TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: sid@timcoengr.com

Test Report

Product Name: UHF TRANSCEIVER – TRANSMITTER PORTION

FCC ID: MMASD174

Applicant:

MIDLAND RADIO CORPORATION
1120 CLAY STREET
NORTH KANSAS CITY, MO. 64116

Date Receipt: DECEMBER 10, 2003

Date Tested: DECEMBER 18, 2003

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TABLE OF CONTENTS LIST

APPLICANT: MIDLAND RADIO CORPORATION

FCC ID: MMASD174

TEST REPORT:

EXHIBITS CONTAINING:

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GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE

2.1033(c)(1)(2) MIDLAND RADIO CORPORATION will manufacture the FCCID: MMASD174 UHF TRANSCEIVER in quantity, for use under FCC RULES PART 90.

MIDLAND RADIO CORPORATION
1120 CLAY STREET
NORTH KANSAS CITY, MO 64116

2.1033 (c) TECHNICAL DESCRIPTION

2.1033(c)(3) Instruction book. A draft copy of the instruction manual is included as EXHIBIT 5.

2.1033(c) (4)
90.209
Type of Emission: 10K8F3E

Bn = 2M + 2DK
M = 3000
D = 2400
Bn = 2(3000)+2(2400) = 10.8k
For 12.5kHz
Authorized Bandwidth 11.25 kHz

2.1033(c) (4)
90.209
Type of Emission: 15K0F3E

Bn = 2M + 2DK
M = 3000
D = 4500
Bn = 2(3000)+2(4500) = 6000 + 9000 = 15k
For 25kHz
Authorized Bandwidth 20 kHz

2.1033 (4)
90.209
Type of Emission: 11K2F2D For 12.5 kHz

Bn = 2M + 2DK
M = 9,600 Bits per second
D = 825 Hz (Peak Deviation)
K = 1
Bn = 2(9.6k/2)+ 2(825)(1)=9.6k + 1.65k = 11.25k

For 12.5 kHz
ALLOWED AUTHORIZED BANDWIDTH = 11.25 kHz.

2.1033(c)(5) Frequency Range: 450 – 490 MHz

2.1033(c)(6)(7)
90.205
Power Output shall not exceed 6.0 Watts into a 50 ohm resistive load.

2.1033(c)(8) Tune-up procedure. The tune-up procedure is included in Exhibit 8.

2.1033(c)(9) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 2. The block diagram is included as EXHIBIT 1.

2.1033(c)(10) A photograph or a drawing of the equipment identification label is included as Exhibit #4.

2.1033(c)(11) Photographs (8"X10") of the equipment of sufficient clarity to reveal equipment construction and layout, including meters, labels for controls, including any view under shields - See EXHIBIT 6-7.

2.1033(c)(12) For equipment employing digital modulation, a detail description of the modulation technique. This UUT uses FSK to modulate the transmitter.

2.1033(c)(13) The data required by 2.1046 through 2.1057 is submitted below.

2.1046(a) RF power output.

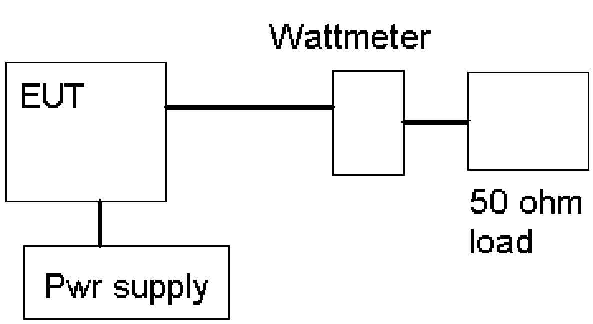
90.205 RF power is measured by connecting a 50 ohm, Resistive wattmeter to the RF output connector. With a nominal battery voltage of 12 VDC, and the Transmitter properly adjusted, the RF output measures:

POWER OUTPUT

INPUT POWER - HIGH: (12V)(1.27A) = 15.24 Watts
INPUT POWER – LOW: (12V)(0.54A) = 6.48 Watts

OUTPUT POWER: HIGH – 5.2 Watts Conducted
LOW - 1.2 Watts Conducted

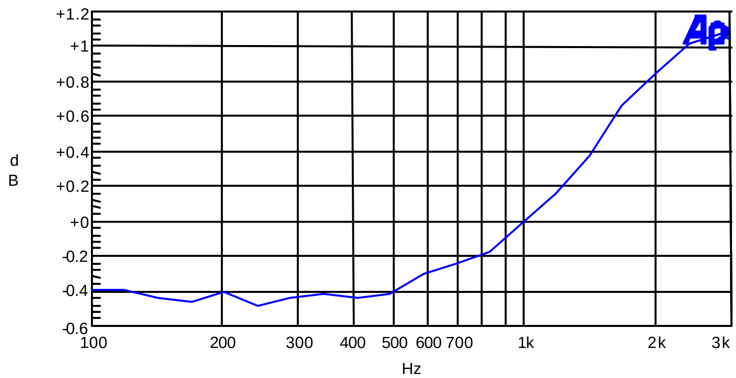
METHOD OF MEASURING RF POWER OUTPUT



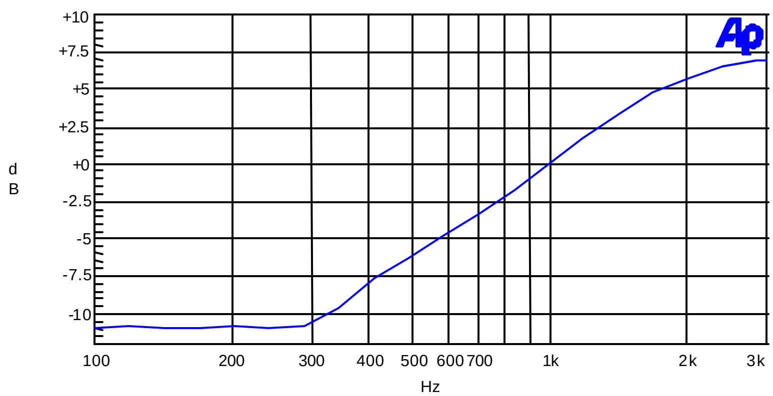
2.1047(a)(b) Modulation characteristics:

AUDIO FREQUENCY RESPONSE
The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown on page 5. The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured.

NARROW BAND
Audio Frequency Response



WIDE BAND
Audio Frequency Response



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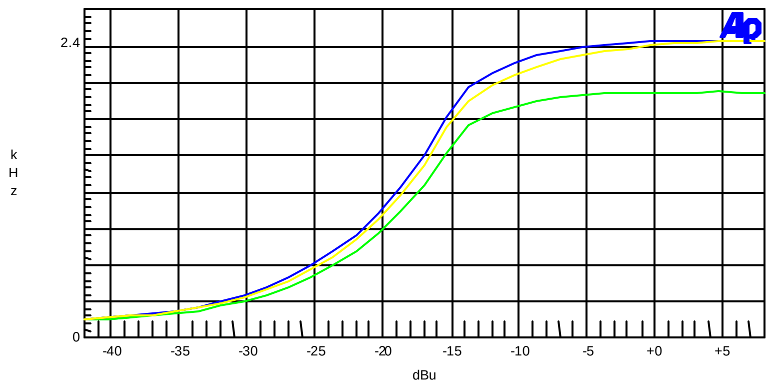
2.1047(b) Audio input versus modulation

The audio input level needed for a particular percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are shown below. Curves are provided for audio input frequencies of 300, 1000, and 2500 Hz.

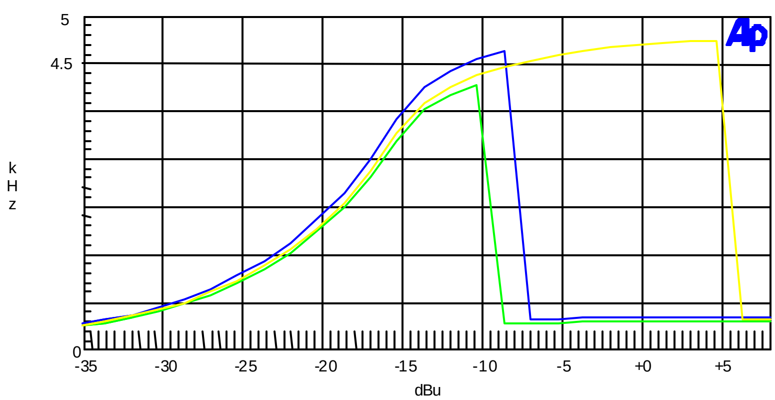
NARROW BAND

Modulation Limiting: 2.5KHz (Green), 1.0KHz (Blue), and 300Hz

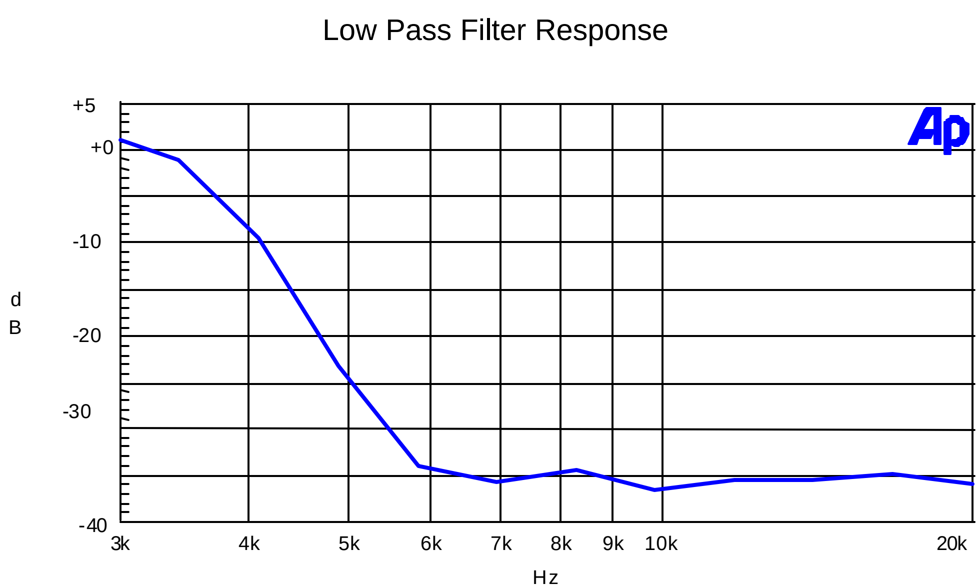


WIDE BAND

Modulation Limiting: 2.5KHz (Green), 1.0KHz (Blue), and 300Hz



Post Limiter Filter The filter must be between the modulation limiter and the modulated stage. At any frequency between 3 & 20 kHz the filter must have an attenuation of 60log (f/3) greater that the attenuation at 1KHz. See the plot below.



Color	Line Style	Thick	Data	Axis
Blue	Solid	2	Anlr.Level A!Normalize	Left

MaxFreq.at1

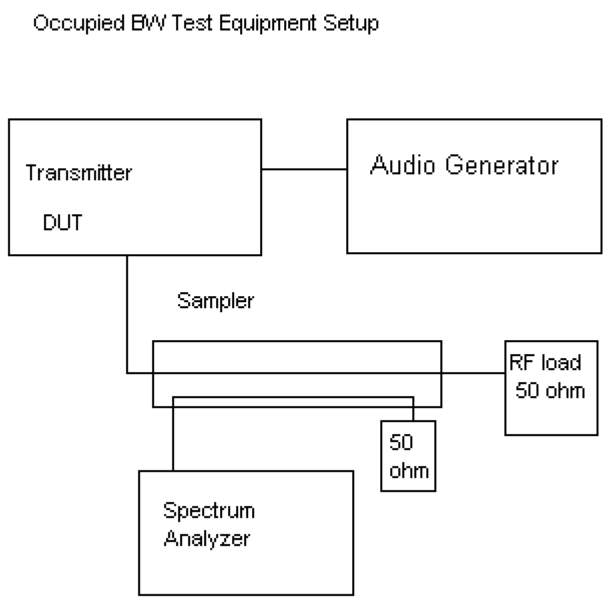
2.1049(c) EMISSION BANDWIDTH:
90.210(b)

Data in the plots shows that the sidebands from greater than 50% to 100% of the authorized bandwidth must be attenuated by at least 25 dB and from 100 to 250% the sidebands must be attenuated by at least 35 dB. Beyond 250% the sidebands must be attenuated by at least 43+log10 (TP). The transmitter was modulated with 2500 Hz, adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram follows. See the occupied bandwidth plots below

Radiotelephone transmitter with modulation limiter:

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT



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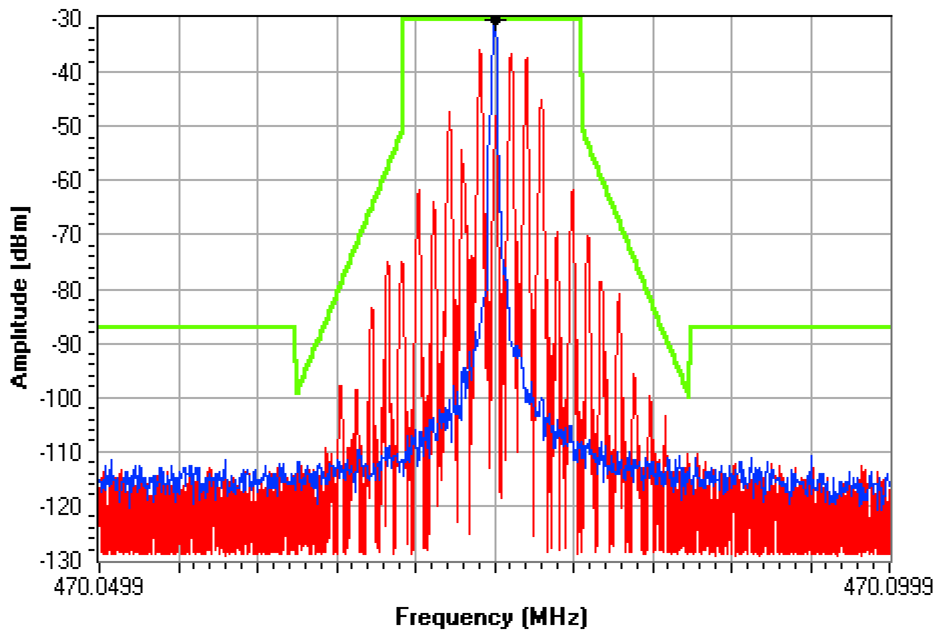
AUDIO OCCUPIED BANDWIDTH PLOT
NARROW BAND

NOTES:
MIDLAND RADIO CORPORATION - FCC ID: MMASD174
OCCUPIED BANDWIDTH PLOT

FCC 90.210 Mask D

REF (dBm) -30.00 **SPAN (Hz)** 50.00k **Timco Engineering, Inc.**



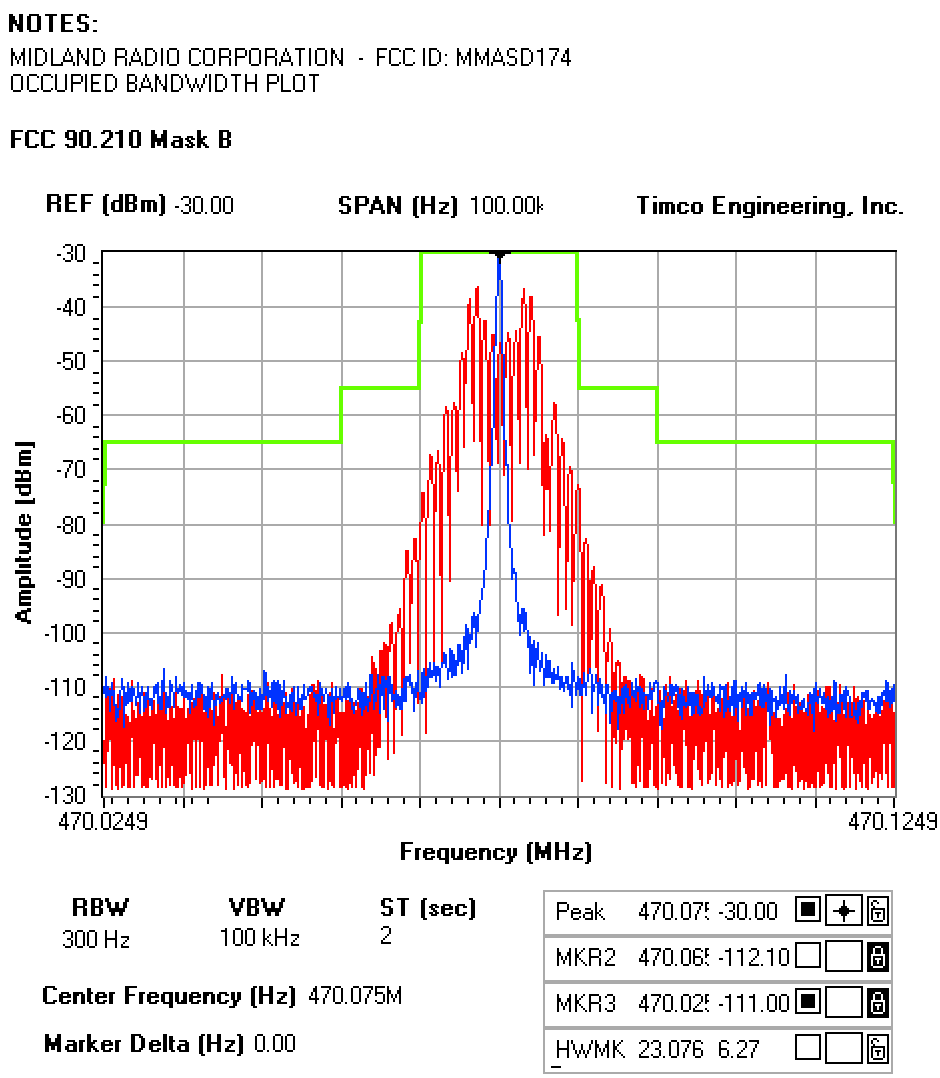
RBW	VBW	ST (sec)
100 Hz	100 kHz	10

Center Frequency (Hz) 470.075M

Marker Delta (Hz) 0.00

Peak	470.07!	-30.20
MKR2	470.07(	-106.50
MKR3	470.05(	-115.20
HWMK	23.076	6.27

AUDIO OCCUPIED BANDWIDTH PLOT
WIDE BAND



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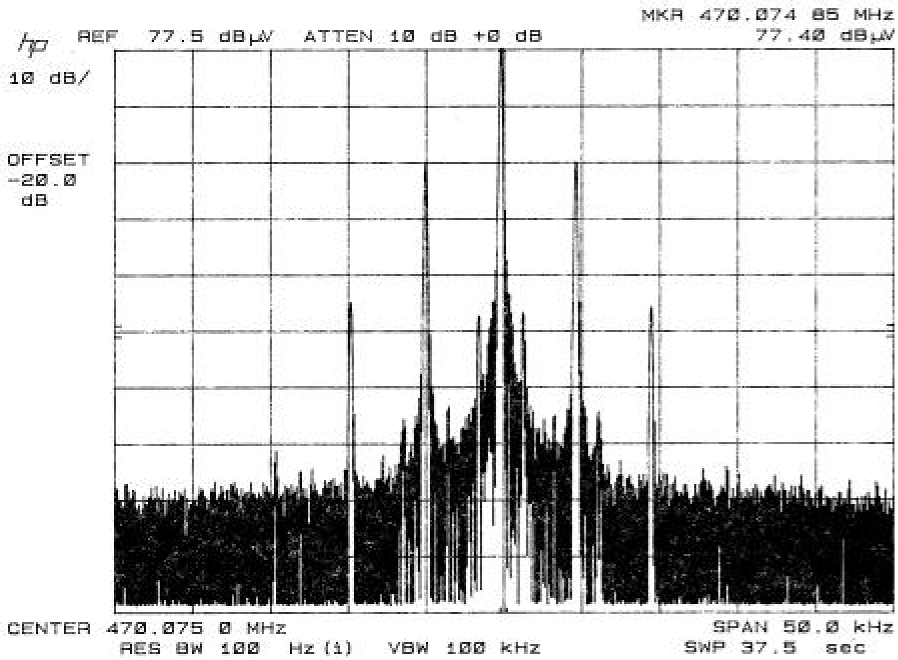
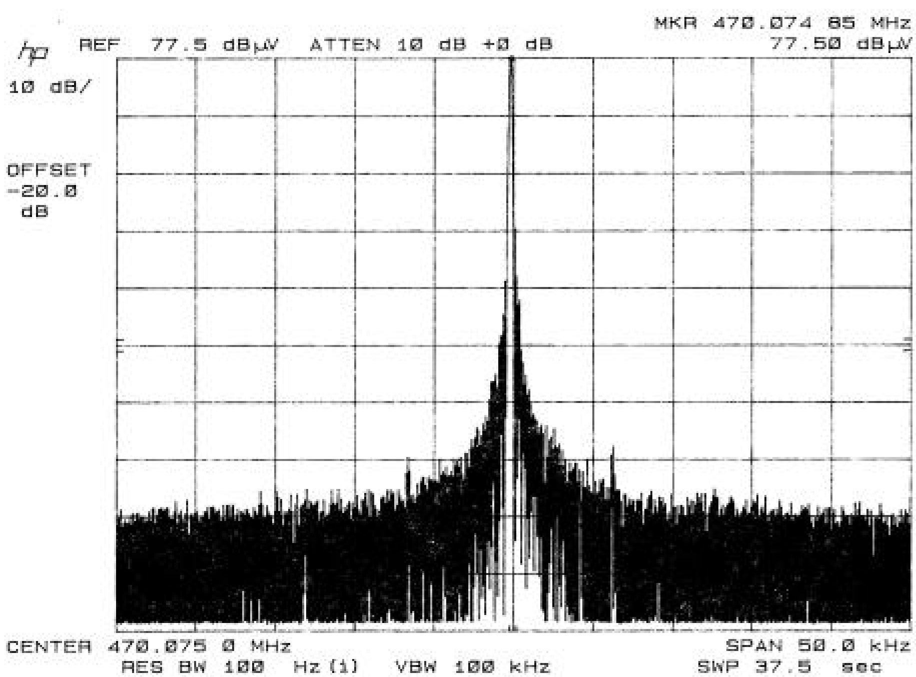
DIGITAL OCCUPIED BANDWIDTH PLOT



DIGITAL OCCUPIED BANDWIDHT CW PLOT



2.1051 Spurious emissions at antenna terminals (conducted): Data on the following page shows the level of conducted spurious responses. The carrier was modulated 100% using a 2500 Hz tone. The spectrum was scanned from 0.4 to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard TIA/EIA-603.

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.

43 + 10log(1.2) = 43.8 **43 + 10log(5.2) = 50.2**

TF LOW POWER	EF	dB below carrier	TF HIGH POWER	EF	dB below carrier
450	450	0.0	450	450	0.0
	900	76.9		900	84.0
	1350	85.4		1350	87.2
	1800	89.5		1800	95.5
	2250	84.7		2250	86.5
	2700	91.8		2700	91.2
	3150	87.6		3150	83.4
	3600	97.8		3600	102.6
	4050	81.0		4050	87.1
	4500	93.8		4500	101.9

TF LOW POWER	EF	dB below carrier	TF HIGH POWER	EF	dB below carrier
470	470	0.0	470	470	0.0
	940	83.3		940	86.6
	1410	88.7		1410	80.5
	1880	96.2		1880	97.1
	2350	74.7		2350	75.2
	2820	86.2		2820	89.9
	3290	91.3		3290	94.0
	3760	97.8		3760	107.0
	4230	94.2		4230	100.7
	4700	96.0		4700	102.0

TF LOW POWER	EF	dB below carrier	TF HIGH POWER	EF	dB below carrier
490	490	0.0	490	490	0.0
	980	82.6		980	93.1
	1470	87.0		1470	86.3
	1960	94.0		1960	96.1
	2450	71.1		2450	73.4
	2940	81.5		2940	86.9
	3430	91.1		3430	90.6
	3920	82.0		3920	86.7
	4410	95.7		4410	103.7
	4900	99.8		4900	102.8

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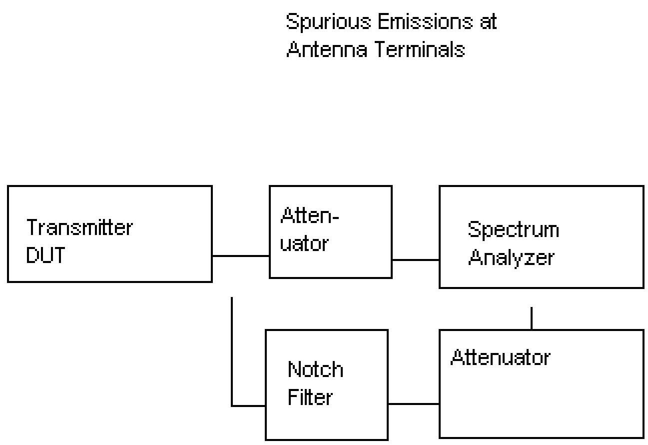
Method of Measuring Conducted Spurious Emissions



METHOD OF MEASUREMENT: The procedure used was TIA/EIA-603 STANDARD without any exceptions. An audio generator was connected to the UUT through a dummy microphone circuit and the output of the transmitter connected to a standard load and from the standard load through a preselector filter of the spectrum analyzer. The spectrum was scanned from 400 kHz to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer. The measurements were made using the shielded room located at TIMCO ENGINEERING INC. 849 N.W. State Road 45, Newberry, Florida 32669.

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2.1053 Field strength of spurious emissions:

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.

LOW: 43 + 10log(1.2) = 43.8

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
450.00	H	38.0	0	0.00	0.00
900.00	H	-30.9	0	-0.55	68.35
1350.00	H	-32.6	1.07	4.35	73.88
1800.00	H	-52.7	1.16	5.13	94.67
2250.00	H	-47.0	1.25	6.05	89.80
2700.00	H	-65.9	1.32	7.01	109.59
3150.00	H	-57.4	1.365	7.34	101.38
3600.00	V	-54.8	1.41	7.55	98.94
4050.00	V	-44.4	1.455	7.63	88.58
4500.00	V	-54.6	1.5	8.35	99.45

HIGH: 43 + 10log(5.2) = 50.2

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
450.00	H	30.4	0	0.00	0.00
900.00	H	-36.5	0	-0.55	66.35
1350.00	V	-42.4	1.07	4.35	76.08
1800.00	H	-55.2	1.16	5.13	89.57
2250.00	H	-60.3	1.25	6.05	95.50
2700.00	H	-60.4	1.32	7.01	96.49
3150.00	V	-61.4	1.365	7.34	97.78
3600.00	V	-54.2	1.41	7.55	90.74
4050.00	V	-56.1	1.455	7.63	92.68
4500.00	V	-51.6	1.5	8.35	88.85

2.1053 Field strength of spurious emissions:

NAME OF TEST: RADIATED SPURIOUS EMISSIONS (470 MHz)

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.

LOW: 43 + 10log(1.2) = 43.8

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
470.00	H	36.6	0	0.00	0.00
940.00	H	-34.9	0	-1.03	70.47
1410.00	V	-45.8	1.08	4.59	85.91
2350.00	H	-41.6	1.27	6.37	83.30
2820.00	H	-61.4	1.33	7.11	103.78
3290.00	H	-53.9	1.38	7.42	96.54
3760.00	V	-47.5	1.43	7.55	90.22
4230.00	V	-55.4	1.47	7.92	98.45
4700.00	V	-59.0	1.54	8.11	102.17

HIGH: 43 + 10log(5.20) = 50.2

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
470.00	H	27.5	0	0.00	0.00
940.00	H	-39.6	0	-1.03	66.07
1410.00	H	-51.7	1.08	4.59	82.71
1880.00	H	-52.2	1.18	5.18	83.70
2350.00	H	-44.1	1.27	6.37	76.70
2820.00	H	-60.0	1.33	7.11	93.28
3290.00	H	-53.9	1.38	7.42	87.44
3760.00	H	-49.3	1.43	7.55	82.92
4230.00	V	-59.5	1.47	7.92	93.45
4700.00	V	-59.6	1.54	8.11	93.67

2.1053 Field strength of spurious emissions:

NAME OF TEST: RADIATED SPURIOUS EMISSIONS (470 MHz)

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.

LOW: **43 + 10log(1.2) = 43.8**

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
489.90	H	36.1	0	0.00	0.00
979.80	H	-35.9	0	-1.49	70.51
1469.70	H	-50.1	1.09	4.83	89.94
1959.60	V	-52.2	1.19	5.23	92.34
2449.50	H	-42.2	1.29	6.69	83.70
2939.40	H	-59.3	1.34	7.20	101.26
3429.30	V	-53.1	1.39	7.51	95.32
3919.20	V	-49.1	1.44	7.55	91.31
4409.10	V	-52.1	1.49	8.20	94.91
4899.00	V	-55.3	1.58	7.87	97.69

HIGH: **43 + 10log(5.2) = 50.2**

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
489.90	H	32.2	0	0.00	0.00
979.80	H	-36.4	0	-1.49	67.11
1469.70	H	-59.2	1.09	4.83	95.14
2449.50	H	-43.5	1.29	6.69	81.10
2939.40	H	-60.9	1.34	7.20	98.96
3429.30	H	-57.1	1.39	7.51	95.42
3919.20	H	-50.6	1.44	7.55	88.91
4409.10	V	-53.4	1.49	8.20	92.31
4899.00	V	-59.1	1.58	7.87	97.59

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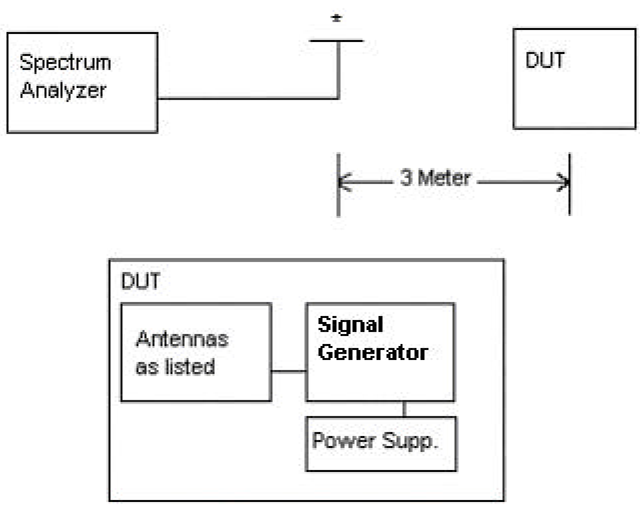
Method of Measuring Radiated Spurious Emissions



METHOD OF MEASUREMENTS: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669.

2.1055 Frequency stability:
90.213(a)(1)

Temperature and voltage tests were performed to verify that the frequency remains within the 2.5-ppm specification limit. The EUT was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to –30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst-case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at minus 15% of the battery voltage of 12VDC, which we estimate to be the battery endpoint.

MEASUREMENT DATA:

TEMPERATURE	FREQUENCY		PPM
-29.3	470.073799	951	2.023082
-19.8	470.074028	722	1.535926
-9.7	470.073842	908	1.931608
0	470.074102	648	1.378504
10	470.074729	21	0.044674
20.1	470.074941	-191	-0.40632
30.3	470.075301	-551	-1.17215
39.3	470.075301	-551	-1.17215
49.9	470.0757	-950	-2.02096
Reference:	470.07475		
-15%	470.074949	199	0.423337

RESULTS OF MEASUREMENTS: The maximum frequency variation Indicates that the EUT meets the requirements.

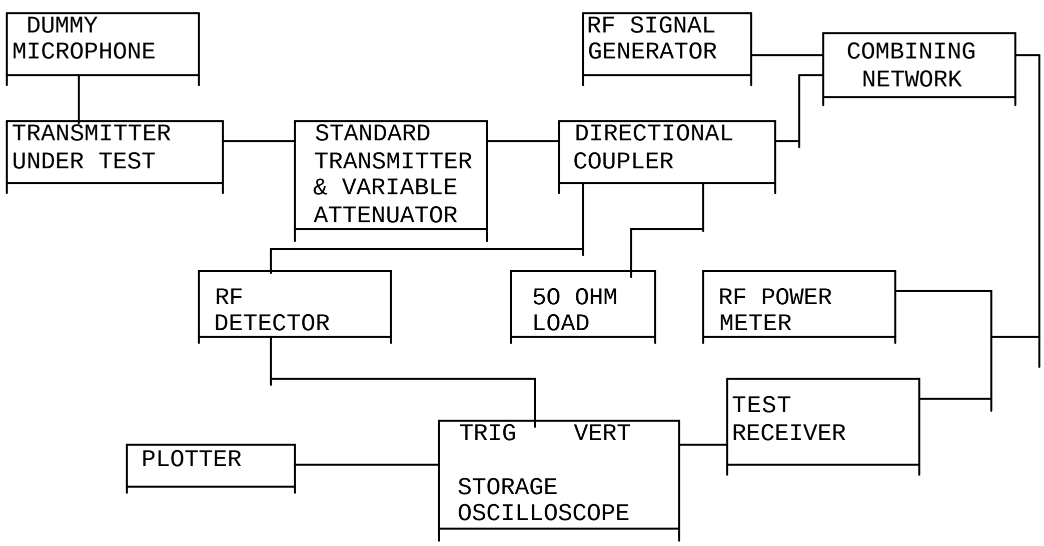
2.1055(a)(1) Frequency stability:
90.214 Transient Frequency Behavior

REQUIREMENTS: In the 450-500MHz frequency band, transient frequencies must be within the maximum frequency difference limits during the time interval indicated below for 12.5kHz Channels:

Time Interval	Maximum Frequency	Portable Radios 450-500 MHz
t1	+12.5 kHz	10.0 ms
t2	+6.25 kHz	25.0 ms
t3,t4	+12.5 kHz	10.0 ms

TEST PROCEEDURE: TIA/EIA TS603 PARA 2.2.19, the levels were set as follows;

1. Using the variable attenuator the transmitter level was set to 40 dB below the test receivers maximum input level, then the transmitter was turned off.
2. With the transmitter off the signal generator was set 20dB below the level of the transmitter in the above step, this level will be maintained with the signal generator through-out the test.
3. Reduce the attenuation between the transmitter and the RF detector by 30 dB.
4. With the levels set as above the transient frequency behavior was observed & recorded.



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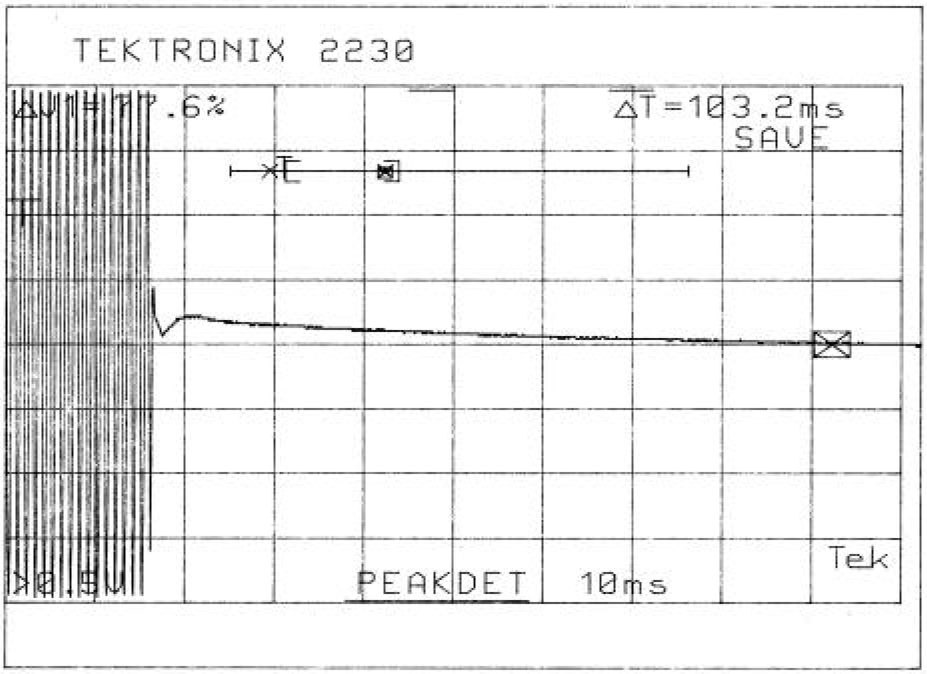
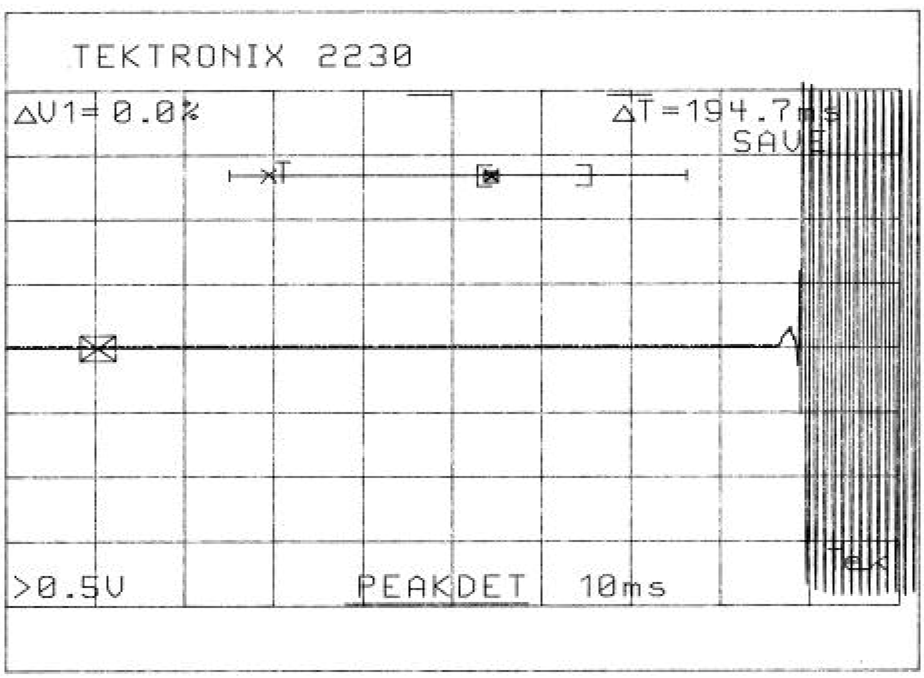
TRANSIENT FREQUENCY RESPONSE GRAPH
CHANNEL 3 25kHz





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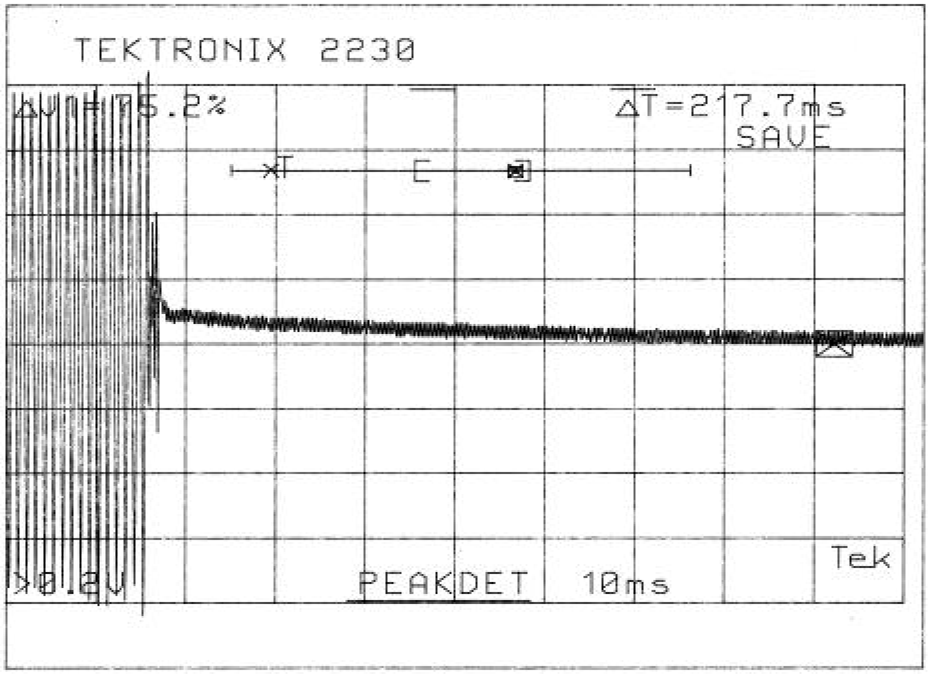
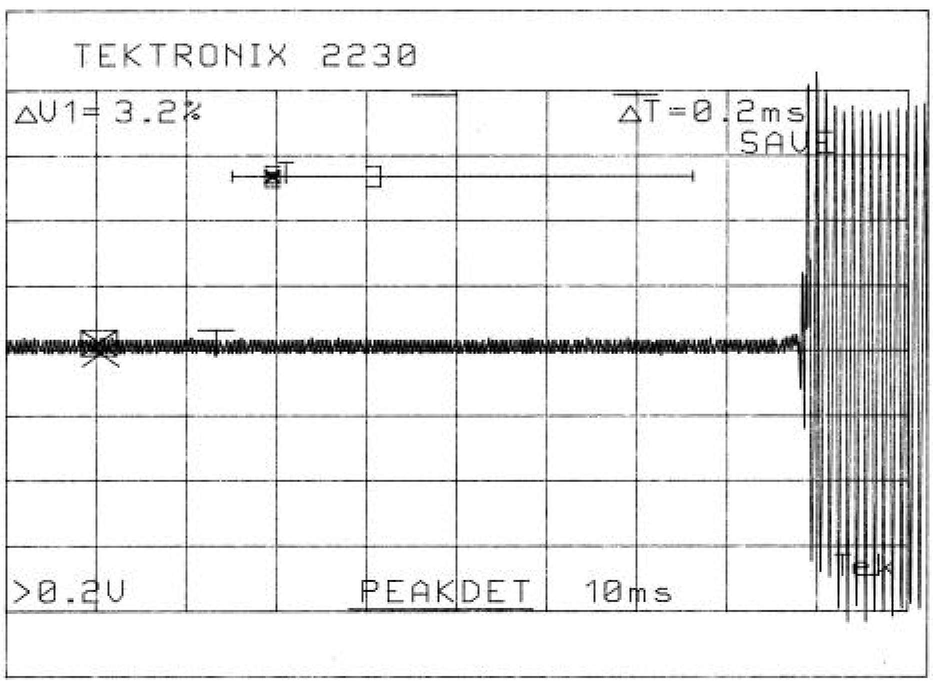
TRANSIENT FREQUENCY RESPONSE GRAPH
CHANNEL 4 12.5 kHz





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EMC Equipment List

	DEVICE	MFGR	MODEL	SERNO	CAL/CHAR DATE	DUE DATE or STATUS
X	3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/13/06
	3/10-Meter OATS	TEI	N/A	N/A	Listed 3/26/01	3/26/04
	Receiver, Beige Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 8/31/01	8/31/03
	RF Preselector	HP	85685A	3221A01400	CAL 8/31/01	8/31/03
	Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 8/31/01	8/31/03
X	Receiver, Blue Tower					
X	Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/03	4/15/05
X	RF Preselector	HP	85685A	2926A00983	CAL 4/15/03	4/15/05
X	Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/15/03	4/15/05
	Receiver, Silver/Grey Tower Spectrum Analyzer	HP	8566B Opt 462	3552A22064 3638A08608	CAL 10/14/02	10/14/04
	RF Preselector	HP	85685A	2620A00294	CAL 10/14/02	10/14/04
	Quasi-Peak Adapter	HP	85650A	3303A01844	CAL 10/14/02	10/14/04
	Preamplifier	HP	8449B	3008A01075	CHAR 1/28/02	1/28/04
X	Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
	Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/03
	Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
	BiconiLog Antenna	EMCO	3143	9409-1043		
X	Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 10/2/01	10/2/03
	Log-Periodic Antenna	Electro-Metrics	EM-6950	632	CHAR 10/15/01	10/15/03
	Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CAL 3/4/03	3/4/05

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	DEVICE	MFGR	MODEL	SERNO	CAL/CHAR DATE	DUE DATE or STATUS
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/21/01	3/21/04
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	153	CAL 9/26/02	9/26/05
	Double-Ridged Horn Antenna	Electro-Metrics	RGA -180	2319	CAL 2/17/03	2/17/05
	Horn Antenna	Electro-Metrics	EM-6961	6246	CAL 3/31/03	3/31/05
	Horn Antenna	ATM	19-443-6R	None	No Cal Required	
	Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/03
	Line Impedance Stabilization . . .	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/03
	Line Impedance Stabilization . . .	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
	Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 5/25/99	5/25/01
	Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CHAR 12/12/01	12/12/03
	Oscilloscope	Tektronix	2230	300572	CHAR 2/1/01	2/1/03
	System One	Audio Precision	System One	SYS1-45868	CHAR 4/25/02	4/25/04
	Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 1/22/02	1/22/04
	AC Voltmeter	HP	400FL	2213A14499	CAL 10/9/01	10/9/03
	AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/03
	AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/03
X	Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/04
	Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/04
	Digital Multimeter	HP	E2377A	2927J05849	CHAR 1/8/02	1/8/04
	Multimeter	Fluke	FLUKE-77-3	79510405	CHAR 9/26/01	9/26/03
	Peak Power Meter	HP	8900C	2131A00545	CHAR 1/26/01	1/26/03
	Power Meter	HP	432A	1141A07655	CAL 4/15/03	4/15/05

	DEVICE	MFGR	MODEL	SERNO	CAL/CHAR DATE	DUE DATE or STATUS
	Power Meter And Sensor	Bird	4421-107 4022	0166 0218	CAL 4/16/03	4/16/05
	Power Sensor	HP	478A	72129	CAL 4/15/03	4/15/05
	Digital Thermometer	Fluke	2166A	42032	CAL 1/16/02	1/16/04
	Thermometer	Traulsen	SK-128		CHAR 1/22/02	1/22/04
	Thermometer	Extech	4028	14871-2	CAL 3/7/03	3/7/05
X	Hygro-Thermometer	Extech	445703	0602	CAL 10/4/02	10/4/04
	Frequency Counter	HP	5352B	2632A00165	CAL 11/28/01	11/28/03
	Frequency Counter	HP	5385A	2730A03025	CAL 3/7/03	3/7/05
	Power Sensor	Agilent Technologies	84811A	2551A02705	CHAR 1/26/01	1/26/03
	Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/00	11/22/02
	Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 5/12/02	5/12/04
	Signal Generator	HP	8640B	2308A21464	CAL 2/15/02	2/15/04
	Sweep Generator	Wiltron	6648	101009	CAL 4/15/03	4/15/05
	Sweep Generator	Wiltron	6669M	007005	CAL 3/3/03	3/3/05
	Modulation Analyzer	HP	8901A	3435A06868	CAL 9/5/01	9/5/03
	Modulation Meter	Boonton	8220	10901AB	CAL 4/15/03	4/15/05
	Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/01	2/1/03
	BandReject Filter	Lorch Microwave	5BR4-2400/ 60-N	Z1	CHAR 3/2/01	3/2/03
	BandReject Filter	Lorch Microwave	6BR6-2442/ 300-N	Z1	CHAR 3/2/01	3/2/03
	BandReject Filter	Lorch Microwave	5BR4-10525/ 900-S	Z1	CHAR 3/2/01	3/2/03
	High Pass Filter	Microlab	HA-10N		CHAR 10/4/01	10/4/03
	High Pass Filter	Microlab	HA-20N		CHAR 2/7/03	2/7/05

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	Audio Oscillator	HP	653A	832-00260	CHAR 3/1/01	3/1/03
	Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/01	3/2/03
	Frequency Counter	HP	5385A	3242A07460	CAL 3/7/03	3/7/05
	Preamplifier	HP	8449B-H02	3008A00372	CHAR 3/4/01	3/4/03
	Amplifier	HP	11975A	2738A01969	CHAR 3/1/01	3/1/03
	Egg Timer	Unk			CHAR 8/31/01	8/31/03
	Measuring Tape, 20M	Kraftixx	0631-20		CHAR 2/1/02	2/1/04
	Measuring Tape, 7.5M	Kraftixx	7.5M PROFI		2/1/02	2/1/04
	Coaxial Cable #51	Insulated Wire Inc.	NPS 2251-2880	Timco #51	CHAR 1/23/02	1/23/04
	Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 1/24/02	1/24/04
	Coaxial Cable #65	General Cable Co.	E9917 RG233/U	Timco #65	CHAR 1/23/02	1/23/04
	Coaxial Cable #106	Unknown	Unknown	Timco #106	CHAR 1/23/02	1/23/04