

Advanced
Compliance Laboratory

6 Randolph Way
Hillsborough, NJ 08844
Tel: (908) 927 9288
Fax: (908) 927 0728

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT
of
RADIO CONTROL CAR TRANSMITTER
MODEL: 10731
FCC ID: NFY10731

June 3, 2004

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

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes no
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
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR
[10-1-90 Edition] provision.

Report prepared for: Radio Fun International, Ltd.
Report prepared by: Advanced Compliance Lab
Report number: 0048-040602-01



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

Table of Contents

| | |
|---|-----------|
| Report Cover Page | 1 |
| Table of Contents | 2 |
| Figures | 3 |
| | |
| 1. GENERAL INFORMATION | 4 |
| 1.1 Verification of Compliance | 4 |
| 1.2 Equipment Modifications..... | 5 |
| 1.3 Product Information..... | 6 |
| 1.4 Test Methodology..... | 6 |
| 1.5 Test Facility | 6 |
| 1.6 Test Equipment | 6 |
| 1.7 Statement of the Document Use..... | 7 |
| | |
| 2. PRODUCT LABELING | 8 |
| | |
| 3. SYSTEM TEST CONFIGURATION | 9 |
| 3.1 Justification | 9 |
| 3.2 Special Accessories..... | 9 |
| 3.3 Configuration of Tested System | 9 |
| | |
| 4. SYSTEM SCHEMATICS | 12 |
| | |
| 5. RADIATED EMISSION DATA | 13 |
| 5.1 Field Strength Calculation | 13 |
| 5.2 Test Methods and Conditions | 13 |
| 5.3 Test Data | 13 |
| | |
| 6. PHOTOS OF TESTED EUT | 15 |

Figures

| | |
|--|-----------|
| Figure 2.1 FCC ID Label..... | 8 |
| Figure 2.2 Location of Label on Back of the EUT | 8 |
| Figure 3.1 Radiated Test Setup, Position 1..... | 10 |
| Figure 3.2 Radiated Test Setup, Position 2..... | 10 |
| Figure 3.3 Radiated Test Setup, Position 3..... | 11 |
| Figure 4.1 EUT Schematics..... | 12 |
| Figure 6.1 Front View..... | 16 |
| Figure 6.2 Rear View | 17 |
| Figure 6.2 Inside View, Cover Opened | 18 |
| Figure 6.3 Component Side..... | 19 |
| Figure 6.4 Foil Side | 20 |

1. GENERAL INFORMATION

1.1 Verification of Compliance

EUT: RADIO CONTROL CAR TRANSMITTER
 Model: 10731
 Applicant: Radio Fun International, Ltd.
 Flat A, 9/F, Kun Lock Building, 178 Nathan Road
 Tsimshatsui, Kowloon, Hong Kong
 Test Type: FCC Part 15C CERTIFICATION
 Result: PASS
 Tested by: ADVANCED COMPLIANCE LABORATORY
 Test Date: June 3, 2004
 Report Number: 0048-040602-01

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: June 3, 2004

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

| ITEM | DESCRIPTION | FCC ID | CABLE |
|-----------------|--|----------|-------|
| Product | RADIO CONTROL CAR TRANSMITTER 10731 (1) | NFY10731 | |
| Housing | PLASTICS | | |
| Power Supply | 9V DC Battery | | |
| Clock/OSC Freq. | 27.145 MHz | | |
| Receiver | 10731 (RX) | | |

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-2001 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 Hillsborough, 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 | 23/10/03 | 23/10/04 |
| EMCO | 3104C | 9307-4396 | 20-300MHz Biconical Antenna | 12/02/04 | 12/02/05 |
| EMCO | 3146 | 9008-2860 | 200-1000MHz Log-Periodic Antenna | 09/02/04 | 09/02/05 |
| Fischer Custom | LISN-2 | 900-4-0008 | Line Impedance Stabilization Networks | 03/07/03 | 03/07/04 |
| Fischer Custom | LISN-2 | 900-4-0009 | Line Impedance Stabilization Networks | 03/07/03 | 03/07/04 |
| EMCO | 6502 | 2665 | 10KHz-30MHz Active Loop Antenna | 27/02/04 | 27/02/05 |
| EMCO | 3115 | 4945 | Double Ridge Guide Horn Antenna | 15/09/03 | 15/09/04 |

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

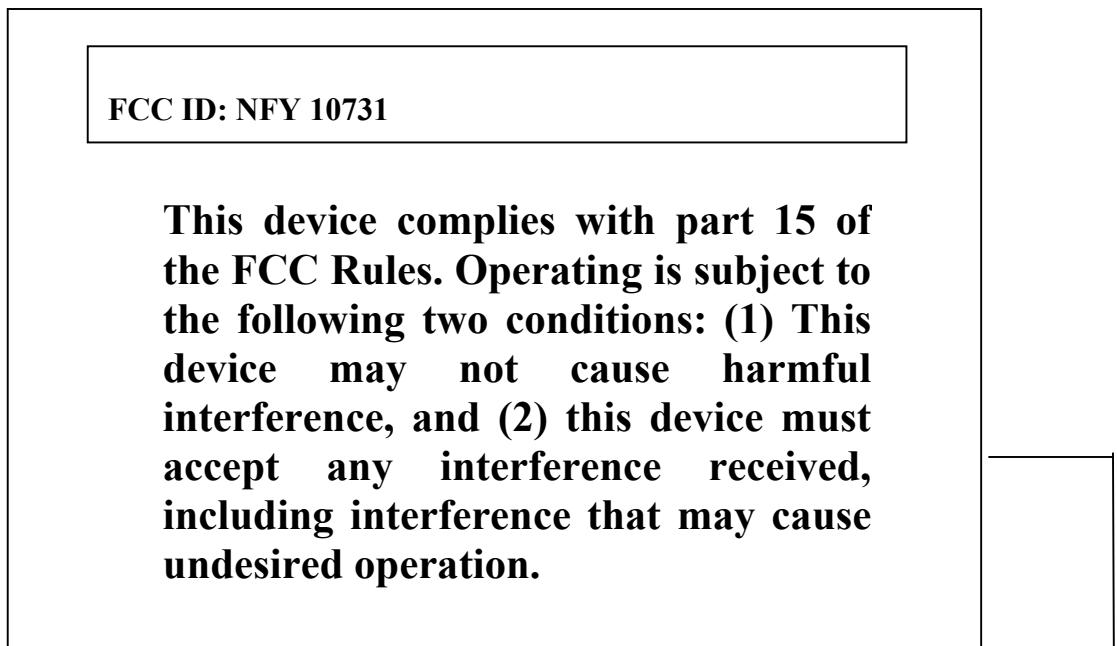


Figure 2.1 FCC ID Label

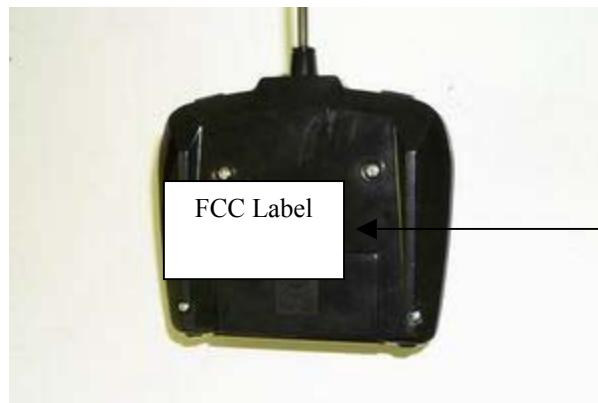


Figure 2.2 FCC ID Label Location

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, 9in.

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

Testing was performed as EUT was operated at frequency channel 27.145MHz continuously.

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.

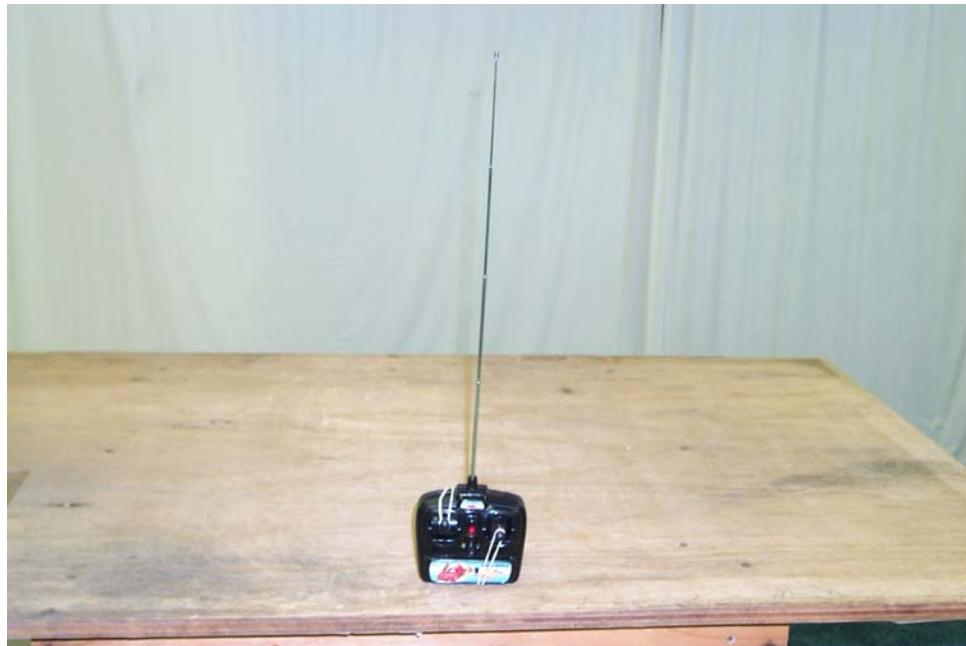


Figure 3.1 Radiated Test Setup, position 1



Figure 3.2 Radiated Test Setup, position 2

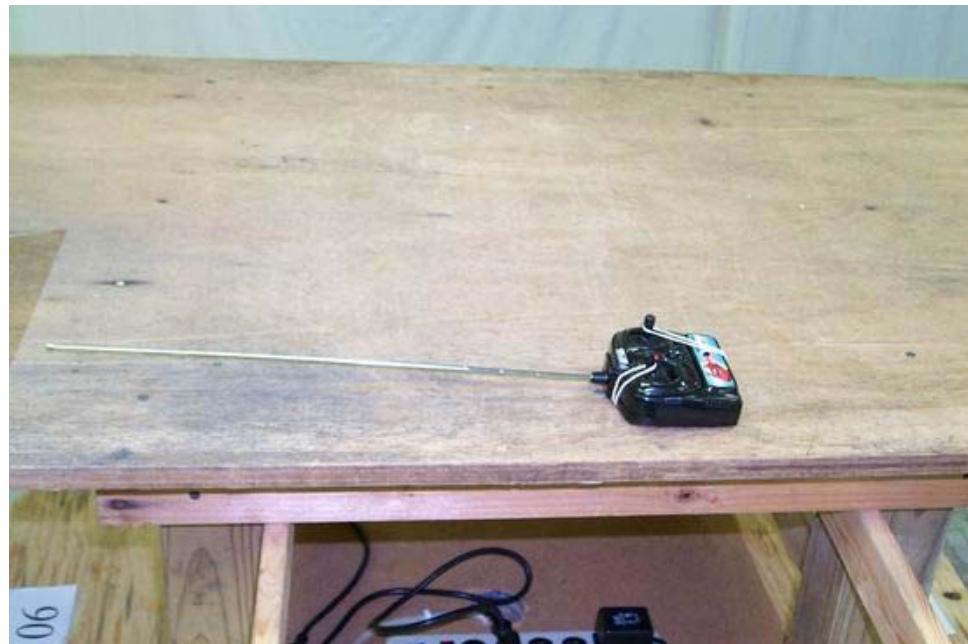


Figure 3.3 Radiated Test Setup, position 3

4. SYSTEM SCHEMATICS

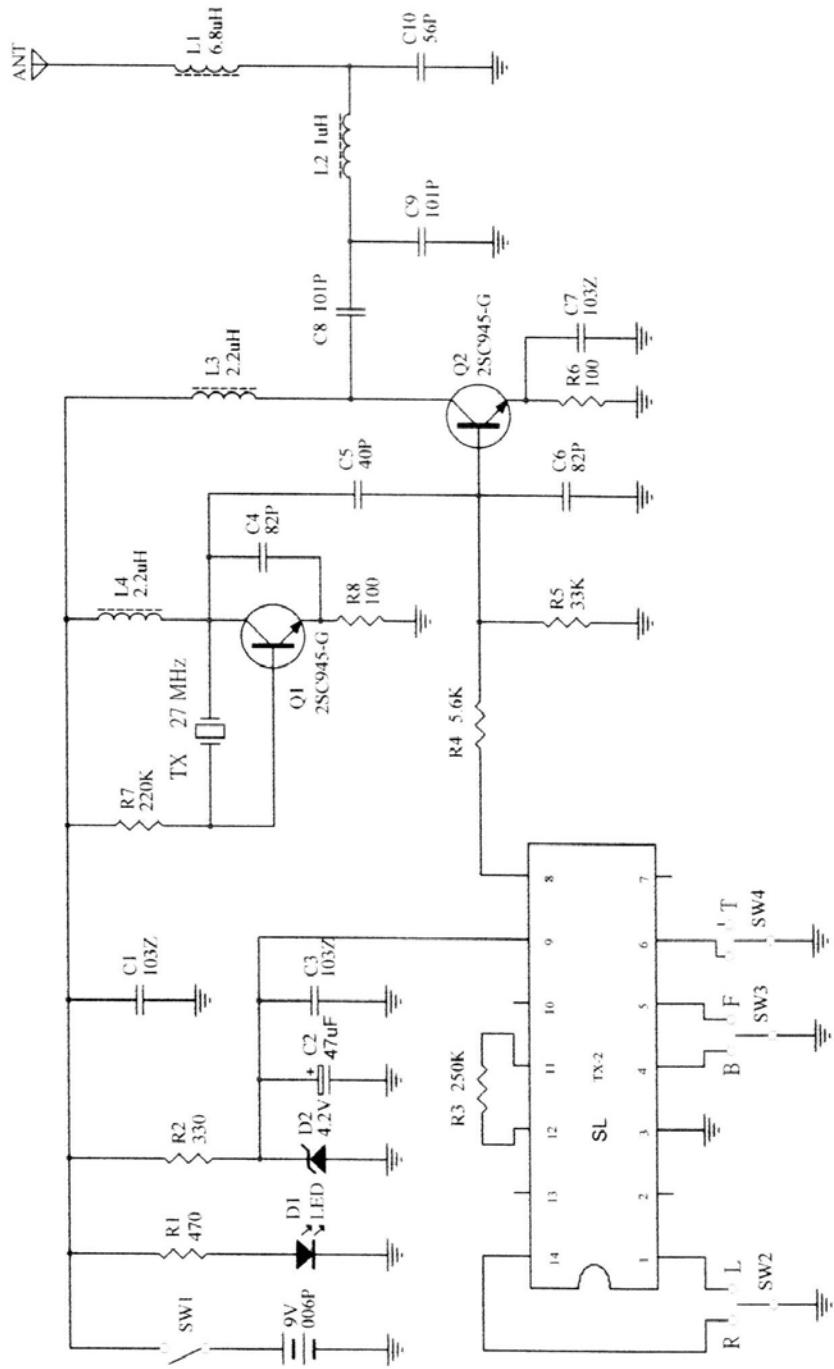


Figure 4.1 System Schematics

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 dB μ V/m

RA: Amplitude of EMI Receiver before correction in dB μ V

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 initial step in collecting radiated data is a EMI Receiver scan of the measurement range below 30MHz using peak detector and 9KHz IF bandwidth / 30KHz video bandwidth. For the range 30MHz - 1GHz, 120KHz IF bandwidth / 120KHz video bandwidth are used. Both bandwidths are 1MHz for above 1GHz measurement. Up to 10th harmonics were investigated.

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:



Typed/Printed Name: Edward Lee

Date: June 3, 2004

Radiated Test Data (CH-27.145MHz)

| Frequency (MHz) | Polarity [H, V] Position | Height (m) | Azimuth (Degree) | Peak(2) Reading (dB μ V/m) | 3m Limit(1) (dB μ V/m) | Difference from limit (dB) |
|--------------------|--------------------------------|---------------|---------------------|--------------------------------------|----------------------------------|----------------------------------|
| 27.145 | X,H | 1.2 | 180 | 77.5 | 80 | -2.5 |
| 27.145 | X,V | 1.2 | 180 | 68.4 | 80 | -11.6 |
| 27.145 | Y,H | 1.2 | 125 | 56.2 | 80 | -23.8 |
| 27.145 | Y,V | 1.1 | 180 | 54.5 | 80 | -25.5 |
| 27.145 | Z,H | 1.0 | 180 | 58.7 | 80 | -21.3 |
| 27.145 | Z,V | 1.2 | 180 | 52.7 | 80 | -27.3 |

(1) The limit for emissions within the 26.96-27.28MHz band is 10,000uV(80dB). Sec. 15.227. The limit for other emissions is defined in Sec. 15.209.

(2) If each peak reading is less than the FCC average limit, it'll be 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.