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: CB TRANSCEIVER

FCC ID: BBO19DXIV

Applicant:

COBRA ELECTRONICS CORPORATION
6500 WEST CORTLAND STREET
CHICAGO, IL 60707

Date Receipt: OCTOBER 25, 2004

Date Tested: NOVEMBER 9, 2004

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APPLICANT: COBRA ELECTRONICS CORPORATION

FCC ID: BBO19DXIV

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TEST REPORT:

EXHIBITS CONTAINING:

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GENERAL_INFORMATION_REQUIRED FOR_TYPE_ACCEPTANCE

2.1033(c)(1)(2) COBRA ELECTRONICS CORPORATION will manufacture the FCC ID: BBO19DXIV CB TRANSCEIVER in quantity, for use under FCC RULES PART 95 SUBPART D.

COBRA ELECTRONICS CORPORATION
6500 WEST CORTLAND STREET
CHICAGO, IL 60707

2.1033(c)(3) Instruction book. A draft copy of the instruction manual is included in the exhibits.

2.983 (d) **TECHNICAL DESCRIPTION**

2.1033(c)(4) Type of Emission: 8K0A3E

Authorized Bandwidth: 8.0KHz

2.1033(c)(5) Frequency Range: 26.965 - 27.405 MHz

2.1033(c)(6) Power Range and Controls: There are NO user Power controls.

2.1033(c)(7) Maximum Output Power Rating as defined in the rules: 4.0 Watts into a 50 ohm resistive load.

2.1033(c)(8) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY:
Vce = 13.8 VDC
Ice = 0.50 A

Pin = 6.9 Watts

2.1033(c)(9) Tune-up procedure. The tune-up procedure is included in the exhibits.

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram and block diagram are included in the exhibits.

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2.1033(c)(11) A photograph for drawing of the FCC ID Label and the where it will be placed on the device is included in the exhibits.

2.1033(c)(12) Photographs of the equipment of sufficient clarity to reveal equipment construction and layout, including meters, labels for controls, including any view under shields are included in the exhibits.

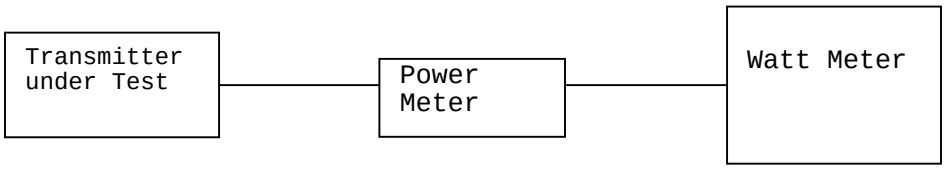
2.1033(c)(13) Digital modulation. This unit does not use digital modulation.

2.1033(c)(14) The data required by 2.1046 through 2.1057 is submitted below.

2.1046 **RF power output**

RF power is measured by connecting a 50-ohm, resistive wattmeter to the RF output connector. With a nominal battery voltage, and the transmitter properly adjusted the RF output measures:

OUTPUT POWER: 4 WATTS



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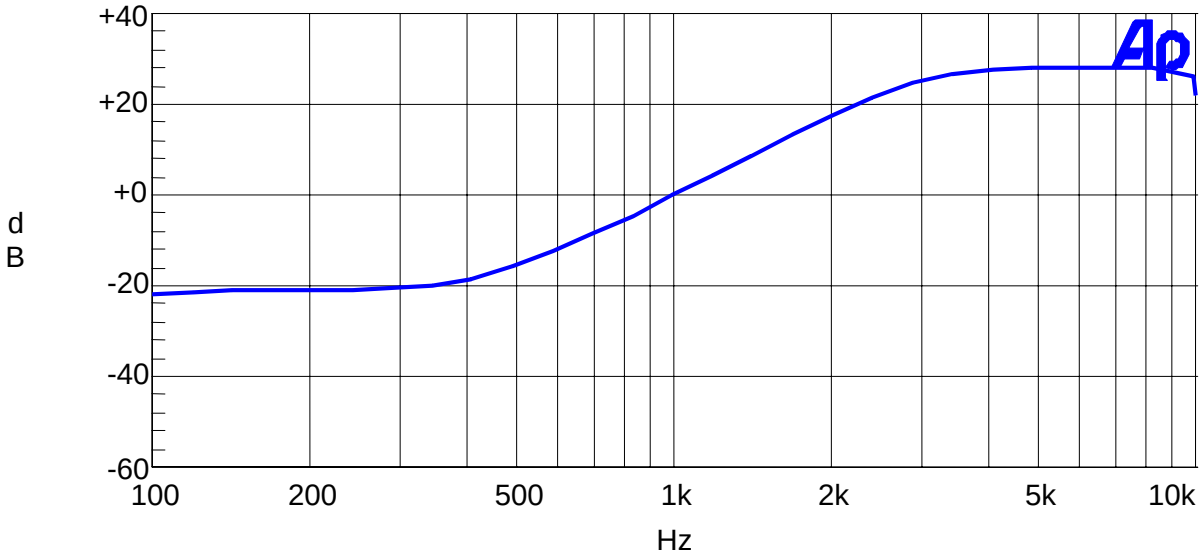
2.1047 **Modulation characteristics:**

2.1047(a) **AUDIO FREQUENCY RESPONSE**

The audio frequency response was measured in accordance with EIA/TIA-382-A Standard. The audio frequency response curve is shown below. 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.

Audio Frequency Response Plot



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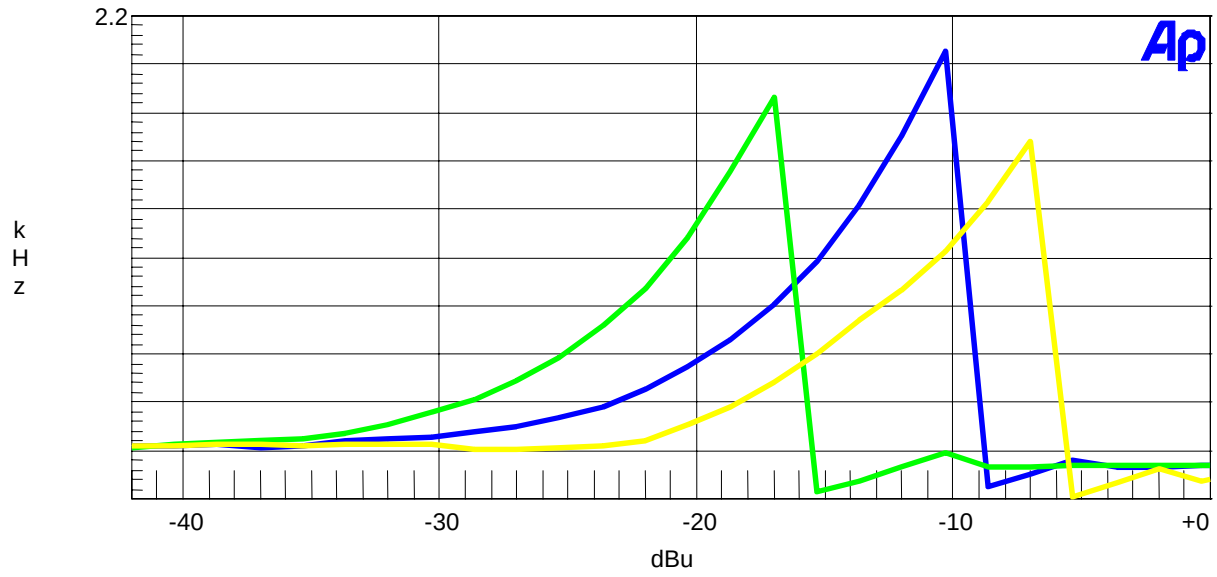
2.1047(b) **Audio input versus modulation**

The audio input level needed for a particular percentage of modulation was measured in accordance with EIA/TIA-382-A Standard. The audio input curves versus modulation are below. Curves are provided for audio input frequencies of 300, 1000, and 2500 Hz.

Modulation Limiting Plots:

2.5 KHz (Green), 1.0 KHz (Blue), 300 Hz (Yellow)



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2.1047
95.637 (d) **OVER MODULATION TRANSIENT RESPONSE**

A. MEASUREMENT PROCEDURE

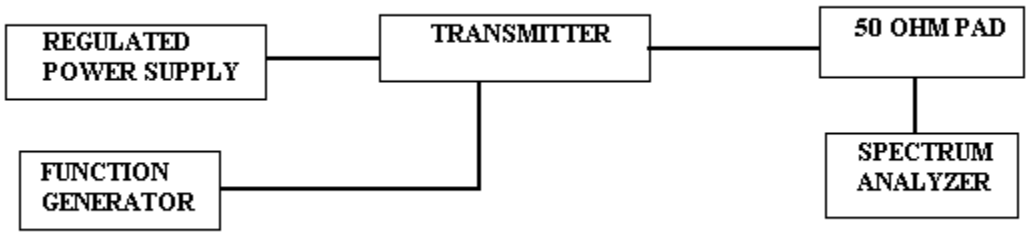
1. Set audio modulating signal at 2500Hz, at a level 16dB greater than required for 50% modulation at audio frequency of maximum response. This signal is pulsed at one(1) P.P.S. with a pulse width of 0.5sec.

2. Tune the Spectrum Analyzer to the channel on which channel on which the transmitter is set and adjust the settings as for the measurement of occupied bandwidth.

3. Then tune the Spectrum analyzer to the adjacent channel (+,-10KHz) to that on which the transmitter is set, place it in the "ZERO-SCAN", then observe the transients caused by the pulsed modulation.

4. The transients must have a duration of less than 100 milliseconds and be attenuated by at least 26dB.

B. TEST SET UP



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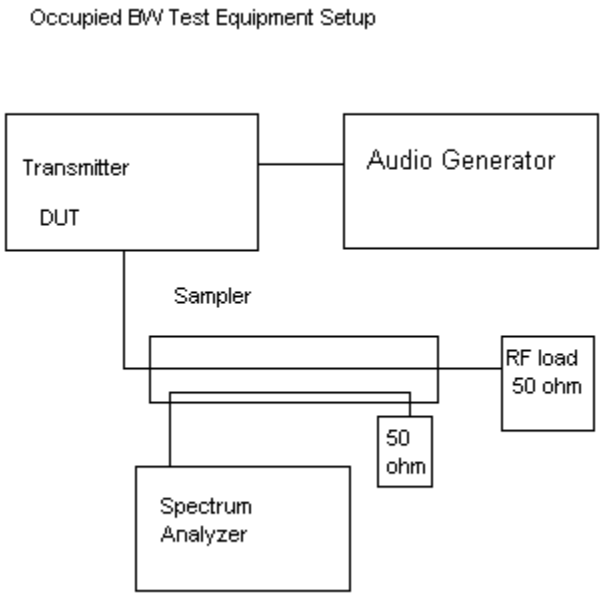
2.1049 **Occupied bandwidth:**
95.635(b)(1)(3)(8)(c)

Data in the plots shows that the sidebands from greater than 50% to 100% of the authorized bandwidth must be attenuated by at least 25dB and from 100 to 250% the sidebands must be attenuated by at least 35dB. Beyond 250% the sidebands must be attenuated by at least 53 + log10(TP). The transmitter was modulated with 2500 Hz, adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the un-modulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth photographs follow.

Radiotelephone transmitter with modulation limiter.

Test procedure diagram



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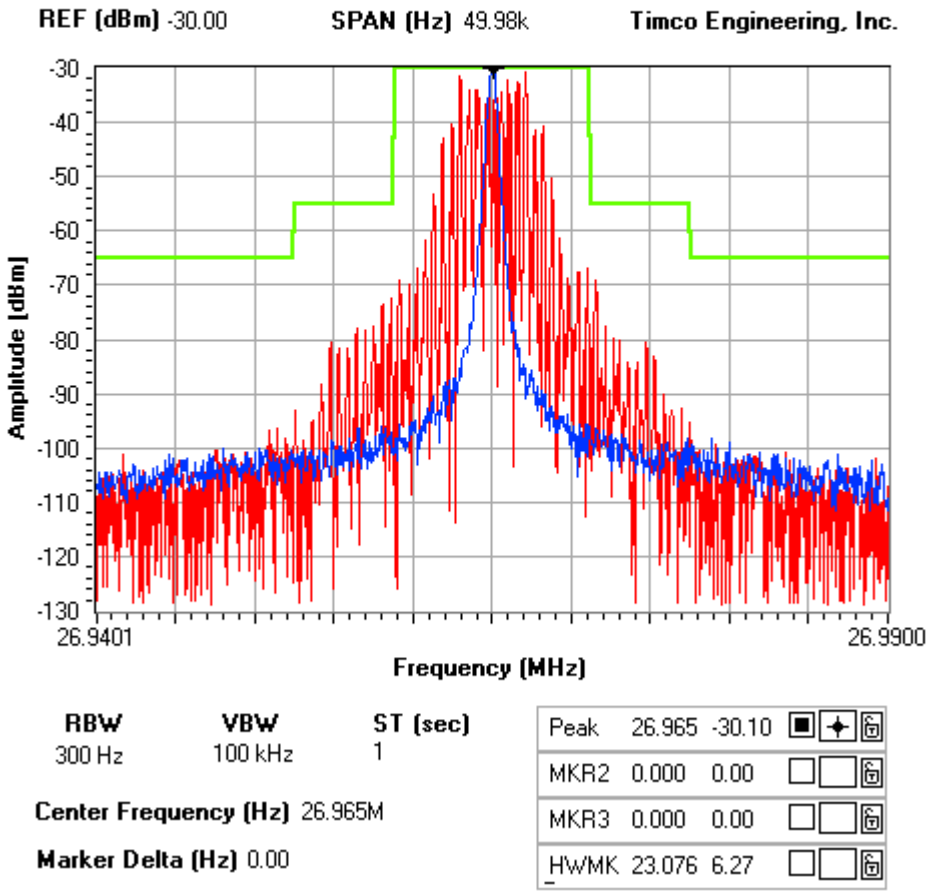
OCCUPIED BANDWIDTH
95.633(a)

NOTES:
COBRA ELECTRONICS CORPORATION - FCC ID: BBO19DXIV
OCCUPIED BANDWIDTH PLOT

FCC 95.635 Mask (1) (3) (8) (9)



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2.1051(a) **Spurious emissions at antenna terminals (conducted):**

Data below 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.

FCC Limit: At least 60 dB on any frequency twice or greater than twice the fundamental.

TEST DATA:

TF	EF	dB below carrier
27	27	0.0
	54	68.7
	81	70.9
	108	81.8
	135	72.3
	162	77.9
	189	71.2
	216	78.0
	243	83.3
	270	82.1

TF	EF	dB below carrier
27.40	27.40	0.0
	54.8	80.4
	82.2	71.6
	109.6	80.9
	137.0	71.8
	164.4	79.9
	191.8	70.2
	219.2	80.6
	246.6	81.8
	274.0	85.6

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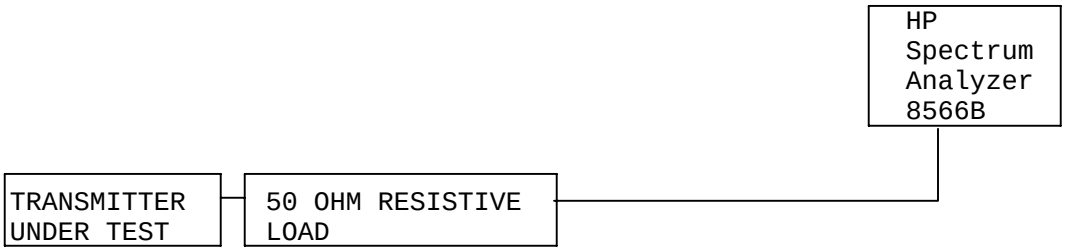
Method of Measuring Conducted Spurious Emissions



METHOD OF MEASUREMENT: The procedure used was TIA/EIA-603 STANDARD without any exceptions. The measurements were made 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: The FCC Limits for radiated emissions are the same as previously stated for the conducted emissions.

TEST DATA:

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
26.97	0	36.00	0	0	0
53.94	H	-29.20	0	-1.43	66.63
80.91	V	-27.30	0	-0.25	63.55
107.88	H	-42.00	0	-0.31	78.31
134.85	H	-25.20	0	-0.55	61.75
161.82	H	-32.60	0	-0.19	68.79
188.79	H	-23.60	0	-0.94	60.54
215.76	H	-24.20	0	-1.15	61.35
242.73	H	-27.80	0	-1.15	64.95
269.70	H	-21.60	0	-1.15	58.75

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
27.40	0	36.00	0	0	0
54.80	H	-32.90	0	-1.37	70.27
82.20	V	-23.50	0	-0.25	59.75
109.60	H	-32.20	0	-0.34	68.54
137.00	H	-20.00	0	-0.55	56.55
164.40	H	-21.10	0	-0.24	57.34
191.80	H	-29.40	0	-0.97	66.37
219.20	H	-28.50	0	-1.15	65.65
246.60	H	-32.40	0	-1.15	69.55
274.00	H	-25.50	0	-1.15	62.65

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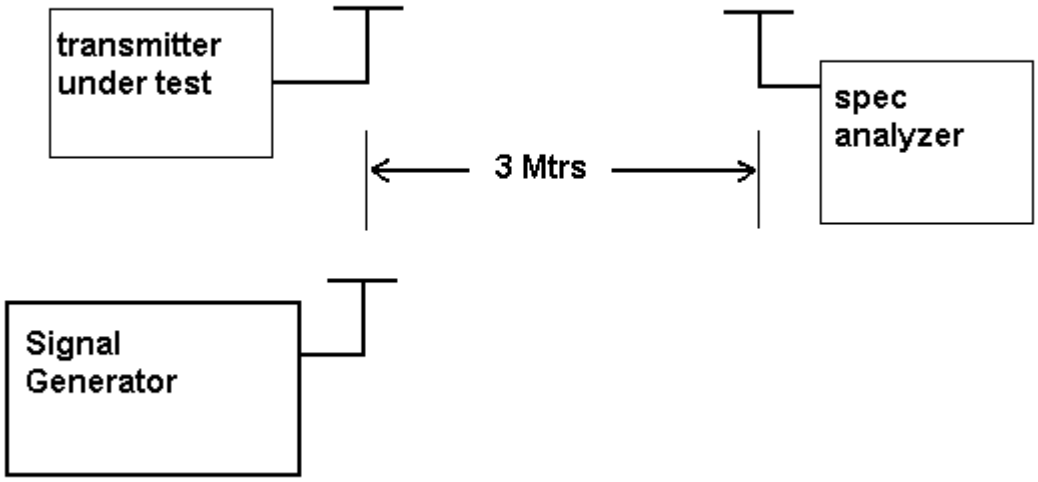
Method of Measuring Radiated Spurious Emissions



METHOD OF MEASUREMENT: The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per EIA/TIA-382-A Standard using the substitution method. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located 849 NW State Road 45, Newberry, FL 32669.

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2.1055(a)(b)(d) **Frequency stability:**

Temperature and voltage tests were performed to verify that the frequency remains within the .005%, 50 ppm specification limit. The test was conducted as follows: The transmitter 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 plus and minus 15% of the battery voltage of 13.8 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 26.964 990 MHz

TEMPERATURE_°C	FREQUENCY_MHz	PPM
REFERENCE_____	26.964 990	00.00
-30_____	26.964 969	- 0.78
-20_____	26.965 040	+ 1.85
-10_____	26.965 099	+ 4.04
0_____	26.965 106	+ 4.30
+10_____	26.965 074	+ 3.12
+20_____	26.965 020	+ 1.11
+30_____	26.964 957	- 1.22
+40_____	26.964 900	- 3.34
+50_____	26.964 870	- 4.45

BATT	%BATT. DATA	BATT. PPM
-15%	26.965 020	- 0.03

RESULTS OF MEASUREMENTS: The test results indicates that the EUT meets the requirements.

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EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/12/06
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 9/23/03	9/23/05
Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 9/23/03	9/23/05
Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 9/23/03	9/23/05
Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 9/23/03	9/23/05
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/03	4/15/05
Blue Tower RF Preselector	HP	85685A	2620A00294	CAL 4/27/04	4/27/06
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/15/03	4/15/05
Silver Tower Spectrum Analyzer	HP	8566B Opt 462	3552A22064 3638A08608	CAL 3/22/04	3/22/06
Silver Tower RF Preselector	HP	85685A	2926A00983	CAL 3/22/04	3/22/06
Silver Tower Quasi-Peak Adapter	HP	85650A	3303A01844	CAL 3/22/04	3/22/06
Silver Tower Preamplifier	HP	8449B	3008A01075	CAL 3/22/04	3/22/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
BiconiLog Antenna	EMCO	3143	9409-1043	No Cal Required	
Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 8/26/04	8/26/06
Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CAL 3/4/03	3/4/05
Log-Periodic	Eaton	96005	1243	CAL	5/8/05

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Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
Antenna				5/8/03	
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 *(at 3 meters)	Electro-Metrics	EM-6961	6246	CAL 3/31/03	3/31/05
Horn Antenna *(at 10 meters)	Electro-Metrics	EM-6961	6246	CAL 6/4/03	6/4/05
Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/03
Harmonic Mixer with Horn Antenna	Oleson Microwave Labs	M08HW/A	F30425-1	CHAR 4/25/03	4/25/05
Harmonic Mixer with Horn Antenna	Oleson Microwave Labs	M12HW/A	E30425-1	CHAR 4/25/03	4/25/05
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 7/16/04	7/16/06
Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CAL 7/16/04	7/16/06
Oscilloscope	Tektronix	2230	300572	CAL 7/3/03	7/3/05
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 7/19/04	7/19/06
AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/03
AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/03
Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/04
Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/04

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
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	CAL 7/2/03	7/2/05
Power Sensor	Agilent Technologies	84811A	2551A02705	CAL 7/2/03	7/2/05
Power Meter	HP	432A	1141A07655	CAL 4/15/03	4/15/05
Power Sensor	HP	478A	72129	CAL 4/15/03	4/15/05
Power Meter And Sensor	Bird	4421-107 & 4022	0166 & 0218	CAL 4/16/03	4/16/05
Digital Thermometer	Fluke	2166A	42032	CAL 7/19/04	7/19/06
Thermometer	Traulsen	SK-128		CHAR 1/22/02	1/22/04
Thermometer	Extech	4028	14871-2	CAL 3/7/03	3/7/05
Hygro-Thermometer	Extech	445703	0602	CAL 10/4/02	10/4/04
Frequency Counter	HP	5352B	2632A00165	CAL 8/3/04	8/3/06
Frequency Counter	HP	5385A	2730A03025	CAL 3/7/03	3/7/05
Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/00	Out of Service
Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 5/12/02	5/12/04
Signal Generator	HP	8640B	2308A21464	CAL 8/26/04	8/26/06
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 4/15/05	4/15/05
Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/01	Out of Service
BandReject Filter	Lorch	5BR4-	Z1	CHAR	4/17/05

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
	Microwave	2400/60-N		4/17/03	
BandReject Filter	Lorch Microwave	6BR6-2442/300-N	Z1	CHAR 4/17/03	4/17/05
BandReject Filter	Lorch Microwave	5BR4-10525/900-S	Z1	CHAR 4/12/03	4/12/05
Notch Filter	Lorch Microwave	5BRX-850/X100-N	AD-1	CHAR 4/17/03	4/17/05
High Pass Filter	Unk	3768(5)-400	041	CHAR 12/17/02	12/17/04
High Pass Filter	Microlab	HA-10N		CHAR 11/17/02	11/17/04
High Pass Filter	Microlab	HA-20N		CHAR 12/17/02	12/17/04
Audio Oscillator	HP	653A	832-00260	CHAR 12/1/02	12/1/04
Audio Generator	B&K Precision	3010	8739686	CHAR 12/1/02	12/1/04
Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/01	Out of Service
Frequency Counter	HP	5385A	3242A07460	CAL 3/7/03	3/7/05
Amplifier	HP	11975A	2738A01969	No Cal Required	
Egg Timer	Unk			CHAR 2/1/02	2/1/04
Measuring Tape-20M	Kraftixx	0631-20		CHAR 2/1/02	2/1/04
Measuring Tape-7.5M	Kraftixx	7.5M PROFI		CHAR 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
Injection Probe	Fischer Custom Communications	F-120-9A	270	CAL 6/1/01	6/1/03
Power Line Coupling/Decoupling Network	Fischer Custom Communications	FCC-801-M2-16A	01048	CAL 8/29/01	8/29/03
Power Line	Fischer Custom	FCC-801-M3-	01060	CAL	8/29/03

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
Coupling/Decoupling Network	Communications	16A		8/29/01	
VHF/UHF Current Probe	Fischer Custom Communications	F-52	130	CAL 8/30/01	8/30/03
Passive Impedance Adapter	Fischer Custom Communications	FCC-801-150-50-CDN	01117 & 01118	CAL 8/29/01	8/29/03
Radiating Field Coil	Fischer Custom Communications	F-1000-4-8/9/10-L-1M	9859	CAL 10/15/98	10/15/00
EMC Immunity Test System	Keytek	CEMASTER	9810210	CAL 2/1/02	2/1/04
Compliance Test System - AC Power Source	California Instruments	1251RP	L05865	CAL 2/25/04	2/25/06
Compliance Test System - PACS-1 Module	California Instruments	PACS-1	X71484	CAL 2/25/04	2/25/06
Isotropic Field Probe	Amplifier Research	FP5000	22839		
Isotropic Field Probe	Amplifier Research	FP5000	300103		
Capacitor Clamp	Keytek	CM-CCL	9811359	No Cal Required	
Amplifier	Amplifier Research	10W1000B	23117	No Cal Required	
Field Monitor	Amplifier Research	FM5004	22288	No Cal Required	
ELF Meter	F. W. Bell	4060	Not Serialized		Out of Service
Standard Gain Horn 1.0-2.4 GHz	Polarad	CA-L	235	No Cal Required	
Standard Gain Horn 2.14-4.34 GHz	Polarad	CA-S	203	No Cal Required	
Standard Gain Horn 3.95-5.85 GHz	Scientific-Atlanta Inc.	11A-3.9	8448CG	No Cal Required	
Standard Gain Horn 8.2-12.5 GHz	Systron Donner	DBG-520-20	Not Serialized	No Cal Required	
Standard Gain Horn 18.0-26.3 GHz	Systron Donner	DBE-520-20	Not Serialized	No Cal Required	
Standard Gain Horn 26.5-40.2 GHz	Systron Donner	DBD-520-20	Not Serialized	No Cal Required	
Standard Gain Horn 40.0-60.0 GHz	ATM	19-443-6R	Not Serialized	No Cal Required	
Double-Ridged Horn	EMCO	3116	9011-2145		Out of

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http://www.timcoengr.com
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Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
Antenna					Service
Standard Gain Horn 12.4-18.0 GHz	ATM	62-442-6	D262108-01	No Cal Required	
Standard Gain Horn 5.85-8.2 GHz	ATM	137-442-2	D261908-01	No Cal Required	
AC Voltmeter	HP	400F	0950A05433	CAL 8/13/03	8/13/05
RF Power Amplifier	Ophir RF	5150F	1041 'X1'	No Cal Required	
Electric Field Sensor	Amplifier Research	FP6001	302504		
Electric Field Sensor	Amplifier Research	FP6001	302510	CAL 6/1/04	6/1/06
Surge Generator	Com-Power Corporation	SG-168	25802	CAL 2/27/04	2/27/06
RF Power Amplifier	Ophir RF, Inc.	5150F	1041	CHAR 10/31/03	10/31/05
3-Meter Anechoic Chamber	Panashield	N/A	N/A	Listed 5/12/04	5/11/07
Digital Multimeter	Fluke	77III	79510408	CAL 7/19/04	7/19/06
Open-Frame Tower Spectrum Analyzer	HP	8566B/85662A	2627A03154/2648A14276	CAL 7/9/04	7/9/06
Open-Frame Tower RF Preselector	HP	85685A	3107A01282	CAL 7/9/04	7/9/06
Open-Frame Tower Quasi-Peak Adapter	HP	85650A	2046A00305	CAL 7/9/04	7/9/06
Signal Generator	HP	8648C	3847A04696	CAL 9/27/04	9/27/06