**APPLICATION FOR CERTIFICATION**
**ON BEHALF OF**
**TAIYO KOGYO Co. LTD.**
**R/C RECEIVER - BMX**
**FCC ID:AEKA03749R**
**February 19, 2001**

## I. INTRODUCTION

This measurement report is submitted in support of an Application for Certification in accordance with Part 2, Subpart J and Part 15, Subpart B (effective 6/23/89) of the Federal Communications Commission's Rules and Regulations.

The equipment under test (EUT) is a ***superregenerative*** receiver, which decodes commands from a separate handheld transmitter. This receiver operates at a fixed frequency within the band from 49.82 to 49.90 MHz and is powered by five 1.5 volt, AA batteries. The EUT is identified as Receiver (FCC ID:AEKA03749R). Operation under the transition provisions of Paragraph 15.37 is not requested for this device. The measurements contained in this report demonstrate compliance with the limitations in effect since 6/23/89.

## II. INFORMATION REQUIRED FOR CERTIFICATION

| | Paragraph(s) | |
|---|---|---|
| (1) | 2.1033(a) | This application for certification is filed on FCC Form 731 with all questions answered. |
| | 2.1033(b)(1) | the full name and mailing address of the manufacturer of the device and applicant for certification is:<br><br>Taiyo Kogyo Co., Ltd.<br>No. 1-23-17, Higashiyotsugi<br>Katsushika-ku, Tokyo<br>Japan |
| (2) | The FCC Identifier of the device is AEKA03749R. | |

(3) A copy of the installation and operating instructions to be furnished to the user, or a draft copy of such instructions, is included in this exhibits section of this application.

(4) This device is a superregenerative receiver powered by five 1.5 volt, AA batteries. It is designed to operate on a fixed frequency in the band 49.82 to 49.90 MHz.

(5) A block diagram of the device is included in the exhibit's section of this application. Schematics are also provided in the exhibit's section of this application.

(6) A report of measurements is included with this report.

(7) Photographs of this device showing its general appearance, the FCC Label and its placement are included in the exhibit's section of this application.

(8) This equipment is a stand-alone unit. No peripherals or accessories are involved.

(9) Certification under the transition provisions of Paragraph 15.37 is not being requested for this device.

(10) N/A.

## III. GENERAL TEST CONDITIONS AND PROCEDURES

Measurement procedures were used as outlined in MP-1, as specified in Part 15.31, except as noted herein. The open field tests were performed on a three-meter range maintained by Carl T. Jones Corporation at the Springfield facility. Complete description and measurement data for the site have been placed on file with the Commission. Carl T. Jones Corporation is listed by the FCC as a facility available to do measurement work for others on a contract basis. Prior to open-field testing, the equipment was placed in a shielded enclosure and scanned at a distance of 1 meter to determine its emission characteristics.

## IV. RADIATED EMISSION MEASUREMENTS

The receiver was assembled on a rotatable wooden test stand approximately one meter in height. The receiver's antenna was fully extended. Because of the superregenerative nature of the receiver, an unmodulated RF signal was transmitted to it during testing in order to insure proper functionality. The emission spectrum was examined from 30 MHz to 1000 MHz using a Hewlett-Packard 8568B spectrum

analyzer and Compliance Design "Roberts" tuned dipole antennas.

At each emission frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization's. The spectrum analyzer's 6 dB bandwidth was set to 100 kHz. The analyzer was operated in the CISPR quasi-peak detection mode for measurements of all emissions less than 1000 MHz. No post-detector video filters were used. The EUT was investigated in three orthogonal planes. There were no detectable emissions observed during the EUT's initial scan.

***Test Results:*** Because there were no detectable emissions observed during the 1-meter initial scan, the EUT was not taken to the open-area-test-site. See attached 1-meter spectral plots. The EUT complied with the FCC Limits.

**Note: *SEE ENCLOSED INITIAL FREQUENCY SCAN SPECTRAL PLOTS***.

The actual field intensity in decibels above one microvolt per meter (dBµV/m) is determine by algebraically adding the measured level in dBµV, the antenna factor (dB), and the cable loss (dB) at the appropriate frequency.

$FI_a$ (dBµV/m) = $FI_m$ (dBµV) + AF (dB) + CL (dB)
$FI_a$ = Actual Field Intensity
$FI_m$ = Measured Field Intensity
AF = Antenna Factor
CL = Cable Loss

***As a sample calculation***, assume a particular device emits a signal with a frequency of 49.96 MHz. The received signal level is measured as 42.0 dBµV. The total attenuation factor (antenna factor plus cable loss) for 49.96 MHz is 4.7 dB. The actual radiated field is calculated as follows:

42 dBµV + 4.7 = 46.7 dBµV/m

**In no case did the radiated emissions exceed the limits specified in Paragraph 15.109(a) of the Commission's Rules.**

## V. POWER LINE CONDUCTED EMISSIONS MEASUREMENTS

Measurements of the power line conducted emissions were not performed since the EUT has no means for connection to the public utility power grid.

**TABLE 1**
**FIELD STRENGTH**
**RADIATED EMISSIONS DATA SHEET**

| EMISSION FREQUENCY (MHZ) | ANTENNA POLARITY (H,V) | EMISSION LEVEL (dBuV) | ANTENNA FACTOR AND CABLE LOSS (dB) | EMISSION LEVEL (dBuV/m) | FCC LIMIT (3 METERS) (dBuV/m) |
|---|---|---|---|---|---|

Note: No detectable emissions were observed during the 1 meter scan, therefore the EUT was not taken to the open-area-test-site.

**See attached spectral plots.**

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|---|---|
| CLIENT: | TAIYO KOGYO |
| FCC ID: | AEKA03749R |
| MODEL: | BMX |
| TEST DATE: | 02/16/01 |
| TEST ENGINEER: | Michael A. Nicolay |