CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AB017550 Date : 2001 December 05

Client : Tomy (Hong Kong) Limited
Room 1207-1216, Star House,
Kowloon, Hong Kong.

Sample Description : Sample stated to be :
Description : Transmitter
Model No. : CHAR-G2539
Rating : 4 x 1.5 V AA size batteries
No. of sample(s) : Two(2) pieces ***

Date Received : 2001 November 12.

Test Period : 2001 November 12 – 2001 November 23.

Test Requested : FCC Part 15 Certification – Class II Permissive Change

Test Method : FCC Rules and Regulations Part 15 – May 2001
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.

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____

Danny Chui
EMC Engineer - EL. Division

FCC ID: OW22539CHAR-G27

Room 1401-3, 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

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1 General Information

1.1 General Description

The equipment under test (EUT) is a transmitter for a remote control car operating at 27.111 MHz which is controlled by LC Oscillator. The EUT is powered by four AA batteries. There are two button on the left hand control the rotating movement of the car. The button on the right control the forward movement of the car.

The brief circuit description is listed as follows:
- Q1, L2, C5 and associated circuit act as LC Oscillator
- Q2, Q3 and associated circuit act as Multivibrator

The following list is the change of components in this application:

R1 & R20 was changed to 68K from 22K
R4 was changed to 24K from 16K
R5 was changed to 24K from 15K
R6 was changed to 75K from 68K

The reason of this change is to modify the modulation timing to match the change of Receiver IC of RX3. The old modulation timing was 400Hz and 2KHz, and the present timing is 250Hz and 1KHz.

1.2 Related Submittal Grants

This is a single application for class II permissive change of a transmitter. The original certification for this transmitter with the FCC ID : OW22539CHAR-G27 was granted on June 4, 2001.

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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,

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.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESCS30	100001	20-69223	Mar. 21, 2001	Sept. 20, 2002
Broadband Antenna	Schaffner	CBL6113B	2718	AC1753	Dec. 15, 2000	Jun. 14, 2002
Signal Generator	IFR	2023B	202302/938	Nil	Oct. 23, 2000	Apr. 22, 2002
LISN	R&S	ESH3-Z5	100010	20-70405	Mar. 29, 2001	Sept. 28, 2002
Pulse Limiter	R&S	ESH3-Z2	100001	20-73194	May 2, 2001	Nov. 1, 2002
Biconical Antenna	R&S	HK116	837414/004	4000.7752.02	Oct. 23, 2000	Apr. 22, 2002

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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.

2.2 Test Result

The Quasi-peak measurements were performed on the open area test site. 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 (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.111	V	46.5	17.4	63.9	80	-16.1
54.231	V	12.8	10.4	23.2	40	-16.8
81.499	V	16.7	10.0	26.7	40	-13.3
108.662	V	13.2	14.2	27.4	43.5	-16.1
135.832	V	12.0	15.5	27.0	43.5	-16.5
162.997	V	12.6	13.6	26.2	43.5	-17.3
190.165	V	12.4	13.4	25.8	43.5	-17.7
217.329	V	12.4	14.2	26.6	46	-19.4
244.495	V	14.2	14.2	28.4	46	-17.6
271.681	V	14.1	14.2	28.3	46	-17.7

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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 TSup5.jpg

4.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename ExtPho1 to ExtPho5 and IntPho1 to IntPho5

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

For electronic filing, the bandwidth plot is saved with filename TestRpt.2.pdf which shows that the fundamental emission is confirmed in the specified band.

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6 Appendices

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A3.	Photos of Internal Configurations	1 page
A4.	ID Label/Location	1 page
A5.	Block Diagram	1 page
A6.	Schematic Diagram	1 page
A7.	Users Manual	2 page
A8.	Operational Description	1 page
A9.	Bandwidth	1 page

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

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