FCC TEST REPORT

For

Arena Rocker (Raminator)RX

Model Number: 37032

Reference No.	:	CT10042060-S-F
FCC ID	:	V9Q-37030R49
Applicant	:	Toy State International Ltd.
Address	:	19/F., One Peking, No.1 Peking Road, Tsimshatsui, Kowloon, Hong Kong
Date of Test	:	April 22, 2010
Date of Issue	:	April 23, 2010
Prepared By	:	Shenzhen CCE Test Electronic Co., Ltd.
Test Result	:	Pass

2 Contents

3 Test Summary

Test Items	Test Requirement	Test Method	Limit / Severity	Result
Mains Terminal Disturbance Voltage, 150kHz to 30MHz	FCC Part 15	ANSI C63.4: 2009	N/A	N/A
Radiation Emission, 30MHz to 1GHz	FCC Part 15	ANSI C63.4: 2009	N/A	PASS

Note : denote that for more details of the EUT, please refer to the relating test items as below .

4 Test Report Declaration

Applicant	:	Toy State International Ltd.
Address	:	19/F., One Peking, No.1 Peking Road, Tsimshatsui, Kowloon, Hong Kong
Manufacturer	:	Shen Zhen Nan Ling Toys Products Co., Ltd.
Address	:	132 Busha Road, Nanling Village, Buji Town, Longgang, Shenzhen, Canton 518114, China
Product Name	:	Arena Rocker (Raminator)RX
Model No.	:	37032
Power Supply	:	DC 6V(4 pcs 1.5V AA Battery)
Standard	:	FCC Part 15.109
Temperature	:	25.5 ℃
Humidity	:	51 % RH
Barometric Pressure	:	1012 mbar
Test Engineer	:	Mike Chen
Reviewed By	:	Tom. Yao

5 Test Laboratory and Facility Infromation

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

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. 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 880581,June 24，2008.

5.1 Test Location

All Emissions testswere performed at:

1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District,

Shenzhen 518105, Guangdong, China.

6 Test Equipment Used

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-09	Aug-10	Wws20081596	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-09	Aug-10		±1dB
Broadband Preamplifier 0.5-18 GHz	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-09	Aug-10		±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-09	Aug-10		-
10m 50 Ohm Coaxial Cable with N-plug, individual length,usable up to 3(5)GHz, Connector	SCHWARZBECK MESS-ELEKTROM / AK 9513				Aug-09	Aug-10		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-09	Aug-10	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931		9k-1GHz	Aug-09	Aug-10		

7 Radiation Emission Test

Test Requirement:	FCC Part 15.109
Test Method:	Based on ANSI 63.4:2009
Test Date:	April 22, 2009
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

Definition: ANSI STANDARD C63.4-2003 12.1.1.1 SUPERREGENERATIVE RECEIVER:
A Signal Generator was set to the unit under test operating frequency.
An un-Modulated continuous wave (CW) signal was radiated at the super regenerative receiver operating frequency to cohere the characteristic broadband emissions from the receiver.

7.1 Test Equipment

Please refer to Section 5 this report.

7.2 Measurement Uncertainty

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.Based on ANSI C63.4:2009, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is ±2.9 dB.

7.3 Test Procedure

1. New battery were installed in the equipment under test for radiated emissions test.
2. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
3. All data was recorded in the peak and average detection mode.
4. The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.
5. The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest essission during measurement.

7.4 Spectrum Analyzer Setup

According to FCC Part 15.109, the system was tested to 1000 MHz.

Start Frequency.....30MHz
Stop Frequency .....1000 MHz
Sweep Speed Auto
IF Bandwidth.....100 kHz
Video Bandwidth.....100KHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 100KHz

7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

7.6 Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

7.7 Radiated Emissions Limit

Frequency(MHZ)	Distance(m)	Field strength(dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

7.8 Radiated Emission Data

Test Mode: Working

Test Result: PASS

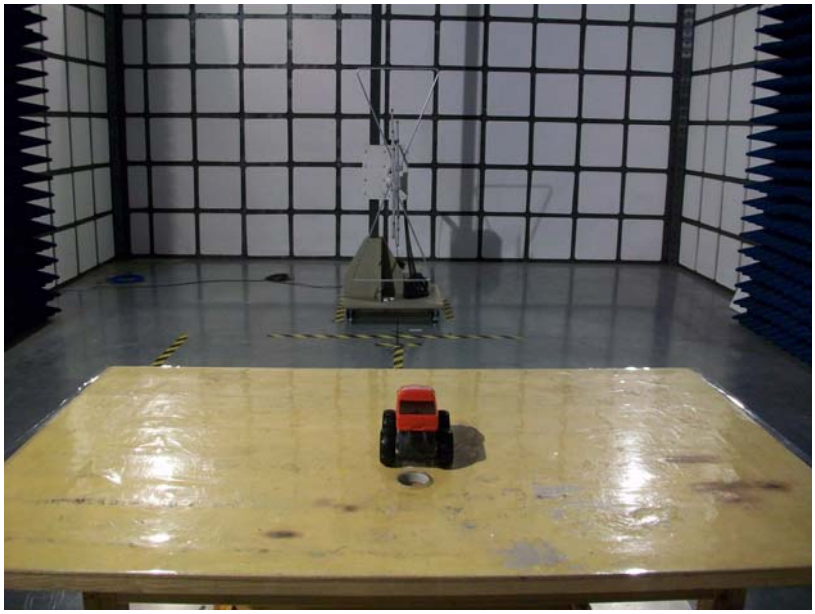
Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	FCC 15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
27.34	Quasi-peak	Horizontal	27.21	40	-12.79	1.4	135
49.71	Quasi-peak	Horizontal	24.08	40	-15.92	1.7	124
92.51	Quasi-peak	Horizontal	25.51	40	-17.99	1.6	127
138.41	Quasi-peak	Horizontal	37.10.	43.5	-6.40	1.3	142
151.81	Quasi-peak	Horizontal	36.01	43.5	-7.49	1.4	117
27.21	Quasi-peak	Vertical	25.65	40	-14.35	1.5	130
46.51	Quasi-peak	Vertical	27.83	40	-12.17	1.4	142
92.85	Quasi-peak	Vertical	20.00	43.5	-23.50	1.5	146
138.92	Quasi-peak	Vertical	25.75	43.5	-17.75	1.6	134
151.25	Quasi-peak	Vertical	26.22	43.5	-17.28	1.2	130

8 Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product has a permanent antenna, fulfill the requirement of this section

9 Test Setup Photos

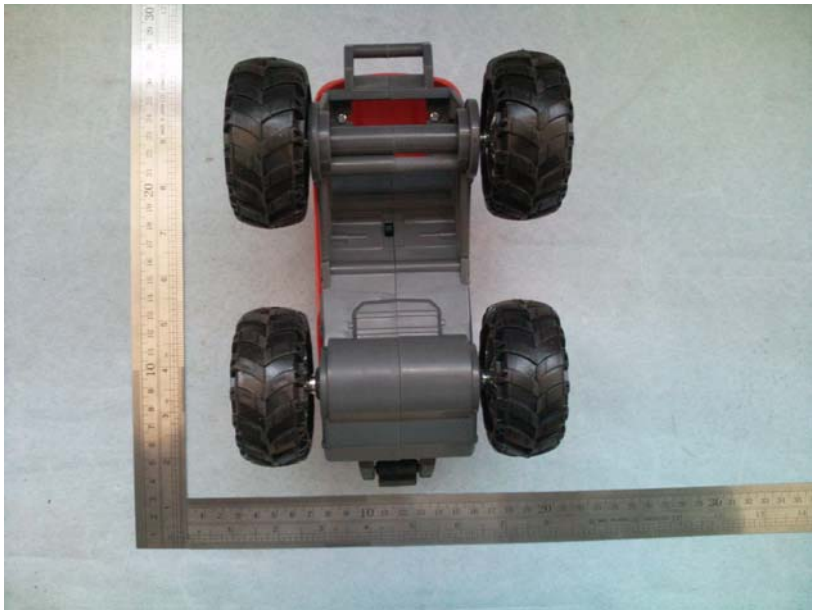
Radiation Emission Test View



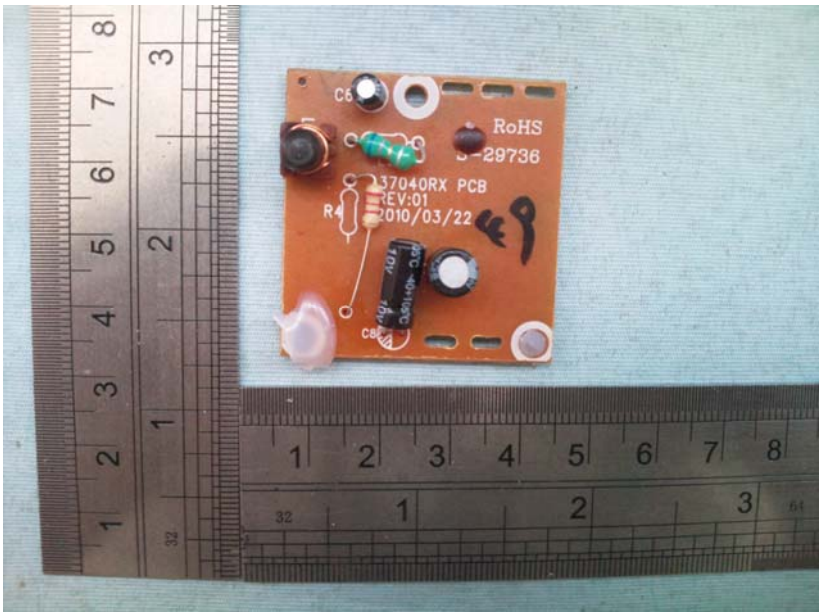
10 EUT Photos

10.1 Appearance View of EUT

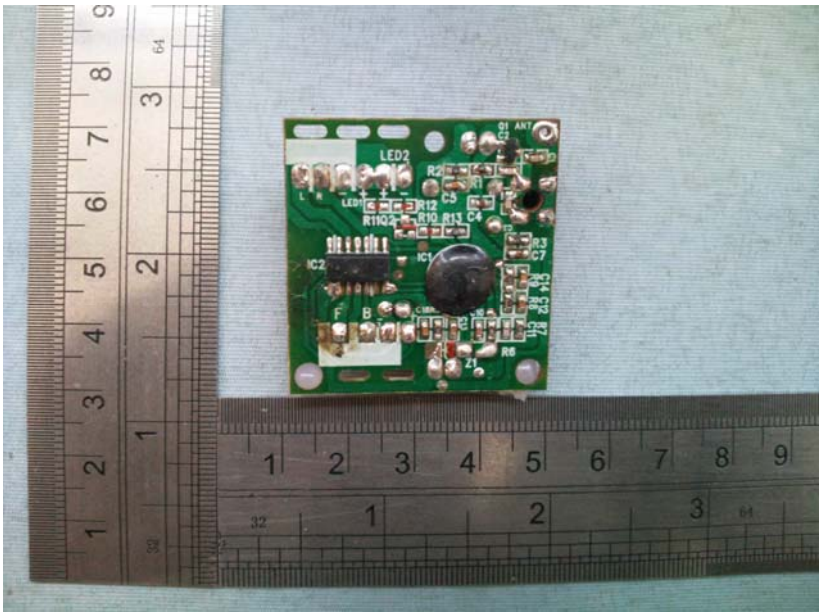
10.2 Appearance View of EUT



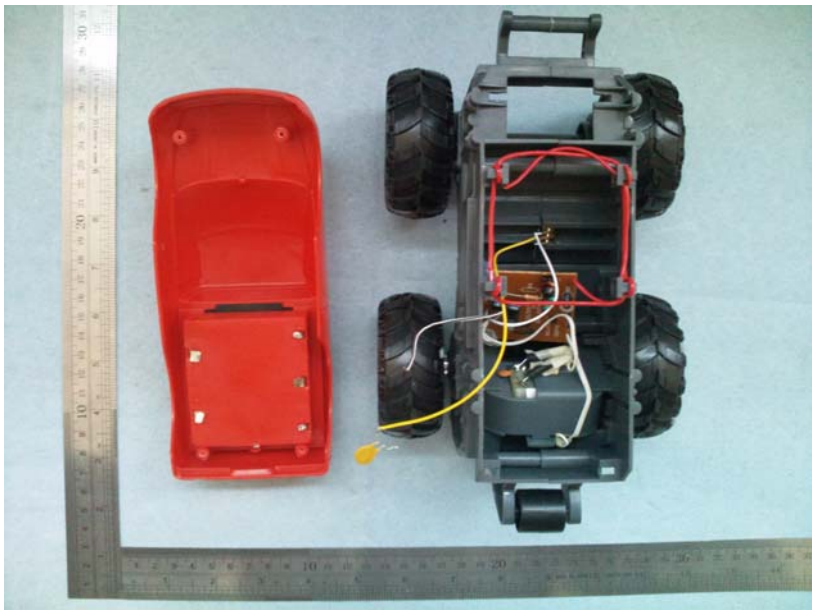
10.3 Front View of PCB



10.4 Rear View of PCB



10.5 Open View of EUT



11 FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation.

Proposed FCC ID Label Location on the EUT