



TEST REPORT

Report No. : AD006656-1 Date : 2003 May 05

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

Attn. : Andrew Poon

Buyer : Hasbro

Sample Description : One(1) submitted sample stated to be :

<u>Item Name</u>	<u>Item No.</u>
Radical Rolling Rachel-Blonde	738000000
Radical Rolling Rachel-Ethnic	738010000
Rating : 1 x 9 V battery	
No. of sample(s) : Four(4) pieces	***

Date Received : 2003 April 08.
2003 April 17.

Test Period : 2003 April 08 – 2003 April 10.
2003 April 17 – 2003 April 22.

Test Requested : FCC Part 15 Certification

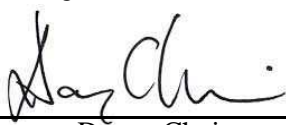
Test Method : FCC Rules and Regulations Part 15 – May 2002
ANSI C63.4 – 1992

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 two models are the same in circuitry and components; and therefore
model 738000000 was chosen to be the representative of the test sample.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : 
Danny Chui
EMC Engineer - EL. Division

Page 1 of 10

FCC ID : Q4R73800TX

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TEST REPORT

Report No. : AD006656-1

Date : 2003 May 05

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. : AD006656-1

Date : 2003 May 05

1 General Information

1.1 General Description

The equipment under test (EUT) is a transmitter for Radical Rolling Rachel-Blonde operating at 27.145 MHz which is controlled by a crystal. The EUT is powered a 9 V battery. There are two switches on the R/C unit. The button on the left-hand side moves the left foot; the button on the right controls the right foot. Press the top or bottom of the switch to move the foot forward or backward respectively.

The brief circuit description is listed as follows :

- Y101 and R104 and associated circuit act as oscillation
- S101, S102, S103, S104 and associated circuit act as keyboard
- D101, C101, C102 and associated circuit act as voltage regulator
- IC101 and associated circuit act as modulation, encoder and transmission

The model Radical Rolling Rachel-Ethnic, 738010000 is the same as model 738000000 in hardware aspect. The difference in model numbers serves as marketing strategy (i.e. color).

1.2 Related Submittal Grants

The receiver for this transmitter is exempted from the Part 15 technical rules per 15.101(b).



TEST REPORT

Report No. : AD006656-1

Date : 2003 May 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,
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New Territories,
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TEST REPORT

Report No. : AD006656-1

Date : 2003 May 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	S21141	Dec. 19, 2002	Dec. 18, 2003
Broadband Antenna	Schaffner	CBL6113B	2718	AC1753	Dec. 15, 2000	Jun. 14, 2003
Signal Generator	IFR	2023B	202302/938	Nil	Oct. 23, 2000	Oct. 22, 2003
LISN	R&S	ESH3-Z5	100038	S21142	Dec. 19, 2002	Dec. 18, 2003
Pulse Limiter	R&S	ESH3-Z2	100001	20-73194	May 2, 2001	Nov. 02, 2003
Biconical Antenna	R&S	HK116	837414/004	4000.7752.02	Oct. 23, 2000	Oct. 22, 2003



TEST REPORT

Report No. : AD006656-1

Date : 2003 May 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.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

2.2 Test Result

The fundamental emission was based on measurements employing the peak detector on the open area test site.

The harmonic emissions meeting the requirement of section 15.209 are based on measurements employing the CISPR quasi-peak detector.

* Emissions appearing within the restricted bands shall follow the requirement of section 15.205.

It was found that the EUT meet the FCC requirement.



TEST REPORT

Report No. : AD006656-1

Date : 2003 May 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)
27.166	V	60.0	16.4	76.4	80.0	-3.6
54.333	V	17.3	8.9	26.2	40.0	-13.8
81.499	V	16.1	8.0	24.1	40.0	-15.9
*108.664	H	13.1	12.0	25.1	43.5	-18.4
*135.832	H	11.6	13.2	24.8	43.5	-18.7
*162.997	H	12.8	11.0	23.8	43.5	-19.7
190.166	H	15.1	10.5	25.6	43.5	-17.9
217.332	H	12.9	10.7	23.6	46.0	-22.4
*244.499	H	15.6	10.7	26.3	46.0	-19.7
*271.653	H	10.6	13.9	24.5	46.0	-21.5



TEST REPORT

Report No. : AD006656-1

Date : 2003 May 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. : AD006656-1

Date : 2003 May 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

The plot on saved in TestRpt2.pdf shows the fundamental emission is confined in the specified band. It also shows that the band edge met the 15.229 requirement at 26.9599 and 27.2801 MHz.



TEST REPORT

Report No. : AD006656-1

Date : 2003 May 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	2 pages
A8.	Operation Description	1 page
A9.	Bandwidth Plot	1 page

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