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FCC ID: ICK-FRS-4622

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TEST EQUIPMENT LIST

1. X Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/ preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 8/31/01 Due 8/31/02
2.   Biconnical Antenna: Eaton Model 94455-1, S/N 1057, Cal. 10/1/01 Due 10/1/02
3.   Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171 Cal. 4/26/01 Due 4/26/03
4.   Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632 Char. 10/15/01 Due 10/15/02
5. X Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409 Char. 10/16/01 Due 10/16/02
6.   Log-Periodic Antenna: Electro-Metrics Model LPA-25, S/N 1122 Char. 2/10/01 Due 3/10/02
7.   Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319 Cal. 12/19/01 Due 12/19/02
8.   18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20 No Cal Required
9.   Horn 40-60GHz: ATM Part #19-443-6R No Cal Required
10.   Line Impedance Stabilization Network: Electro-Metrics Model EM-7820, w/NEMA Adapter S/N 2682 Cal. 3/16/01 Due 3/16/02
11.   Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7 Char. 1/22/02 Due 1/22/03
12.   Frequency Counter: HP Model 5385A, S/N 3242A07460 Char. 12/11/01 Due 12/11/02
13.   Peak Power Meter: HP Model 8900C, S/N 2131A00545 Char. 1/26/01 Due 1/26/02
14. X Open Area Test Site #1-3meters Cal. 12/22/99
15.   Signal Generator: HP 8640B, S/N 2308A21464 Char. 11/15/01 Due 11/15/02
16.   Passive Loop Antenna: EMC Model 6512, 9KHz to 30MHz, S/N 9706-1211 Char. 7/10/01 Due 7/10/02
17.   Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 152 Char. 3/21/01 Due 3/21/02
18.   AC Voltmeter: HP Model 400FL, S/N 2213A14499 Char. 10/9/01 Due 10/09/02
19. X Digital Multimeter: Fluke Model 77, S/N 35053830 Char. 1/8/02 Due 1/8/03
20.   Oscilloscope: Tektronix Model 2230, S/N 300572 Char. 2/1/01 Due 2/1/02

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## TEST PROCEDURES

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was 57° with a humidity of 43%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	METER READING + ACF = FS
33	20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

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NAME OF TEST: RADIATION INTERFERENCE

RULES PART NUMBER: 15.209

REQUIREMENTS: 1705 to 30 MHz: 49.54 dBuV/M @ 3 METERS  
30 to 88 MHz: 40.00 dBuV/M @ 3 METERS  
88 to 216 MHz: 43.52 dBuV/M  
216 to 960 MHz: 46.02 dBuV/M  
ABOVE 960 MHz: 54.00 dBuV/M

TEST RESULTS: A search was made of the spectrum from 25 MHz to 10<sup>th</sup> harmonic and the measurements indicate that the unit Does meet the FCC requirements.

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
462.70	25.5	H	2.99	17.21	45.70	0.30

SAMPLE CALCULATION:  $FSdBuV/m = MR(dBuV) + ACFdB.$

TEST PROCEDURE: ANSI C63.4-1992 using Hewlett Packard Model 8566B spectrum analyzer, a Hewlett Packard Model 85685A Preselector, a Hewlett Packard Model 85650A Quasi-Peak adapter, Electro-Metric Dipole Kit. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worst case emissions were reported. The EUT was measured in three(3) orthogonal planes. The unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

TEST RESULTS: THE UNIT DOES MEET THE FCC REQUIREMENTS.

PERFORMED BY: JOE SCOGLIO DATE: 2/11/02

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NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.209

REQUIREMENTS: The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

THE GRAPH ON THE FOLLOWING PAGE REPRESENTS THE EMISSIONS TAKEN FOR THE DEVICE.

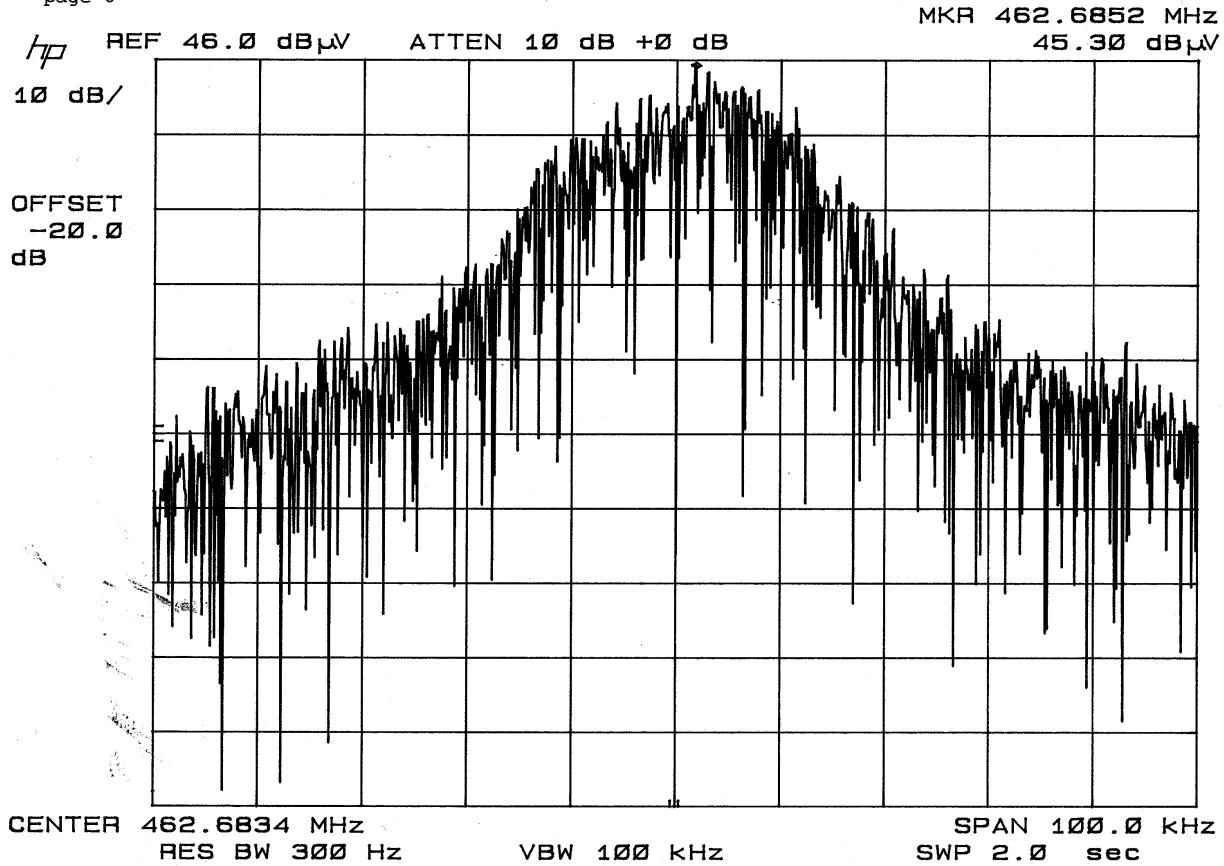
METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the above photo was taken. The vertical scale is set to -10 dBm per division. The horizontal scale is set to 10 kHz per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: JOE SCOGLIO February 11, 2002

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