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FCC ID: LXRRTX900M

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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. 1/19/01
- 2.\_X\_Biconnical Antenna: Eaton Model 94455-1, S/N 1057, Cal 3/15/00
- 3.\_\_\_Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171  
Cal. 3/16/01
- 4.\_X\_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632  
Cal. 3/15/00
- 5.\_\_\_Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409  
Cal. 3/15/00
- 6.\_X\_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,  
1-18 GHz, S/N 2319
- 7.\_\_\_18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
- 8.\_\_\_Horn 40-60GHz: ATM Part #19-443-6R
- 9.\_\_\_Line Impedance Stabilization Network: Electro-Metrics Model  
EM-7820, w/NEMA Adapter S/N 2682 Cal. 3/16/01
- 10.\_\_\_Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7  
Cal. 1/21/01
- 11.\_\_\_Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 11/20/00
- 12.\_\_\_Peak Power Meter: HP Model 8900C, S/N 2131A00545, Cal. 1/26/01
- 13.\_X\_Open Area Test Site #1-3meters Cal. 12/22/99
- 14.\_\_\_Signal Generator: HP 8640B, S/N 2308A21464 Cal. 11/21/00
- 15.\_\_\_Signal Generator: HP 8614A, S/N 2015A07428
- 16.\_\_\_Passive Loop Antenna: EMC0 Model 6512, 9KHz to 30MHz, S/N  
9706-1211 Cal. 6/10/00
- 17.\_\_\_Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153  
Cal. 11/24/00
- 18.\_\_\_AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 2/1/01
- 19.\_\_\_Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
- 20.\_\_\_Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 11/16/00
- 21.\_\_\_Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 2/1/01

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#### TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. The UUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. 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 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the UUT was 78oF with a humidity of 58%.

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 |

ANSI STANDARD C63.4-1992 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

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FCC ID: LXRRTX900M

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NUMBER: 15.249, 15.209

REQUIREMENTS:

|                                                                   |                                       |                                                                                            |
|-------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------|
| FIELD STRENGTH                                                    | FIELD STRENGTH                        | S15.209                                                                                    |
| of Fundamental:<br>902-928 MHz<br>2.4-2.4835 GHz<br>94 dBuV/m @3m | of Harmonics<br><br><br>54 dBuV/m @3m | 30 - 88 MHz 40 dBuV/m @3M<br>88 -216 MHz 43.5<br>216 -960 MHz 46<br>ABOVE 960 MHz 54dBuV/m |

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

TEST RESULTS: This unit DOES meet the FCC requirements.

TEST DATA:

| EMISSION<br>FREQUENCY<br>MHz | METER READING<br>AT 3 METERS<br>dBuV | COAX<br>LOSS<br>dB | ANTENNA<br>CORRECTION<br>FACTOR dB | FIELD<br>STRENGTH<br>dBuV/m@3m | MARGIN<br>dB | ANT.<br>POL. |
|------------------------------|--------------------------------------|--------------------|------------------------------------|--------------------------------|--------------|--------------|
| 914.00                       | 48.10                                | 2.90               | 24.14                              | 75.14                          | 18.86        | V            |
| 1828.10                      | 15.90                                | 1.00               | 27.31                              | 44.22                          | 9.78         | V            |
| 2742.20                      | 1.90                                 | 1.14               | 29.86                              | 32.90                          | 21.10        | V            |

TEST PROCEDURE: ANSI STANDARD C63.4-1992 using a Hewlett Packard Model 8566B spectrum analyzer, a Hewlett Packard Model 85685A Preselector, a Hewlett Packard Model 85650A Quasi-Peak adapter, and an appropriate antenna - see test equipment list. The bandwidth of 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 worse case emissions were reported. The spectrum was searched to at least the tenth(10) harmonic of the fundamental.

PERFORMED BY: JOSEPH SCOGLIO

DATE: MAY 15, 2001

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NAME OF TEST: Occupied Bandwidth  
RULES PART NO.: 15.249  
REQUIREMENTS: The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

THE PLOT ON THE NEXT PAGE REPRESENTS THE EMISSIONS TAKEN FOR THIS DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division. The horizontal scale is set to 5 kHz per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: JOSEPH SCOGLIO

MAY 15, 2001

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