

FCC Test Report

On Model Name: Self-Ballasted Lamps and Lamp Adapters

Model Number: ELS-MGU2413

Brand Name: FSL

FCC ID Number: P6CFSL0812A

Prepared for

FOSHAN ELECTRICAL AND LIGHTING CO.,LTD.

According to FCC Part 18

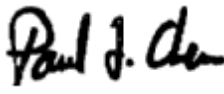
Test Report #: FOS-0812-10117-FCCID

Prepared by: May Wang

Reviewed by: Jawen Yin

QC Manager: Paul Chen

Test Report Released by:



Paul Chen

Feb. 10, 2009

Date

List of Attached Files

<i>Exhibit Type</i>	<i>File Description</i>	<i>File Name</i>
<i>731 Form</i>	<i>731 Form</i>	<i>P6CFSL0812A_731 form.pdf</i>
<i>Test Report</i>	<i>Test Report</i>	<i>P6CFSL0812A_Test report.pdf</i>
<i>Operational Description</i>	<i>Technical Description</i>	<i>P6CFSL0812A_operational description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>P6CFSL0812A_External Photos.pdf</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>P6CFSL0812A_Internal Photos.pdf</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>P6CFSL0812A_Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>P6CFSL0812A_Schematics.pdf</i>
<i>ID Label&Location</i>	<i>Label Artwork and Location</i>	<i>P6CFSL0812A_Label & Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>P6CFSL0812A_User Manual.pdf</i>
<i>Test setup photos</i>	<i>Test setup photos</i>	<i>P6CFSL0812A_Test Setup Photos.pdf</i>

Test Location

Tests performed at ECMG Worldwide Certification Solution Inc. (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

*Test Site Location: Shenzhen Academy of Metrology and Quality Inspection.
Bldg. of Metrology & Quality Inspection,
Longzhu Road, Shenzhen, Guangdong, China.*

Tel: 86-755-26941617

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FCC Registration Number: 274801

CNAS Nunber: L0579

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT). Without the permission of ECMG Worldwide Certification Solution Inc. Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.

Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : Self-Ballasted Lamps and Lamp Adapters

Model Number : ELS-MGU2413

Model Tested : ELS-MGU2413

Date Tested : January 20, 2009

Applicant : FOSHAN ELECTRICAL AND LIGHTING CO.,LTD
15 North Fenjiang Road, Foshan, Guangdong,China.

Telephone : 86-757-82966159

Fax : 86-757-82961013

EUT Description

FOSHAN ELECTRICAL AND LIGHTING CO.,LTD, Model tested ELS-MGU2413 (referred to as the EUT in this report) is a Self-Ballasted Lamps and Lamp Adapters.

For more informations please refer to user's manual.

Test Summary

The Electromagnetic Compatibility requirements on model ELS-MGU2413 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	Description	Test Results	Test Point	Remark
<i>FCC Part 18.307 FCC/OST MP-5</i>	<i>Conducted Emission</i>	<i>Passed</i>	<i>AC Input Port</i>	<i>Attachment 1</i>
<i>FCC Part 18.305 FCC/OST MP-5</i>	<i>Radiated Emission</i>	<i>Passed</i>	<i>Enclosure</i>	<i>Attachment 2</i>

Test Mode Justification

This device complies with Part 18 of the FCC rules. The EUT was tested in the lighting mode.

EUT Exercise Software

This device is not programmable and does not software.

Equipment Modification

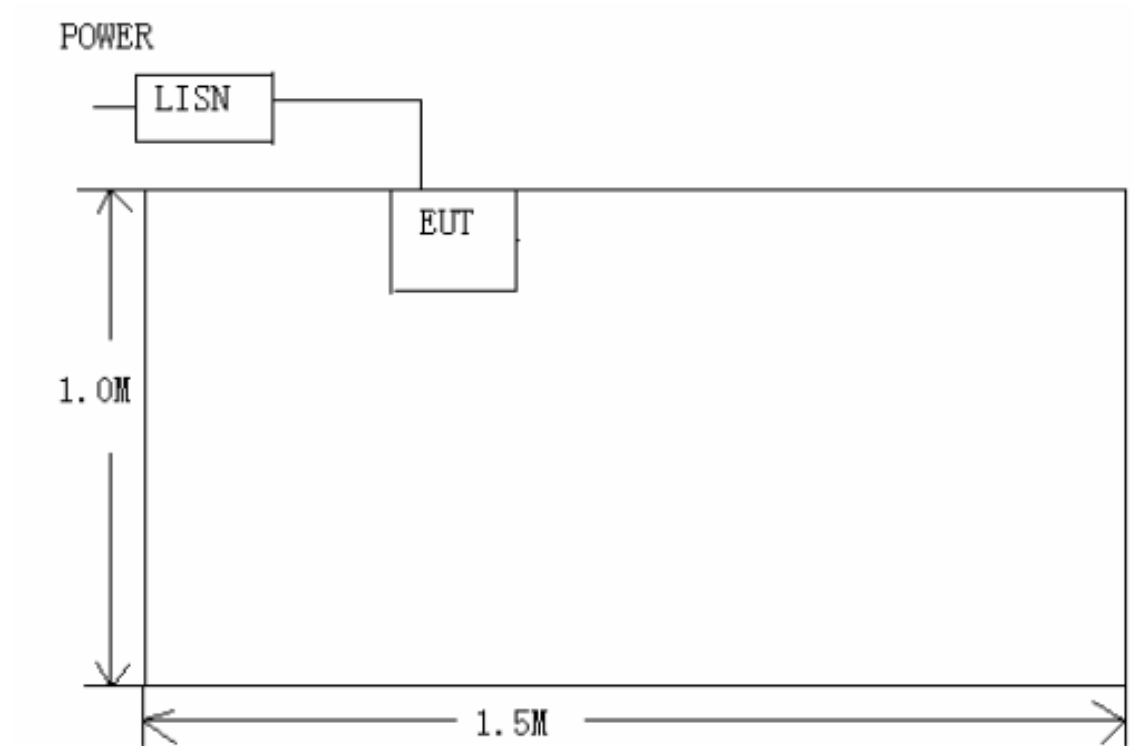
Any modifications installed previous to testing by FOSHAN ELECTRICAL AND LIGHTING CO.,LTD will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.

Test System Details

<i>EUT</i>					
Model Number:	<i>ELS-MGU2413</i>				
Model Tested:	<i>ELS-MGU2413</i>				
Input Voltage:	<i>120VAC/60Hz</i>				
Description:	<i>Self-Ballasted Lamps and Lamp Adapters</i>				
Manufacture:	<i>FOSHAN ELECTRICAL AND LIGHTING CO.,LTD</i>				
<i>Support Equipment</i>					
<i>Description</i>	<i>Model Number</i>	<i>Serial Number</i>	<i>Manufacturer</i>		
<i>None</i>					
<i>Cable Description</i>					
<i>Description</i>	<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite (Y/N)</i>
<i>None</i>					

Configuration of Tested System

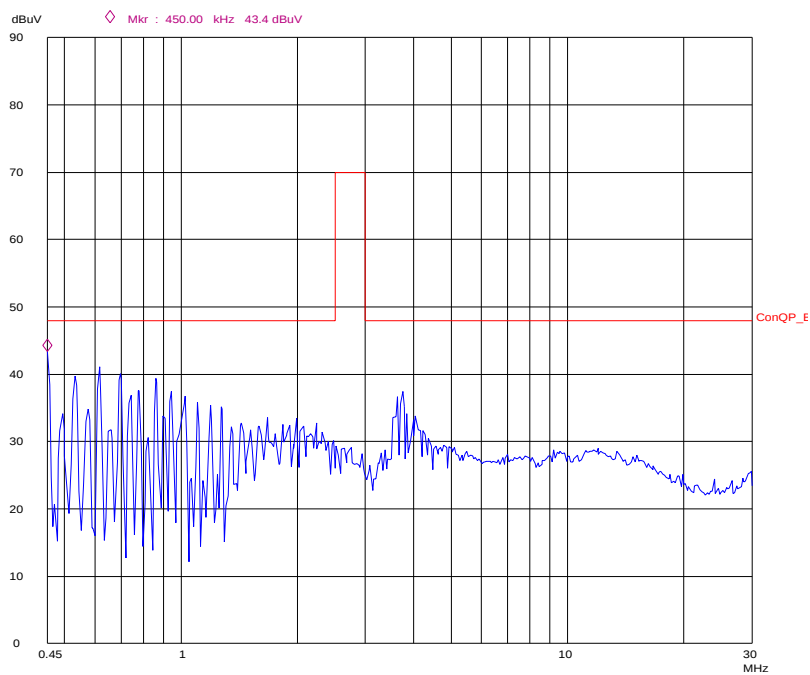


ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

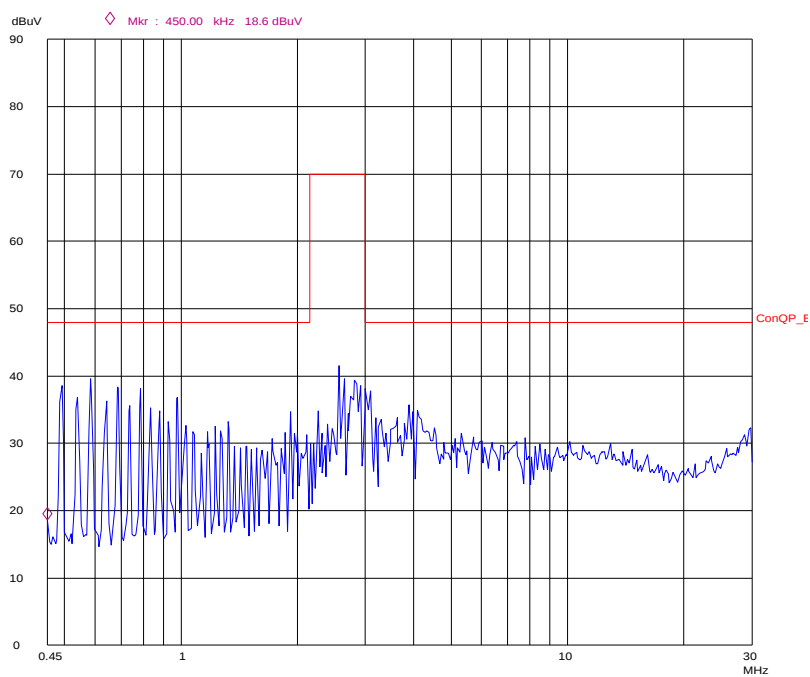
CLIENT:	FOSHAN ELECTRICAL AND LIGHTING CO.,LTD	TEST STANDERD:	FCC Part 18: 2007
MODEL NUMBERS:	ELS-MGU2413	PRODUCT:	Self-Ballasted Lamps and Lamp Adapters
EUT MODEL:	ELS-MGU2413	EUT DESIGNATION:	Lighting Equipment
TEMPERATURE:	23°C	HUMIDITY:	47%RH
ATM PRESSURE:	101.0kPa	GROUNDING:	None
TESTED BY:	May Wang	DATE OF TEST:	January 20, 2009
TEST REFERENCE:	FCC/OST MP-5 (1986)		
TEST PROCEDURE:	a.The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface. b.Connect EUT to the power mains through a line impedance stabilization network (LISN) . c.The LISN provides 50ohm coupling impedance for the measuring instrument. d. Both sides of AC line were checked for maximum conducted interference. e. The frequency range from 150KHz to 30MHz was searched.. f. Set the test-receiver system to Peak Detect Function and Specified bandwidth. g. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.		
TESTED RANGE:	450kHz to 30MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	According to the recorded data in following data table, the EUT complied with the <u>FCC Part 18: 2007</u>, with the worst margin reading of: -4.90 dB at 0.450 MHz in the Line conductor mode. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

18.307 Conducted limit:

<i>Frequency of Emission (MHz)</i>	<i>Consumer Equipment</i>	
	<i>Maximum RF line voltage measured with a 50 uH/50 ohm LISN (uV)</i>	<i>Quasi-Peak (dBuV)</i>
0.45-2.51	250	48
2.51-3.0	3000	70
3.0-30	250	48
<i>Note :Emission Level dB (μ V) = 20 log Emission Level (μ V)</i>		



Line L Conducted Emission Graph



Line N Conducted Emission Graph

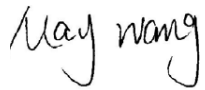
Test Data :

Line	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Frequency (MHz)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
L	0.450	43.1	48.0	-4.9	/	/	/	/
L	0.532	39.6	48.0	-8.4	/	/	/	/
L	0.696	38.0	48.0	-10.0	/	/	/	/
N	0.492	38.7	48.0	-9.3	/	/	/	/
N	0.582	22.9	48.0	-25.1	/	/	/	/
N	0.683	36.5	48.0	-11.5	/	/	/	/
1) All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used. 2) "QP" means "Quasi-Peak" values, "AV" means "Average" values.								

Test Equipment List :

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Interval
EMI test receiver	ESCS30	R&S	830245/009	01/22/2008	01/21/2009
AMN	ESH2-Z5	R&S	100002	01/22/2008	01/21/2009
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY:



ENGINEER

REVIEWED BY:



SENIOR ENGINEER



Conducted Emissions Test Set-up

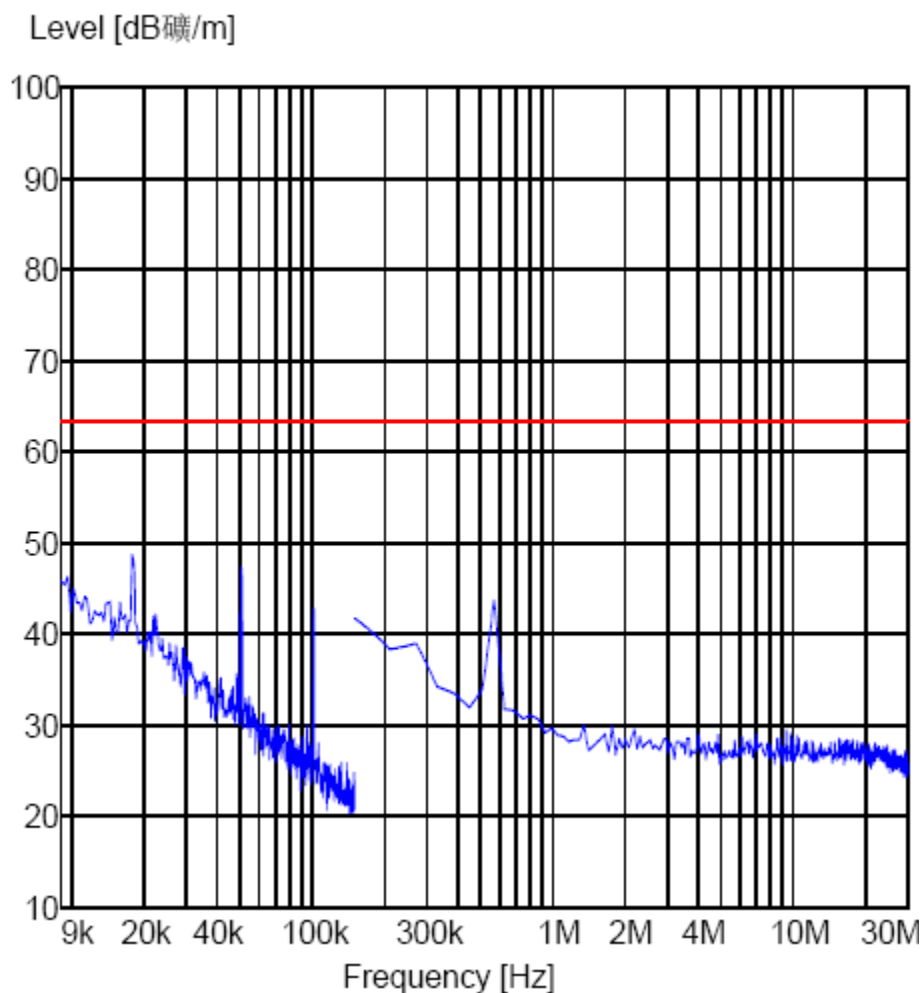
ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

CLIENT:	FOSHAN ELECTRICAL AND LIGHTING CO.,LTD	TEST STANDERD:	FCC Part 18:2007
MODEL NUMBERS:	ELS-MGU2413	PRODUCT:	Self-Ballasted Lamps and Lamp Adapters
EUT MODEL:	ELS-MGU2413	EUT DESIGNATION:	Lighting Equipment
TEMPERATURE:	23°C	HUMIDITY:	47%RH
ATM PRESSURE:	101.0kPa	GROUNDING:	None
TESTED BY:	May Wang	DATE OF TEST:	January 20, 2009
TEST REFERENCE:	FCC/OST MP-5 (1986)		
TEST PROCEDURE:	a. The EUT was placed on a rotatable table with 1.0 meters above ground. b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower. c. For each suspected emission the EUT was arranged to its worst case and turn table (from 0 degree to 360 degree) to find the maximum reading. d. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported. Explanation of the Correction Factor are given as follows: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TESTED RANGE:	0.009MHz to 30MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	According to the recorded data in following data table, the EUT complied with the <u>FCC Part 18:2007</u>, with the worst margin reading of: -19.6 dB at 0.529 MHz . The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

15.109 Limits of Radiated Emission :

The field strength of radiated emissions at a distance of 3.0 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (dB μ V/m)
0.009-30	63.5
Note : Emission Level dB (μ V/m) = 20 log Emission Level (μ V/m)	



Field Strength Emission Plot(Peak,Max Hold Mode)

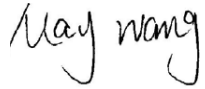
Test Data :

Signal	Frequency [MHz]	Corrected Reading [dBμV/m]	Delta, QP [dB]	3 Meters Limits [dBμV/m]
0.009MHz-0.15MHz				
1	0.0181	46.7	-16.8	63.5
2	0.0237	42.1	-21.4	63.5
3	0.0529	43.9	-19.6	63.5
0.15MHz-30MHz				
1	0.625	39.7	-23.8	63.5
2	1.825	30.1	-33.4	63.5
3	2.901	28.3	-35.2	63.5
1) All reading are quasi-peak unless stated otherwise,using a QPA bandwidth of 200Hz at 0.009 to 0.15MHz,with a 30ms sweep time,A video is not used. 2) All reading are quasi-peak unless stated otherwise,using a QPA bandwidth of 9kHz at 0.15 to 30MHz,with a 30ms sweep time,A video is not used.				

Test Equipment List :

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
EMI Test Receiver	ESI26	R&S	838736/013	2008/01/25	2009/01/24
Triple Loop Antenna	HXYZ9170	Schwarzbeck	SB2662	2008/01/25	2009/01/24
3m SEMI-ANECHOIC CHAMBER	9X6X6	Albatross projects	---	2008/03/21	2009/03/20
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY:



ENGINEER

REVIEWED BY:



SENIOR ENGINEER



Radiated Emissions Test Set-up