



**CMA Testing
and Certification
Laboratories**
廠商會檢定中心

TEST REPORT

Report No. : AK035125-001 Date : 2008-09-23

Client : Playmind Limited
Room 413-415, Houston Centre,
63 Mody Road,
Tsim Sha Tsui, Kowloon,
Hong Kong.

Sample Description : One(1) submitted sample(s) stated to be Silverado-Battery Operated Ride On Toy of Model No. 0870, 0871, 0872, 0873, 0874, 0875, 0876, 0877, 0878, and 0879
Radio Frequency : 27.145MHz Transmitter
Rating : 1 x 9V size battery
No. of submitted sample : Two (2) piece(s) ***

Date Received : 2008-08-11

Test Period : 2008-08-11 to 2008-08-27

Test Requested : FCC Part 15 Certification.

Test Method : 47 CFR Part 15 (10-1-07 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 C.

Remark : All ten models are the same in circuitry and components; and therefore model 0876 was chosen to be the representative of the test sample.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : 

Mr. Wong Lap-pong; Andrew
Senior Technical Officer
Electrical Division

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1 General Information

1.1 General Description

The equipment under test (EUT) is a transmitter for Silverado-Battery Operated Ride On Toy. It operates at 27.145MHz and the oscillation of radio control is generated by a crystal. The EUT is powered by 1 x 9V size battery. There are two control sticks on the EUT. When the forward, backward, turn left or turn right stick is pushed once, it will transmit different radio control signal to receiver.

The antenna terminal is permanently attached in EUT and the radio output power is unable to adjust.

The brief circuit description is listed as follows:

- U1 TX2 and associated circuit act as an encoder.
- X1, Q1 and associated circuit act as an oscillator.
- Q2 and associated circuit act as an amplifier.

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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,
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1.3 List of measuring equipment

| Equipment | Manufacturer | Model No. | Serial No. | Calibration Due Date |
|-------------------|--------------|-----------|------------|----------------------|
| EMI Test Receiver | R&S | ESCI | 100152 | 2008-10-14 |
| Broadband Antenna | Schaffner | CBL6112B | 2692 | 2009-02-04 |
| Loop Antenna | EMCO | 6502 | 00056620 | 2009-07-07 |

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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 – 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.

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

2.2 Test Result

Peak Detector data was measured unless otherwise stated.

“#” means emissions appearing within the restricted bands shall follow the requirement of section 15.205.

The frequencies from 30MHz to 1000MHz were investigated, and emissions more 20dB below limited were not reported. Thus, those higher emissions were presented in next page (section 2.3)

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) | Average Factor (dB) | Field Strength (dB μ V/m) | Limit at 3m (dB μ V/m) | Margin (dB) |
|-----------------|----------------|------------------------------|-------------------------------|---------------------|-------------------------------|----------------------------|-------------|
| 27.145 | V | 67.6 | 9.2 | -5.2 | 71.6 | 80.0 | -8.4 |
| 54.286 | V | 17.1 | 8.8 | - | 25.9 | 40.0 | -14.1 |
| 81.435 | H | 19.0 | 7.4 | - | 26.4 | 40.0 | -13.6 |
| #108.584 | H | 19.6 | 11.3 | - | 30.9 | 43.5 | -12.6 |
| #135.725 | H | 17.5 | 12.6 | - | 30.1 | 43.5 | -13.4 |
| #162.869 | H | 16.1 | 11.0 | - | 27.1 | 43.5 | -16.4 |
| 190.016 | H | 15.1 | 10.0 | - | 25.1 | 43.5 | -18.4 |
| 217.162 | H | 14.9 | 10.3 | - | 25.2 | 46.0 | -20.8 |
| #244.303 | H | 11.2 | 10.3 | - | 21.5 | 46.0 | -24.5 |
| #271.448 | H | 8.4 | 13.7 | - | 22.1 | 46.0 | -23.9 |



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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 – 2003. 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 Conducted 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 ExPho1.jpg to ExPho2.jpg and InPho1.jpg to InPho2.jpg.



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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

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 15.209 requirement at 26.9599 and 27.2801 MHz.

Not Applicable

5.2 Duty cycle

The duty cycle is simply the on-time divided by the period:

$$\text{The duration of one cycle} = 55.4\text{ms}$$

$$\begin{aligned}\text{Effective period of the cycle} &= (1.74\text{ms} \times 4) + (580\mu\text{s} \times 40) \\ &= 30.2\text{ms}\end{aligned}$$

$$\begin{aligned}\text{Duty Cycle} &= 30.2 / 55.4 \\ &= 0.55\end{aligned}$$

Therefore, the average factor is found by $20 \log_{10} 0.55 = -5.2\text{dB}$

5.3 Transmission time

Not Applicable



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6 Appendices

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| 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. | Bandwidth Plot | 1 | page |
| A6. | Average Factor | 2 | pages |
| A7. | Block Diagram | 1 | page |
| A8. | Schematics Diagram | 1 | page |
| A9. | User Manual | 1 | page |
| A10. | Operation Description | 1 | page |

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

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