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FCC ID: GLE136002

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TEST EQUIPMENT LIST

1. ☒ 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. 10/17/99
2. ☒ Biconnical Antenna: Eaton Model 94455-1, S/N 1057
3. ☐ Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
4. ☒ Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
5. ☐ Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
6. ☐ Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319
7. ☐ Horn 40-60GHz: ATM Part #19-443-6R
8. ☐ Line Impedance Stabilization Network: Electro-Metrics Model
ANS-25/2, S/N 2604 Cal. 2/9/00
9. ☐ Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
10. ☐ Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99
11. ☐ Peak Power Meter: HP Model 8900C, S/N 2131A00545
12. ☒ Open Area Test Site #1-3meters Cal. 12/22/99
13. ☐ Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
14. ☐ Signal Generator: HP 8614A, S/N 2015A07428
15. ☒ Passive Loop Antenna: EMC0 Model 6512, 9KHz to 30MHz, S/N
9706-1211 Cal. 6/10/00
16. ☐ Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
Cal. 11/24/99
17. ☐ AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
18. ☐ Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
19. ☐ Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
20. ☐ Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99

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 81o with a humidity of 81%.

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TEST PROCEDURE CONT.'D AND
CIRCUIT DESCRIPTION

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

CIRCUIT DESCRIPTION:

When transmitting, the momentary switches provide input to the encoder integrated circuit TX-5B. The output of the IC modulates the base of the RF amplifier transistor Q2. Q1 is the crystal oscillator. The antenna is coupled to the output of Q2 through the pi-network consisting of C1, C2, and L1.

ANTENNA AND GROUND CIRCUITRY

This unit makes use of a 21 cm long flexible antenna and is self contained. No provision is made for an external antenna. This unit is powered from a 9.0V battery.

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

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FCC ID: GLE136002

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	PEAK FIELD STRENGTH dBuV/m@3m	MARGIN dB	ANT. POL.
27.15	58.10	0.20	11.75	70.05	9.95	V
54.29	23.40	0.80	9.61	33.81	6.19	V
81.44	18.10	0.80	12.13	31.03	8.97	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: MARIO R. DE ARANZETA

DATE: JULY 17, 2000

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APPLICANT: SUNCON TOYS INDUSTRY LTD.
FCC ID: GLE136002
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 IN EXHIBIT 10 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: MARIO R. DE ARANZETA JULY 17, 2000

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