



TEST REPORT

Report No. : AK035812-001 Date : 2008-09-26

Application No. : LK224761(0)

Applicant : The Robot Factory LLC d/d/a ROBOTGALAXY
41 Union Square West,
Suite 808, New York,
NY, United States

Sample Description : One(1) submitted sample(s) stated to be Deluxe Fuel Cell
of Model No. DL1-PP2020
Rating : 3 x 1.5V AAA size batteries
No. of submitted sample : Two (2) piece(s) ***

Date Received : 2008-08-02.

Test Period : 2008-08-05 to 2008-08-13.

Test Requested : FCC Part 15 Certification.

Test Method : 47 CFR Part 15 (10-1-07 Edition)
ANSI C63.4 – 2003

Test Result : See attached sheet(s) from page 2 to 13.

Conclusion : The submitted sample was found to comply with requirement of FCC Part 15
Subpart B.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____


Mr WONG Lap-Pong, Andrew
Senior Technical Officer
Electrical Division

FCC ID: WNC-DL1-PP2020

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1 General Information

1.1 General Description

The equipment under test (EUT) is a toy for Deluxe Fuel Cell. The oscillation of MCU is generated by an 8MHz and a 32.768kHz crystals. The EUT is powered by 3 x 1.5V AAA size batteries. There are three buttons on the EUT. When the button is pressed, the EUT will release sound and turn on the LED. The EUT can also be connected to a computer. When the EUT is connected to a computer, we can update the program.

The brief circuit description is listed as follows:

- U1, Y1, Y2 and associated circuit act as a controller.
- U2 and associated circuit act as a voltage regulator.
- U3 and associated circuit act as a ROM.
- U4 and associated circuit act as a sound driver.



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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,
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1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date
EMI Test Receiver	R&S	ESCI	100152	2008 October 14
EMI Test Receiver	R&S	ESCS30	100001	2008 November 19
Broadband Antenna	Schaffner	CBL6112B	2692	2009 January 21
LISN	R&S	ESH3-Z5	100038	2009 March 01



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1.4 List of supporting equipment

- Computer:
1. Intel CPU P4 2.8GHz / 512k cache / 533MHz bus
Model: 9426A657
 2. Intel Mother Board
Model: Intel Type: D845EPI/D845GVSR
 3. Seagate Hard-Disk
Model: ST380011A, 80GB
 4. Proview LCD Monitor
Model: 568
 5. Logitech Mouse
Model: M-S34
 6. Hewlett Packard Keyboard
Model: SK-2502C
 7. Hewlett Packard LaserJet 2100TN
Model: C4172A
 8. PenPower Handwriting System
Model: PP403N
 9. USB Cable
Provided by Client



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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.

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 to determine which attitude and configuration produce the highest emission during measurement for radiated emission measurement.

2.2 Test Result

The emissions from 30MHz to 1000MHz were investigated. The highest emissions were presented in next page.

Emissions with more than 20dB below the limit were not reported in next page.

The emissions meeting the requirement of section 15.109 are based on measurements employing the CISPR quasi-peak detector below 1000MHz and average detector for frequencies above 1000MHz.

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

Mode: PC connected with data transferring

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dB μ V/m)	Antenna and Cable factor (dB)	Field Strength (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
240.004	H	22.8	10.3	33.1	46.0	-12.9
300.343	H	12.0	14.7	26.7	46.0	-19.3
336.050	H	15.2	14.7	29.9	46.0	-16.1
384.049	H	19.9	14.7	34.6	46.0	-11.4
480.055	V	17.4	18.6	36.0	46.0	-10.0
528.068	V	14.9	20.2	35.1	46.0	-10.9
576.080	V	18.7	20.2	38.9	46.0	-7.1
672.090	V	18.2	21.6	39.8	46.0	-6.2
720.098	V	15.2	22.1	37.3	46.0	-8.7
768.114	V	14.8	22.1	36.9	46.0	-9.1



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2.3 Radiated Emission Measurement Data (Con't)

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart B

Mode: Playing game

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dB μ V/m)	Antenna and Cable factor (dB)	Field Strength (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
139.220	H	23.8	12.6	36.4	43.5	-7.1
158.421	H	25.8	12.6	38.4	43.5	-5.1
174.424	H	29.9	11.0	40.9	43.5	-2.6
234.432	H	29.1	10.3	39.4	46.0	-6.6
270.438	H	26.0	13.7	39.7	46.0	-6.3
304.034	H	21.9	14.7	36.6	46.0	-9.4
364.043	H	23.7	14.7	38.4	46.0	-7.6
424.063	V	9.7	18.6	28.3	46.0	-17.7
448.055	V	10.6	18.6	29.2	46.0	-16.8
476.061	V	9.1	18.6	27.7	46.0	-18.3



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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

The PC connected mode was tested. The EUT was tested under a data transferring situation.

It was found that the EUT met the FCC requirement.

3.3 Graph and Table of Conducted Emission Measurement Data

For electronic filing, the documents are saved with filename TestRpt2.pdf.



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4 Photograph

4.1 Photographs of the Test Setup for Radiated Emission and Conducted Emission

For electronic filing, the photos are saved with filename Tsup1.jpg to Tsup7.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 ExPho4.jpg and InPho1.jpg to InPho2.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.jpg
Block Diagram	BlkDia.pdf
Schematic Diagram	Schem.pdf
Users Manual	UserMan.pdf
Operational Description	OpDes.pdf

5.1 Bandwidth

Not Applicable

5.2 Duty cycle

Not Applicable

5.3 Transmission time

Not Applicable



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6 Appendices

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A2.	Photos of the set-up of Conducted Emissions	2	pages
A3.	Photos of External Configurations	2	pages
A4.	Photos of Internal Configurations	1	page
A5.	ID Label/Location	1	page
A6.	Conducted Emission Measurement Data	2	pages
A7.	Block Diagram	1	page
A8.	Schematics Diagram	1	page
A9.	User Manual	4	pages
A10.	Operation Description	1	page

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