TEST REPORT No.: (5212)153-1462

TEST REPORT

To:	**SILVERLIT TOYS MANUFACTORY LTD**	To:	-
Attn:	Edmond Chan	Attn:	-
Address:	Floor 17, World Trade Centre, 280 Gloucester Road, Causeway Bay, Hong Kong	Address:	-
Fax:	852 29162984	Fax:	-
E-mail:	edmond@silverlit.com	E-mail:	-
Folder No.:	ITM-12MY440MTHS-B-A		

Factory Name:	**SILVERLIT TOYS MANUFACTORY LTD**
Location:	Floor 17, World Trade Centre, 280 Gloucester Road, Causeway Bay, Hong Kong
Product:	POLI: R/C Racer: Roy Model No.: 83186

Sample No:	HK120530/025
Test Date(s):	June 4, 2012
Test Requested:	FCC Part 15 – 2011
Test Method:	ANSI C63.4 – 2009
FCC ID:	OYK-TX027145-1205

The results given in this report are related to the tested specimen of the described electrical apparatus.

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

Authorized Signature:

Reviewed by: Keith Yeung	Approved by: Steven Tsang
Date: November 21, 2012	Date: November 21, 2012

BUREAU VERITAS HONG KONG LIMITED – Kowloon Bay Office
1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
Tel: +852 2331 0888
Fax: +852 2331 0889
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Test Result Summary

EMISSION TEST			
Test requirement: FCC Part 15 - 2011			
Test Condition	Test Method	Test Result	
		Pass	Failed
Radiated Emission Test, 9kHz to 1GHz	ANSI C63.4	☒	☐

Report Revision & Sample Re-submit History:

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Kowloon Bay Office
1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
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Test Laboratory & Test Instruments List

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at:

BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE

No. 2106-2107, 21/F., Westin Centre,
26 Hung To Road,
Kwun Tong, Kowloon,
Hong Kong

Test Instrument List

Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	18-OCT-2012
LOOP ANTENNA	ETS-LINDGREN	6502	00102266	07-AUG-2012
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	16-SEP-2012
OPEN AREA TEST SITE	BVCPS	N/A	N/A	07-JUL-2012
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	25-OCT-2012
COAXIAL CABLE	SUHNER	N/A	N/A	10-NOV-2012

Remarks: -
N/A: Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

BUREAU VERITAS HONG KONG LIMITED –
Kowloon Bay Office
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Equipment Under Test [EUT]

Description of Sample:

Product:	POLI: R/C Racer: Roy
Model No.:	83186
Additional Product Name:	POLI: R/C Racver: Poli / Amber / Helly
Additional Model Number:	83187 / 83188 / 83193
Additional Model Information:	Declare the Circuit, PCB layout, Electrical parts of the products are identical to the basic model. Except model number and sample description.
Power Supply:	Car: 4.5Vd.c. (“AA” size battery x 3) / Remote: 9Vd.c. (“6F22” size battery x 1)

Description of EUT Operation:

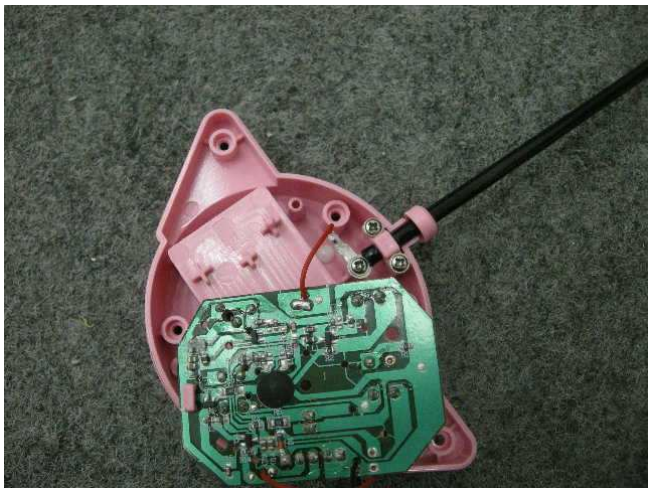
The Equipment Under Test (EUT) is a SILVERLIT TOYS MANUFACTORY LTD. of Radio Control toy. It is a 2 buttons & 1 switch transmitter and operating at 27.149MHz. The EUT continues to transmit buttons is being pressed, Modulation by IC, and type is pulse modulation.
The transmitter has different control:

1. Left button – Turning control
2. Right button – Forward control
3. ON/OFF switch – Power ON / OFF control

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. The antenna consists of 19.0cm long metal spring covered with rubber. The antenna is not replaceable or user serviceable. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications.

Photo of Antenna



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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
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Fax: +852 2331 0889
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Test Results

Radiated Emissions (Fundamental)

Test Requirement:	FCC Part 15 Section 15.227
Test Method:	ANSI C63.4
Test Date(s):	2012-06-04
Temperature:	25.0 °C
Humidity:	67.0 %
Atmospheric Pressure:	100.2 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	9Vd.c. (“6F22” size battery x 1)

Test Method:

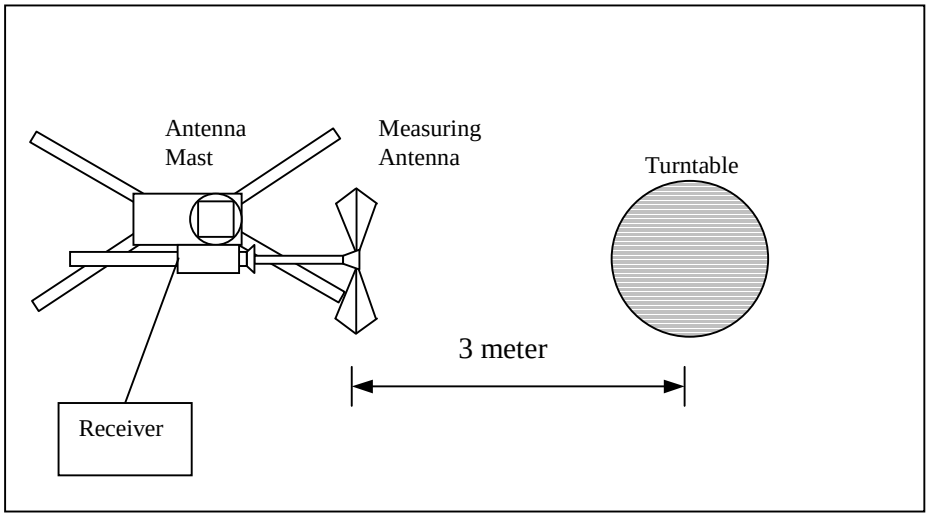
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009.

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. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using new battery. 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 place 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 1m above the ground.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup: Open Area Test Site



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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.227]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μV/m]	Field Strength of Fundamental Emission [Average] [μV/m]
26.96 – 27.28	100,000 (100 dBμV/m)	10,000 (80 dBμV/m)

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.149	V/0°	9.9	59.5	100	-40.5

Detection mode: # Average

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.149	V/0°	9.9	**42.7	80	-37.3

 # For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
****Duty Cycle Correction = 20Log(0.144) =-16.8dB**

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz

BUREAU VERITAS HONG KONG LIMITED – Kowloon Bay Office
1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
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TEST REPORT No.: (5212)153-1462

Radiated Emissions (9kHz – 1GHz)

Test Requirement:	FCC Part 15 Section 15.209
Test Method:	ANSI C63.4
Test Date(s):	2012-06-04
Temperature:	25.0 °C
Humidity:	67.0 %
Atmospheric Pressure:	100.2 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	9Vd.c. (“6F22” size battery x 1)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [µV/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500

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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
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Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
54.298	H	5.4	26.8	40.0	-13.2
81.447	H	6.5	25.2	40.0	-14.8
108.596	H	12.4	22.1	43.5	-21.4
135.745	H	11.8	20.4	43.5	-23.1
162.894	H	9.0	21.5	43.5	-22.0
190.043	H	8.1	20.7	43.5	-22.8
217.192	H	8.7	21.8	46.0	-24.2
244.341	H	12.1	22.3	46.0	-23.7
271.490	H	13.6	21.6	46.0	-24.4
289.639	H	14.3	24.7	46.0	-21.3

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
54.298	V	5.4	27.3	40.0	-12.7
81.447	V	6.5	24.1	40.0	-15.9
108.596	V	12.4	22.5	43.5	-21.0
135.745	V	11.8	20.6	43.5	-22.9
162.894	V	9.0	20.2	43.5	-23.3
190.043	V	8.1	21.2	43.5	-22.3
217.192	V	8.7	22.3	46.0	-23.7
244.341	V	12.1	23.6	46.0	-22.4
271.490	V	13.6	21.2	46.0	-24.8
289.639	V	14.3	23.9	46.0	-22.1

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz

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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
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26dB Bandwidth of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.227
Test Method:	ANSI C63.4
Test Date(s):	2012-06-04
Temperature:	25.0 °C
Humidity:	67.0 %
Atmospheric Pressure:	100.2 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	9Vd.c. (“6F22” size battery x 1)

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Limits for 26dB Bandwidth of Fundamental Emission:

Frequency [MHz]	26dB Bandwidth [KHz]	Limits [MHz]
27.149	97.92	within 26.96 – 27.28

BUREAU VERITAS HONG KONG LIMITED – Kowloon Bay Office
1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
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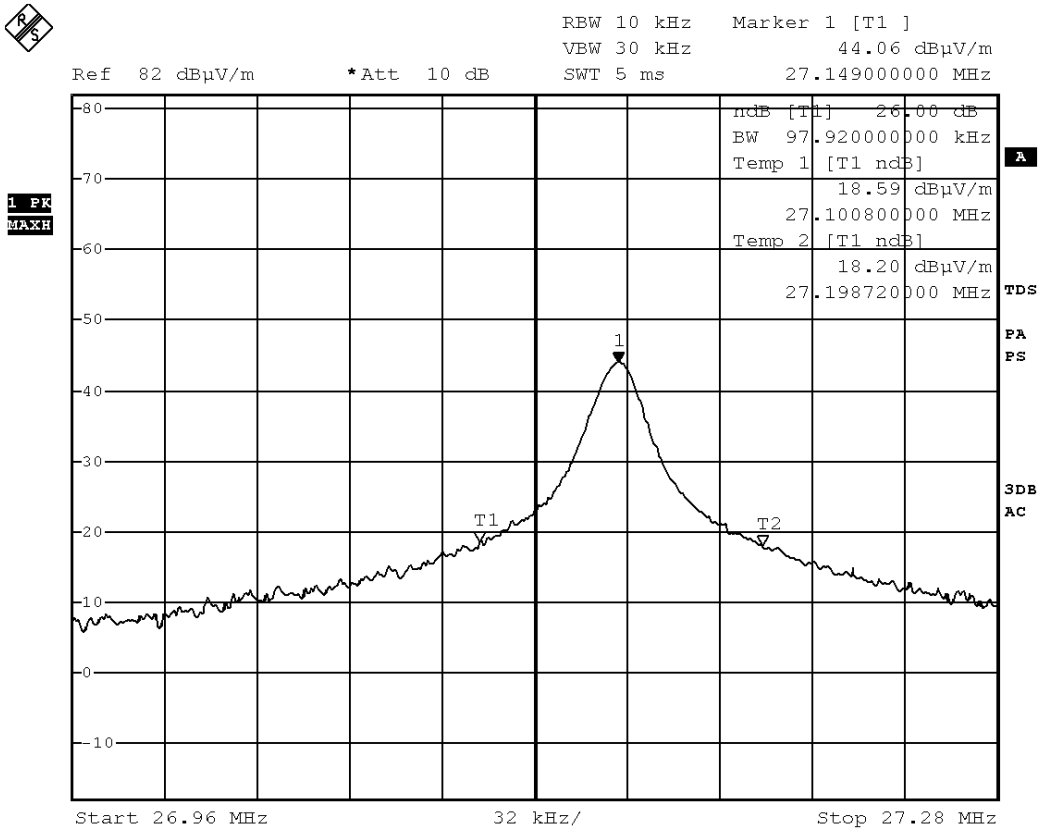
Measurement Data

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



Date: 4.JUN.2012 16:13:04

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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
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Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (91.6msec) never exceeds a series of 1 long (13.2msec) pulse. Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered 13.2msec per 91.6msec = 14.4% duty cycle. Figure A through B show the characteristics of the pulse train for one of these functions.

Remarks: -

Duty Cycle Correction = 20Log(0.144) = -16.8dB

The following figures [Figure A to Figure B] show the characteristics of the pulse train for one of these functions.

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2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
Tel: +852 2331 0888
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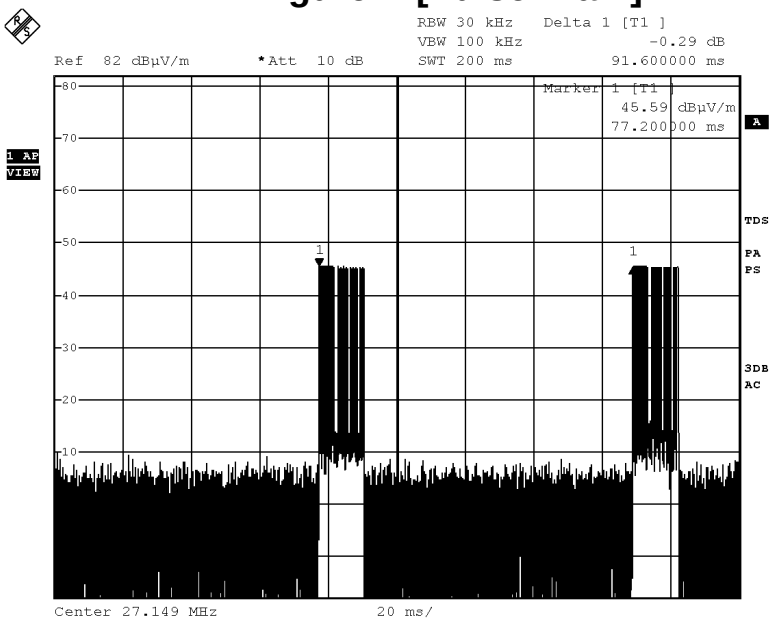
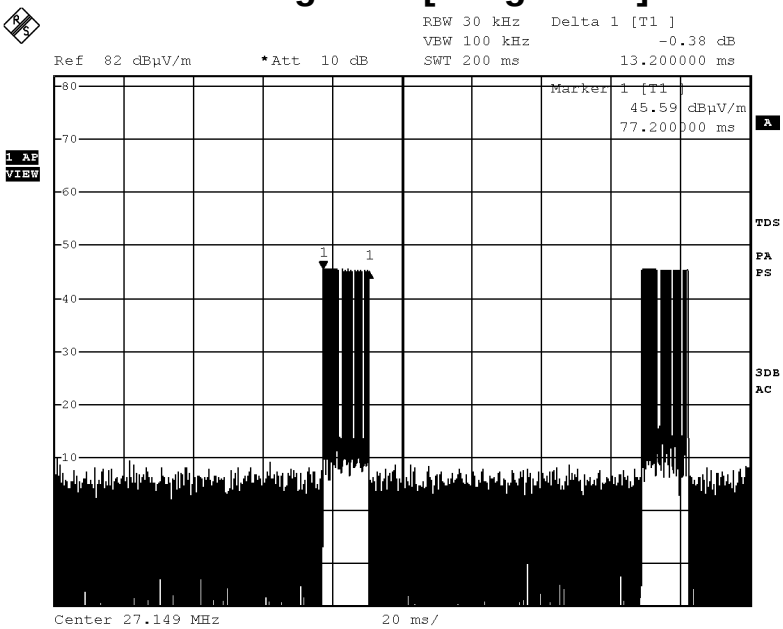
Figure A [Pulse Train]



Date: 6.JUN.2012 10:28:47

Figure B [Long Pulse]



Date: 6.JUN.2012 10:29:04

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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
Tel: +852 2331 0888
Fax: +852 2331 0889
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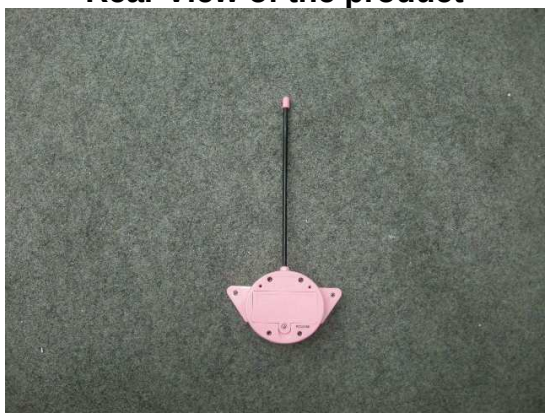
Photographs of EUT

Front View of the product

Rear View of the product



Side View of the product

Side View of the product

Battery compartment

Battery Cover

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2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
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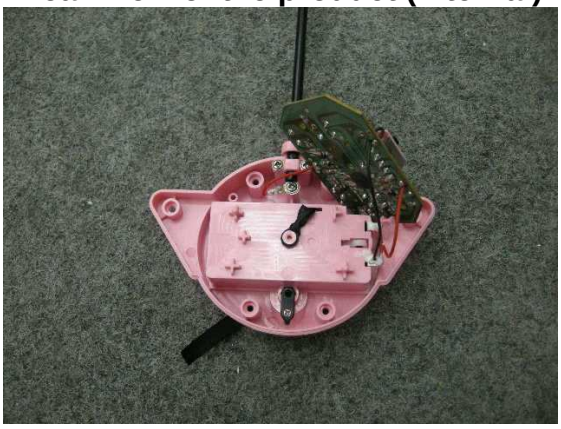
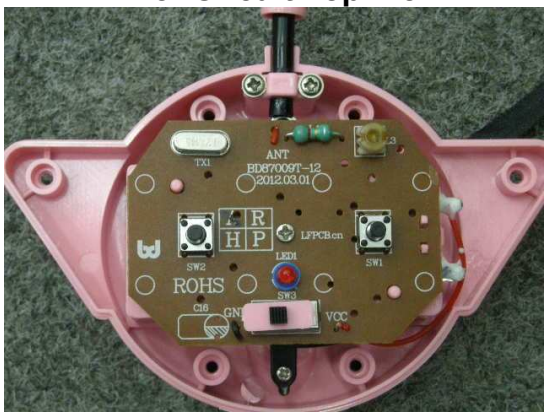
Photographs of EUT

Front View of the product (Internal)

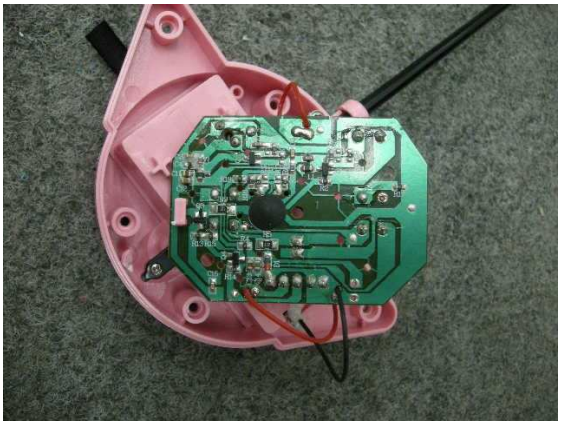
Rear View of the product (Internal)



Inner Circuit Top View



Inner Circuit Bottom View



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1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
Tel: +852 2331 0888
Fax: +852 2331 0889
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Measurement of Radiated Emission Test Set Up

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

BUREAU VERITAS HONG KONG LIMITED – Kowloon Bay Office
1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon,HONG KONG
Tel: +852 2331 0888
Fax: +852 2331 0889
www.cps.bureauveritas.com