEL REQUIREMENTS

The device under test shall bear the following statement in a conspicuous location on the device:

> This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference's that may cause undesirable operation.

4 CONFORMANCE STATEMENT

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this document. Modifications made during testing in order to achieve compliance with these standards are specified in Section 2.5.

Signature:  Date: 5/21/02

Typed/Printed Name: Jon Wilson Position: EMC Lab Coordinator

Accredited by the National Voluntary Accreditation Program for the specific scope of accreditation under Lab Code 200061-0.

Note: This report may not be used by the client to claim endorsement by NVLAP or any agency of the U.S. Government.

5 VERIFICATION

VERIFICATION

Statement of Manufacturer's Representative

Company Name: Teletronics International, Inc.

Representative's Name: Nusrat Jamal

Model No.'s: WL-CPE-Router1
WL-CPE-Router2
WL-CPE-RouterANT15

Date Tested: 05/04/02 TO 05/06/02

I hereby warrant that the test sample is representative of the product to be marketed, that the test system configuration is representative of the product's intended use, and that during testing the test sample was functioning and being exercised in a manner typical of it's intended use, and that modifications made during testing in order to achieve compliance with these standards are specified in Section 2.5.

Signature: _____ Date:

Typed/Printed Name: Nusrat Jamal Position:

6 CONDUCTED EMISSIONS DATA

6.1 CONDUCTED EMISSIONS TEST RESULTS

6.1.1 Phase Line WL-CPE-RouterANT15

Temperature: 74°F Humidity: 35%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC A QP Limit (dBuV)	FCC A QP Margin (dBuV)	FCC A AV Limit (dBuV)	FCC A AV Margin (dBuV)	Pass/ Fail
0.510	Pk	39.1	0.7	39.8	60.0	-20.2	60.0	-20.2	Pass
0.690	Pk	32.8	0.7	33.5	60.0	-26.5	60.0	-26.5	Pass
0.950	Pk	28.6	0.7	29.3	60.0	-30.7	60.0	-30.7	Pass
4.110	Pk	19.3	1.4	20.7	69.5	-48.8	69.5	-48.8	Pass
7.160	Pk	22.3	1.9	24.2	69.5	-45.3	69.5	-45.3	Pass
25.090	Pk	29.5	3.4	32.9	69.5	-36.6	69.5	-36.6	Pass

6.1.2 Neutral Line WL-CPE-RouterANT15

Temperature: 74°F Humidity: 35%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC A QP Limit (dBuV)	FCC A QP Margin (dBuV)	FCC A AV Limit (dBuV)	FCC A AV Margin (dBuV)	Pass/ Fail
0.510	Pk	36.3	0.7	37.0	60.0	-23.0	60.0	-23.0	Pass
0.690	Pk	31.4	0.7	32.1	60.0	-27.9	60.0	-27.9	Pass
3.940	Pk	19.8	1.4	21.2	69.5	-48.3	69.5	-48.3	Pass
6.690	Pk	21.0	1.9	22.9	69.5	-46.6	69.5	-46.6	Pass
7.960	Pk	19.5	2.0	21.5	69.5	-48.0	69.5	-48.0	Pass
25.090	Pk	32.4	3.4	35.8	69.5	-33.7	69.5	-33.7	Pass

6.1.3 Phase Line WL-CPE-Router2

Temperature: 76°F Humidity: 27%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC A QP Limit (dBuV)	FCC A QP Margin (dBuV)	FCC A AV Limit (dBuV)	FCC A AV Margin (dBuV)	Pass/ Fail
0.450	Pk	40.3	0.8	41.1	60.0	-18.9	60.0	-18.9	Pass
1.040	Pk	25.1	0.7	25.8	60.0	-34.2	60.0	-34.2	Pass
6.240	Pk	27.3	1.8	29.1	69.5	-40.4	69.5	-40.4	Pass
7.540	Pk	32.2	2.0	34.2	69.5	-35.3	69.5	-35.3	Pass
10.170	Pk	26.5	2.1	28.6	69.5	-40.9	69.5	-40.9	Pass
25.090	Pk	30.0	3.4	33.4	69.5	-36.1	69.5	-36.1	Pass

6.1.4 Neutral Line WL-CPE-Router2

Temperature: 76°F Humidity: 27%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC A QP Limit (dBuV)	FCC A QP Margin (dBuV)	FCC A AV Limit (dBuV)	FCC A AV Margin (dBuV)	Pass/ Fail
0.480	Pk	37.8	0.7	38.5	60.0	-21.5	60.0	-21.5	Pass
0.780	Pk	30.8	0.6	31.4	60.0	-28.6	60.0	-28.6	Pass
6.240	Pk	26.3	1.8	28.1	69.5	-41.4	69.5	-41.4	Pass
7.480	Pk	30.3	2.0	32.3	69.5	-37.2	69.5	-37.2	Pass
8.900	Pk	24.8	2.1	26.9	69.5	-42.6	69.5	-42.6	Pass
25.090	Pk	31.4	3.4	34.8	69.5	-34.7	69.5	-34.7	Pass

6.1.5 Phase Line WL-CPE-Router1

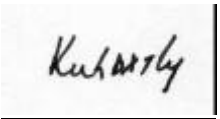
Temperature: 74°F Humidity: 30%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC A QP Limit (dBuV)	FCC A QP Margin (dBuV)	FCC A AV Limit (dBuV)	FCC A AV Margin (dBuV)	Pass/ Fail
0.480	Pk	46.5	0.7	47.2	60.0	-12.8	60.0	-12.8	Pass
0.690	Pk	38.5	0.7	39.2	60.0	-20.8	60.0	-20.8	Pass
6.690	Pk	31.2	1.8	33.0	69.5	-36.5	69.5	-36.5	Pass
7.310	Pk	32.3	1.9	34.2	69.5	-35.3	69.5	-35.3	Pass
9.910	Pk	24.9	2.1	27.0	69.5	-42.5	69.5	-42.5	Pass
25.090	Pk	28.6	3.4	32.0	69.5	-37.5	69.5	-37.5	Pass

6.1.6 Neutral Line WL-CPE-Router1

Temperature: 74°F Humidity: 30%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC A QP Limit (dBuV)	FCC A QP Margin (dBuV)	FCC A AV Limit (dBuV)	FCC A AV Margin (dBuV)	Pass/ Fail
0.570	Pk	39.5	0.7	40.2	60.0	-19.8	60.0	-19.8	Pass
0.890	Pk	33.1	0.7	33.8	60.0	-26.2	60.0	-26.2	Pass
6.060	Pk	26.5	1.8	28.3	69.5	-41.2	69.5	-41.2	Pass
7.310	Pk	29.0	1.9	30.9	69.5	-38.6	69.5	-38.6	Pass
9.260	Pk	22.8	1.9	24.7	69.5	-44.8	69.5	-44.8	Pass
25.090	Pk	31.7	3.4	35.1	69.5	-34.4	69.5	-34.4	Pass

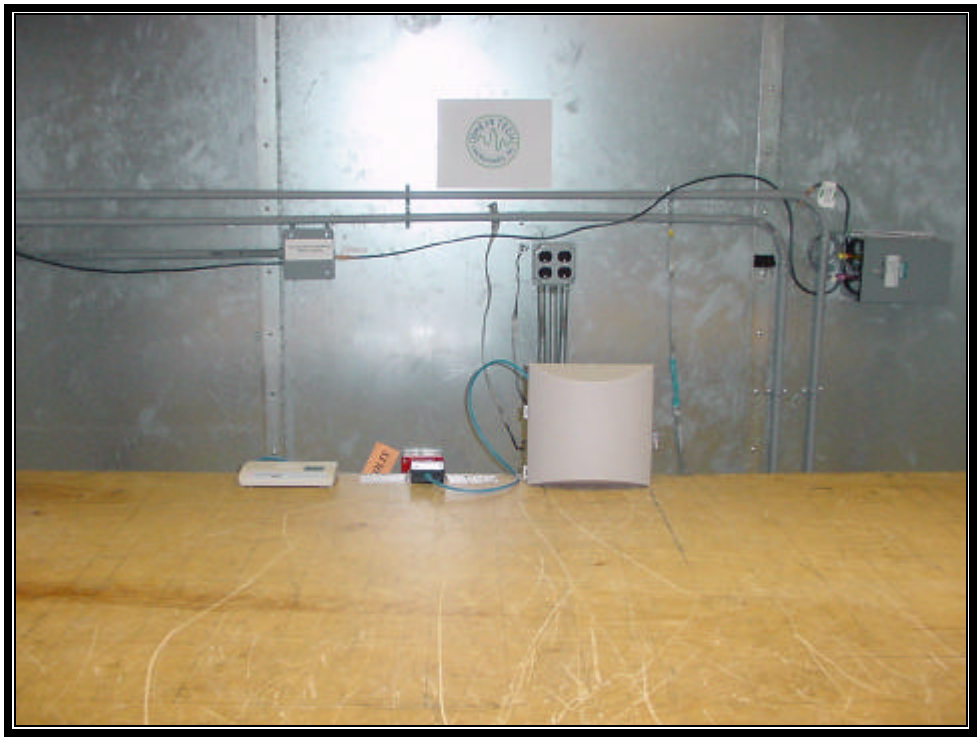
Pk = Peak; QP = Quasi-Peak; Av = Average

TEST PERSONNEL:

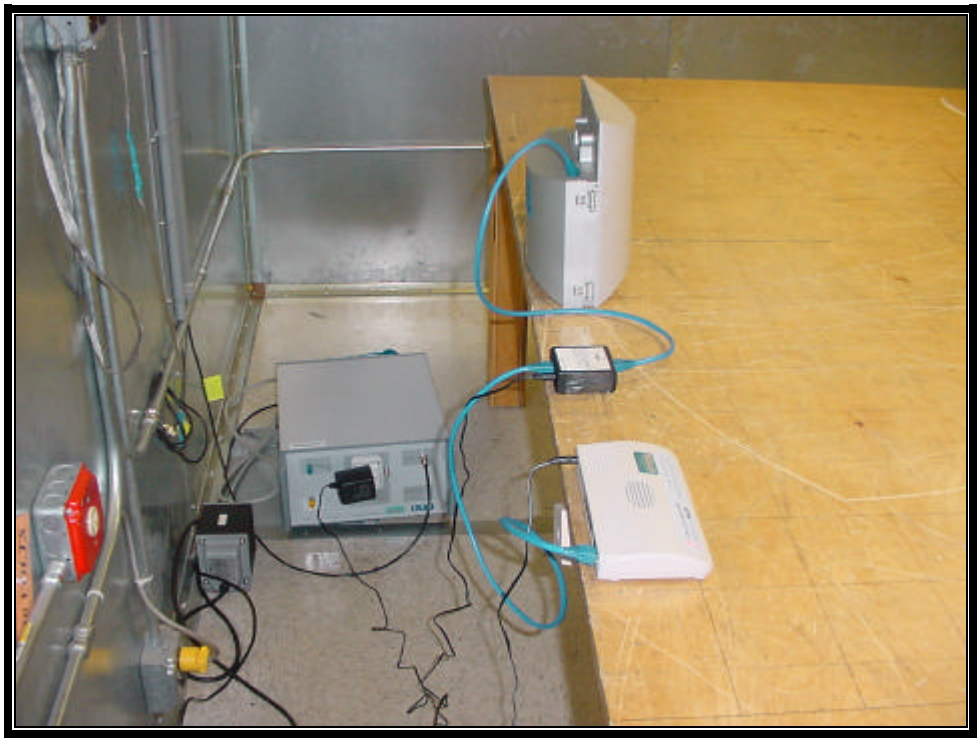
Kinh Ly		05/04/02
Tester	Signature	Date of Test

6.2 CONDUCTED TEST PHOTOGRAPHS

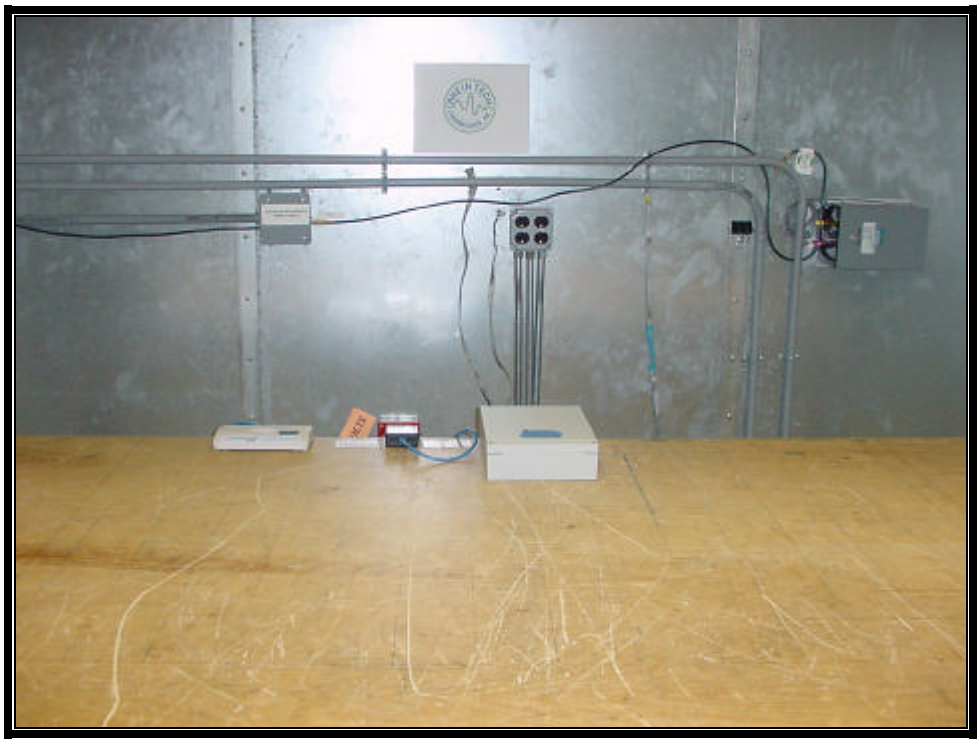
Front of WL-CPE-RouterANT15



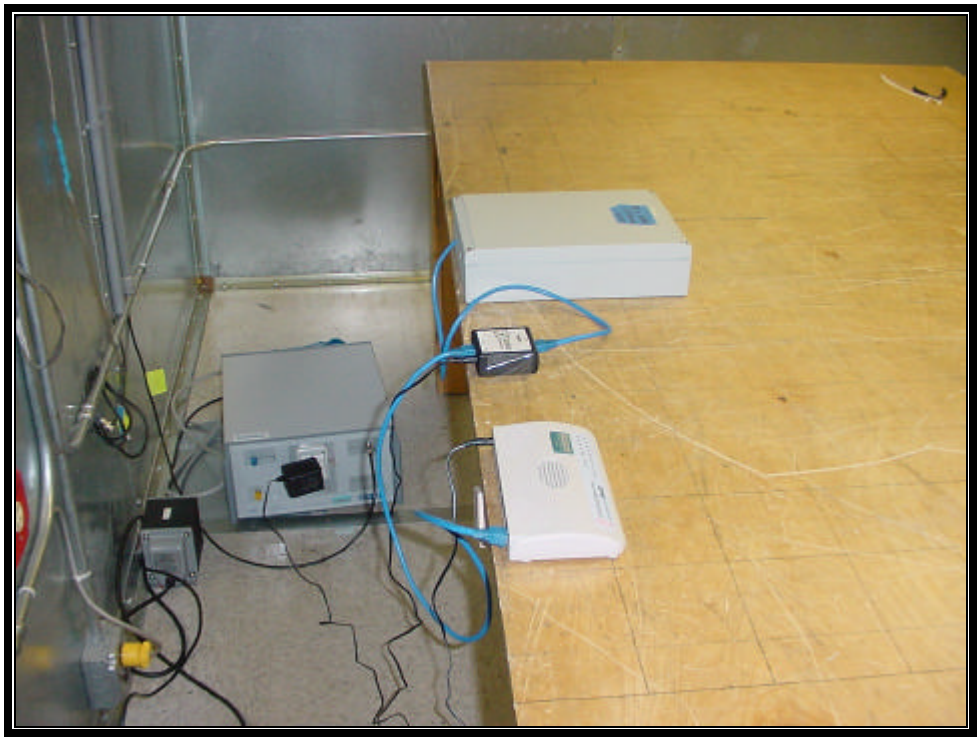
Back of WL-CPE-RouterANT15



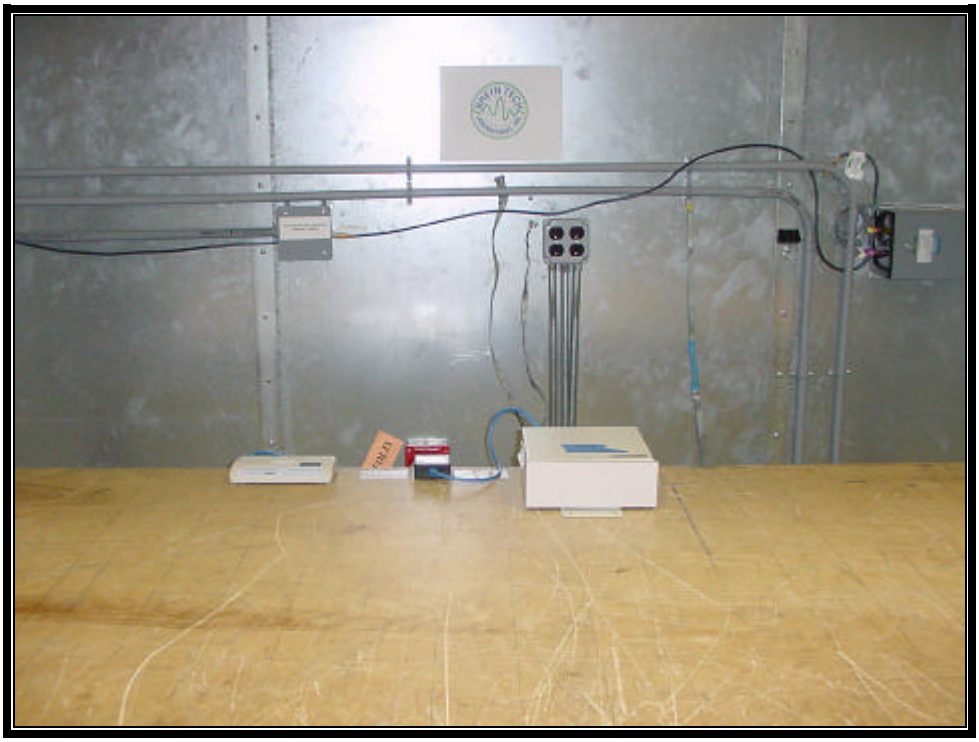
Front of WL-CPE-Router2



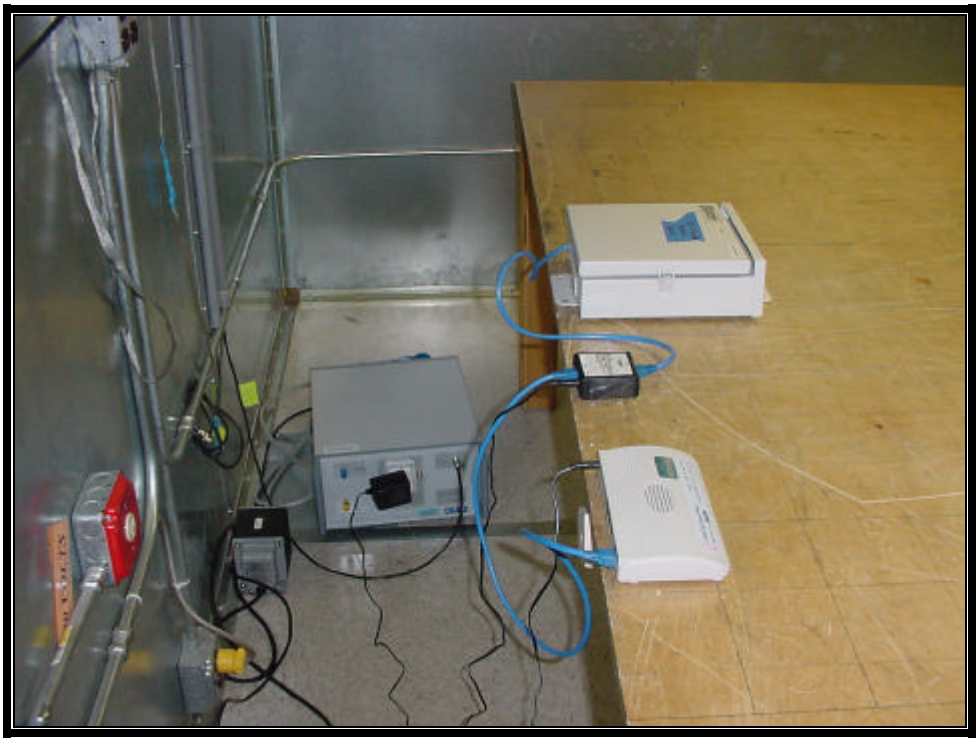
Back of WL-CPE-Router2



Front of WL-CPE-Router1



Back of WL-CPE-Router1



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7 RADIATED EMISSIONS

7.1 RADIATED EMISSIONS TEST RESULTS

WL-CPE-RouterANT15

Temperature: 60°F Humidity: 65%										
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/ Fail
150.004	Qp	H	25	4.0	55.5	-18.0	37.5	43.5	-6.0	Pass
175.005	Qp	V	180	1.0	47.7	-12.5	35.2	43.5	-8.3	Pass
200.002	Qp	V	75	1.0	52.8	-11.6	41.2	43.5	-2.3	Pass
225.009	Qp	V	325	1.0	46.1	-9.5	36.6	46.4	-9.8	Pass
250.012	Qp	H	90	4.0	52.2	-15.4	36.8	46.4	-9.6	Pass
300.016	Qp	H	125	4.0	54.7	-14.6	40.1	46.4	-6.3	Pass
400.007	Qp	V	135	1.0	45.0	-10.8	34.2	46.4	-12.2	Pass

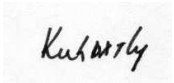
WL-CPE-Router2

Temperature: 58°F Humidity: 67%										
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/ Fail
175.006	Qp	V	325	1.0	51.4	-18.9	32.5	43.5	-11.0	Pass
200.008	Qp	V	65	1.0	51.8	-18.3	33.5	43.5	-10.0	Pass
250.012	Qp	V	45	4.0	48.0	-8.5	39.5	46.4	-6.9	Pass
300.016	Qp	V	135	1.0	41.9	-6.4	35.5	46.4	-10.9	Pass
350.020	Qp	H	135	4.0	52.2	-12.3	39.9	46.4	-6.5	Pass
425.000	Qp	H	80	4.0	44.1	-9.9	34.2	46.4	-12.2	Pass

WL-CPE-Router1

Temperature: 58°F Humidity: 67%										
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/ Fail
150.006	Qp	H	360	4.0	46.3	-18.0	28.3	43.5	-15.2	Pass
183.333	Qp	H	75	4.0	45.9	-18.9	27.0	43.5	-16.5	Pass
208.332	Qp	H	45	4.0	53.8	-18.7	35.1	43.5	-8.4	Pass
216.676	Qp	V	75	1.0	56.8	-18.1	38.7	46.4	-7.7	Pass
225.002	Qp	H	190	4.0	50.1	-10.0	40.1	46.4	-6.3	Pass
241.668	Qp	H	45	4.0	59.6	-16.5	43.1	46.4	-3.3	Pass
250.002	Qp	H	90	4.0	56.8	-15.4	41.4	46.4	-5.0	Pass
258.353	Qp	H	65	4.0	53.8	-14.4	39.4	46.4	-7.0	Pass
425.018	Qp	H	215	4.0	39.1	-9.9	29.2	46.4	-17.2	Pass

TEST PERSONNEL:

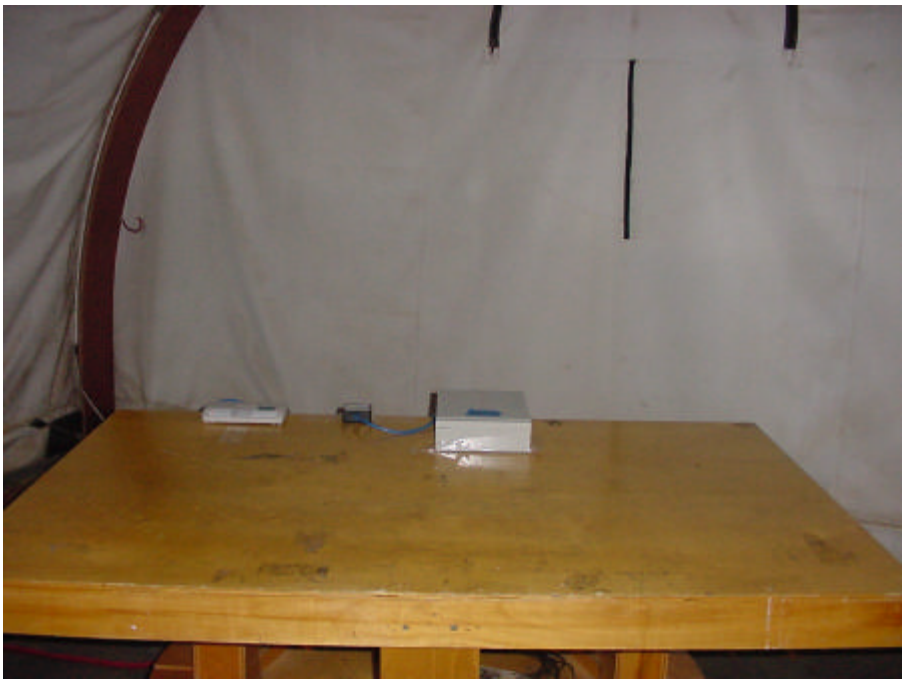
Kinh Ly		05/06/02
Tester	Signature	Date of Test

7.2 RADIATED TEST PHOTOGRAPHS

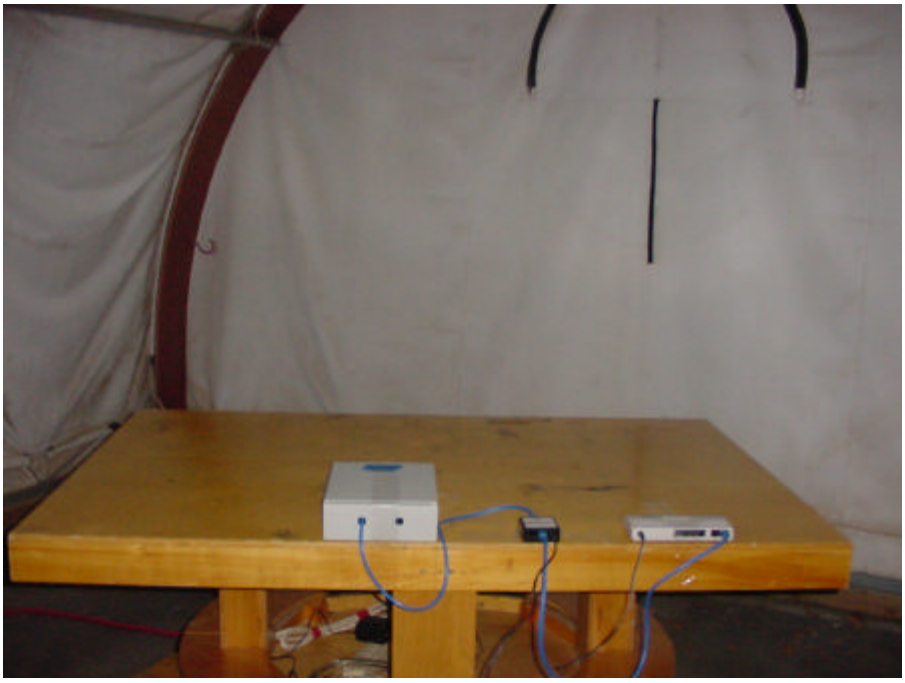
Front of WL-CPE-RouterANT15

Back of WL-CPE-RouterANT15

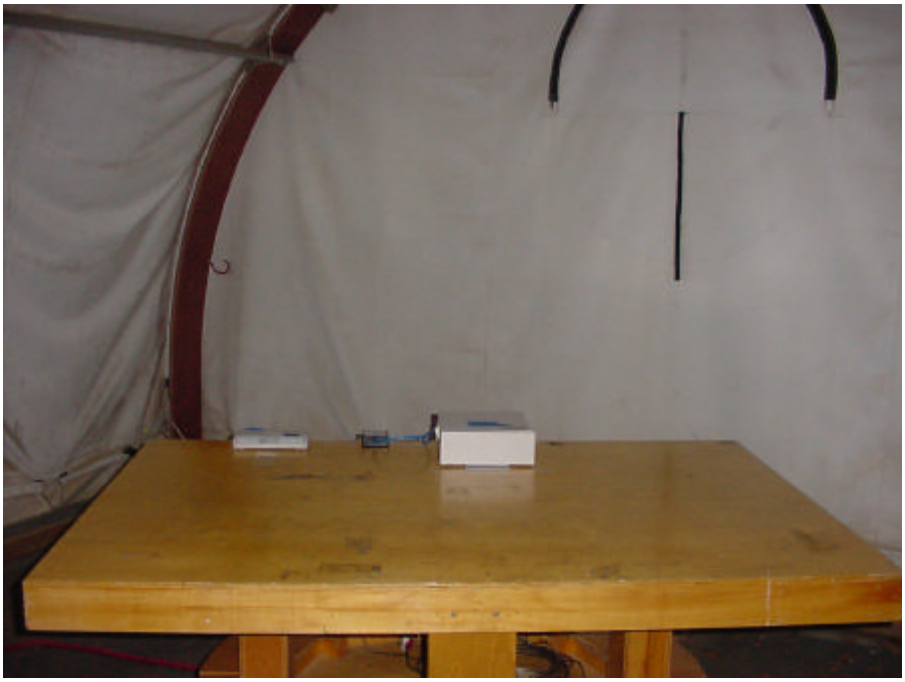
Front of WL-CPE-Router2



Back of WL-CPE-Router2



Front of WL-CPE-Router1



Back of WL-CPE-Router1

8 CONDUCTED AND RADIATED TEST METHODOLOGY

8.1 CONDUCTED EMISSIONS MEASUREMENTS

The power line conducted emission measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50 ohm / 50 microhenry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 400 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 400 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. No video filter less than 10 times the resolution bandwidth was used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from (150/450) kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in this report.

8.2 RADIATED EMISSIONS MEASUREMENTS

Before final measurements of radiated emissions were made on the open-field three/ten meter range; the EUT was scanned indoor at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to insure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 30 MHz to 2000 MHz.

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. For emissions above 1000 MHz, emissions are measured using the average detector function with a minimum resolution bandwith of 1MHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Note: Rhein Tech Laboratories, Inc. has implemented procedures to minimize errors that occur from test instruments, calibration, procedures, and test setups. Test instrument and calibration errors are documented from the manufacturer or calibration lab. Other errors have been defined and calculated within the Rhein Tech quality manual, section 6.1. Rhein Tech implements the following procedures to minimize errors that may occur: yearly as well as daily calibration methods, technician training, and emphasis to employees on avoiding error.

9 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FI(dBuV/m) = SAR(dBuV) + SCF(dB/m)
FI = Field Intensity
SAR = Spectrum Analyzer Reading
SCF = Site Correction Factor

The Site Correction Factor (SCF) used in the above equation is determined empirically, and is expressed in the following equation:

SCF(dB/m) = - PG(dB) + AF(dB/m) + CL(dB)

SCF = Site Correction Factor
PG = Pre-amplifier Gain
AF = Antenna Factor
CL = Cable Loss

The field intensity in microvolts per meter can then be determined according to the following equation:

$$FI(uV/m) = 10^{FI(dBuV/m)/20}$$

For example, assume a signal at a frequency of 125 MHz has a received level measured as 49.3 dBuV. The total Site Correction Factor (antenna factor plus cable loss minus preamplifier gain) for 125 MHz is -11.5 dB/m. The actual radiated field strength is calculated as follows:

49.3 dBuV - 11.5 dB = 37.8 dBuV/m

$$10^{37.8/20} = 10^{1.89} = 77.6 \text{ uV/m}$$

10 EQUIPMENT LIST

The following is a list of equipment Rhein Tech uses to perform testing.

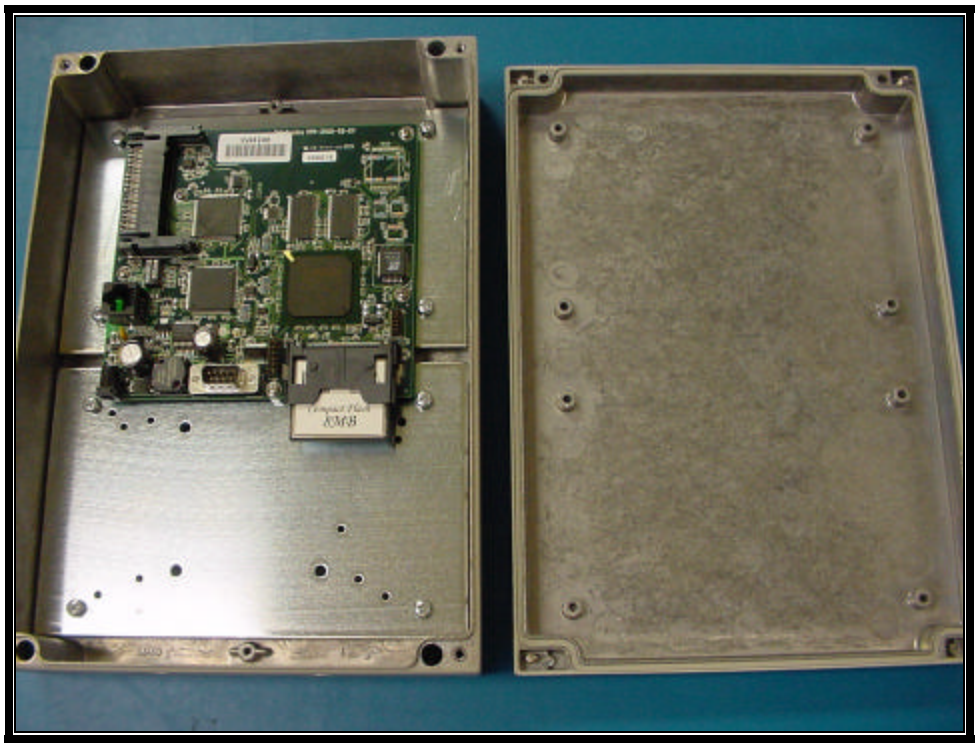
Barcode	Manufacturer	Model	Part Type	Serial Number	Calibration Due
900896	HEWLETT PACKARD	85662A	Display Section	2816A16471	11/9/02
900897	HEWLETT PACKARD	8567A	HP Spectrum Analyzer (10KHz-1.5GHz)	2727A00535	11/9/02
900729	SOLAR	8130	FILTER	947306	
901084	AFJ International	LS16/110VAC	16A LISN	16010020082	9/5/02
900889	Hewlett Packard	85685A	RF Preselector for HP 8566B or 8568B (20Hz-2GHz)	3146A01309	11/14/02
900931	HEWLETT PACKARD	8566B	SPECTRUM ANALYZER (100 Hz - 22 GHz)	3138A07771	5/10/03
900930	HEWLETT PACKARD	85662A	Spectrum Analyzer Display Section	3144A20839	5/10/03
900901	Hewlett Packard	85650A	Quasi-Peak Adapter	2412A00414	11/09/02
900905	RTL	PR-1040	AMPLIFIER	900905	
901053	Schaffner Chase	CBL6112B	Bi-Log Antenna (20 MHz - 2 GHz)	2648	5/22/02
901020	Hewlett Packard	8564E	Portable Spectrum Analyzer (9 kHz - 40 GHz)	3943A01719	6/7/02
N/A	Rhein Tech Laboratories, Inc.	Automated Emission Tester	Emissions testing software	Rev. 14.0.2	N/A

11 USER'S MANUAL

The manufacturer/client will provide the User's Manual

12 EUT PHOTOGRAPHS

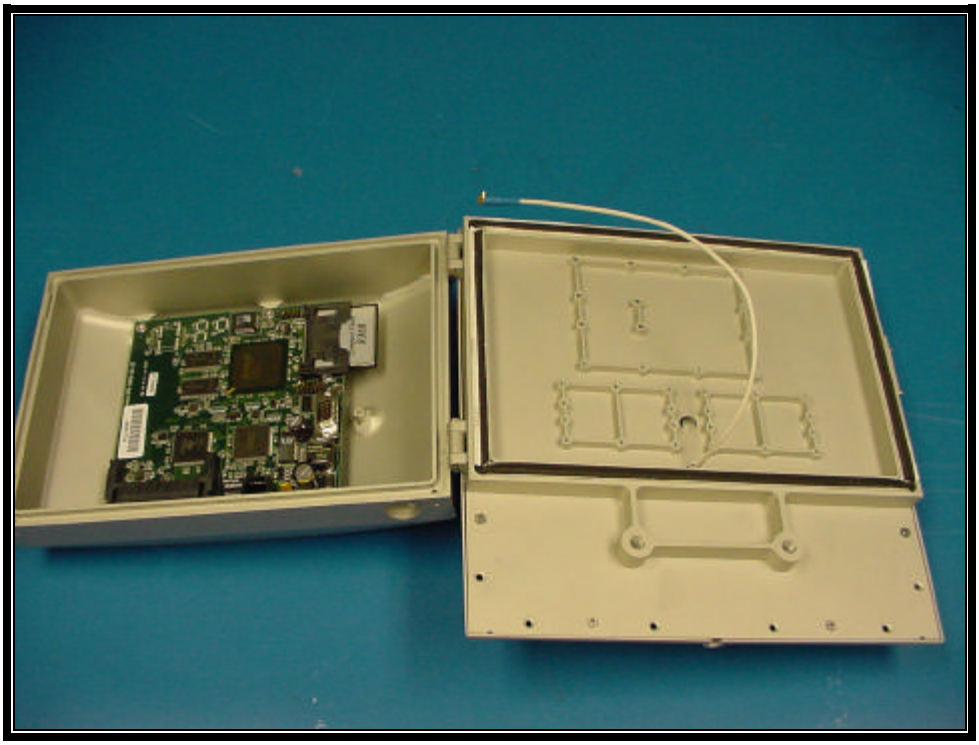
WL-CPE-Router2



WL-CPE-Router2

WL-CPE-RouterANT15

WL-CPE-RouterANT15



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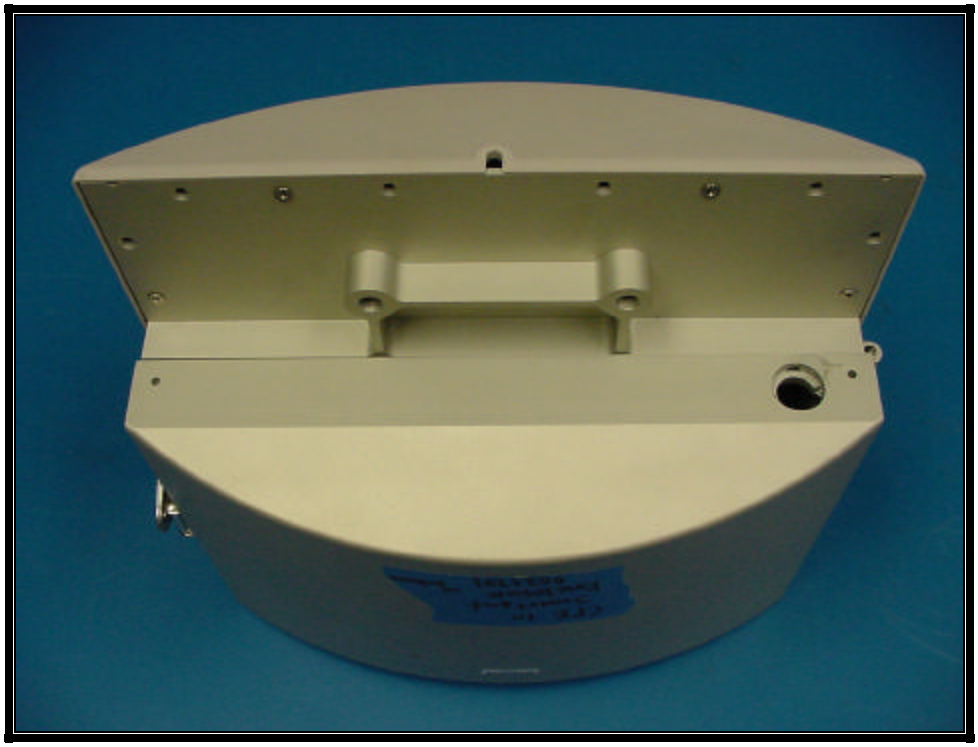
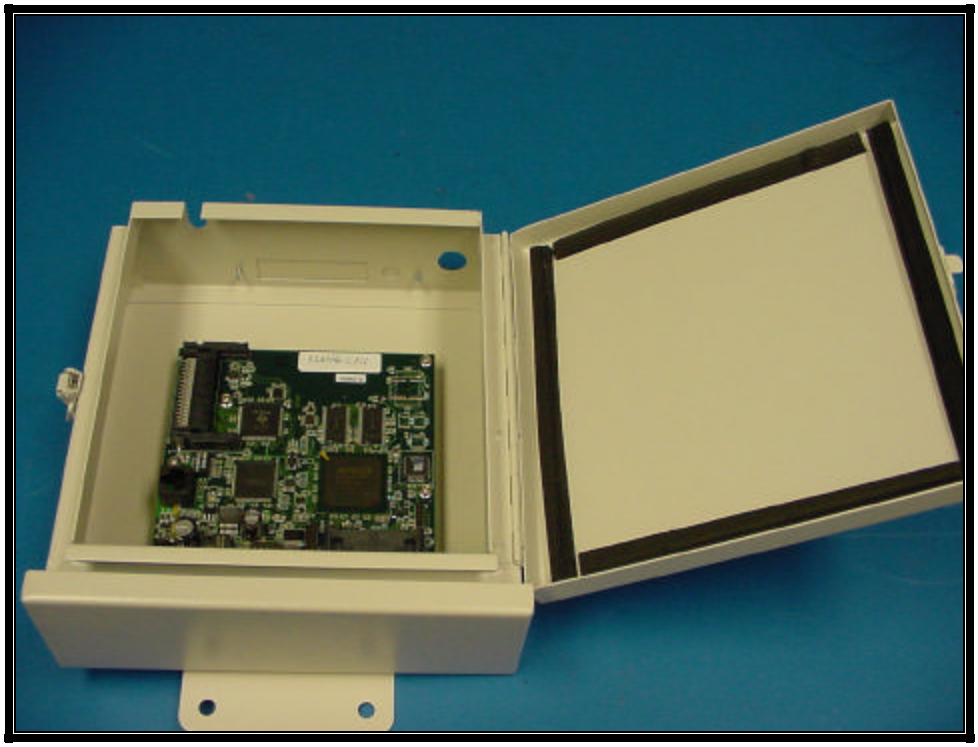


WL-CPE-RouterANT1

WL-CPE-RouterANT1



WL-CPE-RouterANT1