



中国认可
国际互认
检测
TESTING
CNAS L2291

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EMTEK (Shenzhen) Co., Ltd.

EMTEK
Access to the World

Certificate of Conformity

NO.: ES170119007E

The following product has been tested by us with the listed standards and found in conformity with the council EMC directive 2014/30/EU. It is possible to use CE marking to demonstrate the conformity with this EMC Directive.

Applicant : GLOBAL(LED) LIGHTING SOLUTIONS

Address : Suite 402, 4th floor, Northbank Buiding Lane, Northbank Lane
Century City Town, 7441

Manufacture : GLOBAL(LED) LIGHTING SOLUTIONS

Address : Suite 402, 4th floor, Northbank Buiding Lane, Northbank Lane
Century City Town, 7441

Trade Mark : N/A

EUT : x-Glo strip light

M/N : x-Glo-60-36v, x-Glo-36-36v, x-Glo-30-36v, x-Glo-24-36v,
x-Glo-18-36v, x-Glo-12-36v

Test Standards : EN 55015: 2013
EN 61000-3-2: 2014
EN 61000-3-3: 2013
EN 61547: 2009



The certificate is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. logo.

Ver.1.0

EMC TEST REPORT
For
GLOBAL(LED) LIGHTING SOLUTIONS

x-Glo strip light

Model No.: x-Glo-60-36v, x-Glo-60-36v, x-Glo-30-36v, x-Glo-24-36v, x-Glo-18-36v,
x-Glo-12-36v

Prepared for : GLOBAL(LED) LIGHTING SOLUTIONS
Address : Suite 402, 4th floor, Northbank Buiding Lane, Northbank
Lane Century City Town, 7441

Prepared by : EMTEK (SHENZHEN) CO., LTD.
Address : Bldg 69, Majialong Industry Zone,
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Report Number : ES170119007E
Date of Test : September 18, 2013 to January 19, 2017
Date of Report : January 20, 2017

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TEST REPORT DESCRIPTION

Applicant : GLOBAL(LED) LIGHTING SOLUTIONS
Trade Mark : N/A
EUT : x-Glo strip light
Model No. : x-Glo-60-36v, x-Glo-60-36v, x-Glo-30-36v, x-Glo-24-36v, x-Glo-18-36v,
x-Glo-12-36v
Power Supply : DC 36V

Measurement Procedure Used:

EN 55015:2013
EN 61000-3-2:2014
EN 61000-3-3:2013
EN 61547:2009
(IEC 61000-4-2:2008, IEC 61000-4-3:2006+A1:2007+A2:2010, IEC 61000-4-4:2012,
IEC 61000-4-5:2014, IEC 61000-4-6:2013, IEC 61000-4-8:2009, IEC 61000-4-11:2004)

The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the EN 55015, EN 61000-3-2, EN 61000-3-3 and EN 61547 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (SHENZHEN) CO., LTD.

Date of Test : September 18, 2013 to January 19, 2017

Prepared by : Bunny Zhang
Bunny Zhang/Editor

Reviewer : Jessie Hu
*Jessie Hu/Supervisor

Approved & Authorized Signer : Lisa Wang
Lisa Wang/Manager

Modified History

Rev.	Report No.	Date of Rev.	Summary
Ver.1.0	ES130918160E	2013-09-27	Original Report
Ver.1.0	ES170119007E	2017-1-20	Update EMC directive and standards, test the harmonic and flick, Change the applicant

1. SUMMARY OF TEST RESULT

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted Disturbance at Mains Terminals	EN 55015:2013	Table 2a	Pass
Magnetic Emission	EN 55015:2006 +A1:2007+A2:2009	Table 3	Pass
Radiated Disturbance	EN 55015:2006 +A1:2007+A2:2009	Table 4	Pass
Harmonic Current Emissions	EN 61000-3-2:2014	Class C	Pass
Voltage Fluctuation and Flicker	EN 61000-3-3:2013	Section 5	Pass
IMMUNITY			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008	B	Pass
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2006 +A1:2007+A2:2010	A	Pass
EFT/B Immunity	IEC 61000-4-4:2012	B	Pass
Surge Immunity	IEC 61000-4-5:2014	B	Pass
Conducted RF Immunity	IEC 61000-4-6:2013	A	Pass
Power Frequency Magnetic Field	IEC 61000-4-8:2009	A	Pass
Voltage Dips and Interruptions, 100% Reduction	IEC 61000-4-11:2004	B	Pass
Voltage Dips and Interruptions, 30% Reduction		C	Pass
Note: N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: x-Glo strip light
Model Number	: x-Glo-60-36v, x-Glo-60-36v, x-Glo-30-36v, x-Glo-24-36v, x-Glo-18-36v, x-Glo-12-36v (Note: These models are the same circuit schematic, construction and critical components; the only differences are model name, for trading purpose. We prepare x-Glo-60-36v for test.)
Test Voltage	: AC 230V/50Hz
Applicant	: GLOBAL(LED) LIGHTING SOLUTIONS
Address	: Suite 402, 4th floor, Northbank Buiding Lane, Northbank Lane Century City Town, 7441
Manufacture	: GLOBAL(LED) LIGHTING SOLUTIONS
Address	: Suite 402, 4th floor, Northbank Buiding Lane, Northbank Lane Century City Town, 7441
Date of Received	: September 18, 2013
Date of Test	: September 18, 2013 to January 19, 2017

2.2. Description of Test Facility

Site Description EMC Lab.	: Accredited by CNAS, 2016.10.24 The certificate is valid until 2022.10.28 The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L2291. Accredited by TUV Rheinland Shenzhen 2010.5.25 The Laboratory has been assessed according to the requirements ISO/IEC 17025. Accredited by FCC, 2017/07/12 The Certificate Registration Number is 406365. Accredited by Industry Canada, Noverber 24, 2015 The Certificate Registration Number is 4480A.
Name of Firm	: EMTEK (SHENZHEN) CO., LTD.
Site Location	: Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

2.3.Measurement Uncertainty

Test Item	Uncertainty
Conducted Emission Uncertainty	: 2.79dB
Electromagnetic Radiated Emission(3-loop)	: 3.7dB
Radiated Emission Uncertainty	: 4.56dB (30M~1GHz Polarize: H) 4.58dB (30M~1GHz Polarize: V)
Uncertainty for Flicker test	: 0.07%
Uncertainty for C/S Test	: 1.45(Using CDN Test)
Uncertainty for R/S Test	: 2.10dB(80MHz-200MHz) 1.76dB(200MHz-1000MHz)
Uncertainty for test site temperature and humidity	: 0.6℃ 4%

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Power Line Conducted Emission Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Test Receiver	Rohde & Schwarz	ESCS30	100162	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	L.I.S.N.	Rohde & Schwarz	ENV216	101161	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	50Ω Coaxial Switch	Anritsu	MP59B	6100214550	N/A	N/A
<input type="checkbox"/>	Voltage Probe	Rohde & Schwarz	TK9416	N/A	May 29, 2013	1 Year
<input type="checkbox"/>	I.S.N	Teseq GmbH	ISN T800	30327	May 29, 2013	1 Year
<input type="checkbox"/>	LCL adaoter	Teseq GmbH	ADT800-Cat .5	30327.01	May 29, 2013	1 Year
<input type="checkbox"/>	LCL adaoter	Teseq GmbH	ADT800-Cat .3	30327.02	May 29, 2013	1 Year
<input type="checkbox"/>	LCL adaoter	Teseq GmbH	ADT800-R	30327.02	May 29, 2013	1 Year

3.2. For Magnetic Emission Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Loop Antenna	Laplace Instrument Ltd	RF300	8006	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	RF Cable	FUJIKURA	RG-55/U	LISN Cable	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Coaxial Switch	Anritsu	MP59B	M73989	May 29, 2013	1 Year

3.3. For Radiated Emission Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Pre-Amplifier	HP	8447D	2944A07999	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Bilog Antenna	Schwarzbeck	VULB9163	142	May 11, 2013	1 Year
<input type="checkbox"/>	Loop Antenna	Schwarzbeck	FMZB 1519	012	May 11, 2013	1 Year
<input type="checkbox"/>	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 11, 2013	1 Year
<input type="checkbox"/>	Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 11, 2013	1 Year
<input checked="" type="checkbox"/>	Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Cable	Rosenberger	N/A	FP2RX2	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2013	1 Year
<input type="checkbox"/>	Pre-Amplifier	A.H.	PAM-0126	1415261	May 29, 2013	1 Year

3.4. For Harmonic Current/Flicker Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	45KVA AC Power source	Teseq	NSG 1007-45/45KVA	1305A02873	May 28, 2016	1 Year
<input checked="" type="checkbox"/>	Signal conditioning Unit	Teseq	CCN 1000-3	1305A02873	May 28, 2016	1 Year
<input checked="" type="checkbox"/>	Three phase impedance network	Teseq/Germany	INA2197/37A	1305A02873	May 28, 2016	1 Year
<input type="checkbox"/>	Three phase impedance network	Teseq/Germany	INA 2196/75A	1305A02874	May 28, 2016	1 Year
<input checked="" type="checkbox"/>	Proflin 2100 AC Switching Unit	Teseq/Germany	NSG2200-3	A22714	May 28, 2016	1 Year

3.5. For Electrostatic Discharge Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	ESD Tester	TESEQ AG	NSG 438A	130	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Impulse Module	TESEQ AG	INA 4380-150pF/330Ohm	403-550/1712	May 29, 2013	1 Year

3.6. For RF Strength Susceptibility Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	RF Power Meter. Dual Channel	BOONTON	4232A	10539	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	50ohm Diode Power Sensor	BOONTON	51011EMC	34236/34238	May 29, 2013	1 Year
<input type="checkbox"/>	Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9120 L3F	332	May 11, 2013	1 Year
<input checked="" type="checkbox"/>	Power Amplifier	PRANA	AP32MT215	N/A	May 29, 2013	1 Year
<input type="checkbox"/>	Power Amplifier	MILMEGA	AS0102-55	N/A	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Signal Generator	AEROFLEX	2023B	N/A	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Field Strength Meter	HOLADAY	HI-6005	N/A	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	RS232 Fiber Optic Modem	HOLADAY	HI-4413P	N/A	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Log.-Per. Antenna	SCHWARZBECK	VULP 9118E	N/A	May 11, 2013	1 Year

3.7. For Electrical Fast Transient/Burst Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Burst Tester	HAEFELY	PEFT4010	080981-16	May 29, 2013	1 Year
<input type="checkbox"/>	Coupling Clamp	HAEFELY	IP-4A	147147	May 29, 2013	1 Year

3.8. For Surge Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Surge Controller	HAEFELY	Psurge 8000	174031	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Impulse Module	HAEFELY	PIM 100	174124	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Coupling Decoupling Filter	HAEFELY	PCD 130	172181	May 29, 2013	1 Year
<input type="checkbox"/>	Coupling Module	HAEFELY	PCD122	174354	May 29, 2013	1 Year
<input type="checkbox"/>	Surge Impulse Module	HAEFELY	PIM 120	174435	May 29, 2013	1 Year
<input type="checkbox"/>	Coupling Module	HAEFELY	PCD 126A	174387	May 29, 2013	1 Year
<input type="checkbox"/>	Impulse Module	HAEFELY	PIM 110	174391	May 29, 2013	1 Year

3.9. For Injected Current Susceptibility Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Simulator	EMTEST	CWS500C	0900-12	May 29, 2013	1 Year
<input type="checkbox"/>	CDN	EMTEST	CDN-M2	5100100100	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	CDN	EMTEST	CDN-M3	0900-11	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Injection Clamp	EMTEST	F-2031-23MM	368	May 29, 2013	1 Year
<input checked="" type="checkbox"/>	Attenuator	EMTEST	ATT6	0010222A	May 29, 2013	1 Year

3.10. For Magnetic Field Immunity Test

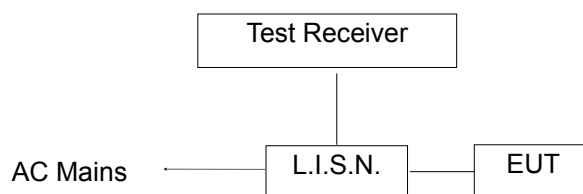
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Magnetic Field Tester	HAEFELY	MAG100	250040.1	May 29, 2013	1 Year

3.11. For Voltage Dips and Interruptions Immunity Test

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	45KVA AC Power source	Teseq/Germany	NSG 1007-45/45KVA	1305A02873	April 25, 2013	1 Year
<input checked="" type="checkbox"/>	Signal conditioning Unit	Teseq/Germany	CCN 1000-3	1305A02873	April 25, 2013	1 Year
<input checked="" type="checkbox"/>	Three phase impedance network	Teseq/Germany	INA2197/37A	1305A02873	April 25, 2013	1 Year
<input checked="" type="checkbox"/>	Three phase impedance network	Teseq/Germany	INA 2196/75A	1305A02874	April 25, 2013	1 Year
<input checked="" type="checkbox"/>	Proflin 2100 AC Switching Unit	Teseq/Germany	NSG2200-3	A22714	April 25, 2013	1 Year

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: x-Glo strip light)

4.2. Measuring Standard and Limits

4.2.1. Standard: EN 55015:2013

4.2.2. Limits

Frequency	At mains terminals (dB μ V)	
	Quasi-peak Level	Average Level
9kHz ~ 50kHz	110	--
50kHz ~ 150kHz	90 ~ 80*	--
150kHz ~ 0.5MHz	66 ~ 56*	56 ~ 46*
0.5MHz ~ 2.51MHz	56	46
2.51MHz ~ 3.0MHz	73	63
3.0MHz ~ 5.0MHz	56	46
5.0MHz ~ 30MHz	60	50

1. At the transition frequency the lower limit applies.
2. * Decreasing linearly with logarithm of the frequency.

4.3. Operating Condition of EUT

4.3.1. Setup the EUT as shown on Section 4.1.

4.3.2. Turn on the power of all equipments.

4.3.3. Let the EUT work in measuring mode (On) and measure it.

4.4. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground and connected to the AC mains through a Line Impedance Stabilization Network (L.I.S.N.). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the EN 55015 regulations during conducted emission measurement. And the voltage probe had been used for the load terminals measurement according to the EN 55015 standard.

The bandwidth of the test receiver (R&S ESCS30) is set at 200Hz in 9k~150kHz range and 9kHz in 150k~30MHz range.

The frequency range from 9kHz to 30MHz is checked.

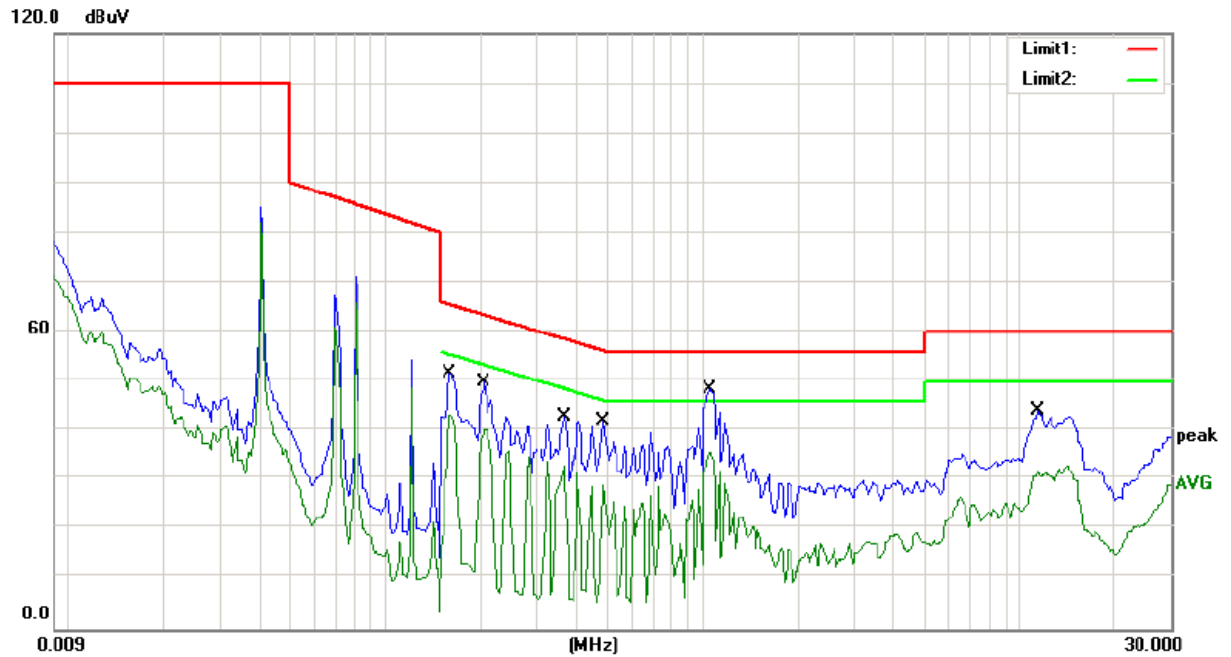
All the test results are listed in Section 4.5. The scanning waveform is put in the following pages.

4.5. Measuring Results

PASS.

The frequency range from 9kHz to 30MHz is investigated.

Please refer to the following pages.



Site Conduction #1

Phase: **L1**

Temperature: 26

Limit: (CE)EN55015_QP

Power: AC 230V/50Hz

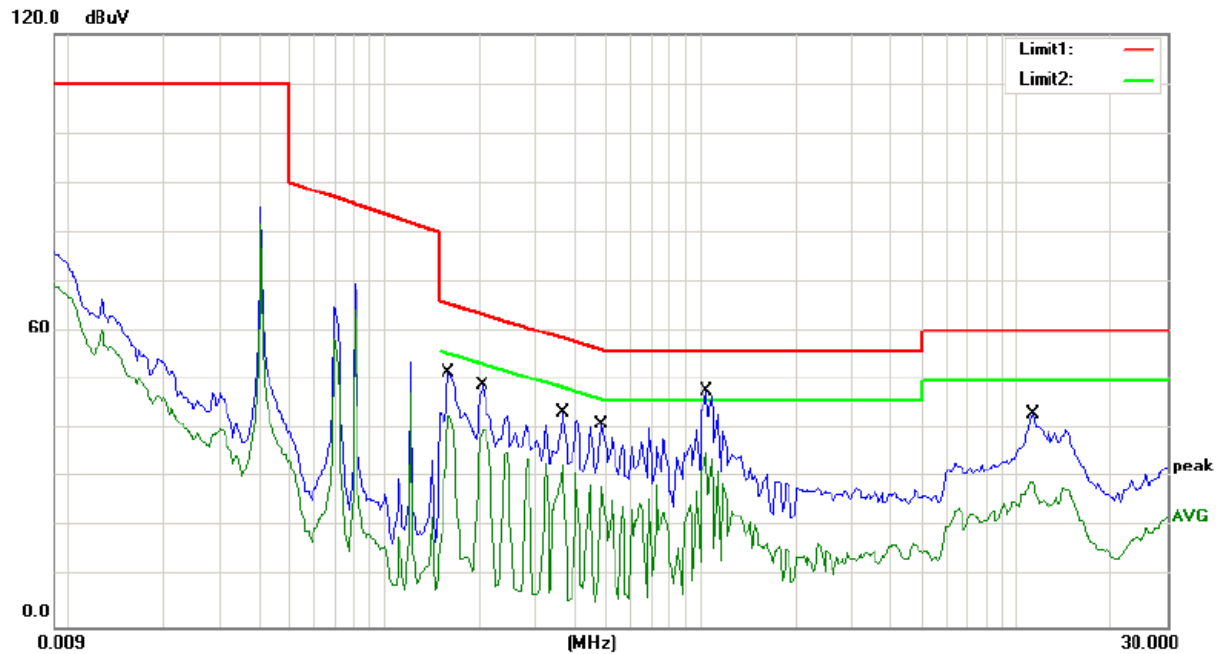
Humidity: 60 %

Mode: ON

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1600	51.76	0.00	51.76	65.46	-13.70	QP	
2		0.1600	43.34	0.00	43.34	55.46	-12.12	AVG	
3		0.2050	49.94	0.00	49.94	63.41	-13.47	QP	
4		0.2050	40.47	0.00	40.47	53.41	-12.94	AVG	
5		0.3650	43.05	0.00	43.05	58.61	-15.56	QP	
6		0.3650	32.87	0.00	32.87	48.61	-15.74	AVG	
7		0.4850	42.01	0.00	42.01	56.25	-14.24	QP	
8		0.4850	28.91	0.00	28.91	46.25	-17.34	AVG	
9	*	1.0600	48.59	0.00	48.59	56.00	-7.41	QP	
10		1.0600	35.53	0.00	35.53	46.00	-10.47	AVG	
11		11.4250	44.11	0.00	44.11	60.00	-15.89	QP	
12		11.4250	31.74	0.00	31.74	50.00	-18.26	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: ZHL



Site Conduction #1

Phase: **N**

Temperature: 26

Limit: (CE)EN55015_QP

Power: AC 230V/50Hz

Humidity: 60 %

Mode: ON

Note:

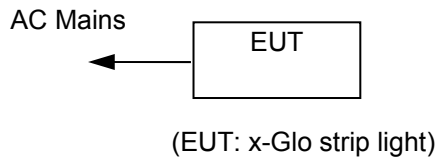
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1600	51.66	0.00	51.66	65.46	-13.80	QP	
2		0.1600	43.01	0.00	43.01	55.46	-12.45	AVG	
3		0.2050	49.02	0.00	49.02	63.41	-14.39	QP	
4		0.2050	39.99	0.00	39.99	53.41	-13.42	AVG	
5		0.3650	43.67	0.00	43.67	58.61	-14.94	QP	
6		0.3650	32.70	0.00	32.70	48.61	-15.91	AVG	
7		0.4850	41.23	0.00	41.23	56.25	-15.02	QP	
8		0.4850	28.27	0.00	28.27	46.25	-17.98	AVG	
9	*	1.0500	47.79	0.00	47.79	56.00	-8.21	QP	
10		1.0500	35.15	0.00	35.15	46.00	-10.85	AVG	
11		11.2500	43.24	0.00	43.24	60.00	-16.76	QP	
12		11.2500	29.20	0.00	29.20	50.00	-20.80	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: ZHL

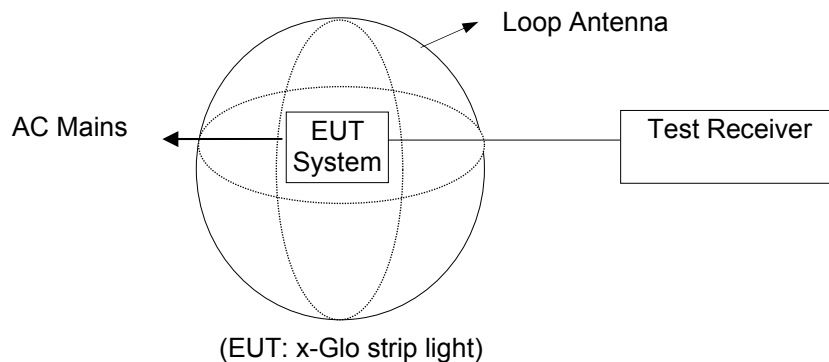
5. MAGNETIC FIELD EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup

5.1.1. Block Diagram of EUT System



5.1.2. Block Diagram of Test Setup



5.2. Measuring Standard and Limits

5.2.1. Test Standard

EN 55015:2013

5.2.2. Test Limits

Frequency	Limits for loop diameter (dB μ A)
	2m
9kHz ~ 70kHz	88
70kHz ~ 150kHz	88 ~ 58*
150kHz ~ 2.2MHz	58 ~ 26*
2.2MHz ~ 3.0MHz	58
3.0MHz ~ 30MHz	22

1. At the transition frequency the lower limit applies.
2. * Decreasing linearly with logarithm of the frequency.

5.3. Operating Condition of EUT

5.3.1. Setup the EUT as shown on Section 5.1.

5.3.2. Turn on the power of all equipments.

5.3.3. Let the EUT work in measuring mode (On) and measure it.

5.4. Test Procedure

The EUT is placed on a wood table in the center of a loop antenna. The induced current in the loop antenna is measured by means of a current probe and the test receiver. Three field components are checked by means of a coaxial switch.

The frequency range from 9kHz to 30MHz is investigated. The receiver is measured with the quasi-peak detector. For frequency band 9kHz to 150kHz, the bandwidth of the field strength meter (R&S test receiver ESCS30) is set at 200Hz. For frequency band 150kHz to 30MHz, the bandwidth is set at 9kHz.

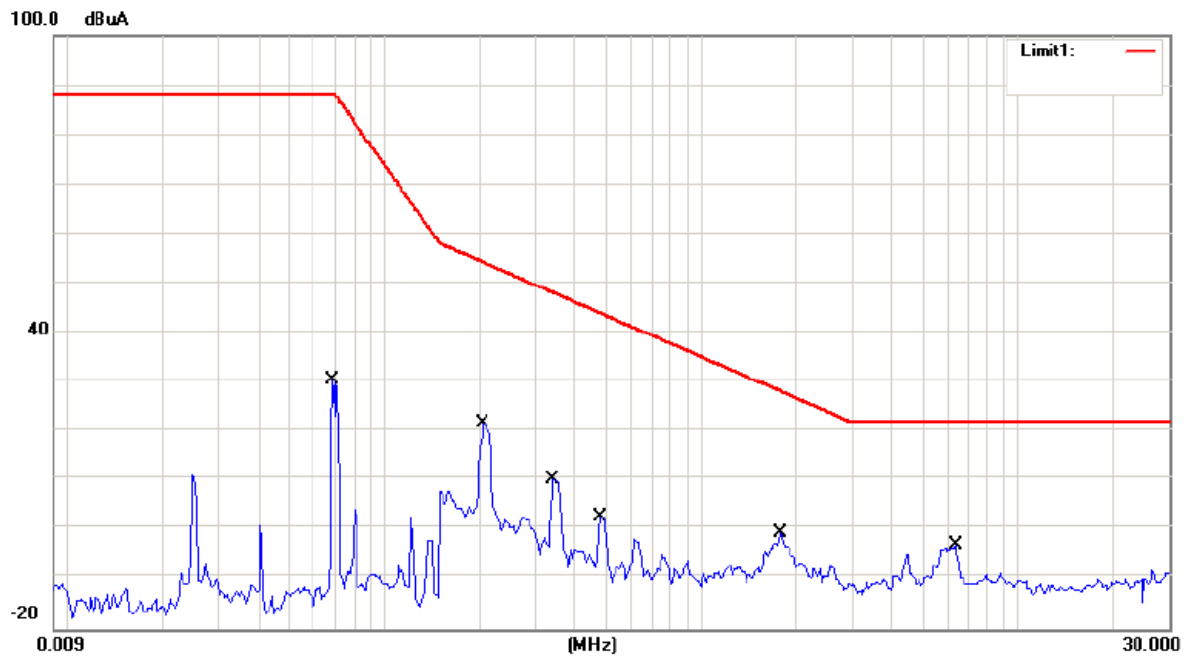
All the test results are listed in Section 5.5, and all the scanning waveform is put in the following pages.

5.5. Measuring Results

PASS.

The frequency range from 9kHz to 30MHz is investigated.

Please refer to the following pages.



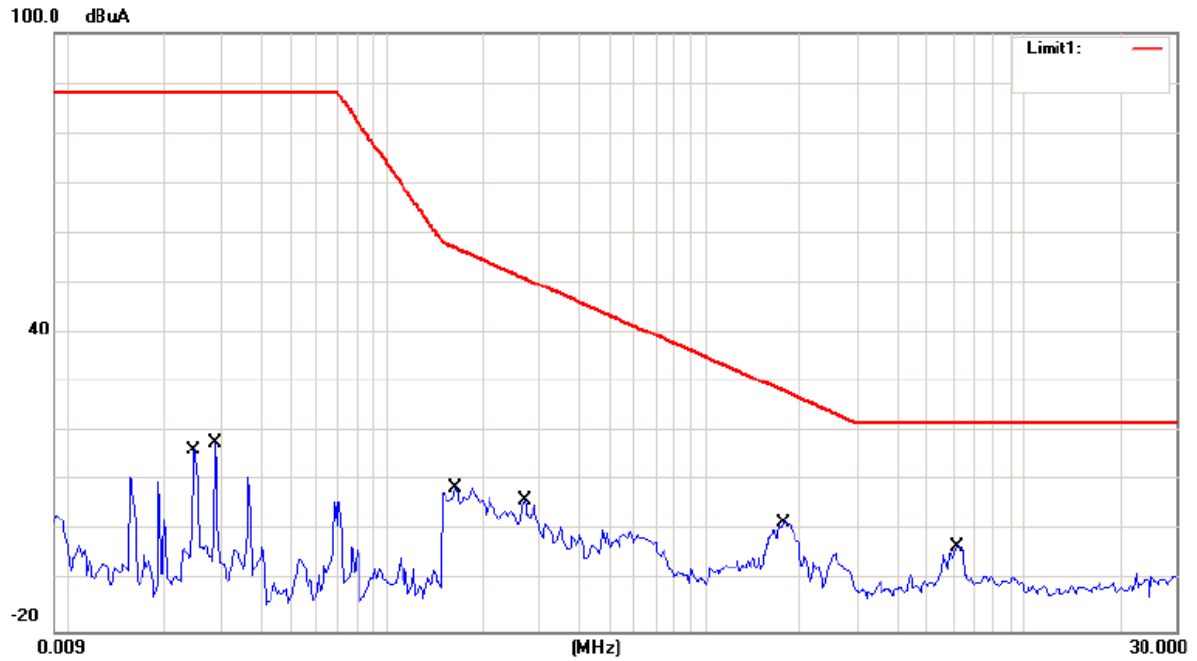
Site Conduction #1
Limit: (ME)EN55015
Mode: ON
Note:

Phase: **LOOP A**
Power: AC 230V/50Hz

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq. MHz	Reading Level dBuA	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector	Comment
1		0.0685	30.47	0.00	30.47	88.00	-57.53	QP	
2		0.2050	21.86	0.00	21.86	54.25	-32.39	QP	
3		0.3400	10.20	0.00	10.20	48.17	-37.97	QP	
4		0.4800	2.79	0.00	2.79	44.02	-41.23	QP	
5		1.7700	-0.68	0.00	-0.68	28.34	-29.02	QP	
6	*	6.3300	-3.19	0.00	-3.19	22.00	-25.19	QP	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK



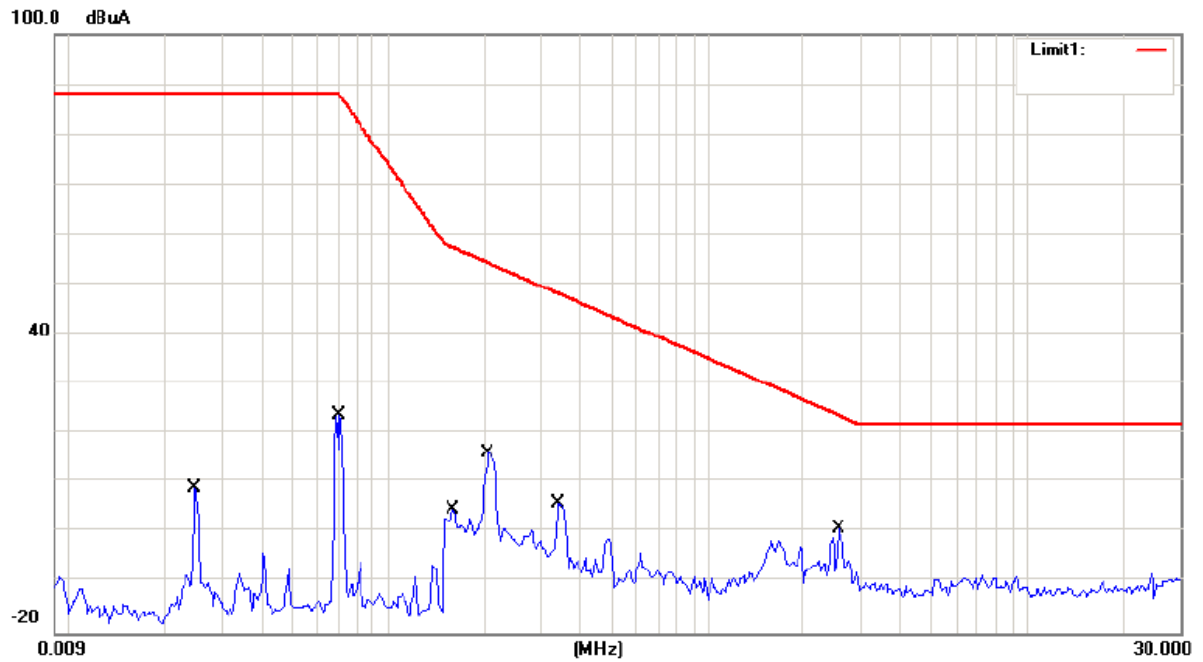
Site Conduction #1
Limit: (ME)EN55015
Mode: ON
Note:

Phase: **LOOP B**
Power: AC 230V/50Hz

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq. MHz	Reading Level dBuA	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector	Comment
1		0.0250	16.55	0.00	16.55	88.00	-71.45	QP	
2		0.0288	17.97	0.00	17.97	88.00	-70.03	QP	
3		0.1650	8.65	0.00	8.65	56.85	-48.20	QP	
4		0.2700	6.20	0.00	6.20	50.94	-44.74	QP	
5		1.7600	1.63	0.00	1.63	28.41	-26.78	QP	
6	*	6.1700	-2.91	0.00	-2.91	22.00	-24.91	QP	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK



Site Conduction #1
Limit: (ME)EN55015
Mode: ON
Note:

Phase: **LOOP C**
Power: AC 230V/50Hz

Temperature: 26
Humidity: 60 %

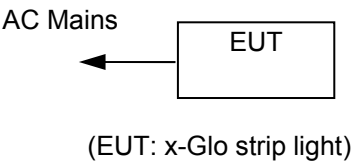
No.	Mk.	Freq. MHz	Reading Level dBuA	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector	Comment
1		0.0250	8.82	0.00	8.82	88.00	-79.18	QP	
2		0.0706	23.89	0.00	23.89	87.66	-63.77	QP	
3		0.1600	4.69	0.00	4.69	57.22	-52.53	QP	
4		0.2050	16.10	0.00	16.10	54.25	-38.15	QP	
5		0.3400	5.94	0.00	5.94	48.17	-42.23	QP	
6	*	2.5600	0.76	0.00	0.76	23.91	-23.15	QP	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK

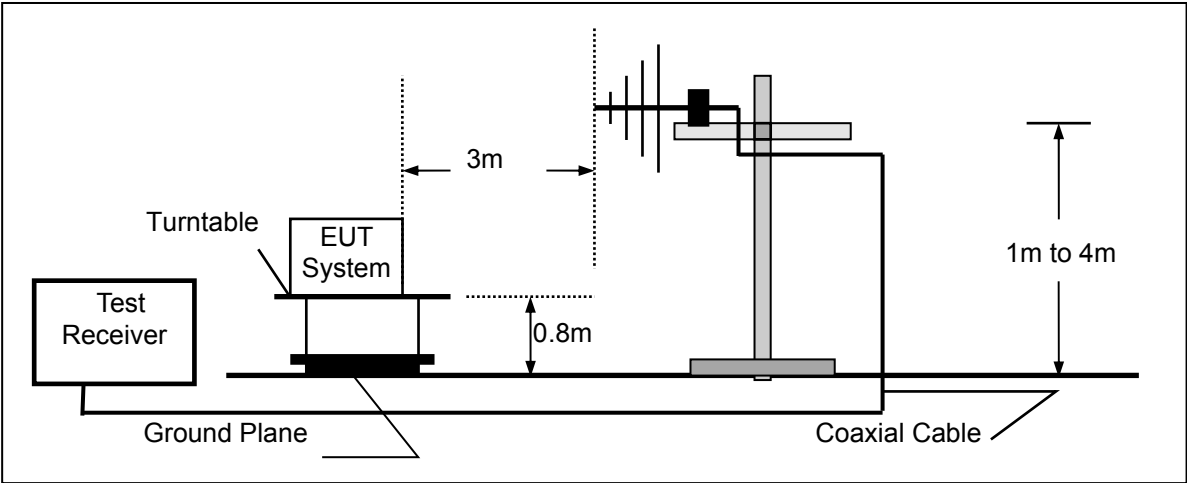
6. RADIATED EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup

6.1.1. Block diagram of EUT System



6.1.2. Block diagram of test setup (In chamber)



(EUT: x-Glo strip light)

6.2. Measuring Standard and Limits

6.2.1. Test Standard

EN 55015:2013

6.2.2. Test Limits

All emanations from a device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/m)
30 ~ 230	3	40
230 ~ 300	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

6.3. Operating Condition of EUT

6.3.1. Setup the EUT as shown on Section 6.1.

6.3.2. Turn on the power of all equipments.

6.3.3. Let the EUT work in measuring mode (On) and measure it.

6.4. Test Procedure

The EUT is placed on a turntable which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 10 meters away from the receiving antenna that is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

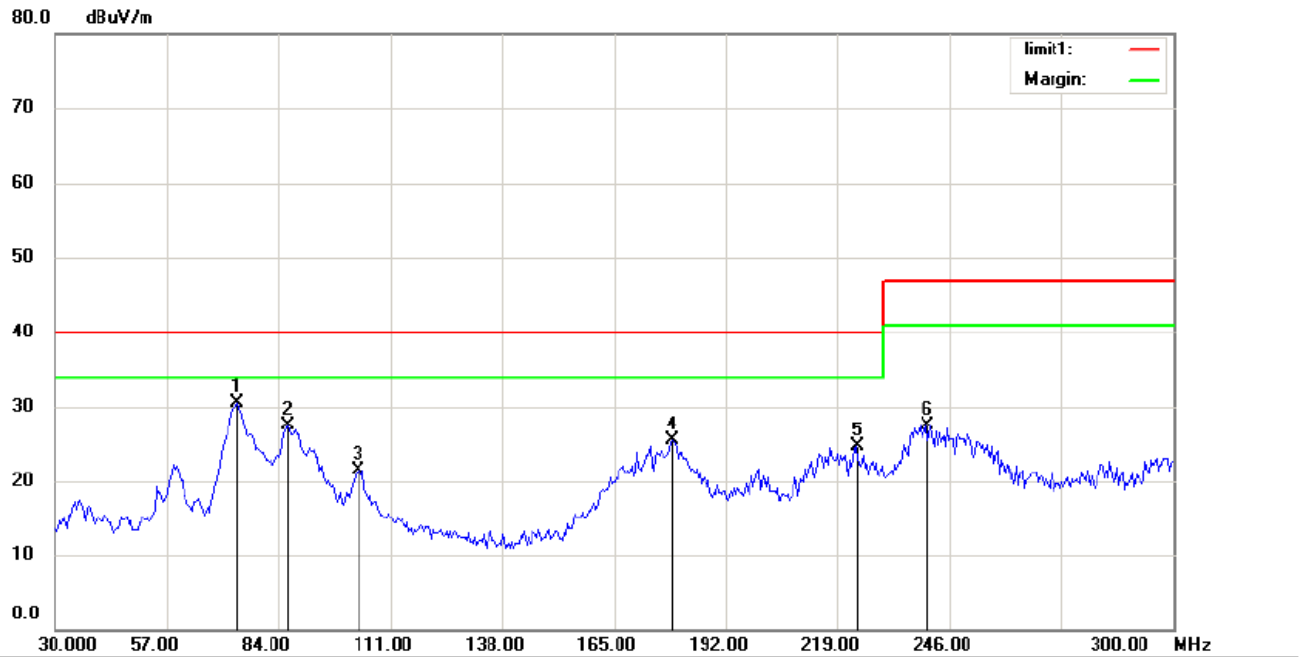
The bandwidth of the Receiver (ESU26) is set at 120kHz.
All the scanning curves are attached in the following pages.

6.5. Measuring Results

PASS.

The frequency range from 30MHz to 300MHz is investigated.

Please refer to the following pages.

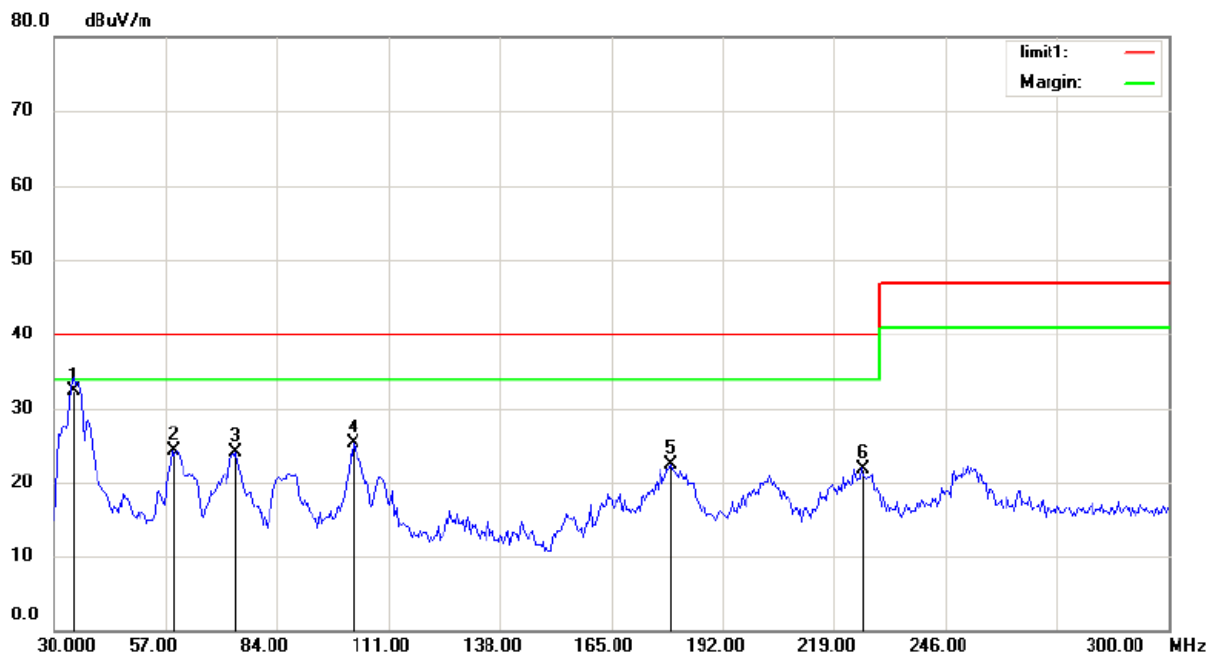


Site site #1 Polarization: **Horizontal** Temperature: 24
 Limit: (RE)EN55015 Power: AC 230V/50Hz Humidity: 53 %
 Mode:ON
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	74.1346	21.60	8.86	30.46	40.00	-9.54	QP		
2		86.2500	15.82	11.73	27.55	40.00	-12.45	QP		
3		103.1250	7.45	14.06	21.51	40.00	-18.49	QP		
4		179.2788	13.33	12.24	25.57	40.00	-14.43	QP		
5		223.4135	10.84	13.89	24.73	40.00	-15.27	QP		
6		240.2885	12.54	15.01	27.55	47.00	-19.45	QP		

*:Maximum data x:Over limit !:over margin

Operator: RJB



Site site #1

Polarization: **Vertical**

Temperature: 24

Limit: (RE)EN55015

Power: AC 230V/50Hz

Humidity: 53 %

Mode: ON

Note:

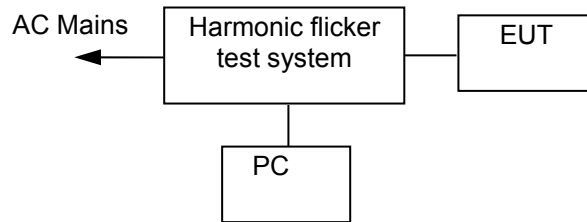
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	34.7596	19.60	12.71	32.31	40.00	-7.69	QP		
2		58.5577	10.77	13.52	24.29	40.00	-15.71	QP		
3		74.1346	15.32	8.84	24.16	40.00	-15.84	QP		
4		102.6923	11.15	14.09	25.24	40.00	-14.76	QP		
5		179.7114	10.13	12.29	22.42	40.00	-17.58	QP		
6		225.5770	7.85	14.15	22.00	40.00	-18.00	QP		

*:Maximum data x:Over limit !:over margin

Operator: RJB

7. HARMONIC CURRENT EMISSION MEASUREMENT

7.1. Block Diagram of Test Setup



(EUT: x-Glo strip light)

7.2. Measuring Standard

EN 61000-3-2:2014 CLASS C

7.3. Operation Condition of EUT

7.3.1. Setup the EUT as shown on Section 7.1.

7.3.2. Turn on the power of all equipments.

7.3.3. Let the EUT work in measuring mode (On) and measure it.

7.4. Measuring Results

PASS.

Please refer to the following page.

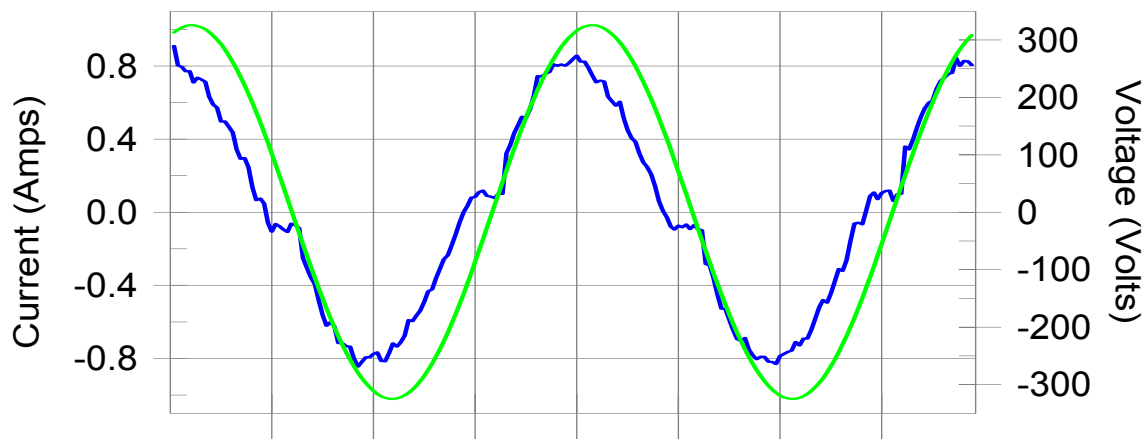
Harmonics – Class-C per Ed. 4.0 (2014)(Run time)

EUT: x-Glo strip light
Test category: Class-C per Ed. 4.0 (2014) (European limits)
Test date: 2017/1/19
Test duration (min): 2.5
Comment: ON
Customer: GLOBAL

Tested by: XF
Test Margin: 100
Start time: 14:36:05
End time: 14:38:57
Data file name: WIN2105_H-000333.cts_data

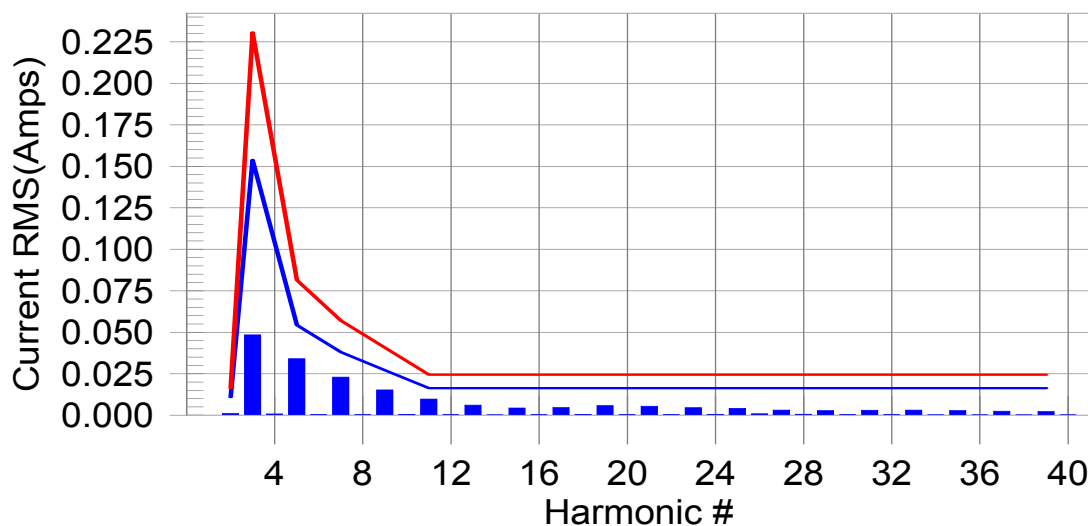
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line

European Limits



Test result: Pass Worst harmonics H5-62.8% of 100% limit, H19-42.6% of 150% limit.

Current Test Result Summary (Run time)

EUT: x-Glo strip light Tested by: XF
 Test category: Class-C per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/1/19 Start time: 14:36:05 End time: 14:38:57
 Test duration (min): 2.5 Data file name: WIN2105_H-000333.cts_data
 Comment: ON
 Customer: GLOBAL

Test Result: Pass Source qualification: Normal
 THC: 0.068 A I-THD: 12.5 % POHC(A): 0.005 A POHC Limit(A): 0.051 A
 Highest parameter values during test:
 V_RMS (Volts): 230.238 Frequency(Hz): 50.00
 I_Peak (Amps): 0.909 I_RMS (Amps): 0.547
 I_Fund (Amps): 0.542 Crest Factor: 1.662
 Power (Watts): 119.1 Power Factor: 0.945

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.011	N/A	0.001	0.016	N/A	Pass
3	0.048	0.154	31.4	0.050	0.231	21.7	Pass
4	0.001	0.000	N/A	0.002	0.000	N/A	Pass
5	0.034	0.054	62.8	0.034	0.081	42.2	Pass
6	0.000	0.000	N/A	0.001	0.000	N/A	Pass
7	0.023	0.038	60.4	0.023	0.057	40.5	Pass
8	0.000	0.000	N/A	0.001	0.000	N/A	Pass
9	0.015	0.027	55.8	0.015	0.041	37.8	Pass
10	0.000	0.000	N/A	0.002	0.000	N/A	Pass
11	0.010	0.016	59.9	0.010	0.024	41.2	Pass
12	0.000	0.000	N/A	0.001	0.000	N/A	Pass
13	0.006	0.016	37.5	0.006	0.024	25.7	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.004	0.016	N/A	0.005	0.024	N/A	Pass
16	0.000	0.000	N/A	0.001	0.000	N/A	Pass
17	0.005	0.016	N/A	0.006	0.024	N/A	Pass
18	0.000	0.000	N/A	0.001	0.000	N/A	Pass
19	0.006	0.016	35.0	0.010	0.024	42.6	Pass
20	0.000	0.000	N/A	0.001	0.000	N/A	Pass
21	0.005	0.016	33.0	0.008	0.024	31.9	Pass
22	0.000	0.000	N/A	0.001	0.000	N/A	Pass
23	0.004	0.016	N/A	0.007	0.024	N/A	Pass
24	0.000	0.000	N/A	0.001	0.000	N/A	Pass
25	0.004	0.016	N/A	0.008	0.024	N/A	Pass
26	0.001	0.000	N/A	0.001	0.000	N/A	Pass
27	0.003	0.016	N/A	0.005	0.024	N/A	Pass
28	0.001	0.000	N/A	0.001	0.000	N/A	Pass
29	0.003	0.016	N/A	0.003	0.024	N/A	Pass
30	0.000	0.000	N/A	0.000	0.000	N/A	Pass
31	0.003	0.016	N/A	0.003	0.024	N/A	Pass
32	0.000	0.000	N/A	0.000	0.000	N/A	Pass
33	0.003	0.016	N/A	0.003	0.024	N/A	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.003	0.016	N/A	0.003	0.024	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.002	0.016	N/A	0.002	0.024	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.002	0.016	N/A	0.002	0.024	N/A	Pass
40	0.000	0.000	N/A	0.000	0.000	N/A	Pass

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

Voltage Source Verification Data (Run time)

EUT: x-Glo strip light Tested by: XF
 Test category: Class-C per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/1/19 Start time: 14:36:05 End time: 14:38:57
 Test duration (min): 2.5 Data file name: WIN2105_H-000333.cts_data
 Comment: ON
 Customer: GLOBAL

Test Result: Pass Source qualification: Normal

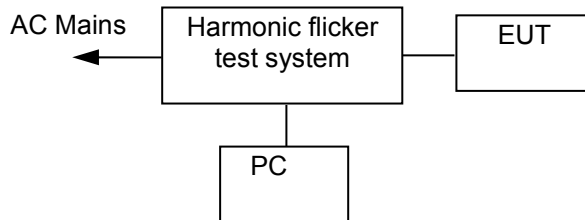
Highest parameter values during test:

Voltage (Vrms):	230.238	Frequency(Hz):	50.00
I_Peak (Amps):	0.909	I_RMS (Amps):	0.547
I_Fund (Amps):	0.542	Crest Factor:	1.662
Power (Watts):	119.1	Power Factor:	0.945

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.096	0.460	20.95	OK
3	0.119	2.072	5.73	OK
4	0.032	0.460	6.87	OK
5	0.046	0.921	4.97	OK
6	0.009	0.460	2.00	OK
7	0.028	0.691	4.05	OK
8	0.014	0.460	2.96	OK
9	0.025	0.460	5.51	OK
10	0.012	0.460	2.69	OK
11	0.020	0.230	8.58	OK
12	0.005	0.230	2.34	OK
13	0.012	0.230	5.29	OK
14	0.008	0.230	3.36	OK
15	0.017	0.230	7.20	OK
16	0.006	0.230	2.66	OK
17	0.018	0.230	7.64	OK
18	0.004	0.230	1.77	OK
19	0.021	0.230	8.92	OK
20	0.012	0.230	5.08	OK
21	0.020	0.230	8.63	OK
22	0.005	0.230	2.21	OK
23	0.018	0.230	8.03	OK
24	0.005	0.230	2.27	OK
25	0.017	0.230	7.39	OK
26	0.009	0.230	4.02	OK
27	0.019	0.230	8.07	OK
28	0.006	0.230	2.63	OK
29	0.015	0.230	6.45	OK
30	0.004	0.230	1.91	OK
31	0.014	0.230	5.97	OK
32	0.006	0.230	2.76	OK
33	0.014	0.230	5.89	OK
34	0.004	0.230	1.67	OK
35	0.011	0.230	4.95	OK
36	0.003	0.230	1.51	OK
37	0.009	0.230	4.01	OK
38	0.005	0.230	2.18	OK
39	0.015	0.230	6.41	OK
40	0.007	0.230	3.22	OK

8. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

8.1. Block Diagram of Test Setup



(EUT: x-Glo strip light)

8.2. Measuring Standard

EN 61000-3-3:2013

8.3. Operation Condition of EUT

8.3.1. Setup the EUT as shown on Section 8.1.

8.3.2. Turn on the power of all equipments.

8.3.3. Let the EUT work in measuring mode (On) and measure it.

8.4. Measuring Results

PASS.

Please refer to the following page.

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

EUT: x-Glo strip light
Test category: All parameters (European limits)
Test date: 2017/1/19
Test duration (min): 10
Comment: ON
Customer: GLOBAL

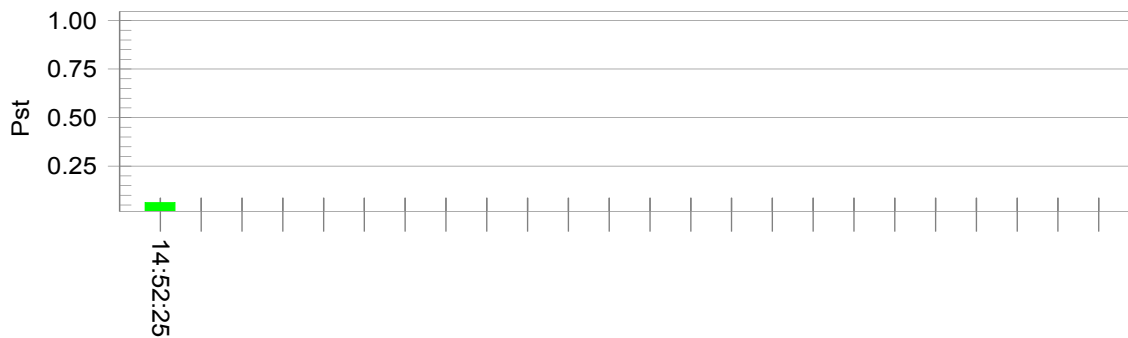
Tested by: XF
Test Margin: 100
Start time: 14:41:55
End time: 14:52:26
Data file name: WIN2105_F-000335.cts_data

Test Result: Pass

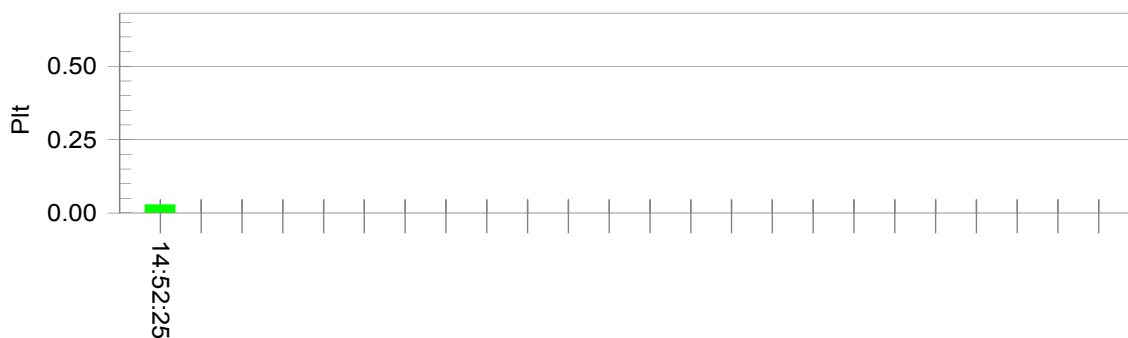
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.08			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.05	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

9. IMMUNITY PERFORMANCE CRITERIA DESCRIPTION

Performance Level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level:

1. Based on the used product standard
2. Based on the declaration of the manufacturer, requestor or purchaser

Criterion A:

Definition: normal performance within limits specified by the manufacturer, requestor and purchaser.

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion B:

Definition: temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention.

After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.

Criterion C:

Definition: temporary loss of function or degradation of performance, the correction of which requires operator intervention.

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

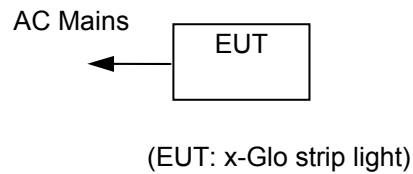
Criterion D

Definition: loss of function or degradation of performance, which is not recoverable, owing to damage to hardware or software, or loss of data.

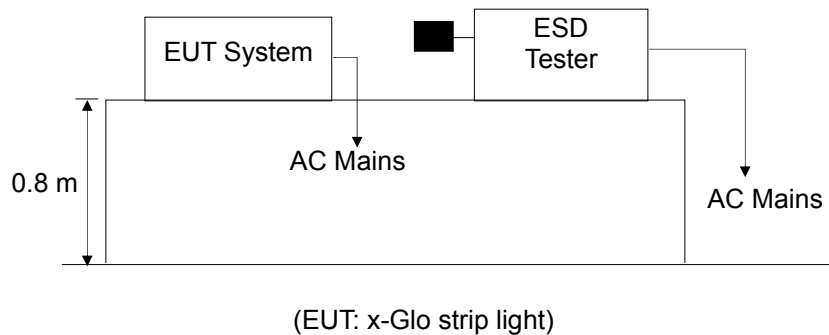
10. ELECTROSTATIC DISCHARGE IMMUNITY TEST

10.1. Block Diagram of Test Setup

10.1.1. Block diagram of EUT System



10.1.2. Block diagram of ESD test setup



10.2. Test Standard

EN 61547:2009
(IEC 61000-4-2:2008 Severity Level: 3 / Air Discharge: $\pm 8\text{kV}$
Level: 2 / Contact Discharge: $\pm 4\text{kV}$)

10.3. Severity Levels and Performance Criterion

10.3.1. Severity level

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1	± 2	± 2
2	± 4	± 4
3	± 6	± 8
4	± 8	± 15
X	Special	Special

10.3.2. Performance criterion: B

10.4. Operating Condition of EUT

10.4.1. Setup the EUT as shown on Section 10.1.

10.4.2. Turn on the power of all equipments.

10.4.3. Let the EUT work in test mode (On) and test it.

10.5. Test Procedure

10.5.1. Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

10.5.2. Contact Discharge:

All the procedure shall be same as Section 10.5.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

10.5.3. Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

10.5.4. Indirect discharge for vertical coupling plane

At least 10 singles discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

10.6. Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

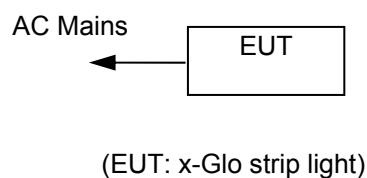
EMTEK (SHENZHEN) CO., LTD.

Applicant	: GLOBAL(LED) LIGHTING SOLUTIONS		
EUT	: x-Glo strip light	Test Date	: September 24, 2013
M/N	: x-Glo-60-36v	Temperature	: 22°C
Power Supply	: AC 230V/50Hz	Humidity	: 50%
Air discharge	: $\pm 8.0\text{kV}$	Test Mode	: On
Contact discharge:	$\pm 4.0\text{kV}$	Criterion	: B
Location		Kind A-Air Discharge C-Contact Discharge	Result
Slot		A	A
HCP of all sides		C	A
VCP of front		C	A
VCP of rear		C	A
VCP of left		C	A
VCP of right		C	A
Note:			

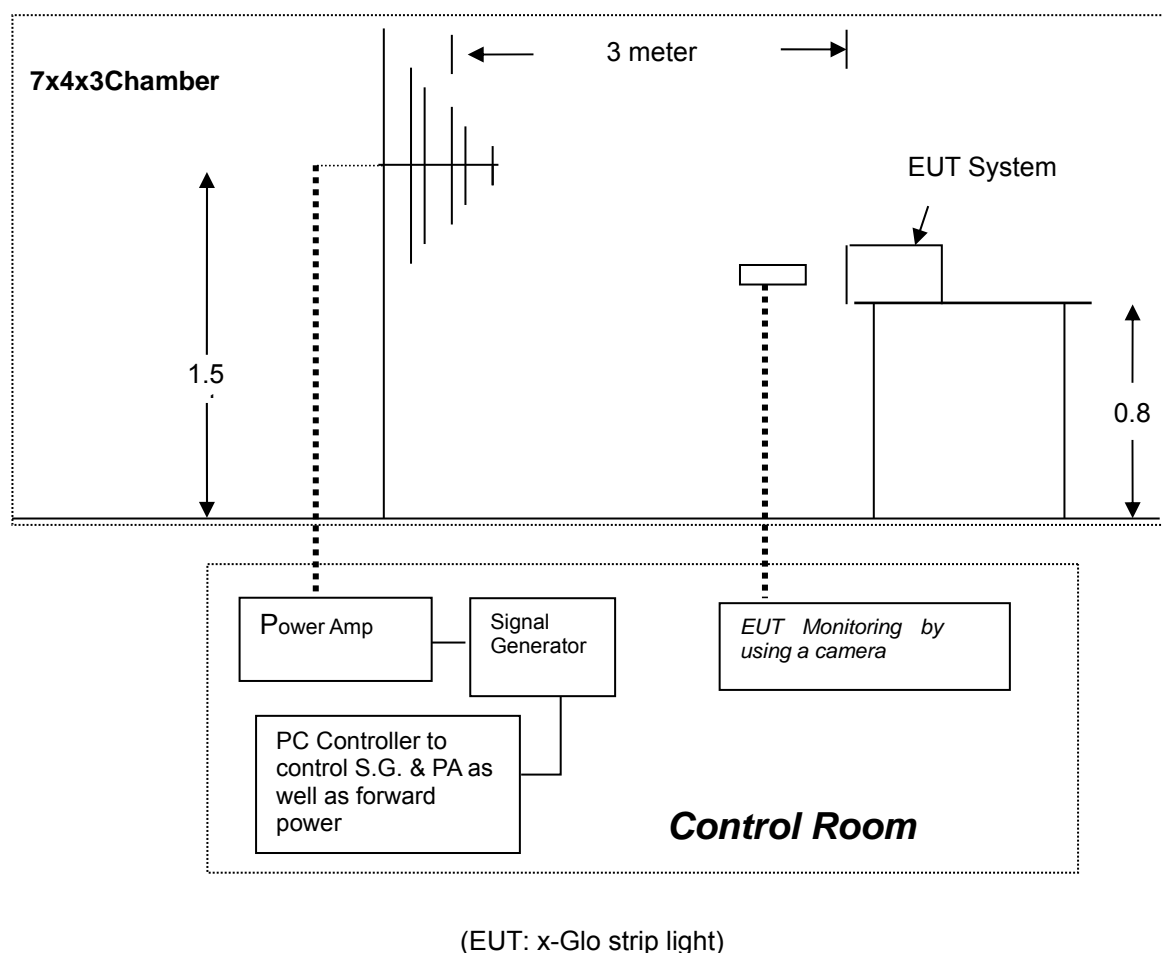
11. RF FIELD STRENGTH SUSCEPTIBILITY TEST

11.1. Block Diagram of Test Setup

11.1.1. Block diagram of EUT System



11.1.2. Block diagram of RS test setup



11.2. Test Standard

EN 61547:2009 (IEC 61000-4-3:2006+A1:2007+A2:2010, Severity Level: 2, 3V/m)

11.3. Severity Levels and Performance Criterion

11.3.1. Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

11.3.2. Performance Criterion: A

11.4. Operating Condition of EUT

11.4.1. Setup the EUT as shown on Section 11.1.

11.4.2. Turn on the power of all equipments.

11.4.3. Let the EUT work in test mode (On) and test it.

11.5. Test Procedure

The EUT are placed on a table that is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna that is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD Camera is used to monitor its output.

All the scanning conditions are as following:

Condition of Test	Remark
1. Fielded Strength	3V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80-1000MHz
4. Sweep time of radiated	0.0015 Decade/s
5. Dwell Time	1 Sec.

11.6. Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

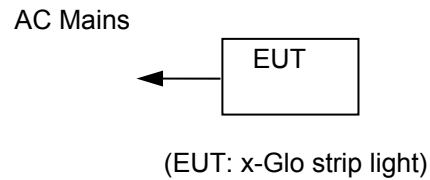
EMTEK (SHENZHEN) CO., LTD.

Applicant : GLOBAL(LED) LIGHTING SOLUTIONS				
EUT : x-Glo strip light		Test Date : September 24, 2013		
M/N : x-Glo-60-36v		Temperature : 22°C		
Field Strength : 3 V/m		Humidity : 50 %		
Power Supply : AC 230V/50Hz		Criterion : A		
Test Mode : On		Frequency Range : 80 MHz to 1000 MHz		
Modulation: <input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1kHz 80%				
Frequency Rang 1: 80~ 1000MHz		Frequency Rang 2: N/A		
Steps	1%			
	Horizontal	Vertical	Horizontal	Vertical
Front	A	A		
Right	A	A		
Rear	A	A		
Left	A	A		
Test Equipment: 1. Signal Generator: 2023B (AEROFLEX) 2. Power Amplifier: AP32MT215 (PRANA) 3. Log.-Per.Antenna: VULP9118E (SCHWARZBECK) 4. RF Power Meter. Dual Channel: 4232A (BOONTON) 5. Field Strength Meter: HI-6005 (HOLADAY)				
Note:				

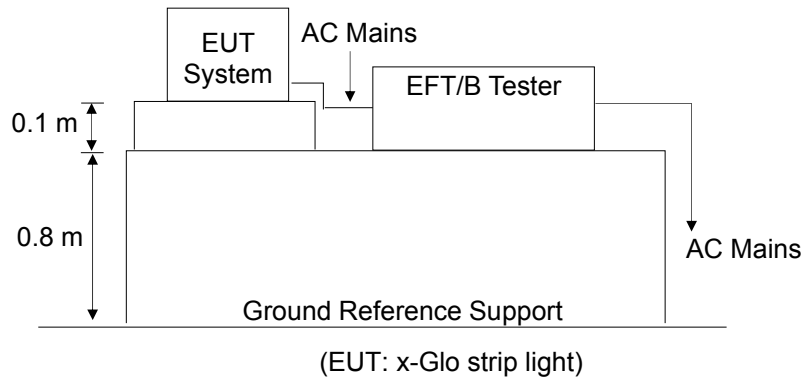
12. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

12.1. Block Diagram of Test Setup

12.1.1. Block Diagram of EUT System



12.1.2. EFT Test Setup



12.2. Test Standard

EN 61547:2009 (IEC 61000-4-4:2012, Severity Level: 2, 1kV)

12.3. Severity Levels and Performance Criterion

12.3.1. Severity level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

12.3.2. Performance criterion: B

12.4. Operating Condition of EUT

- 12.4.1. Setup the EUT as shown on Section 12.1.
- 12.4.2. Turn on the power of all equipments.
- 12.4.3. Let the EUT work in test mode (On) and test it.

12.5. Test Procedure

The EUT is put on the table that is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

12.5.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

12.5.2. For signal lines and control lines ports:

No I/O ports. It's unnecessary to test.

12.5.3. For DC output line ports:

It's unnecessary to test.

12.6. Test Results

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

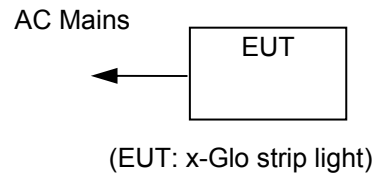
EMTEK (SHENZHEN) CO., LTD.

Standard: <input checked="" type="checkbox"/> IEC 61000-4-4	Result: <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL		
Applicant : <u>GLOBAL(LED) LIGHTING SOLUTIONS</u> EUT : <u>x-Glo strip light</u> M/N : <u>x-Glo-60-36v</u> Input Voltage: <u>AC 230V/50Hz</u> Criterion : <u>B</u> Ambient Condition : <u>23 °C</u> <u>55% RH</u>			
Operation Mode: On			
Line : <input checked="" type="checkbox"/> AC Mains	Line : <input type="checkbox"/> DC Line <input type="checkbox"/> I/O Cable		
Coupling : <input checked="" type="checkbox"/> Direct	Coupling : <input type="checkbox"/> Capacitive		
Test Time : 120s			
Line	Test Voltage	Result(+)	Result(-)
L	1kV	A	A
N	1kV	A	A
PE			
L、N	1kV	A	A
L、PE			
N、PE			
L、N、PE			
Signal Line			
DC Line			
Note:			

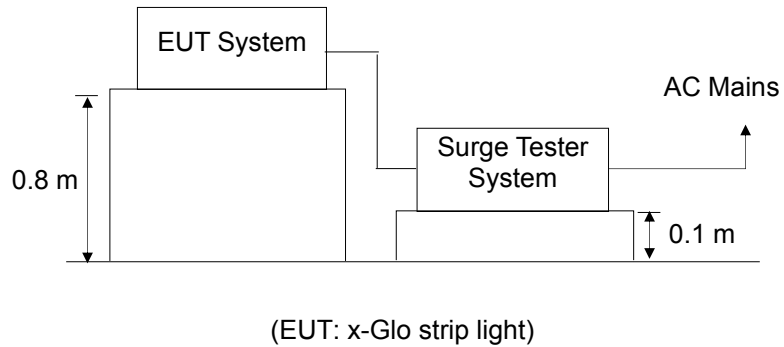
13. SURGE IMMUNITY TEST

13.1. Block Diagram of Test Setup

13.1.1. Block Diagram of EUT System



13.1.2. Surge Test Setup



13.2. Test Standard

EN 61547:2009

(IEC 61000-4-5:2014, Severity Level: Line to Line: Level 1, 0.5kV,
Line to Earth: Level 2, 1.0kV)

13.3. Severity Levels and Performance Criterion

13.3.1. Severity level

Severity Level	Open-Circuit Test Voltage kV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

13.3.2. Performance criterion: B

13.4. Operating Condition of EUT

- 13.4.1. Setup the EUT as shown on Section 13.1.
- 13.4.2. Turn on the power of all equipments.
- 13.4.3. Let the EUT work in test mode (On) and test it.

13.5. Test Procedure

- 1) Set up the EUT and test generator as shown on Section 13.1.2.
- 2) For line to line coupling mode, provide a 0.5kV 1.2/50us voltage surge
For line to earth coupling mode, provide a 1.0kV 1.2/50us voltage surge
(At open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

13.6. Test Results

PASS.

Please refer to the following page.

EMTEK (SHENZHEN) CO., LTD.

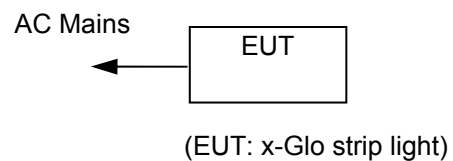
Criterion : B

Remark:

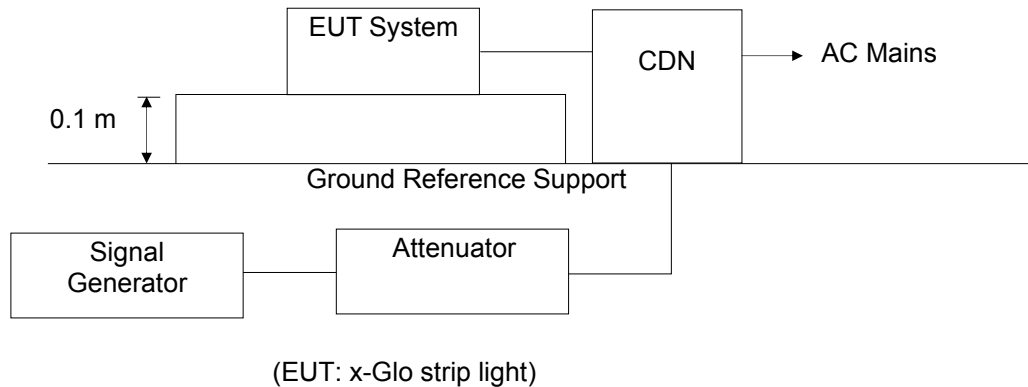
14. INJECTED CURRENTS SUSCEPTIBILITY TEST

14.1. Block Diagram of Test Setup

14.1.1. Block Diagram of EUT System



14.1.2. Block Diagram of Test Setup



14.2. Test Standard

EN 61547:2009

(IEC 61000-4-6:2013, Severity Level: Level 2, 3V (r.m.s.), 0.15MHz ~ 80MHz)

14.3. Severity Levels and Performance Criterion

14.3.1. Severity level

Level	Field Strength V
1	1
2	3
3	10
X	Special

14.3.2. Performance criterion: A

14.4. Operating Condition of EUT

- 14.4.1. Setup the EUT as shown on Section 14.1.
- 14.4.2. Turn on the power of all equipments.
- 14.4.3. Let the EUT work in test mode (On) and test it.

14.5. Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on Section 14.1.2.
- 2) Let the EUT work in test mode and measure it.
- 3) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

14.6. Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

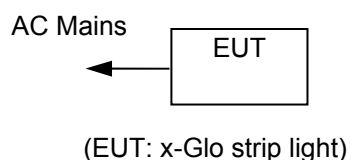
EMTEK (SHENZHEN) CO., LTD.

Applicant : <u>GLOBAL(LED) LIGHTING SOLUTIONS</u>				
EUT : <u>x-Glo strip light</u>		Test Date: <u>September 24, 2013</u>		
M/N : <u>x-Glo-60-36v</u>		Temperature : <u>23°C</u>		
Power Supply : <u>AC 230V / 50Hz</u>		Humidity : <u>50%</u>		
Test Engineer : <u>DK</u>				
Test Mode: <u>On</u>				
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V	A	A
Test Mode : <u>N/A</u>				
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
Remark : 1. Modulation Signal:1kHz 80% AM Measurement Equipment : Simulator: CWS 500 (SWITZERLAND EMTEST) CDN : <input type="checkbox"/> CDN-M2 (SWITZERLAND EMTEST) <input checked="" type="checkbox"/> CDN-M3 (SWITZERLAND EMTEST)		Note:		

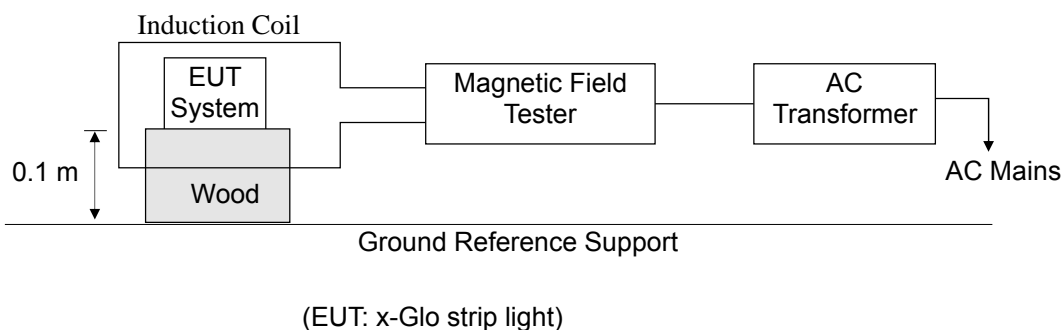
15. MAGNETIC FIELD SUSCEPTIBILITY TEST

15.1. Block Diagram of Test Setup

15.1.1. Block Diagram of EUT System



15.1.2. Magnetic field test setup



15.2. Test Standard

EN 61547:2009
(IEC 61000-4-8:2009, Severity Level: Level 2, 3A/m)

15.3. Severity Levels and Performance Criterion

15.3.1. Severity Levels

Level	Field Strength A/m
1	1
2	3
3	10
4	30
5	100
X	Special

15.3.2. Performance Criterion: A

15.4.Operating Condition of EUT

- 15.4.1.Setup the EUT as shown on Section 15.1.
- 15.4.2.Turn on the power of all equipments.
- 15.4.3.Let the EUT work in test mode (On) and test it.

15.5.Test Procedure

The EUT is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarization of the induction coil is set on test, so that each side of the EUT is affected by the magnetic field. Also can reach the same aim by change the position of the EUT.

15.6.Test Results

PASS.

Please refer to the following page.

Magnetic Field Immunity Test Results

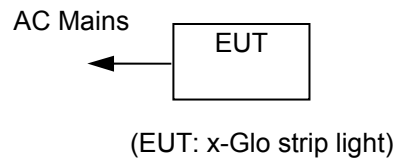
EMTEK (SHENZHEN) CO., LTD.

Standard: <input checked="" type="checkbox"/> IEC 61000-4-8	Result: <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL			
<p>Applicant : <u>GLOBAL(LED) LIGHTING SOLUTIONS</u></p> <p>EUT : <u>x-Glo strip light</u></p> <p>M/N : <u>x-Glo-60-36v</u></p> <p>Input Voltage : <u>AC230V/50Hz</u></p> <p>Date of Test : <u>September 24, 2013</u> Test Engineer: <u>DK</u></p> <p>Ambient Condition : Temp : <u>22°C</u> Humid: <u>50%</u></p> <p>Criterion: A</p>				
Operation Mode: <u>On</u>				
Test Level (A/m)	Testing Duration	Coil Orientation	Criterion	Result
3	5 mins	X	A	A
3	5 mins	Y	A	A
3	5 mins	Z	A	A
Operation Mode: N/A				
Test Level (A/m)	Testing Duration	Coil Orientation	Criterion	Result
Test Equipment	Magnetic Field Test: HEAFELY MAG 100.1			
Note:				

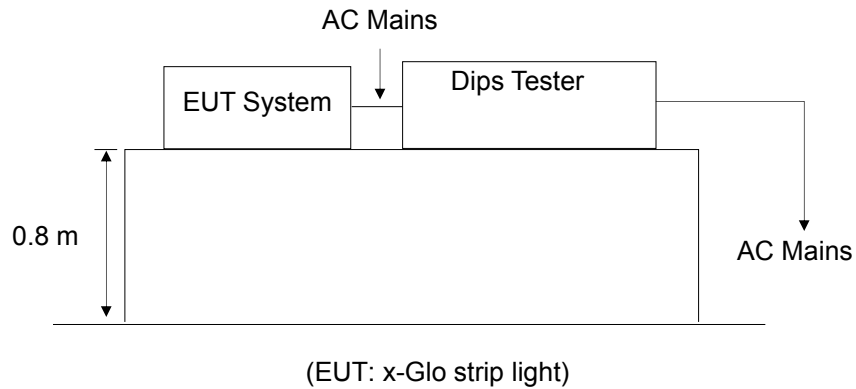
16. VOLTAGE DIPS AND INTERRUPTIONS TEST

16.1. Block Diagram of Test Setup

16.1.1. Block Diagram of EUT System



16.1.2. Dips Test Setup



16.2. Test Standard

EN 61547:2009 (IEC 61000-4-11:2004)

16.3. Severity Levels and Performance Criterion

16.3.1. Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5
70	30	10

16.3.2. Performance criterion: B&C

16.4.Operating Condition of EUT

- 16.4.1.Setup the EUT as shown on Section 16.1.
- 16.4.2.Turn on the power of all equipments.
- 16.4.3.Let the EUT work in test mode (On) and test it.

16.5.Test Procedure

- 1) Set up the EUT and test generator as shown on Section 16.1.2.
- 2) The interruption is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

16.6.Test Results

PASS.

Please refer to the following page.

Voltage Dips and Interruptions Test Results

EMTEK (SHENZHEN) CO., LTD.

Applicant : <u>GLOBAL(LED) LIGHTING SOLUTIONS</u>				
EUT : <u>x-Glo strip light</u>			Test Date : <u>September 24, 2013</u>	
M/N : <u>x-Glo-60-36v</u>			Temperature : <u>22°C</u>	
Power Supply : <u>AC 230V/50Hz</u>			Humidity : <u>50%</u>	
Test Mode: <u>On</u>				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion <input type="checkbox"/> A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	Result P=PASS F=FAIL
0	100	0.5P	B	PASS
70	30	10P	C	PASS
Test Mode : <u>N/A</u>				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	Result P=PASS F=FAIL
Note:				

17. PHOTOGRAPHS

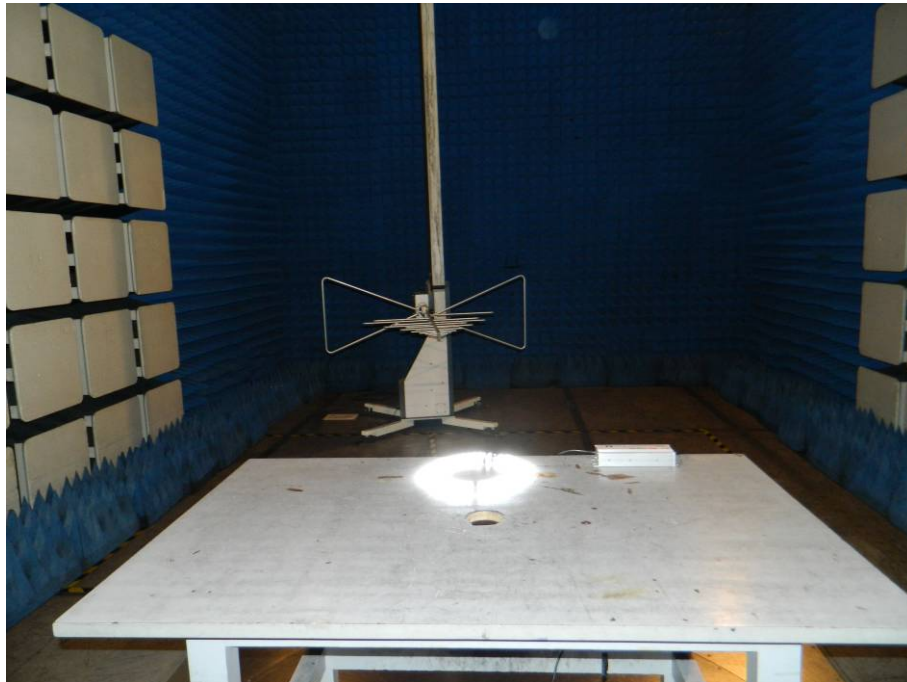
17.1. Photo of Conducted Emission Measurement



17.2. Photo of Magnetic Field Emission Measurement



17.3.Photo of Radiation Emission Measurement



17.4.Photo of Harmonic / Flicker Measurement



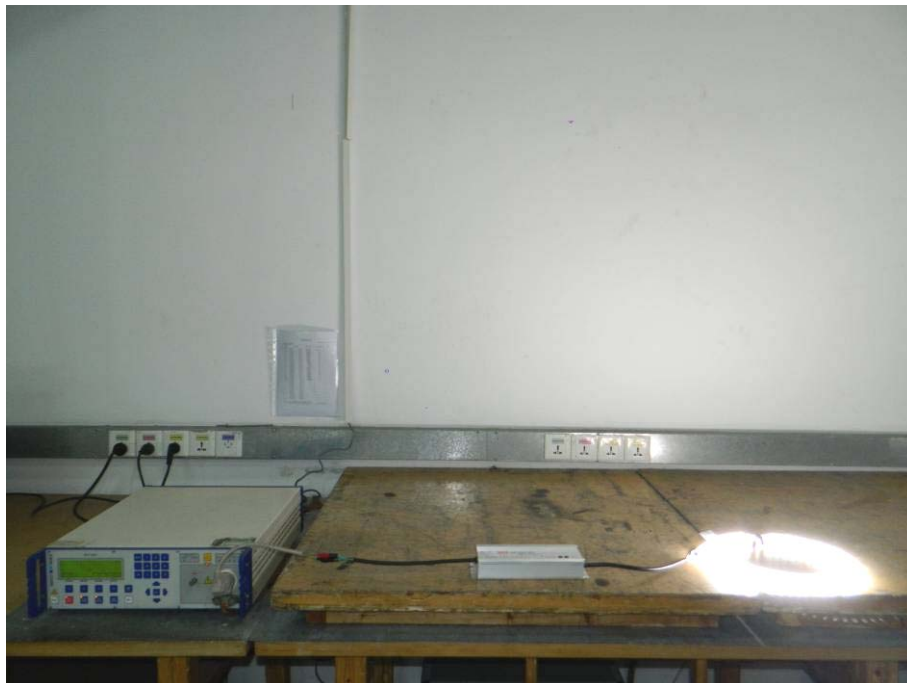
17.5.Photo of Electrostatic Discharge Test



17.6.Photo of RF Field Strength Susceptibility Test



17.7.Photo of Electrical Fast Transient / Burst Test



17.8.Photo of Surge Test



17.9.Photo of Injected Currents Susceptibility Test



17.10.Photo of Magnetic Field Immunity Test



17.11.Photo of Voltage Dips and Interruption Immunity Test



APPENDIX (Photos of EUT)

