ADVANCED
COMPLIANCE LABORATORY

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# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

RADIO CONTROL TRANSMITTER
MODEL: 906B
FCC ID: LIE906B

*July 10, 2002*

This report concerns (check one): Original grant __x__ Class II change _____
Equipment type: Low Power Intentional Radiator

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes _____ no __x__
If yes, defer until: _____ (date)
Company agrees to notify the Commission by _____ (date)
of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? yes _____ no __x__
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR [10-1-90 Edition] provision.

| | |
|---|---|
| Report prepared for: | WELL-TECH TOYS CO., LTD. |
| Report prepared by: | Advanced Compliance Lab |
| Report number: | 0048-020701-02T |

NVLAP

**The test result in this report IS supported and covered by the NVLAP accreditation**

# Table of Contents

# Figures

# 1. GENERAL INFORMATION

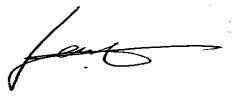
## 1.1 Verification of Compliance

| | |
|---|---|
| EUT: | RADIO CONTROL TRANSMITTER |
| Model: | 906B |
| Applicant: | WELL-TECH TOYS CO., LTD..<br>RM 1004, CHINACHEM GOLDEN PLAZA<br>77 MODY ROAD, TSIMSHATSUI EAST<br>KOWLOON, HONGKONG |
| Test Type: | FCC Part 15C CERTIFICATION |
| Result: | PASS |
| Tested by: | ADVANCED COMPLIANCE LABORATORY |
| Test Date: | July 10, 2002 |
| Report Number: | 0048-020701-02T |

The above equipment was tested by Compliance Laboratory, Advanced Technologies, Inc. for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

| | Prob. Dist. | Uncertainty(dB) | Uncertainty(dB) | Uncertainty(dB) |
|---|---|---|---|---|
| | | 30-1000MHz | 1-6.5GHz | Conducted |
| Combined Std. Uncertainty $u_c$ | norm. | ±2.36 | ±2.99 | ±1.83 |



Wei Li
Lab Manager
Advanced Compliance Lab

Date: July 10, 2002

## 1.2 Equipment Modifications

N/A

## 1.3 Product Information

**System Configuration**

| ITEM | DESCRIPTION | FCC ID | CABLE |
|---|---|---|---|
| Product | RADIO CONTROL TRANSMITTER 906B (1) | LIE906B | |
| Housing | PLASTICS | | |
| Power Supply | 9V DC Battery | | |
| Clock/OSC Freq. | 49.86 MHz | | |
| Receiver | 906B (RX) (FCC Part15 Class B DOC) | | |

(1) EUT submitted for grant.

## 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 at an antenna to EUT distance of 3 meters.

## 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at 50 Randolph Road, Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

## 1.6 Test Equipment

| Manufacture | Model | Serial No. | Description | Last Cal dd/mm/yy | Cal Due dd/mm/yy |
|---|---|---|---|---|---|
| Hewlett-Packard | HP8546A | 3625A00341 | EMI Receiver | 18/01/02 | 18/01/03 |
| Fischer Custom | LISN-2 | 900-4-008 | Line Impedance Stabilization Networks | 03/07/02 | 03/07/03 |
| Fischer Custom | LISN-2 | 900-4-009 | Line Impedance Stabilization Networks | 03/07/02 | 03/07/03 |
| AILTECH | 94455-1 | 0933 | 30-200MHz Biconical Antenna | 31/08/01 | 31/08/02 |
| EMCO | 3146 | 2860 | 200-1000MHz Log-Periodic Antenna | 16/08/01 | 16/08/02 |

All Test Equipment Used are Calibrated Traceable to NIST Standards.

## 1.7 Statement for the Document Use

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

# 2. PRODUCT LABELING

FCC ID: LIE906B

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditoins:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

**Figure 2.1 FCC ID Label**


**Figure 2.2 Location of Label on the Side of EUT**

# 3. SYSTEM TEST CONFIGURATION

## 3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT with max. length, 12in.

This manually operated transmitter will deactivate immediately after any control switch was released.

Testing was performed as EUT was operated at frequency channel 49.86MHz continuously.

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## 3.2 Special Accessories

N/A

## 3.3 Configuration of Tested System

Figure 3.1 to Figure 3.3 illustrate this system, which is tested standing along.

**Figure 3.1 Radiated Test Setup, position 1**

**(see the attachment: setup.pdf/rad-1.jpg)**

**Figure 3.2 Radiated Test Setup, position 2**

**(see attachment: setup.pdf/rad-2.jpg)**

**Figure 3.3 Radiated Test Setup, position 3**

**(see attachment: setup.pdf/rad-3.jpg)**

# 4. SYSTEM SCHEMATICS

**Figure 4.1 System Schematics**

**(see attachment: schematic.jpg)**

# 5. RADIATED EMISSION DATA

## 5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA + AF + CF + AG$$

where FS: Corrected Field Strength in dBµV/m
RA: Amplitude of EMI Receiver before correction in dBµV
AF: Antenna Factor in dB/m
CF: Cable Attenuation Factor in dB
AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

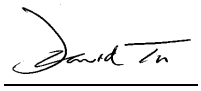
## 5.2 Test Methods and Conditions

The EUT exercise program was loaded during the radiated emission test. The initial step in collecting radiated data is a EMI Receiver scan of the measurement range 30MHz - 5GHz using peak detector.

## 5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

Test Personnel:

Tester Signature 

Typed/Printed Name: David Tu Date: July 10, 2002

## Radiated Test Data (49.86MHz)

| Frequency (MHz) | Polarity [H, V] Position | Height (m) | Azimuth (Degree) | Peak(2) Reading (dBµV/m) | Class B(1) 3m Limit (dBµV/m) | Difference from limit (dB) |
|---|---|---|---|---|---|---|
| 49.86 | X,H | 1.1 | 100 | 44.6 | 80 | -35.4 |
| 149.56 | X,H | 1.0 | 90 | 27.3 | 43.5 | -16.2 |
| 199.40 | X,H | 1.2 | 100 | 28.5 | 43.5 | -15 |
| 49.86 | X,V | 1.4 | 000 | 40.2 | 80 | -39.8 |
| 49.86 | Y,H | 1.1 | 10 | 47.0 | 80 | -33 |
| 49.86 | Y,V | 1.1 | 000 | 58.1 | 80 | -21.9 |
| 99.71 | Y,V | 1.0 | 000 | 32.8 | 43.5 | -10.7 |
| 149.56 | Y,V | 1.0 | 10 | 26.4 | 43.5 | -17.1 |
| 49.86 | Z,H | 1.2 | 80 | 45.0 | 80 | -35 |
| 149.56 | Z,H | 1.2 | 90 | 28.0 | 43.5 | -15.5 |
| 49.86 | Z,V | 1.5 | 10 | 41.3 | 80 | -38.7 |
| 99.71 | Z,V | 1.3 | 10 | 26.7 | 43.5 | -16.8 |

(1) The limit for emissions within the 49.82-49.90MHz band is 10,000uV(80dB). Sec. 15.235. The limit for other emissions is defined in Sec. 15.209. Bandwidth requirement in sec. 15.235 is met as shown in the attachment, emission-band.pdf.
(2) Because each peak reading is less than the FCC average limit, it is not necessary to show the calculated average reading based on the pulse train characteristics.

## 6. PHOTOS OF TESTED EUT

The following photos show the inside details of the EUT.

See Attachments in the photo files of front.jpg, inside.jpg, compnt.jpg, foil.jpg