

Report No.	:	AR0018735(2)	Date :	18 Apr 2013
Application No.	:	LR007511(3)		
Client	:	Kid Galaxy Inc 150 Dow Street, Unit 425B Manchester, nh03101		
Sample Description	:	One(1) item of submitted sample stated to	o be :	
		Sample Description	Model number	[
		Viper	10192	
		Morphibians—shark / Gator / Rover / exploer / Frog / Stingray / Cobra / Killer Whale		/ 10162 / 10163 / / 10118 / 10168
		Sample registration no.: RR009272-0Radio Frequency: 49.860MHz 7Rating: 2 x 1.5V AANo. of submitted sample: Two(2) piece	Fransmitter A size batteries	
Date Received	:	19 Mar 2013		
Test Period	:	22 Mar 2013 to 10 Apr 2013		
Test Requested	:	FCC Part 15 Certification.		
Test Method	:	47 CFR Part 15 (10-1-09 Edition) ANSI C63.4 – 2009		
Test Result	:	See attached sheet(s) from page 2 to 26.		
Conclusion	:	The submitted sample was found to comp Subpart C.	oly with requirer	nent of FCC Part 15
Remark	:	All nine models are the same in circuitry 10192 was chosen to be the representative between the tested model and the declare and sample description.	e of the test sam	ple. The difference
		For and on behalf of CMA Industrial Development Found	dation Limited	
Authorized Signatur	e:_	Mr. WONG Lap-pony Assistant Mana Electrical Divisi	ger	Page 1 of 26
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#### 1 General Information

#### 1.1 General Description

The equipment under test (EUT) is a transmitter for Morphibians RC car. It operates at 49.860MHz and the oscillation of radio control is generated by a crystal. The EUT is powered by  $2 \times 1.5V$  AAA size batteries. There are buttons on the EUT. When the button is pressed, it will transmit radio control signal to 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:

- S1, S2 and its associated circuit act as power circuit.
- R2, R3, R4, R5, R6, R7, D1, C3, C4 and its associated circuit act as encoding circuit
- R8, R9, Q3, C7, C6, X1, C5, L1, R10 and its associated circuit act as 27.145MHz high frequency oscillatory circuit
- R11, C8, C11, Q4, R12, L2, C10, C12, L3, C13, L4 and its associated circuit act as modulator and amplifier circuit

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

### FCC Registered Test Site Number: 552221

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. 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 - 2009. 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	28 May 2013
Broadband Antenna	Schaffner	CBL6112B	2718	16 Jan 2014
Loop Antenna	EMCO	6502	00056620	15 Sep 2013
Coaxial Cable	Schaffner	RG 213/U	N/A	28 May 2013
Coaxial Cable	Schaffner	RG 214/U	N/A	28 May 2013

### 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 <sub>lab</sub> )
30MHz ~ 200MHz (Horizontal)	4.83dB
30MHz ~ 200MHz (Vertical)	4.84dB
200MHz ~1000MHz (Horizontal)	4.66dB
200MHz ~1000MHz (Vertical)	4.65dB

#### Conducted emissions

Frequency	Uncertainty (Ulab)
150kHz~30MHz	3.02dB

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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 - 2009.

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 for Radiated Emission 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 limited were not reported. Thus, those highest emissions were presented in next page (section 2.3)

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

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	25	°C
Relative humidity:	70	%

Detector: Peak (Fundamental frequency), Quasi-peak (outside operation band) RBW: 120kHz VBW: 300kHz

<b>VDW</b> . 500KH							
Frequency	Polarity	Reading	Antenna Factor	Average	Field Strength	Limit at 3m	Margin
(MHz)	(H/V)	at 3m	and Cable Loss	Factor	at 3m	$(dB\mu V/m)$	(dB)
		(dBµV)	(dB/m)	(dB)	(dBµV/m)		
49.861	V	66.6	12.5	- 5.5	73.6	80.0	- 6.4
99.721	V	22.3	10.1	-	32.4	43.5	- 11.1
149.584	V	9.2	14.5	-	23.7	43.5	- 19.8
199.430	V	10.2	11.2	-	21.4	43.5	- 22.1
249.296	V	12.3	11.9	-	24.2	46.0	- 21.8
299.172	V	9.8	15.0	-	24.8	46.0	- 21.2
349.033	V	11.0	15.9	-	26.9	46.0	- 19.1
398.875	V	12.9	15.9	-	28.8	46.0	- 17.2
448.757	V	9.7	20.3	-	30.0	46.0	- 16.0
498.614	V	12.1	20.3	-	32.4	46.0	- 13.6

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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 - 2009. 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 on saved in TestRpt2.pdf shows the fundamental emission is confined in the specified band. The field strength of any emission appearing between the band edges and up to 10 kHz above and below the band edges (49.81 and 49.91 MHz) is at least 26dB below the carrier level. It meets the requirement of Section 15.235(b).

Lower frequency of 26dB below carrier	=	49.845MHz
Upper frequency of 26dB below carrier frequency	=	49.877MHz

### 5.2 Duty cycle

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

The duration of one cycle	=	54.203ms
Duration of pulse 1 Duration of pulse 2	=	1.6812ms 550.7us
Number of pulse 1 Number of pulse 2	=	
Effective period of the cycle	=	(4 x 1.6812ms) + (40 x 550.7µs) 28.753ms
Duty Cycle	=	28.753 / 54.203 0.530

Therefore, the average factor is found by  $20 \log_{10} 0.530 = -5.5 dB$ 

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### 5.3 Transmission time

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A2.	Photos of External Configurations	1	page
A3.	Photos of Internal Configurations	1	page
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	4	pages
A10.	Operation Description	1	page

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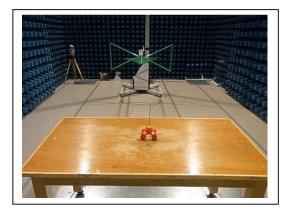
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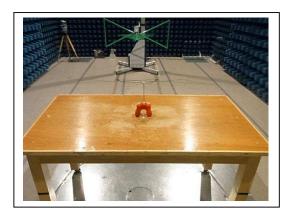
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A1. Photos of the set-up of Radiated Emissions



(Front view)



(Back view)

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#### A2. Photos of External Configurations



External Configuration 1



**External Configuration 2** 

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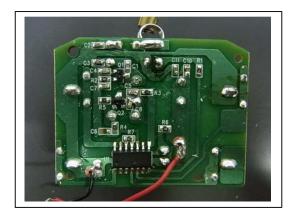
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A3. Photos of Internal Configurations



Internal Configuration 1



Internal Configuration 2

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A4. ID Label / Location



ID Label 1



ID Label 2

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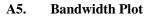


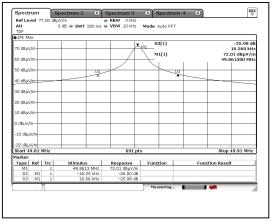
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Bandwidth 1

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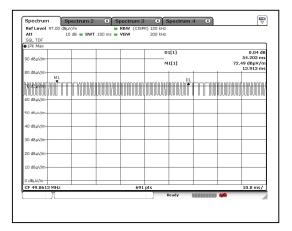
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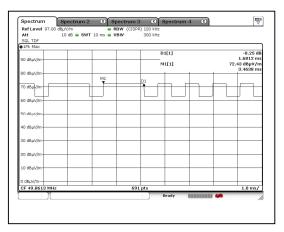
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Duty Cycle 1



Duty Cycle 2

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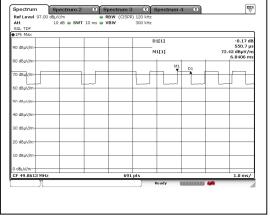
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Duty Cycle 3

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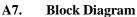


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SHEET: 1 of 1 :28 APPROVED B ANT EMISSION DRAWING BY: J 0 LUO DESIGN 3HUN HUI 03-20-FILTER RF AMPLIFIER MODVLATOR 710420 go go police car FULL FUNCTION 20-E003010062 OSCILLATOR OSCILLATOR 400HZ ĬЯ SMITCH TITLE: FUNCTION: DWG NO: LUNG CHEONG h 



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20 8000002 49/IX sch 1 - Thu Mr 21 11:08 44 2013 l of 1 Ë 1 L4 3 리비 39 22 BB 22 ( 6060) T 49AHZ 20-E003010002 8 美 怒嘆 TITLE: FUNCTION: DWG NO: 22 22 22 25 13 23 CHEONG LUNG INS N N 4---4



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A9. User Manual



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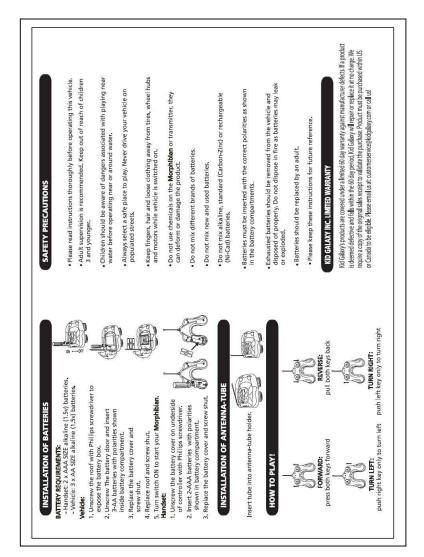
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#### A9. User Manual



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**User Manual** 



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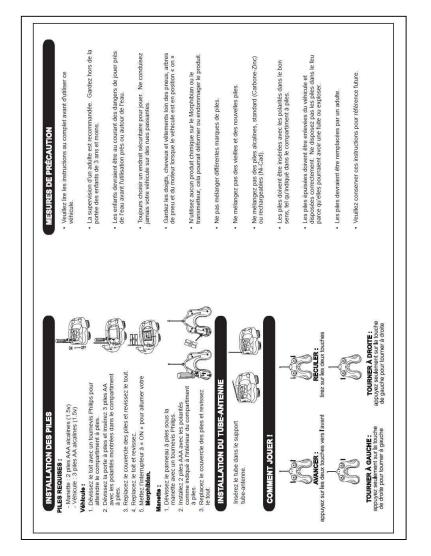
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A9. User Manual



A10. Operation Description

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Report No.

# CMA Testing and Certification Laboratories 廠商會檢定中心 TEST REPORT

AR0018735(2)

:

Kid Galaxy RC-TOY GO GO CAR TX OPERATION PRINCIRLE
The <b>Kid Galaxy</b> RC toy go go car TX operates basing on the controlling signals encode by 2 channel circuit; Afer modulation, the hight frequency oscillatory signals were emitted to control the progress, retreat functions for the RX. The modulation type is AM.
Circuits' composition:
Power circuit;encoding circuit;high frequency oscillatory circuit; modulator and amplifier circuit. 1. Power circuit: S1,S2
<ol> <li>encoding circuit: R2, R3, R4, R5, R6, R7, D1, C3, C4</li> <li>27.145MHz high frequency oscillatory circuit decoder circuit:</li> </ol>
<ul> <li>R8, R9, Q3, C7 · C6, X1, C5, L1, R10</li> <li>4. modulator and amplifier circuit:</li> <li>R11, C8, C11, Q4, R12, L2, C10, C12, L3, C13, L4 · ANT</li> </ul>

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

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