CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No.	:	AJ018467-001	Date :	2007 July 25
Application No.	:	LJ210253(2)		
Client	:	Jakks Pacific (HK) Ltd 12/F, Wharf T&T Centre, 7 Canton Road, Tsim Sha Tsui, Hong Kong		
Sample Description	:	One(1) submitted sample(s) stated to be Shadow Hawk of Model No. 74123 Radio Frequency : 49.860MHz Receiver Rating : 1 x 7.4V rechargeable battery AC 120V to DC 6V adaptor for battery charging No. of submitted sample : Two (2) piece(s) ***		
Date Received	:	2007 April 27		
Test Period	:	2007 April 30 – 2007 May 30		
Test Requested	:	FCC Part 15 Certification.		
Test Method	:	47 CFR Part 15 (10-1-05 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 B.		

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____
Danny Chui
Deputy Manager - EL. Division

FCC ID: OTARC74123R49

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AJ018467-001 Date : 2007 July 25

Table of Contents

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

TEST REPORT

Report No. : AJ018467-001 Date : 2007 July 25

1 General Information

1.1 General Description

The equipment under test (EUT) is a receiver for Shadow Hawk. It operates at 49.860MHz and the oscillation of radio control is generated by a LRC circuit. The EUT is powered by 1 x 7.4V rechargeable battery. When it received an accelerated, decelerated, turn right or turn left signal, it will fly to the corresponding direction.

The brief circuit description is listed as follows:

- Q1 and associated circuit act as a RF amplifier.
- U1 and associated circuit act as a decoder.
- U6 and associated circuit act as a voltage regulator.
- U51/2 and associated circuit act as a motor driver for M1.
- U52/2 and associated circuit act as a motor driver for M2.
- Q2, Q3, U2 ~ U4 and associated circuit act as a logic circuit for M1 and M2.
- U7 and associated circuit act as a charging circuit.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

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.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date
EMI Test Receiver	R&S	ESCI	100152	2007 September 20
Broadband Antenna	Schaffner	CBL6112B	2718	2008 May 23
Signal Generator	IFR	2023B	202302/938	2008 January 04
EMI Test Receiver	R&S	ESCS30	100001	2008 February 04
LISN	R&S	ESH3-Z5	100038	2008 January 23

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

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.

A signal generator was used to radiate an unmodulated continuous wave (CW) signal to the EUT (superregenerative receiver) at its operating frequency in order to “cohere” the characteristic broadband emissions from the receiver.

2.2 Test Result

The emissions from 30MHz to 1000MHz were investigated. The highest emissions were presented in next page.

Emissions with more than 20dB below the limit were not report in next page.

The emissions meeting the requirement of section 15.109 are based on measurements employing the CISPR quasi-peak detector below 1000MHz and average detector for frequencies above 1000MHz.

It was found that the EUT meet the FCC requirement.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

TEST REPORT

Report No. : AJ018467-001 Date : 2007 July 25

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart B

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
31.862	V	8.2	18.5	26.7	40.0	-13.3
49.160	V	6.8	10.6	17.4	40.0	-22.6
52.544	V	16.8	8.4	25.2	40.0	-14.8
54.340	V	17.9	8.4	26.3	40.0	-13.7
56.317	V	16.1	8.4	24.5	40.0	-15.5
59.009	V	9.7	8.4	18.1	40.0	-21.9
80.380	V	8.2	7.3	15.5	40.0	-24.5
99.448	V	12.7	9.5	22.2	43.5	-21.3
99.944	V	13.6	9.5	23.1	43.5	-20.4
108.180	V	8.1	11.1	19.2	43.5	-24.3

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

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

The EUT was connected to the AC-DC adaptor and a charger to charge up the battery.

3.3 Graph and Table of Conducted Emission Measurement Data

For electronic filing, the document is saved with filename TestRpt2.pdf.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

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 Tsup5.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 ExPho4.jpg and InPho1.jpg to InPho4.jpg.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

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

Not Applicable

5.2 Duty cycle

Not Applicable

5.3 Transmission time

Not Applicable

5.4 Power Spectral Density

Not Applicable

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

TEST REPORT

Report No. : AJ018467-001 Date : 2007 July 25

6 Appendices

A1.	Photos of the set-up of Radiated Emissions	1	page
A2.	Photos of the set-up of Conducted Emissions	2	pages
A3.	Photos of External Configurations	2	pages
A4.	Photos of Internal Configurations	2	pages
A5.	ID Label/Location	1	page
A6.	Conducted Emission Measurement Data	2	pages
A7.	Block Diagram	1	page
A8.	Schematics Diagram	1	page
A9.	User Manual	2	pages
A10.	Operation Description	1	page

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

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com