



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 :

| Item Name | Item No. |
|-----------------------------------|-----------|
| 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

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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).

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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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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 |

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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 quasipeak 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.

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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 (dB μ V/m) | Antenna and Cable factor (dB) | Field Strength (dB μ V/m) | Limit at 3m (dB μ V/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 |

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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

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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.

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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 *****

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