



PRECISE TESTING

Report No.: PTC802139160815E-EM01



中国认可  
国际互认  
检测  
TESTING  
CNAS L5772

# CE EMC TEST REPORT

for

**Product: LED BAY**

**Model: B08-XX-YYY-ZZZ, B0801-XX-YYY-ZZZ**

**(Remark: “XX” represent for size of the lampshade; “YYY” represent for power, It can be 050, 100, 120, 150, 180, 200, 250, 300; “ZZZ” represent for code of the product.)**

**Report No.: PTC802139160815E-EM01**

Issued for

**Berdis Lighting Co.,LTD.**

**Floor 6, NO 1., Huatai east Road, Caosan Industrial Park, Guzhen Town, Zhongshan City, Guangdong Province**

Issued by

**Dongguan Precise Testing Service Co., Ltd.**

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# 1. TEST CERTIFICATION

Product:	LED BAY
Model:	B08-XX-YYY-ZZZ, B0801-XX-YYY-ZZZ (Remark: "XX" represent for size of the lampshade; "YYY" represent for power, It can be 050, 100, 120, 150, 180, 200, 250, 300; "ZZZ" represent for code of the product.)
Applicant :	Berdis Lighting Co.,LTD.
Address:	Floor 6, NO 1., Huatai east Road, Caosan Industrial Park, Guzhen Town, Zhongshan City, Guangdong Province
Manufacturer:	Berdis Lighting Co.,LTD.
Address:	Floor 6, NO 1., Huatai east Road, Caosan Industrial Park, Guzhen Town, Zhongshan City, Guangdong Province
Test Date:	August 20, 2016~August 24, 2016
Issued Date:	August 24, 2016
Test Voltage:	AC 230V/50Hz
Applicable Standards:	EMC Directive 2014/30/EU EN 55015:2013+A1:2015 EN 61547:2009 EN 61000-3-2:2014 EN 61000-3-3:2013

The above equipment has been tested by Dongguan Precise Testing Service Co., Ltd. and found compliance with the requirements in the technical standards mentioned above. The test results presented in this report only relate to the product/system tested. The Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

Approved & Authorized Signer:

*August Qiu*

August Qiu / Engineer



Chris Du / Manager



## 2. TEST SUMMARY

EMISSION			
Standard	Item	Result	Remarks
EN 55015:2013 +A1:2015	Conducted (Main Port)	PASS	Complied with limit
	Radiated Electromagnetic Disturbance	PASS	Complied with limit
	Radiated Emission	PASS	Complied with limit
EN 61000-3-2:2014	Harmonic current emissions	PASS	Complied with limit
EN 61000-3-3:2013	Voltage fluctuations & flicker	PASS	Complied with limit

IMMUNITY			
Standard	Item	Result	Remarks
EN 61000-4-2:2009	ESD	PASS	Complied with the requirements
EN 61000-4-3:2006+ A1:2008+A2:2010	RS	PASS	Complied with the requirements
EN 61000-4-4:2012	EFT	PASS	Complied with the requirements
EN 61000-4-5:2006	Surge	PASS	Complied with the requirements
EN 61000-4-6:2009	CS	PASS	Complied with the requirements
EN 61000-4-11:2004	Voltage dips & voltage variations	PASS	Complied with the requirements

Note: 1) The test result verdict is decided by the limit of test standard

2) The information of measurement uncertainty is available upon the customer's request.



### 3. TEST SITE

#### 3.1. TEST FACILITY

Dongguan Precise Testing Service Co., Ltd.

Address: Building D, Baoding Technology Park, Guangming Road 2, Dongcheng District,  
Dongguan, Guangdong, China

☆ CNAS Registration No.: CNAS L5772

☆ FCC Registration No.: 371540

☆ IC Registration No.: 12191A-1

#### 3.2. LIST OF TEST AND MEASUREMENT INSTRUMENTS

##### 3.2.1. For conducted emission at the mains terminals test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	July 14, 2017
Artificial Mains Network	Narda	L2-16B	000WX31025	July 14, 2017
Artificial Mains Network(AUX)	Rohde&Schwarz	ENV216	101342	July 14, 2017

##### 3.2.2. For radiated electromagnetic emission test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	July 14, 2017
Triple-Loop Antenna	LAPLACE	RF300	9138	July 14, 2017

##### 3.2.3. For radiated emission test (30MHz-1GHz)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	July 14, 2017
Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3355	July 14, 2017

**3.2.4. For harmonic current emissions and voltage fluctuations/flicker test**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Harmonics & Flicker Analyzer	California Instruments	CTS/PACS-1-115	1534A00401	Aug. 4, 2017
AC Power Source	California Instruments	3001IX-208-CTS	1534A00401	Aug. 4, 2017

**3.2.5. For electrostatic discharge immunity test**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
ESD Generator	HTEC	HESD 16	1416011	July 14, 2017

**3.2.6. For radio frequency electromagnetic field immunity (R/S) test (DQT)**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Signal Generator	Agilent	N517113-50B	MY53050160	Oct.29, 2016
Amplifier	A&R	150W1000M3	313157	Oct.29, 2016
Amplifier	A&R	50SIG6M2	0342835	Oct.29, 2016
Antenna	SCHWARZBECK	STLP9149	9149.222	Oct.29, 2016
Isotropic Field Probe	A&R	FL7006	0342652	Oct.29, 2016
Log-periodic Antenna	SCHWARZBECK	STLP 9128E	9128E-012	Oct.29, 2016

**3.2.7. For electrical fast transient/burst immunity test**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EFT Generator	HTEC	HEFT 51	1416010	July 14, 2017



**3.2.8. For surge immunity test**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Surge Generator	HTEC	HCOMB 70	142101	July 14, 2017
Surge Generator	HTEC	TCOMB 4	142103	July 14, 2017
CDN	HTEC	SCDN 161P	142102	July 14, 2017

**3.2.9. For injected currents susceptibility test**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
C/S Test System	SCHLODER	CDG-6000-25	126A1279/2014	July 14, 2017
CDN	SCHLODER	CDN-M2+3	A2210251/2013	July 14, 2017

**3.2.10. For voltage dips and short interruptions immunity test**

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Dips Tester	HTEC	HPFS 161P	1416009	July 14, 2017



### 4. EUT DESCRIPTION

<b>Product</b>	LED BAY
<b>Model</b>	B0801-XX-300-ZZZ
<b>Supplied Voltage</b>	AC 230V/50Hz
<b>Power</b>	300W
<b>AC Lines</b>	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input checked="" type="checkbox"/> Un-detachable <input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Length:1.4m
<b>DC Lines</b>	<input type="checkbox"/> Shielded <input type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Length:
<b>Control Lines</b>	<input type="checkbox"/> Shielded <input type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Length:

#### I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
AC Port	1	<input checked="" type="checkbox"/>

#### Models Difference

The circuit theory and PCB layout are the same, only the model names, size and color are different.





## 5. TEST METHODOLOGY

### 5.1. TEST MODE

The EUT was tested together with the thereafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed.

Test Items		Test Mode
Emission	Conducted Emission	Lighting
	Radiated Electromagnetic Disturbance	Lighting
	Radiated Emission	Lighting
	Harmonic current emissions	Lighting
	Voltage fluctuations & flicker	Lighting
Immunity	ESD	Lighting
	RS	Lighting
	EFT	Lighting
	Surge	Lighting
	C/S	Lighting
	Dips	Lighting

### 5.2. EUT SYSTEM OPERATION

1. Set up EUT with the support equipment.
2. Make sure the EUT work normally during the test.



## 6. SETUP OF EQUIPMENT UNDER TEST

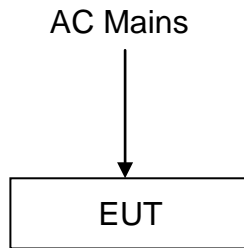
### 6.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	N/A	N/A	N/A	N/A	N/A	N/A	N/A

- Note: 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.  
 2) Grounding was established in accordance with the manufacturer’s requirements and conditions for the intended use.

### 6.2. CONFIGURATION OF SYSTEM UNDER TEST



(EUT: LED BAY)



## 7. EMISSION TEST

### 7.1. CONDUCTED EMISSION MEASUREMENT

#### 7.1.1. LIMITS

FREQUENCY (MHz)	LIMITS(dBμV)	
	Quasi-peak	Average
0.009-0.05	110	N/A
0.05-0.15	90 – 80	N/A
0.15 - 0.5	66 – 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1) The lower limit shall apply at the transition frequencies.

2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 MHz to 0.5 MHz

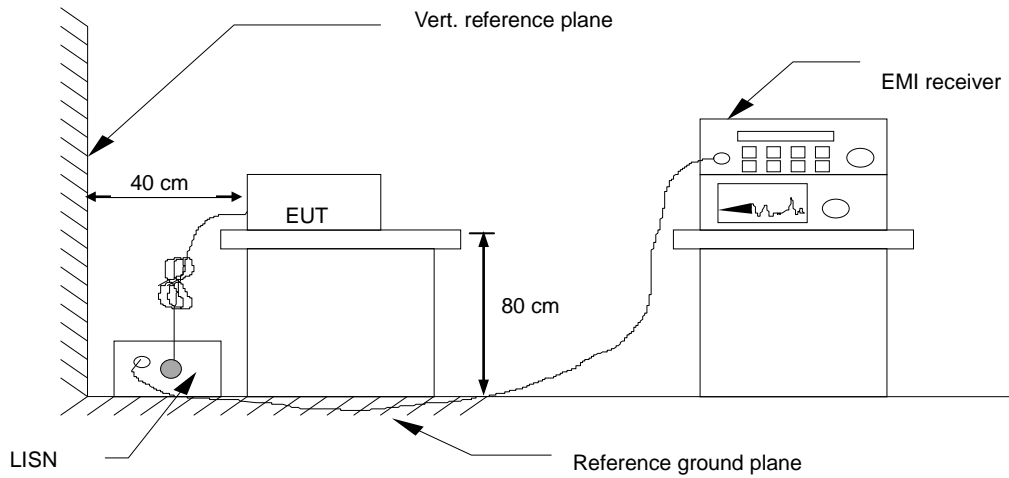
#### 7.1.2. TEST PROCEDURES

The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user’s manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane. The EUT should be 0.8 m apart from the AMN, where the mains cable supplied by the manufacturer is longer than 0.8 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, Details please refer to test setup photography.

The Receiver scanned from 9 kHz to 30 MHz for emissions in each of the test modes. During the above scans, the emissions were maximized by cable manipulation.

A scanning was taken on the power lines, Line and neutral, recording at least six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

### 7.1.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.1.4. TEST RESULT

<b>Product name</b>	LED BAY	<b>Tested By</b>	Cen
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Detector Function</b>	Peak / Quasi-peak/AV
<b>Test Mode</b>	Lighting	<b>6 dB Bandwidth</b>	200 Hz/9 kHz
<b>Environmental Conditions</b>	24.5°C, 54 % RH, 101.5 kPa	<b>Test Result</b>	Pass

Note:

L = Line Line, N = Neutral Line

Freq. = Emission frequency in MHz

Reading level (dB $\mu$ V) = Receiver reading

Corr. Factor (dB) = attenuator + Cable loss

Level (dB $\mu$ V) = Reading level (dB $\mu$ V) + Corr. Factor (dB)

Limit (dB $\mu$ V) = Limit stated in standard

Over Limit (dB) = Level (dB $\mu$ V) – Limit (dB $\mu$ V)

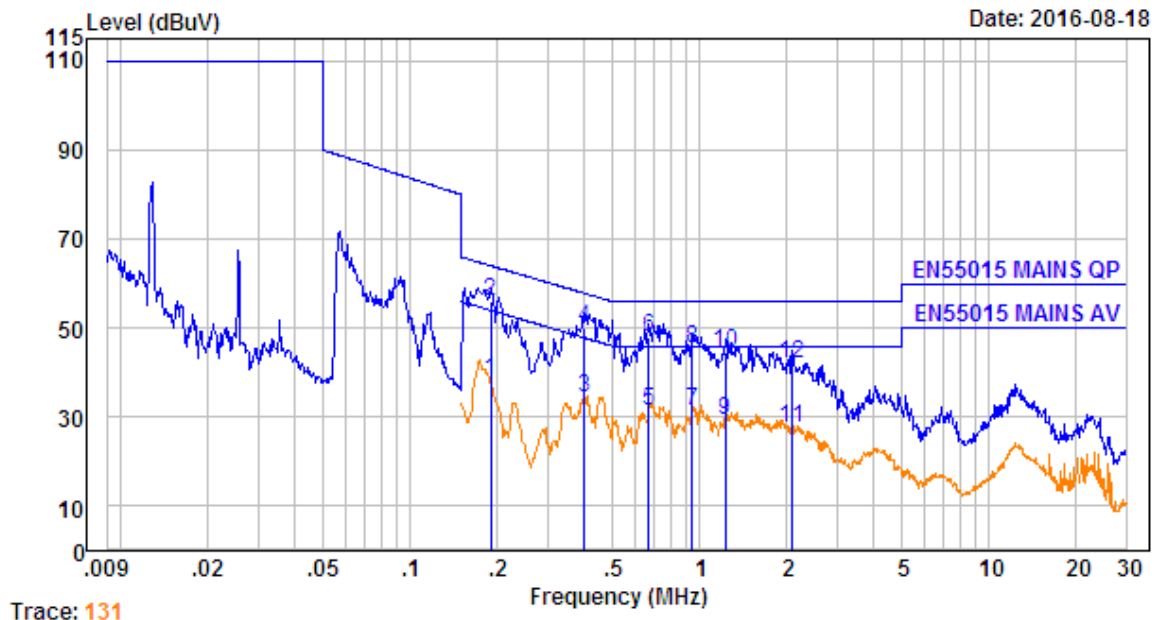
QP = Quasi-Peak

AV = Average



Please refer to the following diagram:

Line:

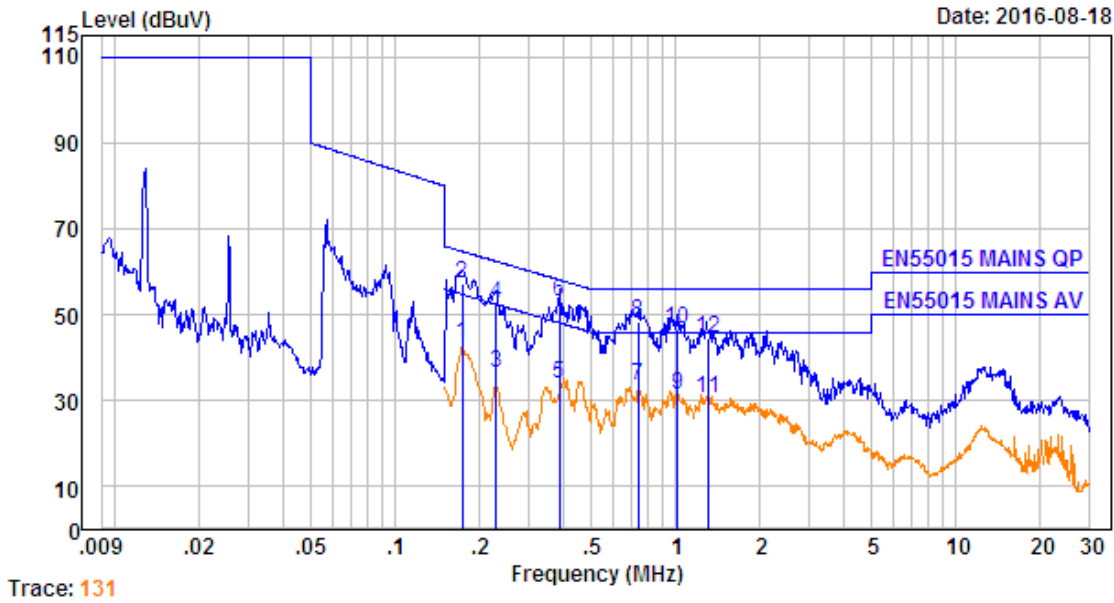


Trace: 131

No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBUV	Emission Level dBUV	Limit dBUV	Over Limit dB	Remark
1.	0.190	10.61	0.60	26.85	38.06	54.02	-15.96	Average
2.	0.190	10.61	0.60	44.89	56.10	64.02	-7.92	QP
3.	0.402	10.64	0.60	23.02	34.26	47.81	-13.55	Average
4.	0.402	10.64	0.60	39.03	50.27	57.81	-7.54	QP
5.	0.668	10.66	0.60	20.23	31.49	46.00	-14.51	Average
6.	0.668	10.66	0.60	36.59	47.85	56.00	-8.15	QP
7.	0.948	10.67	0.60	20.29	31.56	46.00	-14.44	Average
8.	0.948	10.67	0.60	34.32	45.59	56.00	-10.41	QP
9.	1.229	10.68	0.60	18.19	29.47	46.00	-16.53	Average
10.	1.229	10.68	0.60	33.44	44.72	56.00	-11.28	QP
11.	2.077	10.70	0.60	16.11	27.41	46.00	-18.59	Average
12.	2.077	10.70	0.60	30.75	42.05	56.00	-13.95	QP



Neutral:



Trace: 131

No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBuV	Emission Level dBuV	Limit dBuV	Over Limit dB	Remark
1.	0.174	10.60	0.60	32.26	43.46	54.77	-11.31	Average
2.	0.174	10.60	0.60	46.22	57.42	64.77	-7.35	QP
3.	0.230	10.62	0.60	25.34	36.56	52.44	-15.88	Average
4.	0.230	10.62	0.60	41.31	52.53	62.44	-9.91	QP
5.	0.385	10.64	0.60	22.82	34.06	48.17	-14.11	Average
6.	0.385	10.64	0.60	41.79	53.03	58.17	-5.14	QP
7.	0.735	10.66	0.60	22.38	33.64	46.00	-12.36	Average
8.	0.735	10.66	0.60	37.12	48.38	56.00	-7.62	QP
9.	1.016	10.67	0.60	20.32	31.59	46.00	-14.41	Average
10.	1.016	10.67	0.60	35.60	46.87	56.00	-9.13	QP
11.	1.303	10.68	0.60	19.39	30.67	46.00	-15.33	Average
12.	1.303	10.68	0.60	33.43	44.71	56.00	-11.29	QP



## 7.2. RADIATED ELECTROMAGNETIC DISTURBANCE

### 7.2.1. LIMITS

Frequency	Limits for loop diameter dB( $\mu$ A)*		
	2 m	3 m	4 m
9 kHz-70 kHz	88	81	75
70 kHz-150 kHz	88-58**	81-51**	75-45**
150 kHz-3.0 MHz	58-22**	51-22**	45-16**
3.0 MHz-30 MHz	22	15-16***	9-12***

\* At the transition frequency, the lower limit applies.  
 \*\* Decreasing linearly with the logarithm of the frequency.  
 \*\*\* Increasing linearly with the logarithm of the frequency.

### 7.2.2. TEST PROCEDURE

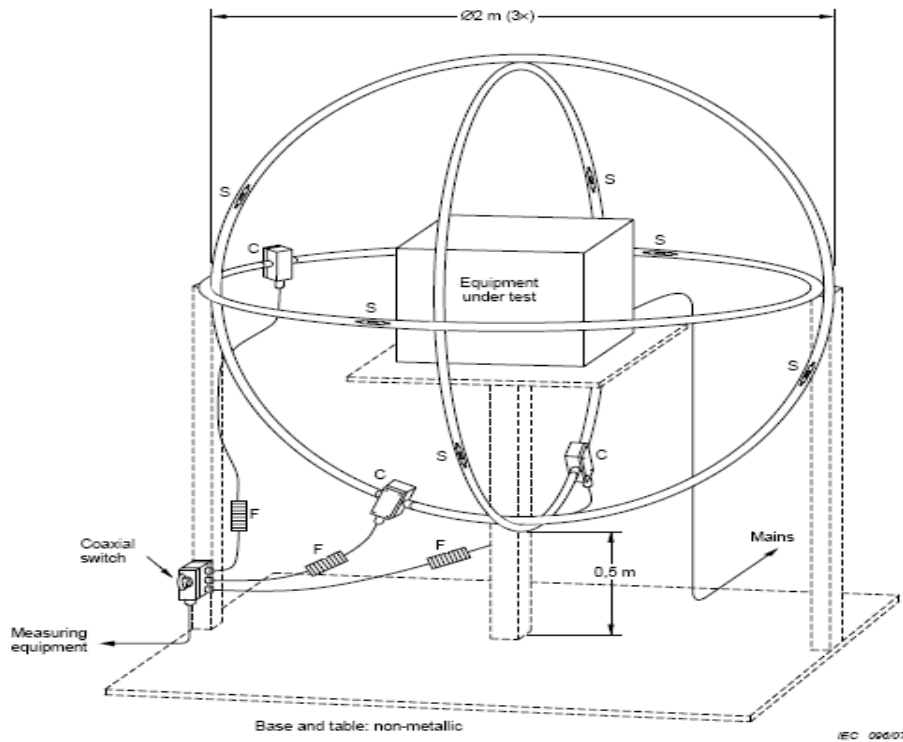
The EUT and support equipment are positioned in the centre of loop antenna system (LAS). The LAS consists of three circular, mutually perpendicular large-loop antennas (LLAs), having a diameter of 2 m, supported by a non-metallic base. A 50  $\Omega$  coaxial cable between the current probe of an LLA and the coaxial switch, and between this switch and the measuring equipment, shall have surface transfer impedance smaller than 10 m $\Omega$ /m at 100 kHz and 1 m $\Omega$ /m at 10 MHz. The distance between the outer diameter of the loop antenna system and nearby objects, such as floor and walls, shall be at least 0.5 m as per CISPR 15/ EN 55015.

The induced current in the loop antenna is measured by means of a current probe (1 V/A) and the CISPR measuring receiver. By means of a coaxial switch, the three field directions (X, Y, Z) can be measured in sequence.

The receiver scanned from 9 kHz to 30 MHz for emissions in each of the test modes, and recorded at least the six highest emissions. Each value shall comply with the requirement given.

The test data of the worst-case condition(s) was recorded.

### 7.2.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.2.4. TEST RESULT

<b>Product name</b>	LED BAY	<b>Antenna Pole</b>	X, Y, Z
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Antenna Diameter</b>	2 m
<b>Test Mode</b>	Lighting	<b>Detector Function</b>	Peak
<b>Environmental Conditions</b>	24.5°C, 54 % RH, 101.5 kPa	<b>6 dB Bandwidth</b>	200 Hz/9 kHz
<b>Tested By</b>	Cen	<b>Test Result</b>	Pass

Note:

Freq. = Emission frequency in MHz

Reading level (dB $\mu$ A) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement (dB $\mu$ A) = Reading level (dB $\mu$ A) + Corr. Factor (dB)

Limit (dB $\mu$ A) = Limit stated in standard

Over Limit (dB) = Measurement (dB $\mu$ A) – Limit (dB $\mu$ A)

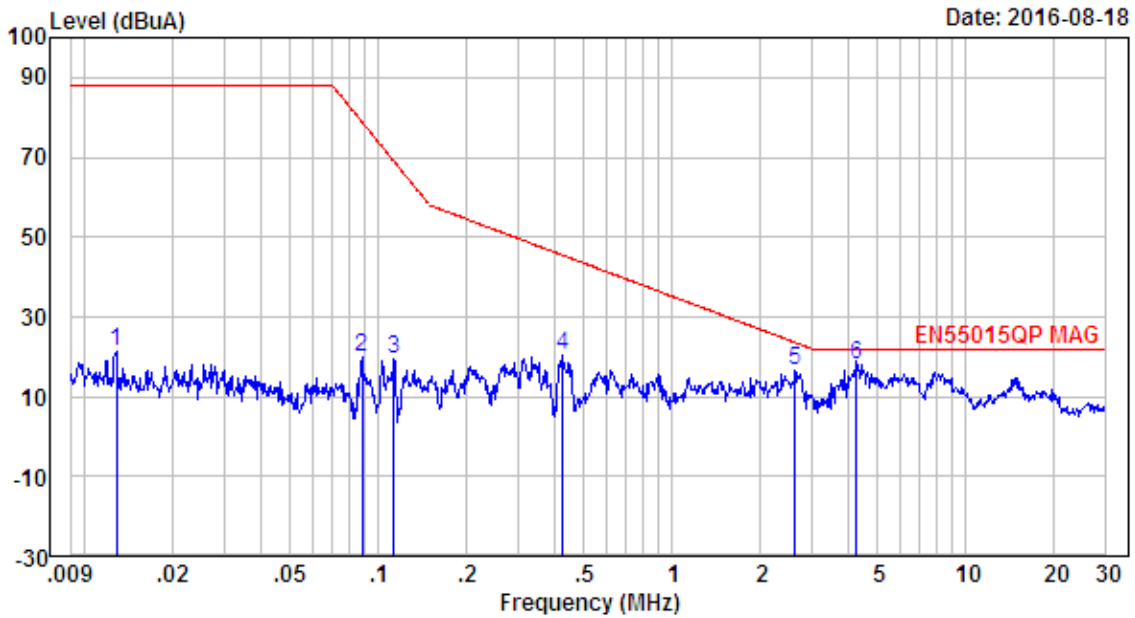
QP = Quasi-Peak





Please refer to the following diagram:

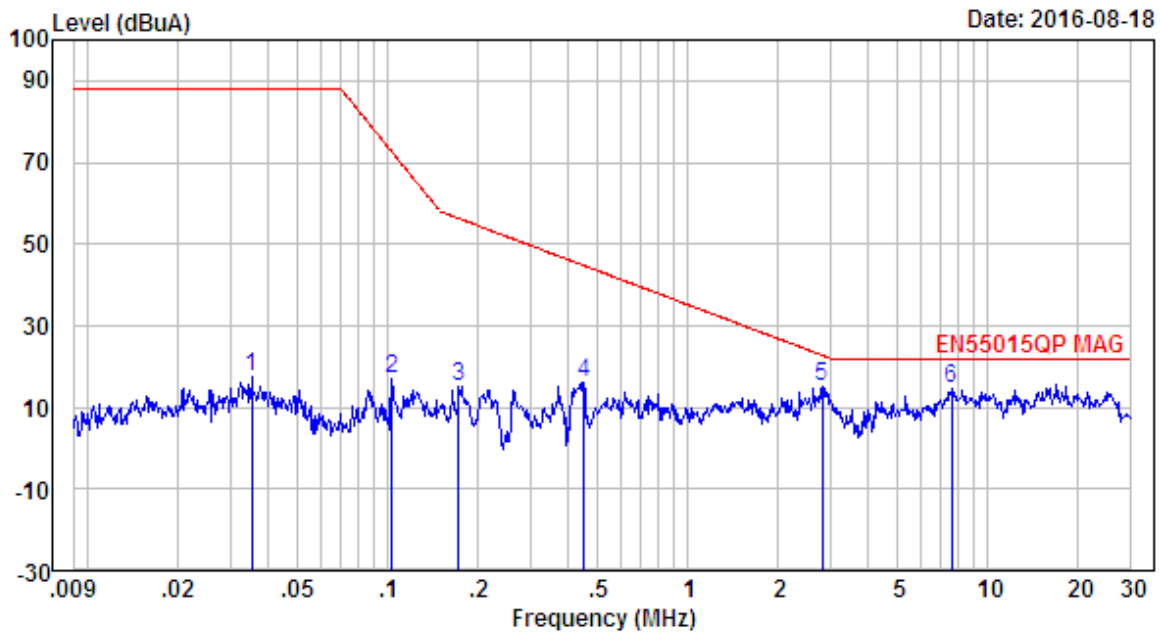
X:



No.	Freq MHz	Cable Loss dB	MAG-ANT Factor dB	Receiver Reading dBuA	Emission Level dBuA	Limit dBuA	Over Limit dB	Remark
1.	0.013	10.78	0.97	9.52	21.27	88.00	-66.73	Peak
2.	0.089	10.64	0.92	8.22	19.78	78.70	-58.92	Peak
3.	0.113	10.62	0.90	7.75	19.27	69.12	-49.85	Peak
4.	0.424	10.64	0.94	8.78	20.36	45.51	-25.15	Peak
5.	2.632	10.71	0.72	5.23	16.66	23.57	-6.91	Peak
6.	4.247	10.73	0.85	6.53	18.11	22.00	-3.89	Peak



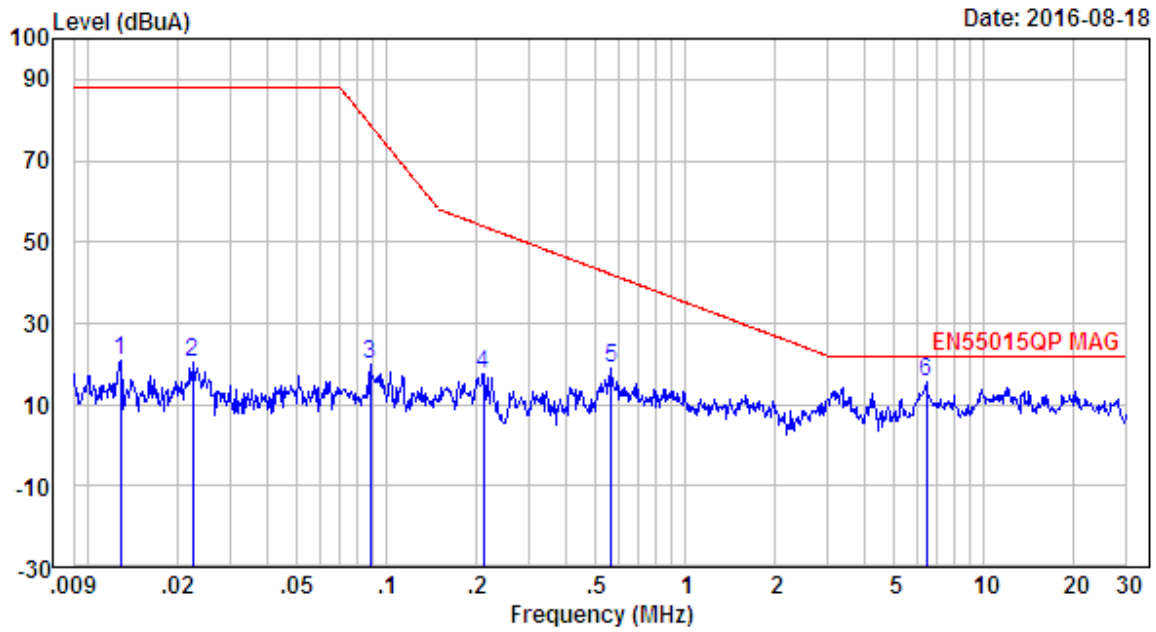
Y:



No.	Freq MHz	Cable Loss dB	MAG-ANT Factor dB	Receiver Reading dBuA	Emission Level dBuA	Limit dBuA	Over Limit dB	Remark
1.	0.035	10.71	0.98	5.90	17.59	88.00	-70.41	Peak
2.	0.103	10.63	0.91	5.57	17.11	72.63	-55.52	Peak
3.	0.172	10.60	0.91	3.48	14.99	56.33	-41.34	Peak
4.	0.453	10.64	0.93	4.44	16.01	44.73	-28.72	Peak
5.	2.808	10.71	0.73	3.43	14.87	22.79	-7.92	Peak
6.	7.555	10.75	1.03	2.83	14.61	22.00	-7.39	Peak



Z:



No.	Freq MHz	Cable Loss dB	MAG-ANT Factor dB	Receiver Reading dBUA	Emission Level dBUA	Limit dBUA	Over Limit dB	Remark
1.	0.013	10.78	0.97	9.29	21.04	88.00	-66.96	Peak
2.	0.023	10.74	0.98	8.81	20.53	88.00	-67.47	Peak
3.	0.089	10.64	0.92	8.31	19.87	78.70	-58.83	Peak
4.	0.211	10.61	0.96	5.75	17.32	53.89	-36.57	Peak
5.	0.568	10.65	0.90	7.16	18.71	42.00	-23.29	Peak
6.	6.424	10.74	0.98	3.69	15.41	22.00	-6.59	Peak



### 7.3. RADIATED EMISSION MEASUREMENT

#### 7.3.1. LIMITS

FREQUENCY (MHz)	Limit (dB $\mu$ V/m) (At 3 m)
30 ~ 230	40
230 ~ 300	47

Note: 1) The lower limit shall apply at the transition frequencies.  
 2) Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m).

#### 7.3.2. TEST PROCEDURE

The equipment was set up as per the test configuration to simulate typical usage per the user’s manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

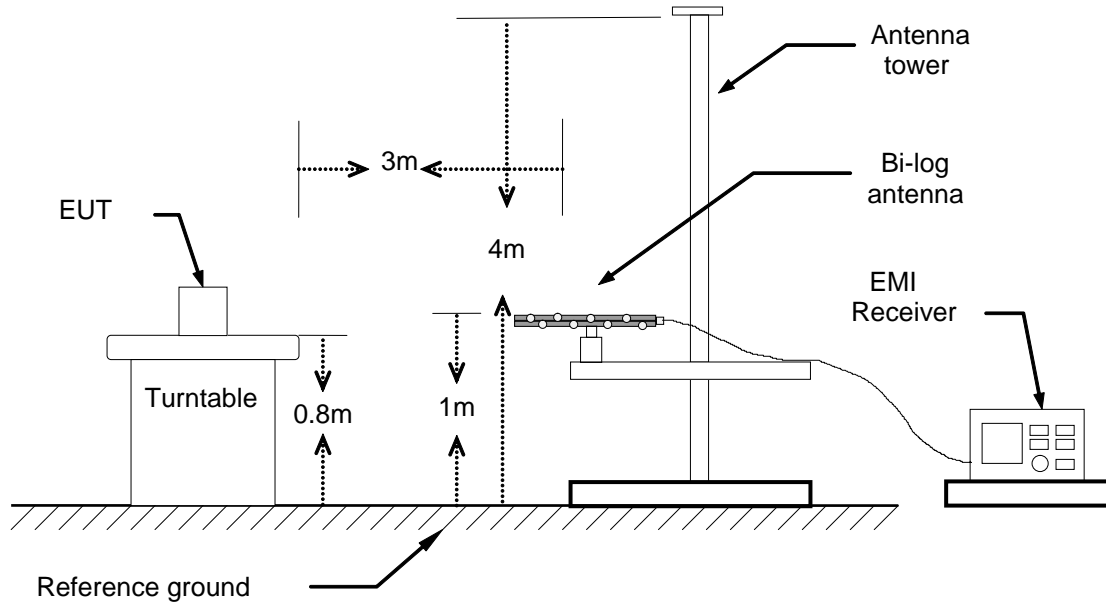
The antenna was placed at 3 meter away from the EUT. The antenna connected to the spectrum analyzer via a cable and at times a pre-amplifier would be used.

The analyzer / receiver quickly scanned from 30 MHz to 300 MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

During the above scans, the emissions were maximized by cable manipulation. Each modes is measured, recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

The test data of the worst-case condition(s) was recorded.

### 7.3.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

### 7.3.4. TEST RESULT

<b>Product name</b>	LED BAY	<b>Antenna Distance</b>	3 m
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Antenna Pole</b>	Vertical / Horizontal
<b>Test Mode</b>	Lighting	<b>Detector Function</b>	Peak / Quasi-peak
<b>Environmental Conditions</b>	24.5°C, 54 % RH, 101.5 kPa	<b>6 dB Bandwidth</b>	120 kHz
<b>Tested by</b>	Cen	<b>Test Result</b>	Pass

Note:

Freq. = Emission frequency in MHz

Reading level (dB $\mu$ V/m) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement (dB $\mu$ V/m) = Reading level (dB $\mu$ V/m) + Corr. Factor (dB)

Limit (dB $\mu$ V/m) = Limit stated in standard

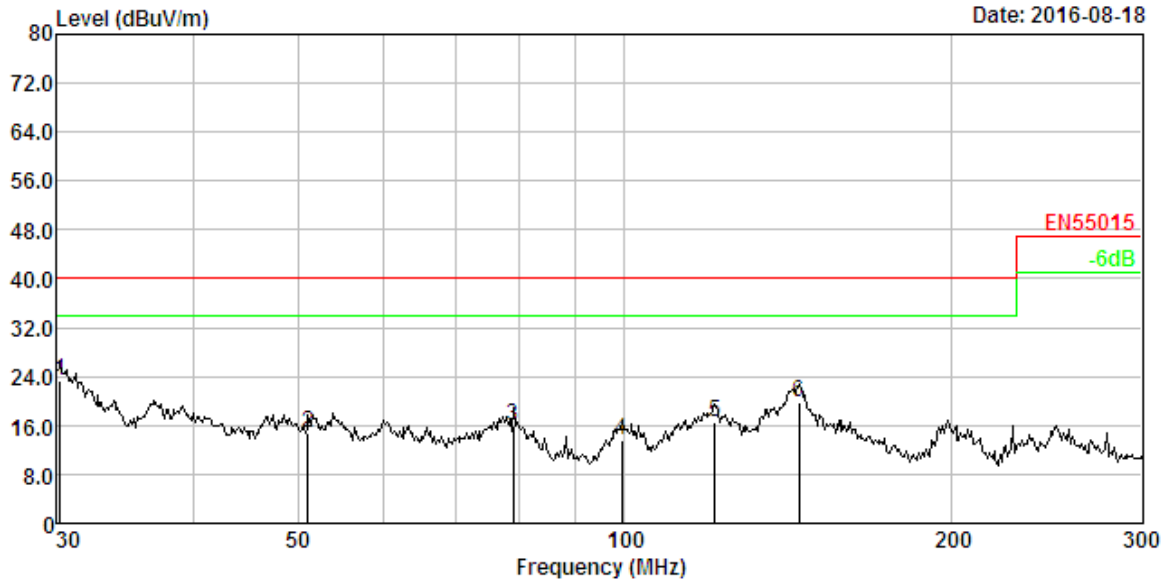
Over Limit (dB) = Measurement (dB $\mu$ V/m) – Limit (dB $\mu$ V/m)

QP = Quasi-Peak



Please refer to the following diagram:

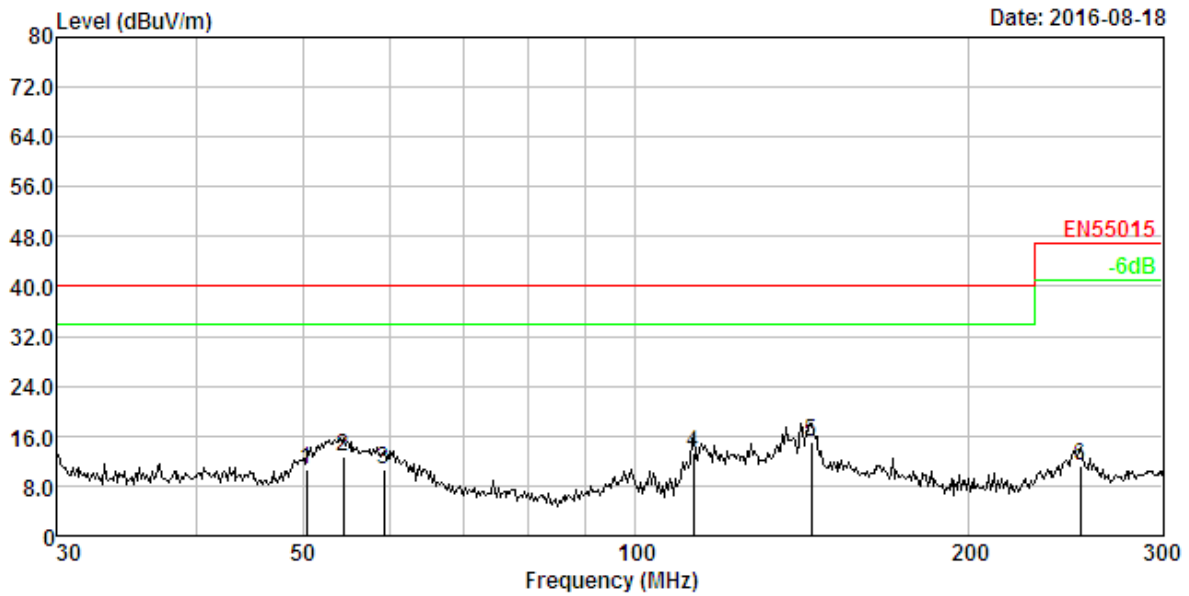
Vertical:



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	30.211	1.06	13.24	39.08	29.97	23.41	40.00	-16.59	QP
2.	51.121	1.54	12.18	31.25	30.16	14.81	40.00	-25.19	QP
3.	78.965	1.93	8.99	35.25	30.31	15.86	40.00	-24.14	QP
4.	99.528	2.14	10.19	31.77	30.39	13.71	40.00	-26.29	QP
5.	121.123	2.32	12.10	32.53	30.46	16.49	40.00	-23.51	QP
6.	144.842	2.48	13.63	34.10	30.52	19.69	40.00	-20.31	QP



Horizontal:



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	50.409	1.52	12.24	27.00	30.15	10.61	40.00	-29.39	QP
2.	54.452	1.59	11.94	29.35	30.18	12.70	40.00	-27.30	QP
3.	59.232	1.67	12.13	26.99	30.21	10.58	40.00	-29.42	QP
4.	112.920	2.26	11.36	29.96	30.43	13.15	40.00	-26.85	QP
5.	144.335	2.48	13.60	29.59	30.52	15.15	40.00	-24.85	QP
6.	252.948	2.99	11.99	26.99	30.71	11.26	47.00	-35.74	QP



## 7.4. HARMONICS CURRENT MEASUREMENT

### 7.4.1. LIMITS OF HARMONICS CURRENT MEASUREMENT

Limit for Class A equipment		Limit for Class D equipment		
Harmonics Order N	Max. permissible harmonics current A	Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd harmonics		Odd Harmonics only		
3	2.30	3	3.4	2.30
5	1.14	5	1.9	1.14
7	0.77	7	1.0	0.77
9	0.40	9	0.5	0.40
11	0.33	11	0.35	0.33
13	0.21	13	0.30	0.21
15	0.15x(15/n)	15	3.85/n	0.15x(15/n)
Even harmonics		(odd harmonics only)		
2	1.08			
4	0.43			
6	0.30			
8	0.23x8/n			

Limit for Class C equipment	
Harmonics Order n	Max. permissible harmonics current expressed as a percentage of the input current at the fundamental frequency A
2	2
3	30xF
5	10
7	7
9	5
11 ≤ n ≤ 39 (odd harmonics only)	3

F is the circuit power factor

Note: Class A, B, C and D are classified according to item 7.4.2. of this report

### 7.4.2. TEST PROCEDURES

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic. The classification of EUT is according to section 5 of EN 61000-3-2.

The EUT is classified as follows:

Class A:

Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.





Class B:

Portable tools; Arc welding equipment which is not professional equipment.

Class C:

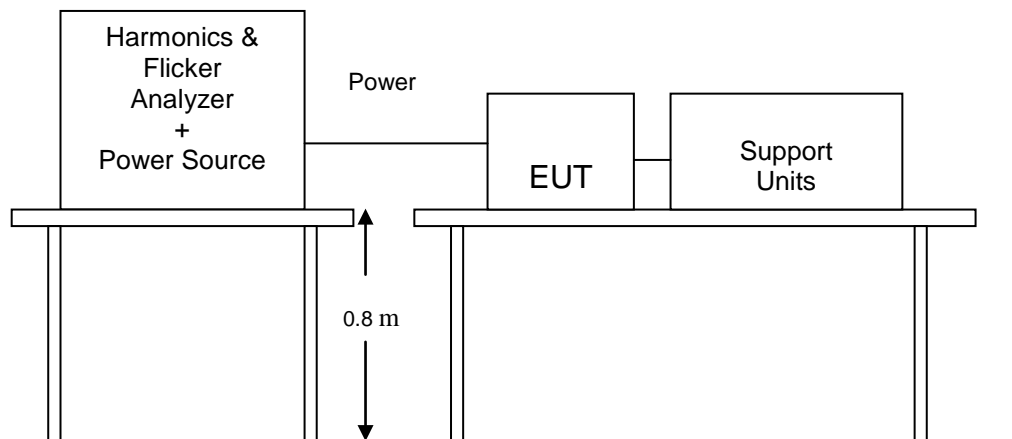
Lighting equipment

Class D:

Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

### 7.4.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.4.4. TEST RESULT

<b>Product</b>	LED BAY	<b>Tested by</b>	Cen
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Limits</b>	Class <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D
<b>Test Mode</b>	Lighting	<b>Observation Period (Tp)</b>	2.5 mins
<b>Environmental Conditions</b>	24.5°C, 54 % RH, 101.5 kPa	<b>Test Result</b>	Pass

Note: 1) Limits classified according to item 7.4.2 of this report.



Please refer to the following test data:

Test duration (min): 2.5      Data file name: H-000636.cts\_data  
 Comment: Lighting  
 Customer: Baidishi  
 Test Result: Pass      Source qualification: Normal  
 THC(A): 0.182      I-THD(%): 22.1      POHC(A): 0.000      POHC Limit(A): 0.077

Highest parameter values during test:  
 V\_RMS (Volts): 230.03      Frequency(Hz): 50.00  
 I\_Peak (Amps): 1.855      I\_RMS (Amps): 1.327  
 I\_Fund (Amps): 1.310      Crest Factor: 1.409  
 Power (Watts): 290.6      Power Factor: 0.952

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.026	N/A	0.001	0.039	N/A	Pass
3	0.186	0.374	49.7	0.188	0.561	33.4	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.060	0.131	45.7	0.060	0.197	30.7	Pass
6	0.000	0.000	N/A	0.001	0.000	N/A	Pass
7	0.025	0.092	27.6	0.026	0.138	18.6	Pass
8	0.000	0.000	N/A	0.001	0.000	N/A	Pass
9	0.024	0.066	36.8	0.024	0.098	24.6	Pass
10	0.000	0.000	N/A	0.001	0.000	N/A	Pass
11	0.027	0.039	69.6	0.027	0.059	46.6	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.019	0.039	49.4	0.020	0.059	33.1	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.017	0.039	44.5	0.018	0.059	29.9	Pass
16	0.000	0.000	N/A	0.001	0.000	N/A	Pass
17	0.015	0.039	38.8	0.015	0.059	26.0	Pass
18	0.000	0.000	N/A	0.000	0.000	N/A	Pass
19	0.011	0.039	27.6	0.011	0.059	18.7	Pass
20	0.000	0.000	N/A	0.001	0.000	N/A	Pass
21	0.012	0.039	30.8	0.012	0.059	20.7	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.009	0.039	23.2	0.009	0.059	15.8	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.009	0.039	23.8	0.010	0.059	16.2	Pass
26	0.000	0.000	N/A	0.000	0.000	N/A	Pass
27	0.013	0.039	33.1	0.013	0.059	22.4	Pass
28	0.000	0.000	N/A	0.001	0.000	N/A	Pass
29	0.011	0.039	28.9	0.012	0.059	19.7	Pass
30	0.001	0.000	N/A	0.001	0.000	N/A	Pass
31	0.014	0.039	36.4	0.015	0.059	24.7	Pass
32	0.000	0.000	N/A	0.001	0.000	N/A	Pass
33	0.009	0.039	23.9	0.010	0.059	16.4	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.009	0.039	21.7	0.009	0.059	14.8	Pass
36	0.000	0.000	N/A	0.001	0.000	N/A	Pass
37	0.003	0.039	N/A	0.003	0.059	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.001	0.039	N/A	0.002	0.059	N/A	Pass
40	0.001	0.000	N/A	0.001	0.000	N/A	Pass

## 7.5. VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

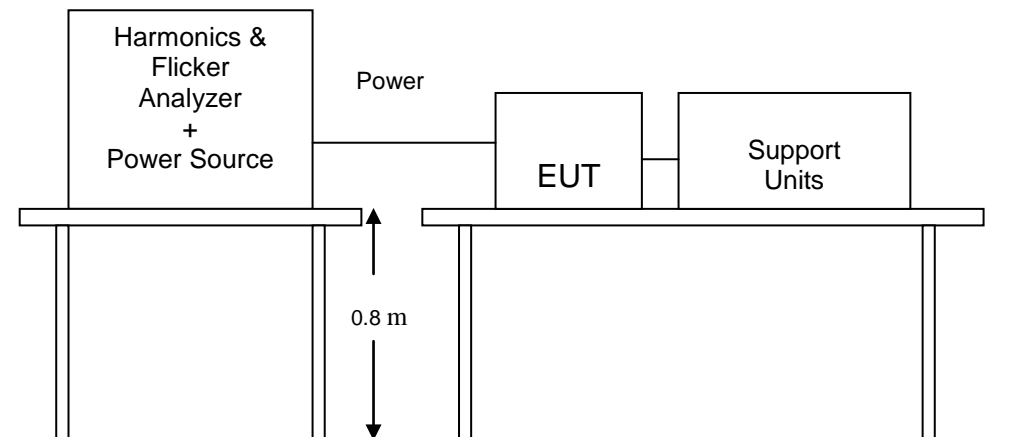
### 7.5.1. LIMITS OF VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

TEST ITEM	LIMIT	REMARK
$P_{st}$	1.0	$P_{st}$ means short-term flicker indicator.
$P_{lt}$	0.65	$P_{lt}$ means long-term flicker indicator.
$T_{dt}$ (ms)	500	$T_{dt}$ means maximum time that dt exceeds 3 %.
$d_{max}$ (%)	4/6/7 %	$d_{max}$ means maximum relative voltage change.
dc (%)	3.3 %	dc means relative steady-state voltage change

### 7.5.2. TEST PROCEDURE

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under lighting operating conditions. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

### 7.5.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.5.4. TEST RESULT

<b>Product</b>	LED BAY	<b>Tested by</b>	Cen
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Observation Period (Tp)</b>	10 mins
<b>Test Mode</b>	Lighting	<b>Test Result</b>	Pass
<b>Environmental Conditions</b>	24.5°C, 54 % RH, 101.5 kPa		



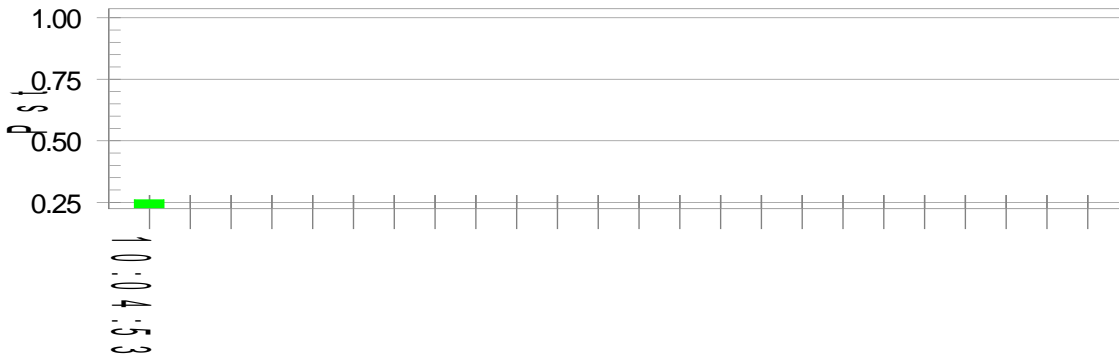
Please refer to the following test data:

Test duration (min): 10 Data file name: F-000225.cts\_data  
Comment: Lighting  
Customer: Baidishi

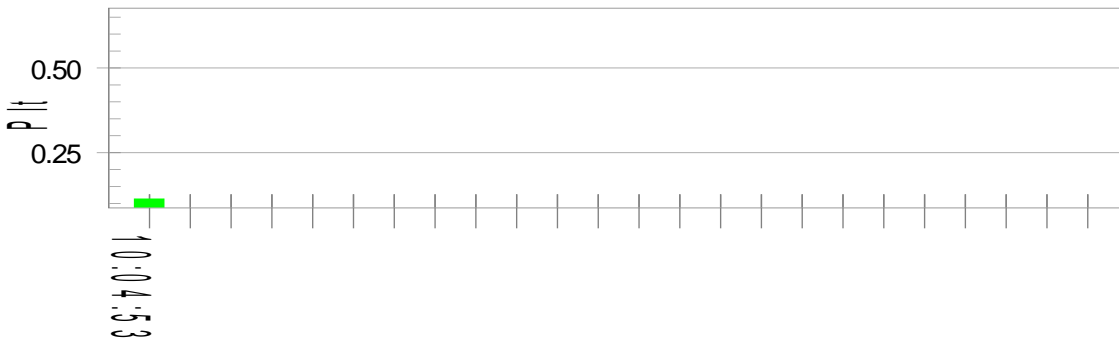
Test Result: Pass Status: Test Completed

Pst<sub>i</sub> and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.86			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	-0.04	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.268	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.109	Test limit:	0.650	Pass



## 8. IMMUNITY TEST

### 8.1. GENERAL DESCRIPTION

Product Standard	EN 61547	
	Test Type	Minimum Requirement
<b>Basic Standard, Specification, and Performance Criterion required</b>	EN 61000-4-2	Electrostatic Discharge – ESD: ±8 kV air discharge, ±4 kV Contact discharge, Performance Criterion B
	EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80 ~1000 MHz, 3 V/m, 80 % AM(1 kHz), Performance Criterion A
	EN 61000-4-4	Electrical Fast Transient/Burst - EFT, Power line: ±1 kV, Signal line: ±0.5 kV, Performance Criterion B
	EN 61000-4-5	Surge Immunity Test: 1.2/50 μs Open Circuit Voltage, 8 /20 μs Short Circuit Current, Power Port ~ Line to line: ±0.5 kV, Line to ground: ±1 kV ( to self-ballasted lamps and semi-luminaires; luminaires and independent auxiliaries which are less than or equal to 25 W) Power Port ~ Line to line: ±1 kV, Line to ground: ±2 kV (to luminaires and independent auxiliaries which are more than 25 W) Signal Port : ±0.5 kV Performance Criterion B
	EN 61000-4-6	Conducted Radio Frequency Disturbances Test –CS: 0.15 ~ 80 MHz, 3 Vrms, 80 % AM, 1 kHz, Performance Criterion A
	EN 61000-4-11	Voltage Dips and Interruptions: i) 30 % reduction for 10 period, Performance Criterion C ii) 100 % reduction for 0.5 period Performance Criterion B



## 8.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION

<b>Criteria A:</b>	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.
<b>Criteria B:</b>	<p>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.</p> <p>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.</p>
<b>Criteria C:</b>	<p>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.</p> <p>Additional requirement for Lighting equipment incorporating a starting device:</p> <p>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.</p>



## 8.3. ELECTROSTATIC DISCHARGE (ESD)

### 8.3.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-2
<b>Discharge Impedance:</b>	330 $\Omega$
<b>Charging Capacity:</b>	150 pF
<b>Discharge Voltage:</b>	Air Discharge: $\pm 8$ kV (Direct) Contact Discharge: $\pm 4$ kV (Direct/Indirect)
<b>Polarity:</b>	Positive & Negative
<b>Number of Discharge:</b>	10 times at each test point
<b>Discharge Mode:</b>	1 time/s
<b>Performance Criterion:</b>	B

### 8.3.2. TEST PROCEDURE

The discharges shall be applied in two ways:

- a) Contact discharges to the conductive surfaces and coupling planes:  
Twenty dischargers (10 with positive and 10 with negative polarity) shall be applied on each accessible metallic part of the enclosure, terminals are excluded. In case of a non-conductive enclosure, dischargers shall be applied on the horizontal or vertical coupling planes. Test shall be performed at a maximum repetition rate of one discharge per second.
- b) Air discharges at slots and apertures and insulating surfaces:  
On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

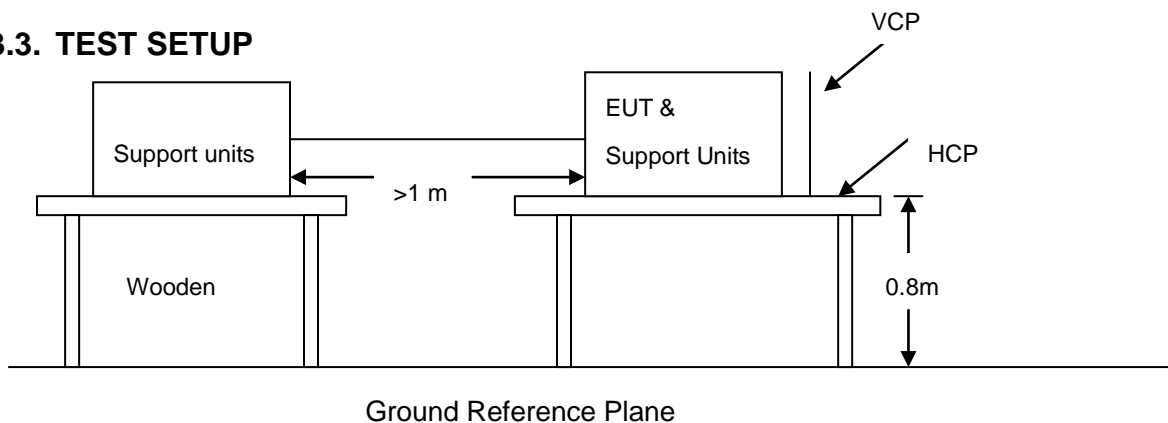
- a) The EUT was located 0.1 m minimum from all side of the HCP (dimensions 1.6 m x 0.8 m).
- b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10cm with EUT.
- c) The time interval between two successive single discharges was at least 1 second.
- d) Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- e) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were



f) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each HCP opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the HCP and perpendicular to its front edge during the discharge.

g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane (VCP) in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5 m x 0.5 m) was placed vertically to and 0.1 meters from the EUT.

### 8.3.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Note:

#### 1) TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the ground reference plane (GRP). The GRP consisted of a sheet of aluminum at least 0.25 mm thick, and 2.5 meters square connected to the protective grounding system. A horizontal coupling plane (HCP) (1.6 m x 0.8 m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5 mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

#### 2) FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the ground reference plane by an insulating support of 0.1 meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25 mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.





**8.3.4. TEST RESULT**

<b>Product</b>	LED BAY	<b>Environmental Conditions</b>	24.5 °C, 54 % RH, 101.5 kPa
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Tested By</b>	Cen
<b>Test mode</b>	Lighting	<b>Test Result</b>	Pass

Air Discharge					
Test Points	Test Levels	Results			
	± 8 kV	Pass	Fail	Observation	Performance Criterion
Slot 8 Points	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
LED 3 Point	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B

Contact Discharge					
Test Points	Test Levels	Results			
	± 4 kV	Pass	Fail	Observation	Performance Criterion
HCP 4 Points	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
VCP 4 Points	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B

- Note: 1) There was no change compared with initial operation during the test.  
 2) During the test the luminous intensity change, and after the test the luminous intensity can be restored to its initial value within 1 min.  
 3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.



## 8.4. RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)

### 8.4.1. TEST SPECIFICATION

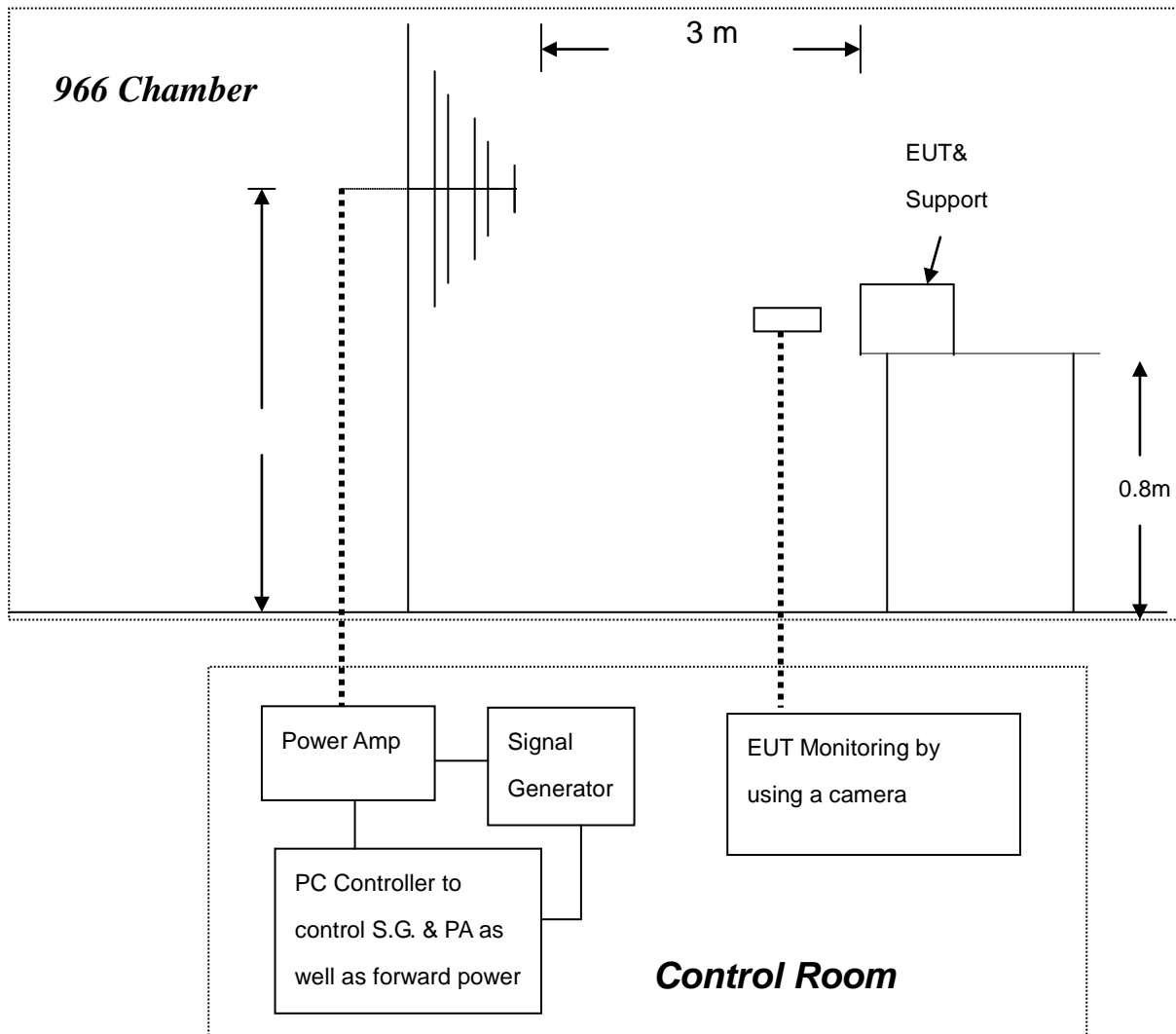
<b>Basic Standard:</b>	EN 61000-4-3
<b>Frequency Range:</b>	80 MHz ~ 1000 MHz
<b>Field Strength:</b>	3 V/m
<b>Modulation:</b>	1 kHz Sine Wave, 80 %, AM Modulation
<b>Frequency Step:</b>	1 % of preceding frequency value
<b>Polarity of Antenna:</b>	Horizontal and Vertical
<b>Test Distance:</b>	3 m
<b>Antenna Height:</b>	1.5 m
<b>Performance Criterion:</b>	A

### 8.4.2. TEST PROCEDURE

The test procedure was in accordance with EN 61000-4-3

- a) The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- b) The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1 kHz sine-wave. The rate of sweep did not exceed  $1.5 \times 10^{-3}$  decade/s, where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value.
- c) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d) The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

### 8.4.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Note:

#### TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

#### FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.



8.4.4. TEST RESULT

<b>Product</b>	LED BAY	<b>Environmental Conditions</b>	24.5 °C, 54 % RH, 101.5 kPa
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Tested By</b>	Cen
<b>Test mode</b>	Lighting	<b>Test Result</b>	Pass

Frequency (MHz)	Polarity	Position	Field Strength (V/m)	Observation	Performance Criterion
80 ~ 1000	V&H	Front	3	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	A
80 ~ 1000	V&H	Rear	3	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	A
80 ~ 1000	V&H	Left	3	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	A
80 ~ 1000	V&H	Right	3	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	A

- Note: 1) There was no change compared with initial operation during the test.  
 2) During the test the luminous intensity change ,and after the test the luminous intensity can be restored to its initial value within 1 min.  
 3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.



## 8.5. ELECTRICAL FAST TRANSIENT (EFT)

### 8.5.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-4
<b>Test Voltage:</b>	Power Line: $\pm 1$ kV Signal/Control Line: $\pm 0.5$ kV
<b>Polarity:</b>	Positive & Negative
<b>Impulse Frequency:</b>	5 kHz
<b>Impulse Wave-shape:</b>	5/50 ns
<b>Burst Duration:</b>	15 ms
<b>Burst Period:</b>	300 ms
<b>Test Duration:</b>	2 mins
<b>Performance Criterion:</b>	B

### 8.5.2. TEST PROCEDURE

EUT is placed on a 0.1 m tall wooden table.

EUT operate at normal mode, the transient/burst was 5/50 ns in accordance with EN 61000-4-4, both positive and negative polarity burst waveform were applied.

The duration time of each test line was 2 minutes.

### 8.5.3. TEST SETUP

The EUT installed in a representative system as described in section 7 of EN 61000-4-4.

For the actual test configuration, please refer to the related item – photographs of the test configuration.



**8.5.4. TEST RESULT**

<b>Product</b>	LED BAY	<b>Environmental Conditions</b>	24.5 °C, 54 % RH, 101.5 kPa
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Tested By</b>	Cen
<b>Test mode</b>	Lighting	<b>Test Result</b>	Pass

Test Point	Polarity	Test Level (kV)	Observation	Performance Criterion
L	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
N	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
L – N	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
PE	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
L – PE	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
N – PE	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
L – N – PE	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
Signal/Control cable	+/-	0.5	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	N/A

- Note: 1) There was no change compared with initial operation during the test.  
 2) During the test the luminous intensity change ,and after the test the luminous intensity can be restored to its initial value within 1 min.  
 3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.



## 8.6. SURGE IMMUNITY TEST

### 8.6.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-5
<b>Wave-Shape:</b>	Combination Wave 1.2/50 $\mu$ s Open Circuit Voltage 8/20 $\mu$ s Short Circuit Current Power Port ~ Line to line: $\pm 0.5$ kV, Line to ground: $\pm 1$ kV ( to self-ballasted lamps and semi-luminaries; luminaires and independent auxiliaries which are less than 25 W)
<b>Test Voltage:</b>	Power Port ~ Line to line: $\pm 1$ kV, Line to ground: $\pm 2$ kV (to luminaires and independent auxiliaries which are more than 25 W)
<b>Surge Input/Output:</b>	Power Line: L-N / L-PE / N-PE
<b>Generator Source Impedance:</b>	2 $\Omega$ between networks 12 $\Omega$ between network and ground
<b>Polarity:</b>	Positive/Negative
<b>Phase Angle:</b>	90°(positive polarity pulses) / 270°(negative polarity pulses)
<b>Pulse Repetition Rate:</b>	1 time / min.
<b>Number of Tests:</b>	5 positive polarity pulses at the 90° phase angle, and 5 negative polarity pulses at 270° phase angle
<b>Performance Criterion:</b>	B

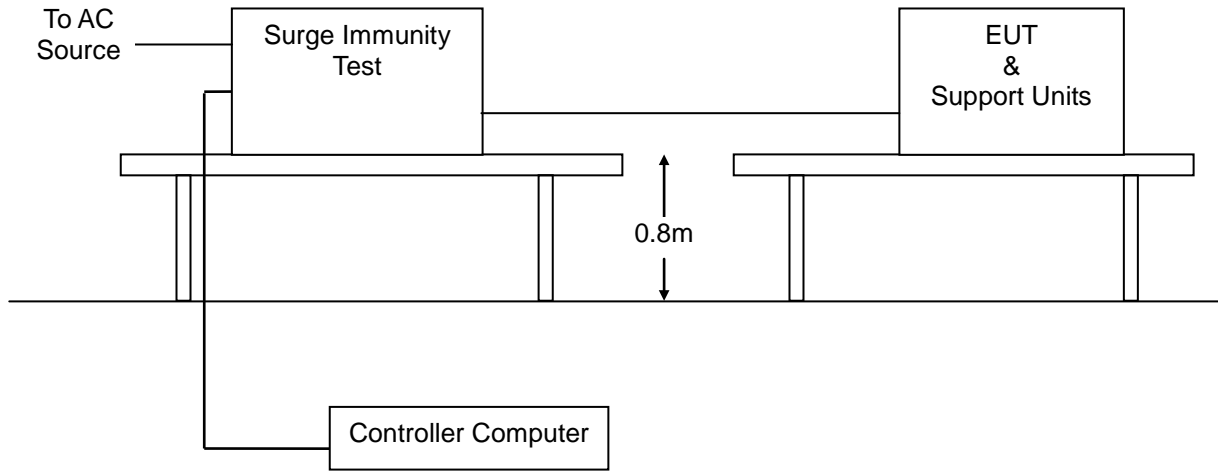
### 8.6.2. TEST PROCEDURE

EUT is placed on a 0.1 m (table type equipment) / 0.8 m (floor type equipment) tall wooden table.

EUT operate at normal mode, two types of combination wave generator (1.2/50 us open-circuit voltage and 8/20 us short-circuit current) are applied to the EUT power supply terminals via the capacitive coupling network.

The power cord between the EUT and the coupling/decoupling network shall not exceed 2 m in length.

### 8.6.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 8.6.4. TEST RESULT

<b>Product</b>	LED BAY	<b>Environmental Conditions</b>	24.5 °C, 54 % RH, 101.5 kPa
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Tested By</b>	Cen
<b>Test mode</b>	Lighting	<b>Test Result</b>	Pass

Test Point	Polarity	Test Level (kV)	Observation	Performance Criterion
L - N	+/-	0.5	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
L - PE	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
N - PE	+/-	1	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B

Note: 1) There was no change compared with initial operation during the test.

2) During the test the luminous intensity change ,and after the test the luminous intensity can be restored to its initial value within 1 min.

3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.



## 8.7. CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

### 8.7.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-6
<b>Frequency Range:</b>	0.15 MHz ~80 MHz
<b>Field Strength:</b>	3 V
<b>Modulation:</b>	1 kHz Sine Wave, 80 %, AM Modulation
<b>Frequency Step:</b>	1 % of preceding frequency value
<b>Coupled cable:</b>	Power Mains, Shielded
<b>Coupling device:</b>	CDN-M3/2 (3 wires/2 wires)
<b>Performance Criterion:</b>	A

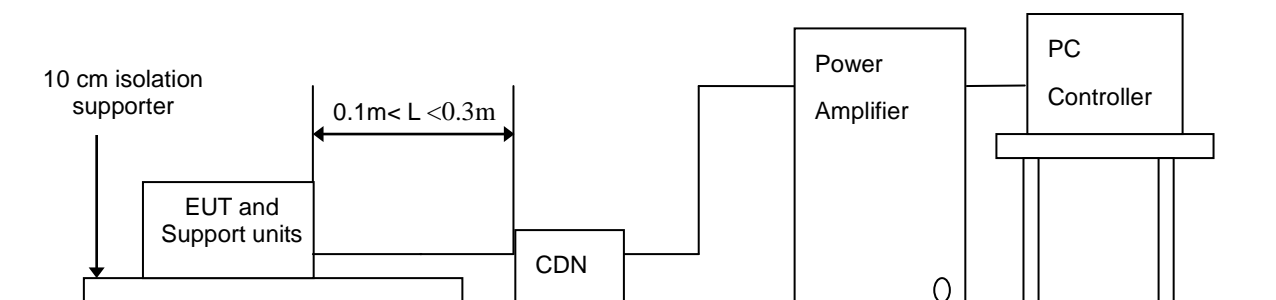
### 8.7.2. TEST PROCEDURE

The EUT shall be tested within its intended operating and climatic conditions.

The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50 Ω load resistor.

The frequency range was swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal was modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate was  $1.5 \times 10^{-3}$  decades/s. Where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value the dwell time of the amplitude modulated carrier at each frequency was 0.5 s.

### 8.7.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

Note: 1) The EUT is setup 0.1 m above Ground Reference Plane

2) All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.



8.7.4. TEST RESULT

<b>Product</b>	LED BAY	<b>Environmental Conditions</b>	24.5 °C, 54 % RH, 101.5 kPa
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Tested By</b>	Cen
<b>Test mode</b>	Lighting	<b>Test Result</b>	Pass

Frequency (MHz)	Field Strength (Vrms)	Injected Position	Injection Method	Observation	Performance Criterion
0.15 ~ 80	3	AC Mains	CDN-M2/M3	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	A

- Note: 1) There was no change compared with initial operation during the test.  
 2) During the test the luminous intensity change ,and after the test the luminous intensity can be restored to its initial value within 1 min.  
 3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.

## 8.8. VOLTAGE DIP & VOLTAGE INTERRUPTIONS

### 8.8.1. TEST SPECIFICATION

<b>Basic Standard:</b>	EN 61000-4-11
<b>Test Duration Time:</b>	3 test events in sequence
<b>Interval Between Event:</b>	10 seconds
<b>Phase Angle:</b>	0°
<b>Test Cycle:</b>	3 times
<b>Performance Criterion:</b>	0% $U_T$ / 0.5 P, Criterion: B 70% $U_T$ / 10 P, Criterion: C

### 8.8.2. TEST PROCEDURE

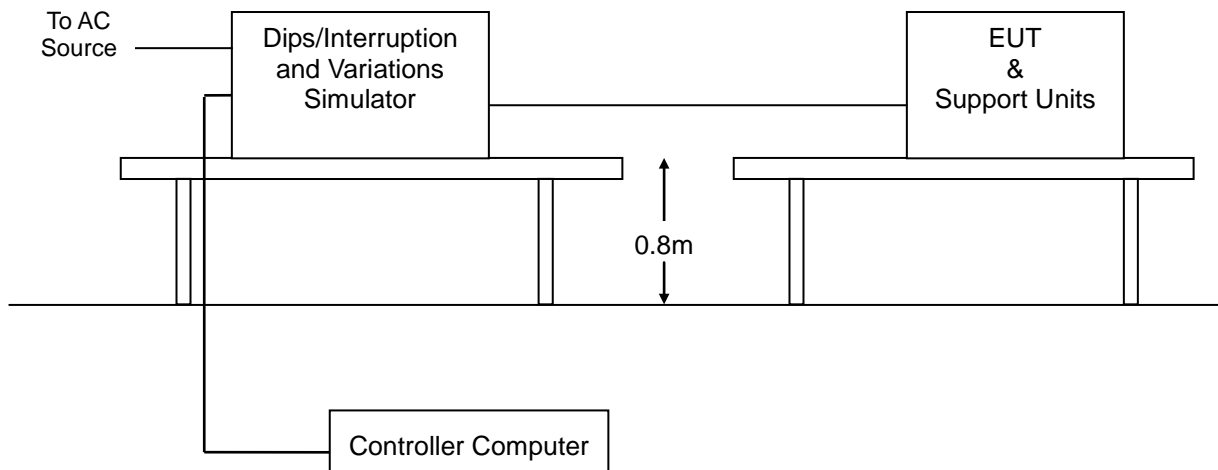
The EUT and support units were located on a wooden table, 0.8 m away from ground floor.

Setting the parameter of tests and then perform the test software of test simulator.

Changes to the voltage level shall occur at 0 degree crossing point in the a.c. voltage waveform.

Record the test result in test record form.

### 8.8.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



8.8.4. TEST RESULT

<b>Product</b>	LED BAY	<b>Environmental Conditions</b>	24.5 °C, 54 % RH, 101.5 kPa
<b>Model No.</b>	B0801-XX-300-ZZZ	<b>Tested By</b>	Cen
<b>Test mode</b>	Lighting	<b>Test Result</b>	Pass

Test Power: 230 Vac, 50 Hz			
Voltage (% Reduction)	Duration (Period)	Observation	Performance Criterion
100	0.5	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	B
30	10	Note <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	C

- Note: 1) There was no change compared with initial operation during the test.  
 2) During the test the luminous intensity change ,and after the test the luminous intensity can be restored to its initial value within 1 min.  
 3) During the test, the luminous intensity change, and after the test the luminous intensity can return to normal within 30 min.

## 9. PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST

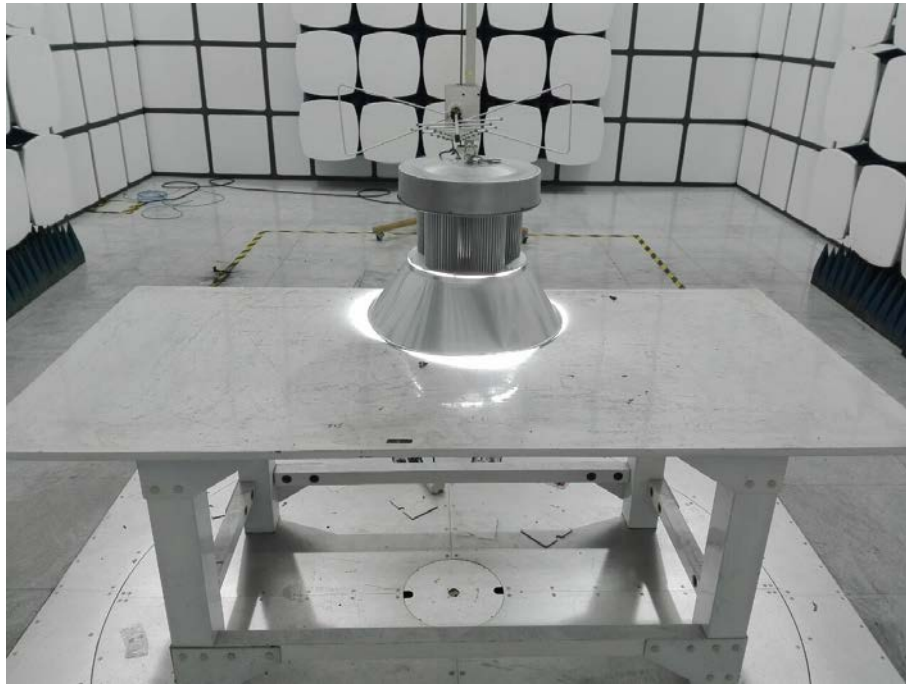


### RADIATED ELECTROMAGNETIC EMISSION TEST





### RADIATED EMISSION TEST



### HARMONICS & FLICKER TEST





### ESD TEST



### RS TEST





### EFT TEST



### SURGE TEST



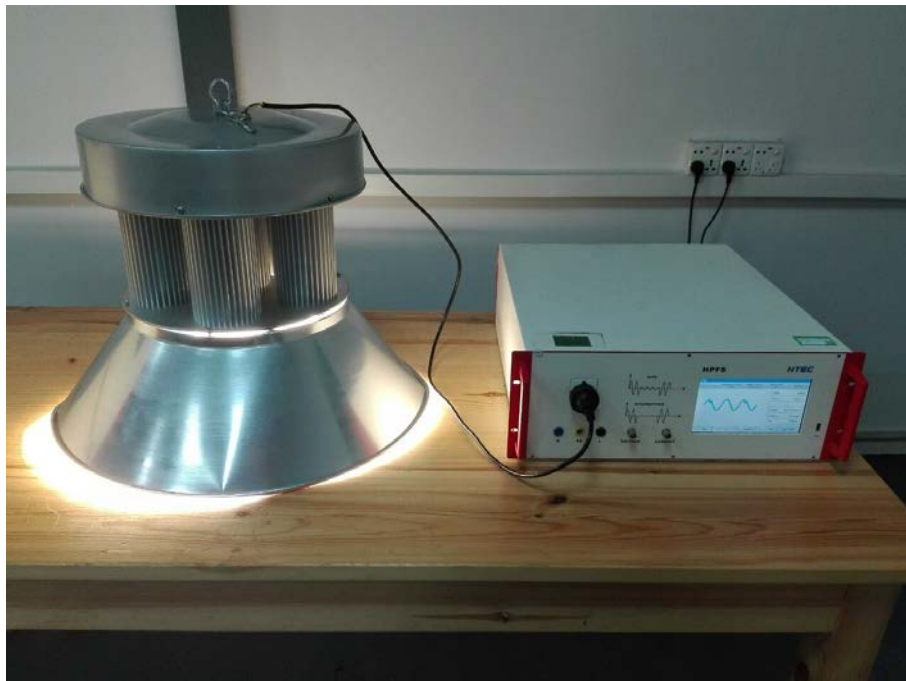




### CS TEST



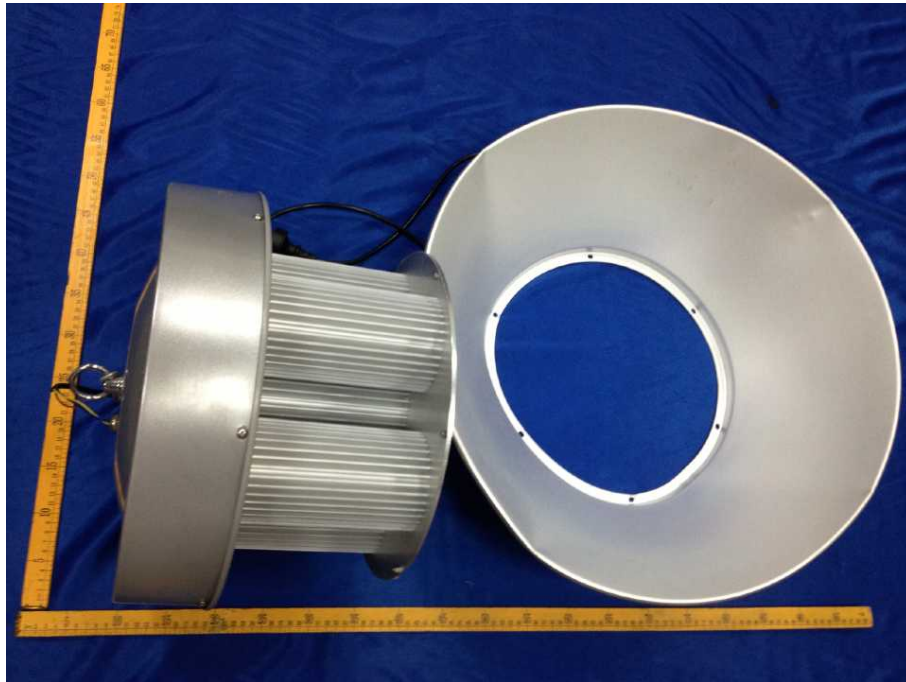
### DIPS TEST





## 10. PHOTOGRAPHS OF EUT







— End of report —