



TEST REPORT

Report No. : AF002026-001 Date : 2005 January 31

Applicant No. : LF200156(3)

Client : Mattel Asia Pacific Sourcing Limited
13/F., South Tower, World Finance Centre,
Harbour City, Tsimshatsui, Kowloon, Hong Kong.

Sample Description : One(1) submitted sample stated to be 1 : 10 Drifting Vehicle Mazda RX7
of Model No. H3622
Rating : 4 x 1.5V "AA" size battery
No. of sample(s) : Three (3) piece(s)***

Date Received : 2005 January 18

Test Period : 2005 January 18 – 2005 January 28

Test Requested : FCC Part 15 Certification

Test Method : FCC Rules and Regulations Part 15 – July 2004
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.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____

Danny Chui
EMC Engineer - EL. Division

Page 1 of 11

FCC ID : PIYH3622-05A2T

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

Room 1302, 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. : AF002026-001

Date : 2005 January 31

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.....	10
5.1	Bandwidth	10
5.2	Duty cycle	10
6	Appendices	11



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

1 General Information

1.1 General Description

The equipment under test (EUT) is a transmitter for 1:10 Drifting Vehicle Mazda RX7 operating at 27.145 MHz which is controlled by a crystal. The EUT is powered by 4 x 1.5V "AA" size battery. There are two control stick and a on / off switch in the EUT. When switched "on" the unit and push the forward or backward control stick once, it will transmit a radio signal for receiver go forward or backward. When the turn left or turn right wheel trigger once, it will transmit a radio signal for receiver turn left or turn right.

The brief circuit description is listed as follows:

- U2 and associated circuit act as encoder
- Q2, X1 and associated circuit act as oscillator
- Q3 and associated circuit act as amplify
- Q1 and associated circuit act as voltage readjust

1.2 Related Submittal Grants

This is a single application for certification of a transmitter.

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



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

1.3 Location of the test site

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. 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 – 2003. 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. : AF002026-001

Date : 2005 January 31

1.4 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Certification No.
EMI Test Receiver	R&S	ESCS30	100001	S43284
Broadband Antenna	Schaffner	CBL6112B	2718	AC1753
Signal Generator	IFR	2023B	202302/938	S43098
LISN	R&S	ESH3-Z5	100038	S43101
Pulse Limiter	R&S	ESH3-Z2	100001	S43325
Biconical Antenna	R&S	HK116	837414/004	4000.7752.02

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

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.

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.



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

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)	Average Factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.145	V	63.9	16.4	-6.3	74.0	80.0	-6.0
54.291	V	23.7	8.8	-	32.5	40.0	-7.5
81.436	H	13.7	7.9	-	21.6	40.0	-18.4
* 108.584	H	11.0	11.9	-	22.9	43.5	-20.6
* 135.727	H	10.1	13.1	-	23.2	43.5	-20.3
* 162.872	H	11.6	11.4	-	23.0	43.5	-20.5
190.018	H	17.0	10.1	-	27.1	43.5	-16.4
217.163	H	15.1	10.8	-	25.9	46.0	-20.1
* 244.307	H	12.7	10.8	-	23.5	46.0	-22.5
* 271.452	H	16.2	14.3	-	30.5	46.0	-15.5



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

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



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

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 InPho2.jpg.



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

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 TestRpt 2.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.

5.2 Duty cycle

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

The duration of one cycle = 17.64 ms

Effective period of the cycle = $(0.65 \times 8) \text{ ms} + (0.33 \times 10) \text{ ms}$
= 8.5 ms

Duty Cycle = $(8.5 / 17.64) \text{ ms}$
= 0.482 ms

Therefore, the average factor is found by $20 \log_{10} 0.482 = -6.3 \text{ dB}$



TEST REPORT

Report No. : AF002026-001

Date : 2005 January 31

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

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