

Exhibit II. Certification Data

FCC and IC

Supplemental Certification Report

for the

FCC ID: KBCIX260LMC350

and

IC: 246 11032078A

EXHIBIT VI.

Supplemental Test Report

New Certification of Previously Certified OEM Module

FCC ID: KBCIX260LMC350

IX260 with a LMC-350, PCMCIA, WLAN

Certification Under Title 47 CFR, Part 15.247

And

RSS-210

Prepared On Behalf Of

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Prepared

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January 13, 2003

Exhibit VI

Supplemental Test Report

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Note: The test results submitted herein address the Itronix, Inc. addition of three new antennas for use with the Intentional Radiator referenced below. They are intended to be supplemental to the original Certification exhibits and test report filed for the following Cisco Systems, Inc., DSSS, IEEE 802.11(b), WLAN.:

United States
or
Canada

FCC ID: LDK102040, PCMCIA card, WLAN, Model: LMC-350
IC: 246 11032078A, PCMCIA card, WLAN, Model: LMC-350

EXHIBIT 6A TEST: CONDUCTED RF POWER OUTPUT

FCC ID: KBCIX260LMC350

Applicant: ITRONIX, Corporation

Model: IX260 with LMC350, WLAN

Minimum Standard Specified: Part 15.247(b)(1) is 1 Watt for DSSS

Test Results: The measured output power level on the sample shows compliance with the above limit.

Authorization Procedure: Part 2.1046

Measured Conducted Output Power: 21.2 dBm (Max.)

Method of Measurement:

1. The output power levels above had been preset during production for each model and no changes made.
2. The peak output power was measured by Celltech with a Gigatronics 8652A Universal Power Meter (S/N: 1835272).
3. The measured channels cover the low, middle and top of the operational frequency range previously approved for this Intentional Radiator of 2412 – 2462 MHz.
4. The results below were the maximum levels observed on Antenna port A2 which is used in production, A1 is not used.

Tabular Results of Conducted RF Output Power and EIRP Calculations**Antenna #1**

WLAN Serial No: SPL051002Y W	Peak Power Output includes 6 “ cable loss	Add'l loss second cable from CCB to blade ant. 20” Cable loss	Output Power	3 ‘ blade antenna Drawing 47- 0118-003 Ant. Gain dBi	EIRP	
Frequency GHz	Peak Power Output dBm					
2.412	20.4	1.3	21.7	-0.18	21.52	
2.437	21.2	1.4	22.6	-0.18	22.42	
2.462	21.2	1.6	22.8	-0.18	22.62	* max.

EXHIBIT 6A TEST: CONDUCTED RF POWER OUTPUT**Antenna #2**

WLAN Serial No: SPL051002Y W Frequency GHz	Peak Power Output includes 6 “ cable loss Peak Power Output dBm	Coaxial cable from Cradel to Ext. Antenna Cable loss 17 feet of LMR195 coaxial cable	Output Power	MaxRad P/N: BMAXC24503 Ant. Gain dBi	EIRP	
2.412	20.4	3.5 dB	23.9	3	26.9	
2.437	21.2	3.5 dB	24.7	3	27.7	<i>* max.</i>
2.462	21.2	3.5 dB	24.7	3	27.7	<i>* max.</i>

Antenna #3

WLAN Serial No: SPL051002Y W Frequency GHz	Peak Power Output includes 6 “ cable loss Peak Power Output dBm	Coaxial cable from Cradel to Ext. Antenna Cable loss 17 feet of LMR195 coaxial cable	Output Power	MaxRad P/N: BMAXC24505 Ant. Gain dBi	EIRP	
2.412	20.4	3.5 dB	23.9	5	28.9	
2.437	21.2	3.5 dB	24.7	5	29.7	<i>* max.</i>
2.462	21.2	3.5 dB	24.7	5	29.7	<i>* max.</i>

The **WLAN** maximum EIRP with each antenna is as follows:

Antenna #1 Itronix, 3 Inch Blade Antenna = 22.62 dBm EIRP

Antenna #2 MaxRad, P/N: BMAXC24503 = 27.7 dBm EIRP

Antenna #3 MaxRad, P/N: BMAXC24505 = 29.7 dBm EIRP

EXHIBIT 6G TEST: RADIATED HARMONICS AND SPURIOUS EMISSIONS

FCC ID: KBCIX260LMC350

Applicant: ITRONIX, Corporation

Model: IX260 with LMC350, WLAN

Minimum Standard Specified: Part 15.247(c), 15.205 & 15.209(a)

Test Results: Equipment complies with standard

Authorization Procedure: Part 2.1053

Test Equipment Set Up: See Block Diagram in Exhibit 7

Frequency Range Observed: 0 to 24 GHz

Operating Frequencies **WLAN**: 2412, 2437, & 2462 MHz (2412 – 2462 MHz band)

ANTENNA #1, 3" Blade Antenna**Display Located****Radiated Field Strength For Three Channels**

WLAN Frequency in GHz	Ant. Vert/ Horz	Spectrum Analyzer Reading dBuV	+ Ant Factor	- Amp Gain	+ Cable Loss	= dBuV/m @ 3 meters	or uV/m @ 3 meters
Ch. 1 Low 2.412	V	84.67	28.37	0	1.33	114.37	522997.96
Ch. 6 Mid 2.437	V	83.67	28.37	0	1.33	113.37	466122.42
Ch.11 High 2.462	V	86.00	28.37	0	1.33	115.70	609536.89

Related Harmonics and Spurious Emissions

WLAN	Frequency in GHz	Harmonics observed	Limit 74 dBuV/m Peak & 54 dBuV/m Average
Ch. 1 Low Fo	2.412		
2Fo - 10Fo	4.824 – 24.120	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m
Ch. 6 Mid Fo	2.437		
2Fo - 10Fo	4.874 – 24.370	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m
Ch. 11 High Fo	2.462		
2Fo - 10Fo	4.924 – 24.620	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m

All harmonic and spurious emissions were below the limit. 2Fo and 3Fo were measurable during preliminary measurements at 1.0 meter with 100 kHz RBW only, but not at 3 meters with 1 MHz RBW. A HP preamplifier with over 20 dB of gain was used during the measurements of the harmonics. A high pass filter was used to reduce the fundamental signal and avoid the possibility of overloading the front end of the analyzer when using the preamp.

Test Notes:

- 1.) All harmonics in the restricted bands listed in Part 15.205 are below the Part 15.209(a) limit.
- 2.) No peak emissions above 1 GHz are more than 20 dB above the average limit.
- 3.) Peak measurements made with 1 MHz RBW & VBW, Average made with 1MHz RBW & 10 Hz VBW.
- 4.) One set of measurements was made for each antenna. Antenna port, A2, was the output from the PCMCIA card to the Cradel contact board and then to the external antenna connected to the Cradle.

EXHIBIT 6G TEST: RADIATED HARMONICS AND SPURIOUS EMISSIONS

FCC ID: KBCIX260LMC350

Applicant: ITRONIX, Corporation

Model: IX260 with LMC350, WLAN

Minimum Standard Specified: Part 15.247(c), 15.205 & 15.209(a)

Test Results: Equipment complies with standard

Authorization Procedure: Part 2.1053

Test Equipment Set Up: See Block Diagram in Exhibit 7

Frequency Range Observed: 0 to 24 GHz

Operating Frequencies **WLAN**: 2412, 2437, & 2462 MHz (2412 – 2462 MHz band)

ANTENNA #2, Maxrad Antenna, Manf. P/N BMAXC24503 - 3 dB gain**Vehicular Antenna****Radiated Field Strength For Three Channels**

WLAN Frequency in GHz	Ant. Vert/ Horz	Spectrum Analyzer Reading dBuV	+ Ant Factor	- Amp Gain	+ Cable Loss	= dBuV/m @ 3 meters	or uV/m @ 3 meters
Ch. 1 Low 2.412	V	76.33	28.37	0	1.33	106.03	200216.56
Ch. 6 Mid 2.437	V	75.00	28.37	0	1.33	104.70	171790.83
Ch.11 High 2.462	V	77.33	28.37	0	1.33	107.03	224646.67

Related Harmonics and Spurious Emissions

WLAN	Frequency in GHz	Harmonics observed	Limit 74 dBuV/m Peak & 54 dBuV/m Average
Ch. 1 Low Fo	2.412		
2Fo - 10Fo	4.824 – 24.120	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m
Ch. 6 Mid Fo	2.437		
2Fo - 10Fo	4.874 – 24.370	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m
Ch. 11 High Fo	2.462		
2Fo - 10Fo	4.924 – 24.620	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m

All harmonic and spurious emissions were below the limit. 2Fo and 3Fo were just visible during preliminary measurements at < 1 meter using 100 kHz RBW only, but not at 3 meters with 1 MHz RBW. A HP preamplifier with over 20 dB of gain was used during the measurements of the harmonics. A high pass filter was used to reduce the fundamental signal and avoid the possibility of overloading the front end of the analyzer when using the preamp.

Test Notes:

- 1.) All harmonics in the restricted bands listed in Part 15.205 are below the Part 15.209(a) limit.
- 2.) No peak emissions above 1 GHz are more than 20 dB above the average limit.
- 3.) Peak measurements made with 1 MHz RBW & VBW, Average made with 1MHz RBW & 10 Hz VBW.
- 4.) One set of measurements was made with each antenna. Antenna port, A2, was the output from the PCMCIA card to the cradle contact board and then to the external antenna connected to the Cradle.

EXHIBIT 6G TEST: RADIATED HARMONICS AND SPURIOUS EMISSIONS

FCC ID: KBCIX260LMC350

Applicant: ITRONIX, Corporation

Model: IX260 with LMC350, WLAN

Minimum Standard Specified: Part 15.247(c), 15.205 & 15.209(a)

Test Results: Equipment complies with standard

Authorization Procedure: Part 2.1053

Test Equipment Set Up: See Block Diagram in Exhibit 7

Frequency Range Observed: 0 to 24 GHz

Operating Frequencies **WLAN**: 2412, 2437, & 2462 MHz (2412 – 2462 MHz band)

ANTENNA #3, Maxrad Antenna, Manf. P/N: BMAXC24505 - 5 dB gain.**Vehicular Antenna****Radiated Field Strength For Three Channels**

WLAN Frequency in GHz	Ant. Vert/ Horz	Spectrum Analyzer Reading dBuV	+ Ant Factor	- Amp Gain	+ Cable Loss	= dBuV/m @ 3 meters	or uV/m @ 3 meters
Ch. 1 Low 2.412	V	74.33	28.37	0	1.33	104.03	200216.56
Ch. 6 Mid 2.437	V	74.33	28.37	0	1.33	104.03	171790.83
Ch.11 High 2.462	V	77.67	28.37	0	1.33	107.37	233614.61

Related Harmonics and Spurious Emissions

WLAN	Frequency in GHz	Harmonics observed	Limit 74 dBuV/m Peak & 54 dBuV/m Average
Ch. 1 Low Fo	2.412		
2Fo - 10Fo	4.824 – 24.120	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m
Ch. 6 Mid Fo	2.437		
2Fo - 10Fo	4.874 – 24.370	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m
Ch. 11 High Fo	2.462		
2Fo - 10Fo	4.924 – 24.620	At or < noise floor @3m	All emissions < 54 dBuV/m or 500 uV/m

All harmonic and spurious emissions were below the limit. 2Fo and 3Fo were just visible during preliminary measurements at < 1 meter using 100 kHz RBW only, but not at 3 meters with 1 MHz RBW. A HP preamplifier with over 20 dB of gain was used during the measurements of the harmonics. A high pass filter was used to reduce the fundamental signal and avoid the possibility of overloading the front end of the analyzer when using the preamp.

Test Notes:

- 1.) All harmonics in the restricted bands listed in Part 15.205 are below the Part 15.209(a) limit.
- 2.) No peak emissions above 1 GHz are more than 20 dB above the average limit.
- 3.) Peak measurements made with 1 MHz RBW & VBW, Average made with 1MHz RBW & 10 Hz VBW.
- 4.) One set of measurements was made with each antenna. Antenna port, A2, was the output from the PCMCIA card to the cradle contact board and then to the external antenna connected to the Cradle.

Exhibit VII. Test Set-Up Procedures

BLOCK DIAGRAM #1

Transmitter Radiated Spurious Emissions Test Set Up

D = 100 ft. or 3 meters

1/2 Wave Dipole *

D

Equipment
Under Test

Spectrum
Analyzer

See Equipment List for Equipment Specifications

*
1/2 Wave Dipole 30-1000 MHz
Dual Ridged Guide Antenna or Broadband Log Periodic 1-10 GHz

Test Equipment List A

SPECTRUM TECHNOLOGY, INC.

<u>Equipment</u>	<u>Manufacturer</u>	<u>Serial Number</u>	<u>Cal Date/Due Date</u>	
Spectrum Analyzer	Hewlett-Packard 8562A	08562-60062	12/17/02	12/17/03
Amplifier 9 kHz-1300 MHz OPT H64	Hewlett-Packard 8447F	2727A02208	12/17/02	12/17/03
Service Monitor	IFR FM/AM 500A	4103	---	
Oscilloscope	Kikusui C055060	6132295	---	
Power Supply	Astron VS35	8601266	---	
Voltmeter	Fluke 8020A	N2420658	---	
Multimeter	Fluke 25	3710310	---	
Wattmeter	Bird 43	56227	---	
RF Termination	Bird 8135	10004	---	
Dual Phase LISN 50 ohm/50 uH	STI per MP-4	02	1/15/02	1/15/03
Dual Phase LISN 50 ohm/50 uH	Compliance Design	8012-50R-24-BNC	1/15/02	1/15/03
Audio Generator	Hewlett-Packard 205-AG	8689	---	
Thermometer	Fluke 52	3965185	---	
Test Line	Simulator, Teltone TLS-2	none	---	
Turn Table, RC	EMCO 1060-2M	8912-1415	---	
Antenna Mast, RC	Compliance Design, Inc.	M100	---	
Antennas:				
Dipole Set	EMCO Model: 3121C	1335	03/26/00	09/26/04
Dipole Set	EMCO Model: 3121C	1336	03/26/00	09/26/04
Bi-Conical	EMCO 3104	3763	reference only	
Bi-Conical	EMCO 3104C	9401-4635	01/30/02	01/30/03
Log-Periodic	EMCO 3146	1754	01/29/02	01/29/03
Active Loop	EMCO 6502	9107-2645	reference only	
Dual Ridged Guide Antenna	Electro-metrics RGA-60	6225	12/30/02	12/30/03

Rev. 12/03

Photographs of EUT as set up at OATS facility Nov 14, 2002

Photo 1 of 7

Antenna #1 – 3 Inch Blade Antenna

Front View of IX260 PC – Blade Antenna located upper right side of display.



Photo 2 of 7

Antenna #1 – 3 Inch Blade Antenna

Rear View of IX260 PC – Antenna located externally on the upper right side of display (left side of this rear view).



Photographs of EUT set up at OATS facility Nov 11, 2002

Photo 3 of 7

Antenna #2 MaxRad P/N: BMAXC24503

Front View of IX260 PC in Vehicular Cradle

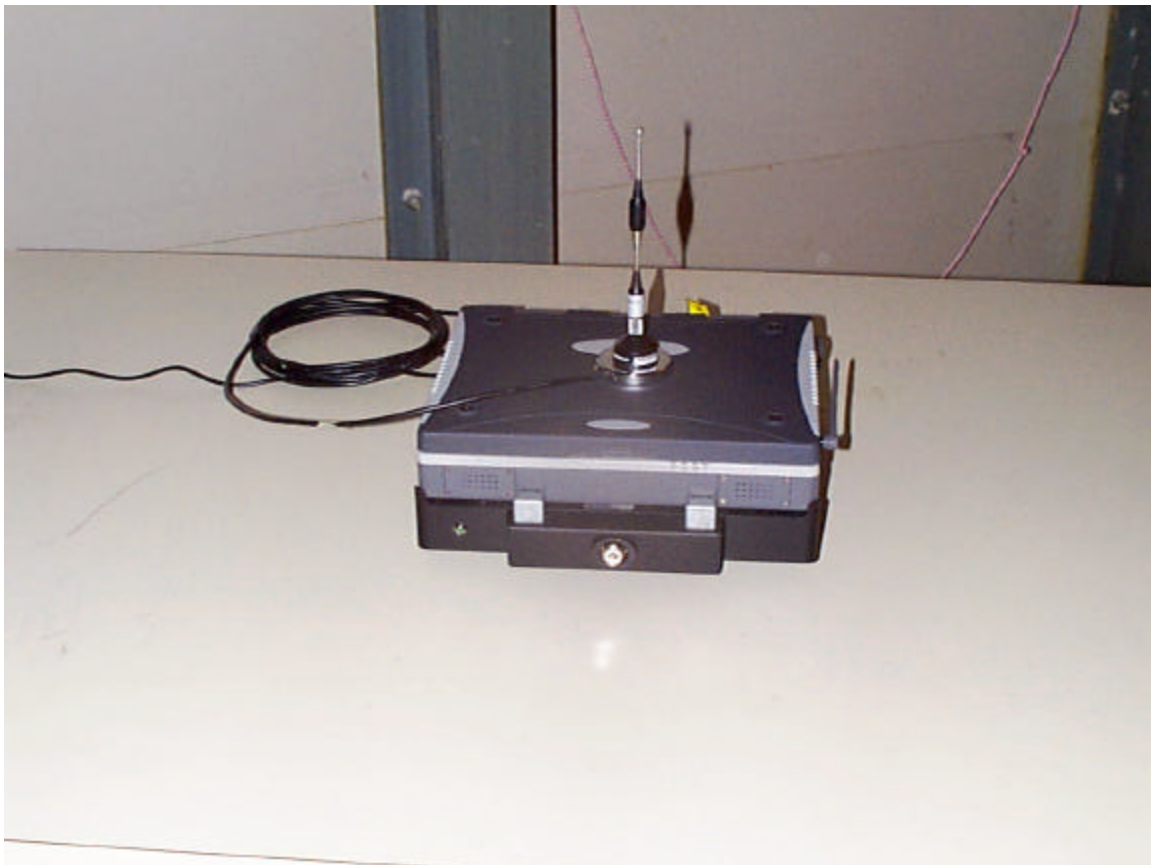
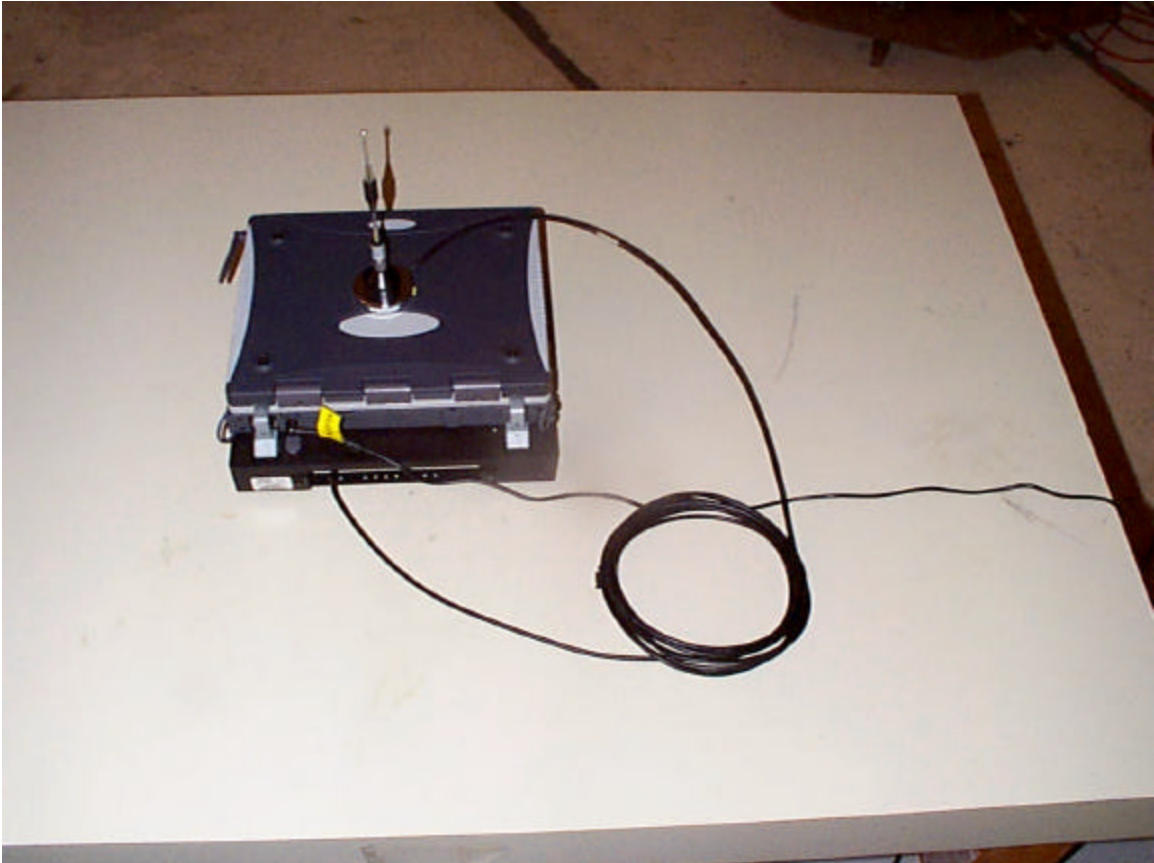


Photo 4 of 7

Antenna #2 MaxRad P/N: BMAXC24503

Rear View of IX260 PC in Vehicular Cradle



Photographs of EUT set up at OATS facility Nov 14, 2002

Photo 5 of 7

Antenna #3 MaxRad P/N: [BMAXC24505](#)

Front View of IX260 PC in Vehicular Cradle



Photo 6 of 7

Antenna #3 MaxRad P/N: BMAXC24505

Rear View of IX260 PC in Vehicular Cradle

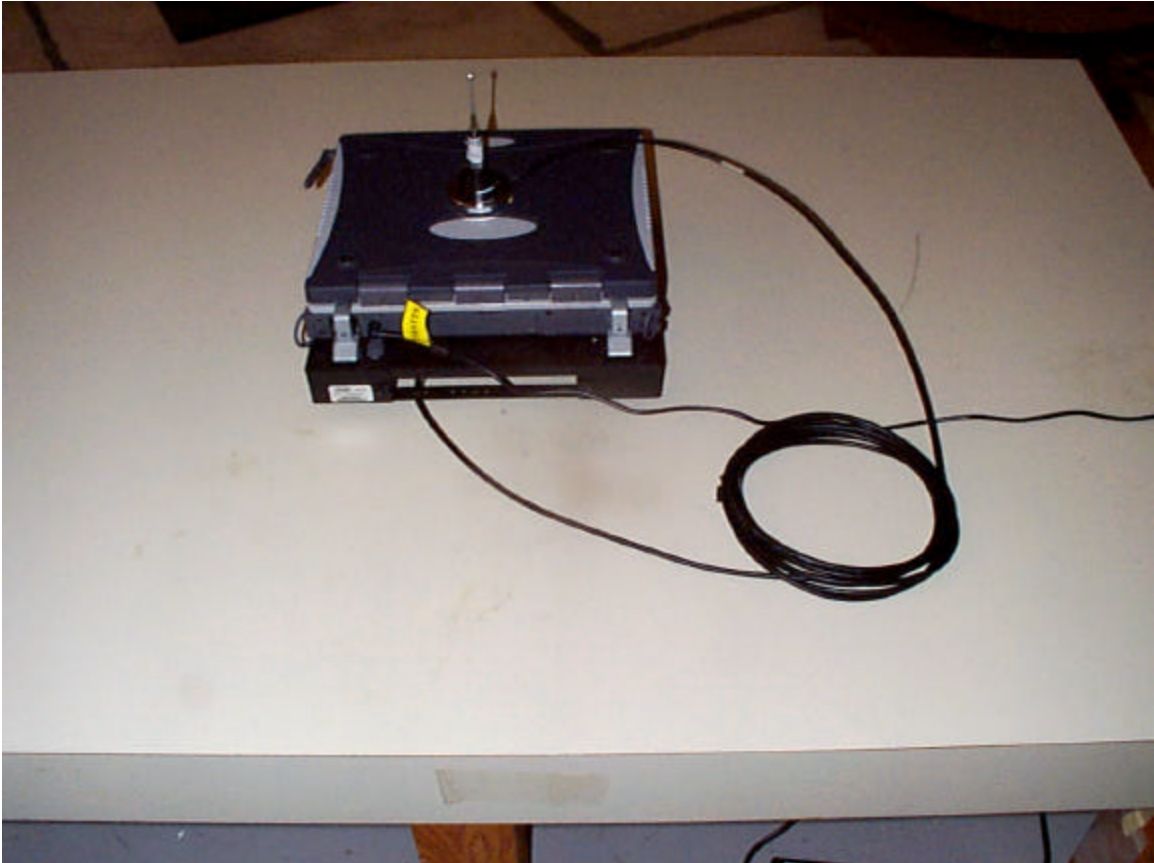


Photo 7 of 7

Close up photo of the two MaxRad external antennas

Antenna #2, MaxRad P/N: BMAXC24503 On the **left**

Antenna #3, MaxRad P/N: BMAXC24505 On the **right**

