CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AC011947-2 Date : 2002 August 05

Client : High Champion Limited
Room 1901, 19/F., Block A, Kailey Ind. Centre,
12 Fung Yip Street, Chai Wan, Hong Kong.

Sample Description : Sample stated to be :

Item Name	Item No.
Radio Control Patriot	3006
Radio Control Giant Wheel	3007
Radio Control Mars Detector	3008
Radio Control Robotic Spider	3009
Radio Control Storm Hopper	3003

Rating : 1 x 9.6 V, NiCd type chargeable battery pack
No. of sample(s) : Five(5) piece(s) ***

Date Received : 2002 July 11.

Test Period : 2002 July 11 – 2002 July 31.

Test Requested : FCC Part 15 Certification

Test Method : FCC Rules and Regulations Part 15 – May 2002
ANSI C63.4 – 1992

Test Result : See attached sheet(s) from page 2 to 10.

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

Remark : All five models are the same in circuitry and components; and therefore model 3008 was chosen to be the representative of the test sample.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____ Page 1 of 10
Danny Chui
EMC Engineer - EL. Division

FCC ID : OPMHC20023008R

Room 1401-3, 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. : AC011947-2 Date : 2002 August 05

Table of Contents

FCC ID : OPMHC20023008R

Room 1401-3, 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. : AC011947-2 Date : 2002 August 05

1 General Information

1.1 General Description

The equipment under test (EUT) is a superregenerative receiver for Radio Control Patriot, model : 3008, operating at 49.860 MHz. The EUT is powered by a 9.6 V, NiCd type rechargeable battery pack. The EUT receive the signal from transmitter and move forward as well as backward moving and circular path respectively.

The brief circuit description is listed as follows :
- Q1 and associated circuit act as RF amplification.
- IC1 and associated circuit act as decoding and oscillation.
- Q2, Q3, Q10 & Q11 and associated circuit act as motor (M1) control.
- Q4, Q5, Q12 & Q13 and associated circuit act as motor (M2) control.

The model(s) 3006, 3007, 3009 and 3003 are the same as model 3008 in hardware aspect. The difference in model cumbers is that the model 3008 obtains 9.6 V input voltage and the rest of models obtain 7.2 V input voltage. All models had been tested and the worst case data (model 3008) was shown in the report.

1.2 Related Submittal Grants

This is a single application for certification of a receiver. The transmitter for this receiver is authorized by Certification procedure.

TEST REPORT

Report No. : AC011947-2 Date : 2002 August 05

1.3 Location of the test site

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 1992. An Open Area Testing Site is set up for investigation and located at :

Top of the Roof, 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 – 1992. A double shielded room is located at :

Roof Floor, Yan Hing Centre,

9 – 13 Wong Chuk Yeung Street,

Fo Tan, Shatin,

New Territories,

Hong Kong.

Room 1401-3, 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. : AC011947-2 Date : 2002 August 05

1.4 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Certification No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESCS30	100001	20-69223	Mar. 21, 2001	Sept. 20, 2002
Broadband Antenna	Schaffner	CBL6113B	2718	AC1753	Dec. 15, 2000	Dec. 14, 2002
Signal Generator	IFR	2023B	202302/938	Nil	Oct. 23, 2000	Oct. 22, 2002
LISN	R&S	ESH3-Z5	100010	20-70405	Mar. 29, 2001	Sept. 28, 2002
Pulse Limiter	R&S	ESH3-Z2	100001	20-73194	May 2, 2001	Nov. 1, 2002

Room 1401-3, 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. : AC011947-2 Date : 2002 August 05

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 – 1992.

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.

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 were based on measurements employing the qusai-peak detector.

It was found that the EUT meet the FCC requirement.

Room 1401-3, 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. : AC011947-2 Date : 2002 August 05

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart C

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)
52.461	H	21.4	10.4	31.8	40.0	-8.2
104.925	H	11.1	14.2	25.3	43.5	-18.2
130.394	H	16.2	15.5	31.7	43.5	-11.8
157.386	H	12.2	14.0	26.2	43.5	-17.3
161.543	H	12.0	13.6	25.6	43.5	-17.9
212.706	H	23.7	14.2	37.9	43.5	-5.6
268.146	H	13.1	17.5	30.6	46.0	-15.4

TEST REPORT

Report No. : AC011947-2 Date : 2002 August 05

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 – 1992. 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

TEST REPORT

Report No. : AC011947-2 Date : 2002 August 05

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 TSup2.jpg

4.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename ExtPho1.jpg to ExtPho2.jpg and IntPho1.jpg to IntPho2.jpg.

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	LabelSmpl.pdf
Block Diagram	BlkDia.pdf
Schematic Diagram	Schem.pdf
Users Manual	UserMan.pdf
Operational Description	OpDes.pdf

5.1 Bandwidth

N.A.

Room 1401-3, 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. : AC011947-2 Date : 2002 August 05

6 Appendices

A1.	Photos of the set-up of Radiated Emissions	1 page
A2.	Photos of External Configurations	1 page
A3.	Photos of Internal Configurations	1 page
A4.	ID Label/Location	1 page
A5.	Block Diagram	1 page
A6.	Schematics	1 page
A7.	User Manual	4 pages
A8.	Operation Description	1 page

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

Room 1401-3, 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