

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

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Report No.: SHEMO10030033701
Page: 1 of 34

EMC TEST REPORT

Application No.: SHEMO10030033701
Applicant: SHANGHAI WINSUN ELECTRONICS CO.,LTD
Equipment Under Test (EUT):

NOTE: The following sample(s) submitted was/were identified on behalf of the client as

EUT Name: Down Light
Model No.: D1515,D1515-DIM
Serial No.: Not supplied by the client
Standards: EN 55015: 2006/A1: 2007
EN 61000-3-2: 2006
EN 61000-3-3: 2008
EN 61547: 1995/A1: 2000

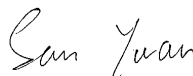
Date of Receipt: April 1,2010
Date of Test: April 6,2010 to April 9,2010
Date of Issue: April 15,2010

Test Result :	PASS
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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.



Tino Pan
E&E Section Manager
SGS-CSTC(Shanghai) Co., Ltd.



San Yuan
E&E Project Engineer
SGS-CSTC(Shanghai)Co.,Ltd

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2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission (150K to 30MHz)	EN 55015: 2006/A1: 2007	EN 55015: 2006/A1: 2007	N/A	PASS
Radiated Electromagnetic Disturbance 9KHz to 30MHz	EN 55015: 2006/A1: 2007	EN 55015: 2006/A1: 2007	2 M Loop	PASS
Radiated Emission (30MHz to 300MHz)	EN 55015: 2006/A1: 2007	EN 55015: 2006/A1: 2007	N/A	PASS
Harmonic Current Emission on AC, up to 2kHz	EN 61000-3-2: 2006	EN 61000-3-2: 2006	Clause 7 of EN61000-3-2	PASS
Voltage Fluctuation and Flicker on AC	EN 61000-3-3: 2008	EN 61000-3-3: 2008	Clause 5 of EN61000-3-3	PASS
ESD	EN 61547: 1995/A1: 2000	IEC 61000-4-2 :2001	Contact ±4 kV Air ±8 kV	PASS
Radio frequency electromagnetic fields, 80MHz to 1 GHz	EN 61547: 1995/A1: 2000	IEC 61000-4-3: 2008	3V/m 80%, 1kHz, AM	PASS
Electrical Fast Transients (EFT) on AC	EN 61547: 1995/A1: 2000	IEC 61000-4-4:2004	AC ± 1.0kV	PASS
Surges on AC	EN 61547: 1995/A1: 2000	IEC 61000-4-5 :2005	±0.5kV D.M.† ±1.0kV C.M.†	PASS
Injected Currents on AC, 150kHz to 80MHz	EN 61547: 1995/A1: 2000	IEC 61000-4-6 :2006	3Vrms (emf), 80%, 1kHz Amp. Mod.	PASS
Power-frequency magnetic field	EN 61547: 1995/A1: 2000	IEC 61000-4-8 :2001	50/60Hz,3A/m	N/A
Voltage Dips and Interruptions on AC	EN 61547: 1995/A1: 2000	IEC 61000-4-11 :2004	30 % U _T * for 10per 100 % U _T * for 0.5per	PASS

Remark: * U_T is the nominal supply voltage.

† D.M. – Differential Mode.

† C.M. – Common Mode.

Note: There are two models mentioned in the report, they are the same in electronic and electrical characters, so just the model D1515 had been tested.

3 Contents

	Page
1 COVER PAGE.....	1
2 TEST SUMMARY.....	2
3 CONTENTS	3
4 GENERAL INFORMATION	5
4.1 CLIENT INFORMATION.....	5
4.2 GENERAL DESCRIPTION OF E.U.T.....	5
4.3 DETAILS OF E.U.T.	5
4.4 DESCRIPTION OF SUPPORT UNITS.....	5
4.5 STANDARDS APPLICABLE FOR TESTING	5
4.6 DEVIATION FROM STANDARDS.....	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
4.8 MONITORING OF EUT FOR ALL IMMUNITY TEST	6
4.9 TEST LOCATION	6
4.10 TEST FACILITY	7
5 EQUIPMENTS USED DURING TEST.....	8
6 EMISSION TEST RESULTS	11
6.1 CONDUCTED EMISSIONS MAIN TERMINAL, 9KHZ TO 30MHZ.....	11
6.1.1 E.U.T. Operation.....	11
6.1.2 Measurement Data	11
6.2 RADIATED ELECTROMAGNETIC DISTURBANCE, 9KHZ TO 30MHZ.....	14
6.2.1 E.U.T. Operation.....	14
6.2.2 Measurement Data	14
6.3 HARMONICS TEST RESULTS.....	18
6.4 FLICKER TEST RESULT.....	21
6.4.1 Test Results:	21
7 IMMUNITY TEST RESULTS	22
7.1 PERFORMANCE CRITERIA DESCRIPTION IN CLAUSE 4 OF EN 61547:1995/A1:2000.....	22
7.2 ESD.....	22
7.2.1 E.U.T. Operation.....	22
7.2.2 Direct Application Test Results	23
7.3 RADIO FREQUENCY ELECTROMAGNETIC FIELDS (80MHZ-1GHZ).....	24
7.3.1 E.U.T. Operation.....	24
7.3.2 Test Results.....	24
7.4 ELECTRICAL FAST TRANSIENTS (EFT).....	25
7.4.1 E.U.T. Operation.....	25
7.4.2 Test Results On AC Supply:.....	25
7.5 SURGES.....	26
7.5.1 E.U.T. Operation.....	26
7.5.2 Test Results:	26
7.6 INJECTED CURRENTS	27
7.6.1 E.U.T. Operation.....	27

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 4 of 34

7.6.2	Test Results:	27
7.7	VOLTAGE DIPS AND INTERRUPTIONS	28
7.7.1	E.U.T. Operation	28
7.7.2	Test Results:	28
8	PHOTOGRAPHS	29
8.1	CONDUCTED EMISSION TEST SETUP	29
8.2	RADIATED ELECTROMAGNETIC DISTURBANCE TEST SETUP	29
8.3	RADIATED EMISSION TEST SETUP	30
8.4	HARMONICS & FLICKER TEST SETUP	30
8.5	ESD TEST SETUP	31
8.6	RADIO FREQUENCY ELECTROMAGNETIC FIELDS TEST SETUP	31
8.7	SURGES AND VOLTAGE DIPS AND INTERRUPTIONS	32
8.8	EFT TEST SETUP	32
8.9	INJECTED CURRENTS TEST SETUP	33
8.10	EUT CONSTRUCTIONAL DETAILS	33

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4 General Information

4.1 Client Information

Applicant: SHANGHAI WINSUN ELECTRONICS CO.,LTD
Address of Applicant: Room 501,Building 1,No.3266,Jin Du Road,Min Hang District, Shanghai,China

4.2 General Description of E.U.T.

EUT Name: Down Light
Model No.: D1515,D1515-DIM
Serial No.: Not supplied by the client

4.3 Details of E.U.T.

Power Supply: AC230V 18W
Power Cord: N/A

4.4 Description of Support Units

Name / Function	Model No.	Remark
N/A	N/A	N/A

4.5 Standards Applicable for Testing

The customer requested EMC tests for Down Light

The standards used were EN 55015: 2006/A1: 2007, EN 61000-3-2: 2006, EN 61000-3-3: 2008 and EN 61547: 1995/A1: 2000.

Table 1 : Tests Carried Out Under EN 55015: 2006/A1: 2007

Standard	Status
EN 55015: 2006/A1: 2007 Radiated Electromagnetic Disturbance	√
EN 55015: 2006/A1: 2007 Conducted Emissions on AC	√
EN 55015: 2006/A1: 2007 Radiated Emissions	√

× Indicates that the test is not applicable
√ Indicates that the test is applicable

Table 2: Tests Carried Out Under EN 61000-3-2: 2006 & EN 61000-3-3: 2008

	Standard	Status
EN 61000-3-2: 2006	Harmonic Current Emission on AC	√
EN 61000-3-3: 2008	Voltage Fluctuation and Flicker on AC	√

× Indicates that the test is not applicable

√ Indicates that the test is applicable

Table 3: Tests carried out under EN 61547: 1995/A1: 2000

	Standard	Status
IEC 61000-4-2 :2001	Electrostatic discharge test	√
IEC 61000-4-3: 2008	Radio frequency electromagnetic fields test	√
IEC 61000-4-4: 2004	Electrical fast transients/burst test	√
IEC 61000-4-5: 2005	Surges test	√
IEC 61000-4-6: 2006	Injected Currents test	√
IEC 61000-4-8: 2001	Power-frequency magnetic field test	×
IEC 61000-4-11: 2004	Voltage dips and interruptions test	√

× Indicates that the test is not applicable

√ Indicates that the test is applicable

Note The EUT does not contain any component which is susceptible from the magnetic field.

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.

4.8 Monitoring of EUT for All Immunity Test

Visual:

4.9 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5655

4.10 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2011-07-29.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2012-03-17.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2011-09-29.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3172 and C-3514 respectively. Date of Registration: 2009-11-30. Date of Expiry: 2012-03-17.

5 Equipments Used during Test

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2009-06-04	2010-06-03
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2009-05-08	2010-05-07

Radiated Electromagnetic Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	3-dimensional large loop	R&S	HXYZ9170	HXYZ9170-136	2009-04-21	2010-04-20
2	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2009-06-04	2010-06-03

Radiated Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2009-06-04	2010-06-03
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2009-06-04	2010-06-03
3	CONTROLLER	INNCO	CO200	474	/	/

Harmonic & Flicker

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	Single phase harmonics&flicker analyzer	EM test	DPA500	V050710012 5	2009-06-04	2010-06-03
2	AC SOURCE 6KVA	EM test	ACS500	V050710012 6	2009-06-04	2010-06-03

Electrostatic Discharge Test

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	Electrostatic Discharge Simulator	KIKUSUI	KES4021	LL004261	2009-04-25	2010-04-24

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 9 of 34

Radio Frequency Electromagnetic Fields Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2009-10-9	2010-10-8
2	amplifier	AR	30W1000B	0327284	--	--
3	amplifier	AR	30S1G3	0324978	--	--
4	power meter	Rohde & Schwarz	NRP	101641	2009-05-05	2010-05-04
5	Single generator	Rohde & Schwarz	SMR40	100555	2009-06-04	2010-06-03

EFT Test

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	Ultra-compact simulator	EM test	UCS500M4	V0507100122	2009-06-04	2010-06-03

Surge Test

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	Ultra-compact simulator	EM test	UCS500M4	V0507100122	2009-06-04	2010-06-03

Voltage dips and Interruption Test

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	Ultra-compact simulator	EM test	UCS500M4	V0507100122	2009-06-04	2010-06-03
2	Motorised Variac	EM test	MV2616	V0507100123	2009-06-04	2010-06-03

Injected Currents Test

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	AM/FM signal generator	AEROFLEX	2023A	202306/528	2009-04-21	2010-04-20
2	PAMP Conducted RF test system	HAEFFLY	PAMP250	151708	2009-04-21	2010-04-20
3	CDN impedance and K-factor	LUTHI	L-801 M2/M3	2117	/	/

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 10 of 34

General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY—2003P	/	2009-10-15	2010-10-14
2	CLAMP METER	FLUKE	316	86080010	2009-04-27	2010-04-26
3	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2009-10-21	2010-10-20
4	Digital illuminance meter	TES electrical electronic Corp.	TES-1330A	050602219	2009-10-16	2010-10-15

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6 Emission Test Results

6.1 Conducted Emissions Main Terminal, 9kHz to 30MHz

Test Requirement: EN 55015: 2006/A1: 2007
Test Method: EN 55015: 2006/A1: 2007
Test Date: April 6,2010
Frequency Range: 9KHz to 30MHz
Class / Severity: N/A
Detector: Peak for pre-scan (200Hz Resolution Bandwidth for 0.009-0.15MHz;
9kHz Resolution Bandwidth for 0.15-30MHz)
Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 48% RH Atmospheric Pressure: 1007 mbar

EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

6.1.2 Measurement Data

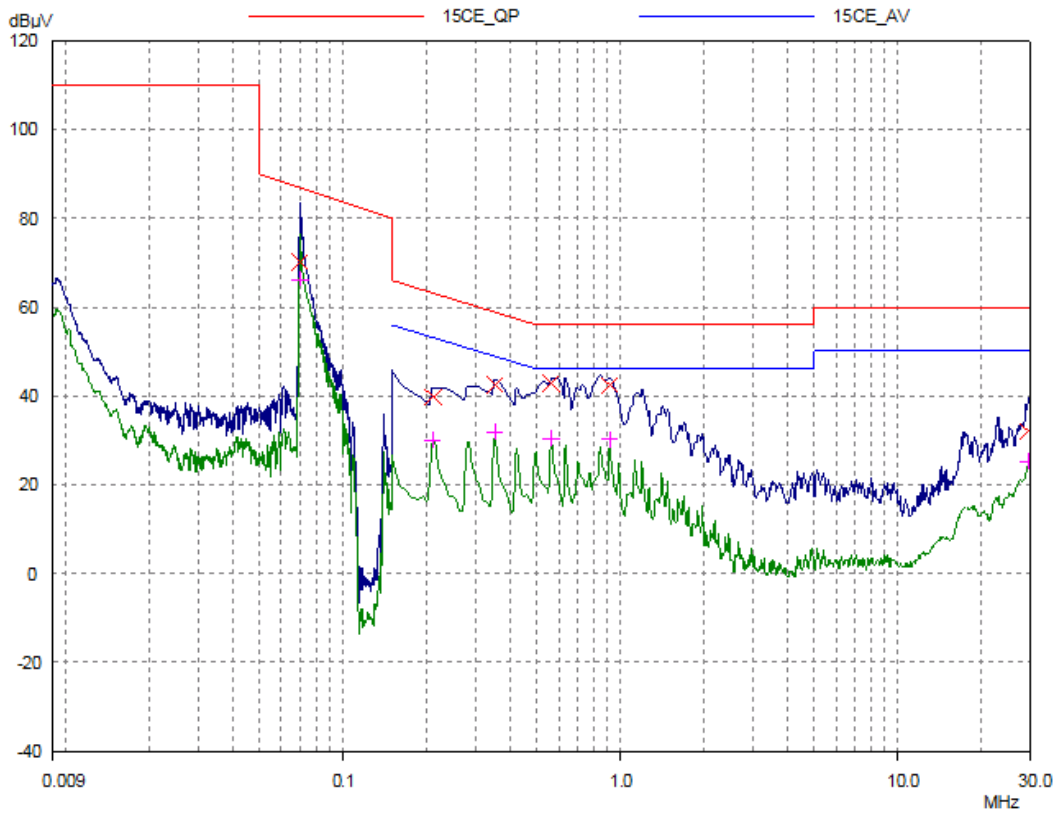
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies where maximized peak emission were detected

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 12 of 34

L Line:



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.07004	70.14	86.93	16.79
0.21129	39.78	63.15	23.37
0.35467	42.49	58.85	16.36
0.56304	42.74	56.00	13.26
0.91544	42.42	56.00	13.58
29.54092	32.11	60.00	27.89

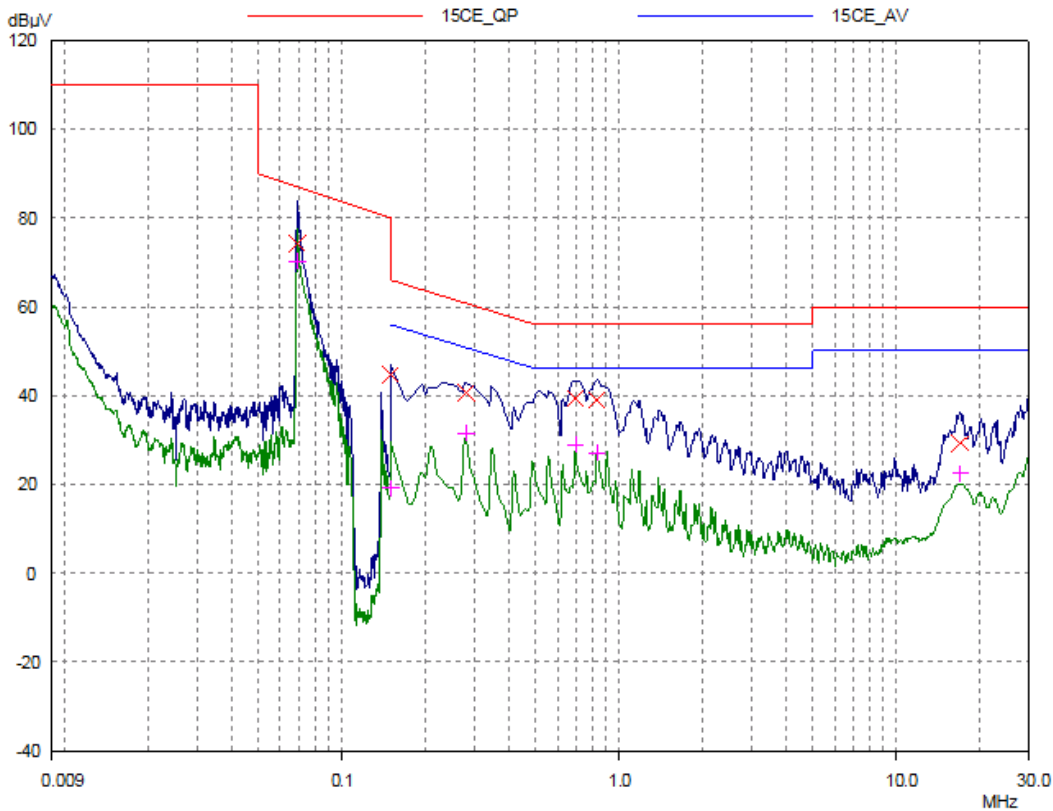
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.07004	66.29		
0.21129	29.85	53.15	23.30
0.35467	31.79	48.85	17.06
0.56304	30.47	46.00	15.53
0.91544	30.05	46.00	15.95
29.54092	25.31	50.00	24.69

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 13 of 34

N line:



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.06921	74.26	87.04	12.78
0.15	44.65	66.00	21.35
0.28149	40.69	60.77	20.08
0.69819	39.32	56.00	16.68
0.83196	38.84	56.00	17.16
17.04697	29.25	60.00	30.75

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.06921	70.25		
0.15	19.08	56.00	36.92
0.28149	31.32	50.77	19.45
0.69819	28.93	46.00	17.07
0.83196	27.14	46.00	18.86
17.04697	22.45	50.00	27.55

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 14 of 34

6.2 Radiated Electromagnetic Disturbance, 9KHz to 30MHz

Test Requirement: EN 55015: 2006/A1: 2007
Test Method: EN 55015: 2006/A1: 2007
Test Date: April 6,2010
Frequency Range: 9KHz to 30MHz
Class: N/A
Detector: Peak for pre-scan
(200Hz resolution bandwidth for frequency range 9KHz-150KHz;
9kHz resolution bandwidth for requeryency range 150KHz-30MHz)
Quasi-Peak if maximised peak within 6dB of limit

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 48% RH Atmospheric Pressure: 1007 mbar
EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

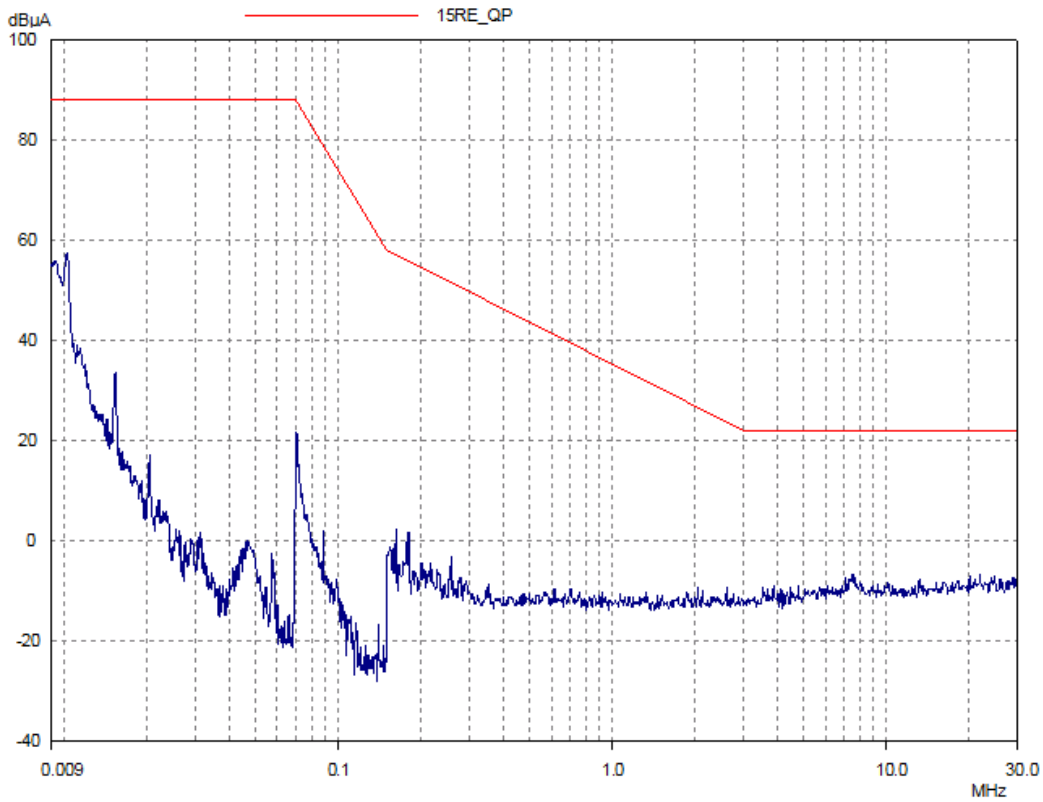
6.2.2 Measurement Data

An initial pre-scan was performed in peak detection mode. Quasi-Peak was performed at the frequencies with maximized peak emission were detected.

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 15 of 34

X direction

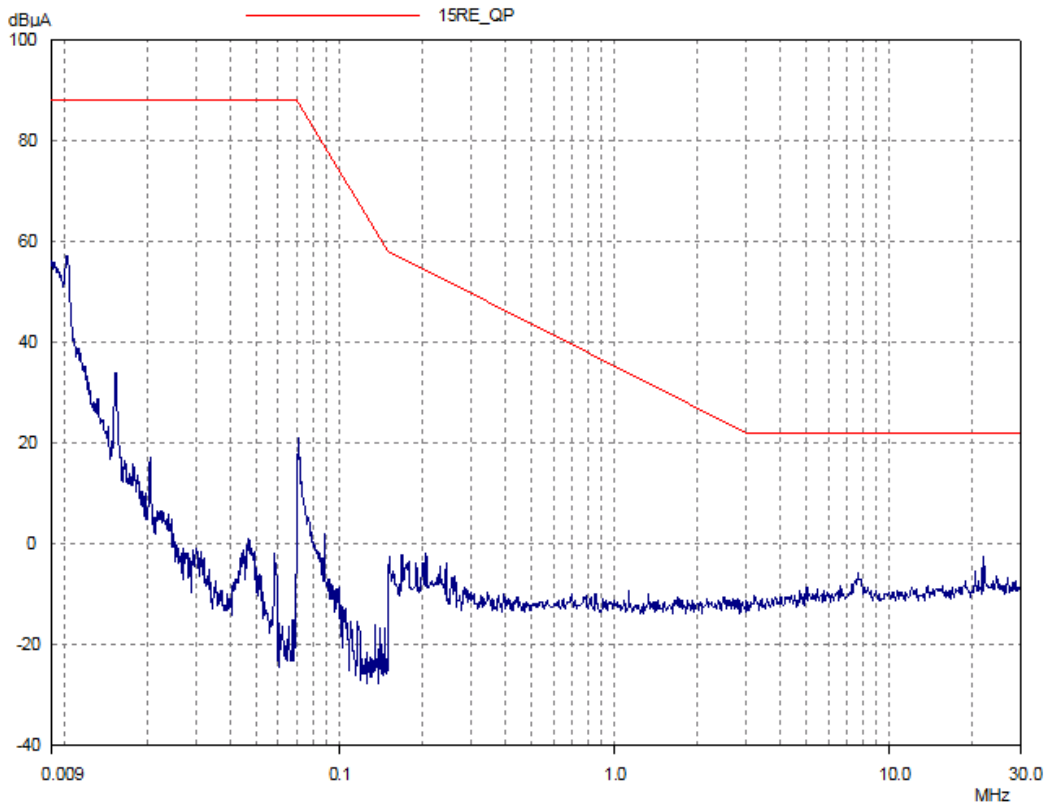


Frequency /MHz	Quasi-peak (dBµA) Disturbance level			Permitted limit
	X direction	Y direction	Z direction	
0.009	*	*	*	88.00
0.05	*	*	*	88.00
0.1	*	*	*	73.96
1.0	*	*	*	35.39
1.4	*	*	*	31.39
2.0	*	*	*	27.14
6.0	*	*	*	22.00
10.0	*	*	*	22.00
30.0	*	*	*	22.00

Notes: * means the disturbance level is 6dB lower than the relevant limit.

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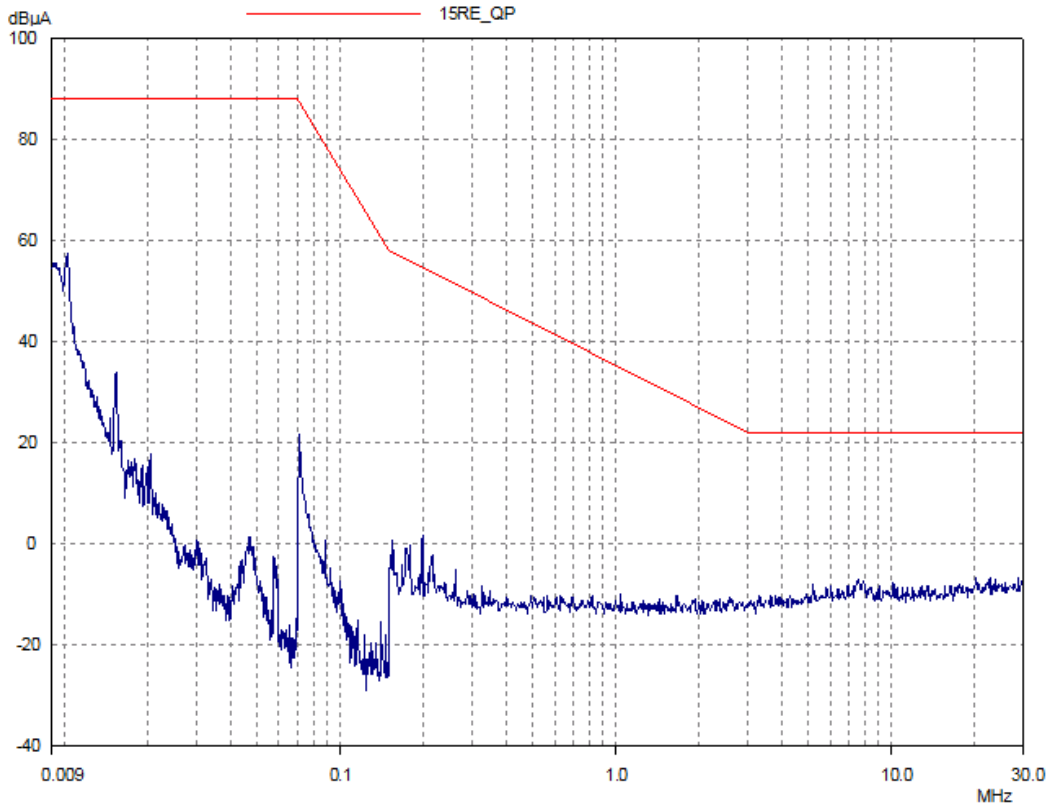
Y direction



Frequency /MHz	Quasi-peak (dBµA) Disturbance level			Permitted limit
	X direction	Y direction	Z direction	
0.009	*	*	*	88.00
0.05	*	*	*	88.00
0.1	*	*	*	73.96
1.0	*	*	*	35.39
1.4	*	*	*	31.39
2.0	*	*	*	27.14
6.0	*	*	*	22.00
10.0	*	*	*	22.00
30.0	*	*	*	22.00

Notes: * means the disturbance level is 6dB lower than the relevant limit.

Z direction



Frequency /MHz	Quasi-peak (dBµA) Disturbance level			Permitted limit
	X direction	Y direction	Z direction	
0.009	*	*	*	88.00
0.05	*	*	*	88.00
0.1	*	*	*	73.96
1.0	*	*	*	35.39
1.4	*	*	*	31.39
2.0	*	*	*	27.14
6.0	*	*	*	22.00
10.0	*	*	*	22.00
30.0	*	*	*	22.00

Notes: * means the disturbance level is 6dB lower than the relevant limit.

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 18 of 34

6.3 Harmonics Test Results

Test Requirement: EN 61000-3-2:2006
 Test Method: EN 61000-3-2:2006
 Frequency Range: Up to 2kHz
 Test Class: Class C
 Test Date: April 6,2010
 Result: **PASS**

Average harmonic current results

Hn	leff [A]	leff [%]	Limit [%]	Result
1	99.224E-3	99.755		
2	696.491E-6	0.700	2.00	PASS
3	5.025E-3	5.052	28.90	PASS
4	2.041E-3	2.052		PASS
5	1.075E-3	1.081	10.00	PASS
6	727.547E-6	0.731		PASS
7	983.128E-6	0.988	7.00	PASS
8	669.190E-6	0.673		PASS
9	1.094E-3	1.100	5.00	PASS
10	706.253E-6	0.710		PASS
11	1.177E-3	1.183	3.00	PASS
12	814.967E-6	0.819		PASS
13	1.133E-3	1.139	3.00	PASS
14	767.679E-6	0.772		PASS
15	890.670E-6	0.895	3.00	PASS
16	648.624E-6	0.652		PASS
17	746.008E-6	0.750	3.00	PASS
18	1.057E-3	1.063		PASS
19	873.482E-6	0.878	3.00	PASS
20	775.386E-6	0.780		PASS
21	697.945E-6	0.702	4.50	PASS
22	997.201E-6	1.003		PASS
23	741.804E-6	0.746	4.50	PASS
24	730.455E-6	0.734		PASS

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 19 of 34

25	897.740E-6	0.903	4.50	PASS
26	775.483E-6	0.780		PASS
27	865.921E-6	0.871	4.50	PASS
28	793.209E-6	0.797		PASS
29	726.890E-6	0.731	4.50	PASS
30	702.485E-6	0.706		PASS
31	994.822E-6	1.000	4.50	PASS
32	732.088E-6	0.736		PASS
33	891.119E-6	0.896	4.50	PASS
34	726.211E-6	0.730		PASS
35	726.724E-6	0.731	4.50	PASS
36	820.713E-6	0.825		PASS
37	984.024E-6	0.989	4.50	PASS
38	697.519E-6	0.701		PASS
39	887.508E-6	0.892	4.50	PASS
40	867.232E-6	0.872		PASS

Maximum harmonic current results

Hn	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	99.468E-3	100.000		
2	780.770E-6	0.785	3.00	PASS
3	5.246E-3	5.274	43.34	PASS
4	2.178E-3	2.190		PASS
5	1.177E-3	1.183	15.00	PASS
6	815.360E-6	0.820		PASS
7	1.122E-3	1.128	10.50	PASS
8	758.834E-6	0.763		PASS
9	1.170E-3	1.176	7.50	PASS
10	774.692E-6	0.779		PASS
11	1.261E-3	1.267	4.50	PASS
12	912.056E-6	0.917		PASS
13	1.210E-3	1.217	4.50	PASS
14	903.895E-6	0.909		PASS
15	994.242E-6	1.000	4.50	PASS

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 20 of 34

16	725.370E-6	0.729		PASS
17	816.277E-6	0.821	4.50	PASS
18	1.136E-3	1.142		PASS
19	992.176E-6	0.997	4.50	PASS
20	847.947E-6	0.852		PASS
21	784.343E-6	0.789	4.50	PASS
22	1.080E-3	1.086		PASS
23	820.920E-6	0.825	4.50	PASS
24	811.097E-6	0.815		PASS
25	1.051E-3	1.056	4.50	PASS
26	846.818E-6	0.851		PASS
27	945.487E-6	0.951	4.50	PASS
28	861.518E-6	0.866		PASS
29	848.476E-6	0.853	4.50	PASS
30	771.419E-6	0.776		PASS
31	1.092E-3	1.098	4.50	PASS
32	806.272E-6	0.811		PASS
33	963.312E-6	0.968	4.50	PASS
34	785.587E-6	0.790		PASS
35	815.159E-6	0.820	4.50	PASS
36	967.215E-6	0.972		PASS
37	1.098E-3	1.104	4.50	PASS
38	829.458E-6	0.834		PASS
39	968.089E-6	0.973	4.50	PASS
40	961.561E-6	0.967		PASS

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**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 21 of 34

6.4 Flicker Test Result

Test Requirement: EN 61000-3-3: 2008
Test Method: EN 61000-3-3: 2008
Test Date: April 6, 2010
Class/Severity: Clause 5 of EN 61000-3-3
Measurement Time: 10min

6.4.1 Test Results: Pass

Maximum Flicker results

	EUT values	Limit	Result
dc [%]	0.005	3.30	PASS
dmax [%]	0.219	4.00	PASS
dt [s]	0.000	0.50	PASS

7 Immunity Test Results

7.1 Performance Criteria Description in Clause 4 of EN 61547:1995/A1:2000

- 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 incorporating a starting device: After the test the lighting equipment is switched off. After half an hour it is switched on again. The lighting equipment shall start and operate as intended.

7.2 ESD

- Test Requirement: EN 61547:1995/A1:2000
- Test Method: IEC 61000-4-2 :2001
- Test Date: April 7,2010
- Discharge Impedance: 330 Ω / 150 pF
- Discharge Voltage: Air Discharge: ± 8 kV
Contact Discharge: ± 4 kV
HCP: ± 4 kV
VCP: ± 4 kV
- Polarity: Positive & Negative
- Number of Discharge: Minimum 10 times at each test point for Contact and VCP Discharge;
Minimum 10 times at each test point for Air Discharge
- Discharge Mode: Single Discharge
- Discharge Period: 1 second minimum

7.2.1 E.U.T. Operation

- Operating Environment:
Temperature: 26.0°C Humidity: 47% RH Atmospheric Pressure: 1009 mbar
- EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

7.3 Radio frequency electromagnetic fields (80MHz-1GHz)

Test Requirement: EN 61547:1995/A1:2000
Test Method: IEC 61000-4-3: 2008
Test Date: April 7,2010
Frequency Range: 80MHz-1GHz
Test level: 3V/m on enclosure
Modulation: 80%, 1kHz Amplitude Modulation
Criteria: Performance criteria A
Result: **PASS**

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 50% RH Atmospheric Pressure: 1011 mbar

EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

7.3.2 Test Results

Pass

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 25 of 34

7.4 Electrical Fast Transients (EFT)

Test Requirement: EN 61547:1995/A1:2000
Test Method: IEC 61000-4-4: 2004
Test Date: April 7,2010
Test Level: $\pm 1.0\text{kV}$ on AC
Polarity: Positive & Negative
Repetition Frequency: 100kHz
Burst Period: 300ms
Test Duration: 2 minute per level & polarity

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 50% RH Atmospheric Pressure: 1011 mbar

EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

7.4.2 Test Results On AC Supply:

Lead under Test	Level ($\pm\text{kV}$)	Coupling Direct/Clamp	EUT operating mode	Observations (Performance Criterion)
Line, Neutral,PE	± 1.0	Direct	On mode	Criterion A

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 26 of 34

7.5 Surges

Test Requirement: EN 61547:1995/A1:2000
Test Method: IEC 61000-4-5 :2005
Test Date: April 7,2010
Test Level: $\pm 0.5\text{kV}$ Line to Neutral , $\pm 1\text{kV}$ Line to PE
Polarity: Positive & Negative
Generator source impedance: 2Ω Line to Neutral
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: 50 % RH Atmospheric Pressure: 1011 mbar

EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

7.5.2 Test Results:

Pulse No	Line-Line	Level (kV)	Surge Interval	Phase (deg)	Observation (Performance Criterion)
1	L-N	± 0.5	60s	0° , 90° , 180° , 270° .	No loss of performance (A)
2	L-PE	± 1.0	60s	0° , 90° , 180° , 270° .	(A)
3	N-PE	± 1.0	60s	0° , 90° , 180° , 270° .	(A)

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 27 of 34

7.6 Injected Currents

Test Requirement: EN 61547:1995/A1:2000
Test Method: IEC 61000-4-6 :2006
Test Date: April 7,2010
Frequency Range: 0.15MHz to 80MHz
Test level: 3V rms on AC Ports (unmodulated emf into 150 Ω)
Modulation: 80%, 1kHz Amplitude Modulation

7.6.1 E.U.T. Operation

Operating Environment:
Temperature: 24 °C Humidity: 56 % RH Atmospheric Pressure: 1011 mbar
EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

7.6.2 Test Results:

Frequency	Line	Test Level	Modulation	Step Size	Dwell Time	Observation (Performance Criterion)
150kHz to 80MHz	AC Supply Cable	3Vrms	80%, 1kHz Amp. Mod.	1%	3S	Criterion A

**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 28 of 34

7.7 Voltage Dips and Interruptions

Test Requirement: EN 61547:1995/A1:2000
Test Method: IEC 61000-4-11 :2004
Test Date: April 7,2010
Test Level: 30% of U_T (Supply Voltage) for 10 Periods
100 % of U_T (Supply Voltage) for 0.5 Periods
No. of Dips / Interruptions: 6 per Level

7.7.1 E.U.T. Operation

Operating Environment:
Temperature: 25.0°C Humidity: 46% RH Atmospheric Pressure: 1024 mbar
EUT Operation: Test the EUT in On Mode (Keep the EUT Lighting)

7.7.2 Test Results:

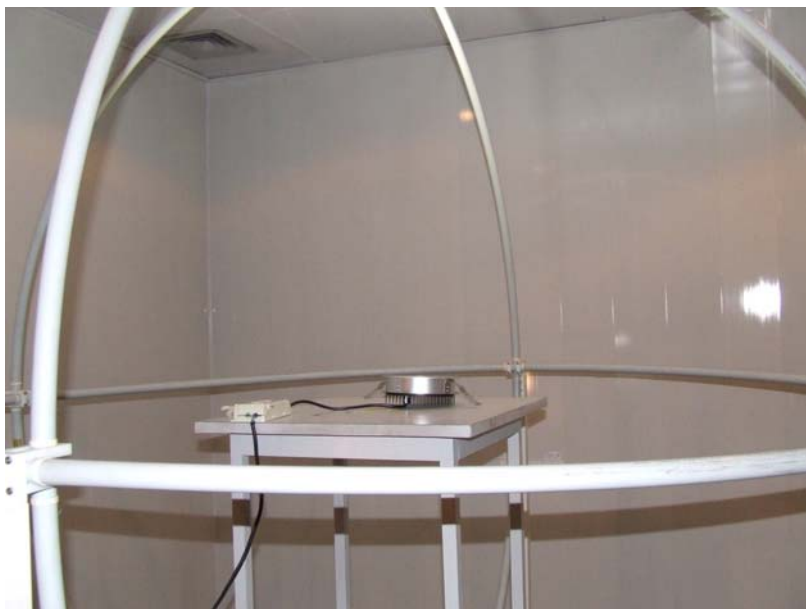
EUT operating mode	Dropout % U_T	Phase	Duration of dropout in Periods	No of dropout	Time between dropout	Observations (Performance Criterion)
On mode	70	0°	10	3	10s	(A)
On mode	70	180°	10	3	10s	(A)
On mode	0	0°	0.5	3	10s	(B)
On mode	0	180°	0.5	3	10s	(B)

8 Photographs

8.1 Conducted Emission Test Setup



8.2 Radiated Electromagnetic Disturbance Test Setup



8.3 Radiated Emission Test Setup



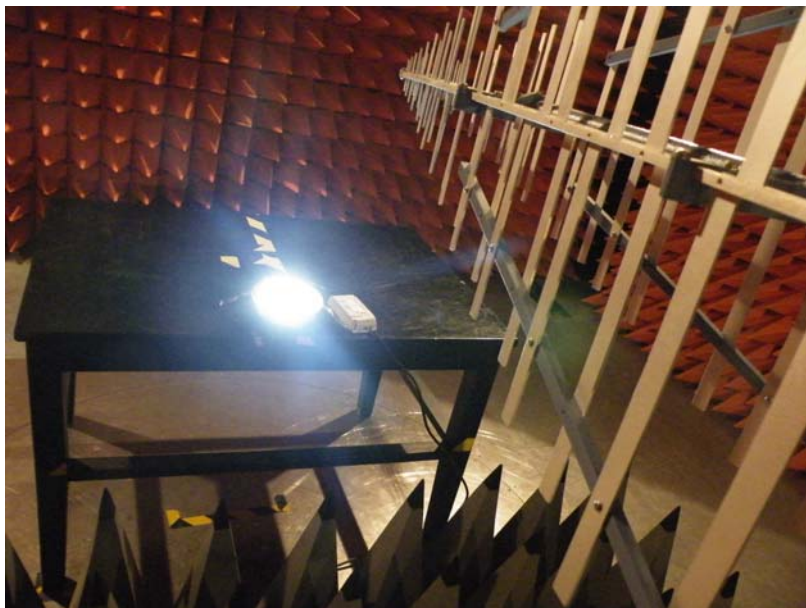
8.4 Harmonics & Flicker Test Setup



8.5 ESD Test Setup



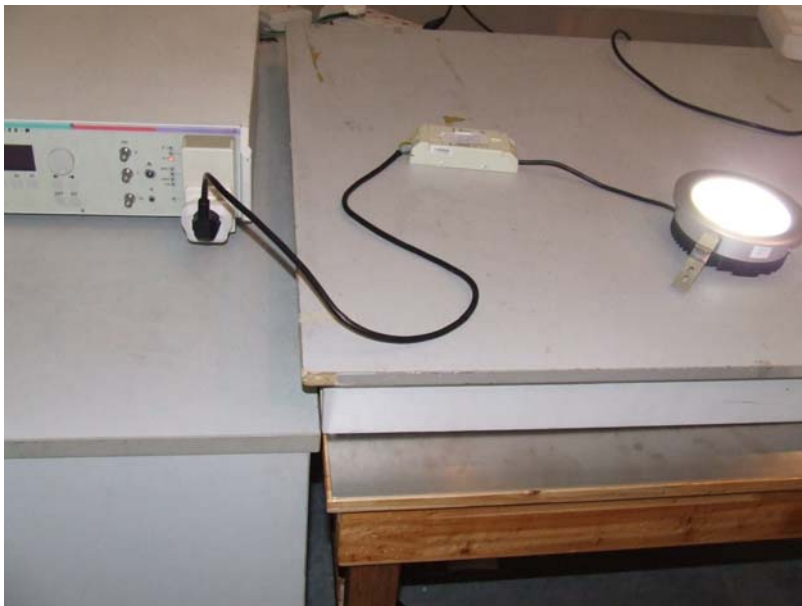
8.6 Radio Frequency Electromagnetic Fields Test Setup



8.7 Surges and Voltage Dips and Interruptions



8.8 EFT Test Setup



8.9 Injected Currents Test Setup



8.10 EUT Constructional Details



**SGS-CSTC Standards
Technical Services
(Shanghai) Co., Ltd.**

Report No.: SHEMO10030033701
Page: 34 of 34



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