FCC PART 15, SUBPART B and C
TEST REPORT

for

CPAS πECHONOLOGIES

MODEL: SS100
FCC ID: RHVCPAS100

Prepared for

WASHINGTON STATE UNIVERSITY
24106 N. BUNN ROAD
PROSSER, WA 99350-8694

Prepared by:_____

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Approved by:_____

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DATE: JANUARY 13, 2004

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested:	CPAS πechonologies Model: SS100 S/N: N/A
Product Description:	See Expository Statement.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Washington State University 24106 N. Bunn Road Prosser, WA 99350-8694
Test Dates:	December 15, 16, 17, 18 and 19, 2003; and January 23 and 26, 2004.
Test Specifications:	EMI requirements CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247
Test Procedures:	ANSI C63.4: 2001 FCC Public Notice (Document Number: DA 00-705)
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz to 30 MHz	Complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B and the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.209
3	Spurious Radiated RF Emissions, 10 kHz – 30 MHz and 1000 MHz – 10000 MHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.209
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 10 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(c)
5	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 10 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209(a), and section 15.247 (c)
6	20 dB Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
7	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(1)
8	RF Conducted Antenna Test	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (c)
9	Channel Hopping Separation	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1) and 15.247 (a)(1)(i)
10	Average Time of Occupancy	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the CPAS πechonologies, Model: SS100. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2001. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Washington State University

Todd Elliott	Application Systems Analyst/ Developer

Compatible Electronics, Inc.

Kirit Ramani	Test Engineer
Michael Christensen	Sr. Test Engineer
Scott McCutchan	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on December 12, 2003

2.5 Disposition of the Test Sample

The sample has not been returned to Washington State University as of the date of this report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2001	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
FCC Public Notice – DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The CPAS πechonologies, Model: SS100 (EUT) (without metal shielded box) was connected to the test laptop computer and power supply via an RS-232 cable. The laptop software (FCC Testing Firmware SS100 $Revision 1.20$) was use to control baud rate modulation, output power and channel hopping in the high, medium and low channels. The EUT was powered by a 5 $V_{DC,}$ 1A regulated power supply.

For the intentional radiator portion of the test – The EUT was directly connected to the spectrum analyzer and was in the transmitting mode. The switches were used to control the channel of the transmitter or to commit the unit to channel hopping mode, depending on the nature of the specific test.

For the unintentional radiator portion of the test – The EUT was placed on the OATS table and was operating in receive mode.

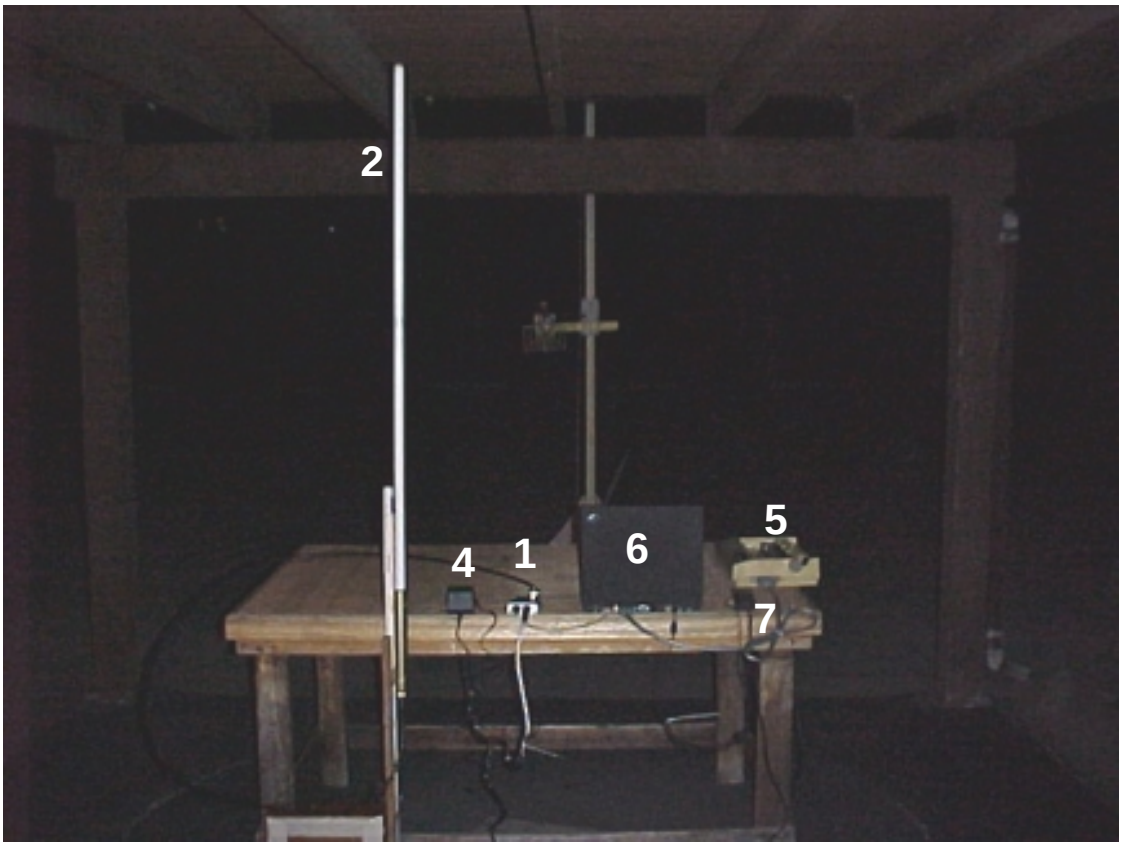
For the restricted band emission portion of the test – The EUT was placed on the OATS table and was operating in the transmitting mode with two different antennas (AXH92RPSMT and FG9026).

Note: For Radiated Emissions, all of the baud rates were checked during the initial investigation. The worst case baud rate was used for the final data.

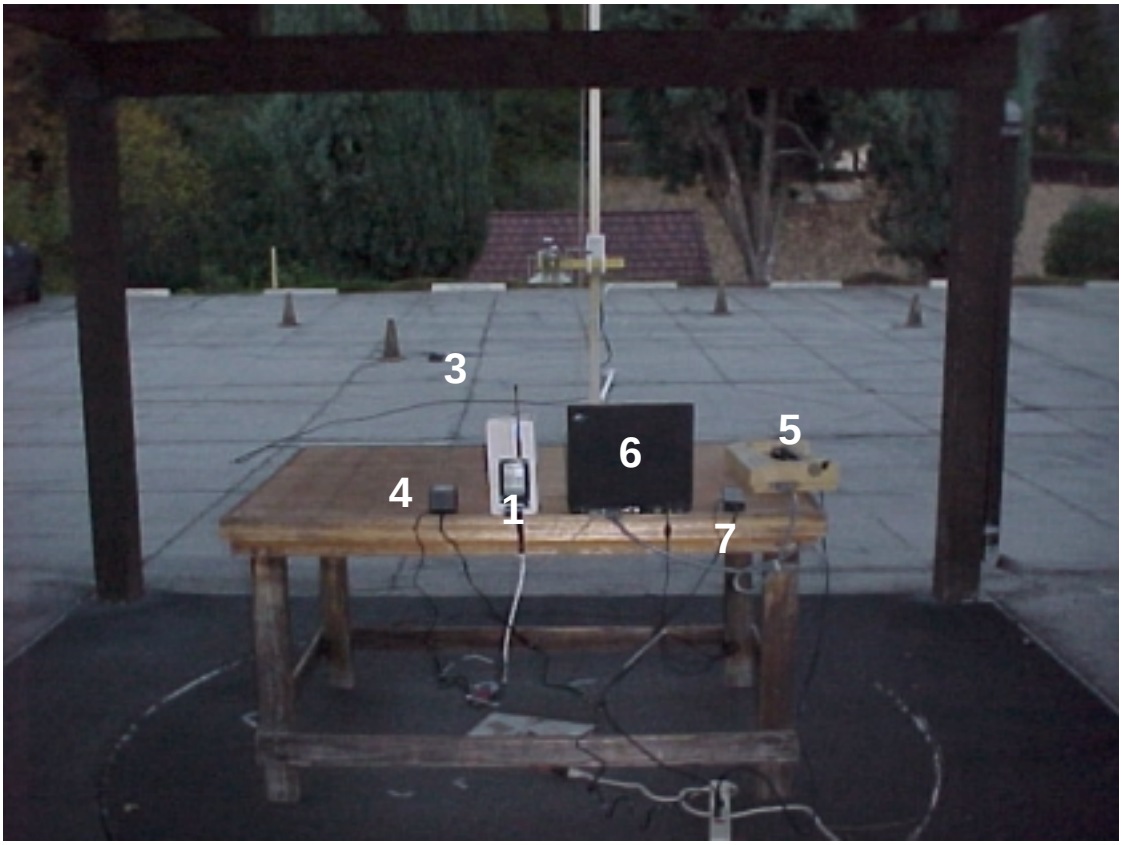
Note #2: For Conducted Emissions, the EUT was investigated in both Tx and Rx modes (using the worst case baud rate), the final data was taken when the EUT was in Tx mode for each antenna, which was the worst case.

Please see Appendix E for the data sheets.

4.1.1 Photograph of Test Configuration – EMI (FG9026 antenna and EUT without metal shielded box)



4.1.2 Photograph of Test Configuration – EMI (AXH92RPSMT antenna and EUT without metal shielded box)



4.1.3 Cable Construction and Termination

Cable 1

This is a 12-inch shielded cable connecting the EUT to the test Laptop. It has a 7-pin DIN connector at the EUT and DB-9 metallic connector at Laptop end.

Cable 1-A

This is an 1.5 meter unshielded cable connecting the test EUT to the power supply. It has a 7-pin DIN connector at the EUT end and was hard wired to power supply.

Cable 2 **(only for Antenex Antenna)**

This is an 10 foot Coaxial cable connecting the test EUT to the Antenex antenna. It has a RPSMA connector at the EUT end and N type connector at antenna end.

Cable 3

This is a 5 foot braid and foil shielded round cable connecting the laptop computer to the printer. It has a D-25 pin metallic connector at the computer end and a Centronics type metallic connector at the printer end. The shield of the cable was grounded to the chassis via the connectors.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID
1	CPAS πECHONOLOGIES (EUT)	WASHINGTON STATE UNIVERSITY	SS100	N/A	RHVCPAS100
2	65" 6 dBi FIBERGLASS OMNI ANTENNA	ANTENEX	FG9026	N/A	N/A
3	6" 2 dBi ½ WAVE WHIP ANTENNA	ASTRON WIRELESS	AXH92RPSMT	N/A	N/A
4	POWER SUPPLY	CUI STACK	DV-51AAT	0601	N/A
5	PRINTER	CITIZEN	LSP-10	1215253-83	N/A
6	LAPTOP	IBM	MDC73 09/00	2647-55U	DoC
7	LAPTOP POWER SUPPLY	IBM	AA21131	11S02K6657Z1 Z0ZA05769K	DoC

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiate Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 20, 2003	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	June 20, 2003	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	June 20, 2003	1 Year
Loop Antenna	Com-Power	AL-130	17070	July 8, 2003	1 Year
Horn Antenna	Com-Power	AH-118	10073	January 21, 2002	2 Year
Biconical Antenna	Com Power	AB-900	15226	April 21, 2003	1 Year
Log Periodic Antenna	Com Power	AL-100	16202	February 3, 2003	1 Year
High Pass Filter	Microwave Circuits, Inc.	N03915M1	061703-01DC0336	September 12, 2003	1 Year
LISN EUT Side	Com Power	LI-215	12090	November 22,2003	1 Year
LISN Accessory Side	Com Power	LI-215	12076	November 22,2003	1 Year
Antenna Mast	Com Power	AM-100	N/A	N.C.R.	N/A
Preamplifier	Com Power	PA-103	1582	March 6, 2003	1 Year
Microwave Preamplifier	Com-Power	PA-122	181917	October 31, 2003	1 Year
Attenuator	Weinschel Corporation	2	BJ6394	August 7, 2003	1 Year
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was grounded through its shielded cables.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Transmitter Power

Transmit power is herein defined as the power delivered to a 50 Ohm load at the RF output of the EUT. The test sample had a total of eight output power levels per channel. They are the following:

CHANNEL	OUTPUT	POWER
Low – (904.818 MHz)	8	27.0
Low – (904.818 MHz)	7	26.9
Low – (904.818 MHz)	6	24.9
Low – (904.818 MHz)	5	22.6
Low – (904.818 MHz)	4	20.7
Low – (904.818 MHz)	3	18.9
Low – (904.818 MHz)	2	17.4
Low – (904.818 MHz)	1	14.6
Medium – (914.418 MHz)	8	26.1
Medium – (914.418 MHz)	7	26.0
Medium – (914.418 MHz)	6	23.9
Medium – (914.418 MHz)	5	21.6
Medium – (914.418 MHz)	4	19.8
Medium – (914.418 MHz)	3	18.2
Medium – (914.418 MHz)	2	16.6
Medium – (914.418 MHz)	1	13.7
High – (924.618 MHz)	8	25.3
High – (924.618 MHz)	7	25.2
High – (924.618 MHz)	6	23.2
High – (924.618 MHz)	5	21.0
High – (924.618 MHz)	4	19.2
High – (924.618 MHz)	3	17.4
High – (924.618 MHz)	2	16.0
High – (924.618 MHz)	1	13.2

7.2 Channel Number and Frequencies

There are two groups of 50 channels. The low channel is at 904.818 MHz and the high channel is at 924.618 MHz. There is a 398 kHz separation between channels.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2001. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B and the limits of CFR Title 47, Part 15, Subpart C, section 15.207 for conducted emissions.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 10 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2001. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 10 kHz to 10 GHz to obtain final test data.

The harmonics of the transmitter frequency in the applicable restricted band were also measured utilizing the method mentioned above. See appendix E for datasheets.

8.2 20 dB Bandwidth

The 20 dB Bandwidth was measured using the spectrum analyzer. The bandwidth was measured using a direct connection from the RF out on the EUT. The resolution and video bandwidths were >= 1% of the 20 dB bandwidth.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The bandwidth is less than 500 kHz. Please see the data sheets located in Appendix E.

8.3 Peak Output Power

The Peak Output Power was taken using the spectrum analyzer. The bandwidth was measured using a direct connection from the RF out on the EUT. The resolution bandwidth was 3 MHz, and the video bandwidth was 3 MHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(1). The maximum peak output power is less than 1 watt. Please see the data sheets located in Appendix E.

8.4 RF Antenna Conducted Test

The RF antenna conducted test was taken using the spectrum analyzer. The RF antenna conducted test was measured using a direct connection from the RF out on the EUT into the input of the analyzer. The resolution bandwidth was 1 MHz, and the video bandwidth 1 MHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (c). The RF power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. Please see the data sheets located in Appendix E.

8.5 RF Band Edges

The RF band edges were taken at the edges of the spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the spectrum analyzer. The band edges were at least 20 dB below the fundamental of the EUT using a 100 kHz resolution bandwidth.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (c). The RF power at the band edges at 902 MHz and 928 MHz are at least 20 dB down from the fundamental of the EUT. Please see the data sheets located in Appendix E.

8.6 Carrier Frequency Separation

The Channel Hopping Separation Test was measured using the spectrum analyzer. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth 100 kHz. The frequency span was wide enough to include the peaks of two adjacent channels.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix D.

8.7 Number of Hopping Frequencies

The Number of Hopping Frequencies Test was measured using the spectrum analyzer. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth 300 kHz. The frequency span was wide enough to include all of the peaks in the frequency band of operation. There were 50 channels for each channel set.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The number of hopping frequencies is 50. Please see the data sheets located in Appendix E.

8.8 Average Time of Occupancy Test

The Average Time of Occupancy Test was measured using the spectrum analyzer. The EUT was operating in normal operating mode. The frequency span was taken to 0 Hz with a sweep time of 200 msec to determine the time for each transmission. The EUT was tested in channel hopping mode.

The dwell time for one frequency was 37 msec. In a 60 second period, the number of frequency transmissions that appear are 64. Therefore, if you multiply the dwell time for one frequency transmission with the number of transmissions in a 60 second period, you should have the time of occupancy in a 60 second period. Hence, the time is less than 0.4 seconds in a 10 second period.

0.037 seconds x 64 = 2.368 seconds (on time per 60 seconds)

2.368 seconds / 6 = 0.395 seconds (on time per 10 seconds)

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The EUT does not transmit for more than 0.395 sec during a 10 second period on any frequency. Please see the data sheets located in Appendix E.

9. CONCLUSIONS

The CPAS πechonologies, Model: SS100 meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B.

APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP CODES 200063-0, 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

Silverado/Lake Forest Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005270.htm
Brea Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005280.htm
Agoura Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2000630.htm

Compatible Electronics has been accredited by ANSI and appointed by the FCC to serve as a Telecommunications Certification Body (TCB). Compatible Electronics ANSI TCB listing can be found at: http://www.ansi.org/public/ca/ansi_cp.html

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/EU CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/emc-cabs-mar02.pdf

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/APEC CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/apec/bsmi-cabs-may02.pdf

World Wide Market Access with Nemko

Compatible Electronics has been validated by NEMKO against ISO/IEC 17025 under the NEMKO EMC Laboratory Authorization (ELA) program to all EN standards required by the European Union (EU) EMC Directive 89/336/EEC. Please follow the link to the Compatible Electronics' web site for each of our facilities NEMKO ELA certificate and scope of accreditation. http://www.celectronics.com/certs.htm

We are also certified/listed for IT products by the following country/agency:

Compatible Electronics VCCI listing can be found at:
http://www.vcci.or.jp/vcci_e/member/tekigo/setsubi_index_id.html
Just type "Compatible Electronics" into the Keyword search box.

Compatible Electronics FCC listing can be found at:
https://gullfoss2.fcc.gov/prod/oet/index_ie.html

Just type "Compatible Electronics" into the Test Firms search box.

Industry Canada / Industrie Canada

Compatible Electronics IC listing can be found at:
http://spectrum.ic.gc.ca/~cert/labs/oats_lab_c_e.html

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

CPAS πechonologies
Model: SS100
S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

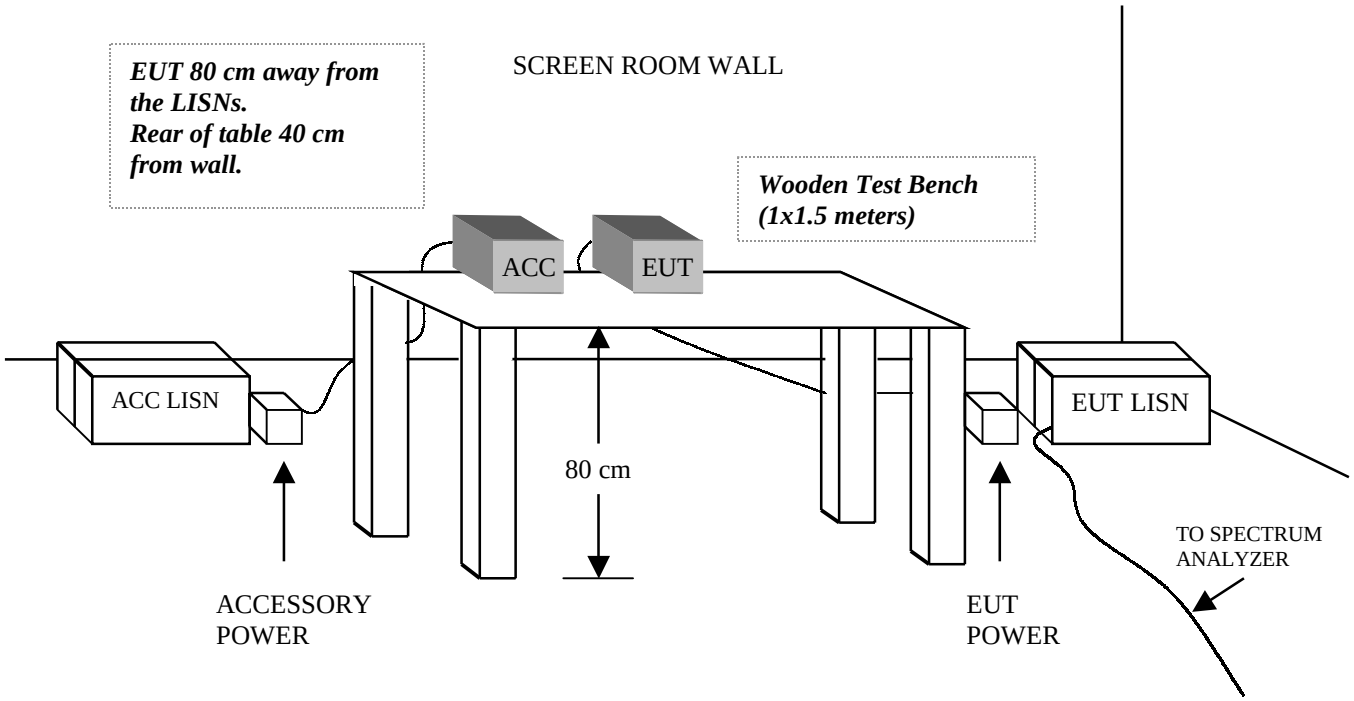
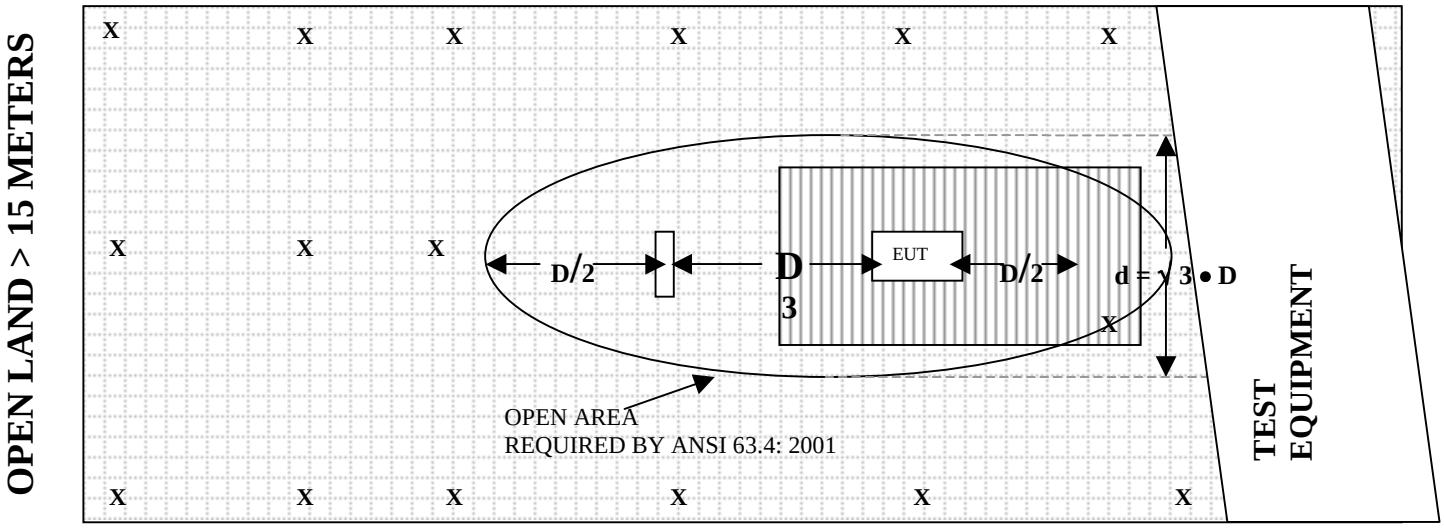


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X = GROUND RODS	= GROUND SCREEN
D = TEST DISTANCE (meters)	= WOOD COVER

COM-POWER AL-130

LOOP ANTENNA (E-FIELD)

S/N: 17070

CALIBRATION DATE: JULY 8, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
0.009	11.5	1	10.7
0.01	11.4	2	11.2
0.02	10.2	3	10.9
0.03	11.6	4	10.8
0.04	11.3	5	11.4
0.05	9.8	6	11.5
0.06	10.4	7	11.1
0.07	10.2	8	11.1
0.08	9.9	9	11.4
0.09	10.0	10	11.0
0.1	10.0	12	10.4
0.2	7.7	14	10.4
0.3	10.1	15	10.2
0.4	10.2	16	10.2
0.5	10.2	18	10.2
0.6	10.5	20	10.4
0.7	10.3	25	9.8
0.8	10.3	30	8.4
0.9	10.2	-	-

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15226

CALIBRATION DATE: APRIL 21, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.20	120	13.80
35	10.40	125	12.50
40	10.20	140	12.50
45	11.00	150	10.90
50	11.30	160	11.50
60	9.60	175	14.90
70	7.40	180	15.50
80	6.10	200	16.90
90	7.70	250	15.50
100	10.50	300	23.80

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16202

CALIBRATION DATE: FEBRUARY 3, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.70	700	20.60
400	15.40	800	21.80
500	16.50	900	21.00
600	17.20	1000	21.50

COM-POWER AH-118

HORN ANTENNA

S/N: 10073

CALIBRATION DATE: JANUARY 21, 2002

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	26.6	10.0	41.8
1.5	29.2	10.5	40.4
2.0	32.4	11.0	37.5
2.5	32.3	11.5	42.2
3.0	31.4	12.0	40.4
3.5	31.8	12.5	43.6
4.0	31.1	13.0	44.2
4.5	32.0	13.5	41.8
5.0	33.9	14.0	43.3
5.5	32.0	14.5	47.0
6.0	37.8	15.0	49.4
6.5	36.8	15.5	49.9
7.0	42.4	16.0	49.9
7.5	39.5	16.5	48.2
8.0	41.3	17.0	44.0
8.5	40.3	17.5	44.8
9.0	39.5	18.0	44.7
9.5	41.4		

COM-POWER PA-103

PREAMPLIFIER

S/N: 1582

CALIBRATION DATE: MARCH 6, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	33.6	300	33.3
40	33.6	350	33.3
50	33.6	400	33.1
60	33.6	450	33.0
70	33.5	500	32.9
80	33.5	550	33.0
90	33.5	600	32.8
100	33.6	650	32.6
125	33.6	700	32.7
150	33.4	750	32.4
175	33.5	800	32.4
200	33.4	850	32.7
225	33.3	900	31.9
250	33.2	950	31.8
275	33.3	1000	32.5

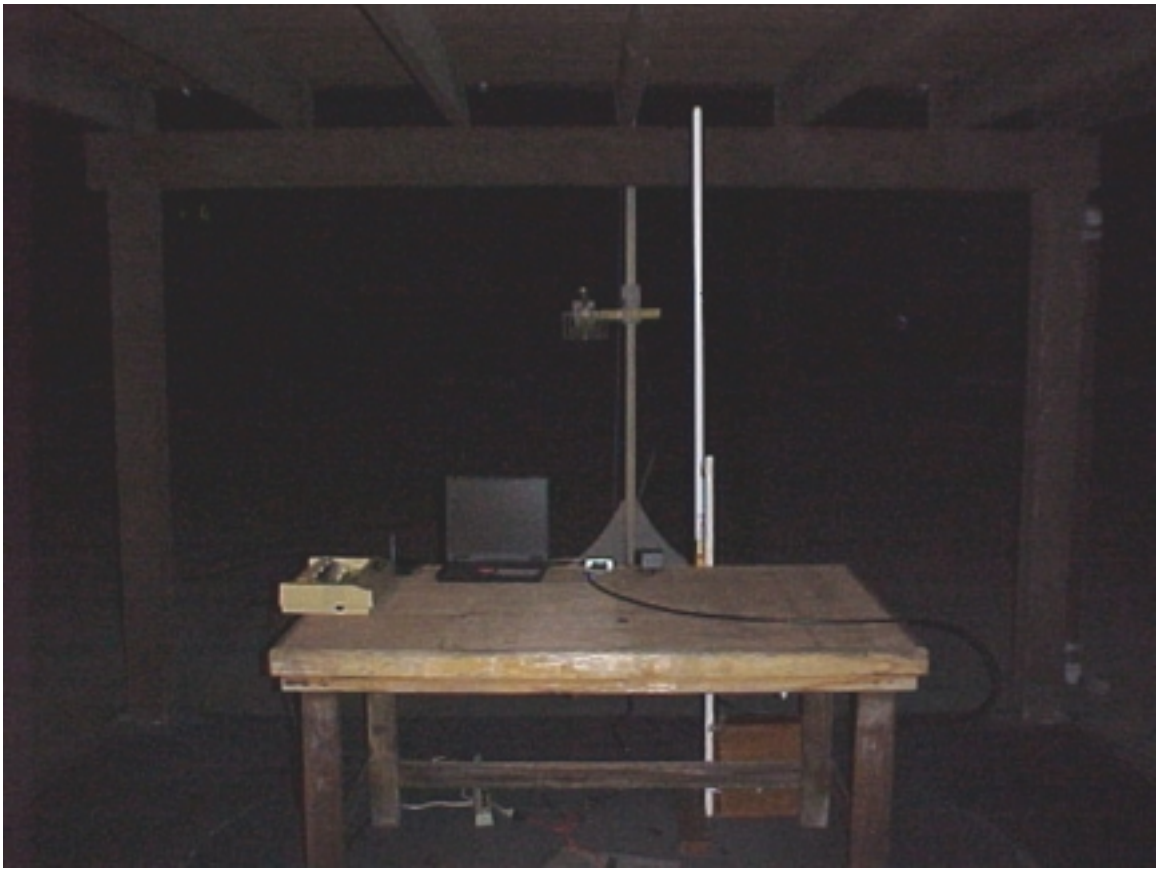
COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 181917

CALIBRATION DATE: OCTOBER 31, 2003

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	33.5	6.0	34.5
1.1	33.6	6.5	34.6
1.2	33.6	7.0	33.1
1.3	33.3	7.5	32.5
1.4	33.1	8.0	33.5
1.5	32.7	8.5	35.1
1.6	32.6	9.0	35.5
1.7	32.5	9.5	36.8
1.8	31.5	10.0	35.7
1.9	31.4	11.0	31.8
2.0	30.0	12.0	29.5
2.5	33.2	13.0	31.2
3.0	32.0	14.0	31.7
3.5	33.0	15.0	31.1
4.0	33.4	16.0	32.9
4.5	34.7	17.0	33.6
5.0	34.2	18.0	31.0
5.5	33.2		

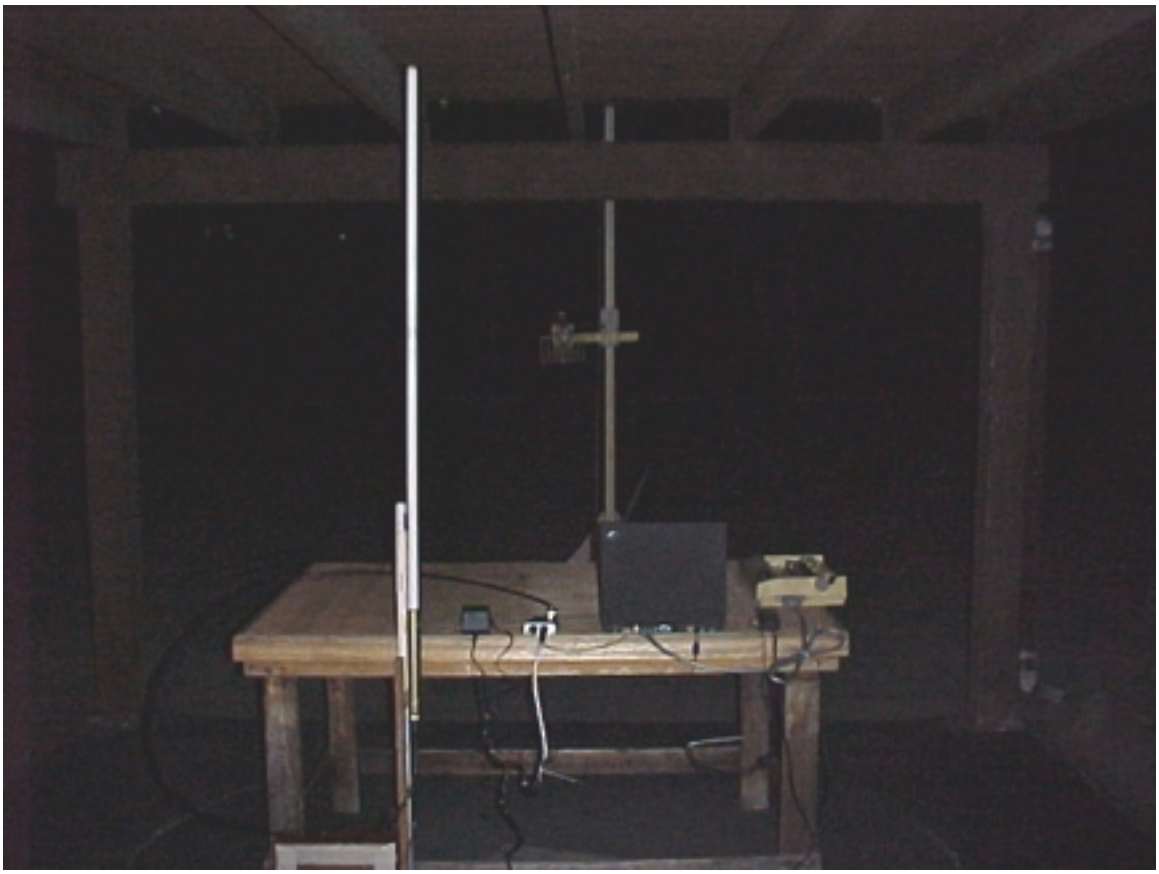


FRONT VIEW

WASHINGTON STATE UNIVERSITY

CPAS πECHONOLOGIES
MODEL: SS100
(WITH ANTENEX FG9026 ANTENNA AND WITHOUT METAL SHIELDED BOX)
FCC SUBPART B AND C - RADIATED EMISSIONS – DECEMBER 15, 2003

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

WASHINGTON STATE UNIVERSITY

CPAS πECHONOLOGIES
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(WITH ANTENEX FG9026 ANTENNA AND WITHOUT METAL SHIELDED BOX)
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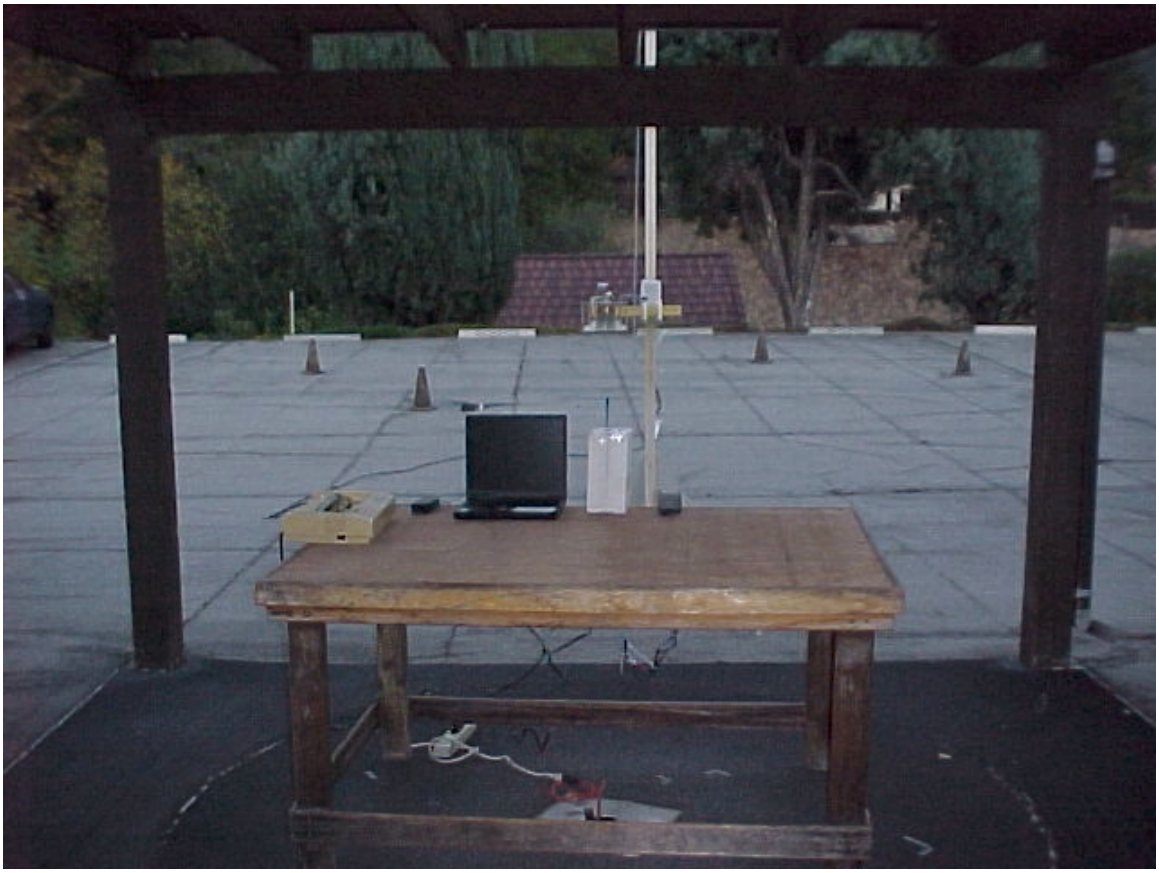
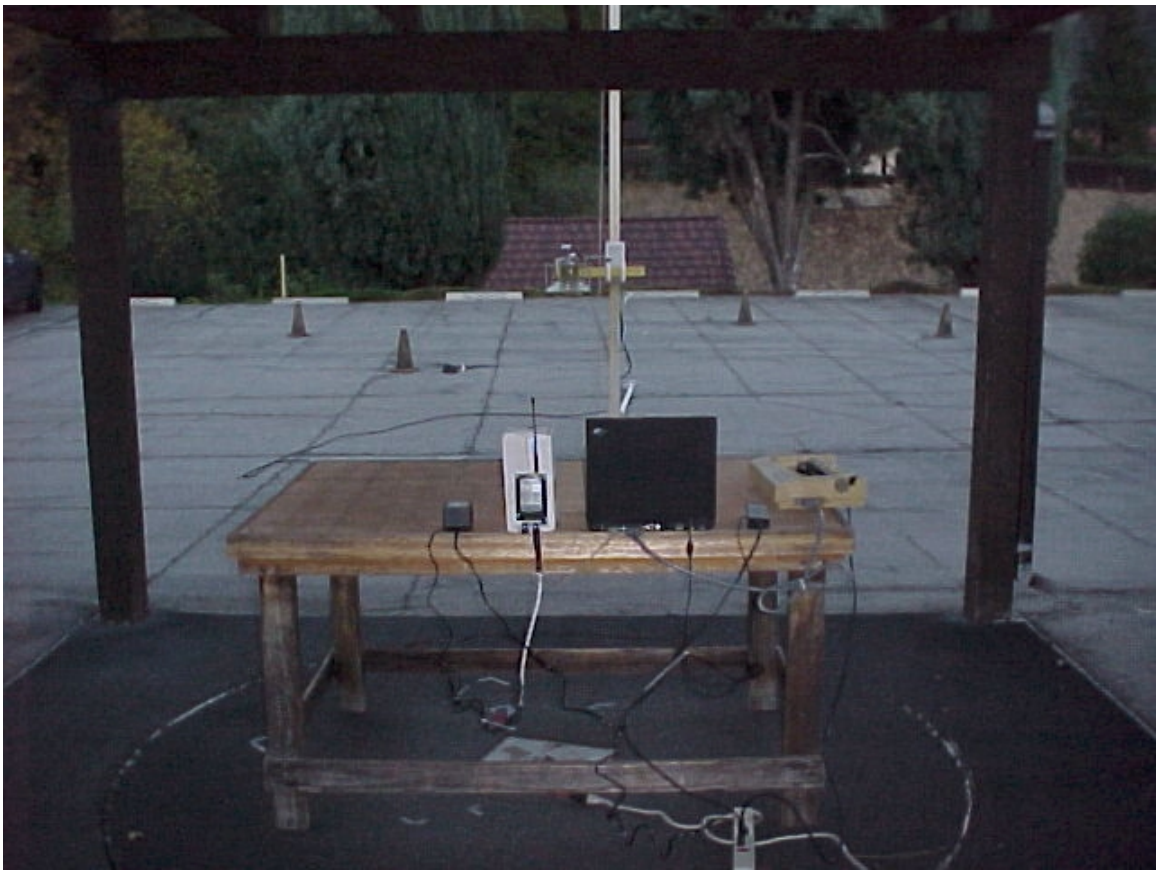


FRONT VIEW

WASHINGTON STATE UNIVERSITY

CPAS πECHONOLOGIES
MODEL: SS100
(WITH ASTRON WIRELESS AXH92RPSMT ANTENNA AND WITHOUT METAL SHIELDED BOX)
FCC SUBPART B AND C - RADIATED EMISSIONS – DECEMBER 15, 2003

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

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