

TEST REPORT

Applicant: Eaglerise Electric & Electronic (Foshan) Co., Ltd.
Address: Guicheng Sci-Tech Industrial Park, Jianping Road, Nanhai District,
Foshan City, Guangdong Province, P. R. China

Sample Description

Product : Electronic convertor for LED
Model No. : SLP03SS; SLP03SS1; SLP01SS
Electrical Rating : Input: 100-240 VAC; 50/60 Hz;
SLP01SS: 0,04 A; SLP03SS; SLP03SS1: 0,08 A
Output: (refer to page 4)

Date Received : 10 July 2007

Date Test Conducted : 10-27 July 2007

Test standards : EN 55015: 2000+A1: 2001+A2: 2002
EN 61000-3-2: 2000+A2: 2005
EN 61000-3-3: 1995+A1: 2001+A2: 2005
EN 61547: 1995+A1: 2000

Test Result : Pass

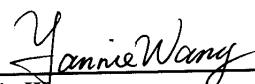
Conclusion : The submitted samples complied with the above EMC standards.

Remark : When determine the test result, measurement uncertainty has been considered.
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Prepared and Checked By:

Approved By:


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17 September 2007 Date

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TEST RESULTS SUMMARY

Test Item	Standard	Result
Continuous conducted disturbance voltage	EN 55015: 2000+A1: 2001+A2: 2002	Pass
Radiated electromagnetic disturbance	EN 55015: 2000+A1: 2001+A2: 2002	N/A
Insertion loss	EN 55015: 2000+A1: 2001+A2: 2002	N/A
Harmonic of current	EN 61000-3-2: 2000+A2: 2005	N/A
Flicker	EN 61000-3-3 : 1995+A1 : 2001 +A2 : 2005	N/A
ESD immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-2:1995+A1:1998+A2:2000	N/A
Inject current immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-6:1996+A1:2000	Pass
Surge immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-5:1995+A1:2000	N/A
EFT immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-4:2004	Pass
Radiated EM filed immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-3:2002+A1:2002	N/A
Voltage dips and interruption immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-11:2004	N/A
Power frequency magnetic field immunity	EN 61547: 1995+A1: 2000 Reference: IEC 61000-4-8:1993+A1:2000	N/A

Remark: 1. The symbol "N/A" in above table means Not Applicable.

2. When determining the test results, measurement uncertainty of tests has been considered.

2

EMC Results Conclusion (with Justification)

RE: EMC Testing Pursuant to EMC Directive 2004/108/EC Performed on the Electronic convertor for LED, Models: SLP03SS; SLP03SS1; SLP01SS.

We tested the Electronic convertor for LED, Model: SLP03SS, to determine if it was in compliance with the relevant EN standards as marked on the Test Results Summary. We found that the unit met the requirement of EN 55015(Continuous conducted disturbance voltage), EN 61547 (IEC 61000-4-4), EN 61547 (IEC 61000-4-6) standards when tested as received. The worst case's test data was presented in this test report.

This report is the revision of the previous test report JGZ0512204-1 dated 08 February 2006 and shall be used together with it. Changes are as below:

- Updated the standard version of EN 61000-3-2, EN 61000-3-3, no additional tests should be done;
- Model SLP03SS1 was added into this report.
- Added a Y1-capacitance on circuit,
- Changed the test lab from "Intertek Testing Services Shenzhen Ltd. Guangzhou GDD Branch" to "Intertek Testing Services Shenzhen Ltd. Guangzhou Branch" and the address changed accordingly.

The models have same circuit diagram and same casing. Only technical data of several components; output voltage and output current are different.

Output:

SLP03SS: Constant current – DC 350 mA; 0,5 V – 10 V

Constant voltage – DC 12 V; $I \leq 300$ mA

SLP03SS1: Constant current – DC 700 mA; 0,5 V – 4 V

Constant voltage – DC 6 V; $I \leq 650$ mA

SLP01SS: Constant current – DC 350 mA; 0,5 V – 4 V

Constant voltage – DC 6 V; $I \leq 300$ mA

Built-in SELV; t_a : 50 °C; 110°C thermally protected;

SLP03SS; SLP01SS: t_c 75 °C; SLP03SS1: t_c 85 °C

Continuous conducted disturbance voltage, Inject current immunity, EFT immunity tests were evaluated on model SLP03SS.

The production units are required to conform to the initial sample as received when the units are placed on the market.

3**LABORATORY MEASUREMENTS****Configuration Information**

Equipment Under Test (EUT):	Electronic convertor for LED
Model:	SLP03SS
Serial No.	Not Labelled
Support Equipment:	N/A
Rated Voltage:	100-240 VAC; 50/60 Hz
Condition of Environment:	Temperature : 15~25°C Relative Humidity: 35~60% Atmosphere Pressure 86~106kPa

Notes:

1. The EMI measurements had been made in the operating mode produced the largest emission in the frequency band being investigated consistent with normal applications. An attempt had been made to maximize the emission by varying the configuration of the EUT.
2. The EMS measurements had been made in the frequency bands being investigated, with the EUT in the most susceptible operating mode consistent with normal applications. The configuration of the test sample had been varied to achieve maximum susceptibility.

4 EMI TEST

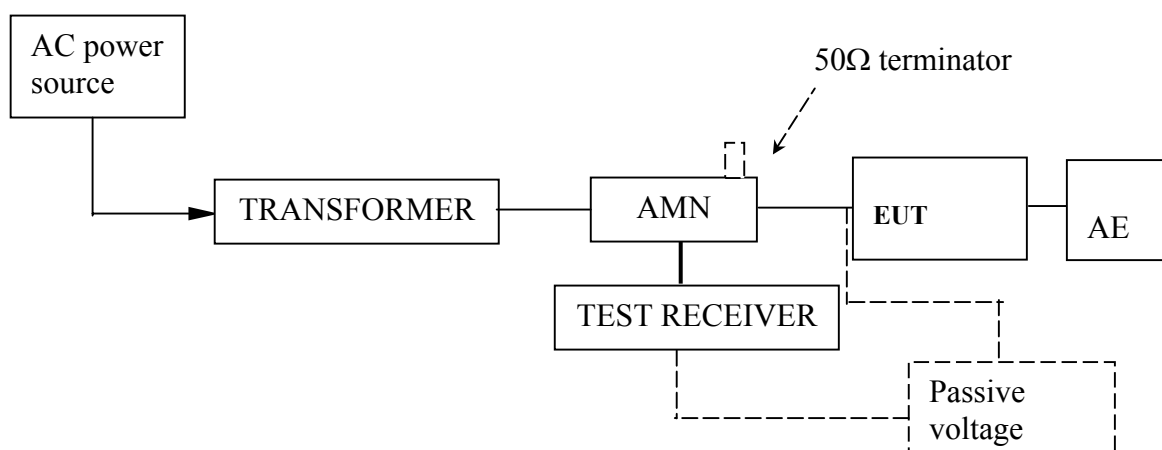
4.1 EN 55015 Continuous Conducted Disturbance Voltage Test

Test Result: Pass

4.1.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer
EM080-04	EMI receiver	ESCS30	R&S
EM006-06	LISN	ENV216	R&S
EM005-06-01	Voltage probe	TK 9416	PMM

4.1.2 Block Diagram of Test Setup



4.1.3 Test Setup and Procedure

The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains Network which provide a 50Ω linear impedance. Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with passive voltage probe if appropriate.

The EUT was placed on a 0.8m high non-metallic table above a metallic plane, and 0.4m from wall of shielded room which is considered as Ground Reference Plane (GRP) (For floor standing EUT, was placed on a 0.1m high non-metallic supported on GRP) The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver was set at 200Hz in the frequency range from 9kHz to 150kHz, and 9kHz in the frequency range from 150kHz to 30MHz.

4.1.4 Test Data**At main terminal: Pass****Tested Wire: Live****Operation Mode: EUT ON**

Frequency [MHz]	Quasi-Peak		Average	
	Disturbance level [dB(μV)]	Permitted limit [dB(μV)]	Disturbance level [dB(μV)]	Permitted limit [dB(μV)]
0.009	<60	110.0	--	--
0.050	<50	90.0	--	--
0.100	<50	83.7	--	--
0.160	<40	65.5	<30	55.5
0.240	<40	62.1	<30	52.1
0.550	<40	56.0	<30	46.0
1.000	<40	56.0	<30	46.0
1.400	<40	56.0	<30	46.0
2.000	<40	56.0	<30	46.0
3.500	<40	56.0	<30	46.0
6.000	<40	60.0	<30	50.0
10.000	<40	60.0	<30	50.0
22.000	<40	60.0	<30	50.0
30.000	<40	60.0	<30	50.0

Tested Wire: Neutral

Operation Mode: EUT ON

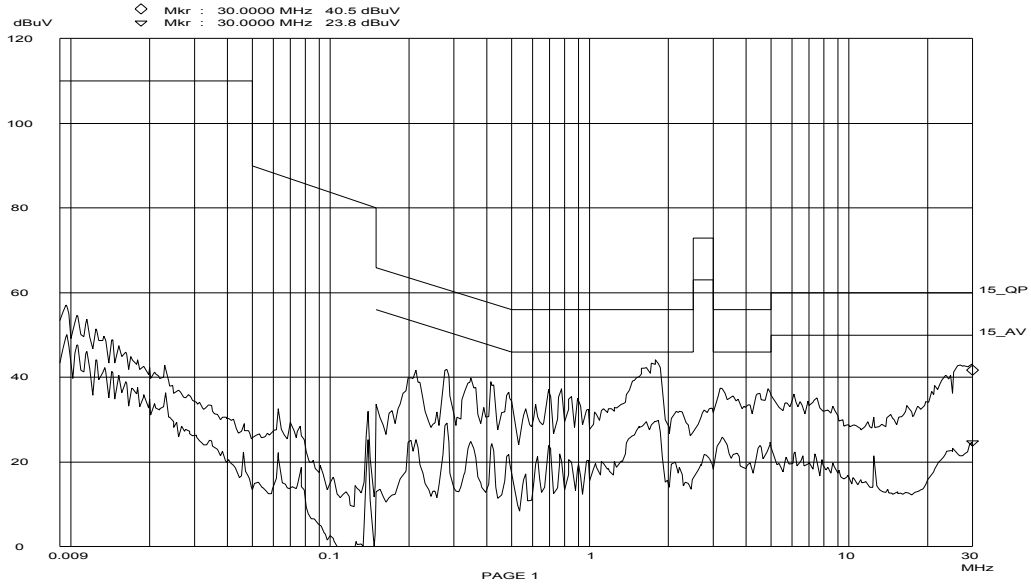
Frequency [MHz]	Quasi-Peak		Average	
	Disturbance level [dB(μV)]	Permitted limit [dB(μV)]	Disturbance level [dB(μV)]	Permitted limit [dB(μV)]
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0.160	<40	65.5	<30	55.5
0.240	<40	62.1	<30	52.1
0.550	<40	56.0	<30	46.0
1.000	<40	56.0	<30	46.0
1.400	<40	56.0	<30	46.0
2.000	<40	56.0	<30	46.0
3.500	<40	56.0	<30	46.0
6.000	<40	60.0	<30	50.0
10.000	<40	60.0	<30	50.0
22.000	<40	60.0	<30	50.0
30.000	<40	60.0	<30	50.0

At load/control terminal: Not Applicable

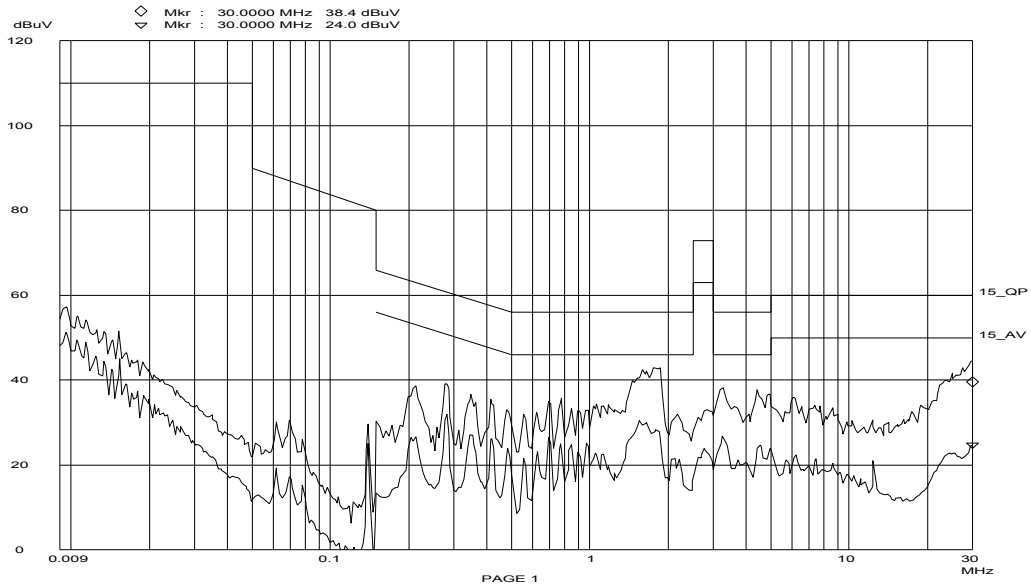
Frequency [MHz]	Quasi-Peak		Average	
	Disturbance level [dB(μV)]	Permitted limit [dB(μV)]	Disturbance level [dB(μV)]	Permitted limit [dB(μV)]
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

4.1.5 Emission Curve At mains terminal:

Tested Wire: Live



Tested Wire: Neutral



At load/control terminal:

Not Applicable.

4.1.6 Measurement Uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with CISPR 16-4-2:2003.

Measurement uncertainty of mains terminal disturbance voltage in CISPR band A: $\pm 3.4\text{dB}$.

Measurement uncertainty of mains terminal disturbance voltage in CISPR band B: $\pm 3.3\text{dB}$.

The measurement uncertainty is given with a confidence of 95%, $k=2$.

4.2 EN 55015 Radiated Electromagnetic Disturbance

Test Result: Not applicable

5 Harmonics of current

Test Result: Not applicable

6 Flicker

Test Result: Not applicable.

7 EMS TEST

Performance Criteria:

- Criterion A: During the test no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
- Criterion B: During the test the luminous intensity may change to any value. After the test the luminous intensity shall be restored to its initial value within 1 min.
Regulating controls need not function during the test, but after the test the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.
- Criterion C: During and after the test any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal if necessary by temporary interruption of the mains supply and /or operating the regulating control.
Additional requirement for lighting equipment incorporation a starting device:
After the test the lighting equipment is switched off. After half an hour it is witched on again. The lighting equipment shall start and operate as intended.

Measurement Uncertainty

According to CISPR 16-4-2:2003, measurement uncertainty to immunity test is under consideration.

Note: "N/A" means Not Applicable in below text.

7.1 IEC 61000-4-2(Pursuant to EN 61547) Electrostatic Discharge Immunity

Performance criterion: B A(only for luminaire that use for emergency lighting)

Test Result: Not applicable

7.2 IEC 61000-4-6(Pursuant to EN 61547) Injected Current (0.15 MHz to 80 MHz)

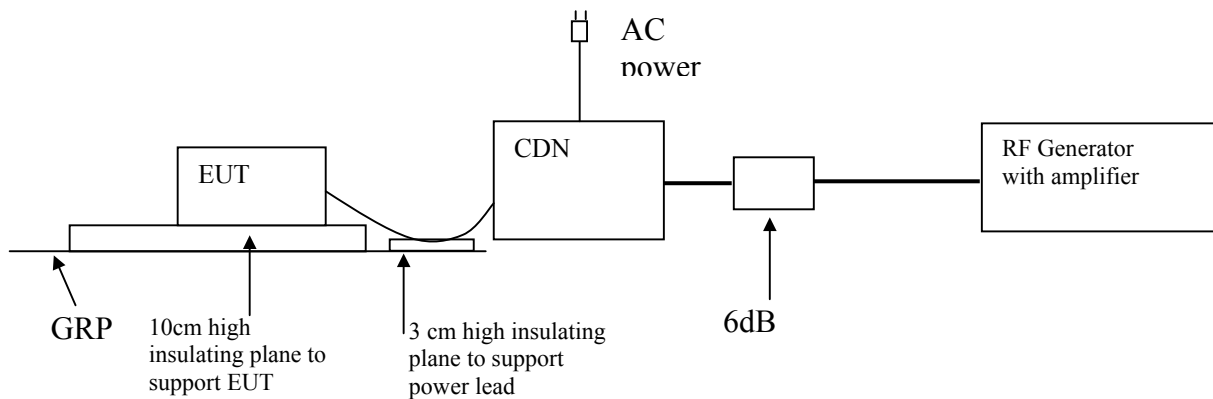
Performance criterion: A B(only for luminaire with electronic ballast for discharge lamps)

Test Result: Pass

7.2.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer
EM003-01	Conducted Disturbance Generator	CDG_1020	Dr.Hubert GmbH

7.2.2 Block Diagram of Test Setup



7.2.3 Test Setup and Procedure

The EUT was placed on an insulating support of 0.1m height above a ground reference Plane, arranged and connected to satisfy its functional requirement.

All relevant cables were provided with the appropriate coupling and decoupling devices at a distance between 0.1m and 0.3m from the projected geometry of the EUT on an insulating support of 0.03m height above the ground reference plane.

Test voltage was verified before each testing through power meter combined in the RF generator with AMP.

Dwell time was set to 3s and step was set as 1% to keep sufficient response time for EUT.

The frequency from 0.15MHz to 80MHz was checked.

7.2.4 Test Result

Port:	Frequency (MHz)	Level (Pursuant to EN 61547)	Result
A.C. Power Lines	0.15 to 80	3V (r.m.s.)	Pass
D.C. Power Lines	0.15 to 80	3V (r.m.s.)	N/A
Signal Lines	0.15 to 80	3V (r.m.s.)	N/A
Control Lines	0.15 to 80	3V (r.m.s.)	N/A

7.3 IEC 61000-4-4(Pursuant to EN 61547) Electrical Fast Transient/Burst

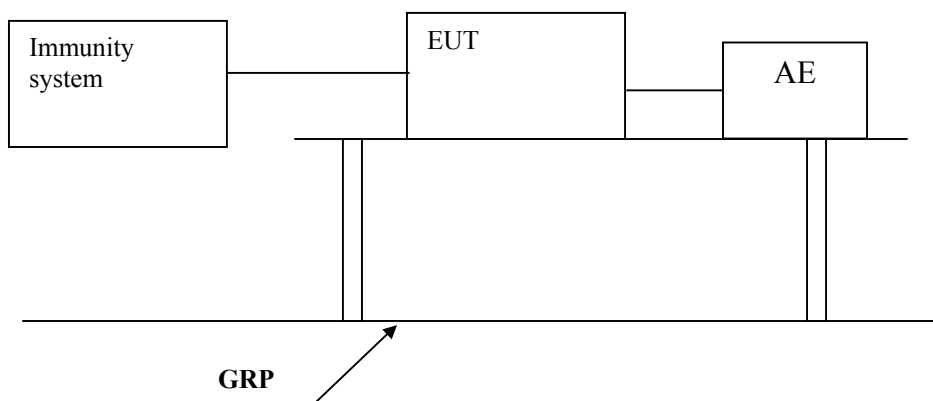
Performance criterion: B

Test Result: Pass

7.3.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer
EM005-07	EMS test system	Ecompact 4	HAEFELY
EM074-01	EMS test system	Best EMC	SCHAFFNER

7.3.2 Block Diagram of Test Setup



7.3.3 Test Setup and Procedure

The EUT was placed on a 0.1m high wooden table, standing on the ground reference plane 3m by 2m in size, made by steel 1mm thick.

The distance between the EUT and any other of the metallic surface except the GRP is greater than 0.5m.

The mains lead excess than 0.5m is folded to a flat coil and situated at a distance of 0.1m above the ground reference plane to insure the distance between the coupling device and the EUT were 0.5m.

The EUT was arranged and connected to satisfy its functional requirement and supplied by the coupling-decoupling network.

7.3.4 Test Result

Level (Pursuant to EN 61547)	Polarity	Input and Output A.C. Power Ports	D.C. Power Ports, Signal and Control Lines
0.5kV	+	N/A	N/A
0.5kV	-	N/A	N/A
1kV	+	Pass	N/A
1kV	-	Pass	N/A

7.4 IEC 61000-4-5(Pursuant to EN 61547) Surge Immunity

Performance criterion: C

B (for regulating device for ballast or converter or luminaire for emergency lighting)

Test Result: Not applicable

7.5 IEC 61000-4-3(Pursuant to EN 61547) Radiated Electromagnetic Field Immunity

Performance criterion: A

Test Result: Not applicable

7.6 IEC 61000-4-8(Pursuant to EN 61547) Power Frequency Magnetic Field Immunity

Performance criterion: A

Test Result: Not Applicable

Remark:

Equipment containing no Hall elements or magnetic field sensors is not susceptible to magnetic field. Hence, this equipment is deemed to fulfil the magnetic field test.

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

8 Appendix I - Photos of test setup

Conducted Emission



Conducted Immunity

