

**Application for Certification
For a Mobile Radio**

**IPMobileNet Inc
16842 Von Karman Avenue, Suite 200
Irvine, Ca. 92606**

Mobile Radio:

**Part # IP Series
(IPM4748)**

REPORT # RV38151-002

This report was prepared in accordance with the requirements of the FCC Rules and Regulations Part 2, Subpart J, 2.1031 through 2.1057, and Part 90 and other applicable sections of the rules as indicated herein.

Prepared By:

C. L. Payne III

**DNB Engineering, Inc.
5969 Robinson Avenue
Riverside, Ca 92503-8620**

15 May 2003

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Note:

Paragraph numbers in this report follow the application section numbers found in the FEDERAL COMMUNICATIONS COMMISSION Rules and Regulations, Part 2, Subpart J for Certification of electronic equipment.

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1.0 ADMINISTRATIVE DATA

1.1 Certifications and Qualifications

I certify that DNB Engineering, Inc conducted the tests performed in order to obtain the technical data presented in this application. Also, based on the results of the enclosed data, I have concluded that the equipment tested meets or exceeds the requirements of the Rules and Regulations governing this application.

1.2 Measurement Repeatability Information

The test data presented in this report has been acquired using the guidelines set forth in FCC Part 2.1031 through 2.1057, and Part 90. The test results presented in this document are valid only for the equipment identified herein under the test conditions described. Repeatability of these test results will only be achieved with identical measurement conditions. These conditions include: The same test distance, EUT Height, Measurement Site Characteristics, and the same EUT System Components. The system must have the same Interconnecting Cables arranged in identical placement to that in the test set-up, with the system and/or EUT functioning in the identical mode of operation (i.e. software and so on) as on the date of the test. Any deviation from the test conditions and the environment on the date of the test may result in measurement repeatability difficulties.

All changes made to the EUT during the course of testing as identified in this test report must be incorporated into the EUT or identical models to ensure compliance with the FCC regulations.



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2.1033 (C) (1) Application for Certification

Name of Applicant:	IPMobileNet Inc. 16842 Von Karman Avenue, Suite 200 Irvine, Ca 92606
FRN:	0004971503
Applicant is:	<input checked="" type="checkbox"/> Manufacturer <input type="checkbox"/> Vendor <input type="checkbox"/> Licensee <input type="checkbox"/> Prospective Licensee <input type="checkbox"/> Other
Name of Manufacturer	IPMobileNet Inc.
Description:	Mobile Radio
Part Number:	IPM4748
Anticipated Production Quantity:	Multiple Units
Applicable FCC Parts:	90
FCC ID No:	MI7-IPM4748
FCC Emissions Designator:	20K0F1D
Frequency Range:	470 - 480 MHz
Rated Output Power:	40W

2.1033 (C) (2) FCC Identifier

FCC ID:

MI7-IPM4748

2.1033 (C) 3) Installation and Operating Instructions

Reference attached Owner's Manual

2.1033 (C) (4) Type of Emission

Emission Designator: 20K0F1D

2.1033 (C) (5) Frequency Range

470-480 MHz

2.1033 (C) (6) Operating Power

40 Watts

2.1033 (C) (7) Maximum Power Allowed in Applicable Part(s) of the Rules

<u>RULES PART</u>	<u>MAXIMUM POWER (WATTS)</u>
Part 90.205(i)	Refers to 90.307
Part 90.307(c)	Mobile units and control stations operating on the frequencies available for land mobile use in any given urbanized area shall afford protection to co-channel and adjacent channel television stations in accordance with the values set forth in Table C and paragraph (d) of this section except for Channel 15 in New York, NY, and Cleveland, OH, and Channel 16 in Detroit, MI, where protection will be in accordance with the values set forth in Table D and paragraph (d) of this section.
Part 90.307(d)	The minimum distance between a land mobile base station which has associated mobile units and a protected adjacent channel television station is 145km (90 miles)

In accordance with Tables C and D of Part 90.309 and using the minimum separation allowed in Figures A and B with and AAT (Average antenna height above terrain) of less than 10 meters. The following limits apply.

Power reduction below 1KW in dB = 13

In accordance with Table "F" the maximum ERP for this device is 50W.

2.1033 (C) (8) Final Mobile Radio Input Power Characteristics

Reference attached Owner's Manual

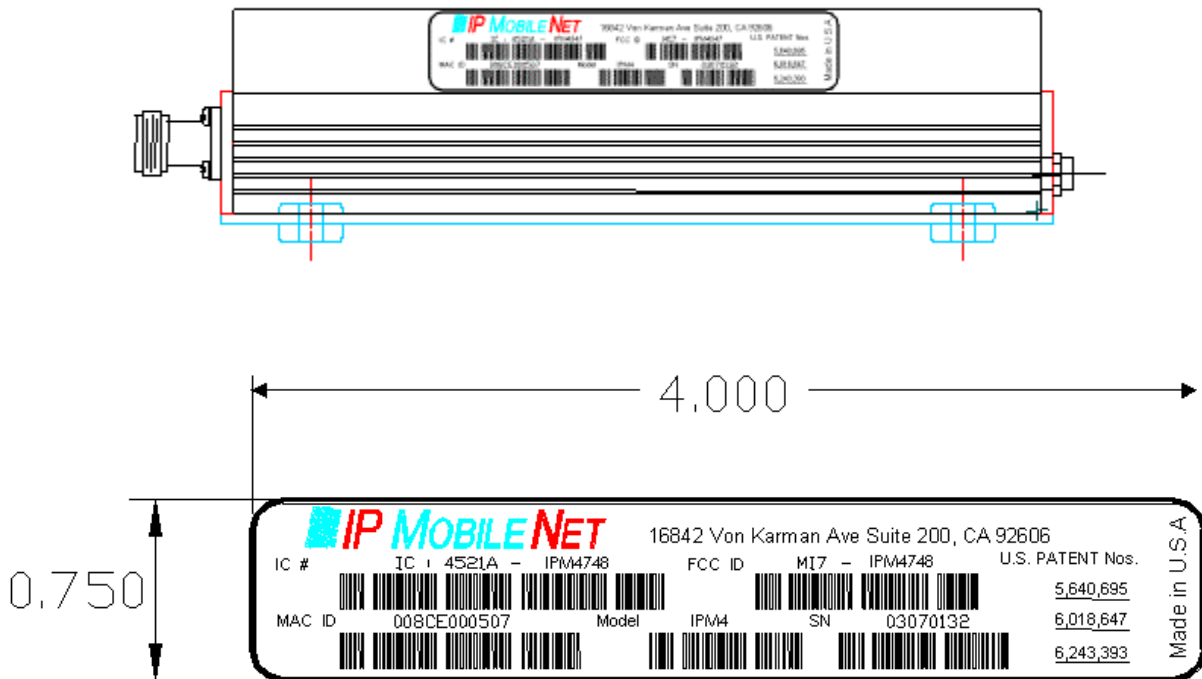
2.1033 (C) (9) Tune Up Procedure

Reference attached Owner's Manual

2.1033 (C) (10) Schematic Diagram and Circuit Description

Reference attached Owner's Manual

2.1033 (C) (11) Equipment Identification Plate



NOTES:

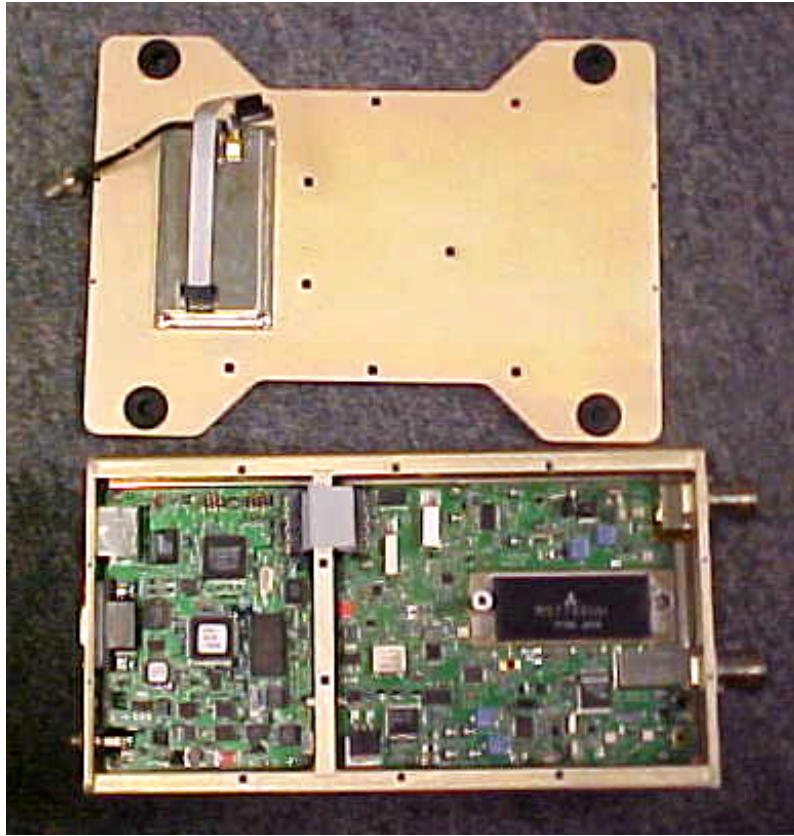
Label will be as shown on the equipment with permanent adhesive.

All information on the label will be etched or stamped. Both methods will exceed the expected lifetime of the equipment.

The label will be large enough to allow all information to be legible.

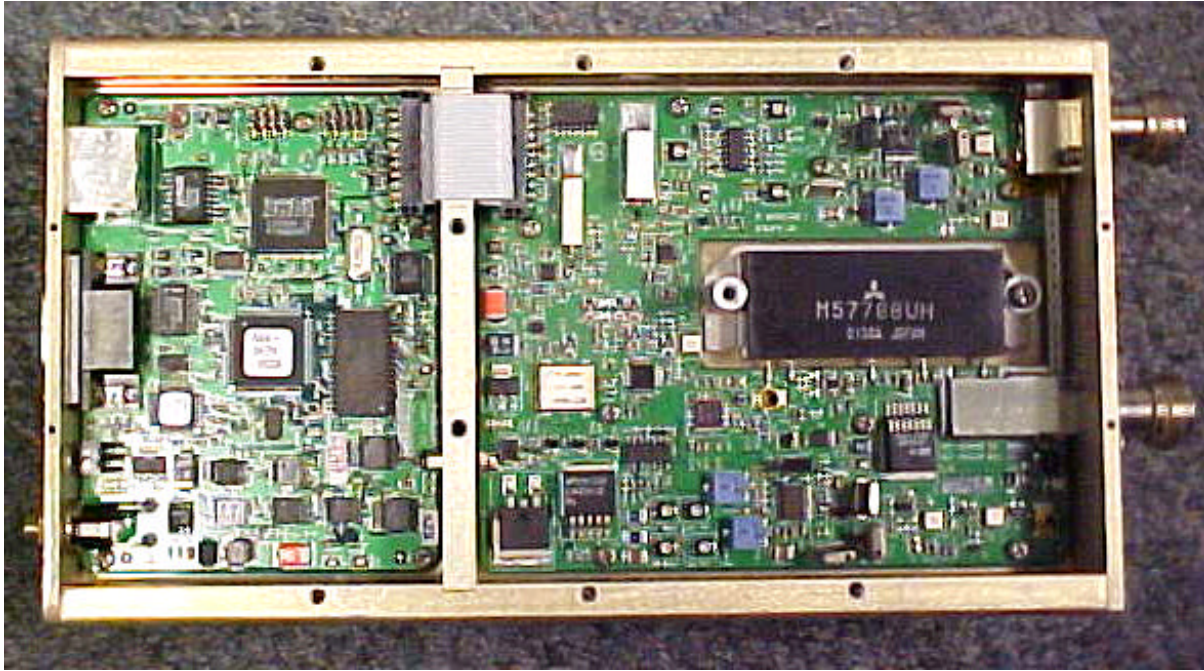
2.1033 (C) (12) Equipment Photographs - Internal

Photo 1 Detail View – Internal – A



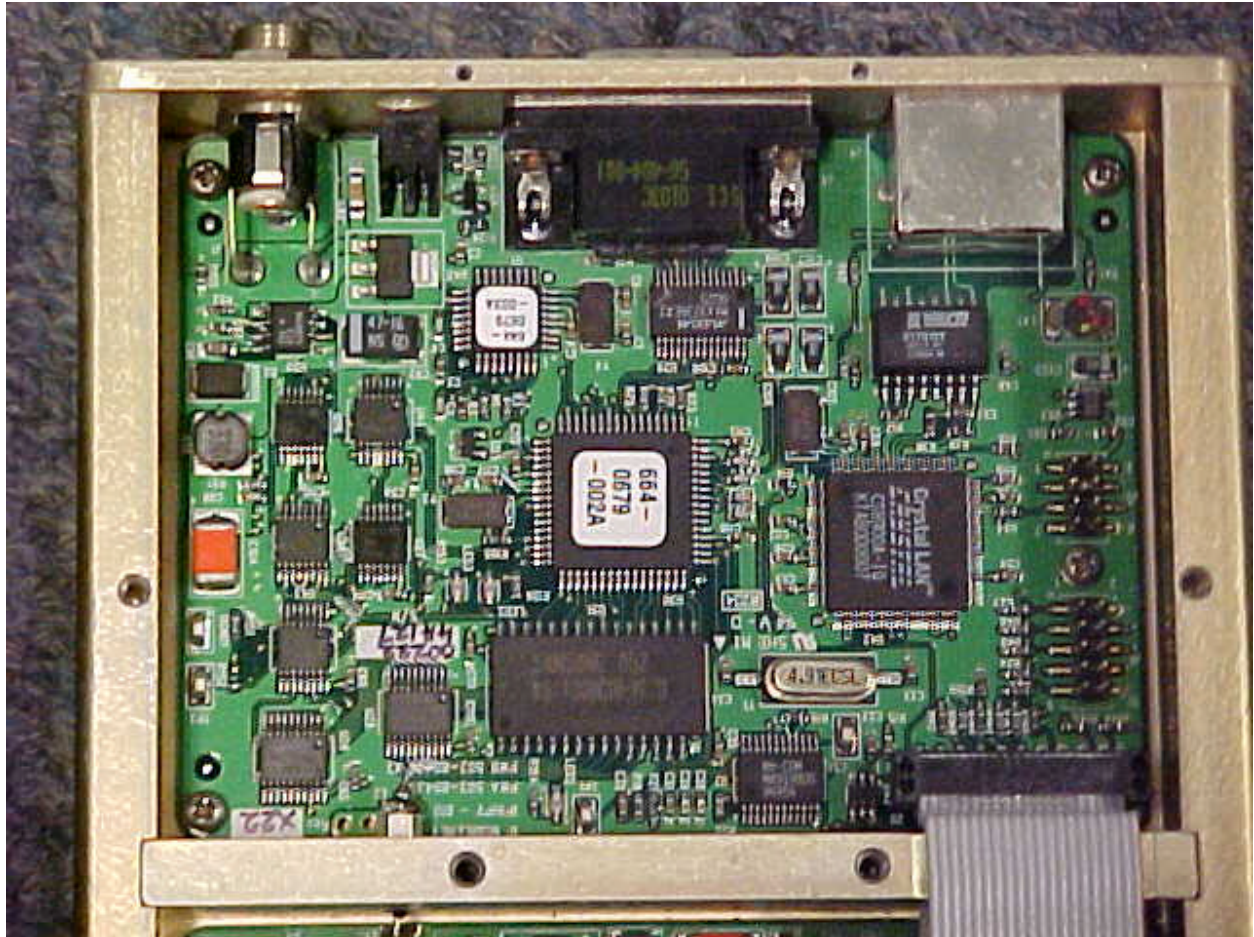
2.1033 (C) (12) Equipment Photographs - Internal

Photo 2 Detail View – Internal – B



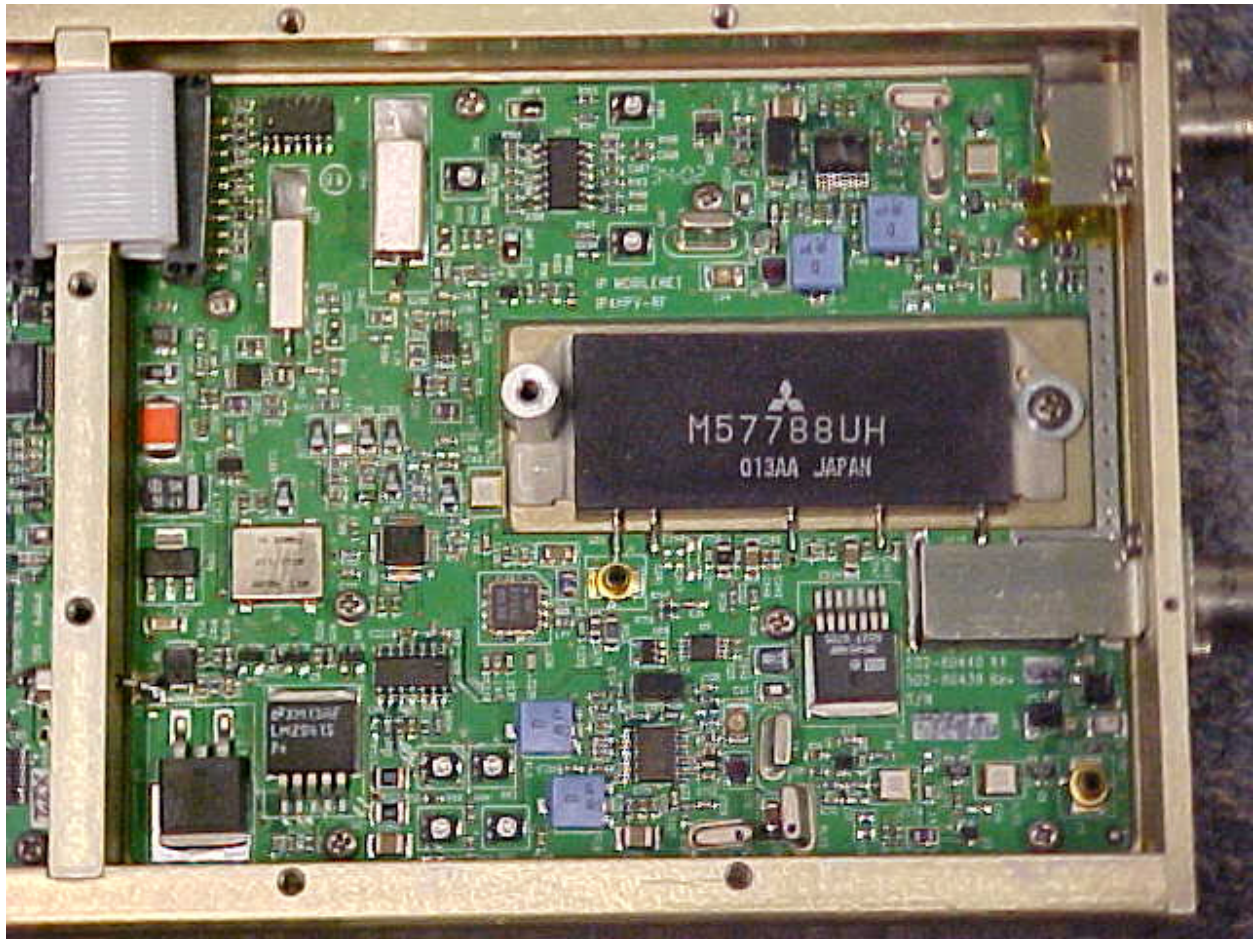
2.1033 (C) (12) Equipment Photographs - Internal

Photo 3 Detail View – Internal – C



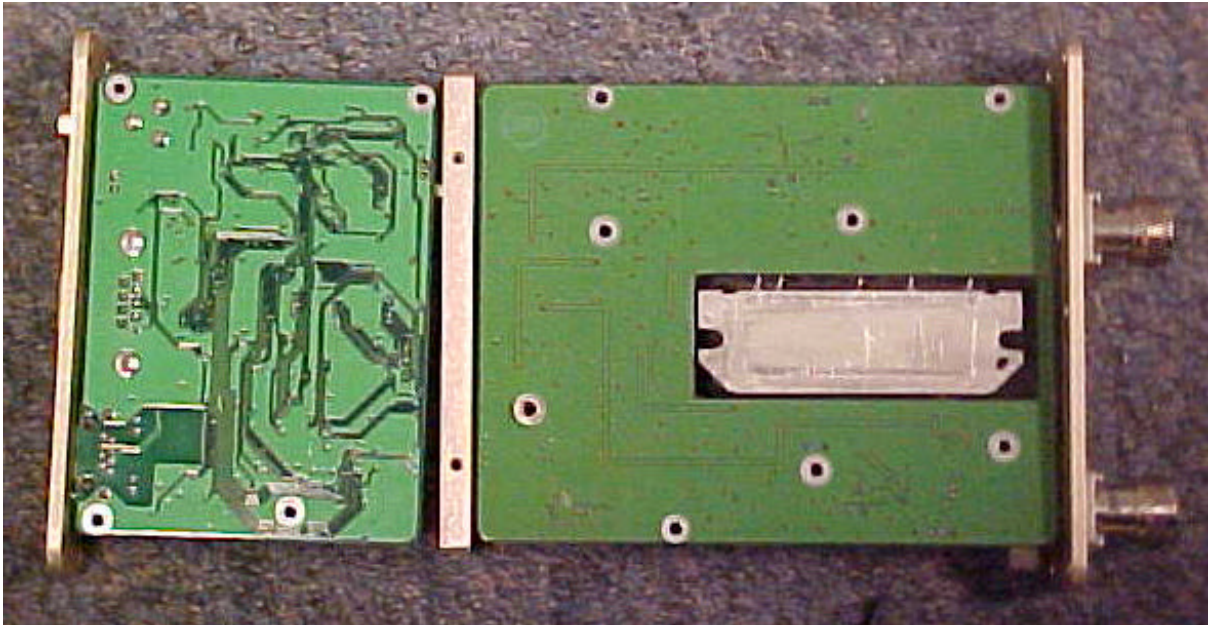
2.1033 (C) (12) Equipment Photographs - Internal

Photo 4 Detail View – Internal – D



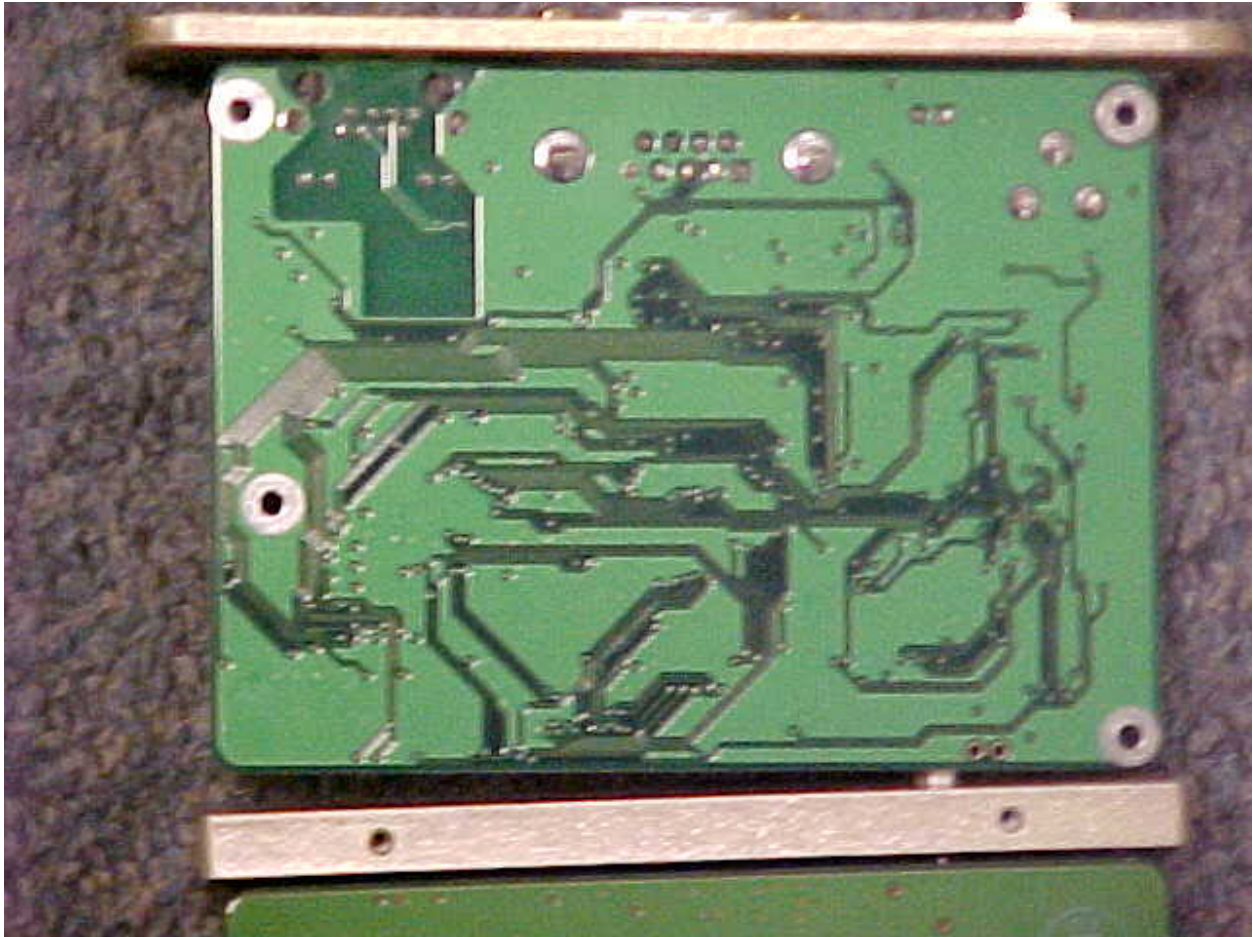
2.1033 (C) (12) Equipment Photographs - Internal

Photo 5 Detail View – Internal – E



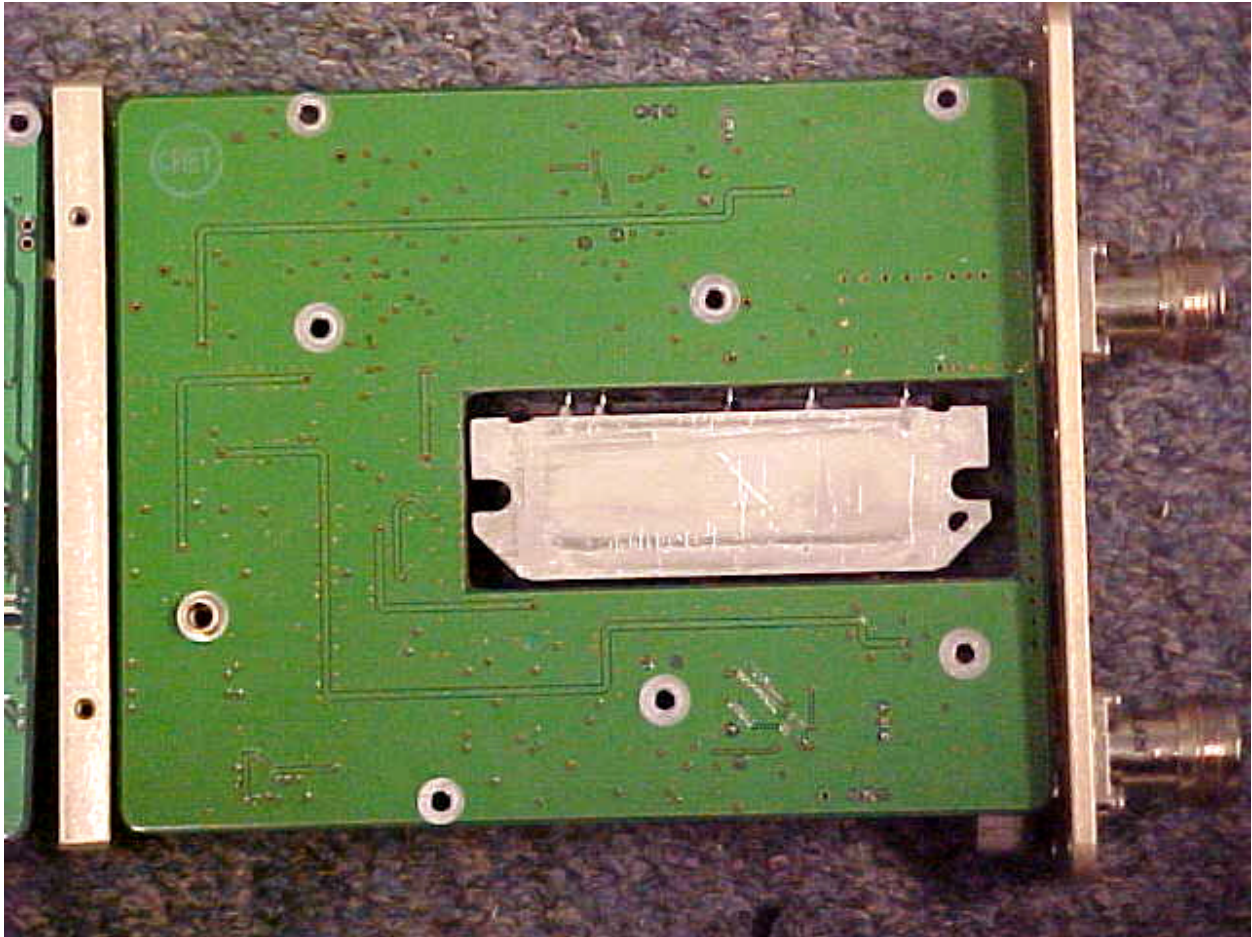
2.1033 (C) (12) Equipment Photographs - Internal

Photo 6 Detail View – Internal – F



2.1033 (C) (12) Equipment Photographs - Internal

Photo 7 Detail View – Internal – G



2.1033 (C) (12) Equipment Photographs - External

Photo 8 Detail View – External - Side One

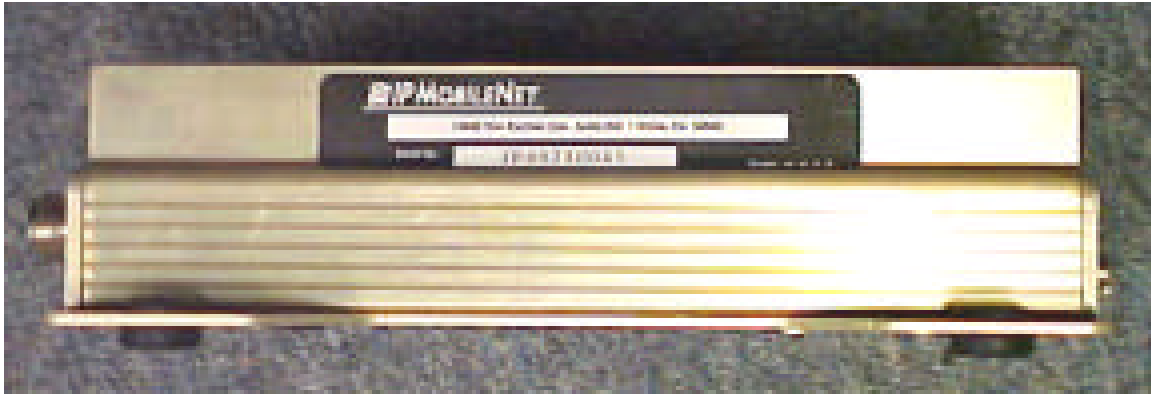


Photo 9 Detail View – External - Side Two

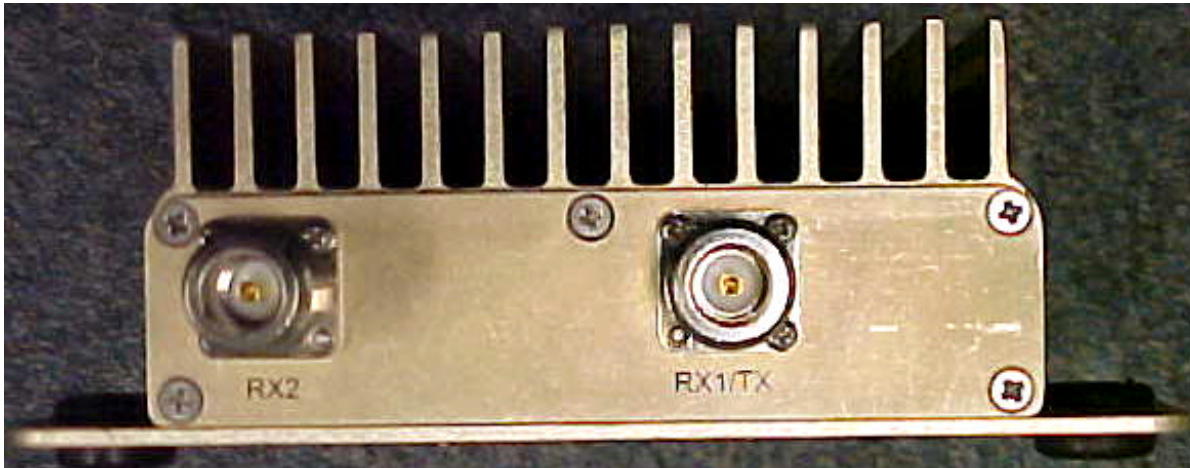


Photo 10 Detail View – External - Side Three



2.1033 (C) (12) Equipment Photographs - External

Photo 11 Detail View – External - Side Four

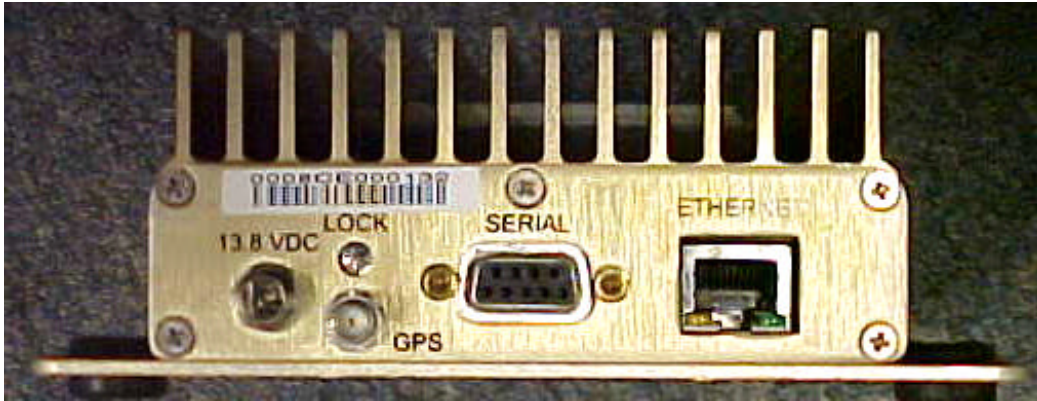
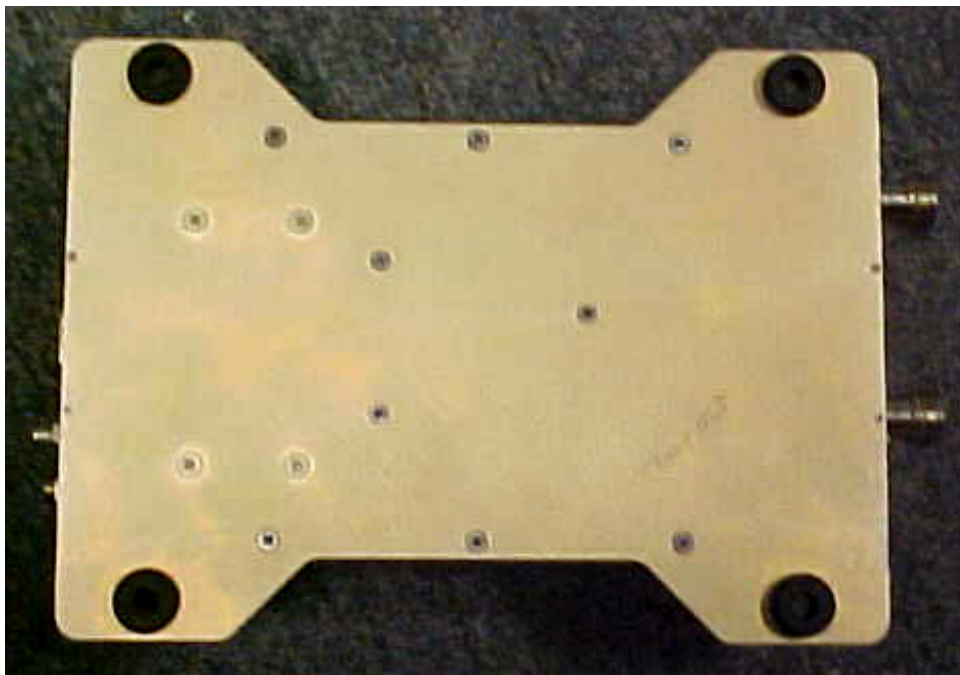


Photo 12 Detail View – External - Bottom



2.1033 (C) (12) Equipment Photographs - External

Photo 13 Detail View – External - Top



2.1033 (c) (14) Photograph of Test Set Up



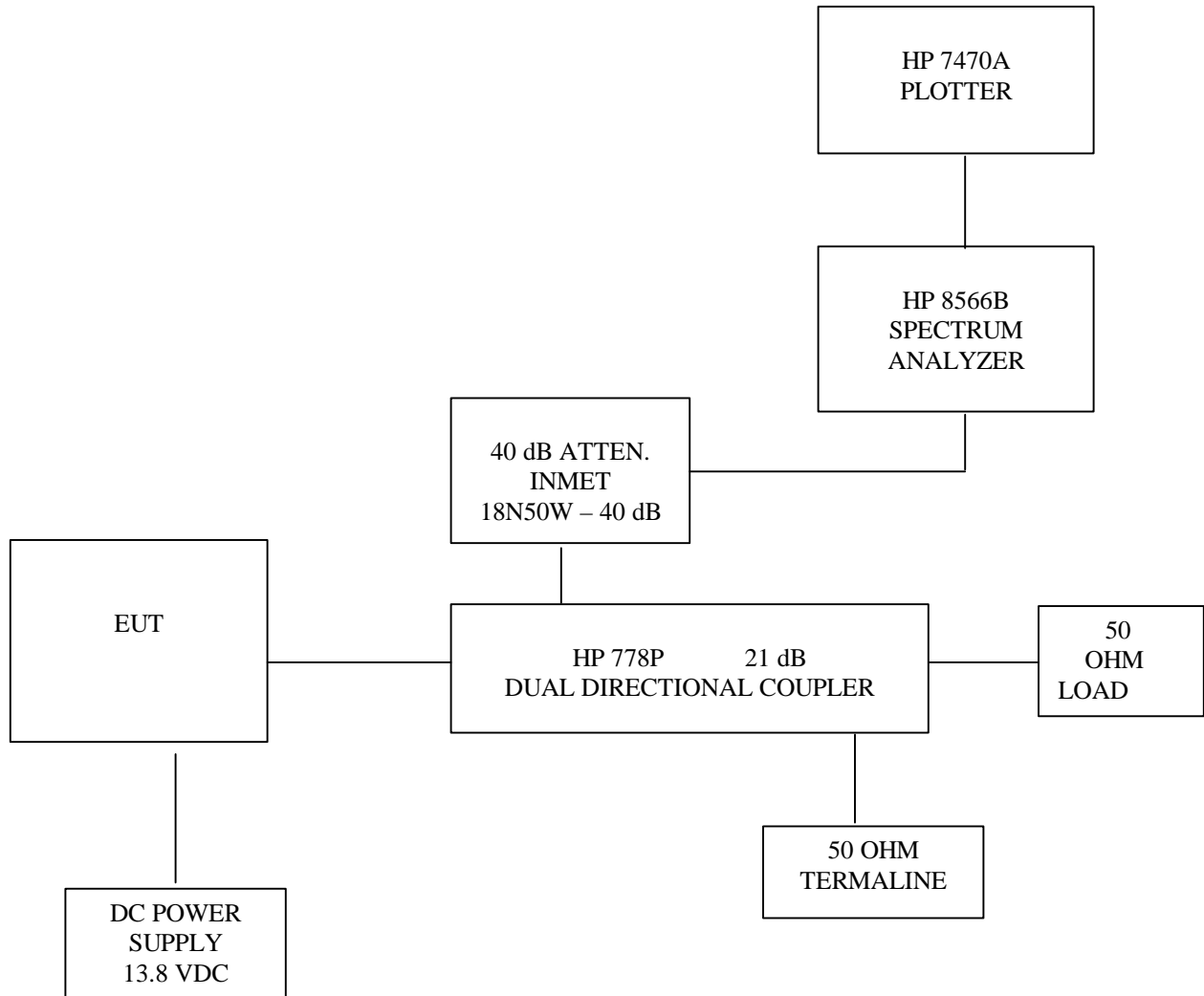
2.1033 (C) (13) Digital Modulation Techniques

Reference attached Owner's Manual

2.1033 (c) (14) Test Data

Refer to 2.1046 through 2.1057

2.1033 (c) (14) FIGURE 1: Block Diagram



2.1046 Measurement of RF Power Output

Definition: For Mobile Radios.


Test Method: See FIGURE 1.

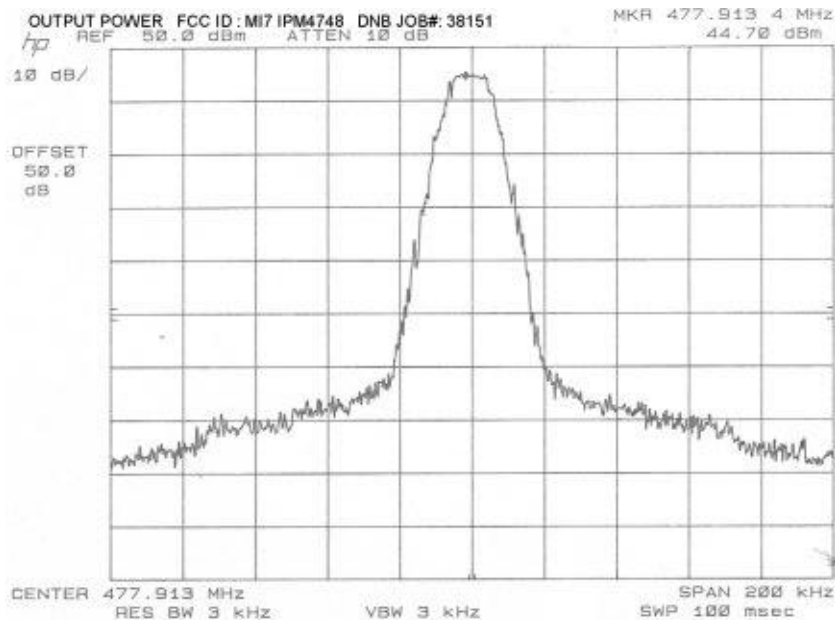
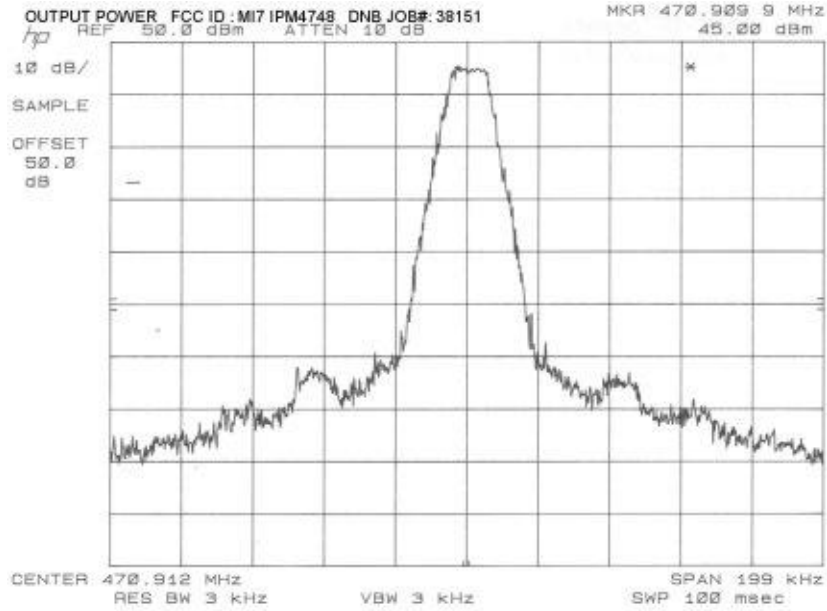
Output Power is measured across a precision 50 ohm load with a Spectrum Analyzer. For the power measurement, CW (no modulation) is used.

Test Results:

POWER OUTPUT MEASURED AT NOMINAL VOLTAGE WAS:

<u>Frequency (MHz)</u>	<u>Power (dBm)</u>	<u>Power (W)</u>
470.909	45.00	31.62
477.913	44.70	29.51

	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		<h2>Output Power</h2>	
	DNB Job Number: 38151	Date: 1 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP Series (IPM4748)				
Description: Mobile Radio				



2.1049 Measurement of Occupied Bandwidth

Definition:


Occupied Bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are equal to 0.5 percent of the total mean power radiated by a given emission.

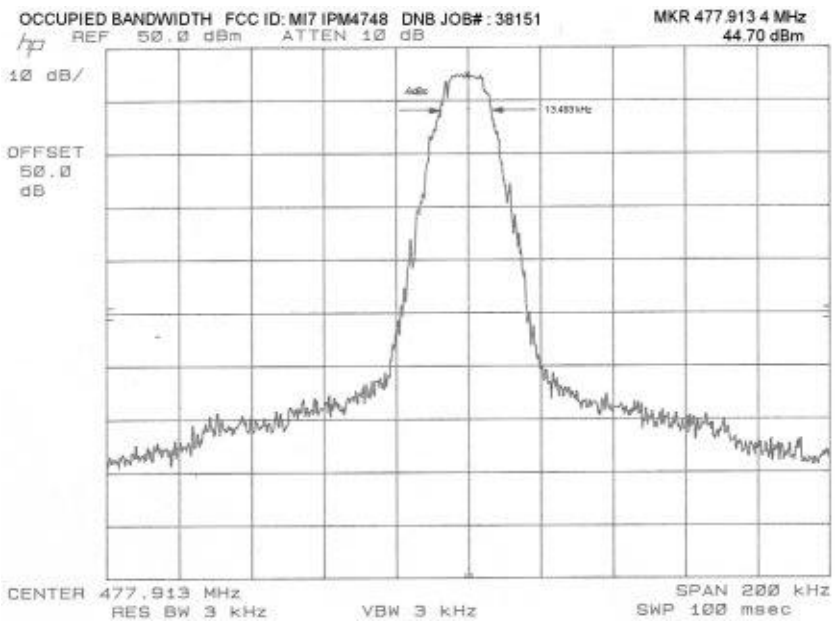
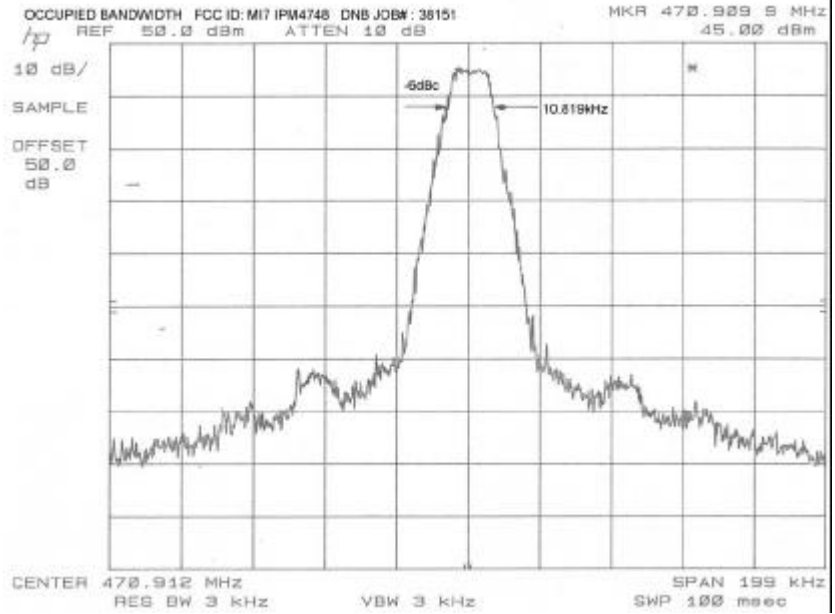
Test Method: Connect the Equipment per FIGURE 1.


Measurements were made while modulation the driving source with a FM signal.

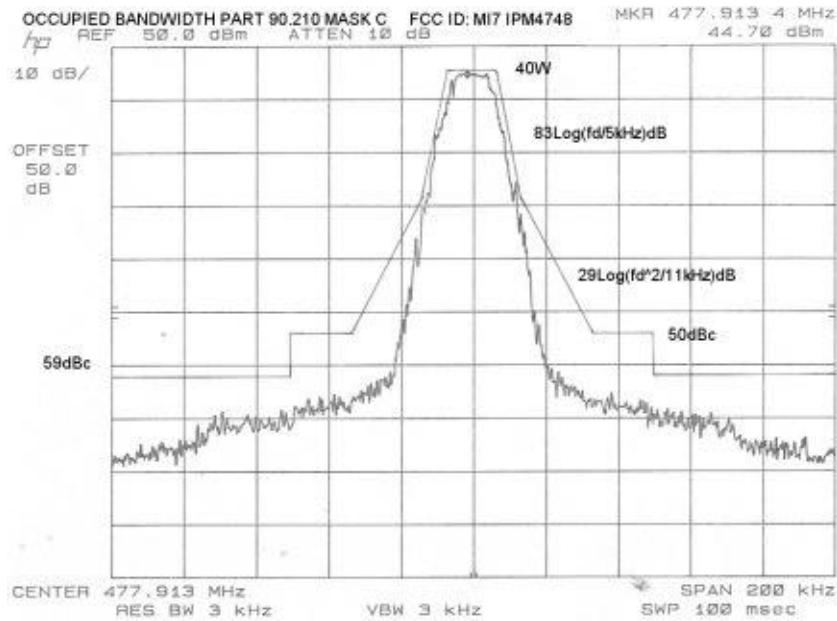
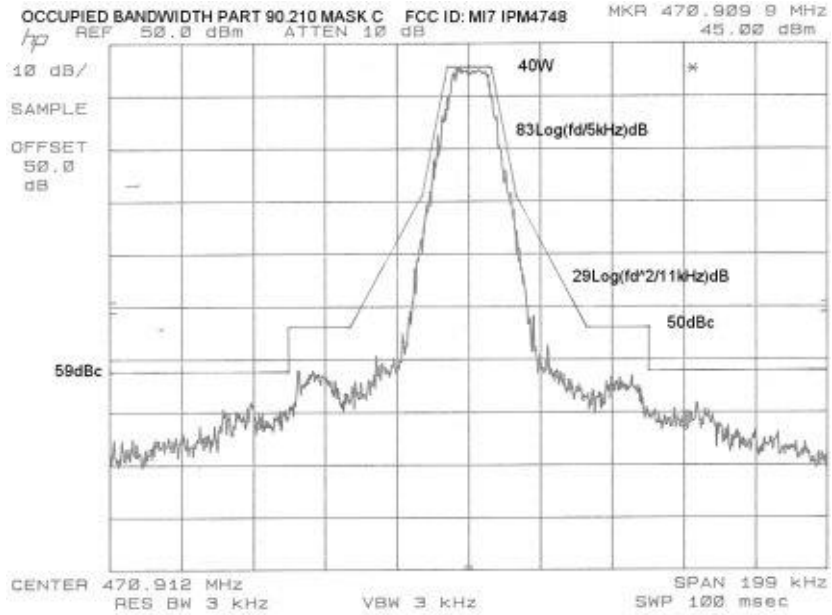
Test Results: See Plots

The center frequency of the signal did not shift with modulation. The Spectrum Bandwidth was well within the limits specified in the FCC Regulations.

	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		<h2>Occupied Bandwidth</h2>	
	DNB Job Number:	38151	Date:	1 May 2003
	Customer:	IPMobileNet		
	Model Number:	IP Series (IPM4748)	Serial Number:	
Description:	Mobile Radio			Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90



	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		<h2>Occupied Bandwidth</h2>	
	DNB Job Number: 38151	Date: 1 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP Series (IPM4748)				
Description: Mobile Radio				



2.1051 Spurious Emissions at Antenna Terminals

Definition:

Conducted Spurious Emissions are emissions at the antenna terminals on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communication desired. The reduction in the level of these spurious emissions will not affect the quality of the information being transmitted.

Conducted Spurious Emissions shall be attenuated below the maximum level of the carrier frequency in accordance with the following formula:

$$\text{Spurious attenuation in dB} = 43 + 10 \log_{10} P_o$$

Where P_o = Output in Watts (CW)

$$= 43 + 10 \log_{10} (60)$$

$$= 59.0 \text{ dB}$$

Test Method: Per EIA RS 152-B, Paragraph 4 as modified below.


Connect the equipment as shown in FIGURE 1.

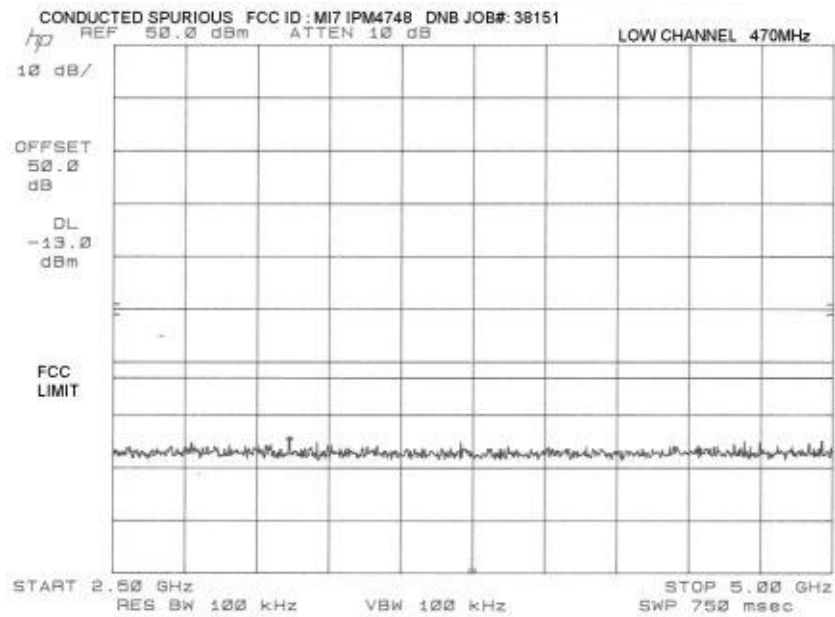
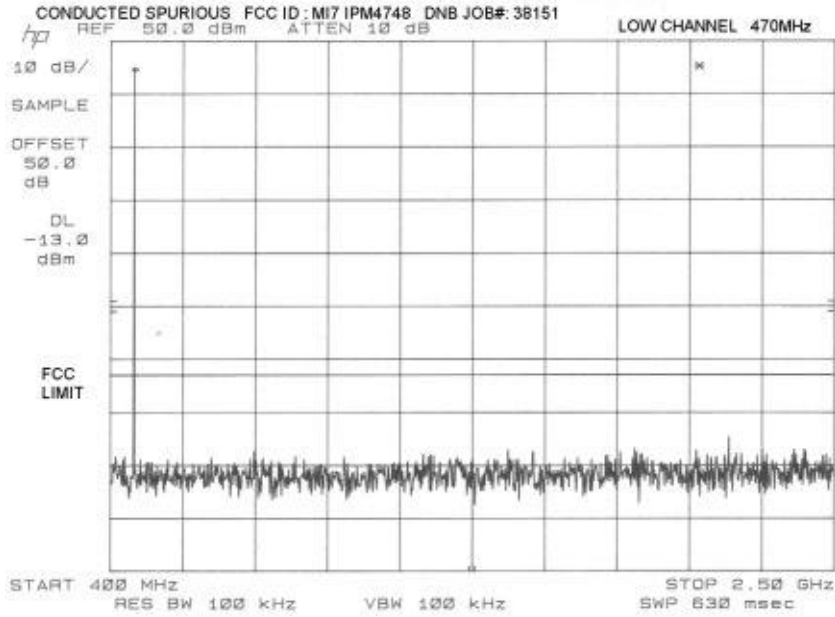
Adjust the drive source to produce FM modulation. Adjust the Spectrum Analyzer to display the Modulated Carrier.


Scan the frequency spectrum from the lowest radio frequency generated in the equipment through the 10th harmonic of the carrier frequency.

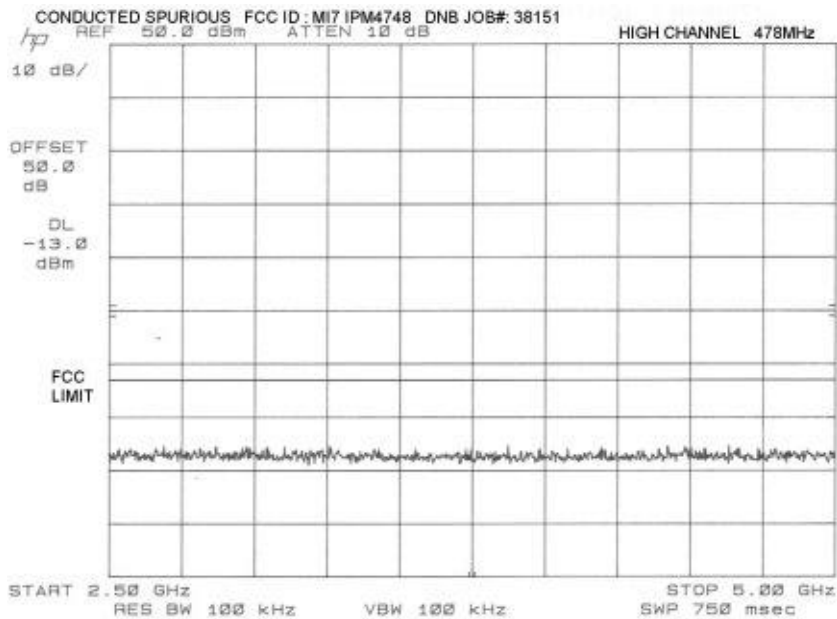
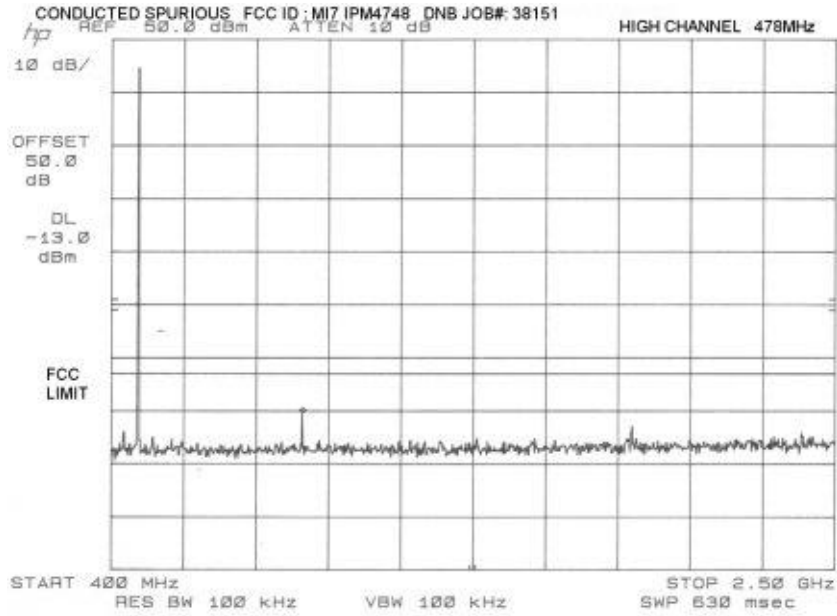
Test Results: See Plots

All spurious emissions at the antenna terminals are below the FCC specifications

	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Antenna Conducted Spurious	
	DNB Job Number: 38151	Date: 1 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP Series (IPM4748)				
Description: Mobile Radio Transmitter Low Channel				



	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Antenna Conducted Spurious	
	DNB Job Number: 38151	Date: 1 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)				
Description: Mobile Radio Transmitter High Channel				



2.1053 Field Strength of Spurious Radiation

Definition:

Emissions from the equipment when connected into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communication desired. The reduction in the level of these spurious emissions will not affect the quality of the information being transmitted.


Test Method: Per EIA RS 152-B.

Connect the equipment and follow the procedure described in paragraph 2.2.1.1 and paragraph 5.0. Measure the amplitude of each spurious radiated signal through the 10th harmonic. The spurious signals are then measured on the 3 meter range.

$$\text{Spurious attenuation dB} = 10 \log \frac{\text{Po Watts}}{\text{Calc. Spurious power}}$$

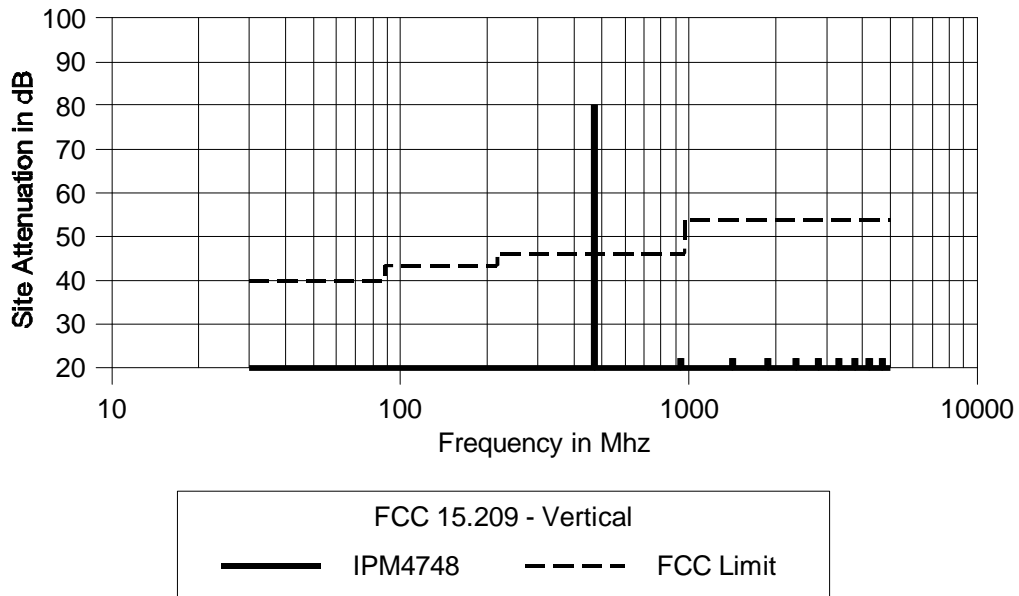
Test Results: All readings were at the spectrum analyzer ground floor above the fundamental.


All radiated spurious emissions are below the FCC Specifications.

	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Radiated Spurious	
	DNB Job Number: 38151	Date: 2 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP Series (IPM4748)				
Description: Mobile Radio				
Vertical – Fundamental 470.820Mhz = 80.2dBuV/m @ 3m				

Radiated Spurious

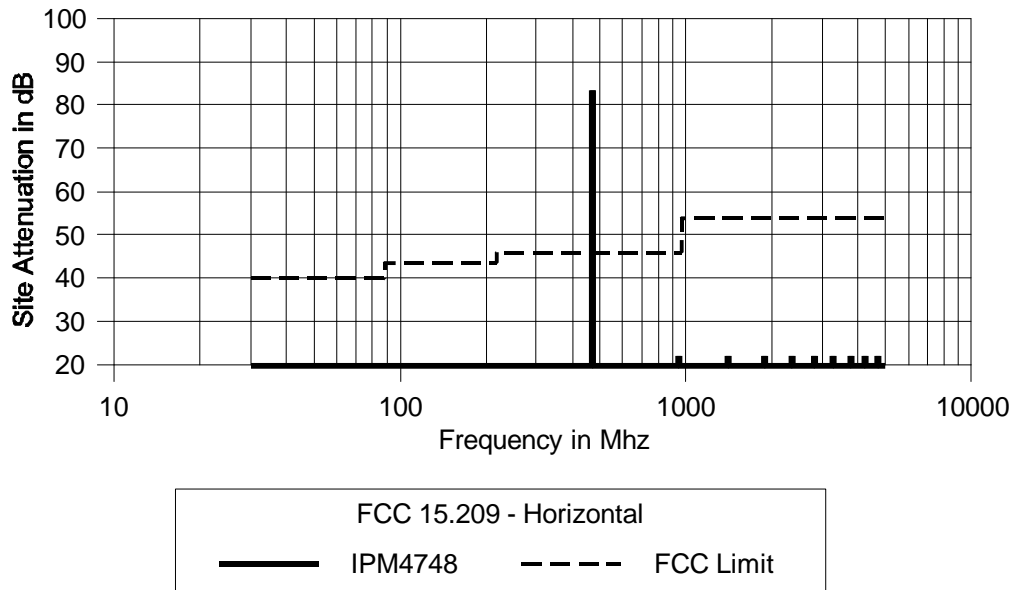
FCC ID : MI7-IPM4748 DNB JOB# : 38151



	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Radiated Spurious	
	DNB Job Number: 38151	Date: 2 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP Series (IPM4748)				
Description: Mobile Radio				
Horizontal – Fundamental 470.837Mhz = 83.3dBuV/m @3m				

Radiated Spurious


FCC ID : MI7-IPM4748 DNB JOB# : 38151



2.1055 Measurement of Frequency Stability


EUT was tested between -30 degrees C and $+50$ degrees C and no frequency drift was observed.

EUT was tested between -15% and $+15\%$ of nominal voltage (13.8VDC) and no frequency drift was observed.

	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Frequency Stability	
	DNB Job Number: 38151	Date: 3 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)				
Description: Mobile Radio Low Channel				

Temp (C)	Voltage	Frequency (MHz)	Deviation (kHz)
-30.0	13.8	470.909	0
-20.0	13.8	470.909	0
-10.0	13.8	470.909	0
0.0	13.8	470.909	0
+10.0	13.8	470.908	1
+20.0	13.8	470.908	1
+30.0	13.8	470.909	0
+40.0	13.8	470.909	0
+50.0	13.8	470.909	0

Temp (C)	Voltage	Frequency (MHz)	Deviation (kHz)
20	11.7	470.909	0
20	13.8	470.909	0
20	15.9	470.909	0


	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Frequency Stability	
	DNB Job Number: 38151	Date: 3 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)				
Description: Mobile Radio High Channel				

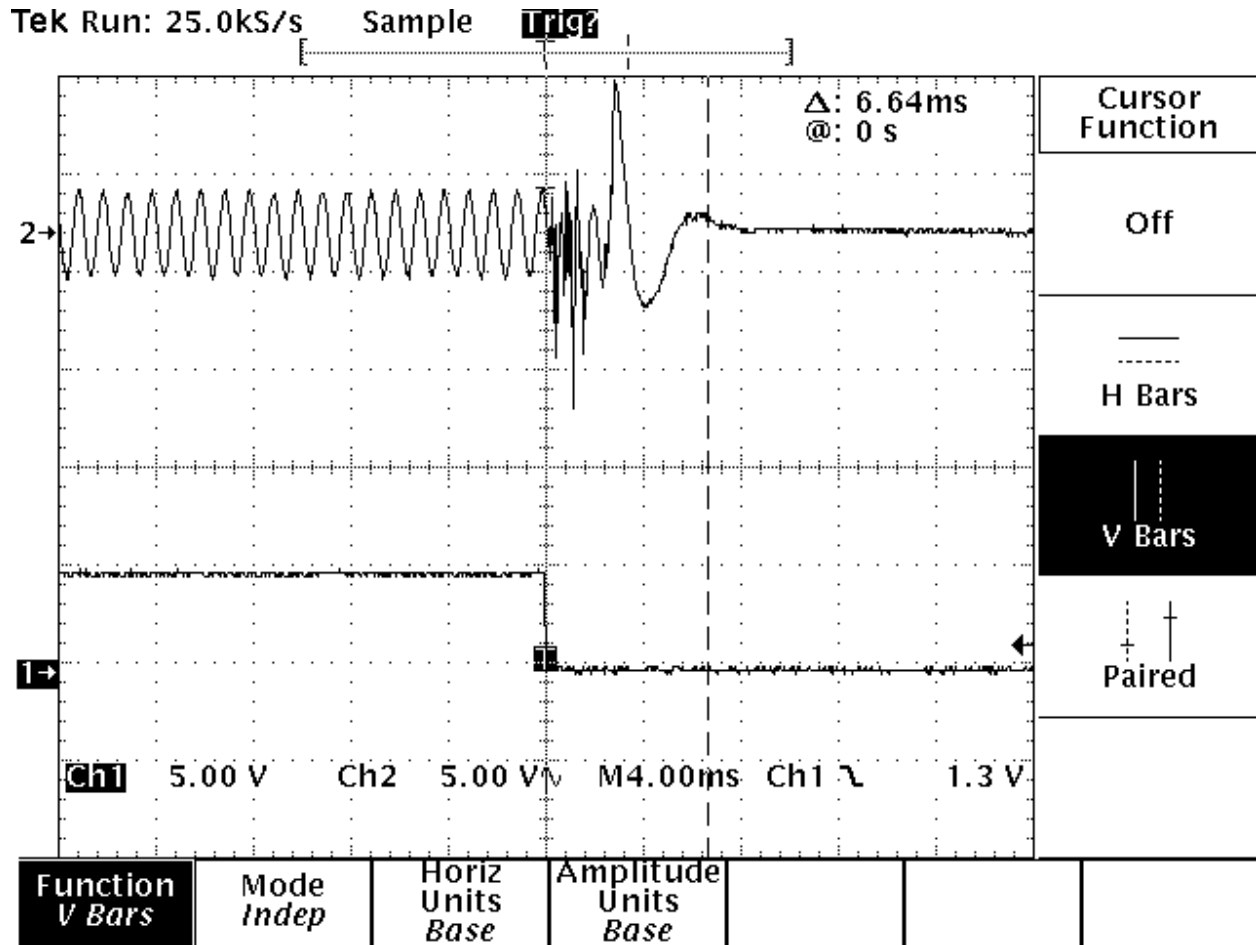
Temp (C)	Voltage	Frequency (MHz)	Deviation (kHz)
-30.0	13.8	477.913	0
-20.0	13.8	477.913	0
-10.0	13.8	470.912	1
0.0	13.8	470.913	0
+10.0	13.8	470.914	1
+20.0	13.8	470.914	1
+30.0	13.8	470.913	0
+40.0	13.8	470.913	0
+50.0	13.8	470.913	0


Temp (C)	Voltage	Frequency (MHz)	Deviation (kHz)
20	11.7	470.913	0
20	13.8	470.913	0
20	15.9	470.913	0

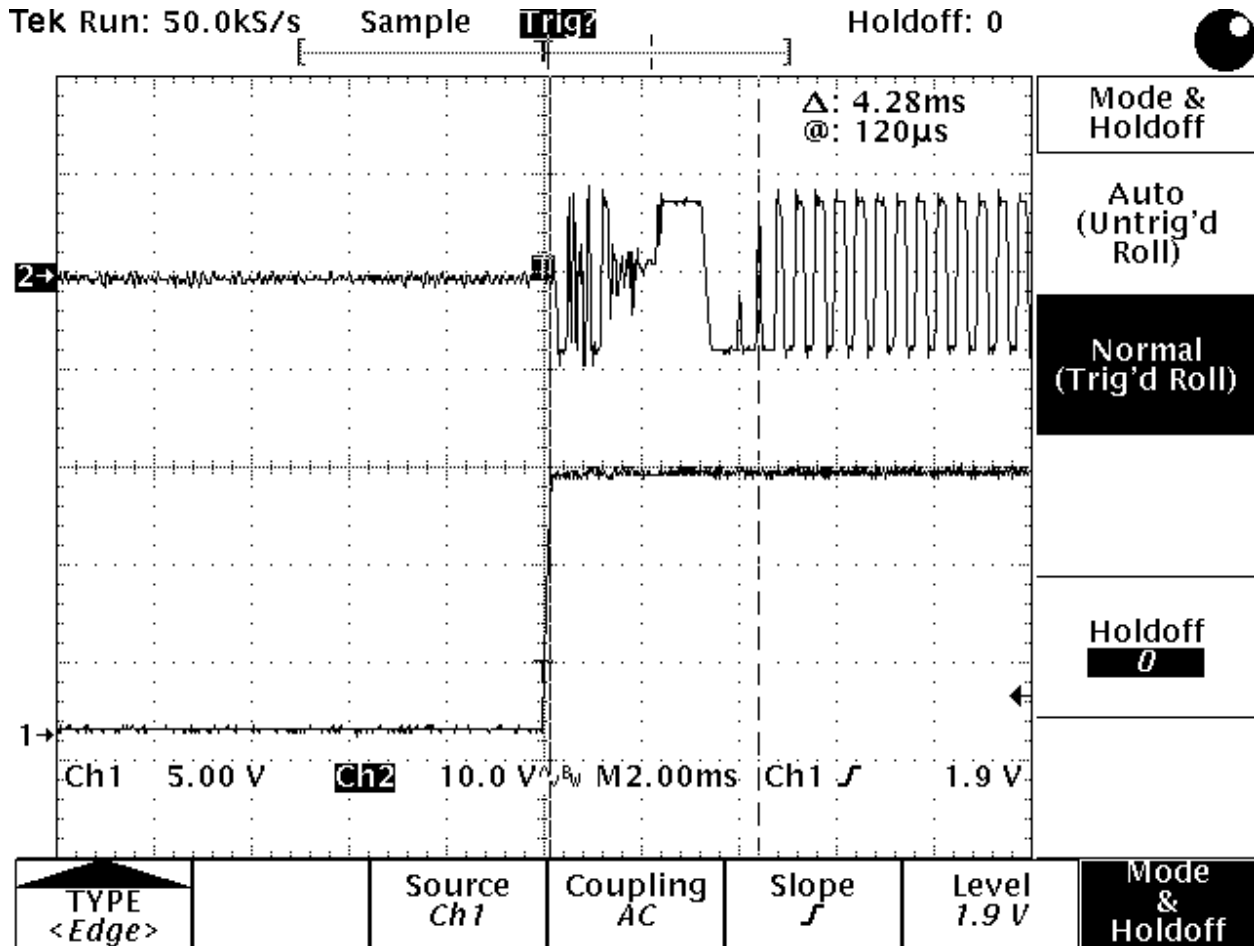
2.1057 Frequency Spectrum to be Investigated


The Frequency was searched from the lowest radio frequency generated in the equipment through the 10th harmonic of the carrier frequency.

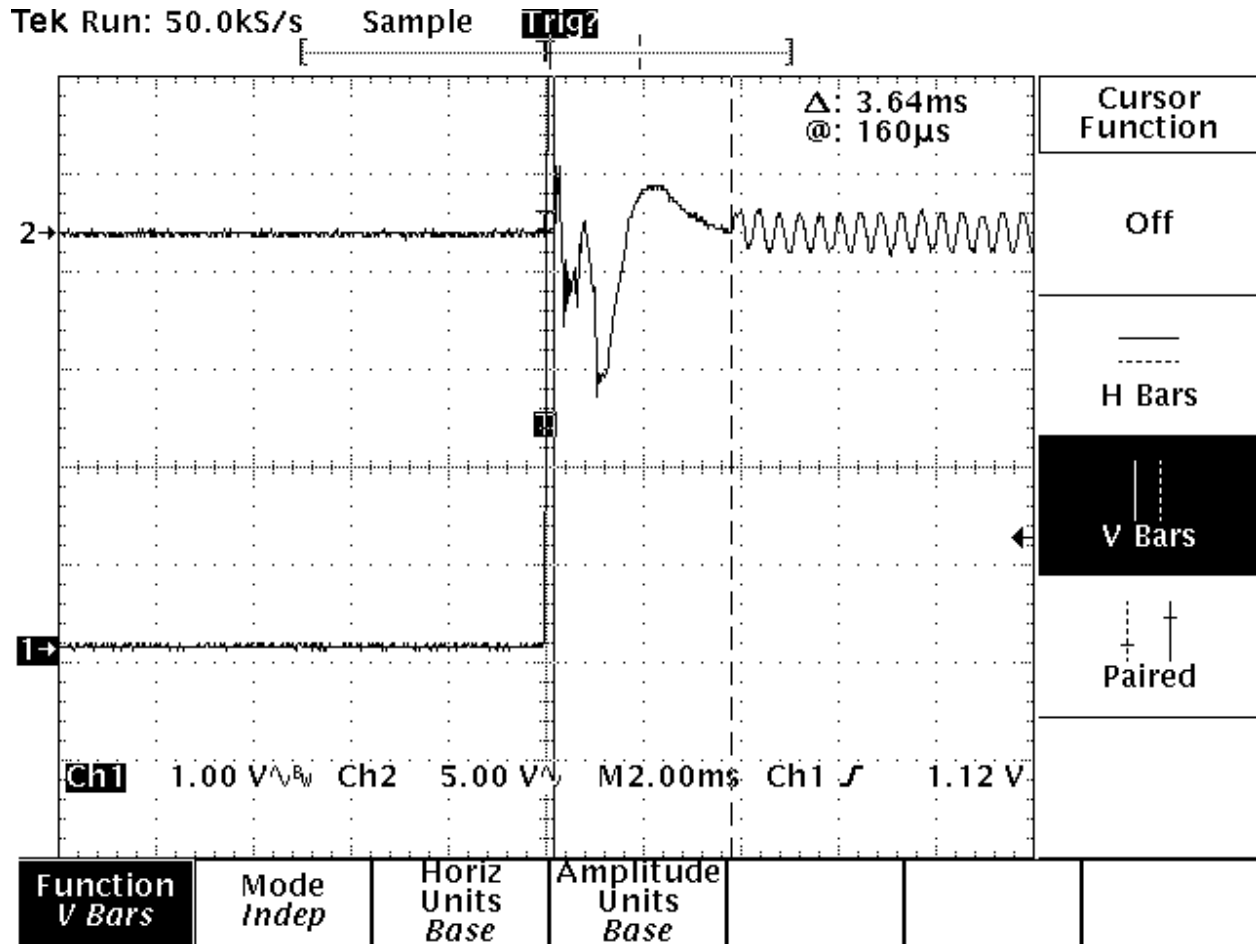
	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Transient Frequency Behavior	
	DNB Job Number: 38151	Date: 3 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)	Description: Mobile Radio			
Low Channel – 470MHz				




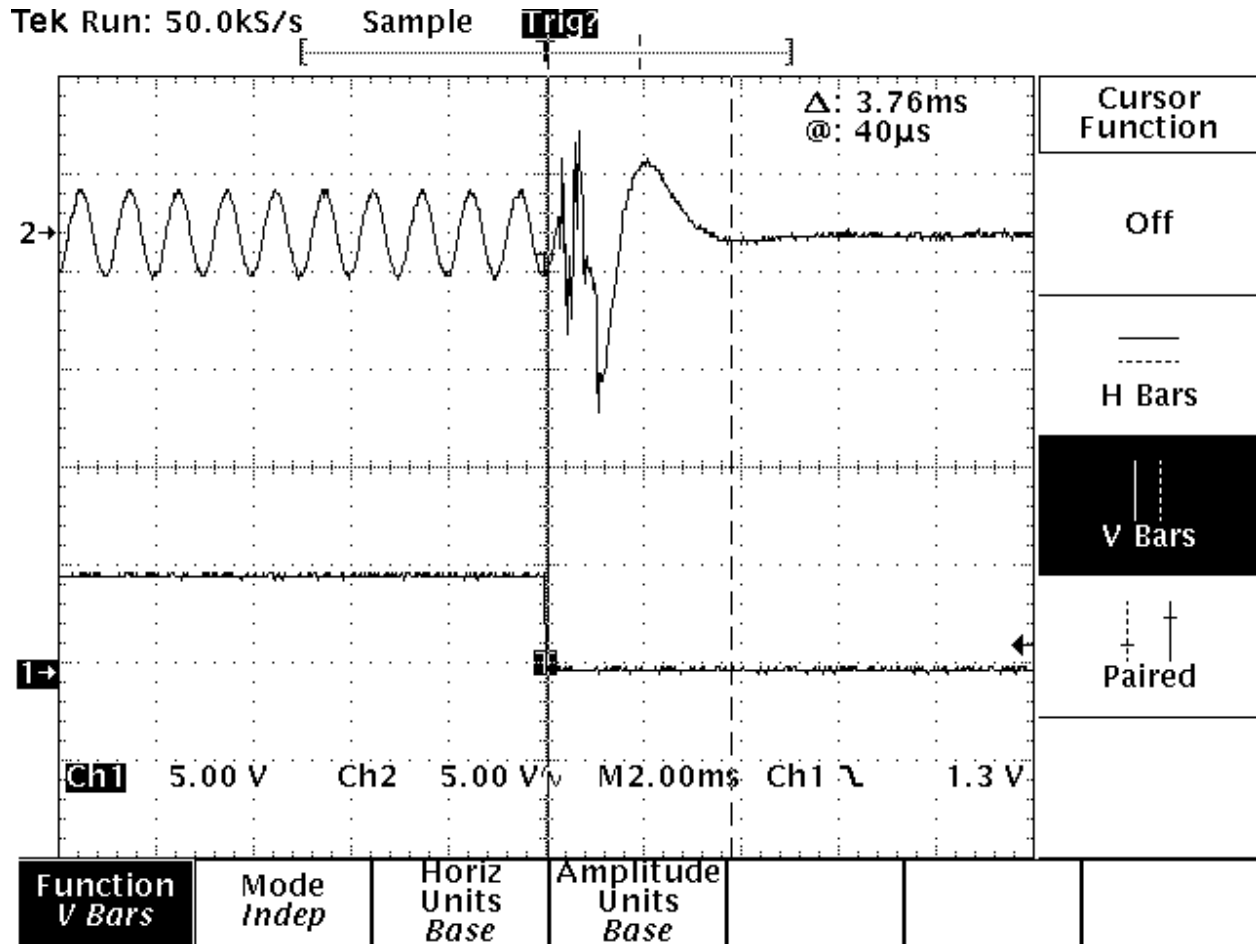
	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Transient Frequency Behavior	
	DNB Job Number: 38151	Date: 3 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)	Description: Mobile Radio			
Low Channel – 470MHz				



	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Transient Frequency Behavior	
	DNB Job Number: 38151	Date: 3 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)	Description: Mobile Radio			
High Channel – 480MHz				



	5969 Robinson Avenue Riverside, CA 92503 (909) 637-2630 FAX (909) 637-2704		Transient Frequency Behavior	
	DNB Job Number: 38151	Date: 3 May 2003	Conformance Standards <input checked="" type="checkbox"/> FCC Part 15 <input type="checkbox"/> FCC Part 22 <input type="checkbox"/> FCC Part 87 <input checked="" type="checkbox"/> FCC Part 90	
Customer: IPMobileNet	Serial Number:			
Model Number: IP SERIES (IPM4748)				
Description: Mobile Radio High Channel				



RF Exposure

The information contained in “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65; August 1997 is applicable when a radiating antenna is connected to this amplifier. Paging stations that utilize this amplifier authorized under Part 22 (Subpart E) and Part 90 are subject to routine environmental evaluation for RF exposure if an antenna is located on a rooftop and if its ERP exceeds 1000 watts.

This product is certified to meet the RF exposure guidelines of OET-65 as a stand-alone RF power amplifier. The RF spurious emissions recorded when the antenna output connector is terminated into a non-radiating 50 ohm load do not exceed the 27.5 V/m limit specified for General Population/Uncontrolled Exposure in OET Bulletin 65.

Test Equipment Log

Asset	Description	Manufacturer	Model #	S/N	Cal due
11	Antenna, DRG	Emco	3115	2281	5/2/04
31	Antenna Log Periodic	Emco	3146	1284	12/27/03
51	Pre-Amp 10-1000 Mhz	Mini-Circuits	zhl-2-8	41185-2	
61	Attenuator vhf	H/P	355c	1203a28503	
77	temperature chamber	Sigma Systems	170	487	
101	Quasi-Peak Adapter	H/P	85650A	2043A00184	6/14/03
135	Attenuator vhf	H/P	355c	219-13777	
157	power supply	*he	sp5220	42903	
167	integrated stereo amp	Realistic	sa-10;31-1982a	000356	
331	Amplifier rf pow.25-150 M	ein	3100LA	135	
364	Pre-Amp4-8G	Miteq	afd304008040	121391	5/10/04
372	Attenuator vhf	H/P	355D	1204A30021	
380	50 ohm load	RLC Electronics	DA-412b/u	a72	11/5/03
384	attenuator vhf	H/P	355c	219-07916	
387	Pre-Amp	H/P	10855A	1250-0212	5/15/03
498	VLF Artificial mains Ntwk	Schwarzbeck	NNLA8120	8120288	6/12/03
506	Analyzer Safety	Dynatech Nev	431A	1230	4/12/04
550	Pre-Amp 1-600 Mhz	DNB	TF10010	550	
551	Pre-Amp 1-600Mhz	DNB	TF10010	551	
552	Pre-Amp 1-2Ghz	Avantek	UTA-8751M	20	
604	Attenuator VHF	Tenuline	8341-200	902	5/10/04
696	Attenuator VHF	H/P	355C	219-00397	
697	Attenuator VHF	H/P	355D	697	
703	Pre-Amp 6Khz-500Mhz	DNB	TF10010	7003	
705	Spectrum Analyzer	H/P	8565A	2232A02476	
714	Power Supply	H/P	6226B	6M0658	
751	Multimeter	H/P	34740A	1213A05726	
769	Power Supply 0-60VDC	H/P	6024A	2129A00964	
844	Quasi-Peak Adapter	H/P	85650A	2811A01240	8/27/03
845	Spectrum Analyzer	H/P	85680B	2049A01403	6/14/03
855	Oscilloscope	Tektronix	464	B133241	9/16/03
858	ESD Gun	Haefely	PSD25B	083 427-05	3/29/04
859	Field Monitor	Amplifier Research	FM 1000	60520	
861	Field Probe	Amplifier Research	FP 1000	60620	8/15/03
871	Pre-Amp 15Khz-50Mhz	MCL	ZHL-32A	8442 05	
875	Pre-Amp 5-500Mhz	Watkin Johnson	6200-625	3412	
879	Pre-Amp 1-500Mhz	Avantek	ASD-9521M	46	
880	Pre-Amp 2-680Mhz	Avantek	SD9-1228M	4388	
948	Leakage Tester	Simpson	229-2	948	10/28/03
949	Current Probe AC/DC	Amprobe	CT600	30301828	4/9/04
952	DMM	Amprobe	AM-1250	330224	10/24/03
956	LCR Meter	B&K Precision	878	23702237	10/24/03
957	DMM	amprobe	AM-1250	330139	8/6/03
958	Dial Caliper	General MG	MG 6"	CD56903	12/2/03
959	Micrometer	General MG	1050C	959	12/2/03
962	Attenuator Coaxial Step	H/P	8495B	2480A03351	
967	Torque Screwdriver	Seekonk	SL-12	967	7/9/03
969	Push/Pull Scale	Imada	MF	70403	6/3/03

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972	Impact Hammer	PL	F22-50	9606235-3	11/5/02
997	LISN	Com Power	LI-300	1373	5/13/03
998	LISN	Com Power	LI-300	1331	5/13/03
1027	Power Analyzer	Voltech	PM3000A	1273	5/7/03
1034	Generator Signal	Marconi	2024	112231-034	1/31/04
1037	Hearing Aid Tester	Comp. Des.	HAP-100	5024	1/15/04
1057	Weather Station	Davis	7400	pc70804a01	1/28/04
1058	Leakage tester	Simpson	228	709721	
1063	Antenna Cllpsbl Bicon.	Antenna Research	CB1071	1063	10/1/03
1077	Attenuator VHF	H/P	355C	1203A35754	
1078	Attenuator VHF	H/P	355C	1203A35836	
1079	Attenuator VHF	H/P	355D	2522A43896	10/25/03
1080	Attenuator VHF	H/P	355C	2524A25778	10/25/03
1082	Attenuator VHF	H/P	355D	2522A43898	
1092	DMM	Chief Engineer	104	31220125	8/26/03
1093	Power Analyzer	Combinova	300	102	
1102	Spectrum Analyzer	H/P	3585A	2718A05908	8/26/03
1108	Generator Function	H/P	3312A	1432A05880	12/5/03
1109	Spec Analyzer Display	H/P	85662A	2318A05282	8/27/03
1110	Spectrum Analyzer	H/P	85680B	2330A02791	8/27/03
1117	Control Center	Keytek	ECAT Series 100	9603276	
1119	Meter Digital Panel	Newport	INFCP-210	4381880	4/5/04
1120	Meter Digital Panel	Newport	INFCP-210	6150730	4/5/04
1124	Oscilloscope	Tektronix	7603	B341735	
1133	Pre-Amp	DNB	TF10002	1	
1148	LISN	Solar	8028-50-TS-24-BNC	852331	4/24/04
1149	LISN	Solar	8028-50-TS-24-BNC	852332	4/24/04
1196	Attenuator	JFW	PE7010-20	1196	5/16/03
1197	Attenuator	JFW	PE7010-20	1197	5/16/03
1209	Current Probe	Solar	6741-1	922626	5/16/03
1210	DMM	Di-Log	DL-297T	637652	1/27/04
1214	Data Aquisition Unit	H/P	34970A	US37011124	5/21/03
1215	Line Leakage Tester	Associated Research	510L	A130511	4/19/04
1216	Safety Compliance anlzr.	Associated Research	7564SA	A100601	4/19/04
1217	Data Acqisition Unit	H/P	34970A	us36999920	4/29/04
1221	Calibration Fixture	Ficsher Custon C.	FCC-BCICF-1A	25	
1239	Surge Withstand Test.	Beckwith Electronics	M-0180B	85	6/21/03
1244	Pre-Amp	Avantek	SC82-1051	44	
1399	Input Multiplexer	H/P	34901A	US41011166	5/21/03
1400	Input Multiplexer	H/P	34901A	US41011167	5/21/03
1402	Scale	Hanson	40	1402	4/26/04
1403	Scale	Hanson	8930	1403	6/3/03
1430	RF Pre-Selector	H/P	85685A	2724A00659	8/26/03
1442	Probe	Omega	HX94V	NSN	4/5/04
1500	Pressure Gauge	Ashcroft	030PSI	NSN	9/13/03
1501	Pressure Gauge	Ashcroft	030PSI	NSN	9/13/03
1502	Pressure Gauge	Ashcroft	030PSI	NSN	9/13/03

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1504	Input Multiplexer	H/P	34901A	US41010235	4/29/04
1510	Megger	Amprobe	AMB-1A	340055	10/28/03
1511	Ground Tester	ROD-L	M-25	12485	10/29/03
1606	Pre-Amp	Miteq	AFD3-020080-50	102979	
1671	ESD Probe	Haefely	093579-1	083071-11	
1672	Torque Wrench	Husky	39104	4980656019	7/18/03
1695	Spec Analyzer Display	H/P	85662A	2112A02234	6/14/03
1698	Pre-Amp	Miteq	AFS4-08001800-35-LN	378064	5/10/03
1722	Power Amplifier	Kalmus	757LCB/1-60-485-003	7902-1	
1723	Control Box	Kalmus	757LCB/1-60-485-003	7902-1	
1724	Near Field Probe Kit	Credence Tech	CTK015	NSN	
1725	Pre-Amp	Miteq	afs4-08001800-30-uln	834258	
1726	EFT Generator	Haefely	p90.1	083 315-19	6/14/03
1727	Plotter	H/P	7470A	2644V00406	
1728	Filter	Krohn-Hite	3750	2992A	3/22/04
1729	Emission Loop	FCC	f-55103-2-0.13m	9951	5/1/04
1730	Chassis Bay	Keytek	ECAT Series 100	9603277	
1731	Surge Network	Keytek	E501A	9603278	4/30/04
1732	Mains Coupler/Dec.	Keytek	E551	9603279	4/30/04
1733	TWTA	Hughes	8020H10F000	113	
1734	Xwing Bilog Ant	Chase	CBL6140	1048	6/11/03
1758	Biconical Antenna	AH Systems	SAS-200/540	524	12/27/03
1760	Pre-Amp 10-2000 Mhz	Mini-Circuits	ZFL-2000	8350	5/10/03
1761	Pre-Amp	Miteq	JS2-0200400	664011	5/10/03
1762	Ref Dipole Antenna	Comp Design	Antenna Kit	NSN	12/12/05
1763	Ref Dipole Antenna	Comp Design	Antenna Kit	NSN	12/12/05
1764	Biconical Antenna	AH Systems	sas-200/540	138	
1765	Amplifier	Hughes	8020H	113	
1766	Power Supply	H/P	8268B	1436A01139	
1767	Random Noise Gen	General Radio	1390-B	3285	
1768	Power Supply	Andy Hish	ESD-253	NSN	
1769	Injection Probe	FCC	F-120-9B	33	
1770	Attenuator	Emco	A8230M30dB	NSN	5/10/03
1771	Attenuator Kit	Alan	Attenuator Kit	117018	5/10/03
1772	Attenuator Kit	Alan	Attenuator Kit	117019	5/10/03
1773	Signal Generator	H/P	200CD	229-45278	
1774	Telecom Pairs Kit	FCC	FCC-TLISN-T4	20068	
1775	Power Source	California Inst	4500iL	51859	
1776	Variac	Staco	3PN2210	NSN	
1777	Variac	Staco	3PN1010V	NSN	
1778	High Voltage Pulse	DNB	NMN	NSN	
1779	Power Supply	California Inst	351TC	L32208	
1786	Attenuator	Mini-Circuits	CAT-10	931812	5/10/03
1791	CDN	FCC	fcc-801-m3-16	110	6/13/03
1841	ESD Simulator	Haefely	PESD3000	H002033	6/12/03
1858	RS-Bhead-Ant Cable	DNB	RG214	11858	7/26/03
1859	RSTemcellLoad-9'	DNB	RG214	11859	7/26/03

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1860	RS-SigGen-Amp4'	DNB	RG214	11860	7/26/03
1861	RS-AmpBulkhead5'	DNB	RG214	11861	7/26/03
1862	RS-BheadInjProbe	DNB	RG214	11862	7/26/03
1863	RS-Cprobe-Bhead	DNB	RG223	11863	7/26/03
1864	RS-Amp-Bhead5'	DNB	RG214	11864	7/26/03
1865	RSBheadSpAna	DNB	RG58	11865	7/26/03
1866	Force Gauge	Mark-10	EG500	40304	7/3/03
1871	Riv Cable - A-3'	DNB	NMN	11871	7/26/03
1872	Riv Cable - B-4'	DNB	NMN	11872	7/26/03
1873	Riv Cable - C-6'	DNB	NMN	11873	7/26/03
1874	Riv Cable - D-range	DNB	NMN	11874	7/26/03
1875	Riv Cable - E-27'	DNB	NMN	11875	7/26/03
1879	Voltage Probe	Emco	3701	9703-1156	10/9/03
1880	Range Cable	DNB	NMN	11880	8/14/03
1881	Main Office Enc.	DNB	NMN	11881	
1882	School house Enc.	DNB	NMN	11882	1/8/04
1883	80' RG214 Cable	DNB	NMN	11883	8/14/03
1884	60' RG214 Cable	DNB	NMN	11884	8/14/03
1885	10' RG214 Cable	DNB	NMN	11885	8/14/03
1896	Riverside OATS	DNB	OATS	11896	10/17/03
1898	EFT Clamp	DNB	NMN	11898	10/17/03
1899	Magnetic Loop	DNB	NMN	11899	
1900	Attenuator	Midwest Microwave	388-20	70015	12/12/03
1901	50 Ohm Load	Odetics Broadcast	NMN	11901	
1902	50 Ohm Load	DNB	NMN	11902	10/25/03
1903	50 Ohm Load	DNB	NMN	11903	11/5/03
1904	50 Ohm Load	DNB	NMN	11904	11/5/03
1905	50 Ohm Load	DNB	NMN	11905	11/5/03
1906	50 Ohm Load	Microlab	FXR TA-5FT	11906	10/25/03
1907	50 Ohm Load	H/P	10100C	11907	10/25/03
1908	Attenuator	Alan	50SP10N	11908	12/12/01
1910	Laser Power Meter and display	Ophir	1Z01803/PD300-SH	118166/118634	08/27/03
1917	Magnetic Loop	DNB	MLR100	11917	10/31/03
1918	Loop Power Supply	DNB	LPS111	11918	
1919	Temcel	DNB	TC100	11919	
1920	Weather Station	Davis	7400	MC20725A20	11/14/03
1921	Antenna Mast	DNB	AM200	11921	11/18/03
1922	Turn Table	DNB	TP1100	11922	11/18/03
1943	Power Meter	Boonton	4231A	91501	1/14/04
1944	Power Sensor	Boonton	51011-EMC	32754	1/14/04
1954	Antenna DRG	Tensor	4106	11954	
1955	EMI Probe Kit	Credence Technologies	Scan EM-C	11955	
NA	Riverside int audit	DNB QA	NA	NA	6/1/03