




EMC Mark VERIFICATION

No. GZEMC1004009

Equipment

Type of equipment	Electronic convertor for LED
Brand name	 EAGLERISE
Type / Model	SLP03SS; SLP03SS1; SLP01SS
Manufacturer	Eaglerise Electric & Electronic (Foshan) Co. Ltd.
Manufacturing site	Guicheng Sci-Tech Industrial Park, Jianping Road, Nanhai District, Foshan City, Guangdong Province, P.R. China

Standards

EN 55015:2006+A1:2007 + A2:2009
 EN 61000-3-2:2006
 EN 61000-3-3:2008
 EN 61547:1995 + A1:2000

TEST REPORTS

Intertek Testing Services Shenzhen
 Ltd. Guangzhou Branch
 Report No.: JGZ0512204-1R2

SUMMARY OF RESULTS

We confirm that the product without reasonable doubt will fulfil the requirements concerning electromagnetic compatibility according to the above mentioned standards harmonised with the EMC Directive 2004/108/EC.

With accomplishing factory inspection this verification give the above mentioned manufacturer the right to use the Intertek EMC mark on the above mentioned product/s.

Intertek Testing Services Shenzhen
 Ltd. Guangzhou Branch
 Date of issue: 27 April, 2010


 Yannie Wang
 Assistant Manager, EMC



Intertek



Test Verification of Conformity


On the basis of the referenced test report(s), the sample(s) of the below product has been found to comply with the relevant harmonized standard(s) to the directive(s) listed on this verification at the time the tests were carried out. The manufacturer may indicate compliance to said directive(s) by signing a DoC himself and applying the CE-marking to products identical to the tested sample(s). In addition, the manufacturer shall file and keep the documentation according to the rules of the applicable directive(s) and shall consider changes of the standard(s) if relevant. Additional requirements may be applicable such as additional directives or local laws.

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

Product(s) Tested : Electronic convertor for LED

Ratings and principal characteristics : Input: 100-240 VAC; 50/60 Hz;
 SLP01SS: 0,04 A; SLP03SS; SLP03SS1: 0,08 A
 Output: (refer to Annex to Test Verification of Conformity)

Model(s) : SLP03SS; SLP03SS1; SLP01SS

Brand name : 

Relevant Standard(s) / Specification(s) / Directive(s) : EN 55015: 2006+A1:2007+A2:2009/ Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
 EN 61000-3-2: 2006/ Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
 EN 61000-3-3: 2008/ Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
 EN 61547:1995+A1: 2000/ Equipment for general lighting purposes —EMC immunity requirements
 EMC Directive 2004/108/EC

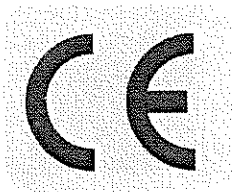
Verification Issuing Office Name & Address : Same as Legal Entity

Verification/Report Number(s) : JGZ0512204-1R2/ JGZ0512204-1R2

Note 1 : This verification is part of the full test report(s) and should be read in conjunction with it.

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Note 2: This verification supersedes previous verification with Verification number JGZ0512204-1R1 dated 17 September 2007.




 Signature

Name: Yannie Wang
 Position: Assistant Manager
 Date: 27 April, 2010



Annex to Test Verification of Conformity

This is an Annex to Test Verification of Conformity with Verification/Report Number(s): JGZ0512204-1R2/ JGZ0512204-1R2. The issuing office is Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Address: Block E, No, 7-2 Guang Dong Software science Park, Caipin Road, Guangzhou Science City, GETDD Guangzhou).

Ratings and principal characteristics

: 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; ta: 50 °C; 110°C thermally protected;
SLP03SS; SLP01SS: tc 75 °C; SLP03SS1: tc 85 °C

Note 1: This annex is part of the Test Verification of Conformity and should be read in conjunction with it.

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Note 2: This annex to verification supersedes previous annex to verification with Verification number JGZ0512204-1R1 dated 17 September 2007.

Signature

Name: Yannie Wang
Position: Assistant Manager
Date: 27 April, 2010



TEST REPORT

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

Manufacturing Site : Eaglerise Electric & Electronic (Foshan) Co., Ltd.
 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: (detail refer to page 4)

Test standards : EN 55015: 2006+A1 :2007+A 2:2009
 EN 61000-3-2: 2006
 EN 61000-3-3: 2008
 EN 61547: 1995+A1: 2000

Test Result : Pass

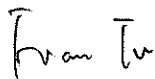
Conclusion : The submitted samples complied with the above EMC standards.

Remark : When determine the test result, measurement uncertainty has been considered.

*****End of Page*****

Prepared and Checked By:

Approved By:



Fvan Tu
Engineer
Intertek Guangzhou


 _____ **Signature**
Carrie Chen
Senior Project Engineer
Intertek Guangzhou
 _____ **27 April 2010** **Date**

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1

TEST RESULTS SUMMARY

Test Item	Standard	Result
Continuous conducted disturbance voltage	EN 55015: 2006+A1:2007+A2:2009	Pass
Radiated electromagnetic disturbance (9 KHz -30 MHz)	EN 55015: 2006+A1:2007+A2:2009	Pass
Radiated Electromagnetic Disturbance (30 MHz -300 MHz)	EN 55015: 2006+A1:2007+A2:2009	Pass
Harmonic of current	EN 61000-3-2: 2006	Pass
Flicker	EN 61000-3-3 : 2008	Pass

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.

We tested the Electronic convertor for LED, Model: SLP03SS, to determine if they were 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, EN 61000-3-2, EN 61000-3-3, standards when tested as received. The worst case's test data was presented in this test report. Test item Radiated electromagnetic disturbance was subcontracted.

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

This report is the revision of the previous test report JGZ0512204-1R1 dated 17 September 2007 and shall be used together with it.

The applicable standards have been updated: the EN 55015 standard has been updated from EN 55015: 2000+A1: 2001+A2: 2002 to EN 55015: 2006+A1:2007+A2: 2009; the EN 61000-3-2 standard has been updated from EN 61000-3-2: 2000+A2: 2005 to EN 61000-3-2: 2006; the EN 61000-3-3 standard has been updated from EN 61000-3-3: 1995+A1: 2001+A2: 2005 to EN 61000-3-3: 2008.

Based on judgement, continuous conducted disturbance voltage, radiated electromagnetic disturbance were selected for testing.

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:	Resistance provided by Intertek
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

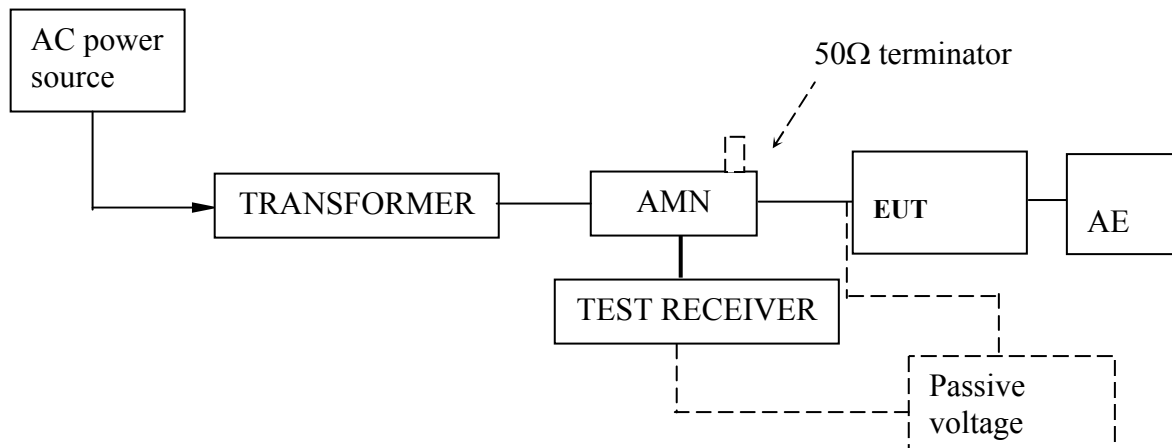
4.1 EN 55015 Continuous Conducted Disturbance Voltage Test

Test Result: Pass

4.1.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer
EM080-05	EMI receiver	ESCI	R&S
EM006-06	LISN	ENV216	R&S
EM004-03	EMC shield Room	8m×4m×3m	Zhongyu

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**

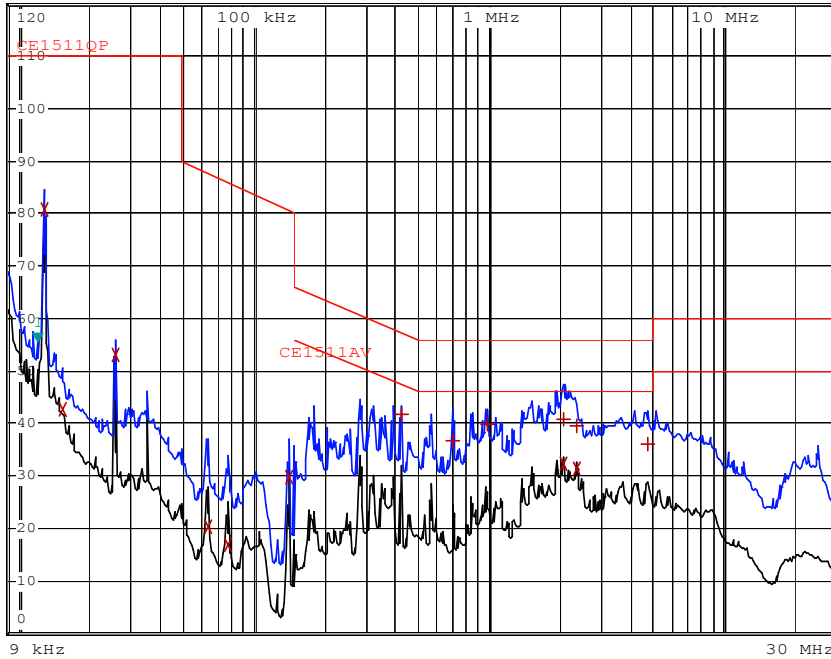
Frequency [MHz]	Quasi-Peak		Average	
	Disturbance level [dB(uV)]	Permitted limit [dB(uV)]	Disturbance level [dB(uV)]	Permitted limit [dB(uV)]
0.009	<100	110.0	--	--
0.050	<80	90.0	--	--
0.100	<73	83.7	--	--
0.160	<55	65.5	<45	55.5
0.240	<52	62.1	<42	52.1
0.550	<46	56.0	<36	46.0
1.000	<46	56.0	<36	46.0
1.400	<46	56.0	<36	46.0
2.000	<46	56.0	<36	46.0
3.500	<46	56.0	<36	46.0
6.000	<50	60.0	<40	50.0
10.000	<50	60.0	<40	50.0
22.222	<50	60.0	45.06	50.0
30.000	<50	60.0	<40	50.0

Tested Wire: Neutral**Operation Mode: EUT on**

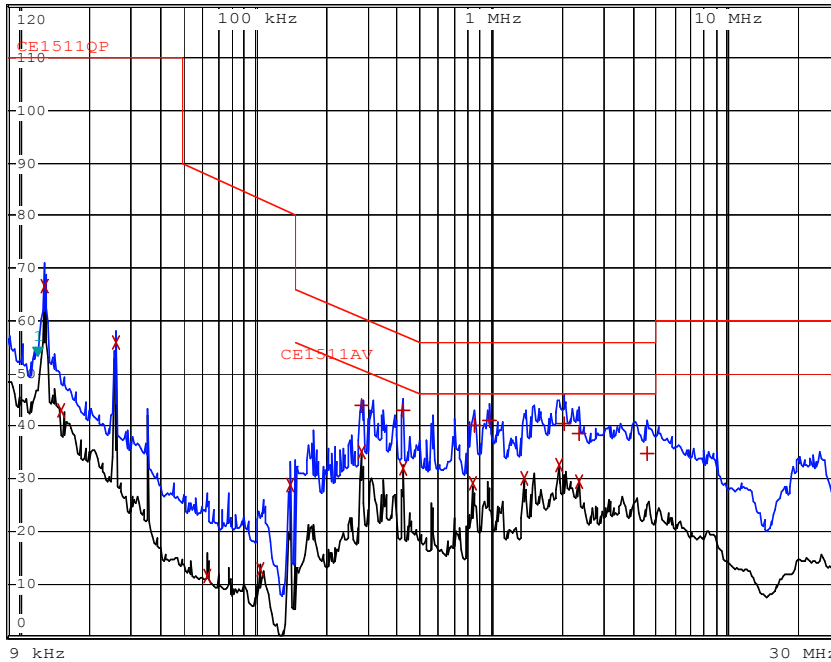
Frequency [MHz]	Quasi-Peak		Average	
	Disturbance level [dB(uV)]	Permitted limit [dB(uV)]	Disturbance level [dB(uV)]	Permitted limit [dB(uV)]
0.009	<100	110.0	--	--
0.050	<80	90.0	--	--
0.100	<73	83.7	--	--
0.160	<55	65.5	<45	55.5
0.240	<52	62.1	<42	52.1
0.550	<46	56.0	<36	46.0
1.000	<46	56.0	<36	46.0
1.400	<46	56.0	<36	46.0
2.000	<46	56.0	<36	46.0
3.500	<46	56.0	<36	46.0
6.000	<50	60.0	<40	50.0
10.000	<50	60.0	<40	50.0
22.222	<50	60.0	45.06	50.0
30.000	<50	60.0	<40	50.0

At load/control terminal: Not Applicable

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: 1.7dB.

Measurement uncertainty of mains terminal disturbance voltage in CISPR band B: 1.7dB.

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

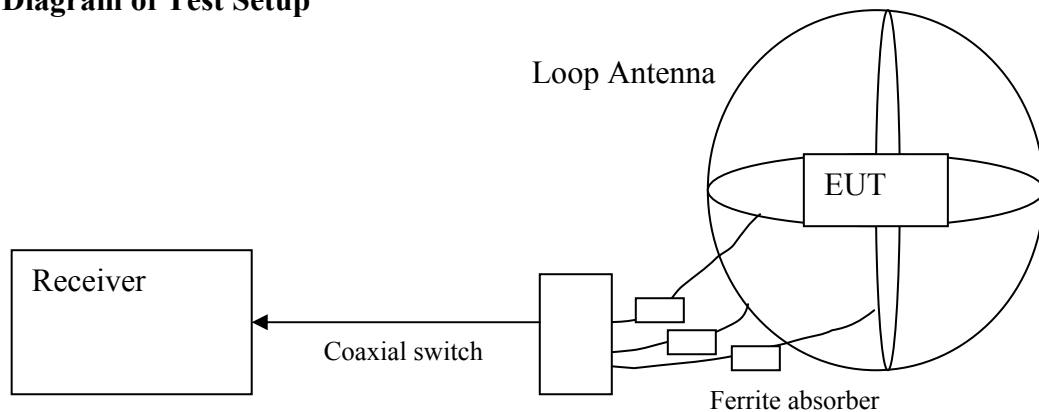
4.2 EN 55015 Radiated Electromagnetic Disturbance (9 kHz – 30MHz)

Test Result: Pass

4.2.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer
EM080-05	EMI receiver	ESCI	R&S
EM061-04	Triple Loop Antenna	HXYZ9170	SCHWARZBECK
EM004-03	EMC shield Room	8m×4m×3m	Zhongyu

4.2.2 Block Diagram of Test Setup



4.2.3 Test Setup and Procedure

The EUT is placed in the centre of the loop antenna system(LAS). The current induced by the magnetic field from the EUT into each of the three large loop antennas of the LAS is measured by connecting the current probe of the large loop antenna to a measuring receiver. During the measurements the EUT remains in a fixed position.

The currents in the three large loop antenna, origination from the three mutually orthogonal magnetic field components, are measured in sequence. Each current level measured shall comply with the emission limit, expressed in dBµA, as specified in table of EN 55015.

The distance between the outer perimeter of the LAS and nearby objects, such as floor and walls, shall be at least 0.5m.

To avoid unwanted capacitive coupling between the EUT and the LAS, the maximum dimensions of the EUT shall allow a distance of at least 0.2m between the EUT and the standardized 2m large loop antenna of the LAS.

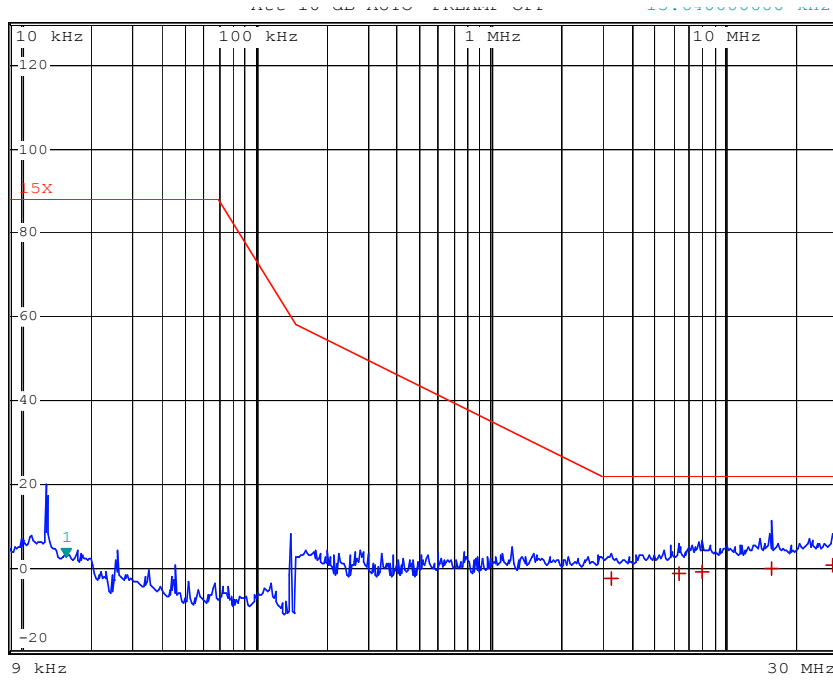
The position of the mains lead shall be optimized for maximum current induction. In general, this position will not be critical when the EUT complies with the conducted emission limit.

4.2.4 Test Data

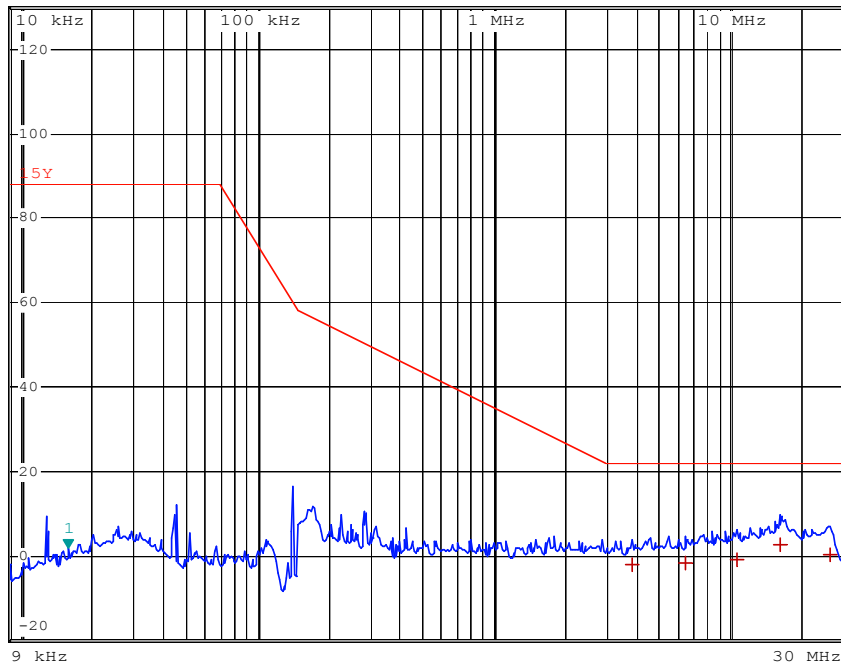
Frequency [MHz]	X axis [dB(μ A)]	Y axis [dB(μ A)]	Z axis [dB(μ A)]	Limit [dB(μ A)]
0.009	<78	<78	<78	88.0
0.050	<78	<78	<78	88.0
0.100	<64	<64	<64	74.0
0.160	<47	<47	<47	57.2
0.240	<40	<40	<40	52.4
0.550	<30	<30	<30	42.5
1.000	<25	<25	<25	35.4
1.400	<20	<20	<20	31.4
2.000	<17	<17	<17	27.1
3.500	<12	<12	<12	22.0
6.000	<12	<12	<12	22.0
10.000	<12	<12	<12	22.0
22.000	<12	<12	<12	22.0
30.000	<12	<12	<12	22.0

4.2.5 Test Curve

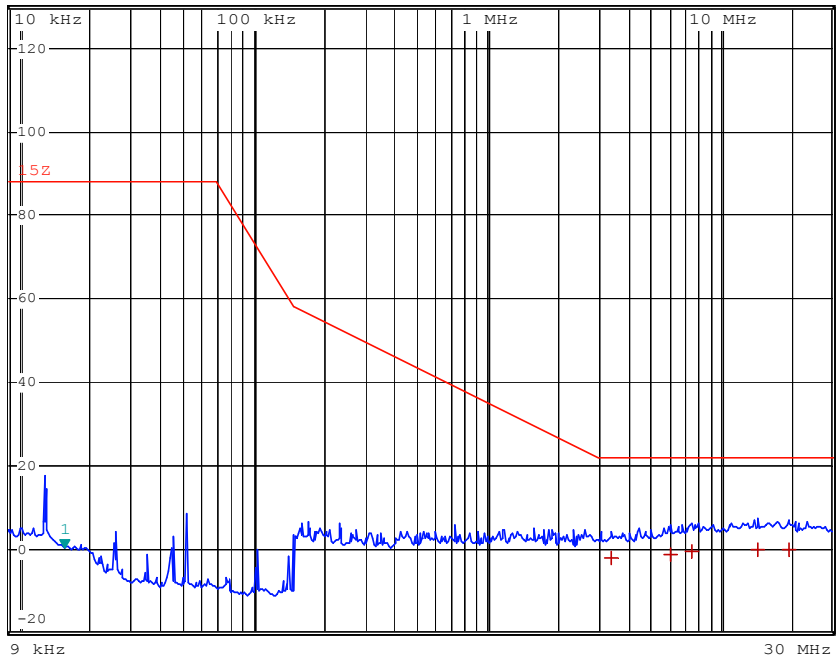
X-axis



Y-axis



Z-axis



4.2.6 Measurement Uncertainty

The measurement uncertainty for induction current is under consideration according to CISPR 16-4-2:2003.

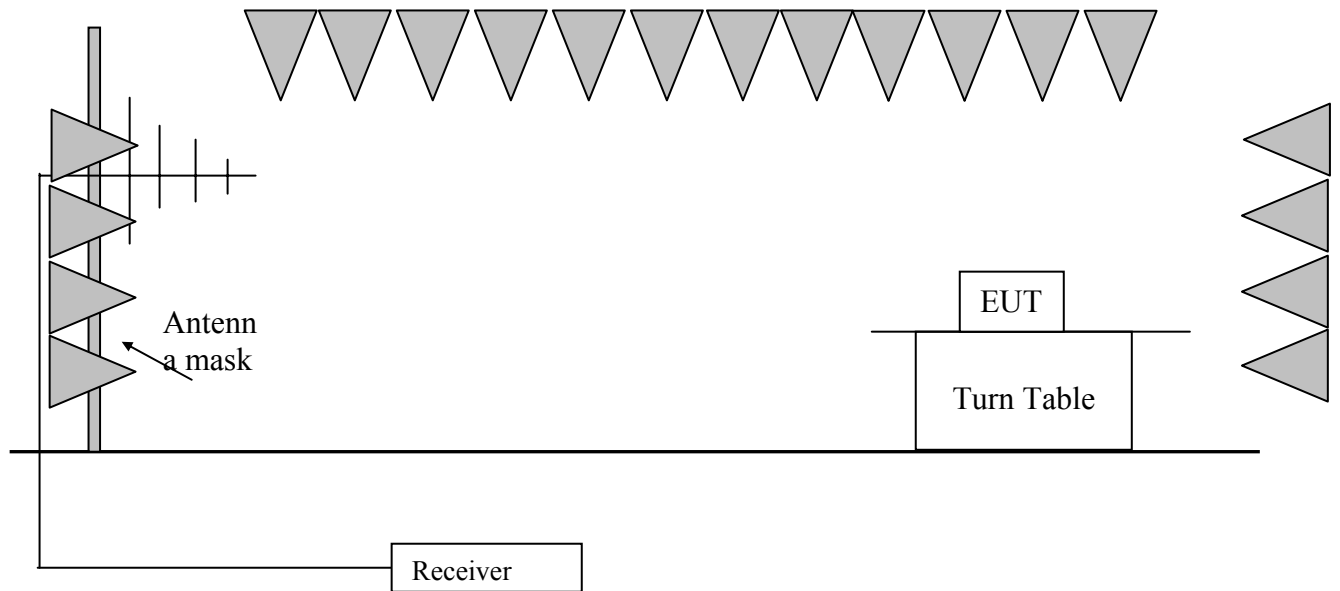
4.3 EN 55015 Radiated Electromagnetic Disturbance (30 MHz -300 MHz)

Test Result: Pass

4.3.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer
SZ185-01	EMI receiver	ESCI	R&S
SZ061-03	BiConiLog Antenna	3142C	ETS
SZ188-01	Anechoic Chamber	RFD-F/A-100	ETS

4.3.2 Block Diagram of Test Setup



4.3.3 Test Setup and Procedure

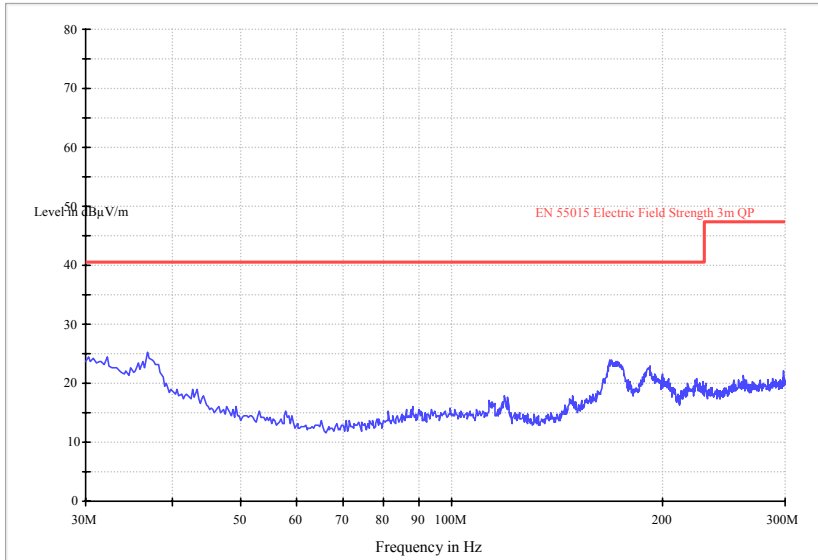
The measurement was applied in a semi-anechoic chamber. The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mask. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

Broadband antenna was used as receiving antenna. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to EN55022 requirement during radiated test. The bandwidth setting on R&S Test Receiver ESI26 was 120 kHz. The frequency range from 30MHz to 300MHz was checked

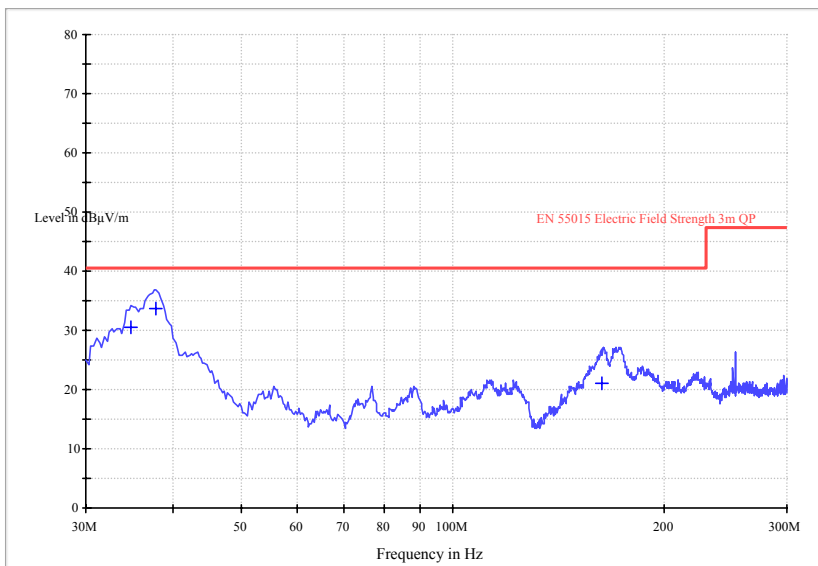
4.3.4 Test Data

Antenna Polarization	Frequency [MHz]	Measured Net at 3m [dB(μV/m)]	Limit at 3m [dB(μV/m)]
Horizontal	100.0	<30	40.0
Horizontal	200.0	<30	40.0
Horizontal	280.0	<37	47.0
Vertical	34.9	30.6	40.0
Vertical	200.0	<30	40.0
Vertical	280.0	<37	47.0

4.3.5 Test Curve Horizontal



Vertical



4.3.6 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 radiated emission: 4.8 dB.

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

5 Harmonics of current

Test Result: Pass

Remark:

EUT is not discharge lighting, the harmonics currents limits are not specified for the equipment with a rated power smaller than or equal to 25W. Therefore the EUT was deemed fulfill the requirements of relative standard without testing.

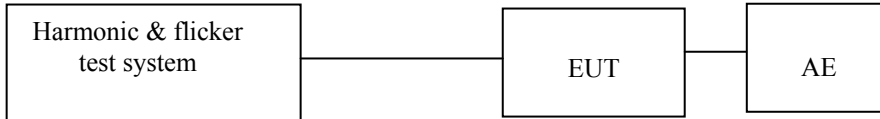
6 Flicker

Test Result: Pass

6.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer
EM001-01	Harmonic & Flicker Test System	CTS 3.0	California Instrument

6.2 Block Diagram of Test Setup



6.3 Test Setup and Procedure

6.3.1 Definition

Flicker:	impression of unsteadiness of visual sensation induced by a lighting stimulus whose luminance or spectral distribution fluctuates with time.
Pst:	Short-term flicker indicator The flicker severity evaluated over a short period (in minutes); Pst=1 is the conventional threshold of irritability
Plt:	long-term flicker indicator; the flicker severity evaluated over a long period (a few hours). Using successive Pst value.
dc:	the relative steady-state voltage change
dmax:	the maximum relative voltage change
d(t):	the value during a voltage change

6.3.2 Test condition

The EUT was set to produce the most unfavourable sequence of voltage changes.

6.4 Test Data

Flicker Test Summary (Run time)

Time is too short for Plt plot

Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.20			
Highest dt (%):	0.00	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 (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass

6.5 Measurement Uncertainty

Measurement uncertainty for voltage fluctuation and flicker is under consideration according to CISPR 16-4-2:2003.

7 Appendix I - Photos of test setup

Conducted Emission



Radiated Electromagnetic Filed Disturbance (9 KHz – 30MHz)



Radiated Electromagnetic Field Disturbance (30MHz – 300MHz)



Flicker

