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APPLICANT: GREAT POWER ELECTRONIC PRODUCTS CO.

FCC ID: GEG GP886T

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TEST EQUIPMENT LIST

1. Spectrum Analyzer: Hewlett Packard 8566B - Opt 462, w/ preselector 85685A, & Quasi-Peak Adapter HP 8565OA, & HP 8449B - OPT H02 Cal. 6/26/98
2. Signal Generator, Hewlett Packard 8640B, cal. 6/26/98
3. Eaton Biconnical Antenna Model 94455-1 20-200 MHz Serial No. 0997 Cal. 5/15/98
4. Electro-Metric Dipole Kit, 20-1000 MHz, Model TDA 25 cal. 5/15/97
5. Electro-Metric Horn 1-18 GHz, Model RGA-180, Cal. 8/15/98
6. Electro-Metric Antennas Model TDS-25-1, TDS-25-2, 5/15/97
7. Electro-Metric Line Impedance Stabilization Network Model No. EM-7821, Serial No. 101; 100KHz-30MHz 50uH. 12/3/97
8. Electro-Metric Line Impedance Stabilization Network Model No. EM-7820, Serial No. 2682; 10KHz-30MHz 50uH. 12/3/97

TEST PROCEDURE

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. The bandwidth 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 300KHz. The ambient temperature of the UUT was 81oF with a humidity of 70%.

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

TEST PROCEDURES CONTINUED

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ANSI STANDARD C63.4-1992 10.1.7 MEASUREMENT PROCEDURES: The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. 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.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSIC63.4-1992 with the EUT 40 cm from the vertical ground wall.

CIRCUIT DESCRIPTION:

In the transmit mode the momentary switch SW3 provides input to the transistor Q4 to be switched to the crystal. Additionally, the SW3 puts the speaker, SP1 at the input of the the audio amplifiers Q3, Q2, & Q1. Q1 drives the Transformer T1 which modulates the voltage going to the crystal controlled oscillator Q4. The RF frequency is determined by the crystal X'TAL . This output is fed into the tuned circuit made up of L1/C11/C12 & then to the low pass filter made up of C13 & L2. It is then fed to the antenna.

ANTENNA AND GROUND CIRCUITRY

This unit makes use of an external 5" antenna. The antenna is inductively coupled. This unit is powered from a 9.0V battery.

No ground connection is provided. The unit relies on the ground tract of the printed circuit board.

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FCC ID: GEG GP886T

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.227

REQUIREMENTS: CARRIER FREQUENCY WILL NOT EXCEED 80 dBuV/m AT 3M.
OUT-OF-BAND EMISSIONS SHALL NOT EXCEED:

30 - 88 MHz	40.0 dBuV/M	MEASURED AT 3 METERS
88 - 216 MHz	43.5 dBuV/M	
216 - 960 MHz	46.0 dBuV/M	
ABOVE 960 MHz	54.0 dBuV/M	

TEST DATA:

EMISSION FREQUENCY MHz	METER READING AT 3 METERS dBuV	COAX LOSS dB	ANTENNA CORRECTION FACTOR dB	FIELD STRENGTH dBuV/m@3m	MARGIN dB	ANT. POL.
27.15	51.20	0.20	11.75	63.15	16.85	H
54.29	13.70	0.80	9.61	24.11	15.89	V
81.44	15.80	0.80	12.13	28.73	11.27	H
108.58	13.60	0.80	8.38	22.78	20.72	V
135.73	14.10	0.80	15.32	30.22	13.28	V
162.87	5.50	0.90	17.17	23.57	19.93	V
190.02	19.30	0.90	13.67	33.87	9.63	V
217.16	17.10	1.20	12.42	30.72	15.28	V
244.31	24.50	1.20	13.21	38.91	7.09	V
271.45	15.30	1.40	14.00	30.70	15.30	V
298.60	18.50	1.40	15.61	35.51	10.49	V
325.74	10.30	1.40	14.85	26.55	19.45	V
352.89	23.00	1.40	15.63	40.03	5.97	V
380.03	21.50	1.40	16.42	39.32	6.68	V
407.18	16.20	1.60	17.17	34.97	11.03	V

SAMPLE CALCULATION:

FSdBuV/m = MR(dBuV) + ACFdB.

TEST PROCEDURE: The procedure used was ANSI STANDARD C63.4-1992. The spectrum was scanned from 30 MHz to 1000 MHz. 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 UUT was tested in 3 orthogonal planes.

TEST RESULTS: THE UNIT DOES MEET THE FCC REQUIREMENTS.

PERFORMED BY:__S.S.Sanders_____ DATE: SEPTEMBER 22, 1998

APPLICANT: GREAT POWER ELECTRONIC PRODUCTS CO.

FCC ID: GEG GP886T

NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.227

REQUIREMENTS: The field strength of any emissions appearing outside the 26.96-27.28 MHz band shall not exceed 100 uV/m (15.209).

THE GRAPH ON THE FOLLOWING PAGE REPRESENTS THE WORSE CASE OCCUPIED BANDWIDTH EMISSIONS FOR THIS DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was taken. 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:___S.S.Sanders_____ SEPTEMBER 22, 1998