SGS-CSTC Standards Technical Services Co., Ltd.

198 Kezhu Road, Scientech Park, Guangzhou Economic &
Technology Development District, Guangzhou, China 510663

Telephone: +86 (0) 20 82155555
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Email: sgs_internet_operations@sgs.com

VERIFICATION OF EMC COMPLIANCE

Verification No.: GLEMO09100321301V
Applicant:
Address of Applicant:

Product Description: Laser Sphere
Model No: LP28-001
Sufficient samples of the product have been tested and found to be in conformity with
Test Standard: EN 55015:2006+A1:2007,
EN 61547:1995+A1:2000,
EN 61000-3-2:2006,
EN 61000-3-3:2008.
As shown in the
Test Report Number(s): GLEMO09100321301

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards and Directive 2004/108/EC. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.

Stephen Guo
Manager

Date: 21 October 2009

SGS-CSTC Standards Technical Services Co., Ltd.

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technological Development District, Guangzhou, China 510663
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TEST REPORT

Application No.: GLEMO091003213LM

Applicant:

Equipment Under Test (EUT):

EUT Name: Laser Sphere

Item No.: LP28-001

Standards: EN 55015:2006+A1:2007, EN 61547:1995+A1:2000, EN 61000-3-2:2006, EN 61000-3-3:2008.

Date of Receipt: 14 October 2009

Date of Test: 15 to 20 October 2009

Date of Issue: 21 October 2009

Test Result :	**PASS***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 2 of this report for further details.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.

Stephen Guo
Manager

2 Test Summary

The customer requested EMC tests for a Laser Sphere.

Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission on AC, 9 kHz to 30 MHz	EN 55015:2006 +A1:2007	EN 55015:2006 +A1:2007	Table 2a	PASS
Harmonic Emission on AC, 50 Hz	EN 61000-3-2:2006	EN 61000-3-2:2006	Class C	N/A
Flicker Emission on AC	EN 61000-3-3:2008	EN 61000-3-3:2008	Clause 5 of EN 61000-3-3	PASS
Electrostatic Discharge (ESD)	EN 61547:1995 +A1:2000	EN 61000-4-2:1995 +A1:1998+A2:2001	Contact ± 2, 4 kV Air ± 2, 4, 8 kV	PASS
Radiated Immunity, 80 MHz to 1 GHz	EN 61547:1995 +A1:2000	EN 61000-4-3:2006+A1:2008	3 V/m, 80 %, 1 kHz, A.M.	PASS
Electrical Fast Transients (EFT) on AC	EN 61547:1995 +A1:2000	EN 61000-4-4:2004	± 0.5 &1.0 kV	PASS
Surge Immunity on AC	EN 61547:1995 +A1:2000	EN 61000-4-5:2006	± 0.5 kV D.M. †	PASS
Injected Currents on AC & Control Cable, 150 kHz to 80 MHz	EN 61547:1995 +A1:2000	EN 61000-4-6:2007	3 Vrms(emf) , 80 %, 1 kHz, Amp. Mod.	PASS
Voltage Dips	EN 61547:1995 +A1:2000	EN 61000-4-11:2004	0 % U_T* for 0.5 per 70 % U_T* for 10 per	PASS

REMARKS:

* U_T is the nominal supply voltage

† D.M. – Differential Mode

N/A: Not applicable. Please refer to Section 6.3 for further details.

3 Contents

4 General Information

4.1 Client Information

Applicant:

Address of Applicant:

4.2 General Description of E.U.T.

EUT Name:	Laser Sphere
Item No.:	LP28-001

4.3 Details of E.U.T.

Power Supply:	230V AC
Adapter Details:	Model: KA23A120025033K
	Input: 230-240V 50Hz 35mA
	Output: 12V 250mA
Power Cord:	1.8m x 2 wires unscreened DC cables.

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

  Date of Registration: February 18, 2009.Valid until February 18, 2011.

- **VCCI (Registration No.: R-2460 and C-2584)**

  The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460 and C-2584 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.

  This certificate was issued Dec.04.2006 and valid until Oct.12.2009.

5 Equipments Used during Test

	Conducted Emission					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m^3	N/A	N/A	N/A
EMC0102	LISN	Schaffner Chase	MNZ050D/1	1421	14-12-2008	14-12-2009
EMC0118	Two-line v-netwok	Rohde & Schwarz	ENV216	3560.6550.02	18-08-2009	18-08-2010
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	14-12-2008	14-12-2009
EMC0107	Coaxial Cable	SGS	2m	N/A	26-11-2008	26-11-2009
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	N/A
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	21-02-2009	21-02-2010
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	21-02-2009	21-02-2010
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	21-02-2009	21-02-2010

	Harmonics / Flicker test					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0608	AC Power Source	California	50001iX	56627	11-03-2009	11-03-2010
EMC0607	Power Analyzer	California	PAXS-1	72400	11-03-2009	11-03-2010

	Electrostatic Discharge					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0809	ESD Simulator	EM Test AG	Dito	V0735102864	08-10-2009	08-10-2010
EMC0804	ESD Ground Plane	SGS	3m x 3m	N/A	N/A	N/A
EMC0055	Temperature, & Humidity	Shenzhen Tuojia	T218	N/A	29-07-2009	29-07-2010

	EFT, Surge, Voltage dips and Interruption					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC1010	EMC Immunity Test System	Thermo KeyTek	Pro-Plus	501276	14-12-2008	14-12-2009
EMC1005	Digital Oscilloscope	Tektronix	TDS3012	B015508	18-07-2009	18-07-2010

Radiated Immunity						
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0525	Compact 3m Semi- Anechoic Chamber	Changzhou zhongyu	N/A	N/A	N/A	N/A
EMC0516	Signal Generator	Rohde & Schwarz	SMR20	100416	18-07-2009	18-07-2010
EMC0915	Amplifier 20M-1GHz	EMPOWER	BBS2E4ALP	1007	11-03-2009	11-03-2010
EMC0914	Amplifier 800M-2.5GHz	EMPOWER	BBS3Q5KIN	1006	11-03-2009	11-03-2010
EMC0904	Power Meter	Rohde & Schwarz	NRVS	825770/074	18-07-2009	18-07-2010
EMC0905	Power Sensor	Rohde & Schwarz	NRV-Z5	825802/013	05-10-2009	04-10-2010
EMC0917	Dual Directional Coupler	EMCA	715-10-1.400	070031	06-10-2009	06-10-2010
EMC0907	Electric Field Probe	Wandel & Goltermann	EMC-20	M-0063	05-11-2008	05-11-2009
EMC0908	Oscilloscope Type 485	Tektronix	485	B144408	N/A	N/A
EMC0909	Monitor System	Mitsubish Corp.	M-0552AB	91510185	N/A	N/A
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	08-10-2009	08-10-2010

Conducted Immunity						
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC1101	Signal Generator	Rohde & Schwarz	SMY01	825675/016	18-12-2008	18-12-2009
EMC1102	Amplifier 0.15-230MHz	Ophirrf	GRF5048	1003	11-03-2009	11-03-2010
EMC1103	Power Meter	Rohde & Schwarz	NRVS	825770/079	18-07-2009	18-07-2010
EMC0905	Power Sensor	Rohde & Schwarz	NRV-Z5	825802/013	18-07-2009	18-07-2010
EMC1105	Dual Directional coupler	Werlatone Inc.	C1795	6635	24-11-2008	24-11-2009
EMC0908	Oscilloscope Type 485	Tektronix	485	B144408	N/A	N/A
EMC1108	CDN M3	Schaffner Chase	CDN-M3-16	9866	14-12-2008	14-12-2009
EMC1107	CDN M2	Schaffner Chase	CDN-M2-16	9863	14-12-2008	14-12-2009
EMC1120	Immunity S/W Ver 4.31	Schaffner Chase	CIS9942	WHHPKB	N/A	N/A
EMC1116	Current Probe	Schaffner Chase	CIP9136	1155	25-11-2008	25-11-2009
EMC1117	Current Probe	Schaffner Chase	CSP8445	18	25-11-2008	25-11-2009

	General used equipment					
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0006	DMM	Fluke	73	70681569	23-12-2008	23-12-2009
EMC0007	DMM	Fluke	73	70671122	23-12-2008	23-12-2009

6 Emission Test Results

6.1 Conducted Emissions on Mains Terminals, 9 kHz to 30 MHz

Test Requirement: EN 55015
Test Method: EN 55015
Test Date: 15 October 2009
Frequency Range: 9 kHz to 30 MHz
Detector: Peak for pre-scan
200 Hz resolution bandwidth between 9 kHz & 150 kHz
9 kHz resolution bandwidth between 150 kHz & 30 MHz

Limit:

Frequency range MHz	Limits dB (μV)[a]	
	Quasi-peak	Average
0.009 to 0.05	110	---
0.05 to 0.150	90-80[b]	---
0.150 to 0.5	66-56[b]	56-46[b]
0.5 to 5.0	56[c]	46[c]
5.0 to 30	60	50

[a] At the transition frequency, the lower limit applies.
[b] The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.
[c] For electrodeless lamps and luminaires, the limit in the frequency range of 2,51 MHz to 3,0 MHz is 73 dB(μV) quasi-peak and 63 dB(μV) average.

6.1.1 E.U.T. Operation

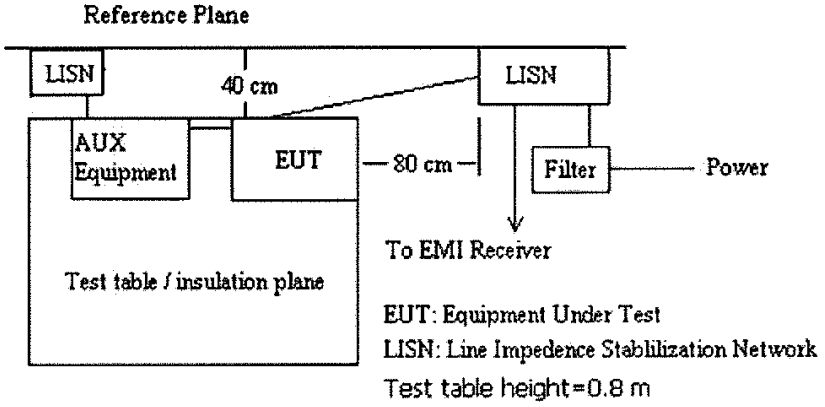
Operating Environment:

Temperature: 24.0 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

EUT Operation: Test the EUT in LED lighting mode.

Perform Peak-scan in on mode for EUT, Quasi-peak & average measurements were performed if peak emissions was detected within 6 dB of the average limit line.

6.1.2 Plan View of Test Setup



6.1.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines in LED Lighting Mode at 230 V AC.

Quasi-peak & average measurements were performed on the live & neutral lines since peak emissions were detected within 6 dB of the average limit line.

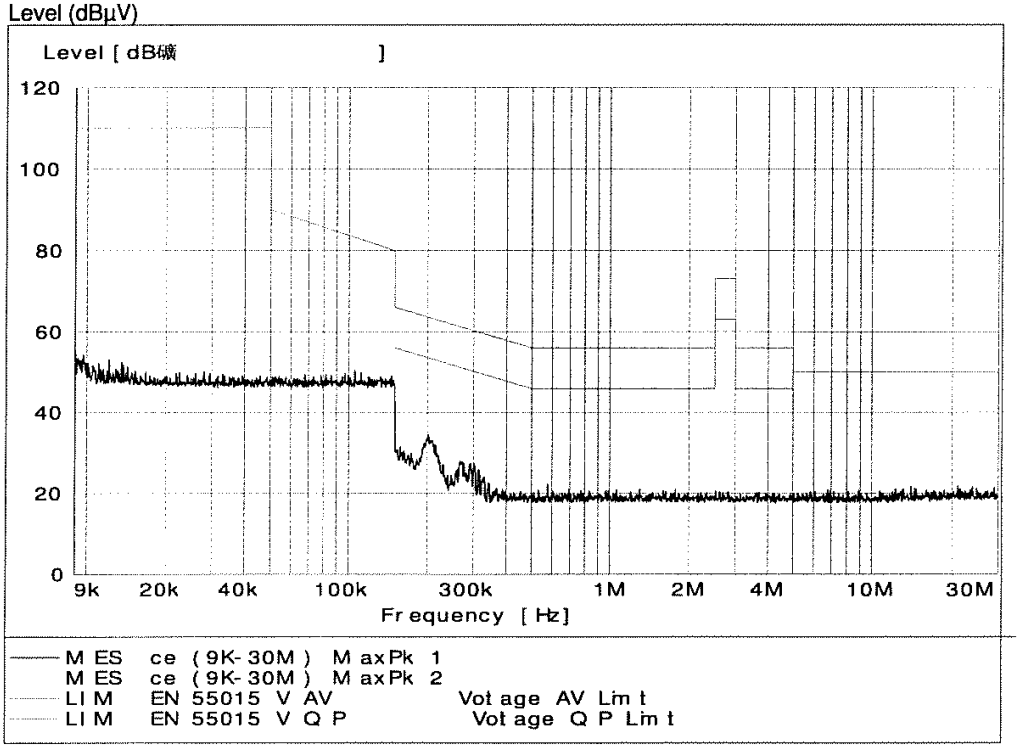
Please see the attached peak measurement data for reference.

The following quasi-peak measurements were performed on the EUT:

Live Line:

Peak Scan:

Level (dBμV)



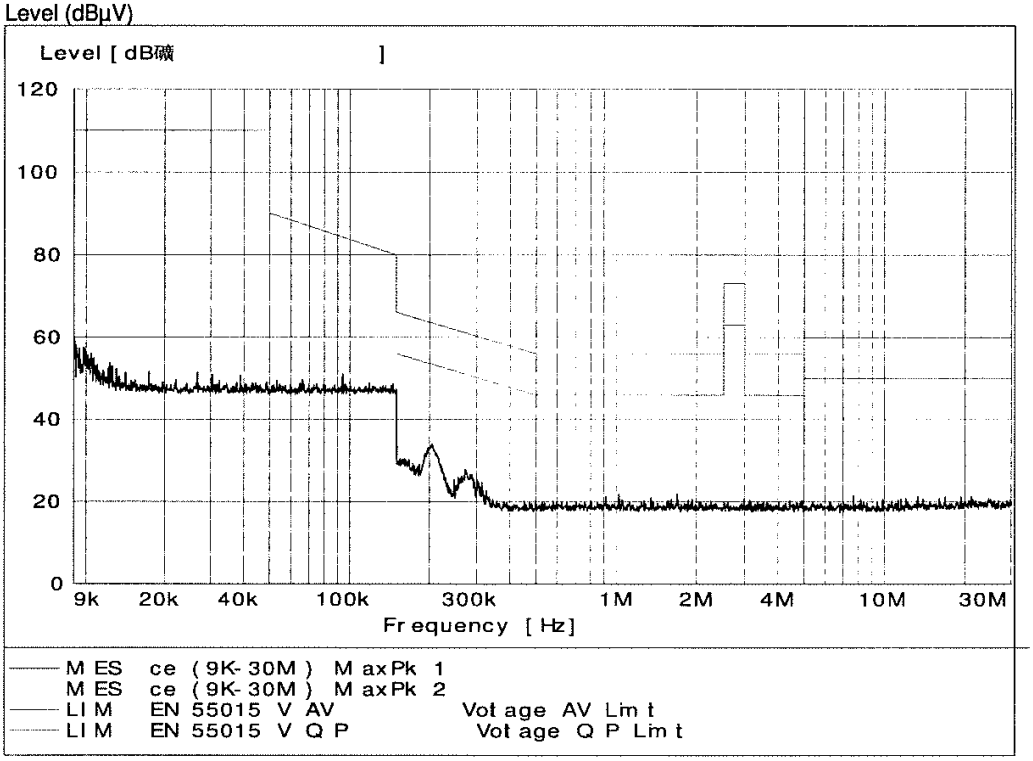
Quasi-peak and Average measurement:

Frequency (MHz)	Transducer (dB)	Receiver QP Reading (dBμV)	QP Level (dBμV)	Limit (dBμV)	Margin (dB)	Receiver AV Reading (dBμV)	AV Level (dBμV)	Limit (dBμV)	Margin (dB)
0.044	9.6	33.4	43.0	110.0	67.0	*	*	*	*
0.207	9.6	21.4	31.0	63.3	32.3	3.7	13.3	53.3	40.0
0.210	9.6	15.7	25.3	63.2	37.9	2.9	12.5	53.2	40.7
0.203	9.6	11.7	21.3	63.5	42.2	1.0	10.6	53.5	42.9
0.324	9.6	11.6	21.2	59.6	38.4	0.5	10.1	49.6	39.5
0.318	9.6	10.9	20.5	59.8	39.3	0.3	9.9	49.8	39.9

Neutral Line

Peak Scan:

Level (dBµV)



Quasi-peak and Average measurement:

Frequency (MHz)	Transducer (dB)	Receiver QP Reading (dBµV)	QP Level (dBµV)	Limit (dBµV)	Margin (dB)	Receiver AV Reading (dBµV)	AV Level (dBµV)	Limit (dBµV)	Margin (dB)
0.044	9.6	33.9	43.5	110.0	66.5	*	*	*	*
0.205	9.6	23.5	33.1	63.4	30.3	3.6	13.2	53.4	40.2
0.210	9.6	20.5	30.1	63.2	33.1	2.5	12.1	53.2	41.1
0.313	9.6	16.0	25.6	59.9	34.3	0.4	10.0	49.9	39.9
0.327	9.6	12.9	22.5	59.5	37.0	0.2	9.8	49.5	39.7
0.444	9.6	12.2	21.8	57.0	35.2	0.3	9.9	47.0	37.1

*: Not requested by standards.

6.2 Harmonics Test Results

Test Requirement:	EN 61000-3-2
Test Method:	N/A: See Remark Below
Frequency range:	100Hz to 2kHz

There is no Harmonics limit applied to this LED light device whose rated power is less than 25 W in accordance with EN 61000-3-2:2006.

6.3 Flicker Test Results

Test Requirement:	EN 61000-3-3
Test Method:	EN 61000-3-3
Test Date:	20 October 2009
Class/Severity:	Clause 5 of EN 61000-3-3
Measurement Time:	10 min
Detector:	As per EN 61000-3-3

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 56 % RH Atmospheric Pressure: 1012 mbar

EUT Operation: Test the EUT in LED lighting mode.

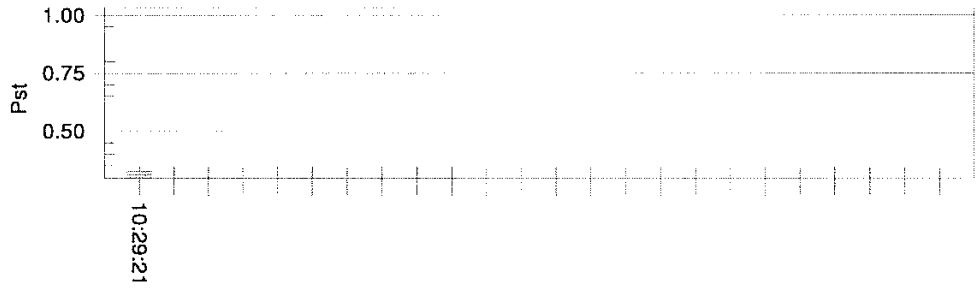
6.3.2 Measurement Data

The following measurements were performed on the EUT:

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test Result: Pass Status: Test Completed

Pst$_1$ and limit line **European Limits**



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.00**			
Highest dt (%):	**0.06**	**Test limit (%):**	**3.30**	**Pass**
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.38**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.330**	**Test limit:**	**1.000**	**Pass**

7 Immunity Test Results

7.1 Performance Criteria Description in Clause 4.2 of EN 61547

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.

7.2 Electrostatic Discharge(ESD)

Test Requirement:	EN 61547	
Test Method:	EN 61000-4-2	
Criterion Required:	B	
Test Date:	15 October 2009	
Discharge Impedance:	330 Ω / 150 pF	
Discharge Voltage:	Air Discharge:	2, 4, 8 kV
	Contact Discharge:	2, 4 kV
	VCP / HCP:	2, 4 kV
Polarity:	Positive & Negative	
Number of Discharge:	Minimum 10 times at each test point	
Discharge Mode:	Single Discharge	
Discharge Period:	1 second minimum	

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 56 % RH Atmospheric Pressure: 1011 mbar

EUT Operation: Test the EUT in LED lighting mode.

7.2.2 Test Results

Direct Application Test Results

Observations: Test Point:

1. All insulated enclosure & seams.
2. All accessible metal parts of the enclosure.

Direct Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
2, 4, 8	+/-	1	N/A	A
2, 4	+/-	2	A	N/A

Indirect Application Test Results

Observations: Test Point: 1. All sides.

Indirect Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling	Vertical Coupling
2, 4	+/-	1	A	A

Results:

A: No degradation in the performance of the EUT was observed.

N/A: Not applicable (not requested by Standard)

7.3 Radiated Immunity 80 MHz to 1000 MHz

Test Requirement: EN 61547
Test Method: EN 61000-4-3
Criterion Required: A
Test Date: 21 October 2009
Frequency Range: 80 MHz to 1 GHz
Test level: 3 V/m on enclosure
Modulation: 80 %, 1 kHz Amplitude Modulation

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 55% RH Atmospheric Pressure: 1011 mbar

EUT Operation: Test the EUT in LED lighting mode.

7.3.2 Test Results:

Frequency	Level	Modulation	EUT Face	Result / Observations
80 MHz-1 GHz	3 V/m	1 kHz, 80 % Amp. Mod, 1 % increment	0° V	A
			0° H	
			90° V	A
			90° H	
			180° V	A
			180° H	
			270° V	A
			270° H	

Remarks:

A: No degradation in the performance of the E.U.T. was observed.

7.4 Electrical Fast Transients (EFT)

Test Requirement:	EN 61547
Test Method:	EN 61000-4-4
Criterion Required:	B
Test Date:	19 October 2009
Test Level:	0.5, 1.0 kV on AC
Polarity:	Positive & Negative
Repetition Frequency:	5 kHz
Burst Duration:	300 ms
Test Duration:	2 minute per level & polarity

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 52% RH Atmospheric Pressure: 1008 mbar

EUT Operation: Test the EUT in LED lighting mode.

7.4.2 Test Results:

AC Supply

Lead under Test	Level (±kV)	Coupling Direct/Clamp	EUT operating mode	Observations (Performance Criterion)
Live & Neutral	± 0.5, 1.0	Direct	On Mode	No loss of function. (A)

7.5 Surge

Test Requirement:	EN 61547
Test Method:	EN 61000-4-5
Criterion required::	C
Test Date:	19 October 2009
Test Level:	± 0.5 kV Live to Neutral
Polarity:	Positive & Negative
Generator source impedance:	2 Ω
Trigger Mode:	Internal
No. of surges:	5 positive, 5 negative at 0°, 90°, 180°, 270°.

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 52% RH Atmospheric Pressure: 1008 mbar

EUT Operation: Test the EUT in LED lighting mode.

7.5.2 Test Results:

Pulse No	Line-Line	Level (kV)	Surge Interval	Phase (deg)	Observation (Performance Criterion)
1–5	L-N	+0.5	60 s	0°	No loss of function.(A)
6–10	L-N	-0.5	60 s	0°	(A)
11–15	L-N	+0.5	60 s	90°	(A)
16–20	L-N	-0.5	60 s	90°	(A)
21–25	L-N	+0.5	60 s	180°	(A)
26–30	L-N	-0.5	60 s	180°	(A)
31–35	L-N	+0.5	60 s	270°	(A)
36–40	L-N	-0.5	60 s	270°	(A)

7.6 Conducted Immunity 0.15MHz to 80MHz

Test Requirement: EN 61547
Test Method: EN 61000-4-6
Criterion Required: A
Test Date: 15 October 2009
Frequency Range: 0.15 MHz to 80 MHz
Test level: 3 V rms on AC Ports (unmodulated emf into 150 Ω)
Modulation: 80 %, 1 kHz Amplitude Modulation

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 21.0 °C Humidity: 41 % RH Atmospheric Pressure: 1000 mbar

EUT Operation: Test the EUT in LED lighting mode.

7.6.2 Test Results:

Frequency	Line	Test Level	Modulation	Step Size	Dwell Time	Observation (Performance Criterion)
150 kHz to 80 MHz	2 Wire AC Supply Cable	3 Vrms	80 %, 1kHz Amp. Mod.	1 %	1 s	No Loss of Function (A)

7.7 Voltage Dips and Interruptions

Test Requirement:	EN 61547
Test Method:	EN 61000-4-11
Criterion Required:	30 % VD:C, 100 % VD:B
Test Date:	19 October 2009
Test Level:	0 % of U_T (Supply Voltage) for 0.5 Periods
	70 % of U_T (Supply Voltage) for 10 Periods
No. of Dips / Interruptions:	3 per Level

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 52% RH Atmospheric Pressure: 1008 mbar

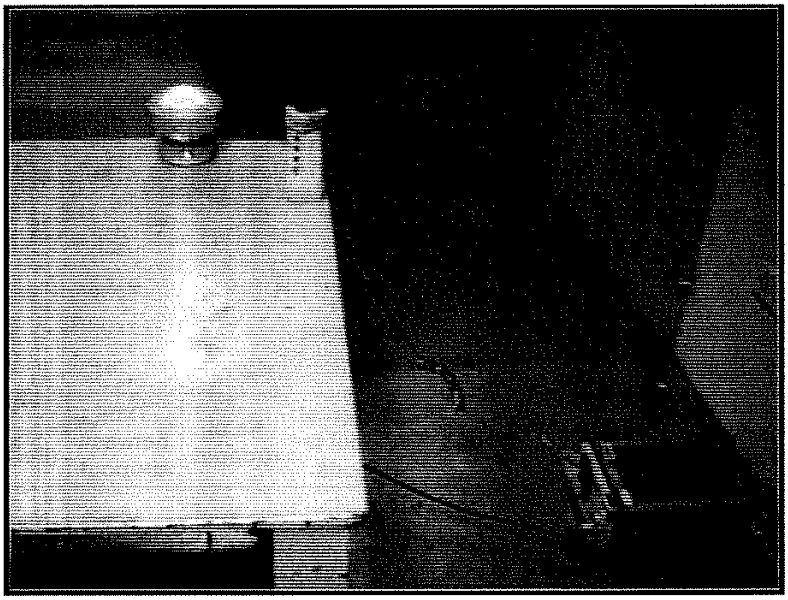
EUT Operation: Test the EUT in LED lighting mode.

7.7.2 Test Results:

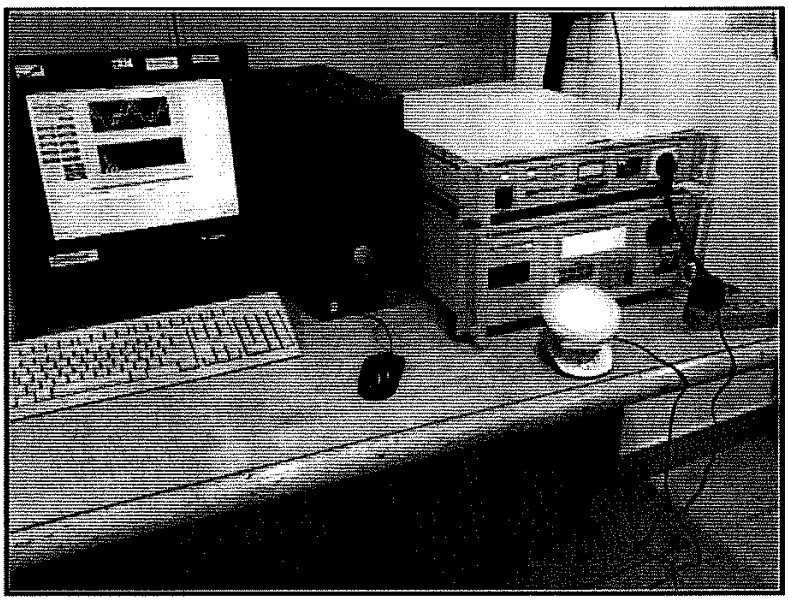
EUT operating modes	Test Level % U_T	Phase	Duration of dropout in Periods	No of dropout	Time between dropout	Observations (Performance Criterion)
LED lighting mode	0	0°	0.5	3	10 s	No Loss of Function (A)
LED lighting mode	0	180°	0.5	3	10 s	No Loss of Function (A)
LED lighting mode	70	0°	10	3	10 s	No Loss of Function (A)

8 Photographs

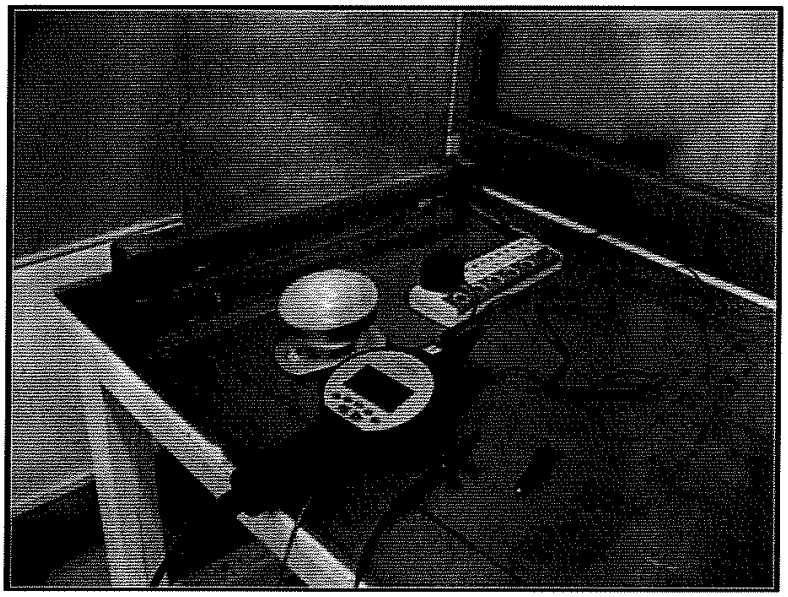
8.1 Conducted Emission Test Setup



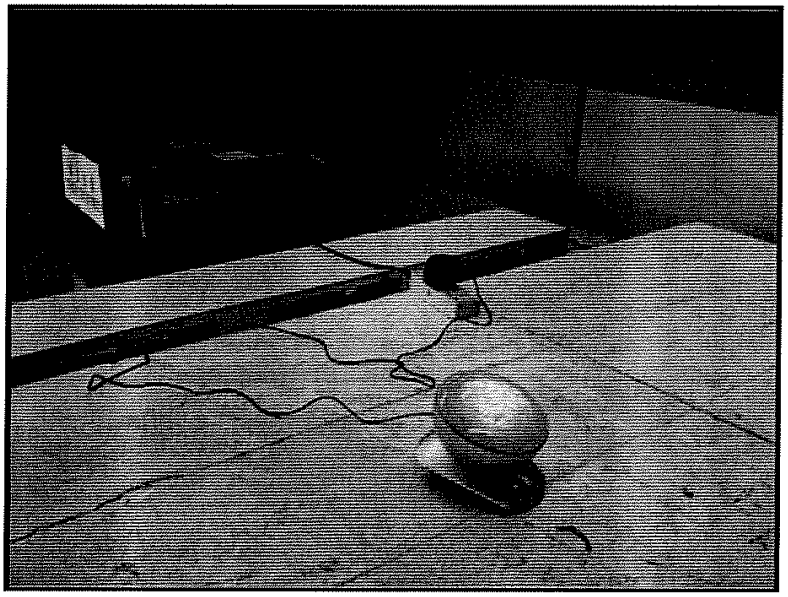
8.2 Flicker Test Setup



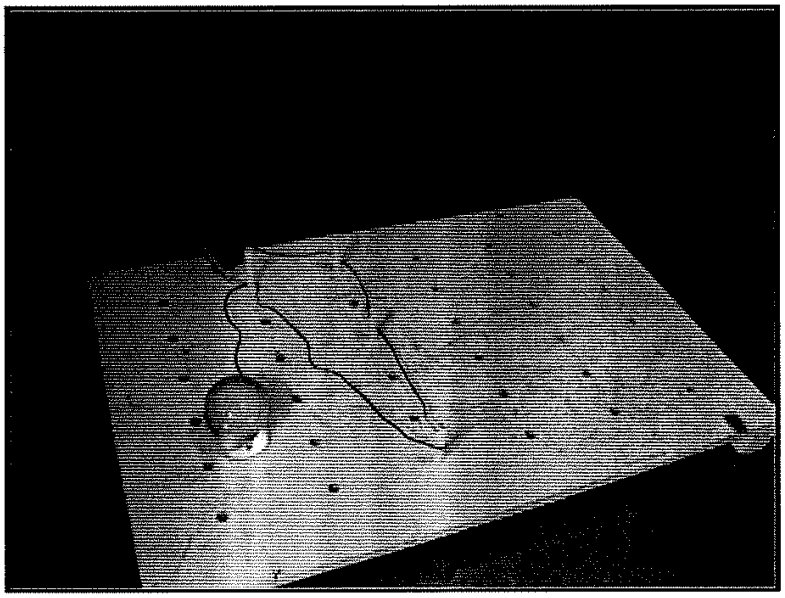
8.3 ESD Test Setup



8.4 EFT, Surge, Voltage Dip and Interruptions Test Setup



8.5 Conducted Immunity Test Setup



8.6 EUT Constructional Details