TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: sid@timcoengr.com

Test Report

Product Name: R/C MINI JET HOVERCRAFT

FCC ID: AEKA30449

Applicant:

**TAIYO KOGYO CO., LTD.**
**NO 1-23-17, HIGASHIYOTSUGI**
**KATSUSHIKA-KU**
**TOKYO 124**
**JAPAN**

**Date Receipt: JANUARY 29, 2004**

**Date Tested: FEBRUARY 3, 2004**

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**APPLICANT:** TAIYO KOGYO CO., LTD.

**FCC ID:** AEKA30449

**TEST REPORT CONTAINING:**



**EXHIBITS INCLUDING:**

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# Equipment List

| Device | Manufacturer | Model | Serial Number | Cal/Char Date | Due Date |
|---|---|---|---|---|---|
| 3/10-Meter OATS | TEI | N/A | N/A | Listed 3/26/01 | 3/26/04 |
| 3-Meter OATS | TEI | N/A | N/A | Listed 1/13/03 | 1/13/06 |
| Biconnical Antenna | Eaton | 94455-1 | 1057 | CAL 3/18/03 | 3/18/05 |
| Biconnical Antenna | Eaton | 94455-1 | 1096 | CAL 10/1/01 | 10/1/03 |
| Biconnical Antenna | Electro-Metrics | BIA-25 | 1171 | CAL 4/26/01 | 4/26/03 |
| Blue Tower Quasi-Peak Adapter | HP | 85650A | 2811A01279 | CAL 4/15/03 | 4/15/05 |
| Blue Tower RF Preselector | HP | 85685A | 2926A00983 | CAL 4/15/03 | 4/15/05 |
| Blue Tower Spectrum Analyzer | HP | 8568B | 2928A04729 2848A18049 | CAL 4/15/03 | 4/15/05 |
| LISN | Electro-Metrics | ANS-25/2 | 2604 | CAL 10/9/01 | 10/9/03 |
| LISN | Electro-Metrics | EM-7820 | 2682 | CAL 3/12/03 | 3/12/05 |
| Log-Periodic Antenna | Eaton | 96005 | 1243 | CAL 5/8/03 | 5/8/05 |

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## 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 pre-selector. 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 100 kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was 80°C with a humidity of 76%.

**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 Pre-selector 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 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.

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**APPLICANT**: TAIYO KOGYO CO., LTD.

**FCC ID**: AEKA30449

**NAME OF TEST**: RADIATION INTERFERENCE

**RULES PART NO.**: 15.235

**REQUIREMENTS**: CARRIER FREQUENCY WILL NOT EXCEEDS 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 dBuV | Ant. Polarity | Coax Loss dB | Correction Factor dB | Field Strength dBuV/m | Margin dB |
|---|---|---|---|---|---|---|
| 49.86 | 54.5 | H | 0.80 | 11.49 | 66.79 | 13.21 |
| 49.86 | 65.1 | V | 0.80 | 11.27 | 77.17 | 2.83 |
| 99.75 | 6.7 | H | 1.20 | 11.21 | 19.11 | 24.39 |
| 99.76 | 7.6 | V | 1.20 | 11.84 | 20.64 | 22.86 |
| 149.65 | 0.1 | V | 1.40 | 14.30 | 15.80 | 27.70 |
| 199.53 | -1.0 | V | 1.80 | 17.21 | 18.01 | 25.49 |
| 249.30 | 11.2 | H | 2.00 | 12.77 | 25.97 | 20.03 |
| 249.30 | 16.0 | V | 2.00 | 12.46 | 30.46 | 15.54 |
| 299.19 | 9.8 | V | 2.20 | 13.62 | 25.62 | 20.38 |

**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: SID SANDERS** **DATE: FEBRUARY 3, 2004**

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**APPLICANT:** TAIYO KOGYO CO., LTD.

**FCC ID:** AEKA30449

**NAME OF TEST:** Occupied Bandwidth

**RULES PART NO.:** 15.235

**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 un-modulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

**TEST DATA:**

**THE GRAPH ON THE NEXT 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 attached plot was taken. The vertical scale is set to 10 dB per division. The horizontal scale is set to 5 kHz per division.

**TEST RESULTS:** The unit DOES meet the FCC requirements.

**PERFORMED BY: SID SANDERS** **DATE: FEBRUARY 3, 2004**

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## OCCUPIED BANDWIDTH

**NOTES:**