TABLE OF CONTENTS LIST

APPLICANT: TEKCOM INDUSTRIES LTD.

FCC ID: KLLTM-882

TEST REPORT:



EXHIBIT CONTAINING:

## GENERAL_INFORMATION_REQUIRED FOR_TYPE_ACCEPTANCE

2.1033(c) TEKCOM INDUSTRIES LTD. will sell the FCC ID: KLLTM-882 VHF Marine transmitter in quantity, for use under FCC RULES PART 80.

2.1033(c) TECHNICAL_DESCRIPTION

(4) Type of Emission: 10K5G3E/10K5F3E For 20KHz
For 25KHz
Bn = 2M + 2DK
M = 3000
D = 2.250KHz (Peak Deviation)
K = 1
Bn = 2(3.0K) + 2(2.25K)(1) = 6.0K + 4.5 = 10.5K

80.205(A) ALLOWED AUTHORIZED BANDWIDTH = 20.00KHz.

2.1033(c)(5) Frequency Range: 156.050-157.425 MHz

2.1033(c)(6) Power Range and Controls:There is a user Power switch for High/Low Power.
Maximum Output Power Rating: 2.0/0.5 Watts into a 50 ohm resistive load.

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

POWER INPUT
FINAL AMPLIFIER ONLY

| High | Low |
|---|---|
| Vce = 12 Volts | Vce = 12 VDC |
| Ice = 1.51 A. | Ice = 0.490 |
| Pin = 18.12 Watts | Pin = 5.88 Watts |

Function of each electron tube or semiconductor device or other active circuit device: - SEE EXHIBIT# 9

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 5. The block diagram is included as EXHIBIT 4.

2.1033(c)(3) Instruction book. The instruction manual is included as EXHIBIT #6.

2.1033(c) (9) Tune-up procedure. The tune-up procedure is given in EXHIBIT #8.

Description of all circuitry and devices provided for determining and stabilizing frequency is included in the circuit description in the instruction manual.

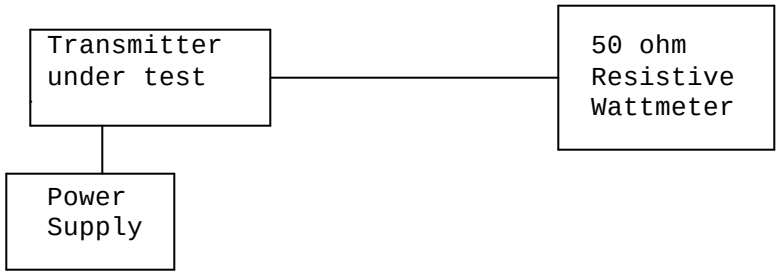
2.1033(c) (13) Digital modulation. This unit does NOT use digital modulation.

The data required by 2.1046 through 2.1055 is submitted below.

2.1046(a) RF_power_output.
80.215(e)(1)

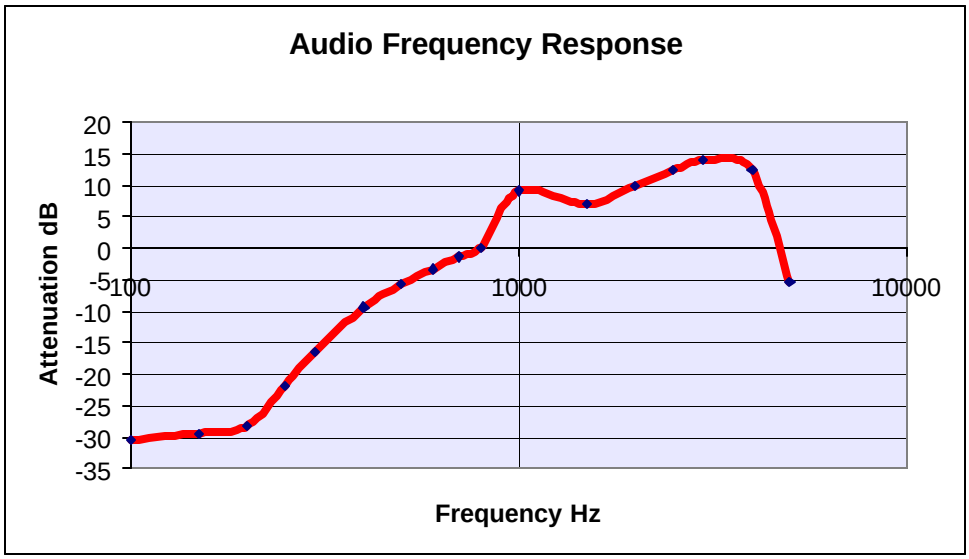
RF power is measured by connecting a 50 ohm, resistive wattmeter to the RF output connector.

METHOD OF MEASURING RF POWER OUTPUT



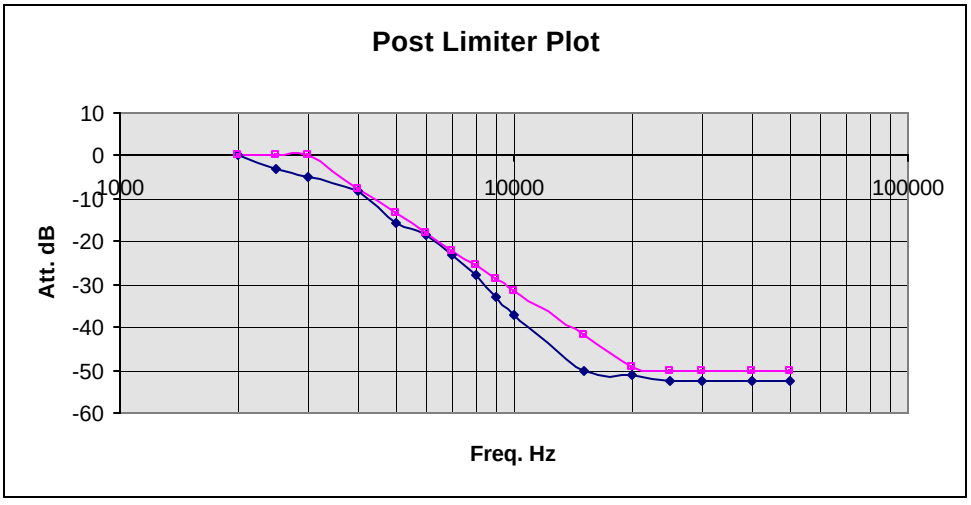
2.1047(a) Voice Modulation_characteristics:

(b) AUDIO_FREQUENCY_RESPONSE See below:

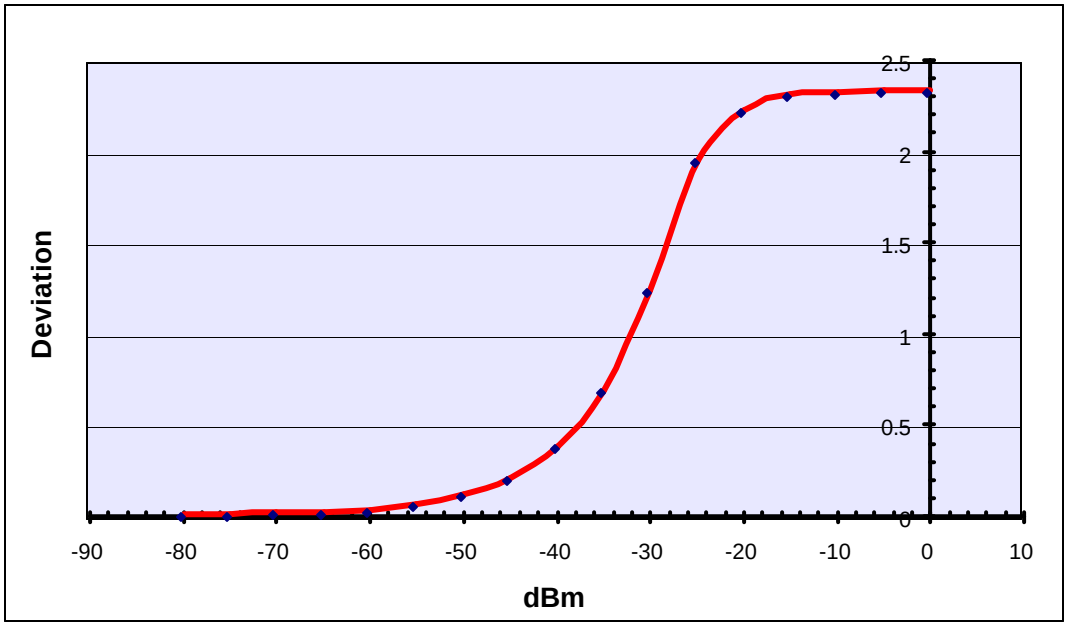



2.1047(a) AUDIO_LOW_PASS_FILTER

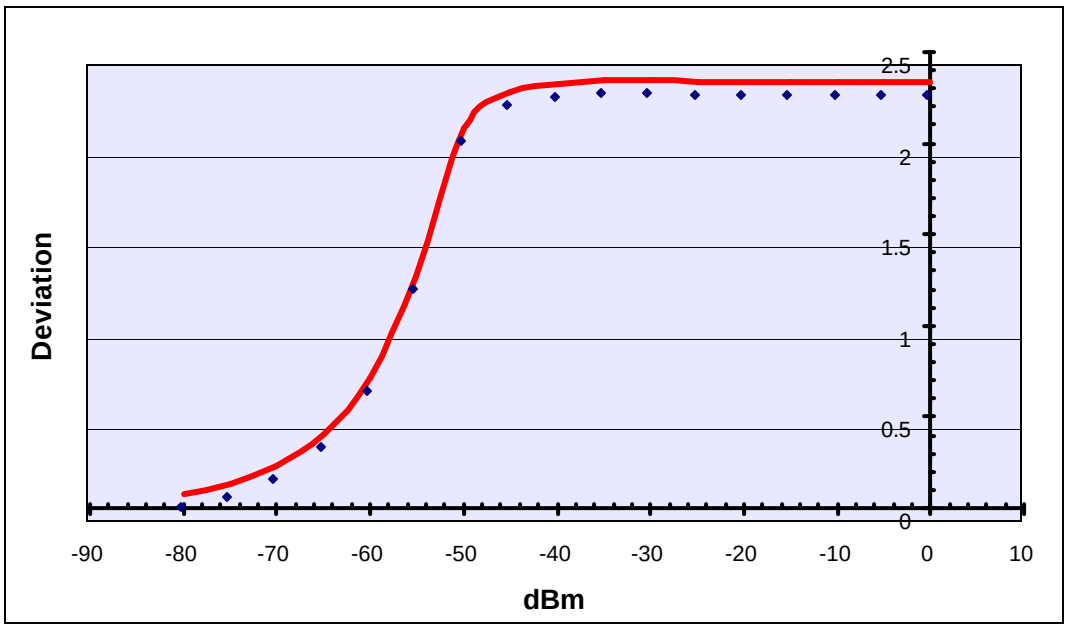
The audio low pass filter is included and the plot is shown as EXHIBIT #9. Rules 80.213(e) for ship stations with a low pass filter.



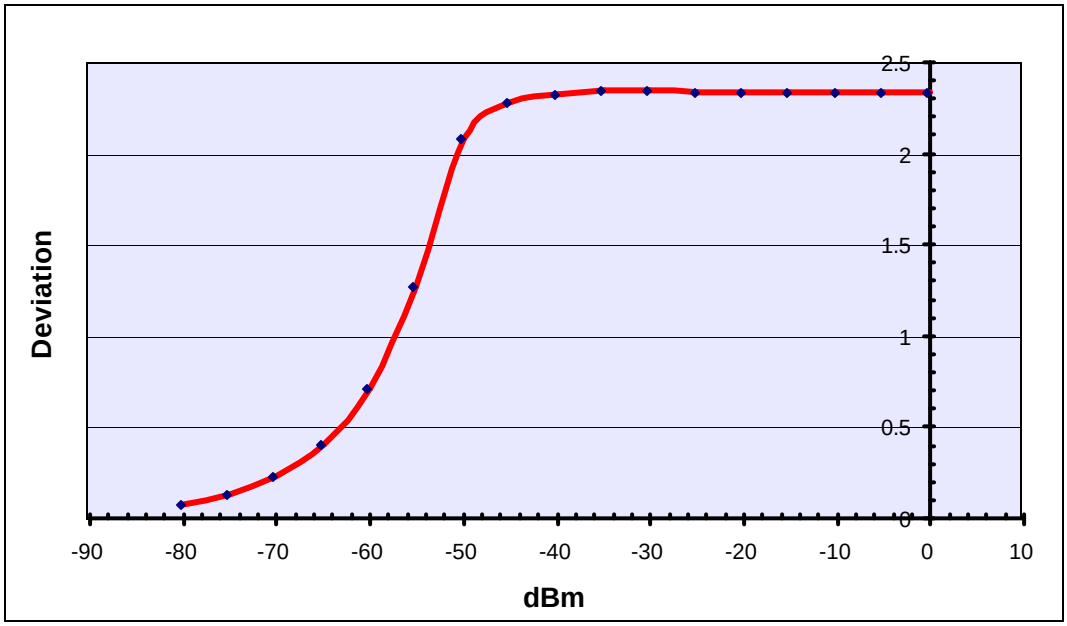
2.1047(b) Audio_input_versus_modulation A plot of the
80.213(d) audio input versus deviation is shown in
in the following three plots.




300Hz




1000Hz




2500Hz

2.1049(c) Occupied_bandwidth:

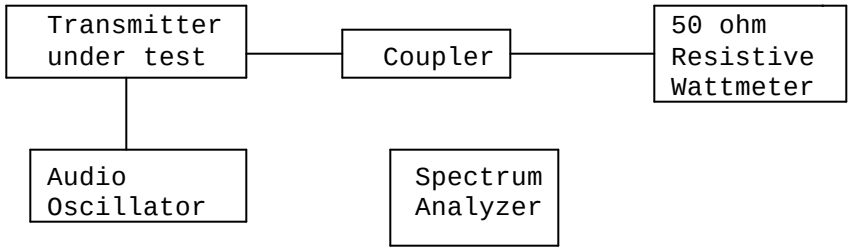
80.213(b)
Data in the plots shows that on any frequency removed from the assigned frequency by more than 50%, but not more than 100%: At least 25dB. On any frequency removed from the assigned frequency by more than 100%, but not more than 250%: At least 35dB. On any frequency removed from the assigned frequency by more than 250%, of the authorized bandwidth: At least 43+log(P)dB.

Radiotelephone transmitter with modulation limiter.

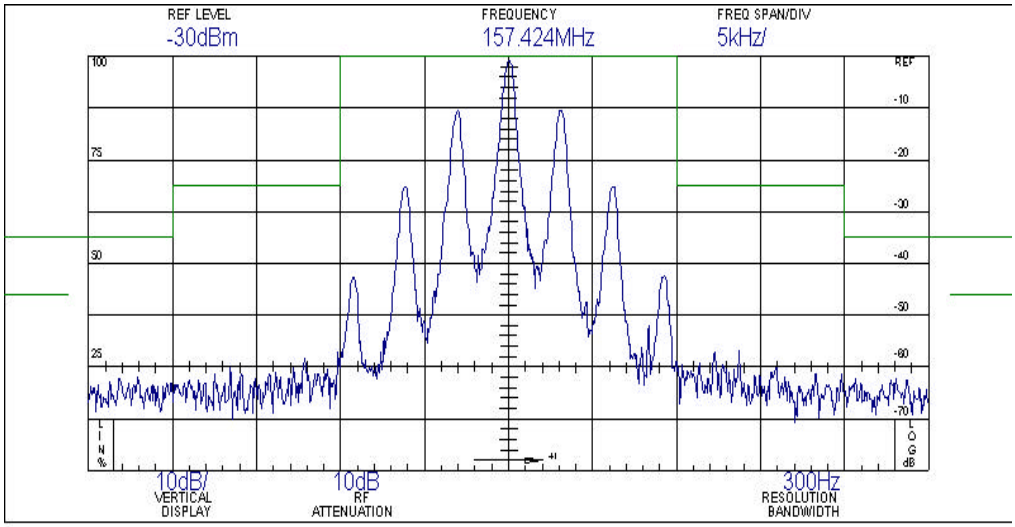
Test procedure: TIA/EIA-603 para 2.2.11 , with the exception that various tones were used.

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT

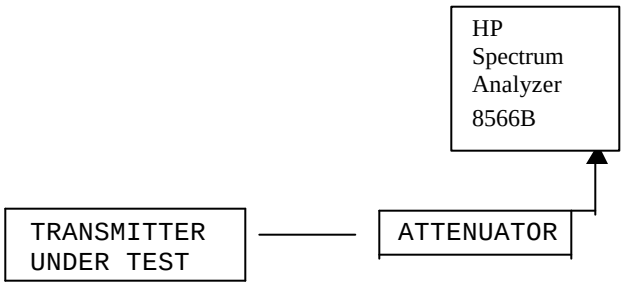


**OCCUPIED BANDWIDTH PLOT**



2.1051 Spurious emissions at antenna terminals(conducted):
80.211 The data on the following page shows the level of conducted spurious responses. The carrier was modulated 100% using a 2500Hz 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.

Method of Measuring Conducted Spurious Emissions




2.1051 Continued Spurious Emissions at the Antenna Terminals:

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.
For 20KHz HIGH POWER 43 + 10log(2) = 43+ 3.0 = 46.0dB
LOW POWER 43 + 10log(.5) = 43 – 3.0 = 40.0dB

| Emission Frequency MHz | High Power dB below carrier | Low Power dB below carrier |
|---|---|---|
| 157.4 | 0 | 0 |
| 314.8 | 56 | 63 |
| 472.3 | 78 | 73 |
| 629.7 | 67 | 68 |
| 787.2 | 78 | 59 |
| 944.6 | 69 | 58 |
| 1102 | 87 | 83 |
| 1259.5 | 78 | 76 |
| 1416.9 | 77 | 74 |
| 1574.4 | 78 | 72 |

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 400KHz 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 STATE ROAD, NEWBERRY FLORIDA 32669.

2.1053(a) 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.

TEST DATA:

43 + 10log(2) = 46

**HIGH POWER**

| **Tuned Frequency MHz** | **Emission Frequency MHz** | **dB Below Carrier** | **dBm** |
|---|---|---|---|
| 156.00 | 156.00 | 0 | 33 |
| | 312.10 | 57 | -24 |
| | 468.10 | 65 | -32 |
| | 624.20 | 70 | -37 |
| | 780.20 | 58 | -25 |
| | 936.30 | 71 | -38 |
| | 1092.40 | 70 | -37 |
| | 1248.40 | 62 | -29 |
| | 1404.50 | 59 | -26 |
| | 1560.5 | 62 | -29 |

| **Tuned Frequency MHz** | **Emission Frequency MHz** | **dB Below Carrier** | **dBm** |
|---|---|---|---|
| 157.40 | 157.40 | 0 | 33 |
| | 314.80 | 62 | -29 |
| | 472.30 | 65 | -32 |
| | 629.70 | 70 | -37 |
| | 787.10 | 54 | -21 |
| | 944.60 | 72 | -39 |
| | 1102.00 | 70 | -37 |
| | 1259.40 | 64 | -31 |
| | 1416.8 | 60 | -27 |
| | 1574.3 | 66 | -33 |

2.1053(a) 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.

TEST DATA:

43 + 10log(.5) = 40

**LOW POWER**

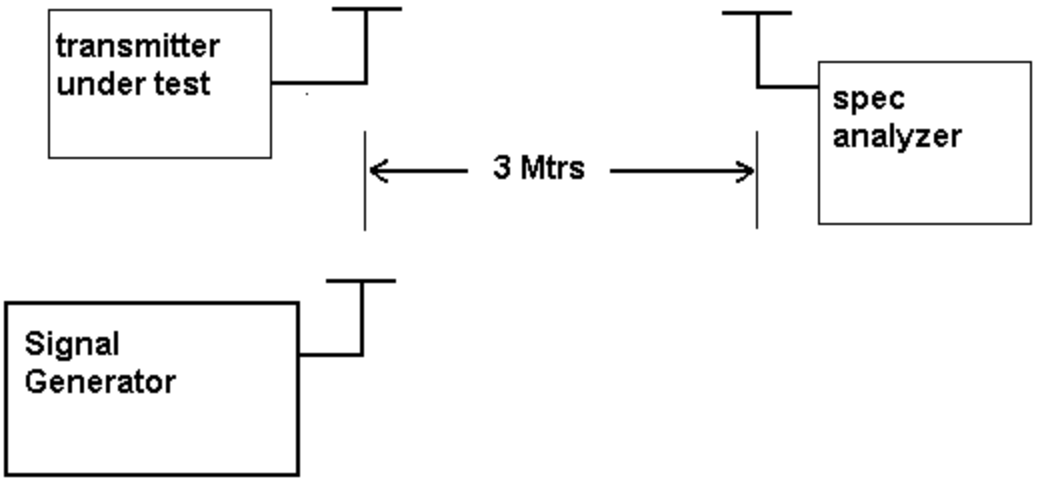
| **Tuned Frequency MHz** | **Emission Frequency MHz** | **dB Below Carrier** | **dBm** |
|---|---|---|---|
| 156.00 | 156.00 | 0 | 27 |
| | 312.10 | 53 | -26 |
| | 468.10 | 65 | -38 |
| | 624.20 | 71 | -44 |
| | 780.20 | 60 | -33 |
| | 936.30 | 72 | -45 |
| | 1092.40 | 69 | -42 |
| | 1248.40 | 62 | -35 |
| | 1404.50 | 58 | -31 |
| | 1560.5 | 60 | -33 |

| **Tuned Frequency MHz** | **Emission Frequency MHz** | **dB Below Carrier** | **dBm** |
|---|---|---|---|
| 157.40 | 157.40 | 0 | 27 |
| | 314.80 | 53 | -26 |
| | 472.30 | 64 | -37 |
| | 629.70 | 70 | -43 |
| | 787.10 | 62 | -35 |
| | 944.60 | 70 | -43 |
| | 1102.00 | 68 | -41 |
| | 1259.40 | 61 | -34 |
| | 1416.80 | 58 | -31 |
| | 1574.30 | 59 | -32 |

METHOD OF MEASUREMENT: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 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 N.W. State Road 45, Newberry, FL 32669.

2.1053(a) Continued Field_strength_of_spurious_emissions:

Method of Measuring Radiated Spurious Emissions



Frequency_stability:

2.1055(a)(2)
80.209(a)

Temperature and voltage tests were performed to verify that the frequency remains within the .0010%,10.0 ppm specification limit, for 20kHz spacing. 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 minus 15% of the battery voltage of 12 V, which we estimate to be the battery endpoint.

MEASUREMENT DATA:

Ref. Freq.
157.425060

| | Data | PPM |
|---|---|---|
| -30C | 157.424326 | -4.66 |
| -20C | 157.425251 | 1.21 |
| -10C | 157.425751 | 4.39 |
| 0C | 157.425857 | 5.06 |
| 10C | 157.425688 | 3.99 |
| 20C | 157.425203 | 0.91 |
| 30C | 157.424809 | -1.59 |
| 40C | 157.424397 | -4.21 |
| 50C | 157.424133 | -5.89 |

| Batt. Volts | Batt. Data | Batt. PPM |
|---|---|---|
| -15% | 157.425052 | -0.05 |
| +15% | 157.42502 | -0.25 |

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

# EMC Equipment List

| | DEVICE | MFGR | MODEL | SERNO | 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 |
| | Receiver, Beige Tower | | | | | |
| | Spectrum Analyzer (Tan) | HP | 8566B Opt 462 | 3138A07786 3144A20661 | CAL 8/31/01 | 8/31/03 |
| | RF Preselector (Tan) | HP | 85685A | 3221A01400 | CAL 8/31/01 | 8/31/03 |
| | Quasi-Peak Adapter (Tan) | HP | 85650A | 3303A01690 | CAL 8/31/01 | 8/31/03 |
| X | Receiver, Blue Tower | | | | | |
| X | Spectrum Analyzer (Blue) | HP | 8568B | 2928A04729 2848A18049 | CHAR 10/22/01 | 10/22/03 |
| X | RF Preselector (Blue) | HP | 85685A | 2926A00983 | CHAR 10/22/01 | 10/22/03 |
| X | Quasi-Peak Adapter (Blue) | HP | 85650A | 2811A01279 | CHAR 10/22/01 | 10/22/03 |
| 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 | CHAR 3/15/00 | 3/15/02 |
| | 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 | CHAR 10/16/01 | 10/16/03 |
| | 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 | CHAR 11/24/00 | 11/24/03 |

| | DEVICE | MFGR | MODEL | SERNO | CAL/CHAR DATE | DUE DATE or STATUS |
|---|---|---|---|---|---|---|
| | Double-Ridged Horn Antenna | Electro-Metrics | RGA-180 | 2319 | CAL 12/19/01 | 12/19/03 |
| | Horn Antenna | Electro-Metrics | EM-6961 | 6246 | CAL 3/21/01 | 3/21/03 |
| | 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 3/16/01 | 3/16/03 |
| | Termaline Wattmeter | Bird Electronic Corporation | 611 | 16405 | CAL 5/25/99 | 5/25/01 |
| | Termaline Wattmeter | Bird Electronic Corporation | 6104 | 1926 | CAL 12/12/01 | 12/12/03 |
| | Oscilloscope | Tektronix | 2230 | 300572 | CHAR 2/1/01 | 2/1/03 |
| | 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 | CAL 9/26/01 | 9/26/03 |
| | Peak Power Meter | HP | 8900C | 2131A00545 | CHAR 1/26/01 | 1/26/03 |
| | Digital Thermometer | Fluke | 2166A | 42032 | CAL 1/16/02 | 1/16/04 |
| | Thermometer | Traulsen | SK-128 | | CHAR 1/22/02 | 1/22/04 |
| X | Temp/Humidity gauge | EXTech | 44577F | E000901 | CHAR 1/22/02 | 1/22/04 |

| | DEVICE | MFGR | MODEL | SERNO | CAL/CHAR DATE | DUE DATE or STATUS |
|---|---|---|---|---|---|---|
| | Frequency Counter | HP | 5352B | 2632A00165 | CAL 11/28/01 | 11/28/03 |
| | Power Sensor | Agilent Technologies | 84811A | 2551A02705 | CAL 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 11/15/01 | 11/15/03 |
| | Modulation Analyzer | HP | 8901A | 3435A06868 | CAL 9/5/01 | 9/5/03 |
| | 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 Pas Filter | Microlab | HA-10N | | CHAR 10/4/01 | 10/4/03 |
| | 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 | CHAR 12/11/01 | 12/11/03 |
| | 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 |

| | DEVICE | MFGR | MODEL | SERNO | CAL/CHAR DATE | DUE DATE or STATUS |
|---|---|---|---|---|---|---|
| | 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 |