CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AE023778-001 Date : 2004 December 14

Application No.: LE201154(2)

Applicant : Mattel Asia Pacific Sourcing Ltd.
13/F., South Tower, World Finance Centre,
Harbour City, Tsim Sha Tsui, Kowloon, Hong Kong.

Sample Description : One(1) submitted sample stated to be 1/6 Batman of Model No. C4639
Rating : 7.2V Rechargeable battery
No. of sample(s) : Two (2) piece(s)

Date Received : 2004 October 23

Test Period : 2004 October 23 – 2004 December 10

Test Requested : FCC Part 15 Certification

Test Method : FCC Rules and Regulations Part 15 – December 2003
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 B.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____

Danny Chui
EMC Engineer - EL. Division

FCC ID : PIYC4639-04A4R

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
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1 General Information

1.1 General Description

The equipment under test (EUT) is a superregenerative receiver for 1/6 Batman. Operating at 49.860 MHz which is controlled by a LRC circuit. The EUT is powered by 7.2V rechargeable battery. When it received "Forward", "Backward", "Turn Left" and "Turn Right" radio signal, it will moving to difference direction. It has a decoding switch for select 3 difference coding.

The brief circuit description is listed as follows :
- U1and associated circuit act as decoder.
- U2, Q23, Q24 and associated circuit act as ROM controller.
- Q4~Q7, Q9, Q10, Q20, Q21 and associated circuit act as motor drive circuit for M2.
- Q14~Q16 and associated circuit act as servo control circuit.
- Q3, Q8, Q11, Q17, RL1, RL2 and associated circuit act as motor drive circuit for M1.
- Q19 and associated circuit act as voltage regulator.
- U3 and associated circuit act as protection circuit.

1.2 Related Submittal Grants

This is a single application for certification of a receiver. The transmitter for this receiver is authorized by Certification procedure.

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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 – 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.

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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	CBL6112B	2692	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 – 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.

A signal generator was used to radiate an unmodulated continuous wave (CW) signal to the EUT (superregenerative receiver) at its operating frequency in order to "cohere" the characteristic broadband emissions from the receiver.

2.2 Test Result

The emissions meeting the requirement of section 15.109 are based on measurements employing the CISPR qusai-peak detector.

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 B

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)
49.458	V	12.1	11.1	23.2	40.0	-16.8
49.659	V	13.8	11.1	24.9	40.0	-15.1
50.064	V	15.3	8.7	24.0	40.0	-16.0
50.265	V	12.9	8.7	21.6	40.0	-18.4
99.725	V	12.4	10.0	22.4	43.5	-21.1
99.868	V	13.0	10.0	23.0	43.5	-20.5
149.575	V	11.2	12.4	23.6	43.5	-19.9
150.041	V	11.4	11.8	23.2	43.5	-20.3
200.424	V	14.0	10.1	24.1	43.5	-19.4
250.236	V	10.3	14.2	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 – 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 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.

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
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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

NA

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

NA

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6 Appendices

A	Photos of the set-up of Radiated Emissions	1 page
A	Photos of External Configurations	1 page
A	Photos of Internal Configurations	1 page
A	ID Label/Location	2 pages
A	Block Diagram	1 page
A	Schematics	1 page
A	User Manual	4 pages
A	Operation Description	1 page

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

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