

EMC TEST REPORT

For

SHENZHEN YOUWIN OPTRONICS CO., LTD

LED High Bay Light

Model No.: YWHBFN-300W

Additional Models : Please Refer To Page 8

Prepared for : SHENZHEN YOUWIN OPTRONICS CO., LTD
Address : Room 319 Chuangke Building, Huanguan South Road
No. 72-1, Guanlan, Shenzhen, Guangdong, China

Prepared by : Ningbo LCS Standard Technology Service Co., Ltd.
Address : Room 101-106, 202-206, Building 037, No. 166, Jinghua
Road, Meixu Street, Ningbo High-tech Zone, Yinzhou
District, Ningbo City, Zhejiang Province, China

Tel : (0574) 8790 8011
Fax : (0574) 8790 6976
Web : www.LCS-cert.com
Mail : webmaster@LCS-cert.com

Date of receipt of test : September. 14, 2021
sample
Number of tested samples : 1
Serial number : Prototype
Date of Test : September. 14, 2021 ~ September. 16, 2021
Date of Report : September. 16, 2021

EMC TEST REPORT**EN IEC 55015:2019+A11:2020**

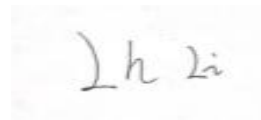
Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

EN 61547: 2009

Equipment for general lighting purposes - EMC immunity requirements

Report Reference No. : LCS210106028EE**Date Of Issue..... : September. 16, 2021****Testing Laboratory Name.... : Ningbo LCS Standard Technology Service Co., Ltd.****Address..... : Room 101-106, 202-206, Building 037, No. 166, Jinghua Road, Meixu Street, Ningbo High-tech Zone, Yinzhou District, Ningbo City, Zhejiang Province, China****Testing Location/ Procedure.. : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □****Applicant's Name..... : SHENZHEN YOUWIN OPTRONICS CO., LTD****Address..... : Room 319 Chuangke Building, Huanguan South Road No. 72-1, Guanlan, Shenzhen, Guangdong, China****Test Specification:****Standard..... : EN IEC 55015:2019+A11:2020
EN 61547: 2009****EN IEC 61000-3-2:2019****EN 61000-3-3: 2013 +A1:2019****Test Report Form No..... : LCSEMC-1.0****TRF Originator..... : Ningbo LCS Standard Technology Service Co., Ltd.****Master TRF..... : Dated 2019-03****NINGBO LCS STANDARD TECHNOLOGY SERVICE CO., LTD. All rights reserved.**

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Test Item Description..... : LED High Bay Light**Trade Mark..... : YOUWIN****Model/ Type Reference..... : YWHBFN-300W****Test Voltage..... : Input: AC 100-277V, Max: 300W;****Result : PASS****Compiled by:****Supervised by:****Approved by:**

Feng Liang/File administrators

Joker Wang/Technique principal

Lh Li/ Manager

EMC -- TEST REPORT**Test Report No. : LCS210106028EE**September. 16, 2021

Date of issue

Type/Model..... : YWHBFN-300W

EUT..... : LED High Bay Light

Applicant..... : SHENZHEN YOUWIN OPTRONICS CO., LTDAddress..... : Room 319 Chuangke Building, Huanguan South Road
No. 72-1, Guanlan, Shenzhen, Guangdong, China

Telephone..... : /

Fax..... : /

Manufacturer..... : FOSHAN YOUWIN LIGHTING CO., LTDAddress..... : Block 4, Area D, Bright City, Nanhai District Foshan,
Guangdong, China.

Telephone..... : /

Fax..... : /

Factory1..... : SHENZHEN YOUWIN OPTRONICS CO., LTD**Factory2..... : FOSHAN YOUWIN LIGHTING CO., LTD**Address1..... : Room 319 Chuangke Building, Huanguan South Road
No. 72-1, Guanlan, Shenzhen, Guangdong, ChinaAddress2..... : Block 4, Area D, Bright City, Nanhai District Foshan,
Guangdong, China.

Telephone..... : /

Fax..... : /

Test Result : PASS

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of examination of the product sample submitted by the appliance. A general statement concerning the quality of the products from the series manufacturer cannot be derived therefore.

Revision History

Revision	Issue Date	Revisions	Revised By
000	September. 16, 2021	Initial Issue	Lh Li

TABLE OF CONTENTS

Test Report Description	Page
1. SUMMARY OF STANDARDS AND RESULTS.....	6
1.1.Description of Standards and Results.....	6
1.2.Description of Performance Criteria.....	7
2. GENERAL INFORMATION.....	7
2.1. Description of Device (EUT).....	8
2.2. Test Modes.....	8
2.3. Statement of the Measurement Uncertainty.....	9
2.4. Measurement Uncertainty.....	9
3. MEASURING DEVICES AND TEST EQUIPMENT.....	11
4. TEST RESULTS.....	13
4.1 POWER LINE CONDUCTED MEASUREMENT.....	13
4.2 MAGNETIC FIELD EMISSION MEASUREMENT.....	17
4.3 RADIATED EMISSION MEASUREMENT.....	22
4.4. HARMONIC CURRENT MEASUREMENT.....	26
4.5. VOLTAGE FLUCTUATIONS & FLICKER MEASUREMENT.....	29
4.6. Electrostatic Discharge TEST.....	30
4.7. RF Field Strength susceptibility Test.....	33
4.8. Electrical Fast Transient/Burst Test.....	36
4.9 SURGE Immunity Test.....	39
4.10. Injected currents susceptibility test.....	42
4.11. Voltage dips and interruptions test.....	45
5. PHOTOGRAPH.....	48
6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT.....	51

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION (EN IEC 55015:2019+A11:2020)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN IEC 55015:2019+A11:2020	-----	PASS
Magnetic field emission	EN IEC 55015:2019+A11:2020	-----	PASS
Radiated disturbance	EN IEC 55015:2019+A11:2020	-----	PASS
Harmonic current emissions	EN IEC 61000-3-2:2019	Class C	PASS
Voltage fluctuations & flicker	EN 61000-3-3: 2013+A1:2019	-----	PASS
IMMUNITY (EN 61547: 2009)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-6: 2014	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	PASS
Surge (Input a.c. power ports)	EN 61000-4-5: 2014+A1: 2017	C	PASS
Power frequency magnetic field	EN 61000-4-8: 2010	A	N/A
Voltage dips, 30% reduction	EN 61000-4-11: 2004+A1: 2017	C	PASS
Voltage interruptions		B	PASS
N/A is an abbreviation for Not Applicable.			

1.2. Description of Performance Criteria

The performance of lighting equipment shall be assessed by monitoring:

- the luminous intensity of the luminaire or of the lamp(s).
- the functioning of the control in the case of equipment which includes a regulating control or concerns the regulating control itself.
- the functioning of the starting device, if any.

Performance criterion A:

During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

Performance criterion B:

During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

Performance criterion C:

During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control. Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour, it is switched on again. The lighting equipment shall start and operate as intended.



2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: LED High Bay Light
Trade Mark	: YOUWIN
Test Model	: YWHBFN-300W
	YWHBFN-100W, YWHBFN-150W, YWHBFN-200W, YWHBFN-240W, YWHBFM-100W, YWHBFM-150W, YWHBFM-200W, YWHBFM-240W, YWHBGL-100W, YWHBGL-150W, YWHBGL-200W, YWHBGL-240W,
Additional Models	: YWHBGL-300W, YWHBIB-100W, YWHBIB-150W, YWHBIB-200W, YWHBIB-240W, YWHBIB-300W, YWHBHF-100W, YWHBHF-150W, YWHBHF-200W, YWHBKB-100W, YWHBKB-150W, YWHBKB-200W, YWHBKB-240W, YWHBHB-100W, YWHBHB-150W, YWHBHB-200W, YWHBHB-240W, 4300001
Power Supply	: Input: AC 100-277V, Max: 300W;

2.2. Test Modes

Lighting	: EUT was test with power on, to get the status 'Lighting' <input checked="" type="checkbox"/>
Charging	: EUT was test with power on and keep charging, to get the status 'Charging' <input type="checkbox"/>
Discharging	: EUT was test with keep discharging, to get the status 'Discharging' <input type="checkbox"/>
Full Load	: EUT was test with max power, to get the status 'Full load' <input type="checkbox"/>
Half Load	: EUT was test with half power, to get the status 'Half load' <input type="checkbox"/>

2.3 Description of Test Facility

EMC Lab. : CNAS No.: L13445
CMA No.: 191121112621

Test Facilities : Ningbo LCS Standard Technology Service Co., Ltd.
Room 101-106, 202-206, Building 037, No. 166, Jinghua Road, Meixu Street, Ningbo High-tech Zone, Yinzhou District, Ningbo City, Zhejiang Province, China

RF Field Strength : Shenzhen LCS Compliance Testing Laboratory Ltd.
Susceptibility 101, 201 Building A and 301 Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, Guangdong, China.

2.4. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.5. Measurement Uncertainty

Test Item	Parameters	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{cispr})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 3.8 dB ± 3.4 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.60 dB	± 4.5 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	± 3.3 dB
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	N/A
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	± 5.3 dB

Mains Harmonic	Voltage	$\pm 0.510\%$	$\pm 5.2 \text{ dB}$
Voltage Fluctuations & Flicker	Voltage	$\pm 0.510\%$	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1. Conducted Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Software	AUDIX	E3	/	N/A
2	EMI Test Receiver	R&S	ESR 3	102519	2021-05-31
3	Artificial Mains	R&S	ENV216	102318	2021-05-31

3.2. Radiated Electromagnetic Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Large Loop Antenna	DAZE	ZN304401	17029	2021-05-31
2	EMI Test Receiver	R&S	ESR 3	102519	2021-05-31
3	EMI Test Software	AUDIX	E3	/	N/A

3.3. Radiated Disturbance (Electric Field)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Software	AUDIX	E3	/	N/A
2	3m Semi Anechoic Chamber	MAORUI	9m*6m*6	160218849	2021-05-31
3	By-log Antenna	SCHWARZBECK	VULB9168	9168-988	2021-05-31
4	Horn Antenna	SCHWARZBECK	BBHA9120 D	9120D-2049	2021-05-31
5	EMI Test Receiver	R&S	ESRP	101372	2021-05-31
6	AMPLIFIER	SCHWARZBECK	BBV9745	136	2021-05-31
7	RF Cable	Hubber Suhner	CBL-RE	/	2021-05-31
8	AMPLIFIER	SCHWARZBECK	BBV9718C	21	2021-05-31

3.4. Harmonic Current

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Harmonic current and voltage scintillation measurement system	Li	AC2000A	311355	2021-05-31

3.5. Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	SCHLODER	SESD216	102318	2021-05-27

3.6. Electrical Fast Transient/Burst

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity Simulative Generator	HTEC	HCOMPACT7 /HV1P16T	190308/190402	2021-05-31

3.7. Surge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity Simulative Generator	HTEC	HCOMPACT7 /HV1P16T	190308/190402	2021-05-31

3.8. Conducted Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Simulator	FRANKONIA	CIT-10/75	A126A1195	2021-05-31
2	CDN	FRANKONIA	CDN-M2+M3	A2210177	2021-05-31
3	6dB Attenuator	FRANKONIA	DAM25W	1172040	2021-05-31

3.9. Voltage Dips

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity Simulative Generator	HTEC	HCOMPACT7 /HV1P16T	190308/190402	2021-05-31

3.10. Voltage Short Interruptions

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity Simulative Generator	HTEC	HCOMPACT7 /HV1P16T	190308/190402	2021-05-31

3.11. RF Field Strength Susceptibility

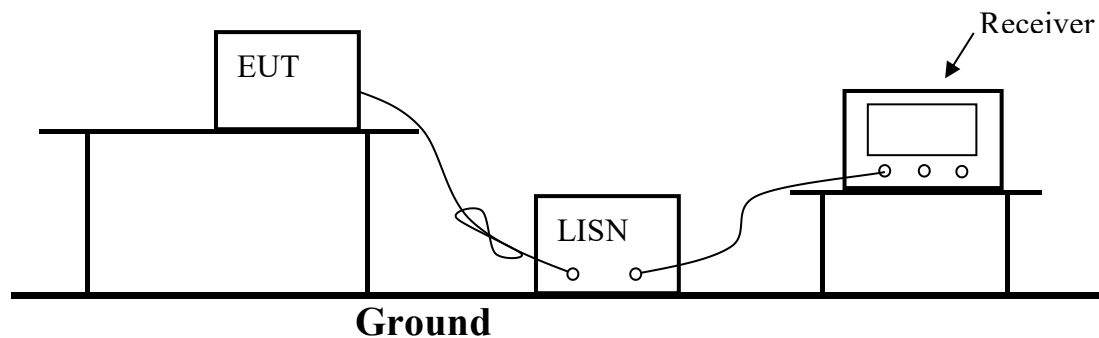
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	RS Test Software	Tonscend	/	/	N/A
2	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2020-11-14
3	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2020-06-11
4	RF POWER AMPLIFIER	OPHIR	5225R	1052	2020-11-21
5	RF POWER AMPLIFIER	OPHIR	5273F	1019	2020-11-21
6	Stacked Broadband Log Periodic Antenna	SCHWARZBEC K	STLP 9128	9128ES-145	2020-11-21
7	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBEC K	STLP 9149	9149-484	2020-11-21
8	RS Test Software	Tonscend	/	/	2021-03-24

Note: NCR means no calibration requiremen

4. TEST RESULTS

4.1 POWER LINE CONDUCTED MEASUREMENT

4.1.1 Block Diagram of Test Setup



4.1.2. Conducted Power Line Emission Measurement Standard and Limits

4.1.2.1. Standard:

EN IEC 55015:2019+A11:2020

4.1.2.2. 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 ~ 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.

4.1.3. EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.1.4. Operating Condition of EUT

- 4.1.4.1. Setup the EUT as shown in Section 4.1.1.
- 4.1.4.2. Turn on the power of all equipments.
- 4.1.4.3. Let the EUT work in test mode (Lighting) and measure it.

4.1.5. 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 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 4.1.6.

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

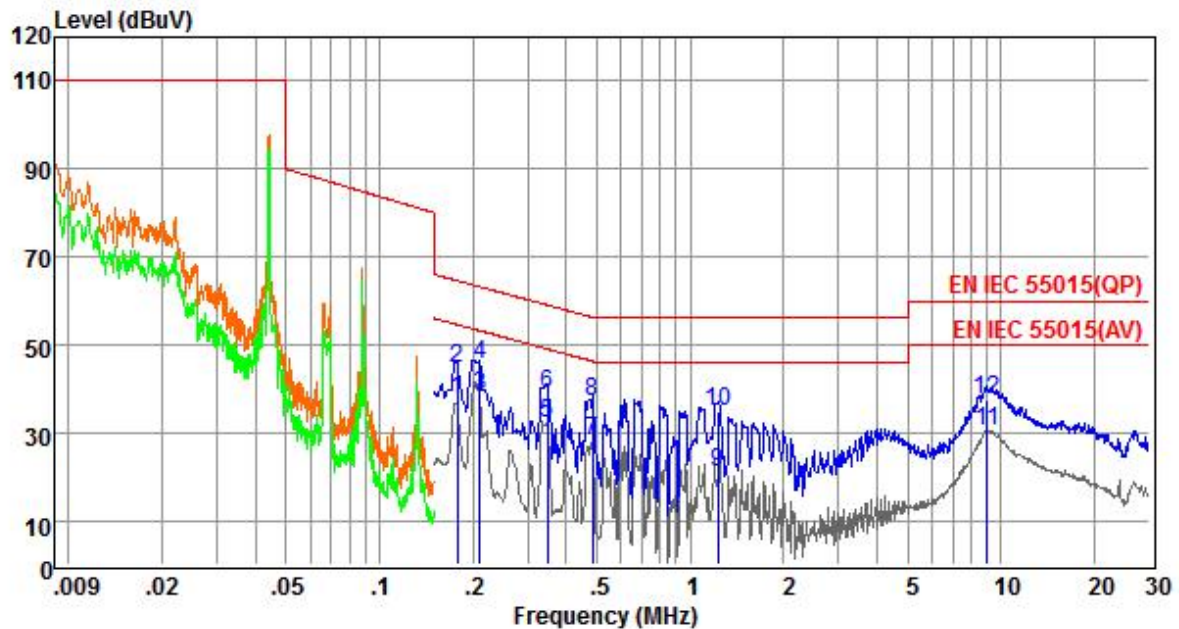
4.1.6. Test Results

PASS.

The test result please refer to the next page.

Environmental Conditions:	24.2℃, 55% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	Line

Detailed results are shown below



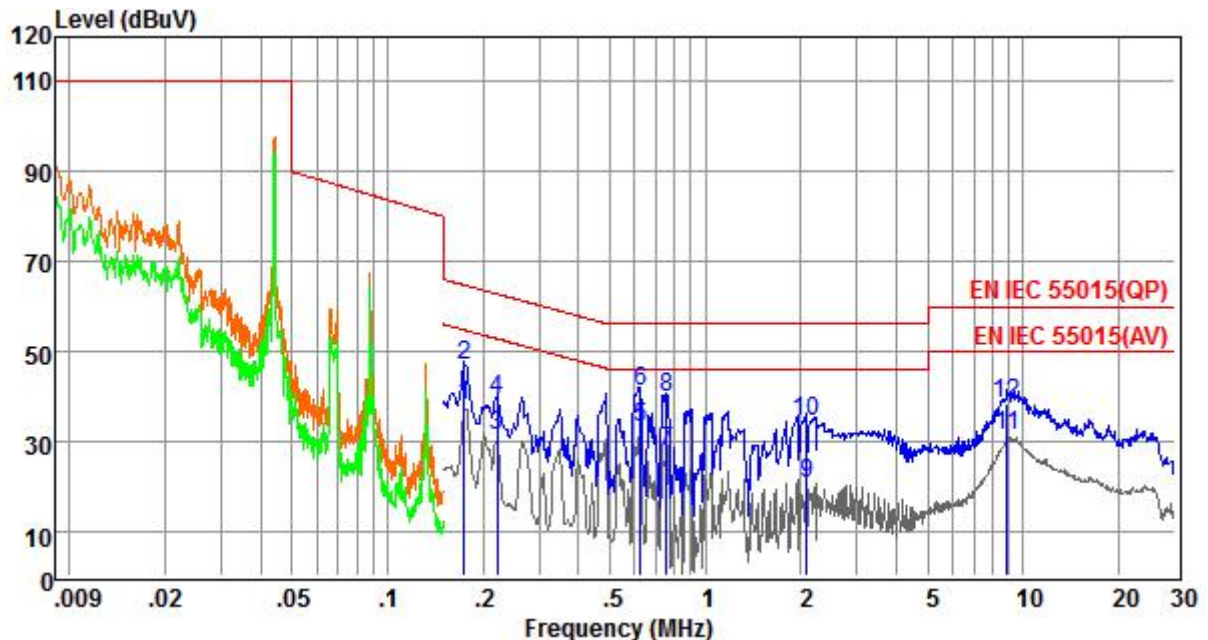
Pol: LINE

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.18	27.78	9.59	0.12	37.49	54.59	-17.10	Average
2	0.18	34.78	9.59	0.12	44.49	64.59	-20.10	QP
3	0.21	28.61	9.58	0.13	38.32	53.18	-14.86	Average
4	0.21	35.61	9.58	0.13	45.32	63.18	-17.86	QP
5	0.35	22.31	9.58	0.11	32.00	49.05	-17.05	Average
6	0.35	29.31	9.58	0.11	39.00	59.05	-20.05	QP
7	0.49	18.35	9.58	0.10	28.03	46.23	-18.20	Average
8	0.49	27.35	9.58	0.10	37.03	56.23	-19.20	QP
9	1.23	11.23	9.59	0.12	20.94	46.00	-25.06	Average
10	1.23	25.23	9.59	0.12	34.94	56.00	-21.06	QP
11	9.06	20.66	9.72	0.12	30.50	50.00	-19.50	Average
12	9.06	27.66	9.72	0.12	37.50	60.00	-22.50	QP

Remarks: 1. Measured = Reading + Lisn Factor + Cable Loss.
2. The emission levels that are 20dB below the official limit are not reported.

Environmental Conditions:	24.2°C, 55% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	Neutral

Detailed results are shown below



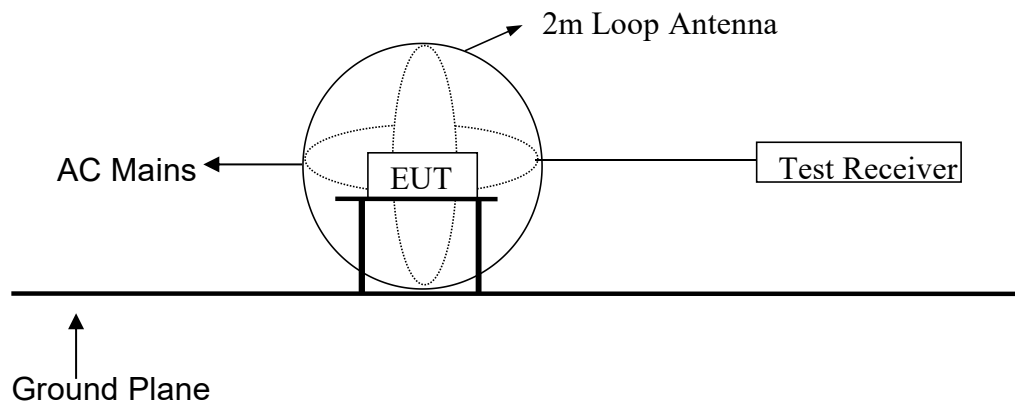
Pol: NEUTRAL

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.17	28.13	9.59	0.12	37.84	54.77	-16.93	Average
2	0.17	37.13	9.59	0.12	46.84	64.77	-17.93	QP
3	0.22	21.66	9.58	0.13	31.37	52.74	-21.37	Average
4	0.22	29.66	9.58	0.13	39.37	62.74	-23.37	QP
5	0.63	23.45	9.58	0.11	33.14	46.00	-12.86	Average
6	0.63	31.45	9.58	0.11	41.14	56.00	-14.86	QP
7	0.75	17.98	9.58	0.11	27.67	46.00	-18.33	Average
8	0.75	29.98	9.58	0.11	39.67	56.00	-16.33	QP
9	2.09	10.58	9.59	0.13	20.30	46.00	-25.70	Average
10	2.09	24.58	9.59	0.13	34.30	56.00	-21.70	QP
11	8.92	21.48	9.71	0.12	31.31	50.00	-18.69	Average
12	8.92	28.48	9.71	0.12	38.31	60.00	-21.69	QP

Remarks: 1. Measured = Reading + Lisn Factor + Cable Loss.
 2. The emission levels that are 20dB below the official limit are not reported.

4.2 MAGNETIC FIELD EMISSION MEASUREMENT

4.2.1. Block Diagram of Test Setup



4.2.2. Magnetic Field Emission Measurement Standard and Limits

4.2.2.1. Test Standard

EN IEC 55015:2019+A11:2020

4.2.2.2. Test Limits

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

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

4.2.3. EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.2.4. Operating Condition of EUT

Same as conducted measurement which is listed in Section 4.1.4, except the test set up replaced by Section 4.2.1.

4.2.5. 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 is set at 200Hz. For frequency band 150kHz to 30MHz, the bandwidth is set at 9kHz.

All the test results are listed in Section 4.2.6.

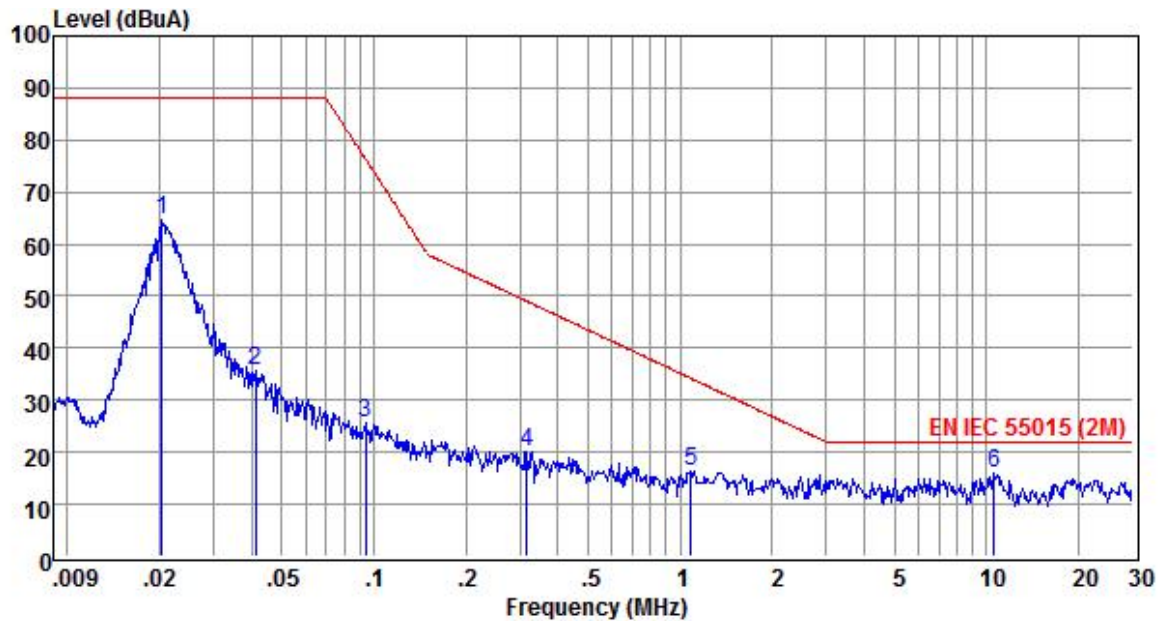
4.2.6. Test Results

PASS.

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

Environmental Conditions:	24.2°C, 55% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	X

Detailed results are shown below



Pol:

X

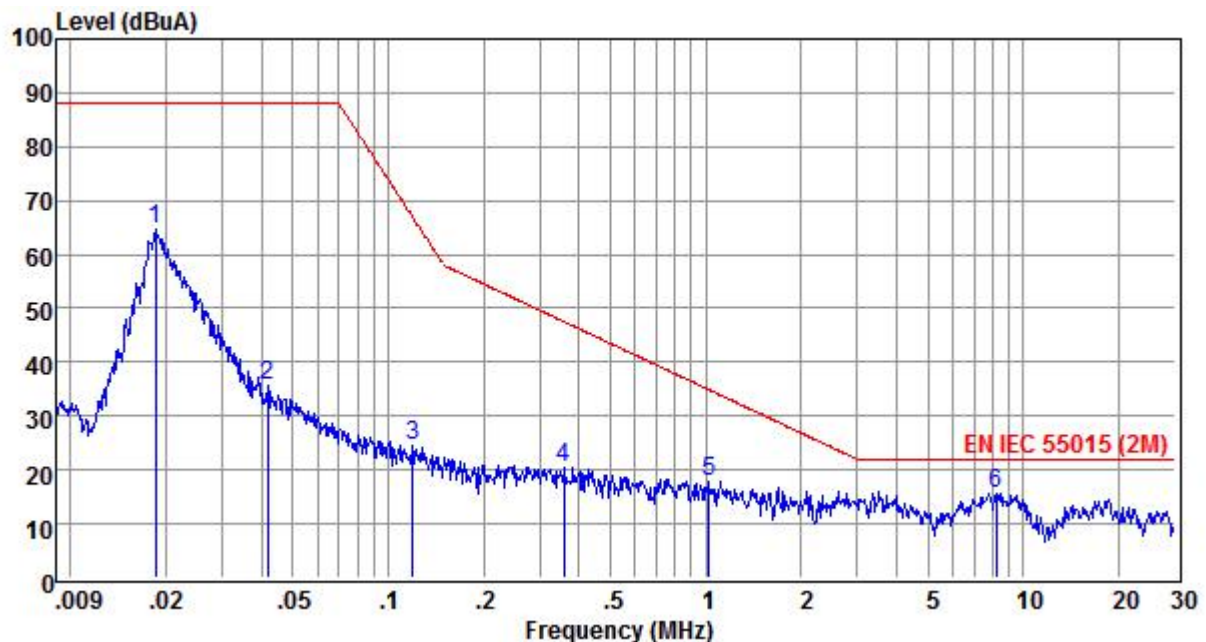
	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.02	64.71	0.00	0.00	64.71	88.00	-23.29	QP
2	0.04	35.60	0.00	0.00	35.60	88.00	-52.40	QP
3	0.09	25.65	0.00	0.00	25.65	76.47	-50.82	QP
4	0.32	20.22	0.00	0.00	20.22	49.02	-28.80	QP
5	1.09	16.24	0.00	0.00	16.24	34.20	-17.96	QP
6	10.62	15.87	0.00	0.00	15.87	22.00	-6.13	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.

2. The emission levels that are 20dB below the official limit are not reported.

Environmental Conditions:	24.2℃, 55% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	Y

Detailed results are shown below



Pol:

Y

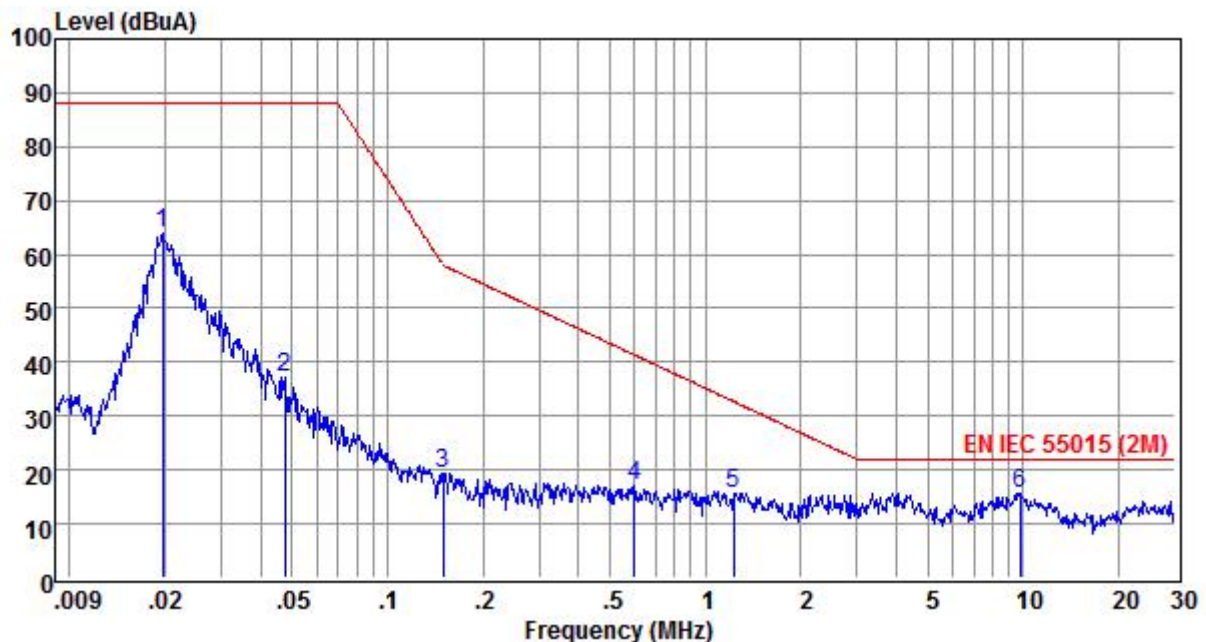
	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.02	64.85	0.00	0.00	64.85	88.00	-23.15	QP
2	0.04	35.84	0.00	0.00	35.84	88.00	-52.16	QP
3	0.12	24.70	0.00	0.00	24.70	66.89	-42.19	QP
4	0.36	20.50	0.00	0.00	20.50	47.55	-27.05	QP
5	1.03	17.99	0.00	0.00	17.99	34.88	-16.89	QP
6	8.19	15.77	0.00	0.00	15.77	22.00	-6.23	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.

2. The emission levels that are 20dB below the official limit are not reported.

Environmental Conditions:	24.2℃, 55% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	Z

Detailed results are shown below



Pol:

Z

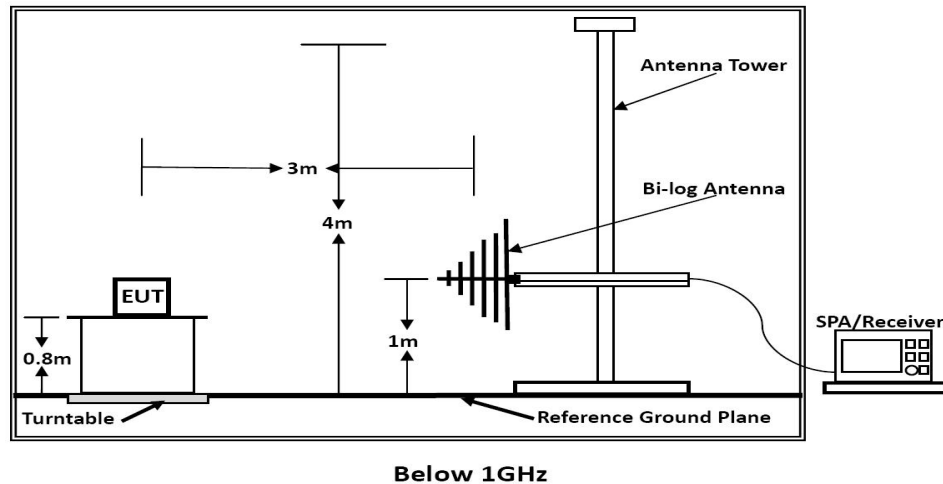
	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.02	64.10	0.00	0.00	64.10	88.00	-23.90	QP
2	0.05	37.19	0.00	0.00	37.19	88.00	-50.81	QP
3	0.15	19.47	0.00	0.00	19.47	57.98	-38.51	QP
4	0.60	17.01	0.00	0.00	17.01	41.41	-24.40	QP
5	1.23	15.71	0.00	0.00	15.71	32.74	-17.03	QP
6	9.79	15.62	0.00	0.00	15.62	22.00	-6.38	QP

Remarks: 1. Measured = Reading + Lisn Factor + Cable Loss.

2. The emission levels that are 20dB below the official limit are not reported.

4.3 RADIATED EMISSION MEASUREMENT

4.3.1. Block Diagram of Test Setup



4.3.2. Test Standard

EN IEC 55015:2019+A11:2020

4.3.3. Radiated Emission Limits

All emanations from a class B 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 ~ 1000	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.

4.3.4. EUT Configuration on Test

The EN 55015 regulations test method must be used to find the maximum emission during radiated emission measurement.

4.3.5. Operating Condition of EUT

4.3.5.1 Turn on the power.

4.3.5.2 After that, let the EUT work in test mode (Lighting) and measure it.

4.3.6. 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 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log 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 is set at RBW/VBW=120kHz/300kHz.

The frequency range from 30MHz to 1000MHz is investigated.

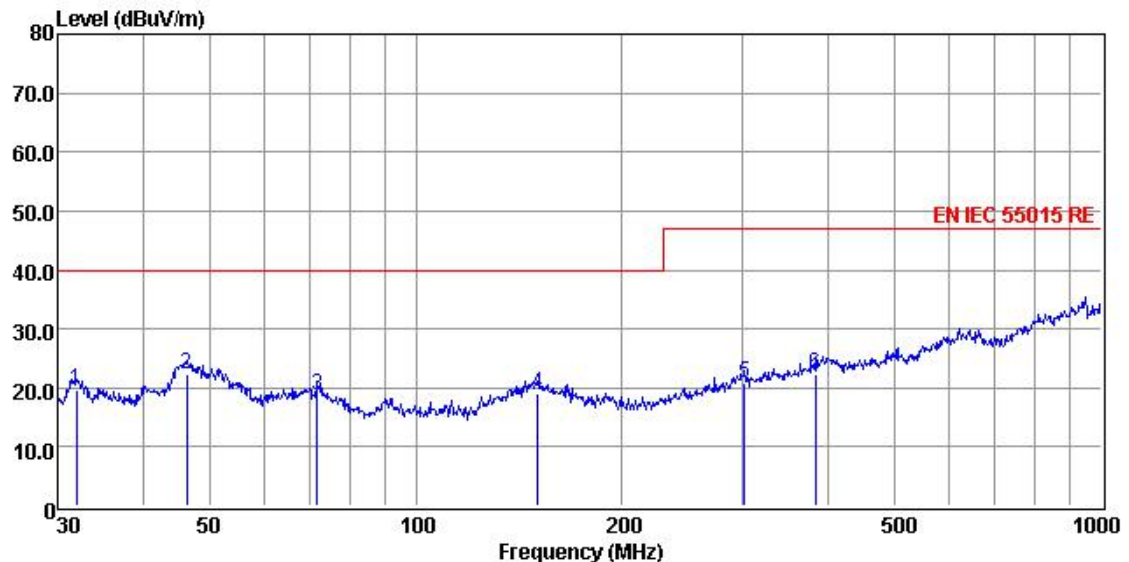
4.3.7. Test Results

PASS.

The test result please refer to the next page.

Environmental Conditions:	25.4℃, 56% RH
Test Voltage:	AC 230V,50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	Vertical

Detailed results are shown below



Site : 3m chamber

Condition : EN IEC 55015 RE 3m VULB9168 NB VERTICAL

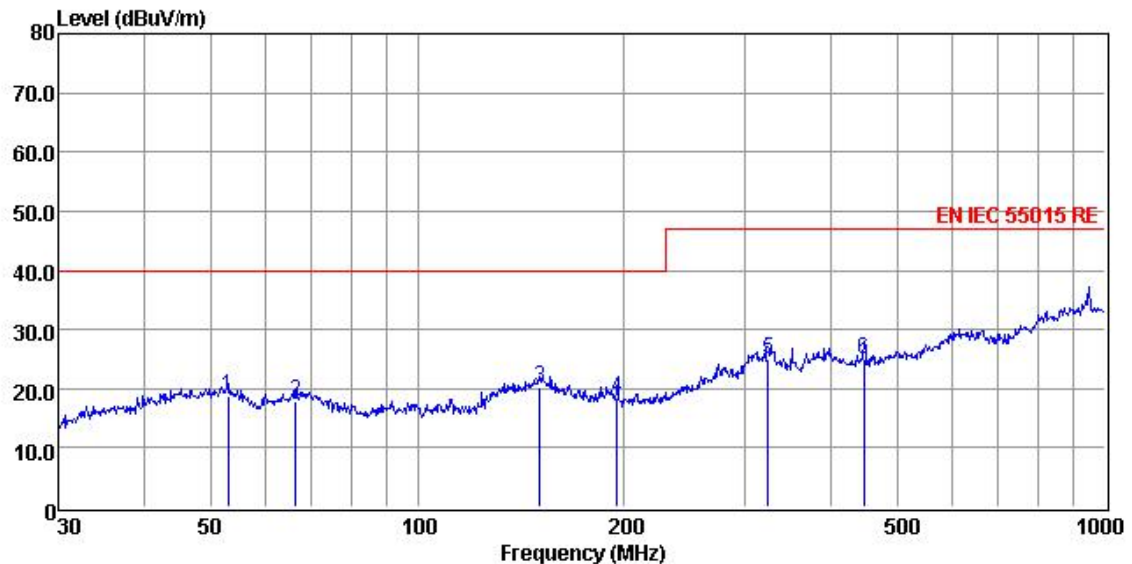
		Read	Cable	Antenna	Preamp		Limit	Over	
	Freq	Level	Loss	Factor	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	31.95	38.36	2.11	9.38	30.32	19.53	40.00	-20.47	QP
2	46.34	37.45	2.36	12.96	30.32	22.45	40.00	-17.55	QP
3	71.83	35.06	2.74	11.33	30.40	18.73	40.00	-21.27	QP
4	150.54	32.00	3.55	14.21	30.60	19.16	40.00	-20.84	QP
5	301.42	33.87	4.82	13.03	30.86	20.86	47.00	-26.14	QP
6	382.59	32.90	5.27	15.34	31.12	22.39	47.00	-24.61	QP

Note: 1.All read level are Quasi-peak values.

2.Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor.

Environmental Conditions:	25.4℃, 56% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	YWHBFN-300W
Test Mode:	Lighting
Test Engineer:	Feng Liang
Pol:	Horizontal

Detailed results are shown below



Site : 3m chamber

Condition : EN IEC 55015 RE 3m VULB9168 NB HORIZONTAL

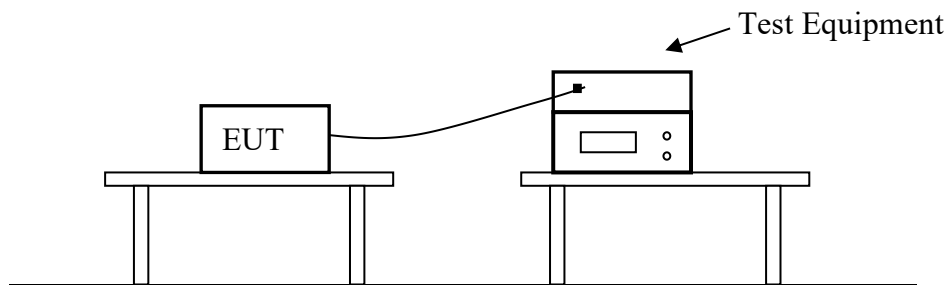
		Read	Cable	Antenna	Preamp		Limit	Over	
	Freq	Level	Loss	Factor	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	52.95	33.29	2.46	13.35	30.33	18.77	40.00	-21.23	QP
2	66.50	33.53	2.66	12.03	30.38	17.84	40.00	-22.16	QP
3	150.54	32.97	3.55	14.21	30.60	20.13	40.00	-19.87	QP
4	195.14	34.56	3.98	10.68	30.68	18.54	40.00	-21.46	QP
5	323.32	37.51	5.00	13.50	30.93	25.08	47.00	-21.92	QP
6	446.41	35.12	5.41	15.73	31.32	24.94	47.00	-22.06	QP

Note: 1.All read level are Quasi-peak values.

2.Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor.

4.4. HARMONIC CURRENT MEASUREMENT

4.4.1. Block Diagram of Test Setup



4.4.2. Test Standard

EN IEC 61000-3-2:2019

4.4.3. Operating Condition of EUT

Same as Section 4.1.4, except the test setup replaced by Section 4.4.1.

4.4.4. Test Results

PASS

The test result please refer to the next page.

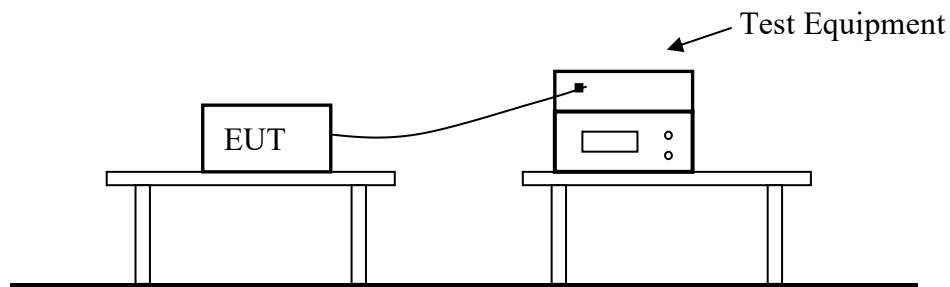
Environmental Conditions:	25.4℃, 56% RH					
Test Voltage:	AC 230V, 50Hz					
Test Model:	YWHBFN-300W					
Test Mode:	Lighting					
Test Engineer:	Feng Liang					
Detailed results are shown below						
Supply Meets EN Requirements						
Load Power	: 295.70 to 296.30 W 300.5 VA Power Factor 0.984					
Load Current	: 1301.1 to 1304.1 mArms 1866.2 to 1874.1 mApk Crest Factor 1.436					
Max THC	: 53.8 mA					
Measurement Standard	: EN61000-4-7:2002+A1:2009					
Limits Applied	: EN/IEC 61000-3-2:2018 Class C Limits >25W for 1.301A at 0.984 PF.					
Harmonic Number	Limit Current mA	Average (filtered) mA	% Limit	max. Value (Filtered) mA	% Limit	Assessment
Fundamental :		1299.6				
2 :	26.0	2.6	10.0	2.7	10.4	Pass
3 :	384.1	34.9	9.1	35.0	9.1	Pass
4 :	-	0.9	-	0.9	-	-
5 :	130.1	3.0	2.3	3.0	2.3	Pass
6 :	-	0.4	-	0.5	-	-
7 :	91.1	6.0	6.6	6.2	6.8	Pass
8 :	-	0.3	-	0.3	-	-
9 :	65.1	8.6	13.2	8.9	13.7	Pass
10 :	-	0.5	-	0.5	-	-
11 :	39.0	12.4	31.8	12.7	32.6	Pass
12 :	-	0.7	-	0.7	-	-
13 :	39.0	5.4	13.8	5.7	14.6	Pass
14 :	-	0.5	-	0.6	-	-
15 :	39.0	8.1	20.8	8.3	21.3	Pass
16 :	-	0.5	-	0.6	-	-
17 :	39.0	11.2	28.7	11.3	29.0	Pass
18 :	-	0.8	-	0.8	-	-
19 :	39.0	14.2	36.4	14.3	36.7	Pass
20 :	-	0.6	-	0.7	-	-
21 :	39.0	9.4	24.1	9.5	24.4	Pass
22 :	-	1.4	-	1.5	-	-
23 :	39.0	5.1	13.1	5.3	13.6	Pass
24 :	-	0.7	-	0.8	-	-
25 :	39.0	20.4	52.3	20.5	52.6	Pass
26 :	-	0.7	-	0.8	-	-
27 :	39.0	4.9	12.6	5.1	13.1	Pass
28 :	-	1.4	-	1.4	-	-
29 :	39.0	7.4	19.0	7.6	19.5	Pass
30 :	-	0.5	-	0.5	-	-
31 :	39.0	13.4	34.4	13.5	34.6	Pass
32 :	-	0.5	-	0.6	-	-
33 :	39.0	3.1	7.9	3.2	8.2	Pass
34 :	-	0.6	-	0.7	-	-
35 :	39.0	5.2	13.3	5.3	13.6	Pass
36 :	-	0.6	-	0.7	-	-
37 :	39.0	5.9	15.1	6.0	15.4	Pass
38 :	-	0.6	-	0.6	-	-
39 :	39.0	8.5	21.8	8.6	22.1	Pass
40 :	-	0.5	-	0.6	-	-
21 - 39 :	123.4	30.5	24.7	30.6	24.8	-

	Nominal	Measured Low	Measured High	Deviation	Allowed Deviation	Result
Supply Voltage	: 230	230.88	230.93	+0.93	4.60	PASS
Supply Frequency	: 50	49.99	50.00	-0.01	0.25	PASS
Crest Phase	: 90.0	89.2	89.3	-0.8	3.0	PASS
Crest Factor	: 1.414	1.414	1.415	0.001	-0.014/+0.006	PASS
Fundamental Voltage	: 230.90	-	-	-	-	-

Harmonic	Harmonic Voltage	Harmonic Ratio	Limit	Result
2	0.08	0.034	0.20	PASS
3	0.21	0.097	0.90	PASS
4	0.07	0.030	0.20	PASS
5	0.05	0.029	0.40	PASS
6	0.02	0.018	0.20	PASS
7	0.07	0.029	0.30	PASS
8	0.00	0.009	0.20	PASS
9	0.02	0.018	0.20	PASS
10	0.01	0.003	0.20	PASS
11	0.03	0.018	0.10	PASS
12	0.00	0.008	0.10	PASS
13	0.01	0.013	0.10	PASS
14	0.00	0.005	0.10	PASS
15	0.02	0.013	0.10	PASS
16	0.00	0.001	0.10	PASS
17	0.03	0.014	0.10	PASS
18	0.00	0.003	0.10	PASS
19	0.02	0.014	0.10	PASS
20	0.00	0.003	0.10	PASS
21	0.02	0.012	0.10	PASS
22	0.00	0.003	0.10	PASS
23	0.00	0.008	0.10	PASS
24	0.00	0.000	0.10	PASS
25	0.04	0.020	0.10	PASS
26	0.00	0.000	0.10	PASS
27	0.00	0.003	0.10	PASS
28	0.01	0.003	0.10	PASS
29	0.02	0.010	0.10	PASS
30	0.00	0.000	0.10	PASS
31	0.03	0.016	0.10	PASS
32	0.00	0.002	0.10	PASS
33	0.00	0.003	0.10	PASS
34	0.00	0.002	0.10	PASS
35	0.00	0.005	0.10	PASS
36	0.00	0.000	0.10	PASS
37	0.01	0.003	0.10	PASS
38	0.00	0.000	0.10	PASS
39	0.02	0.010	0.10	PASS
40	0.00	0.000	0.10	PASS

4.5. VOLTAGE FLUCTUATIONS & FLICKER MEASUREMENT

4.5.1. Block Diagram of Test Setup



4.5.2. Test Standard

EN 61000-3-3: 2013 +A1:2019

4.5.3. Operating Condition of EUT

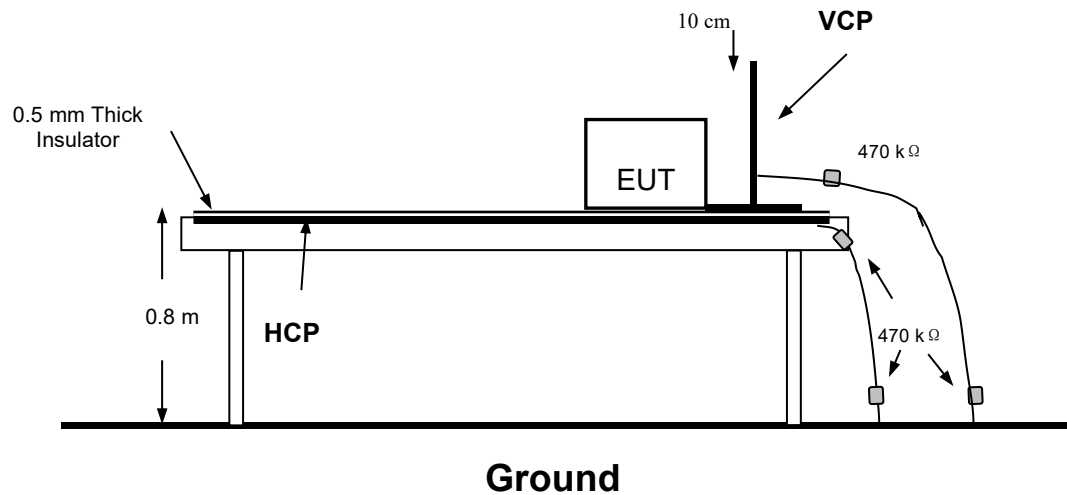
Same as Section 4.1.4, except the test setup replaced by Section 4.5.1.

4.5.4. Test Results

According to EN 61000-3-3: 2013 +A1:2019 Clause A.2, Incandescent lamp luminaires with ratings less than or equal to 1000W and discharge and LED lamp luminaires with ratings less than or equal to 600W, are deemed to comply with the standard and are not required to be tested.

4.6. Electrostatic Discharge TEST

4.6.1. Block Diagram of Test Setup



4.6.2. Test Standard

EN 61547: 2009 (EN 61000-4-2: 2009, Severity Level: Air Discharge: Level 3, $\pm 8\text{KV}$
Contact Discharge: Level 2, $\pm 4\text{KV}$)

4.6.3. Severity Levels and Performance Criterion

4.6.3.1. 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

4.6.3.2. Performance criterion: **B**

4.6.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3

4.6.5. Operating Condition of EUT

- 4.6.5.1. Setup the EUT as shown in Section 4.6.1.
- 4.6.5.2. Turn on the power of all equipments.
- 4.6.5.3. Let the EUT work in test mode (Lighting) and measure it.

4.6.6. Test Procedure

4.6.6.1. Air Discharge

This test is done on a non-conductive surfaces. 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.

Because the case of the EUT is metal surface, so it does not need to be tested.

4.6.6.2. Contact Discharge

All the procedure shall be same as Section 4.6.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

4.6.6.3. Indirect Discharge For Horizontal Coupling Plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

4.6.6.4. Indirect Discharge For Vertical Coupling Plane

At least 20 single discharge 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.

4.6.7. Test Results

PASS.

Please refer to the following page.

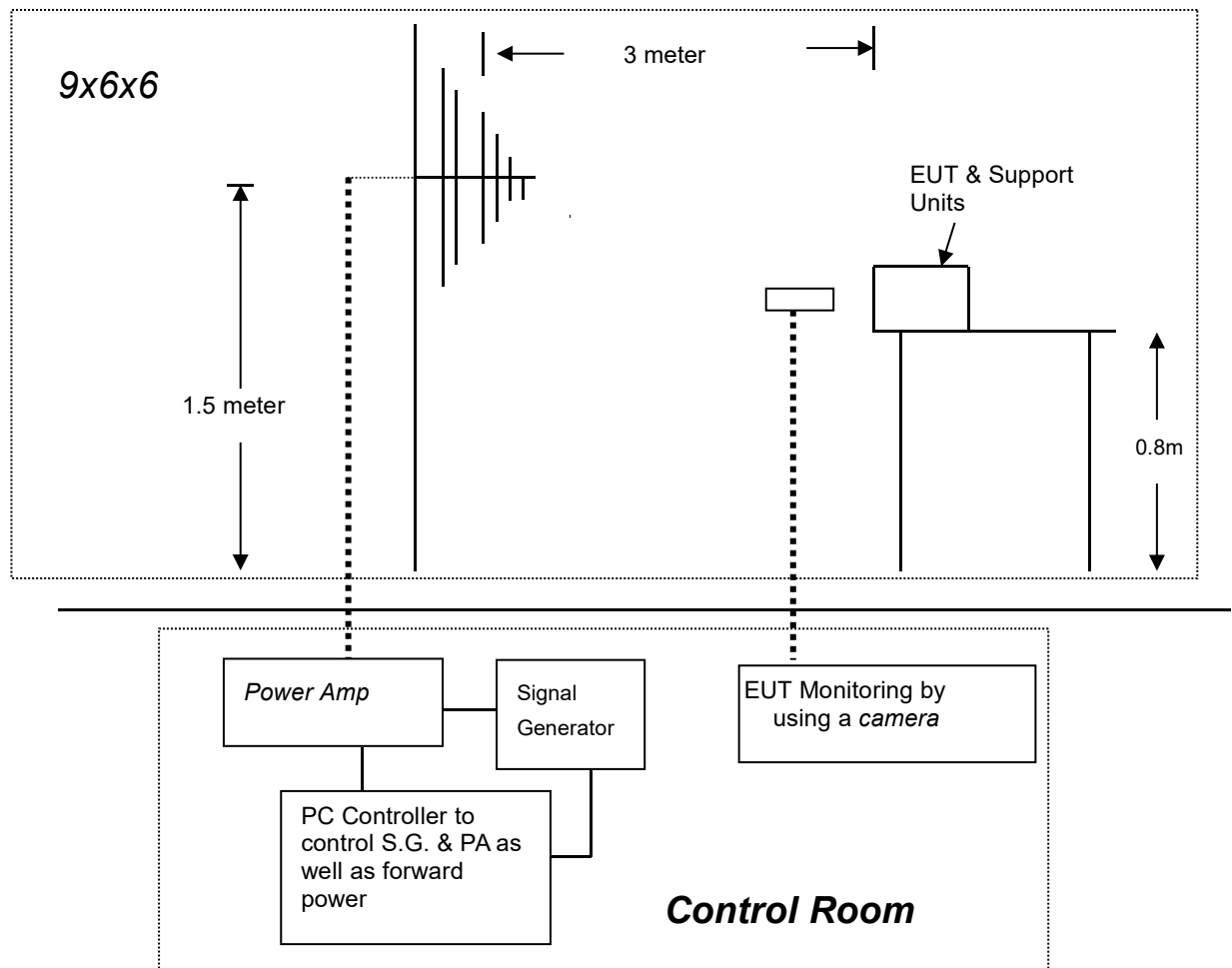
Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	SHENZHEN YOUWIN OPTRONICS CO., LTD		
EUT	LED High Bay Light	Temperature	25.3℃
M/N	YWHBFN-300W	Humidity	55.7%
Criterion	B	Pressure	1021mbar
Test Mode	Lighting	Test Engineer	Feng Liang

Air Discharge						
Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Contact Discharge						
Test Points	Test Levels		Results			
	± 2 KV	±4 KV	Pass	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Discharge To Horizontal Coupling Plane						
Side of EUT	Test Levels		Results			
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Discharge To Vertical Coupling Plane						
Side of EUT	Test Levels		Results			
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B

4.7. RF Field Strength susceptibility Test

4.7.1. Block Diagram of Test Setup



4.7.2. Test Standard

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

4.7.3. Severity Levels and Performance Criterion

4.7.3.1. Severity level

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

4.7.3.2. Performance criterion: **A**

4.7.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.8.

4.7.5.Operating Condition of EUT

4.7.5.1.Setup the EUT as shown in Section 4.7.1.

4.7.5.2.Turn on the power of all equipments.

4.7.5.3.Let the EUT work in test mode (Lighting) and measure it.

4.7.6.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

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

4.7.7.Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

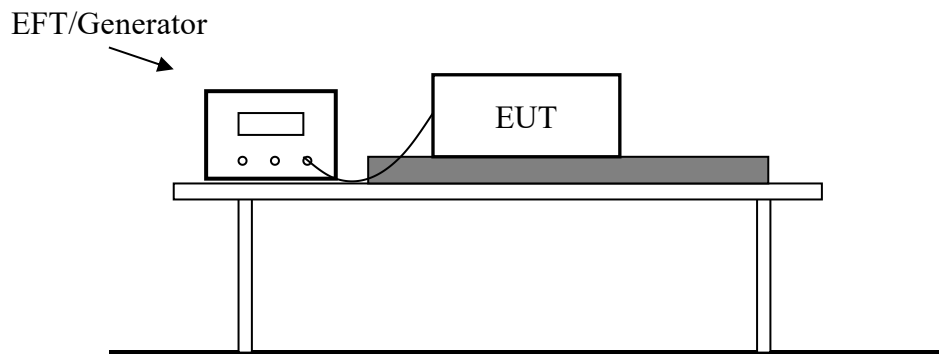
Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	SHENZHEN YOUWIN OPTRONICS CO., LTD		
EUT	LED High Bay Light	Temperature	25.5℃
M/N	YWHBFN-300W	Humidity	57.1%
Field Strength	3 V/m	Criterion	A
Test Mode	Lighting	Test Engineer	Daiwei Dai
Frequency Range	80 MHz to 1000 MHz		
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

Note:

4.8. Electrical Fast Transient/Burst Test

4.8.1. Block Diagram of Test Setup



4.8.2. Test Standard

EN 61547: 2009 (EN 61000-4-4: 2012)

4.8.3. Severity Levels and Performance Criterion

4.8.3.1. 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

4.8.3.2. Performance criterion: **B**

4.8.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3

4.8.5. Operating Condition of EUT

4.8.5.1. Setup the EUT as shown in Section 4.8.1.

4.8.5.2. Turn on the power of all equipments.

4.8.5.3. Let the EUT work in test mode (Lighting) and measure it.

4.8.6. Test Procedure

The EUT is put on the table which 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.

4.8.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which 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.

4.8.6.2. For signal lines and control lines ports:

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

4.8.6.3. For DC output line ports:

It's unnecessary to test.

4.8.7. Test Results

PASS.

Please refer to the following page.



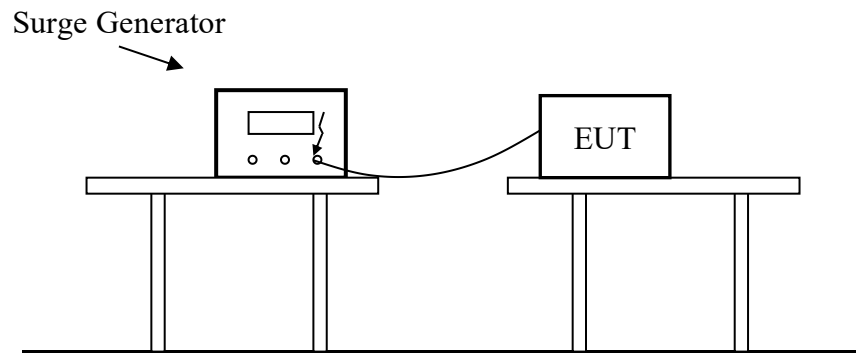
Electrical Fast Transient/Burst Test Results

Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	SHENZHEN YOUWIN OPTRONICS CO., LTD		
EUT	LED High Bay Light	Temperature	25.7℃
M/N	YWHBFN-300W	Humidity	56.4%
Test Mode	Lighting	Criterion	B
Test Engineer	Feng Liang	Test Voltage	AC 230V, 50Hz

Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
PE	1KV	PASS	PASS
L-N	1KV	PASS	PASS
L-PE	1KV	PASS	PASS
N-PE	1KV	PASS	PASS
L-N-PE	1KV	PASS	PASS
Signal Line			
I/O Cable			
Note:			

4.9 SURGE Immunity Test

4.9.1. Block Diagram of Test Setup



4.9.2. Test Standard

EN 61547: 2009 (EN61000-4-5: 2014)

4.9.3. Severity Levels and Performance Criterion

4.9.3.1. Severity level

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

4.9.3.2. Performance criterion: **C**

4.9.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3

4.9.5. Operating Condition of EUT

- 4.9.5.1. Setup the EUT as shown in Section 4.9.1.
- 4.9.5.2. Turn on the power of all equipments.
- 4.9.5.3. Let the EUT work in test mode (Lighting) and measure it.

4.9.6. Test Procedure

- 4.9.6.1. Set up the EUT and test generator as shown on Section 4.9.1.
- 4.9.6.2. For line to line coupling mode, provide a 0.5KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 4.9.6.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4.9.6.4. Different phase angles are done individually.
- 4.9.6.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

4.9.7. Test Results

PASS.

Please refer to the following page.

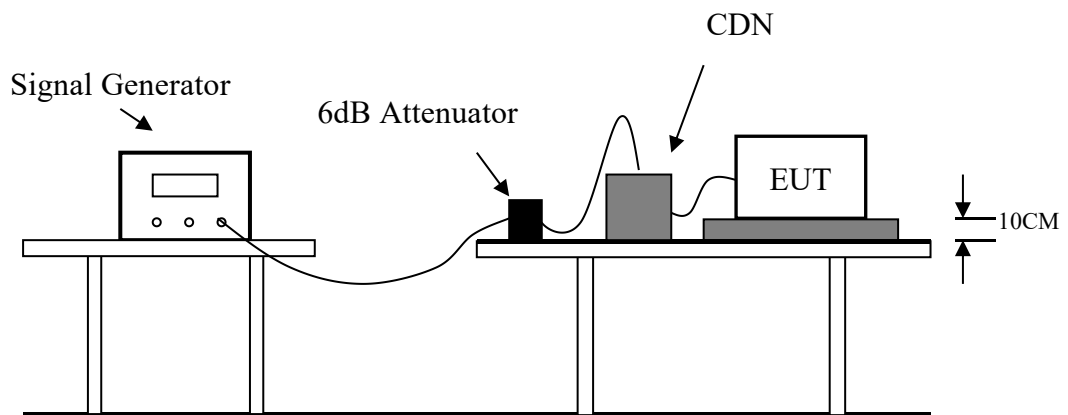
Surge Immunity Test Result

Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	SHENZHEN YOUWIN OPTRONICS CO., LTD		
EUT	LED High Bay Light	Temperature	25.7℃
M/N	LED High Bay Light 3802-28518WCCTRSPA	Humidity	56.4%
Test Mode	Lighting	Criterion	C
Test Engineer	Feng Liang	Test Voltage	AC 230V, 50Hz

Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result
L-N	+	90°	5	1	PASS
	-	270°	5	1	PASS
L-PE	+	90°	5	2	PASS
	-	270°	5	2	PASS
N-PE	+	90°	5	2	PASS
	-	270°	5	2	PASS
Signal Line					
Note					

4.10. Injected currents susceptibility test

4.10.1. Block Diagram of Test Setup



4.10.2. Test Standard

EN 61547: 2009 (EN 61000-4-6: 2014, Severity Level: 3V (rms), 0.15MHz ~ 80MHz)

4.10.3. Severity Levels and Performance Criterion

4.10.3.1. Severity level

Level	Field Strength (V)
1.	1
2.	3
3.	10
X	Special

4.10.3.2. Performance criterion: **A**

4.10.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3

4.10.5. Operating Condition of EUT

- 4.10.5.1. Setup the EUT as shown in Section 4.10.1.
- 4.10.5.2. Turn on the power of all equipments.
- 4.10.5.3. Let the EUT work in test mode (Lighting) and measure it.

4.10.6. Test Procedure

- 4.10.6.1. Set up the EUT, CDN and test generators as shown on Section 4.10.1.
- 4.10.6.2. Let the EUT work in test mode and measure it.
- 4.10.6.3. 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).
- 4.10.6.4. The disturbance signal described below is injected to EUT through CDN.
- 4.10.6.5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 4.10.6.6. 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.
- 4.10.6.7. 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.
- 4.10.6.8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

4.10.7. Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results			
Standard	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6		
Applicant	SHENZHEN YOUWIN OPTRONICS CO., LTD		
EUT	LED High Bay Light	Temperature	25.2℃
M/N	YWHBFN-300W	Humidity	56.3%
Test Mode	Lighting	Criterion	A
Test Engineer	Feng Liang	Test Voltage	AC 230V, 50Hz

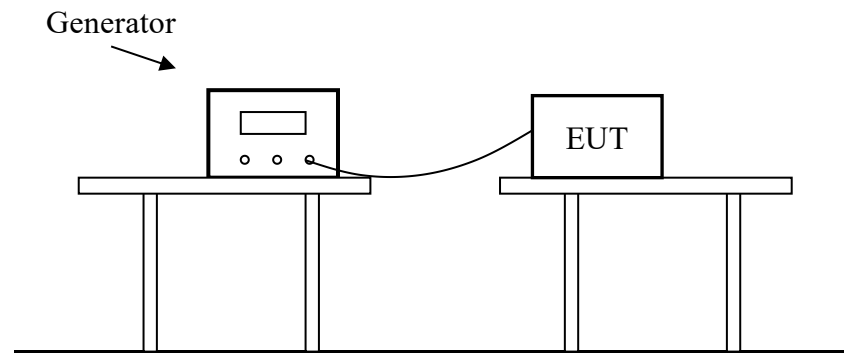
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V	A	PASS

Remark:

Note:

4.11. Voltage dips and interruptions test

4.11.1. Block Diagram of Test Setup



4.11.2. Test Standard

EN 61547: 2009 (EN 61000-4-11: 2004+A1: 2017)

4.11.3. Severity Levels and Performance Criterion

4.11.3.1. Severity level

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

4.11.3.2. Performance criterion: **B&C**

4.11.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3

4.11.5.Operating Condition of EUT

4.11.5.1.Setup the EUT as shown in Section 4.11.1.

4.11.5.2.Turn on the power of all equipments.

4.11.5.3.Let the EUT work in test mode (Lighting) and measure it.

4.11.6.Test Procedure

4.11.6.1.Set up the EUT and test generator as shown on Section 4.11.1.

4.11.6.2.The interruptions is introduced at selected phase angles with specified duration.

4.11.6.3.Record any degradation of performance.

4.11.7.Test Results

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11		
Applicant	SHENZHEN YOUWIN OPTRONICS CO., LTD		
EUT	LED High Bay Light	Temperature	25.7℃
M/N	YWHBFN-300W	Humidity	56.4%
Test Mode	Lighting	Criterion	B&C
Test Engineer	Feng Liang	Test Voltage	AC 230V, 50Hz

Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion	Result
0	100	0.5P	B	PASS
70	30	10P	C	PASS

Note:

5. PHOTOGRAPH

5.1. Photo of Power Line Conducted Measurement



5.2. Photo of Radiated Electromagnetic Disturbance Measurement



5.3. Photo of Radiated Measurement



5.4. Photo of Electrostatic Discharge Test



5.5. Photo of Electrical Fast Transient/Burst Test & Surge Immunity Test



5.6. Photo of Harmonic Current Measurement



6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

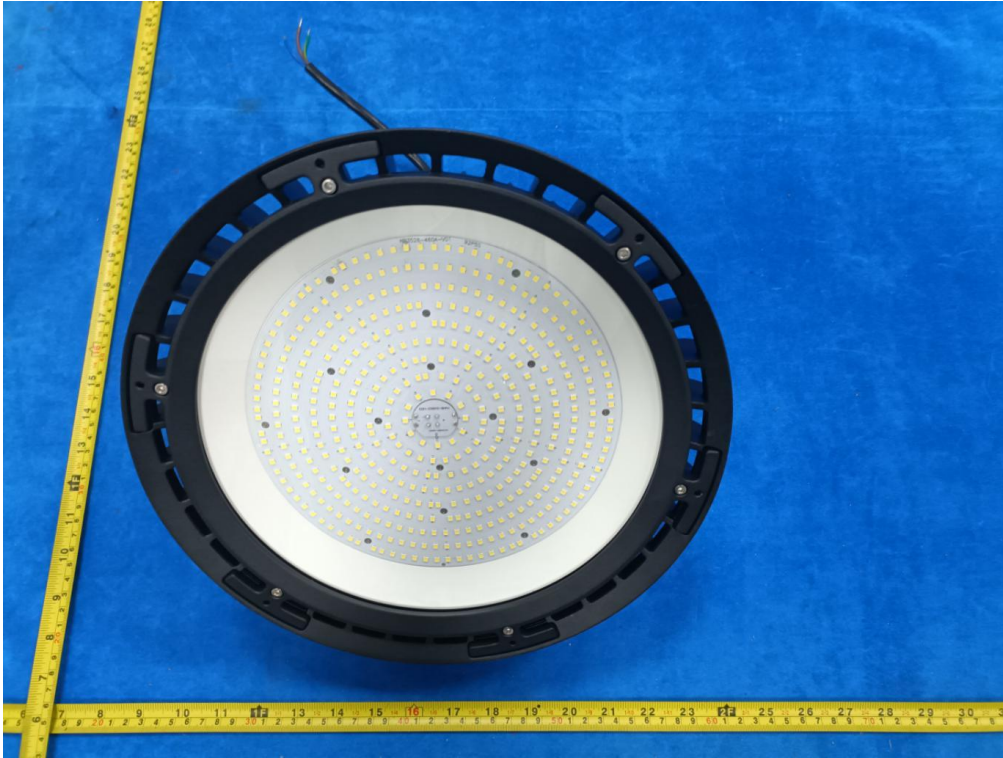


Figure. 1



Figure. 2



Figure. 3



Figure. 4



Figure. 5

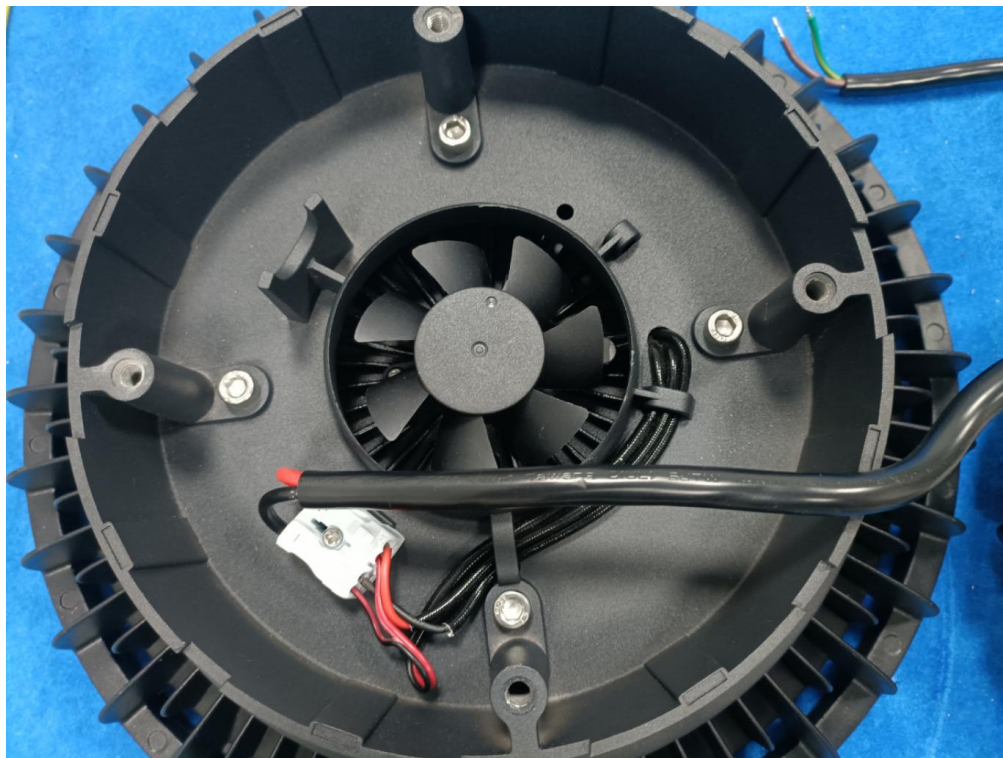


Figure. 6

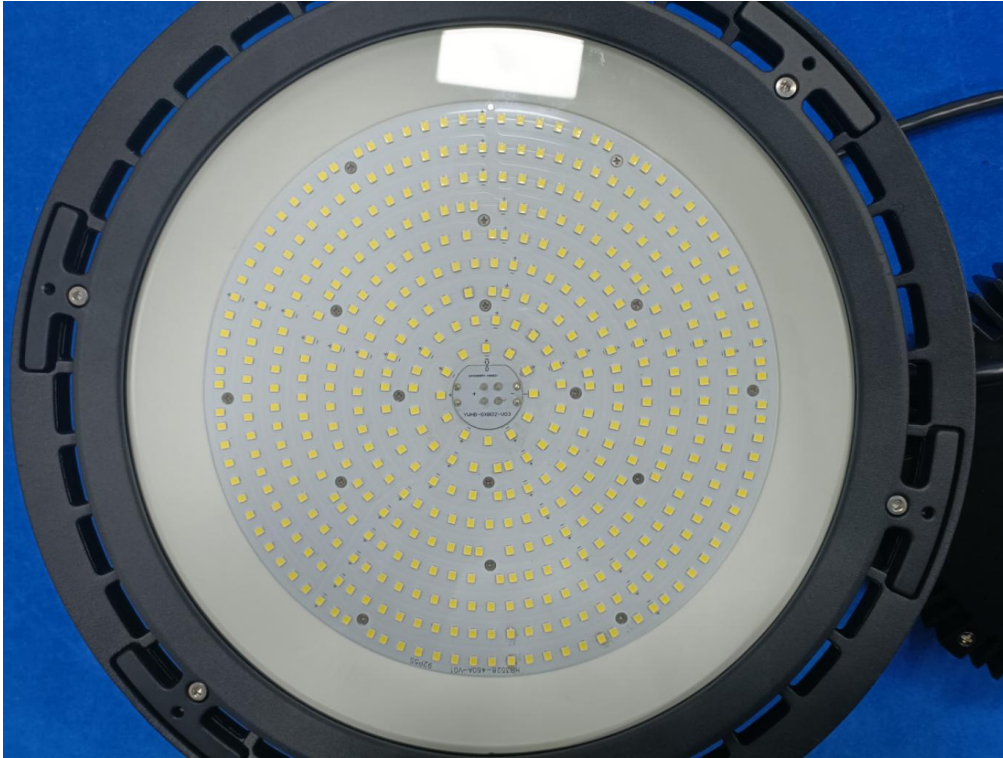


Figure.7

----- THE END OF TEST REPORT -----