



## **TEST REPORT**

Report No. : AF016645-001 Date : 2005 July 22  
Application No. : LF212749(3)  
Applicant : Jada Toys Co. Ltd  
Unit 901, 9/F., Energy Plaza,  
92 Granville Road, TST East,  
Kowloon, Hong Kong.  
Sample Description : One(1) submitted sample stated to be 1:6 Dub City 3 Band Remote Control Car of Model No. 83008  
Rating : 6 x 1.5V AA size battery  
No. of submitted sample : Two (2) piece(s)\*\*\*  
Date Received : 2005 July 04  
Test Period : 2005 July 04 – 2005 July 11  
Test Requested : FCC Part 15 Certification  
Test Method : FCC Rules and Regulations Part 15 – July 2004  
ANSI C63.4 – 2003  
Test Result : See attached sheet(s) from page 2 to 11.  
Conclusion : The submitted sample was found to comply with requirement of FCC Part 15 Subpart C.

*For and on behalf of*  
CMA Testing and Certification Laboratories

Authorized Signature : \_\_\_\_\_

Daimy Chui  
EMC Engineer - EL. Division

Page 1 of 11

FCC ID : PWYJT27TX87000

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Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: [info@cmatal.com](mailto:info@cmatal.com) Web Site: <http://www.cmatal.com>



## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **Table of Contents**

|     |  |    |
|-----|--|----|
| 1   | General Information .....  | 3  |
| 1.1 | General Description .....  | 3  |
| 1.2 | Location of the test site .....  | 4  |
| 1.3 | List of measuring equipment .....  | 5  |
| 2   | Description of the radiated emission test .....                                  | 6  |
| 2.1 | Test Procedure .....   | 6  |
| 2.2 | Test Result .....  | 6  |
| 2.3 | Radiated Emission Measurement Data .....   | 7  |
| 3   | Description of the Line-conducted Test .....                                     | 8  |
| 3.1 | Test Procedure .....   | 8  |
| 3.2 | Test Result .....  | 8  |
| 3.3 | Graph and Table of Conducted Emission Measurement Data .....                     | 8  |
| 4   | Photograph .....   | 9  |
| 4.1 | Photographs of the Test Setup for Radiated Emission and Conduction Emission..... | 9  |
| 4.2 | Photographs of the External and Internal Configurations of the EUT .....         | 9  |
| 5   | Supplementary document .....   | 10 |
| 5.1 | Bandwidth .....  | 10 |
| 5.2 | Duty Cycle .....   | 10 |
| 6   | Appendices .....   | 11 |



## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **1 General Information**

#### **1.1 General Description**

The equipment under test (EUT) is a transmitter for 1:6 Dub City 3 Band Remote Control Car. Operating at 27.145MHz which is controlled by a crystal. The EUT is powered by 6 x 1.5V "AA" size battery. It has a switch to change from channel A to C. Channel A, B and C are using the same carrier frequency (27.145MHz) but with different coding to control the corresponding receiver. When the EUT is turn on, it can transmit forward, backward, turn left or turn right radio signal to the receiver.

The brief circuit description is listed as follows :

- Q1, Y1 and associated circuit act as oscillator.
- U1 and associated circuit act as signal encoder.
- Q3 and associated circuit act as RF amplifier.
- C6, C7, C8 and associated circuit act as low pass filter.



## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **1.2 Location of the test site**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at :

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. A shielded room is located at :

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
Hong Kong.



## TEST REPORT

Report No. : AF016645-001

Date : 2005 July 22

### 1.3 List of measuring equipment

| Equipment         | Manufacturer | Model No. | Serial No. | Calibration Certification No. |
|-------------------|--------------|-----------|------------|-------------------------------|
| EMI Test Receiver | R&S          | ESCS30    | 100001     | S43284                        |
| Broadband Antenna | Schaffner    | CBL6112B  | 2692       | CA3025                        |
| Signal Generator  | IFR          | 2023B     | 202302/938 | S43098                        |
| LISN              | R&S          | ESH3-Z5   | 100038     | S43377                        |
| LISN              | R&S          | ESH3-Z5   | 100010     | S43101                        |
| Pulse Limiter     | R&S          | ESH3-Z2   | 100001     | S43325                        |
| Biconical Antenna | R&S          | HK116     | 837414/004 | 2GB05000535-0001              |
| Loop Antenna      | EMCO         | 6502      | 00056620   | 49906                         |



## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **2 Description of the radiated emission test**

#### **2.1 Test Procedure**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

#### **2.2 Test Result**

Peak Detector data was measured unless otherwise stated.

\* Emissions appearing within the restricted bands shall follow the requirement of section 15.205.

It was found that the EUT meet the FCC requirement.



## TEST REPORT

Report No. : AF016645-001

Date : 2005 July 22

### 2.3 Radiated Emission Measurement Data

**Radiated emission  
pursuant to  
the requirement of FCC Part 15 subpart C**

| Frequency (MHz) | Polarity (H/V) | Reading at 3m (dB $\mu$ V/m) | Antenna and Cable factor (dB) | Faverage Factor (dB) | Field Strength (dB $\mu$ V/m) | Limit at 3m (dB $\mu$ V/m) | Margin (dB) |
|-----------------|----------------|------------------------------|-------------------------------|----------------------|-------------------------------|----------------------------|-------------|
| 27.145          | V              | 72.3                         | 9.0                           | -26.9                | 54.4                          | 80.0                       | -25.6       |
| 54.290          | V              | 20.7                         | 8.1                           | -                    | 28.8                          | 40.0                       | -11.2       |
| 81.433          | V              | 14.0                         | 7.2                           | -                    | 21.2                          | 40.0                       | -18.8       |
| * 108.580       | H              | 9.7                          | 11.0                          | -                    | 20.7                          | 43.5                       | -22.8       |
| * 135.725       | H              | 9.0                          | 12.4                          | -                    | 21.4                          | 43.5                       | -22.1       |
| * 162.870       | H              | 13.1                         | 10.4                          | -                    | 23.5                          | 43.5                       | -20.0       |
| 190.015         | H              | 19.5                         | 9.2                           | -                    | 28.7                          | 43.5                       | -14.8       |
| 217.160         | H              | 13.0                         | 9.7                           | -                    | 22.7                          | 46.0                       | -23.3       |
| * 244.305       | H              | 14.2                         | 9.7                           | -                    | 23.9                          | 46.0                       | -22.1       |
| * 271.450       | H              | 10.6                         | 13.9                          | -                    | 24.5                          | 46.0                       | -21.5       |



## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **3 Description of the Line-conducted Test**

#### **3.1 Test Procedure**

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. The EUT was setup as described in the procedures, and both lines were measured.

#### **3.2 Test Result**

No measurement is required as the EUT is a battery-operated product.

#### **3.3 Graph and Table of Conducted Emission Measurement Data**

Not Applicable





## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **4 Photograph**

#### **4.1 Photographs of the Test Setup for Radiated Emission and Conduction Emission**

For electronic filing, the photos are saved with filename TSup1.jpg to TSup2.jpg

#### **4.2 Photographs of the External and Internal Configurations of the EUT**

For electronic filing, the photos are saved with filename ExPho1.jpg to ExPho2.jpg and InPho1.jpg to InPho5.jpg.



## TEST REPORT

Report No. : AF016645-001

Date : 2005 July 22

### 5 Supplementary document

The following document were submitted by applicant, and for electronic filing, the document are saved with the following filenames:

| Document                | Filename     |
|-------------------------|--------------|
| ID Label/Location       | LabelSmp.jpg |
| Block Diagram           | BlkDia.pdf   |
| Schematic Diagram       | Schem.pdf    |
| Users Manual            | UserMan.pdf  |
| Operational Description | OpDes.pdf    |

#### 5.1 Bandwidth

The plot on saved in TestRpt2.pdf shows the fundamental emission is confined in the specified band. It also shows that the band edge met the 15.209 requirement at 26.9599 and 27.2801 MHz.

#### 5.2 Duty Cycle

The duty cycle is simply the on-time divided by the period :

The duration of one cycle = 70.02ms

Effective period of the cycle = (0.495ms x 1) + (0.195ms x 8) + (0.12ms x 9)

= 3.135ms

Duty Cycle = 3.135ms / 70.02ms

= 0.045

Therefore, the average factor is found by  $20 \log_{10} 0.045 = -26.9\text{dB}$



## **TEST REPORT**

Report No. : AF016645-001

Date : 2005 July 22

### **6 Appendices**

|     |  |         |
|-----|--|---------|
| A1  | Photos of the set-up of Radiated Emissions | 1 page  |
| A2  | Photos of External Configurations          | 1 page  |
| A3  | Photos of Internal Configurations          | 3 pages |
| A4  | ID Label/Location                          | 1 page  |
| A5  | Bandwidth Plot                             | 1 page  |
| A6  | Average Factor                             | 2 pages |
| A7  | Block Diagram                              | 1 page  |
| A8  | Schematics Diagram                         | 1 page  |
| A9  | User Manual                                | 2 pages |
| A10 | Operation Description                      | 1 page  |

\*\*\*\*\* End of Report \*\*\*\*\*