CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No.	:	AM0055275(2)	Date :	2010-11-09
Application No.	:	LM011215(0)		
Client	:	TecniToys Juguetes, S.A. Avda. Diagonal, 545 08029 BARCELONA Spain.		
Manufacturer	:	Dongguan L C Technology Co., Ltd. Qiao Li Management District, Chang Huang Road, Changping Town, Dongguan City, Guang Dong Province, China		
Sample Description	:	One(1) item of submitted sample stated to be My First Scalextric - SCX 27 MHz of Model No. #1806 & #18060 Radio Frequency : 27.145MHz Transmitter Rating : 3 x 1.5V AAA size batteries No. of submitted sample : Four (4) piece (s)		
Date Received	:	2010-07-27.		
Test Period	:	2010-07-30 to 2010-08-03.		
Test Requested	:	FCC Part 15 Certification.		
Test Method	:	47 CFR Part 15 (10-1-09 Edition) 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.		
Remark	:	All two models are the same in circuitry and components and construction, and therefore model #1806 was chosen to be the representative of the test sample.		

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____

Mr. WONG Lap-pong, Andrew
Assistant Manager
Electrical Division

FCC ID: V9H-1806-7T

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1 General Information

1.1 General Description

The equipment under test (EUT) is a transmitter for My First Scalextric - SCX 27 MHz. It operates at 27.145MHz and the oscillation of radio control is generated by a crystal. The EUT is powered by 3 x 1.5V AAA size batteries. There are two buttons on the EUT. When the button is pressed, the EUT will transmit control signal to the receiver.

The antenna is permanently attached in EUT and the radio output power is unable to adjust.

The brief circuit description is listed as follows:

- Q2 and its associated circuit act as a power switch.
- D3 and its associated circuit act as a voltage regulator.
- Q1, X1 and its associated circuit act as an oscillator.
- Q3 and its associated circuit act as a RF amplifier.
- U1 and its associated circuit act as an encoder.

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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.

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1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date
EMI Test Receiver	R&S	ESCI	100152	23 Dec, 2010
Broadband Antenna	Schaffner	CBL6112B	2718	04 Aug, 2010
Loop Antenna	EMCO	6502	00056620	24 Aug, 2010
Coaxial Cable	Schaffner	RG213/U	N/A	04 Aug, 2010
Coaxial Cable	Suhner	RG214/U	N/A	04 Aug, 2010

1.4 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%.

Radiated emissions

Frequency	Uncertainty (U_{lab})
30MHz ~ 200MHz (Horizontal)	4.63dB
30MHz ~ 200MHz (Vertical)	4.64dB
200MHz ~1000MHz (Horizontal)	4.65dB
200MHz ~1000MHz (Vertical)	4.64dB

Conducted emissions

Frequency	Uncertainty (Ulab)
150kHz ~ 30MHz	3.04dB

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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 – 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.

"#" means emissions appearing within the restricted bands shall follow the requirement of section 15.205.

The frequencies from fundamental up to the tenth harmonics were investigated, and emissions more 20dB below limit were not reported. Thus, those highest emissions were presented in next page (section 2.3).

It was found that the EUT meets 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

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	26	° C
Relative humidity:	59	%

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV)	Antenna Factor and Cable Loss (dB/m)	Average Factor (dB)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.145	V	47.8	9.9	-22.3	35.4	80.0	-44.6
54.291	V	14.9	8.6	-	23.5	40.0	-16.5
81.435	H	13.1	7.8	-	20.9	40.0	-19.1
#108.579	H	11.5	11.2	-	22.7	43.5	-20.8
#135.727	H	12.2	12.6	-	24.8	43.5	-18.7
#162.871	H	12.2	11.0	-	23.2	43.5	-20.3
190.015	H	12.6	9.9	-	22.5	43.5	-21.0
217.164	H	10.8	10.3	-	21.1	46.0	-24.9
#244.309	H	15.1	10.3	-	25.4	46.0	-20.6
#271.451	H	12.7	14.1	-	26.8	46.0	-19.2

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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 – 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

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4 Photograph

4.1 Photographs of the Test Setup for Radiated Emission and Conducted 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 InPho2.jpg.

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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 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 = 83.80ms

Effective period of the cycle = 1.02ms x 1 + 0.44ms x 7 + 0.34ms x 1 + 0.18ms x 11
= 6.42ms

Duty Cycle = 6.42ms / 83.80ms
= 0.077

Therefore, the average factor is found by $\underline{20 \log_{10}} 0.077$ =-22.3dB

5.3 Transmission time

Not Applicable

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6 Appendices

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A3	Photos of Internal Configurations	1	page
A4	ID Label/Location	1	page
A5	Bandwidth Plot	1	page
A6	Average Factor	3	pages
A7	Block Diagram	1	page
A8	Schematics	1	page
A9	User Manual	2	pages
A10	Operation Description	1	page

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

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