FCC PART 15, SUBPART B AND C
TEST METHOD: ANSI C63.4-1992

for

WIRELESS ACCESS POINT

Model: RAP-1

Prepared for

NetNearU CORPORATION
2908 FINFEATHER ROAD
BRYAN, TEXAS 77801

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

MICHAEL CHRISTENSEN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: AUGUST 20, 2001

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
PAGES	24	2	2	14	75	2	**119**

TABLE OF CONTENTS

LIST OF APPENDICES

APPENDIX	TITLE
A	Modifications to the EUT
B	Additional Models Covered Under This Report
C	Diagrams, Charts and Photos • Test Setup Diagrams • Radiated and Conducted Emissions Photos • Antenna and Effective Gain Factors
D	Data Sheets
E	Laboratory Recognitions

LIST OF FIGURES

FIGURE	TITLE
1	Conducted Emissions Test Setup
2	Plot Map And Layout of Test Site

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 or any other agency of the U.S. Government.

Device Tested:	Wireless Access Point Model: RAP-1 S/N: N/A
Modifications:	The EUT was not modified in order to meet the specifications.
Manufacturer:	NetNearU Corporation 2908 Finfeather Road Bryan, Texas 77801
Test Dates:	August 7, 8, 14, and 20, 2001
File # For Canada	IC2154-D
Test Specifications:	EMI requirements FCC Title 47, Part 15 Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247
Test Procedure:	ANSI C63.4: 1992
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions for the Transmitter Portion, 450 kHz – 30 MHz	Complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B
2	Conducted RF Emissions for the Digital Portion, 450 kHz – 30 MHz	Complies with the **Class A** limits of **CFR** Title 47, Part 15, Subpart B
3	Spurious Radiated RF Emissions of the Transmitter Portion, 10 kHz – 25000 MHz	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247(c)
4	Spurious Radiated RF Emissions of the Digital Portion, 10 kHz – 25000 MHz	Complies with the **Class A** limits of **CFR** Title 47, Part 15, Subpart B
5	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247(c)
6	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.205 and 15.209(a)
7	6 dB Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2)
8	Maximum Peak Output Power	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(1)
9	RF Antenna Conducted	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (c)
10	Peak Power Spectral Density Conducted from the Intentional Radiator to the Antenna	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d)
11	Processing Gain	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (e)

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Wireless Access Point Model: RAP-1. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the Wireless Access Point, referred to as the EUT hereafter, are within the specification limits defined by FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.207, 15.209, and 15.247, and also to determine whether the EUT meets the processing gain requirement specified in 15.247.

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

NetNearU Corporation

David Lee VP, Hardware Development

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer
Michael Christensen Test Engineer

2.4 Date Test Sample was Received

The test sample was received on August 7, 2001

2.5 Disposition of the Test Sample

The test sample has not been returned to NetNearU Corporation as on August 20, 2001.

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 1992	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.

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Specifics of the EUT and Peripherals Tested

The Wireless Access Point Model: RAP-1 (EUT) was connected to an ethernet hub and AC adapter via its WAN and power ports, respectively. The LAN port on the EUT was not terminated because it will not be used in production. The low (channel 1), medium (channel 5), and high (channel 10) channels were tested. The EUT was tested in both the X-axis and Y-axis. It was determined the X-axis produced the worst case emissions for all of the tests. The EUT was transmitting and receiving on a continuous basis. The radiated data as well as the conducted data was taken in this mode of operation. All initial investigations were performed with the Spectrum Analyzer in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the photographs in Appendix C. The data sheets are located in Appendix D.

Note: For Conducted Emissions, the digital portion was tested to the **Class A** limits, and the transmitter portion tested to the **Class B** limits. For Radiated Spurious Emissions, the digital portion was tested to the **Class A** limits, and the transmitter portion tested to the **Class B** limits.

The antenna connection is integral with the device.

4.1.1 Cable Construction and Termination

Cable 1 This is a 50 foot unshielded cable connecting the Ethernet Hub to the EUT. It has an RJ-45 connector at each end.

Cable 2 This is a 6 foot unshielded cable connecting the EUT to the AC power adapter. It has a 5.5 mm barrel at the EUT end and is hard wired into the AC power adapter.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WIRELESS ACCESS POINT(EUT)	NETNEARU CORPORATION	RAP-1	N/A	PUIRAP1V10
POWER ADAPTER	CUI STACK	DSA-0151A-05A	N/A	DoC
ETHERNET HUB	ASP	HUBWAY	S80515319610	LL8-LEEHUB5D
POWER ADAPTER (HUB)	ASP	SCD48-750900	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiated Emissions Manual Test – Radiated	Compatible Electronics	N/A	N/A	N/A	N/A
Conducted Emissions Test Software	Compatible Electronics	N/A	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08768	June 15, 2001	June 15, 2002
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	June 15, 2001	June 15, 2002
Preamplifier	Com Power	PA-102	1017	Jan. 5, 2001	Jan. 5, 2002
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	June 15, 2001	June 15, 2002
Biconical Antenna	Com Power	AB-100	1548	Oct. 16, 2000	Oct. 16, 2001
Log Periodic Antenna	Com Power	AL-100	16039	Oct. 16, 2000	Oct. 16, 2001
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	D5251A 888	US74458128	N/A	N/A
Printer	Hewlett Packard	C5886A	SG7CM1P090	N/A	N/A
Monitor	Hewlett Packard	D5258A	DK74889705	N/A	N/A
Loop Antenna	Com-Power	AL-130	25309	May 21, 2001	May 21, 2002
Horn Antenna	Antenna Research	DRG-118/A	1053	Jan. 15, 2001	Jan. 15, 2002
Horn Antenna	Antenna Research	MWH-1826/B	1004	Jan. 21, 1997	N.C.R.
Microwave Preamplifier	Com-Power	PA-122	25195	Jan. 9, 2001	Jan. 9, 2002

EMI TEST EQUIPMENT (CONTINUED)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Amplifier	Hewlett Packard	11975A	2403A00202	Feb. 5, 2001	Feb. 5, 2002
Harmonic Mixer	Hewlett Packard	11970K	3003A05460	Feb. 17, 2001	Feb. 17, 2002
Power Meter	Hewlett Packard	436A	2236A15362	May 21, 2001	May 21, 2002
Power Sensor	Hewlett Packard	8482H	GG00000006	May 21, 2001	May 21, 2002

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 8.1.2 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 not grounded.

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 proprietary antenna connector on the EUT.

Power	Channel Number	Accuracy
12.12 dBm	1	+2/-2 dB
12.14 dBm	5	+2/-2 dB
12.20 dBm*	10	+2/-2 dB

* The form 731 reflects this maximum measured output power +2dB (tolerance permitted by the commission)

7.2 Channel Number and Frequencies

Channel Number	Channel center Frequency (MHz)
2	2418
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

7.3 Chipping Rate

11 chips / bits by IEEE 802.11 Standard

7.4 Spreading Gain

The theoretical spreading gain, is 16.4 dB.

7.5 Antenna Gain and Description

The antennas used in the EUT are diversity monopole antennas. The maximum gain of the antennas is only 1.0 dBi

7.6 Processing Gain

NOTE: This information is from the test report with the FCC-ID: MXF-WX1500. The test report has the same chipset that the EUT has which is the Prism II from Intersil Corporation.

The Prism II chipset consists of:

1. HFA3983 2.4GHz Power Amplifier and Detector
2. HFA3683A 2.4GHz RF/IF Converter and Synthesizer (RF/IF)
3. HFA3783 I/Q Mod/DeMod and Synthesizer (IF)
4. HFA3861Baseband Processor with Rake Receiver (BBP)

The testing was performed by ADT Corporation. Please see Appendix D for the data sheets, test equipment used, how the signal to noise ratio was derived, and test procedure.

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: 1992. 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 D.

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 25 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: 1992. 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. 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 to obtain final test data.

For the 22 GHz – 25 GHz span, the Hewlett Packard 11970K Harmonic Mixer and the Hewlett Packard 11975A Amplifier were used to allow the spectrum analyzer to scan up to 25 GHz.

8.2 6 dB Bandwidth for Direct Sequence Systems

The 6 dB Bandwidth was taken using the spectrum analyzer. The bandwidth was measured using a direct connection from the RF out on the RF board. The resolution bandwidth was 100 kHz, and the video bandwidth 300 kHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.209 (a)(2). The bandwidth is at least 500 kHz. Please see the data sheets located in Appendix D.

8.3 Peak Output Power

The peak output power was taken using the Hewlett Packard 436A Power Meter and the Hewlett Packard 8482H Power Sensor. The low (channel 1), middle (channel 5), and high (channel 10) were taken.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.209 (b)(1). The maximum peak output power is less than 1 watt.

8.4 Spectral Density Output

The spectral density output was using the spectrum analyzer. The spectral density output power was measured using a direct connection from the RF out on the RF board into the input of the analyzer. The resolution bandwidth was 3 kHz, and the video bandwidth 10 kHz. The highest 4.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.209 (d). The spectral density output does not exceed 8 dBm in any 3 kHz band.

8.5 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 RF board into the input of the analyzer. The resolution bandwidth was 100 kHz, and the video bandwidth 300 kHz. 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 15.209 (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.

8.6 RF Band Edges

The RF band edges were taken at the beginning of the restricted bands nearest the band edges of the 2.4 GHz ISM spectrum using the spectrum analyzer at 3 meters. Please see section 8.1.2 for on how radiated emission testing is performed.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (c). The emissions at the band edges at 2390 MHz and 2483.5 MHz meet the limits of section 15.209.

8.7 Processing Gain

Please see section 7.6 of this test report.

9. CONCLUSIONS

The Wireless Access Point Model: RAP-1 meets all of the specification limits defined in FCC Title 47, Part 15 Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

APPENDIX A

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and C 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.

Modifications:

No Modifications were made to the EUT during the testing.

APPENDIX B

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Wireless Access Point Model: RAP-1 S/N: N/A

There were no additional models covered under this report.

APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

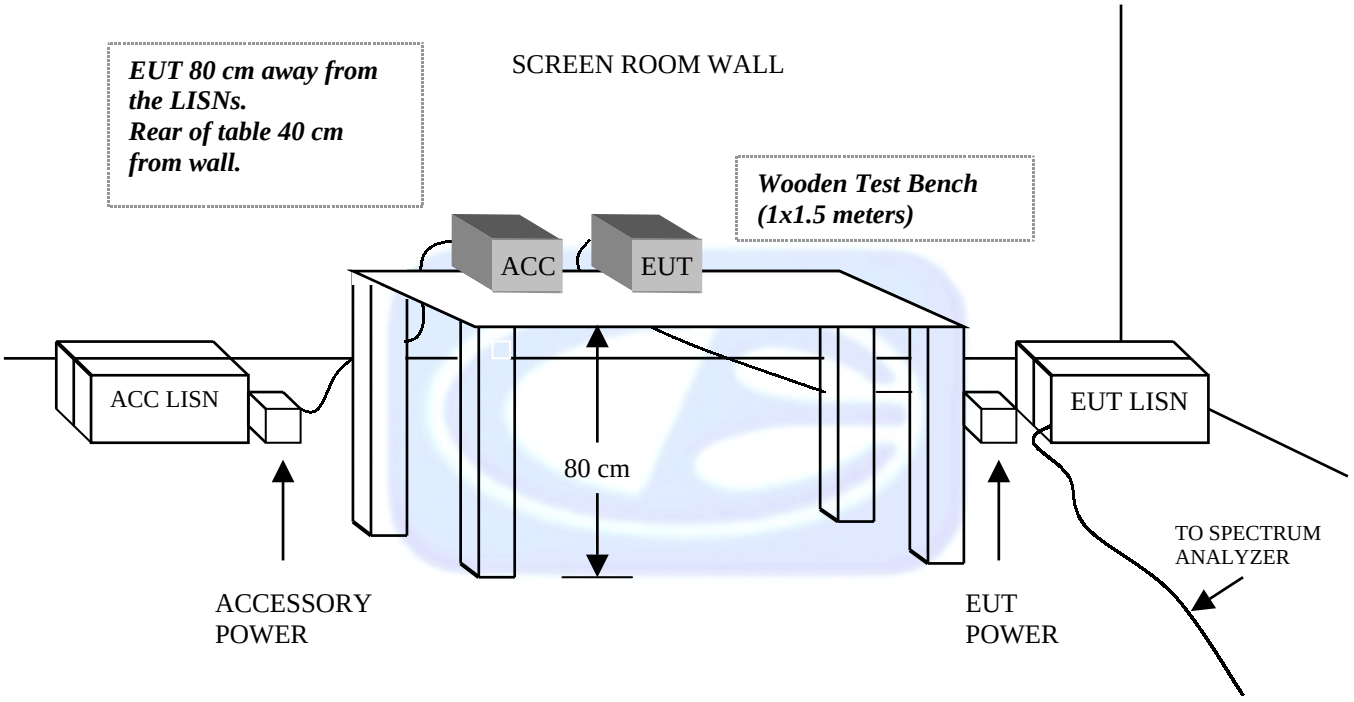
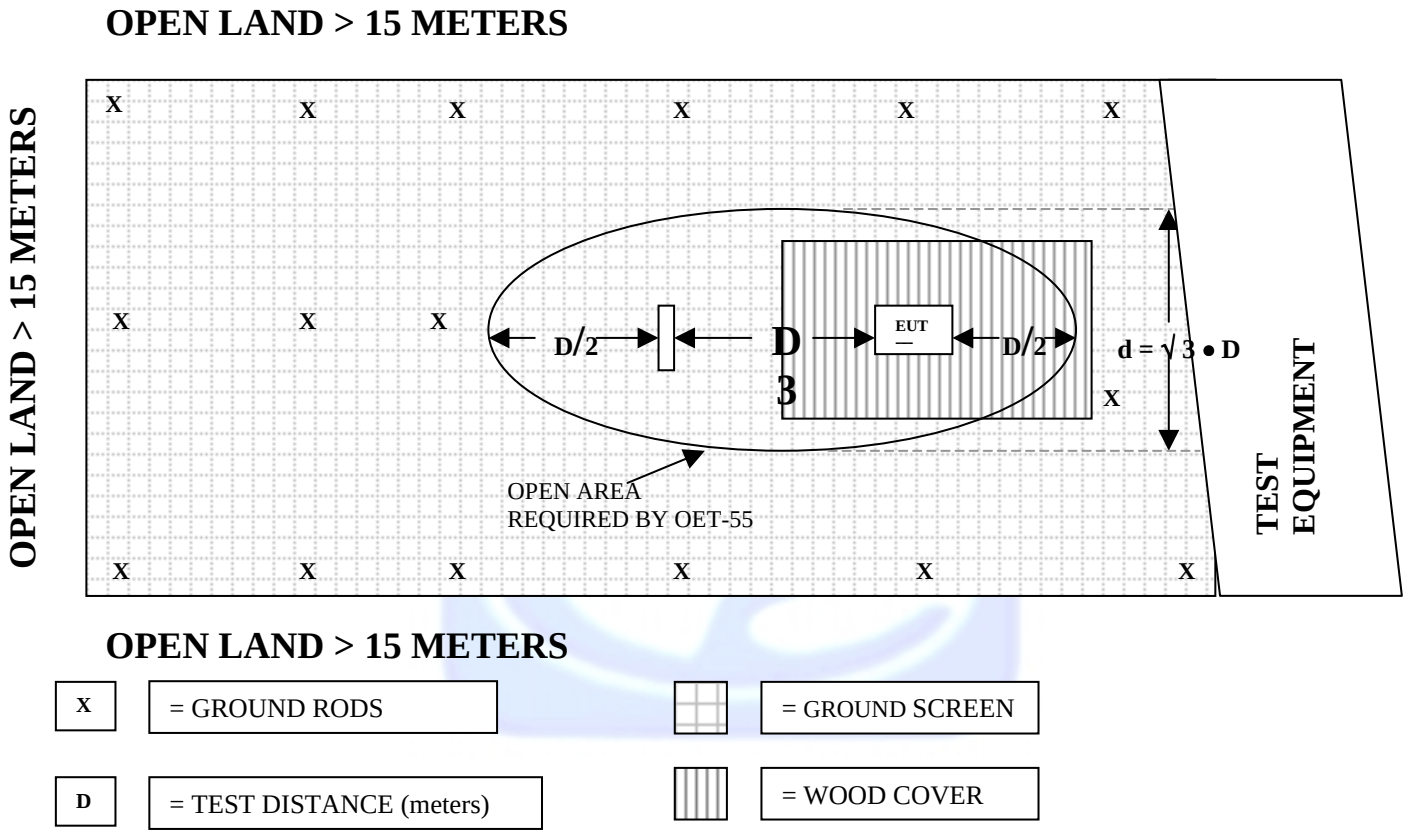


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE



FRONT VIEW

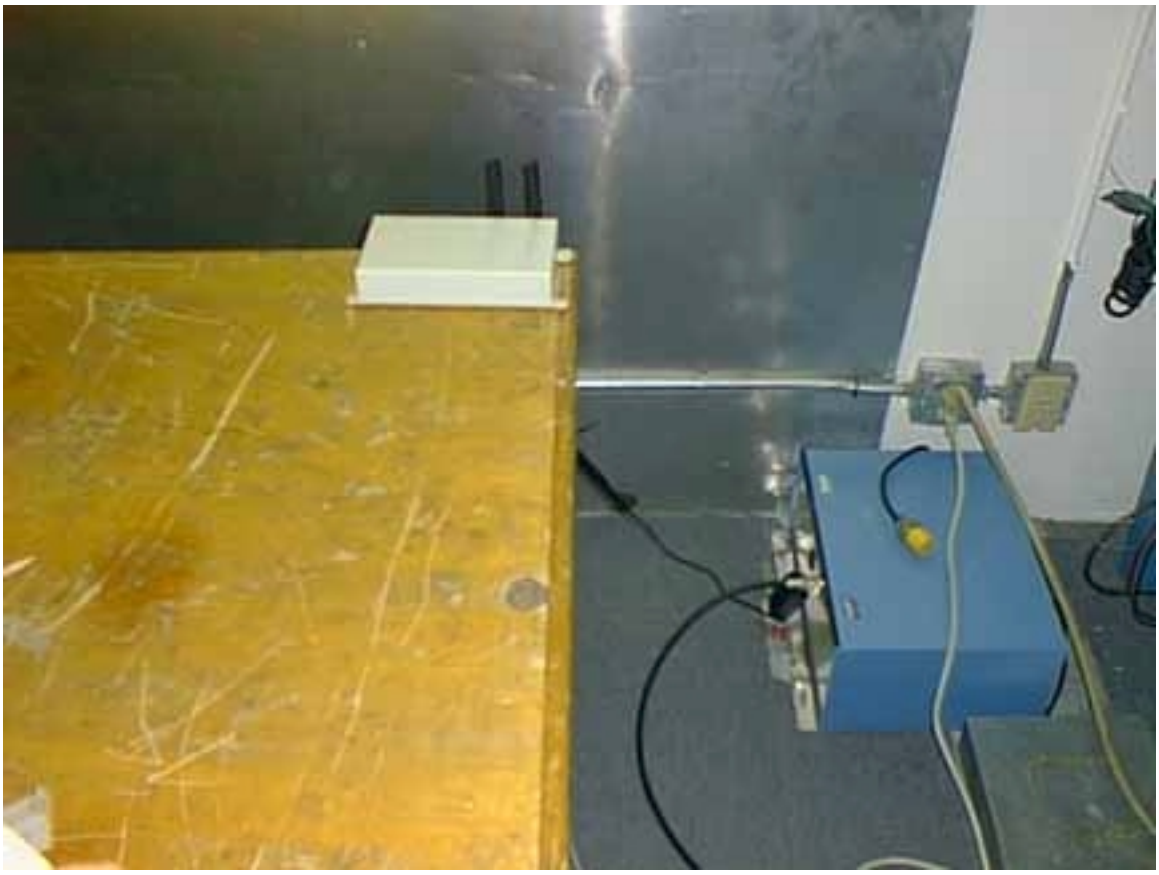
NetNearU CORPORATION
WIRELESS ACCESS POINT
Model: RAP-1
FCC SUBPART C - RADIATED EMISSIONS – 8-7-01, 8-8-01, 8-14-01

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

NetNearU CORPORATION
WIRELESS ACCESS POINT
Model: RAP-1
FCC SUBPART C - RADIATED EMISSIONS – 8-7-01, 8-8-01, 8-14-01

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

NetNearU CORPORATION
WIRELESS ACCESS POINT
Model: RAP-1
FCC SUBPART C – CONDUCTED EMISSIONS – 8-07-01

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

NetNearU CORPORATION
WIRELESS ACCESS POINT
Model: RAP-1
FCC SUBPART C – CONDUCTED EMISSIONS – 8-07-01

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

COM-POWER AB-100

BICONICAL ANTENNA

S/N: 01548

CALIBRATION DATE: OCTOBER 16, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	14.01	120	10.33
35	13.63	125	11.61
40	13.26	140	12.70
45	11.62	150	12.95
50	11.03	160	13.58
60	8.52	175	14.82
70	8.94	180	14.84
80	8.17	200	14.80
90	8.08	250	16.42
100	8.64	300	20.26

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16101

CALIBRATION DATE: OCTOBER 16, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.96	700	19.24
400	16.92	800	21.37
500	16.73	900	22.13
600	16.32	1000	22.19

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 5, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	39.0	300	38.9
40	39.2	350	38.9
50	39.2	400	38.6
60	39.2	450	38.5
70	38.8	500	38.7
80	38.6	550	38.4
90	38.5	600	38.8
100	38.7	650	38.5
125	39.2	700	38.6
150	38.8	750	38.1
175	38.8	800	37.9
200	39.0	850	38.0
225	38.8	900	37.8
250	38.8	950	36.9
275	39.0	1000	38.2

COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: JANUARY 9, 2001

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	33.1	9.5	30.7
1.1	33.0	10.0	31.6
1.2	33.2	11.0	30.6
1.3	33.0	12.0	28.5
1.4	32.4	13.0	31.5
1.5	32.3	14.0	33.2
1.6	32.1	15.0	31.5
1.7	32.0	16.0	30.2
1.8	31.8	17.0	31.6
1.9	32.2	18.0	31.7
2.0	32.6		
2.5	31.9		
3.0	31.7		
3.5	31.7		
4.0	32.3		
4.5	31.5		
5.0	32.3		
5.5	34.2		
6.0	30.9		
6.5	32.0		
7.0	32.1		
7.5	33.0		
8.0	31.9		
8.5	31.9		
9.0	31.3		

ANTENNA RESEARCH DRG-118/A

HORN ANTENNA

S/N: 1053

CALIBRATION DATE: JANUARY 15, 2001

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	25.4	9.5	39.6
1.5	26.7	10.0	39.7
2.0	29.6	10.5	40.8
2.5	30.7	11.0	40.4
3.0	31.2	11.5	42.2
3.5	32.3	12.0	43.0
4.0	33.2	12.5	42.6
4.5	33.2	13.0	41.3
5.0	34.8	13.5	40.3
5.5	35.4	14.0	40.9
6.0	36.6	14.5	44.0
6.5	36.6	15.0	43.3
7.0	38.7	15.5	42.7
7.5	38.6	16.0	42.6
8.0	37.9	16.5	42.8
8.5	37.9	17.0	43.5
9.0	39.9	17.5	44.6
		18.0	42.2

ANTENNA RESEARCH
11317 Frederick Avenue, Beltsville, MD 20705, USA
TEL: (301)937-8888 FAX: (301)937-2796

E-FIELD ANTENNA FACTOR CALIBRATION

$E\ (dB\ V/m) = V_o\ (dB\ V) + AFE\ (dB\ 1/m)$

Model Number : MWH-1826/B

Frequency (GHz)	AFE (dB 1/m)	Gain (dBi)
18.000	23.1	32.2
18.850	23.2	32.5
19.700	23.6	32.5
20.550	23.5	33.0
21.400	23.7	33.1
22.250	24.0	33.2
23.100	24.0	33.5
23.950	24.1	33.7
24.800	24.1	34.0
25.650	24.3	34.1
26.500	24.4	34.3

Serial Number : 1004

Com-Power Corporation

(949) 587-9800

Antenna Calibration

Antenna Type:		Active Loop Antenna
Model:		AL-130
Serial Number:		25309
Calibration Date:	(mm/dd/yy)	05/21/01
Certificate Number:		071014-R

Frequency MHz	Magnetic (dB/m)	Electric dB/m
0.009	-40.2	11.3
0.01	-40.2	11.3
0.02	-40.9	10.6
0.03	-39.3	12.2
0.04	-39.7	11.8
0.05	-41.0	10.5
0.06	-40.6	10.9
0.07	-40.8	10.7
0.08	-41.1	10.4
0.09	-41.2	10.3
0.1	-41.2	10.3
0.2	-43.5	8.0
0.3	-41.1	10.4
0.4	-41.0	10.5
0.5	-41.0	10.5
0.6	-40.9	10.6
0.7	-40.8	10.7
0.8	-40.8	10.7
0.9	-40.8	10.7
1	-40.3	11.2
2	-39.7	11.8
3	-40.0	11.5
4	-40.2	11.3
5	-39.6	11.9
6	-39.6	11.9
7	-40.0	11.5
8	-40.3	11.2
9	-39.8	11.7
10	-40.6	10.9
12	-40.7	10.8
14	-40.6	10.9
15	-40.7	10.8
16	-40.7	10.8
18	-40.8	10.7
20	-41.6	9.9
25	-42.8	8.7
30	-43.3	8.2

Separation Distance:	1 meter

APPENDIX D

DATA SHEETS

APPENDIX E

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200063-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

Technology International (Europe) Ltd.