CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No.	:	AG013706-001	Date :	2006 June 26
Application No.	:	LG212200(7)		
Client	:	TRU (HK) Ltd 15/F, World Finance Centre, North Tower Harbour City, Tsimshatsui Kowloon, Hong Kong		
Sample Description	:	One(1) submitted sample(s) stated to be Train Table with Train Set of Model No. 62081 Rating : 4 x 1.5V AAA size batteries No. of submitted sample : Two (2) piece(s) ***		
Date Received	:	2006 June 06		
Test Period	:	2006 June 07 – 2006 June 20		
Test Requested	:	FCC Part 15 Certification.		
Test Method	:	47 CFR Part 15 (10-1-05 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.		

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____
Danny Chui
Deputy Manager - EL. Division

FCC ID: UBF62081

CMA Industrial Development Foundation Limited
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

CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AG013706-001 Date : 2006 June 26

Table of Contents

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

1 General Information

1.1 General Description

The equipment under test (EUT) is a transceiver for Train Table with Train Set. It is operate at 13.560MHz which is generated by a crystal. The EUT is powered by 4 x 1.5 v AAA size batteries and it has two button switches on the EUT. When the forward or backward button is pressed once, it will go to corresponding direction and play the sound or music when the RFID in the train is detected the RFID tag.

The brief circuit description is listed as follows:

- X1 and associated circuit act as oscillator.
- EMD812, Q4 and associated circuit act as motor controller.
- W5888s0606750, Q3 and associated circuit act as music decoder.
- W55MID50H, Q1, Q2 and associated circuit act as RF encoder and decoder.

CMA Industrial Development Foundation Limited
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

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,
Fo Tan, Shatin,
New Territories,
Hong Kong.

CMA Industrial Development Foundation Limited
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

1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.
EMI Test Receiver	R&S	ESCI	100152
Broadband Antenna	Schaffner	CBL6112B	2692
Loop Antenna	EMCO	6502	00056620

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

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

All other measurements are well below the limit. Thus, those highest emissions were presented in next page.

Peak Detector data was measured unless otherwise stated.

The harmonic emissions meeting the requirement of section 15.209 are based on measurements employing the CISPR quasi-peak detector below 1000MHz and average detector for frequencies above 1000MHz.

* Emissions appearing within the restricted bands shall follow the requirement of section 15.205.

It was found that the EUT meet the FCC requirement.

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

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)
13.560	O	29.3	10.7	40.0	124.0	-84.0
26.621	H	4.4	18.4	22.8	29.5	-6.7
40.674	V	10.1	12.9	23.0	40.0	-17.0
54.254	V	14.7	8.1	22.8	40.0	-17.2
67.814	V	16.2	5.7	21.9	40.0	-18.1
81.399	H	14.6	7.2	21.8	43.5	-21.7
94.956	V	13.5	9.2	22.7	43.5	-20.8
*108.488	H	12.0	11.0	23.0	43.5	-20.5
122.086	H	9.5	12.4	21.9	43.5	-21.6
*135.652	H	9.4	12.4	21.8	43.5	-21.7

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

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

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

Test Result :

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.

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

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
N/A

5.2 Duty cycle
N/A

5.3 Transmission time
N/A

5.4 Frequency Error

The following table shows the stability of the operation frequency is fulfil section 15.225 requirement. The variable temperature is –20 to +50 degrees and supply voltage is 85% to 115% of operated voltage.

Test Condition	Voltage (V)	Required Temperature	Measured frequency (MHz)	Margin (%)	Limit (%)
Lower Extreme Temp	6.0	-20 °C	13.563800	-0.0015	± 0.01
Normal Temp	6.9	+20 °C	13.563500	+0.0007	± 0.01
Normal Temp	6.0	+20 °C	13.563592	Reference value	Reference value
Normal Temp	5.1	+20 °C	13.563488	+0.0008	± 0.01
Higher Extreme Temp	6.0	+50 °C	13.563322	+0.0020	± 0.01

CMA Industrial Development Foundation Limited
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. : AG013706-001 Date : 2006 June 26

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.	Block Diagram	1	page
A6.	Schematics Diagram	1	page
A7.	User Manual	2	pages
A8.	Operation Description	1	page

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

CMA Industrial Development Foundation Limited
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