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APPLICANT: FIDELIX CO., LTD.

FCC ID: QIRNEOTEL-811

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EXHIBITS CONTAINING:

EXHIBIT 1.....	FCC ID LABEL SAMPLE
EXHIBIT 2.....	FCC ID LABEL LOCATION
EXHIBIT 3.....	SCHEMATIC
EXHIBIT 4.....	BLOCK DIAGRAM
EXHIBIT 5.....	CIRCUIT DESCRIPTION
EXHIBIT 6.....	USERS MANUAL
EXHIBIT 7.....	EXTERNAL TOP PHOTOGRAPH
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EXHIBIT 10.....	INTERNAL COMPONENT PHOTOGRAPHS
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EXHIBIT 12.....	TEST SET UP PHOTOGRAPHS
EXHIBIT 13-15.....	TUNING PROCEDURE

## **GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE**

2.1033            FIDELIX CO., LTD. will sell the  
(c)(1)(2)        FCC ID: QIRNEOTEL-811, Fixed WLL cellular phone  
                  for use under FCC RULES PART 22.

2.1033 (c)        TECHNICAL DESCRIPTION  
2.1033 (3)        User Manual See Exhibit 6

2.1033 (4)        Type of Emission:            1M25F9W (CDMA)

99 % Power bandwidth = 1.25 MHz  
Bn = 1.25MHz  
F = Frequency modulation  
9 = Composite Digital information  
W = Combination audio and data

2.1033 (5)        Frequency Range:            824-849 MHz

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

(7)        Maximum Output Power Rating:  
0.250 Watt = 24 dBm, conducted into 50 Ohm load

(8)        DC Voltages and Current into Final Amplifier:

POWER INPUT  
FINAL AMPLIFIER ONLY  
Vce = 4.0 Volts  
IC = .15 A

(9)        Tune-up procedure. The tune-up procedure is given  
                  in EXHIBIT 12.

2.1033 (10) Complete Circuit Diagrams: Description of all circuitry and devices provided for determining and stabilizing frequency is included in the circuit description in the instruction manual. The circuit diagram is included as EXHIBIT 3. The block diagram is included as EXHIBIT 4.

2.1033(c)(11) A photograph or drawing of the equipment identification label is shown in Exhibit 1.

2.1033(c)(12) Photographs of the equipment of sufficient clarity to reveal equipment construction and layout and label location are shown in Exhibit 2, and Exhibit 7-11.

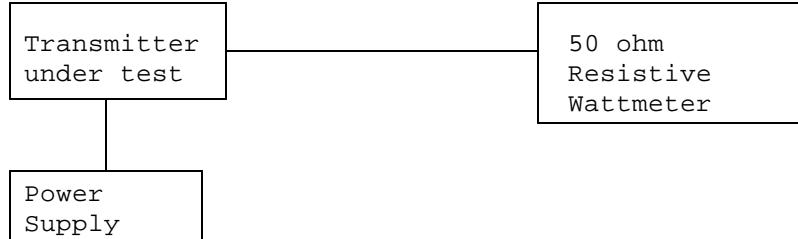
2.1033(c)(13) For equipment employing digital modulation, a detail description of the modulation technique. This UUT uses OQPSK to modulate the transmitter.

2.1033(c)(14) Data required for 2.1046 to 2.1057 See Below

**2.1046(a) RF power output:**

RF power is measured by connecting a 50 ohm, resistive wattmeter to the RF output connector. With a nominal voltage of 9 VDC using the AC/DC switched mode power supply specified with this device, and the transmitter properly adjusted the RF output measures:

METHOD OF MEASURING RF POWER OUTPUT



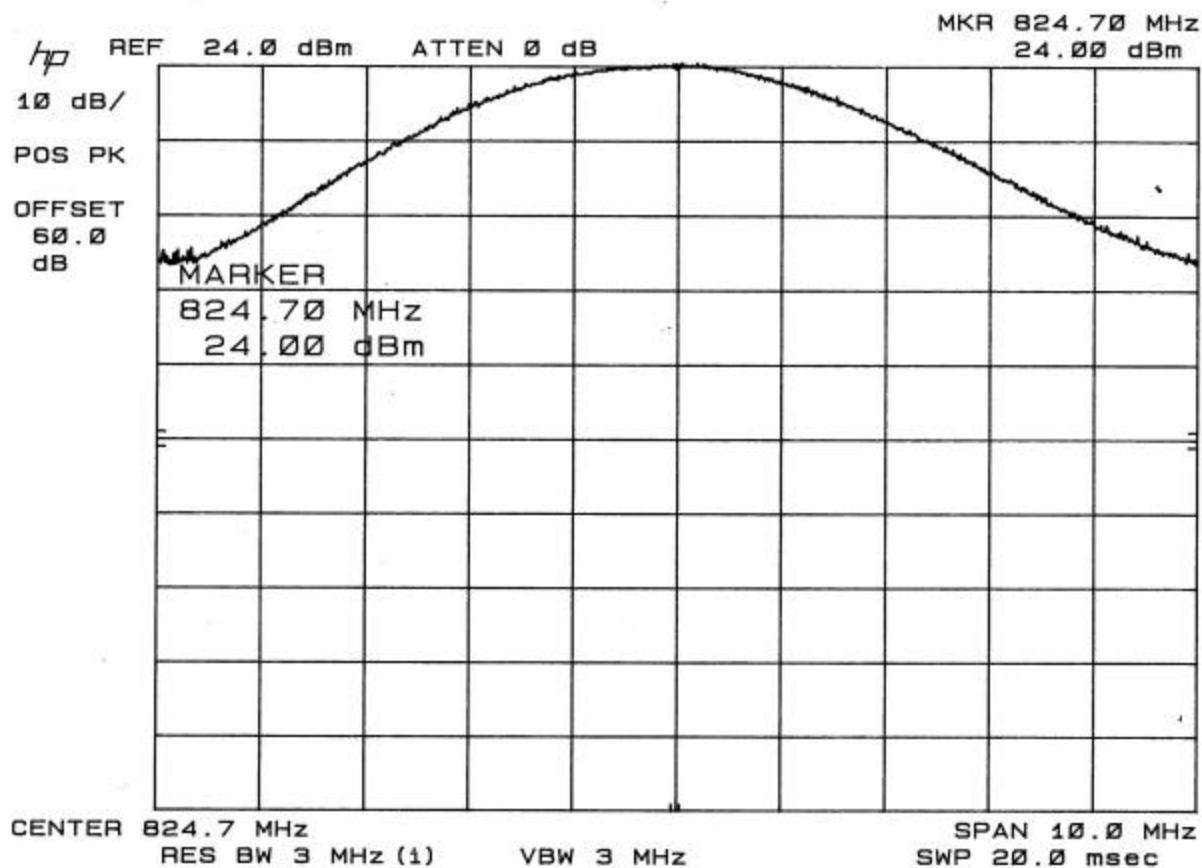
CDMA Module Input power (RF module)

INPUT POWER: (4.0VDC)(0.150A) = 0.600 Watts

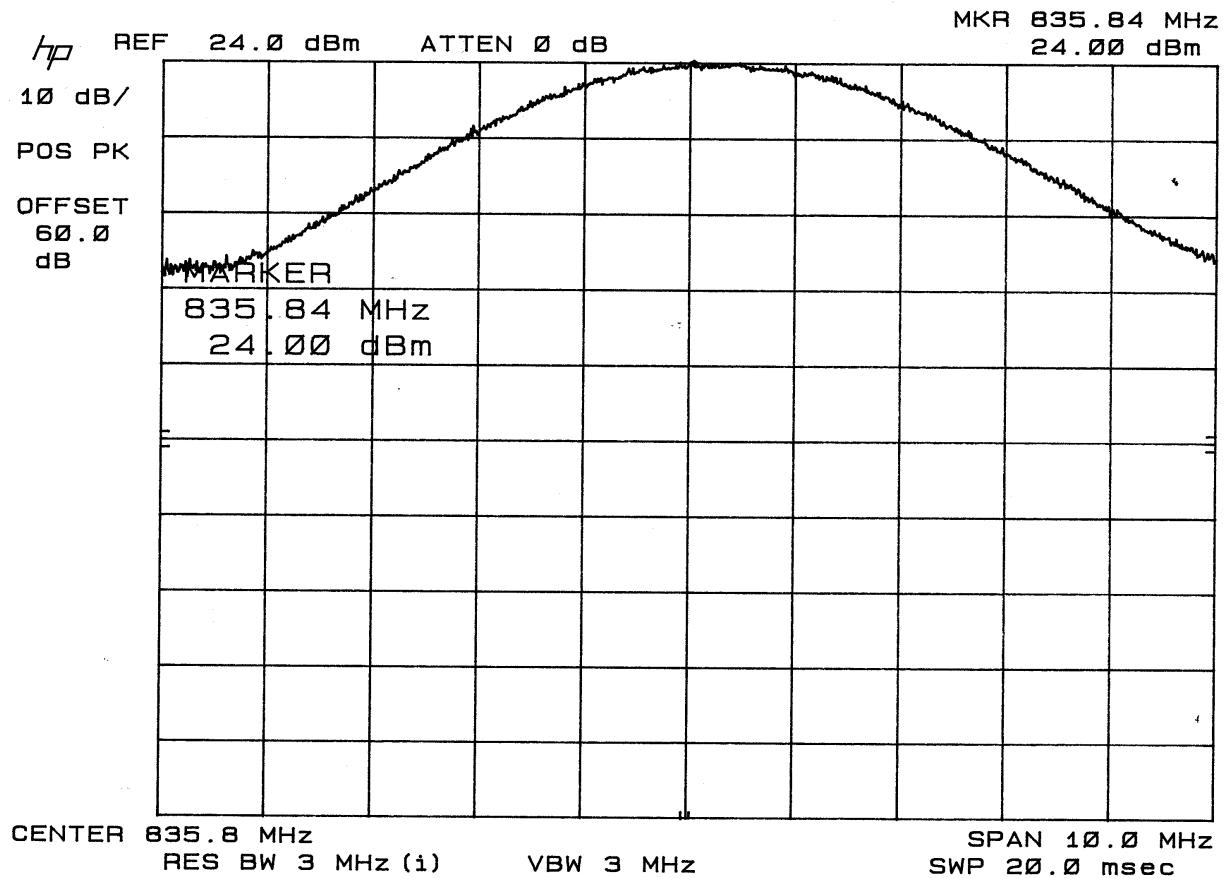
OUTPUT POWER: 0.250mW = 24dBm

Conducted output power was also measured using a Spectrum Analyzer with a 50 Ohm input port:

Low Channel #1013



Mid Channel #383



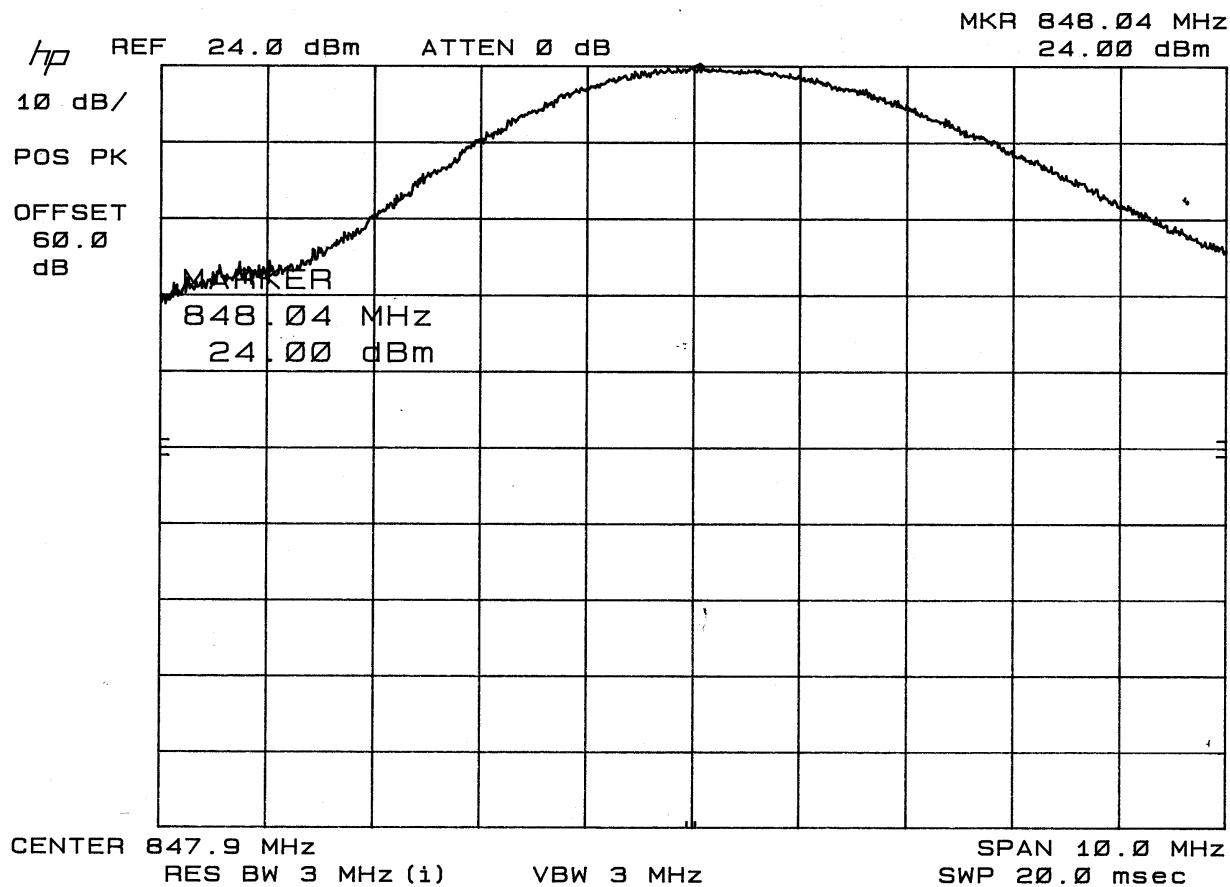
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High Channel #777



#### 22.913 Power Output - Effective Radiated Power - ERP

##### Method of measurement:

This test was conducted per TIA/EIA STANDARD 603 using the substitution method.

Tuned Frequency (MHz)	Polarization (H/V)	ERP (dBm)	ERP (W)
824.7	V	24.0	0.251
835.8	V	23.5	0.224
848.0	V	23.5	0.224

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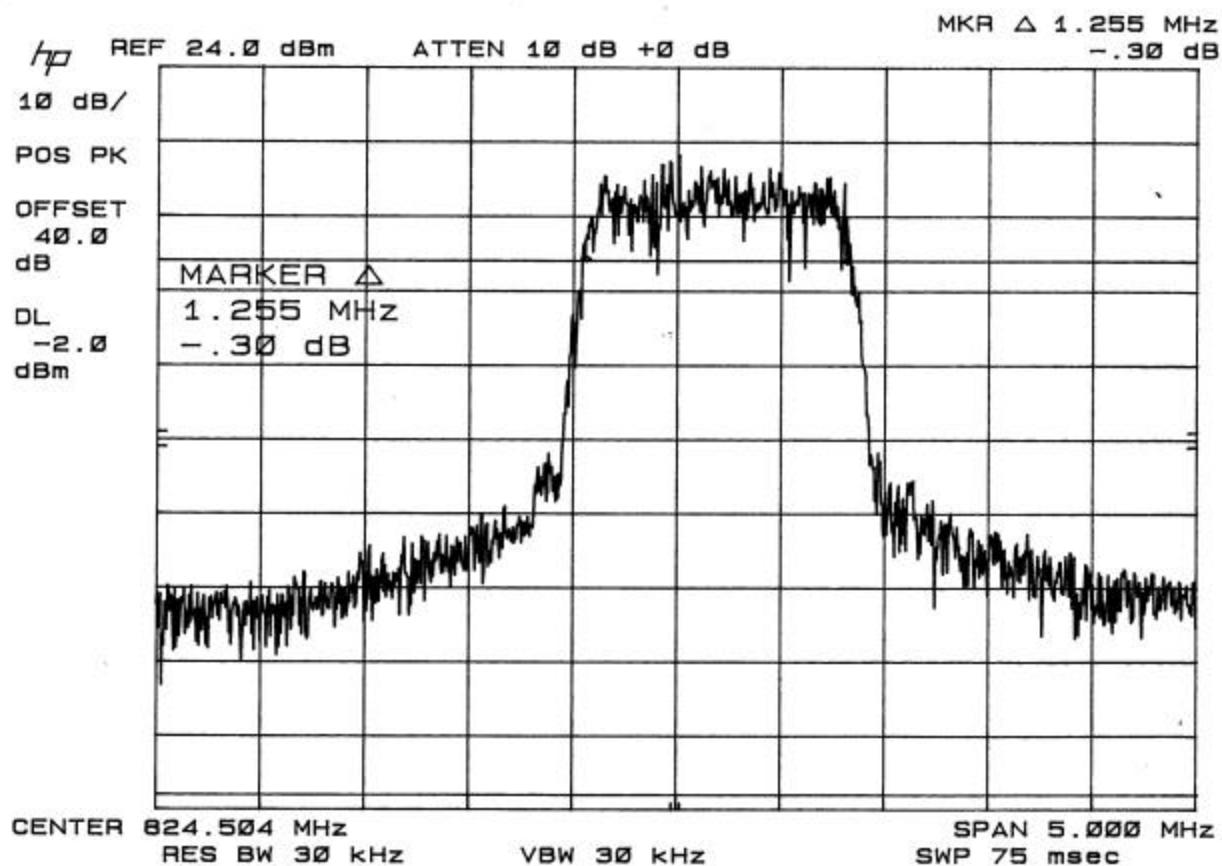
**2.1047(a)      Voice Modulation characteristics:**

NOT APPLICABLE, F9 type of emission.

**2.1047      Audio Low Pass Filter**

This UUT does not have a low pass filter.

**2.1049      Occupied bandwidth: 99% power bandwidth: 1.25MHz**



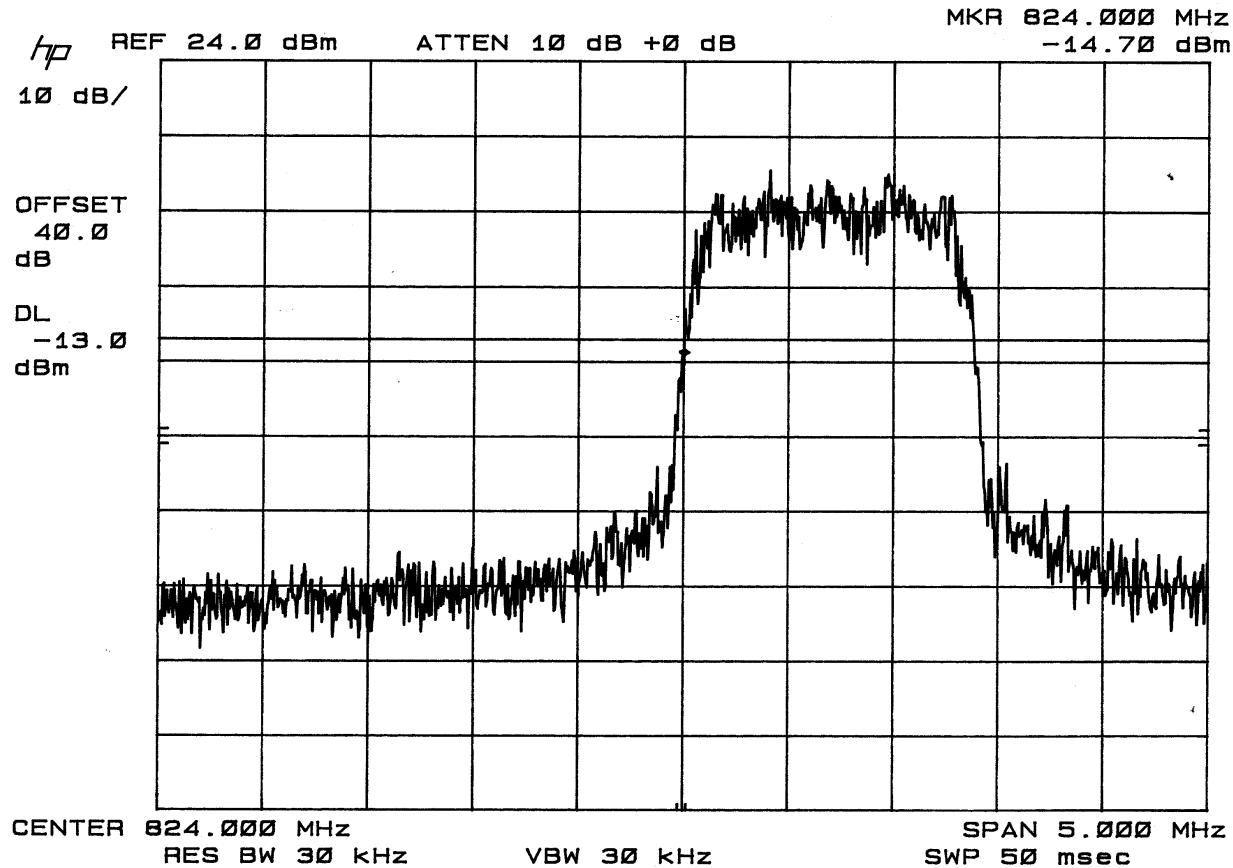
22.917 (e) Out of band emissions: The mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency twice or more than twice the fundamental frequency by: At least  $43 + 10 \log(P_0) \text{ dB}$ .

Band-edges compliance: Measurement were performed in accordance with Part 22.917 (h)

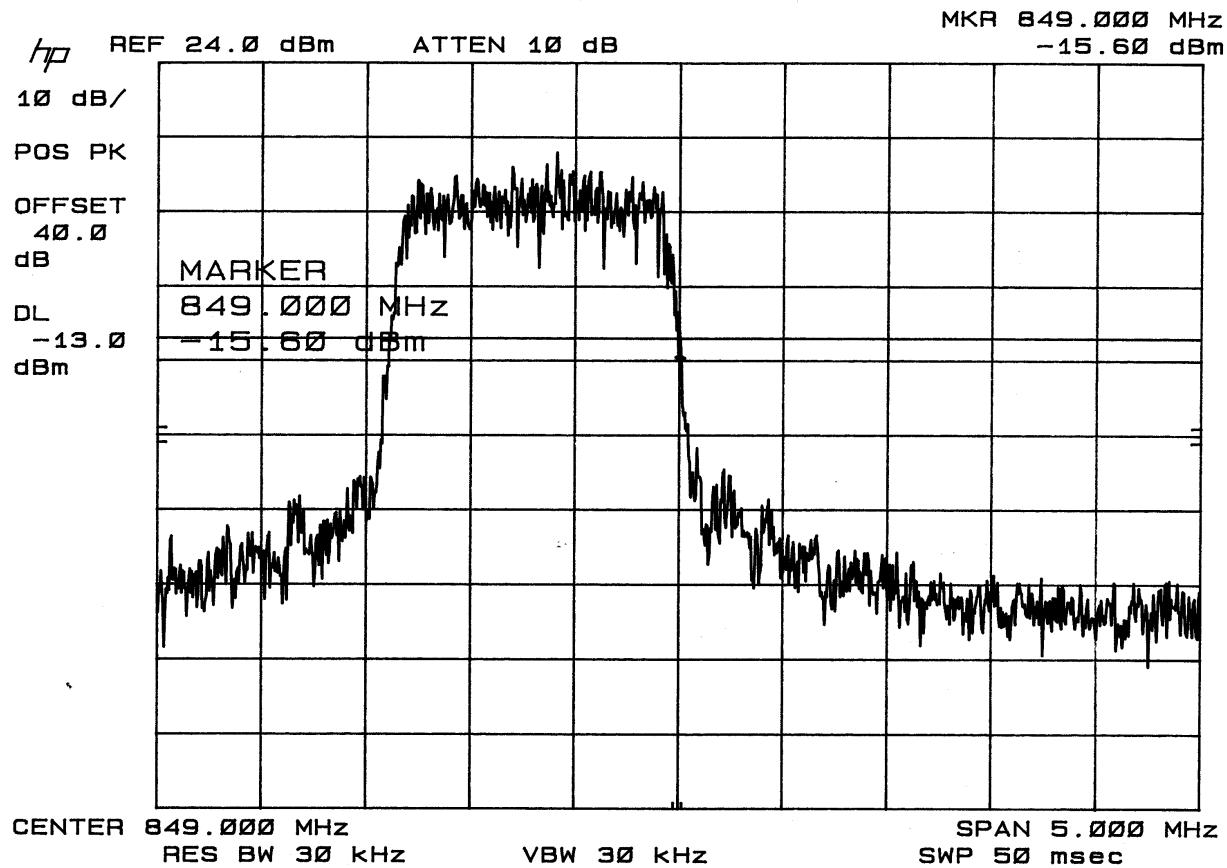
Conducted output power: 24 dBm

Channel (MHz)	Band-edge Frequency (MHz)	Amplitude level at the band-edge(dBm)	Limit (dBm)	Margin (dB)
824.7	824.0	-14.7	-13.0	-1.7
848.0	849.0	-15.6	-13.0	-2.6

Low Channel - Band-edge plot at 824.0 MHz:



High Channel - Band-edge plot at 849.0 MHz:



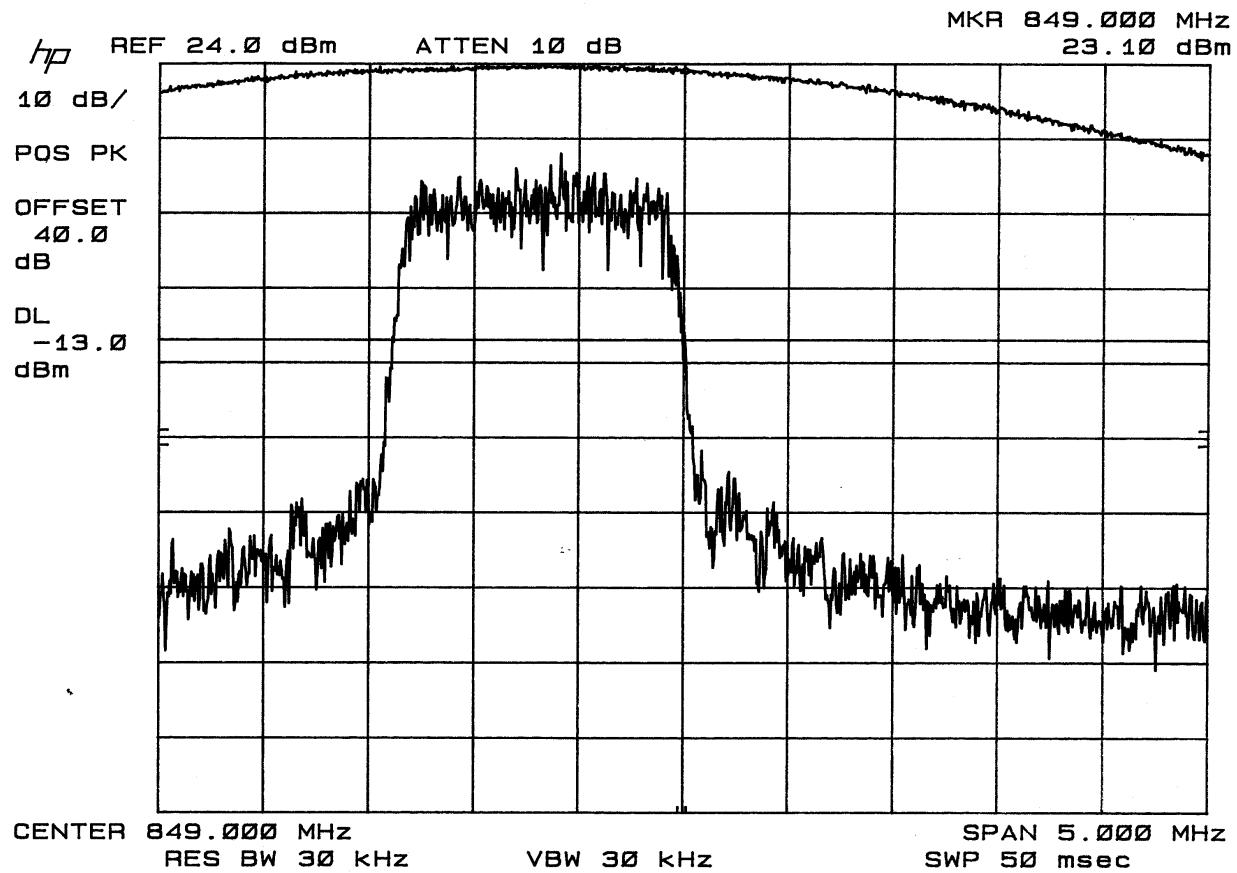
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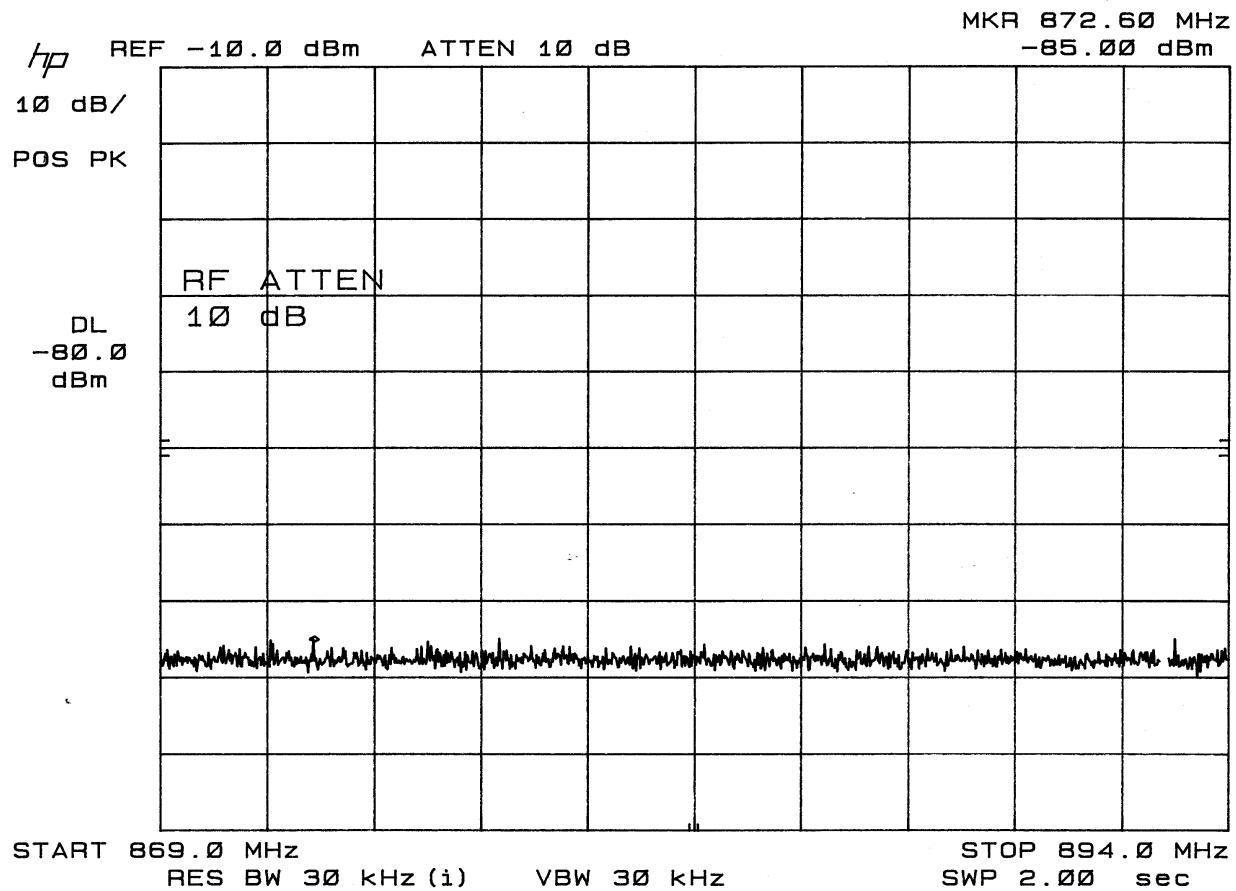
The following plot shows the composite power measured with a RBW = 3MHz = VBW and the modulated envelop measured with a RBW = 30 kHz = VBW



22.917 (f) Mobile emissions in base frequency range:

The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not to exceed - 80 dBm at the transmit antenna connector.

The Low, Mid, and High channels were tested. The worst-case emissions is reported:



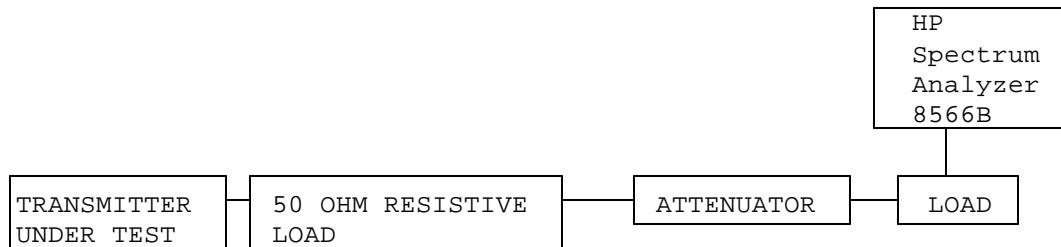
**2.1051****Spurious emissions at antenna terminals:**

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 9kHz to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard TIA/EIA-603.

**REQUIREMENTS:** Emissions must be  $43 + 10\log(P_o)$  dB below the mean power output of the transmitter.  
 $43 + 10\log(0.25) = 43 - 6.0 = 37.0$  dB

EMISSION	dB BELOW
FREQUENCY MHz	CARRIER (dBc)
Low Channel	HIGH POWER
824.7	00.0
1649.4	-59.7
2474.1	< - 57.0
3298.8	< - 57.0
4123.5	< - 57.0
4948.2	< - 57.0
5772.9	< - 57.0
6597.6	< - 57.0
7422.3	< - 57.0
8247.0	< - 57.0
Mid-channel	
835.4	00.0
1670.8	-56.1
2506.2	< - 57.0
3341.6	< - 57.0
4177	< - 57.0
5012.4	< - 57.0
5847.8	< - 57.0
6683.2	< - 57.0
7518.6	< - 57.0
8354.0	< - 57.0
High Channel	
848.0	00.0
1696.0	-61.2
2544.0	< - 57.0
3392.0	< - 57.0
4240.0	< - 57.0
5088.0	< - 57.0
5936.0	< - 57.0
6784.0	< - 57.0
7632.0	< - 57.0
8480.0	< - 57.0

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 pre-selector filter of the spectrum analyzer. The spectrum was scanned from 9kHz 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.

**2.1053 Field strength of spurious emissions:**

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

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

$$43 + 10\log(0.250) = 37.0 \text{ dB}$$

TEST DATA:

EMISSION FREQUENCY MHz	dB BELOW CARRIER (dBc) HIGH POWER
Low Channel	
824.7	00.0
1649.4	< - 57.0
2474.1	< - 57.0
3298.8	< - 57.0
4123.5	< - 57.0
4948.2	< - 57.0
5772.9	< - 57.0
6597.6	< - 57.0
7422.3	< - 57.0
8247.0	< - 57.0
Mid-channel	
835.4	00.0
1670.8	< - 57.0
2506.2	< - 57.0
3341.6	< - 57.0
4177	< - 57.0
5012.4	< - 57.0
5847.8	< - 57.0
6683.2	< - 57.0
7518.6	< - 57.0
8354.0	< - 57.0
High Channel	
848.0	00.0
1696.0	< - 57.0
2544.0	< - 57.0
3392.0	< - 57.0
4240.0	< - 57.0
5088.0	< - 57.0
5936.0	< - 57.0
6784.0	< - 57.0
7632.0	< - 57.0
8480.0	< - 57.0

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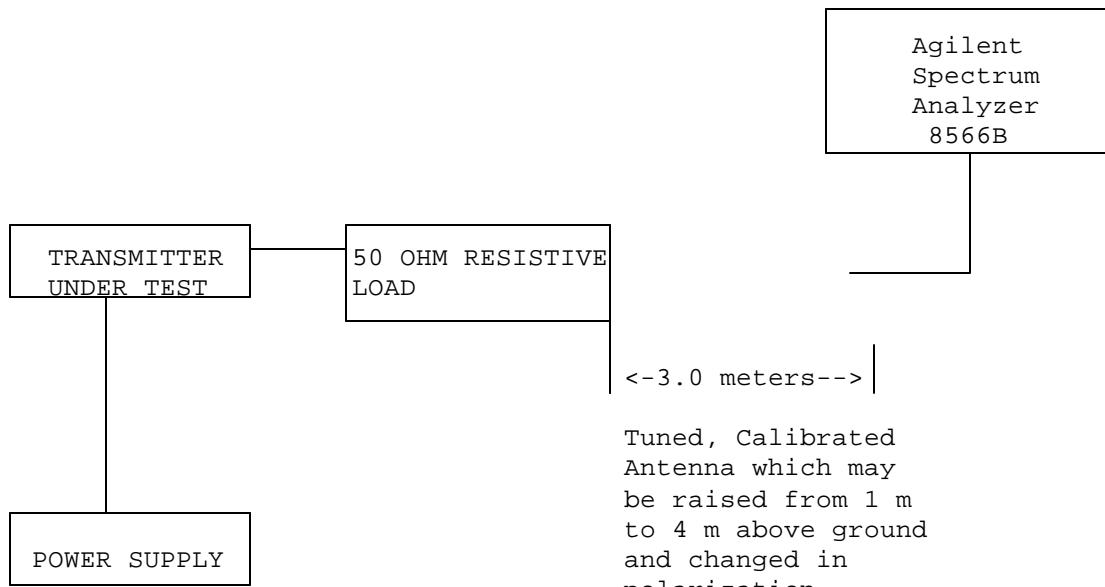
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METHOD OF MEASUREMENTS: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using 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.

Method of Measuring Radiated Spurious Emissions



Equipment placed 80 cm above ground on a rotating table platform.

## 2.105 Frequency stability:

Measurement techniques have been in accordance with TIA/EIA STD 603-1992.

### 22.355: Frequency stability

Temperature and voltage tests were performed to verify that the frequency remains within the .00025%, 2.5 ppm specification limit for Base fixed unit.

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.

#### MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 835.273500 MHz

TEMPERATURE_°C	FREQUENCY_MHz	PPM
REFERENCE	835.273500	0.00
-30	835.274	0.60
-20	835.274000	0.60
-10	835.274	0.60
0	835.274000	0.60
10	835.274000	0.60
20	835.2735	0.00
30	835.2735	0.00
40	835.274	0.60
50	835.2735	0.00

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was +0.6 ppm.

## Equipment List

	DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
X	3-Meter OATS	TEI	N/A	N/A	Listed 12/22/99	12/22/02
	3/10-Meter OATS	TEI	N/A	N/A	Listed 3/26/01	3/26/04
X	Receiver, Beige Tower Spectrum Analyzer (Tan)	HP	8566B Opt 462	3138A07786 3144A20661	CAL 8/31/01	8/31/02
X	RF Preselector (Tan)	HP	85685A	3221A01400	CAL 8/31/01	8/31/02
X	Quasi-Peak Adapter (Tan)	HP	85650A	3303A01690	CAL 8/31/01	8/31/02
	Receiver, Blue Tower Spectrum Analyzer (Blue)	HP	8568B	2928A04729 2848A18049	CHAR 10/22/01	10/22/02
	RF Preselector (Blue)	HP	85685A	2926A00983	CHAR 10/22/01	10/22/02
	Quasi-Peak Adapter (Blue)	HP	85650A	2811A01279	CHAR 10/22/01	10/22/02
	Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
X	Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/02
	Biconnical Antenna	Eaton	94455-1	1057	CHAR 3/15/00	3/15/01
	BiconiLog Antenna	EMCO	3143	9409-1043		
X	Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 10/2/01	10/2/02
	Log-Periodic Antenna	Electro-Metrics	EM-6950	632	CHAR 10/15/01	10/15/02
	Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CHAR 10/16/01	10/16/02
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/21/01	3/21/02
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 11/24/00	11/24/01
	Double-Ridged Horn Antenna	Electro-Metrics	RGA -180	2319	CAL 12/19/01	12/19/02
	Horn Antenna	Electro-Metrics	EM-6961	6246	CAL 3/21/01	3/21/02

	DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
	Horn Antenna	ATM	19-443-6R	None	No Cal Required	
	Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/02
	Line Impedance Stabilization . . .	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/02
	Line Impedance Stabilization . . .	Electro-Metrics	EM-7820	2682	CAL 3/16/01	3/16/02
	Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 5/25/99	(5/25/00)
	Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CAL 12/12/01	12/12/02
	Oscilloscope	Tektronix	2230	300572	CHAR 2/1/01	2/1/02
X	Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 1/22/02	1/22/03
X	AC Voltmeter	HP	400FL	2213A14499	CAL 10/9/01	10/9/02
	AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/02
	AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/02
X	Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/03
	Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/03
	Digital Multimeter	HP	E2377A	2927J05849	CHAR 1/8/02	1/8/03
	Multimeter	Fluke	FLUKE-77-3	79510405	CAL 9/26/01	9/26/02
	Peak Power Meter	HP	8900C	2131A00545	CHAR 1/26/01	1/26/02
	Digital Thermometer	Fluke	2166A	42032	CAL 1/16/02	1/16/03
	Thermometer	Traulsen	SK-128		CHAR 1/22/02	1/22/03
X	Temp/Humidity gauge	EXTech	44577F	E000901	CHAR 1/22/02	1/22/03
	Frequency Counter	HP	5352B	2632A00165	CAL 11/28/01	11/28/02
	Power Sensor	Agilent Technologies	84811A	2551A02705	CAL 1/26/01	1/26/02
	Injection Probe	Fischer Custom Communications	F-120-9A	270	CAL 6/1/01	6/1/02

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DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/00	11/22/01
Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 11/12/99	11/12/00
Signal Generator	HP	8640B	2308A21464	CAL 11/15/01	11/15/02
Modulation Analyzer	HP	8901A	3435A06868	CAL 9/5/01	9/5/02
Power Line Coupling/ Decoupling Network	Fischer Custom Communications	FCC-801-M2-16A	01048	CAL 8/29/01	8/29/02
Power Line Coupling/ Decoupling Network	Fischer Custom Communications	FCC-801-M3-16A	01060	CAL 8/29/01	8/29/02
VHF/UHF Current Probe	Fischer Custom Communications	F-52	130	CAL 8/30/01	8/30/02
Passive Impedance Adapter	Fischer Custom Communications	FCC-801-150-50-CDN	01117 & 01118	CAL 8/29/01	8/29/02
Radiating Field Coil	Fischer Custom Communications	F-1000-4-8/9/10-L-1M	9859	CAL 10/15/98	10/15/99
Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/01	2/1/02
BandReject Filter	Lorch Microwave	5BR4-2400/60-N	Z1	CHAR 3/2/01	3/2/02
BandReject Filter	Lorch Microwave	6BR6-2442/300-N	Z1	CHAR 3/2/01	3/2/02
BandReject Filter	Lorch Microwave	5BR4-10525/900-S	Z1	CHAR 3/2/01	3/2/02
High Pas Filter	Microlab	HA-10N		CHAR 10/4/01	10/4/02
Audio Oscillator	HP	653A	832-00260	CHAR 3/1/01	3/1/02
Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/01	3/2/02
Frequency Counter	HP	5385A	3242A07460	CHAR 12/11/01	12/11/02
Preamplifier	HP	8449B-H02	3008A00372	CHAR 3/4/01	3/4/02
Amplifier	HP	11975A	2738A01969	CHAR 3/1/01	3/1/02
Egg Timer	Unk			CHAR 2/28/01	2/28/02
Measuring Tape, 20M	Kraftixx	0631-20		CHAR 2/28/01	2/28/02
Measuring Tape, 7.5M	Kraftixx	7.5M PROFI		CHAR 2/28/01	2/28/02

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DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
EMC Immunity Test System	Keytek	CEMASTER	9810210		
AC Power Source	California Instruments	1251RP	L05865		
AC Power Source	California Instruments	PACS-1	X71484		
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		
Coaxial Cable #51	Insulated Wire Inc.	NPS 2251-2880	Timco #51	CHAR 1/23/02	1/23/03
Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 1/24/02	1/24/03
Coaxial Cable #65	General Cable Co.	E9917 RG233/U	Timco #65	CHAR 1/23/02	1/23/03
Coaxial Cable #106	Unknown	Unknown	Timco #106	CHAR 1/23/02	1/23/03