



## **TEST REPORT**

Report No. : AC002828

Date : 2002 March 19

Client : High Champion Limited  
Room 1901, 19/F., Block A, Kailey Ind. Ctr.,  
12 Fung Yip Street, Chai Wan, Hong Kong.

Sample Description : Sample stated to be :

Description : Radio Control Toys  
Model No. : 3003, 3006, 3007, 3008, 3009, 8610, 8620, 8630, 8640 and  
8650  
Rating : 1 x 9V battery  
No. of sample(s) : One(1) piece \*\*\*

Date Received : 2002 March 05.

Test Period : 2002 March 05 – 2002 March 11.

Test Requested : FCC Part 15 Certification

Test Method : FCC Rules and Regulations Part 15 – May 2001  
ANSI C63.4 – 1992

Test Result : See attached sheet(s) from page 2 to 10.

Conclusion : The submitted sample was found to comply with requirement of FCC  
Part 15 Subpart C.

Remark : All nine models are the same in circuitry and components and construction,  
and therefore model 3003 was chosen to be the representative of the test  
sample.

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

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

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Danny Chui  
EMC Engineer - EL. Division

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### **1 General Information**

The equipment under test (EUT) is a transmitter for remote control toy car operating at 27.145 MHz which is controlled by a crystal. The EUT is powered a 9V battery. The EUT has an ON/OFF switch, a pair of control levers on its left and right side to control the forward as well as backward moving and circular path respectively. It also has a button on the right side featuring a jumping function.

The brief circuit description is listed as follows :

- IC1 and associated circuit act as encoding
- Q1 and associated circuit act as modulation
- X1, Q2 and associated circuit act as oscillation and amplification

The models 3006, 3007, 3008, 3009, 3610, 8620, 8630, 8640 and 8650 are the same as model 3003 in hardware aspect. The difference in model numbers serves as marketing strategy.

#### **1.1 General Description**

#### **1.2 Related Submittal Grants**

The receiver for this transmitter is exempted from the Part 15 technical rules per 15.101(b).

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### **1.3 Location of the test site**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 1992. An Open Area Testing Site is set up for investigation and located at :

Top of the Roof, 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 – 1992. A double shielded room is located at :

Roof Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
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### **1.4 List of measuring equipment**

Equipment	Manufacturer	Model No.	Serial No.	Calibration Certification No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESCS30	100001	20-69223	Mar. 21, 2001	Sept. 20, 2002
Broadband Antenna	Schaffner	CBL6113B	2718	AC1753	Dec. 15, 2000	Jun. 14, 2002
Signal Generator	IFR	2023B	202302/938	Nil	Oct. 23, 2000	Apr. 22, 2002
LISN	R&S	ESH3-Z5	100010	20-70405	Mar. 29, 2001	Sept. 28, 2002
Pulse Limiter	R&S	ESH3-Z2	100001	20-73194	May 2, 2001	Nov. 1, 2002
Biconical Antenna	R&S	HK116	837414/004	4000.7752.02	Oct. 23, 2000	Apr. 22, 2002

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### **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 – 1992.

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.

#### **2.2 Test Result**

The fundamental emission was based on measurements employing the peak detector on the open area test site.

The harmonic emissions meeting the requirement of section 15.209 are based on measurements employing the CISPR quasipeak detector.

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

It was found that the EUT meet the FCC requirement.

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### **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)	Field Strength (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
27.145	V	39.9	17.4	57.3	80.0	-22.7
54.304	V	12.4	10.4	22.8	40.0	-17.2
81.457	V	16.8	10.0	26.8	40.0	-13.2
*108.609	V	17.7	14.2	31.9	43.5	-11.6
*135.751	V	11.0	15.4	26.4	43.5	-17.1
*162.907	V	11.7	13.6	25.3	43.5	-18.2
190.056	V	11.5	13.4	24.9	43.5	-18.6
217.202	V	12.1	14.2	26.3	46.0	-19.7
*244.355	V	15.0	14.2	29.2	46.0	-16.8
*271.502	V	10.3	17.5	27.8	46.0	-18.2

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### **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 – 1992. 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

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### **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 ExtPho1.jpg to ExtPho2.jpg and IntPho1.jpg to IntPho3.jpg.

### **5 Supplementary document**

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

<b>Document</b>	<b>Filename</b>
ID Label/Location	LabelSmpl.pdf
Block Diagram	BlkDia.pdf
Schematic Diagram	Schem.pdf
Users Manual	UserMan.pdf
Operational Description	OpDes.pdf

#### **5.1 Bandwidth**

N.A.

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### **6 Appendices**

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

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

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