



TEST REPORT

Report No. : AD009207-3 Date : 2003 July 23

Applicant : Early Light Industrial Co., Ltd.
Early Light International Centre,
No. 9, Ka Fu Close, Sheung Shui,
N. T., Hong Kong.

Attn. : Simon Lam / Jacky Yu

Sample Description : One(1) submitted sample stated to be 1/64 Scale RC Car 49 MHz Rx
of Model No. A0336.
Rating : 1.5 V rechargeable battery
No. of sample(s) : Three(3) pieces ***

Date Received : 2003 May 22.

Test Period : 2003 May 22 – 2003 July 15.

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 B.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____

Danny Chui
EMC Engineer - EL. Division

Page 1 of 10

FCC ID : Q4RA0336R

This document shall not be reproduced either in full or in part except with written approval by the Authorized Representative of CMA Testing.
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. : AD009207-3

Date : 2003 July 23

Table of Contents

1	General Information.....	3
1.1	General Description.....	3
1.2	Related Submittal Grants	3
1.3	Location of the test site.....	4
1.4	List of measuring equipment	5
2	Description of the radiated emission test	6
2.1	Test Procedure	6
2.2	Test Result.....	6
2.3	Radiated Emission Measurement Data.....	7
3	Description of the Line-conducted Test	8
3.1	Test Procedure	8
3.2	Test Result.....	8
3.3	Graph and Table of Conducted Emission Measurement Data	8
4	Photograph	9
4.1	Photographs of the Test Setup for Radiated Emission and Conduction Emission	9
4.2	Photographs of the External and Internal Configurations of the EUT	9
5	Supplementary document	9
5.1	Bandwidth	9
6	Appendices.....	10



TEST REPORT

Report No. : AD009207-3

Date : 2003 July 23

1 General Information

1.1 General Description

The equipment under test (EUT) is a superregenerative receiver for 1/64 scale RC car 49 MHz Rx operating at 49.860 MHz which is controlled by a LRC circuit. The EUT is powered by 1.5 V recharge battery. There a external antenna in the back of the EUT. When received forward / backward signal, it will going forward / backward. When received Left / Right signal, it will going Left / Right.

The brief circuit description is listed as follows :

- Q7 and associated circuit act as superregenerative
- IC1 and associated circuit act as decoder
- U2 and associated circuit act as DC-DC regulator
- Q1, Q2, Q3, Q4, Q5, Q6 and associated circuit act as motor driver

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. : AD009207-3

Date : 2003 July 23

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.



TEST REPORT

Report No. : AD009207-3

Date : 2003 July 23

1.4 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Certification No.
EMI Test Receiver	R&S	ESCS30	100001	S21141
Broadband Antenna	Schaffner	CBL6113B	2718	AC1753
Signal Generator	IFR	2023B	202302/938	Nil
LISN	R&S	ESH3-Z5	100038	S21142
Pulse Limiter	R&S	ESH3-Z2	100001	20-73194
Biconical Antenna	R&S	HK116	837414/004	4000.7752.02



TEST REPORT

Report No. : AD009207-3

Date : 2003 July 23

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 meeting the requirement of section 15.109 are based on measurements employing the CISPR quasi-peak detector.

It was found that the EUT meet the FCC requirement.



TEST REPORT

Report No. : AD009207-3

Date : 2003 July 23

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)
49.140	V	13.2	11.4	24.6	40.0	-15.4
50.564	V	19.4	8.9	28.3	40.0	-11.7
50.805	V	18.2	8.9	27.1	40.0	-12.9
52.450	V	14.5	8.9	23.4	40.0	-16.6
52.696	V	14.0	8.9	22.9	40.0	-17.1
54.824	V	14.0	8.9	22.9	40.0	-17.1
101.130	V	13.7	12.0	25.7	43.5	-17.8
102.550	V	14.2	12.0	26.2	43.5	-17.3
147.500	V	12.5	12.2	24.7	43.5	-18.8
148.890	V	12.0	12.2	24.2	43.5	-19.3



TEST REPORT

Report No. : AD009207-3

Date : 2003 July 23

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. : AD009207-3

Date : 2003 July 23

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.



TEST REPORT

Report No. : AD009207-3

Date : 2003 July 23

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	2 pages
A8.	Operation Description	1 page

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