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**FEDERAL COMMUNICATIONS COMMISSION**  
Registration number: 556682

Report No.: SZEMO080401233ETF  
Page: 1 of 10

## **TEST REPORT**

**Application No.:** SZEMO080401233ET(SZ SGS NO.:SZTYR080401128/EL)

**Applicant:** NEW-RAY TOYS CO., LTD.

**FCC ID:** Q4S89886A

**Fundamental Frequency :** 27.145MHz

**Equipment Under Test (EUT):**

Name: Radio Remote Control scale 1:24Formula One Series

Item No.: 89886A

Assortment No.: 80000-99999

Labelled Age Grading: 5+

**Standards:** FCC PART 15, SUBPART C : 2007

**Date of Receipt:** 10 April 2008

**Date of Test:** 10 to 16 April 2008

**Date of Issue:** 17 April 2008

|                      |               |
|----------------------|---------------|
| <b>Test Result :</b> | <b>PASS *</b> |
|----------------------|---------------|

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo  
Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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## 2 Test Summary

| Test                                    | Test Requirement  | Standard Paragraph | Result |
|---|-------------------|--------------------|--------|
| Radiated Emission<br>(25MHz to 1000MHz) | FCC PART 15 :2007 | Section 15.227     | PASS   |
| Occupied Bandwidth                      | FCC PART 15 :2007 | Section 15.215     | PASS   |

Tx: In this whole report Tx (or tx) means Transmitter.

RF: In this whole report RF means Radiated Frequency.

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## 4 General Information

### 4.1 Client Information

Applicant: NEW-RAY TOYS CO., LTD.  
Address of Applicant: UNIT 9, 12/F., HOUSTON CENTRE, 63 MODY ROAD, TSIMSHATSUI EAST, KOWLOON, H. K

### 4.2 Details of E.U.T.

Power Supply: 6.0V DC (4 \* 1.5V 'LR44' Size Battery) for Tx ;  
Power Cord: N/A-

### 4.3 Description of Support Units

The EUT was tested as an independent unit: 27MHz radio transmitter.

### 4.4 Test Location

All tests were performed at:

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, District Shenzhen, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

### 4.5 Other Information Requested by the Customer

None.

#### 4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, June 27, 2008.

- **Industry Canada (IC)**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

## 5 Test Results

### 5.1 Test Instruments

| RE in Chamber |                                |                      |                             |               |                     |                         |
|---------------|--------------------------------|----------------------|-----------------------------|---------------|---------------------|-------------------------|
| Item          | Test Equipment                 | Manufacturer         | Model No.                   | Inventory No. | Cal.Date (dd-mm-yy) | Cal.Due date (dd-mm-yy) |
| 1             | 3m Semi-Anechoic Chamber       | ETS-LINDGREN         | N/A                         | SEL0017       | 16-06-2007          | 15-06-2009              |
| 2             | EMI Test Receiver              | Rohde & Schwarz      | ESIB26                      | SEL0023       | 12-12-2008          | 11-12-2009              |
| 3             | EMI Test software              | AUDIX                | E3                          | SEL0050       | N/A                 | N/A                     |
| 4             | Coaxial cable                  | SGS                  | N/A                         | SEL0028       | 18-06-2008          | 17-06-2009              |
| 5             | BiConiLog Antenna (26-3000MHz) | ETS-LINDGREN         | 3142C                       | SEL0014       | 12-08-2008          | 11-08-2009              |
| 6             | Pre-amplifier (0.1-1300MHz)    | Agilent Technologies | 8447D                       | SEL0053       | 18-06-2008          | 17-06-2009              |
| 7             | Double-ridged horn (1-18GHz)   | ETS-LINDGREN         | 3117                        | SEL0005       | 12-08-2008          | 11-08-2009              |
| 8             | Horn Antenna (18-26GHz)        | ETS-LINDGREN         | 3160                        | SEL0076       | 12-08-2008          | 11-08-2009              |
| 9             | Pre-amplifier (1-18GHz)        | Rohde & Schwarz      | AFS42-00101<br>800-25-S-42  | SEL0081       | 18-06-2008          | 17-06-2009              |
| 10            | Pre-amplifier (18-26GHz)       | Rohde & Schwarz      | AFS33-18002<br>650-30-8P-44 | SEL0080       | 18-06-2008          | 17-06-2009              |
| 11            | Band filter                    | Amindeon             | 82346                       | SEL0094       | 18-06-2008          | 17-06-2009              |
| 12            | Active Loop Antenna            | Beijing Daze         | ZN30900A                    | SEL0097       | 15-06-2008          | 14-06-2009              |

## 5.2 E.U.T. Operation

Operating Environment:  
Temperature: 26.0 °C  
Humidity: 51% RH  
Atmospheric Pressure: 1020mbar  
EUT Operation: Test the EUT in transmitting mode.

## 5.3 Test Procedure & Measurement Data

### 5.3.1 Radiated Emissions

**Test Requirement:** FCC Part15 C Section 15.227  
**Test Method:** ANSI C63.4: 2003  
**Measurement Distance:** 3m (Semi-Anechoic Chamber)  
**Requirements:** Carrier frequency will not exceed 80dB<sub>u</sub>V/m AT 3m.  
Out of band emissions shall not exceed:  
40.0 dB<sub>u</sub>V/m between 30MHz & 88MHz  
43.5 dB<sub>u</sub>V/m between 88MHz & 216MHz  
46.0 dB<sub>u</sub>V/m between 216MHz & 960MHz  
54.0 dB<sub>u</sub>V/m above 960MHz  
**Detector:** Peak Scan (9kHz resolution bandwidth for 9kHz to 30MHz;  
120kHz resolution bandwidth for 25MHz to 1000MHz)

**Test Procedure:**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

**27.145MHz Mode.**

Test Procedure: For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4 section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

**Horizontal.**

| <b>Test Frequency</b><br>(MHz) | <b>Peak (dB<math>\mu</math>V/m)</b> | <b>Limits</b>  | <b>Margin (dB)</b> |
|--------------------------------|-------------------------------------|----------------|--------------------|
|                                | X                                   | (dB $\mu$ V/m) | X                  |
| 27.145                         | 53.7                                | 100.0          | 46.3               |

| <b>Test Frequency</b><br>(MHz) | <b>Average (dB<math>\mu</math>V/m)</b> | <b>Limits</b>  | <b>Margin (dB)</b> |
|--------------------------------|--|----------------|--------------------|
|                                | X                                      | (dB $\mu$ V/m) | X                  |
| 27.145                         | 49.7                                   | 80.0           | 30.3               |

**Vertical.**

| <b>Test Frequency</b><br>(MHz) | <b>Peak (dB<math>\mu</math>V/m)</b> | <b>Limits</b>  | <b>Margin (dB)</b> |
|--------------------------------|-------------------------------------|----------------|--------------------|
|                                | X                                   | (dB $\mu$ V/m) | X                  |
| 27.145                         | 62.9                                | 100.0          | 37.1               |

| <b>Test Frequency</b><br>(MHz) | <b>Peak (dB<math>\mu</math>V/m)</b> | <b>Limits</b>  | <b>Margin (dB)</b> |
|--------------------------------|-------------------------------------|----------------|--------------------|
|                                | X                                   | (dB $\mu$ V/m) | X                  |
| 27.145                         | 58.9                                | 80.0           | 21.1               |

Y: EUT as per photograph in section 5.3.3 of this report.

X: As Y, but rotate EUT by 90° clockwise.

Z: As X, but rotate EUT by 90° vertically.

**Other emissions**

Test the EUT in transmitting mode.

Horizontal.

| Frequency (MHz) | Antenna Factor (dB/m) | Preamp Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) |
|-----------------|-----------------------|--------------------|-------------------|----------------|---------------------|-----------------|
| 41.575          | 11.22                 | 28.09              | 28.53             | 12.29          | 40.00               | -27.71          |
| 59.125          | 7.31                  | 28.06              | 28.20             | 8.25           | 40.00               | -31.75          |
| 75.700          | 7.37                  | 28.00              | 27.90             | 8.25           | 40.00               | -31.75          |
| 91.300          | 8.76                  | 27.94              | 28.88             | 10.81          | 43.50               | -32.69          |
| 114.700         | 8.27                  | 27.74              | 29.12             | 10.89          | 43.50               | -32.61          |
| 154.675         | 9.28                  | 27.42              | 28.97             | 12.16          | 43.50               | -31.34          |
| 184.900         | 9.99                  | 27.23              | 28.57             | 12.71          | 43.50               | -30.79          |

Vertical.

| Frequency (MHz) | Antenna Factor (dB/m) | Preamp Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) |
|-----------------|-----------------------|--------------------|-------------------|----------------|---------------------|-----------------|
| 54.250          | 7.64                  | 28.08              | 34.02             | 14.38          | 40.00               | -25.62          |
| 85.450          | 8.26                  | 27.97              | 28.02             | 9.41           | 40.00               | -30.59          |
| 103.000         | 8.95                  | 27.85              | 29.45             | 11.76          | 43.50               | -31.74          |
| 149.800         | 8.95                  | 27.45              | 30.14             | 12.96          | 43.50               | -30.54          |
| 209.275         | 10.69                 | 27.10              | 29.07             | 14.12          | 43.50               | -29.38          |
| 280.450         | 13.03                 | 26.79              | 28.01             | 16.06          | 46.00               | -29.94          |
| 391.600         | 16.20                 | 27.35              | 28.84             | 19.87          | 46.00               | -26.13          |

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

**Test Results: The unit does meet the FCC Part 15 C Section 15.227 requirements.**

### 5.3.2 Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.215 (C) and Section 15.227.

Test Method: ANSI C63.4: 2003

Operation within the band 26.960 – 27.280 MHz .

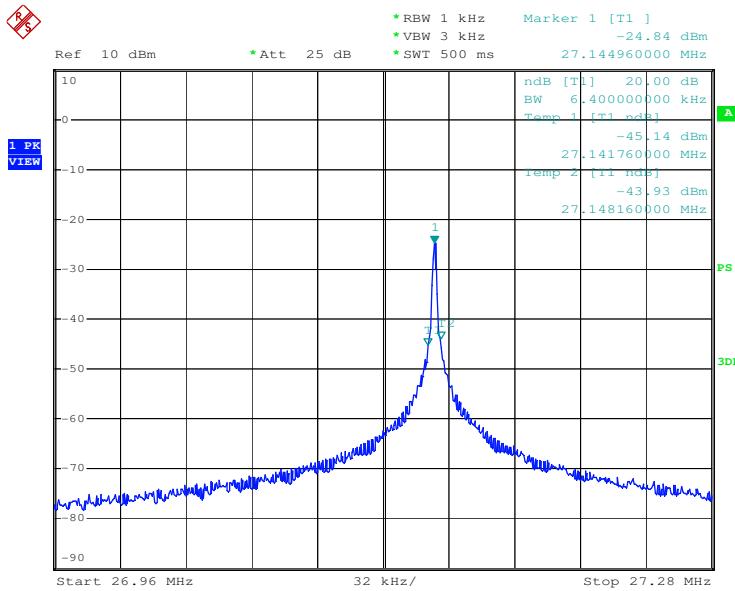
#### 26.960–27.280MHz Mode.

Requirements:

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Method of measurement:

The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector. The vertical Scale is set to 10dB per division. The horizontal scale is set to 32KHz per division.



Date: 11.APR.2008 09:47:27

**The results: The unit does meet the FCC Part 15 C Section 15.215 requirements**

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