



TEST REPORT

Report No. : AE007126-1 Date : 2004 May 24

Applicant : MGA Entertainment (HK) Ltd.
9th Floor, Tower 6, The Gateway, Harbour City,
9 Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong.

Sample Description : One(1) submitted sample stated to be Spiderman II Dragster 27MHz
of Model No. 276630.
Rating : 9 V battery
No. of sample(s) : Two(2) pieces ***

Date Received : 2004 May 07.

Test Period : 2004 May 07 – 2004 May 11.
2004 May 18 – 2004 May 24.

Test Requested : FCC Part 15 Certification

Test Method : FCC Rules and Regulations Part 15 – Dec 2003
ANSI C63.4 – 2001

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.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____

Danny Chui
EMC Engineer - EL. Division

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FCC ID : LU9276630

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1 General Information

1.1 General Description

The equipment under test (EUT) is a transmitter for Spiderman II Dragster operating at 27.145 MHz and is controlled by a crystal. The EUT is powered by a 9V battery. There are two joysticks and two button keys. When the forward or backward joystick is turned, it will transmit a radio frequency for the receiver to move forward or backward. When the left or right joystick is turned, it will transmit a radio frequency for the receiver to move left or right. When upon pressing and holding down the "Stretch Body" button, the memory of coder IC sends out mechanical gear sound data to the audio amplifier. There is no sound when other control buttons are pressed. At the same time the controller will transmit a signal to the receiver and the vehicle body of the receiver performs a stretch action. When the "Shrink Body" button is pressed, the controller will transmit a signal to the receiver and the vehicle body of the receiver will shrink.

The brief circuit description is listed as follows : OpDes.pdf

1.2 Related Submittal Grants

This is a single application for certification of a transmitter.



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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 – 2001. 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 – 2001. A double shielded room is located at :

Roof Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
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New Territories,
Hong Kong.



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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 |



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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 – 2001.

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

Peak Detector data was measured unless otherwise stated.

* 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) | Averaging factor (-dB) | Field Strength (dB μ V/m) | Limit at 3m (dB μ V/m) | Margin (dB) |
|-----------------|----------------|------------------------------|-------------------------------|------------------------|-------------------------------|----------------------------|-------------|
| 27.145 | V | 52.4 | 20.0 | 7.8 | 64.6 | 80.0 | -15.4 |
| 54.290 | H | 25.0 | 8.7 | -- | 33.7 | 40.0 | -6.3 |
| 81.435 | H | 17.9 | 8.0 | -- | 25.9 | 40.0 | -14.1 |
| *108.580 | H | 13.7 | 11.8 | -- | 25.5 | 43.5 | -18.0 |
| *135.726 | H | 2.3 | 13.1 | -- | 15.4 | 43.5 | -28.1 |
| *162.871 | H | 18.4 | 11.0 | -- | 29.4 | 43.5 | -14.1 |
| 190.016 | H | 27.9 | 10.5 | -- | 38.4 | 43.5 | -5.1 |
| 217.161 | H | 30.9 | 10.1 | -- | 41.0 | 46.0 | -5.0 |
| *244.306 | H | 16.9 | 10.1 | -- | 27.0 | 46.0 | -19.0 |
| *271.451 | H | 12.7 | 14.2 | -- | 26.9 | 46.0 | -19.1 |



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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 – 2001. 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 ExPho1.jpg to ExPho2.jpg and InPho1.jpg to InPho3.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.pdf |
| Block Diagram | BlkDia.pdf |
| Schematic Diagram | Schem.pdf |
| Users Manual | UserMan1.pdf and UserMan2.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 show that the band edge met the 15.209 requirement 26.9599 and 27.2801 MHz.

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

The duration of one cycle = 41.0 ms.

Effective period of the cycle = (1.86 ms. x 6) + (560 μs. x 10)
= 16.76 ms.

Duty Cycle = 16.76 / 41.0 ms.
= 0.409 ms.

Therefore, the average factor is found by $20 \log_{10} 0.409 = - 7.8 \text{ dB}$



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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 | 2 pages |
| A4. | Bandwidth Plot | 1 page |
| A5. | Average Factor | 2 pages |
| A6. | ID Label/Location | 1 page |
| A7. | Block Diagram | 1 page |
| A8. | Schematics | 1 page |
| A9. | User Manual | 2 pages |
| A10. | Operation Description | 1 page |

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