

**TEST REPORT****COMMISSION REGULATION (EU) 2019/2020 of 1 October 2019****laying down ecodesign requirements for light sources and separate control gears pursuant to****Directive 2009/125/EC of the European Parliament and of the Council****Report reference No.**..... : LCS210106020ES**Tested by**..... : Laola Li (Project Engineer)*Laola Li***Check by**..... : Leo Qiu (Director)*Leo Qiu***Approved by**..... : Adam Peng (Manager)*Adam Peng***Date of issue** ..... : September 23, 2021**Contents**..... : 15 pages**Testing laboratory****Name** ..... : Ningbo LCS Standard Technology Service Co., Ltd.**Address** ..... : 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** ..... : As above**Client****Name** ..... : SHENZHEN YOUWIN OPTRONICS CO., LTD.**Address**..... : Room 319 Chuangke Building, Huanguan South Road No. 72-1, Guanlan, Shenzhen, Guangdong, China**Manufacturer (1)****Name** ..... : SHENZHEN YOUWIN OPTRONICS CO., LTD.**Address**..... : Room 319 Chuangke Building, Huanguan South Road No. 72-1, Guanlan, Shenzhen, Guangdong, China**Manufacturer (2)****Name** ..... : FOSHAN YOUWIN LIGHTING CO., LTD.**Address**..... : Block 4, Area D, Bright City, Nanhai District Foshan, Guangdong, China**Test specification****TRF No. (EU) 2019/2020**

Ningbo LCS Standard Technology Service Co., Ltd.

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Standard.....:	COMMISSION REGULATION (EU) 2019/2020 of 1 October 2019 COMMISSION DELEGATED REGULATION (EU) 2019/2015 COMMISSION DELEGATED REGULATION (EU) 2021/340 COMMISSION REGULATION (EU) 2021/341
Test procedure .....	COMMISSION REGULATION (EU) 2019/2020 of 1 October 2019 COMMISSION DELEGATED REGULATION (EU) 2019/2015 COMMISSION DELEGATED REGULATION (EU) 2021/340 COMMISSION REGULATION (EU) 2021/341
Non-standard test method.....:	N/A

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**Test item Description** .....: LED High Bay Light

Trademark .....: YOUWIN

Model and/or type reference.....: YWHBGL-150W, YWHBFN-150W, YWHBHB-150W,  
YWHBKB-150W

Rating(s)(V/Hz).....: AC 100-277V, 50/60Hz, 150W

**Test case verdicts**

Test case does not apply to the test object : N(N/A)

Test item does meet the requirement .....: P(Pass)

Test item does not meet the requirement ...: F(Fail)

**Testing**

Date of receipt of test item .....: April 19, 2021

Date(s) of performance of test.....: April 19, 2021 – September 22, 2021

**Test item particulars:**

**Type of light source:**

- |                                  |  |   |  |                                    |
|----------------------------------|--|---|--|------------------------------------|
|                                  | <input type="checkbox"/> HL                    | <input type="checkbox"/> LFLT5HE                    | <input type="checkbox"/> LFL T5HO      | <input type="checkbox"/> CFLni     |
| - Lighting technology used       | <input type="checkbox"/> other FL              | <input type="checkbox"/> HPS                        | <input type="checkbox"/> MH            | <input type="checkbox"/> other HID |
|                                  | <input checked="" type="checkbox"/> LED        | <input type="checkbox"/> OLED                       | <input type="checkbox"/> mixed         | <input type="checkbox"/> other     |
| - Non-directional or directional | <input type="checkbox"/> NDLS                  | <input checked="" type="checkbox"/> DLS             |  |                                    |
| - Mains or non-mains             | <input type="checkbox"/> NMLS                  | <input checked="" type="checkbox"/> MLS             |  |                                    |
| - Connected light source (CLS)   | <input type="checkbox"/> Yes                   | <input checked="" type="checkbox"/> No              |  |                                    |
| - Colour-tuneable light source   | <input type="checkbox"/> Yes                   | <input checked="" type="checkbox"/> No              |  |                                    |
| - Envelope                       | <input checked="" type="checkbox"/> no         | <input type="checkbox"/> second                     | <input type="checkbox"/> non-clear     |                                    |
| - High luminance light source    | <input type="checkbox"/> Yes                   | <input checked="" type="checkbox"/> No              |  |                                    |
| - Anti-glare shield              | <input type="checkbox"/> Yes                   | <input checked="" type="checkbox"/> No              |  |                                    |
| - Dimmable                       | <input type="checkbox"/> Yes                   | <input type="checkbox"/> only with specific dimmers | <input checked="" type="checkbox"/> No |                                    |
| - Control gear                   | <input checked="" type="checkbox"/> Integrated | <input type="checkbox"/> External                   |  |                                    |
| - Use of light source:           | <input checked="" type="checkbox"/> Indoor     | <input type="checkbox"/> Outdoor                    | <input type="checkbox"/> Industry      |                                    |

**Lamp cap installed:** N/A

**General product parameters :**

Energy consumption in on-mode  
(kWh/1000 h) 150

Energy efficiency class ☐ A ☐ B ☒ C ☐ D ☐ E ☐ F ☐ G

Rated useful luminous flux.....(lm): 22500

Rated total luminous flux.....(lm): 24000

Rated CCT .....(K): 6000

On-mode power (Pon), expressed in W.....: 150

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Standby power (Psb).....(W):	N/A
Networked standby power (Pnet) for CLS.(W):	N/A
Rated Ra.....:	80
Outer dimensions.....(mm):	φ310x198
Spectral power distribution.....:	See attachment 2
Claim of equivalent power .....	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> N/A
Chromaticity coordinates (x and y).....:	0.3214, 0.3277
Peak luminous intensity .....(cd) :	7121
Beam angle in degrees.....(°) :	111.5
R9 colour rendering index value R9.....:	6
Survival factor .....	≥ 90%
The lumen maintenance factor.....:	≥ 96.0%
Displacement factor (cos φ 1).....:	≥ 0.9
Colour consistency in McAdam ellipses.....:	≤ 6
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.....:	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> N/A
Flicker metric (Pst LM) .....	≤ 1.0
Stroboscopic effect metric (SVM).....:	≤ 0.9
Rated life time .....(h):	50000

**Attachments:**

The test report includes: ATTACHMENT 3(S) of product photos

**Summary of testing:**

- 1、 These results are in compliance with the ecodesign requirements of the Commission Regulation (EU) 2019/2020.
- 2、 Measurement was conducted at voltage 230V 50Hz and a stable ambient temperature  $25 \pm 10^{\circ}\text{C}$ .
- 3、 THD ≤ 3%.

**Equipment List:**

Instrument	Equipment ID	Model	Calibration Date	Calibration Due Date
Full-field Speed Goniophotometer	NLCS-S-124	GMS-1800B	2021/5/31	2022/5/30
Digital Power Meter	NLCS-S-006	PF9800	2021/5/31	2022/5/30
AC Testing Power Source	NLCS-S-125	APW-110N	2021/5/31	2022/5/30
Total Spectral Radiant Flux Standard Lamp	NLCS-S-126	BD220V	2021/6/21	2022/6/20
2m Integrating Sphere System	NLCS-S-120	SL-300	2021/5/31	2022/5/30
Digital Power Meter	NLCS-S-122	UI2012	2021/5/31	2022/5/30
AC Testing Power Source	NLCS-S-121	BP6005	2021/5/31	2022/5/30
Standard Lamp	NLCS-S-123	110V/300W	2021/6/21	2022/6/20
Temperature and humidity meter	NLCS-S-076	HTC-1	2021/05/27	2022/05/26
Flicker Photometer	NLCS-S-127	FK-3000	2021/5/31	2022/5/30

**General remarks**

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.



(EU) 2019/2020			
Clause	Requirement - Test	Result - Remark	Verdict
<b>Annex I (Clause)</b>	<b>Definitions in Regulation (EU) 2019/2020</b>		<b>P</b>
	Number of sample used for test .....	10 pcs	P
(3)	Directional Light Source		P
	at least 80 % of total luminous flux within a solid angle of $\pi$ sr (corresponding to a cone with angle of $120^\circ$ )		P
(15)	Useful luminous flux $\Phi_{use}$		P
	for non-directional light sources it is the total flux emitted in a solid angle of $4\pi$ sr (corresponding to a $360^\circ$ sphere)		N/A
	for directional light sources with beam angle $\geq 90^\circ$ it is the flux emitted in a solid angle of $\pi$ sr (corresponding to a cone with angle of $120^\circ$ )		P
	for directional light sources with beam angle $< 90^\circ$ it is the flux emitted in a solid angle of $0,586\pi$ sr (corresponding to a cone with angle of $90^\circ$ )		N/A
<b>Annex II (Clause)</b>	<b>Energy Efficiency Requirements in Regulation (EU) 2019/2020</b>		<b>P</b>
1.(a)	<b>Energy Efficiency Requirements – Light Source</b>		<b>P</b>
	On-mode Power $P_{on}$ (W):	$P_{on}=150$ W	P
	Maximum Allowed Power $P_{onmax}$ (W): $P_{onmax} = C \times (L + \Phi_{use}/(\eta \times \pi)) \times R$	$P_{onmax}=1.23 \times (1.5+22500/(0.85 \times 120)) \times 1.00 = 273.17$ W	P
	$\Phi_{use}$ :	22500lm	P
	Threshold efficacy $\eta$ (lm/W): $\eta$ for LED:	120.0	P
	End loss factor L (W) depending on light source: L for LED: 1.5	1.5	P
	End loss factor L (W) for connected light sources: 2.0		N/A
	Efficacy Factor F: 1.00 for non-directional light sources (NDLS, using total flux)		N/A
	Efficacy Factor F: 0.85 for directional light sources (DLS, using flux in a cone)	0.85	P
	CRI Factor R: 0.65 for CRI $\leq 25$		N/A
	CRI Factor R: (CRI+80)/160 for CRI $> 25$ , rounded to two decimals	$R=(80+80)/160=1.00$	P
	Correction Factor C Depending on Light Source		N/A

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(EU) 2019/2020			
Clause	Requirement - Test	Result - Remark	Verdict
	Characteristics in Table 2		
	Non-directional (NDLS) not operating on mains (NMLS), Basic Value: 1.00		N/A
	Non-directional (NDLS) operating on mains (MLS), Basic Value: 1.08		N/A
	Directional (DLS) not operating on mains (NMLS), Basic Value: 1.15		N/A
	Directional (DLS) operating on mains (MLS), Basic Value: 1.23	1.23	P
	Special Light Source Bonus on C		N/A
1.(a)	<b>Standby power – Light Source</b>		<b>N/A</b>
	The standby power $P_{sb}$ of a light source shall not exceed 0.5 W		N/A
	The networked standby power $P_{net}$ of a connected light source shall not exceed 0.5 W		N/A
	The allowable values for $P_{sb}$ and $P_{net}$ shall not be added together		N/A
1.(b)	<b>Energy Efficiency Requirements – Separate Control Gear (at full-load)</b>		<b>N/A</b>
	Control gear for LED or OLED light sources: $P_{eg}^{0.81} / (1.09 \times P_{eg}^{0.81} + 2.10)$		N/A
	The no-load power $P_{no}$ of a separate control gear shall not exceed 0.5 W		N/A
	The standby power $P_{sb}$ of a separate control gear shall not exceed 0.5 W		N/A
	The networked standby power $P_{net}$ of a connected separate control gear shall not exceed 0.5 W		N/A
	The allowable values for $P_{sb}$ and $P_{net}$ shall not be added together		N/A
2.	<b>Functional Requirements – Light Source (Table 4)</b>		<b>P</b>
	Colour Rendering Index CRI: $\geq 80$	82.6	P
	Displacement Factor DF at Power Input $P_{on}$ for LED and OLED MLS:		P
	No limit at $P_{on} \leq 5$ W DF $\geq 0.5$ at $5$ W $< P_{on} \leq 10$ W, DF $\geq 0.7$ at $10$ W $< P_{on} \leq 25$ W DF $\geq 0.9$ at $25$ W $< P_{on}$	0.982	P
	Lumen Maintenance Factor (for LED and OLED): $X_{LMF,MIN}\% = 100 \times e^{\frac{(3000 \times \ln(0.7))}{L_{70}}}$	96.0%	P
	Survival Factor (for LED and OLED): At least 9 light sources of the test sample must be operational after completing the test in Annex V of this Regulation.	100%	P

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(EU) 2019/2020			
Clause	Requirement - Test	Result - Remark	Verdict
	Colour consistency for LED and OLED light sources: Variation of chromaticity coordinates within a six-step MacAdam ellipse or less.	2.1	P
	Flicker for LED and OLED MLS: $P_{st} LM \leq 1.0$ at full-load	0	P
	Stroboscopic effect for LED and OLED MLS: $SVM \leq 0.9$ at full-load	0	P
3.(a)	<b>Information to be displayed on the light source itself</b>		<b>N/A</b>
	Useful luminous flux (lm)		N/A
	Correlated colour temperature (K)		N/A
	Beam angle (°) For directional light sources		N/A
3.(b)	<b>Information to be visibly displayed on the packaging</b>		<b>N/A</b>
3.(b)(1)	<b>Light source placed on the market, not in a containing product</b>		<b>N/A</b>
	(a) Useful luminous flux (lm): - In a font at least twice as large as the display of the on-mode power (P <sub>on</sub> ) - Clearly indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		N/A
	(b) Correlated Colour Temperature, rounded to the nearest 100 K		N/A
	(c) Beam angle in degrees For directional light sources		N/A
	(d) electrical interface details, e.g. cap- or connector-type, type of power supply (e.g. 230 V AC 50 Hz, 12 V DC)		N/A
	(e) L70B50 lifetime for LED and OLED light sources, expressed in hours		N/A
	(f) on-mode power (P <sub>on</sub> ), expressed in W		N/A
	(g) standby power (P <sub>sb</sub> ), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging		N/A
	(h) networked standby power (P <sub>net</sub> ) for CLS, expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging		N/A
	(i) Colour Rendering Index, rounded to the nearest integer		N/A
	(j) Clear indication to this effect, if CRI < 80, and the light source is intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI < 80.		N/A

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(EU) 2019/2020			
Clause	Requirement - Test	Result - Remark	Verdict
	(k) Information on non-standard conditions (such as ambient temperature $T_a \neq 25^\circ \text{C}$ or specific thermal management is necessary)		N/A
	(l) a warning if the light source cannot be dimmed or can be dimmed only with specific dimmers or with specific wired or wireless dimming methods. In the latter cases a list of compatible dimmers and/or methods shall be provided on the manufacturer's website		N/A
	(m) if the light source contains mercury: a warning of this, including the mercury content in mg rounded to the first decimal place		N/A
	(n) if the light source is within the scope of Directive 2012/19/EU, without prejudice to marking obligations pursuant to Article 14(4) of Directive 2012/19/EU, or contains mercury: a warning that it shall not be disposed of as unsorted municipal waste		N/A
3.(b)(2)	<b>Separate control gears</b> For separate control gear placed on the market as a stand-alone product, not as a part of a containing product		<b>N/A</b>
	(a) the maximum output power of the control gear (for HL, LED and OLED) or the power of the light source for which the control gear is intended (for FL and HID)		N/A
	(b) the type of light source(s) for which it is intended		N/A
	(c) the efficiency in full-load, expressed in percentage		N/A
	(d) the no-load power ( $P_{no}$ ), expressed in W and rounded to the second decimal, or the indication that the gear is not intended to operate in no-load mode. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites		N/A
	(e) the standby power ( $P_{sb}$ ), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in		N/A
	(f) the networked standby power ( $P_{net}$ ), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites		N/A

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(EU) 2019/2020			
Clause	Requirement - Test	Result - Remark	Verdict
	(g) a warning if the control gear is not suitable for dimming of light sources or can be used only with specific types of dimmable light sources or using specific wired or wireless dimming methods. In the latter cases, detailed information on the conditions in which the control gear can be used for dimming shall be provided on the manufacturer's or importer's website		N/A
	(h) a QR-code redirecting to a free-access website of the manufacturer, importer or authorised representative, or the internet address for such a website, where full information on the control gear can be found		N/A
3.(c)	<b>Information to be visibly displayed on a free-access website of the manufacturer, importer or authorised representative</b>		<b>N/A</b>
3.(c)(1)	Separate control gears For any separate control gear that is placed on the EU market, the following information shall be displayed on at least one free-access website:		N/A
	(a) the information specified in point 3(b)(2), except 3(b)(2)(h)		N/A
	(b) the outer dimensions in mm		N/A
	(c) the mass in grams of the control gear, without packaging, and without lighting control parts and non-lighting parts, if any and if they can be physically separated from the control gear		N/A
	(d) instructions on how to remove lighting control parts and non-lighting parts, if any, or how to switch them off or minimise their power consumption during control-gear testing for market surveillance purposes		N/A
	(e) if the control gear can be used with dimmable light sources, a list of minimum characteristics that the light sources should have to be fully compatible with the control gear during dimming, and possibly a list of compatible dimmable light sources		N/A
	(f) recommendations on how to dispose of it at		N/A

**Appendix-Test Data Sheet****1、Initial Lumen Measurement and Energy Efficiency:**

Sample No.	Power Pon (W)	Disp. Factor	Luminous Flux $\Phi$ total (lm)	Luminous Flux $\Phi$ use (lm)	Efficacy (lm/W)	Beam angle (° )
1	154.8	0.983	23560.21	21863.87	152.21	111.6
2	154.9	0.980	23559.96	21863.64	152.09	111.5
3	155.0	0.984	23554.76	21858.82	152.01	111.7
4	155.0	0.980	23563.80	21867.21	152.07	111.4
5	154.8	0.984	23557.47	21861.33	152.20	111.7
6	155.0	0.981	23557.83	21861.67	151.96	111.6
7	155.1	0.984	23557.47	21861.33	151.92	111.2
8	154.9	0.981	23558.55	21862.33	152.07	111.7
9	154.9	0.981	23558.16	21861.97	152.12	111.6
10	154.7	0.983	23552.79	21856.99	152.21	111.3
Avg.	154.9	0.982	23558.10	21861.92	152.09	111.5

**2、Color Measurement:**

Sample No.	Color Temp (CCT)	Color rendering (Ra)	R9	SDCM	X	Y
1	6121	82.2	8	2.1	0.3212	0.3275
2	6123	82.2	6	2.0	0.3216	0.3278
3	6119	82.6	7	2.4	0.3214	0.3280
4	6123	82.6	7	2.0	0.3217	0.3276
5	6121	82.2	7	2.4	0.3213	0.3275
6	6125	82.9	6	1.8	0.3212	0.3278
7	6124	82.5	3	1.9	0.3213	0.3277
8	6123	82.8	5	2.1	0.3215	0.3278
9	6118	83.1	7	2.0	0.3214	0.3277
10	6121	82.8	5	1.9	0.3215	0.3276
Avg.	6122	82.6	6	2.1	0.3214	0.3277

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**4、Different Mode Power 、Flicker、Stroboscopic Effect and Lumen Maintenance Test:**

Sample No.	No-Load Power Pno	Standby Power Psb	Network Sb. Power Pnet	Flicker Pst LM	Stroboscopic Effect SVM	Total Luminous flux (lm) After 3600h	Lumen Maintenance at 3600h (%)	Survival factor at 3600h
1	N/A	N/A	N/A	0	0	22679.29	96.26%	P
2	N/A	N/A	N/A	0	0	22674.34	96.24%	P
3	N/A	N/A	N/A	0	0	22664.63	96.22%	P
4	N/A	N/A	N/A	0	0	22685.11	96.27%	P
5	N/A	N/A	N/A	0	0	22676.66	96.26%	P
6	N/A	N/A	N/A	0	0	22669.94	96.23%	P
7	N/A	N/A	N/A	0	0	22671.94	96.24%	P
8	N/A	N/A	N/A	0	0	22665.92	96.21%	P
9	N/A	N/A	N/A	0	0	22674.96	96.25%	P
10	N/A	N/A	N/A	0	0	22660.37	96.21%	P
Avg.	N/A	N/A	N/A	0	0	22672.32	96.24%	P



### ATTACHMENT 1(S)

Energy efficiency classes			
Standard	Clause	Model No.	Verdict
(EU) 2019/2015	Energy class	YWHBGL-150W, YWHBFN-150W, YWHBHB-150W, YWHBKB-150W	P
Conditions	-Test conditions: -ambition: 25°C/65%R.H. -Test voltage:230V		
$\Phi_{use}$	22500 lm		
$P_{on}$	$P_{on} = 150W$		
$F_{TM}$	1.176		
Technical requirements		Test result	
$\eta_{TM} = (\Phi_{use}/P_{on}) \times F_{TM} (lm/W).$		Energy efficiency class	Total mains efficacy $\eta_{TM}$ (lm/W)
			--
		A	$210 \leq \eta_{TM}$
		B	$185 \leq \eta_{TM} < 210$
		C	$160 \leq \eta_{TM} < 185$
		D	$135 \leq \eta_{TM} < 160$
		E	$110 \leq \eta_{TM} < 135$
		F	$85 \leq \eta_{TM} < 110$
		G	$\eta_{TM} < 85$
Factors FTM by light source type			
Light source type		Factor $F_{TM}$	--
Non-directional (NDLS) operating on mains (MLS)		1.000	N/A
Non-directional (NDLS) not operating on mains (NMLS)		0.926	N/A
Directional (DLS) operating on mains (MLS)		1.176	P
Directional (DLS) not operating on mains (NMLS)		1.089	N/A

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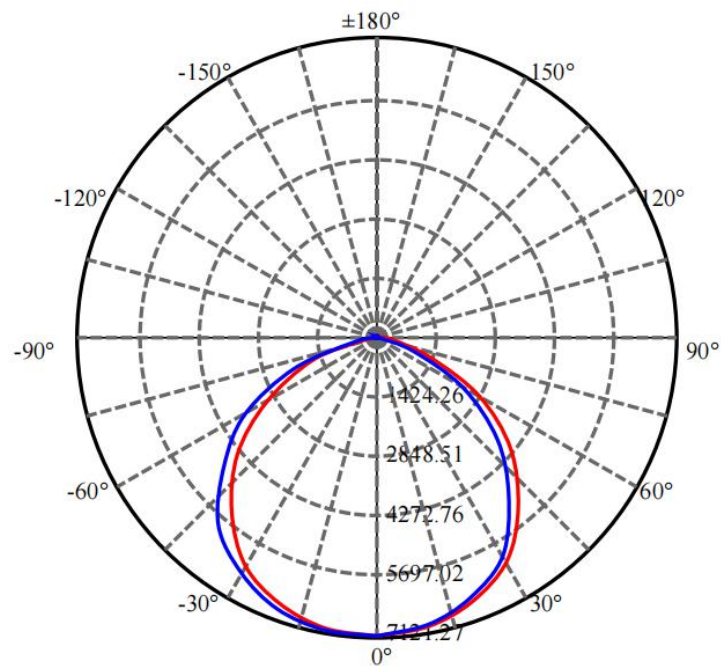
Ningbo LCS Standard Technology Service Co., Ltd.

Add: 101-106, 202-206, Building 037, No. 166, Jinghua Road, Meixu Street, Ningbo High-tech Zone, Yinzhou District, Ningbo City, Zhejiang Province, China

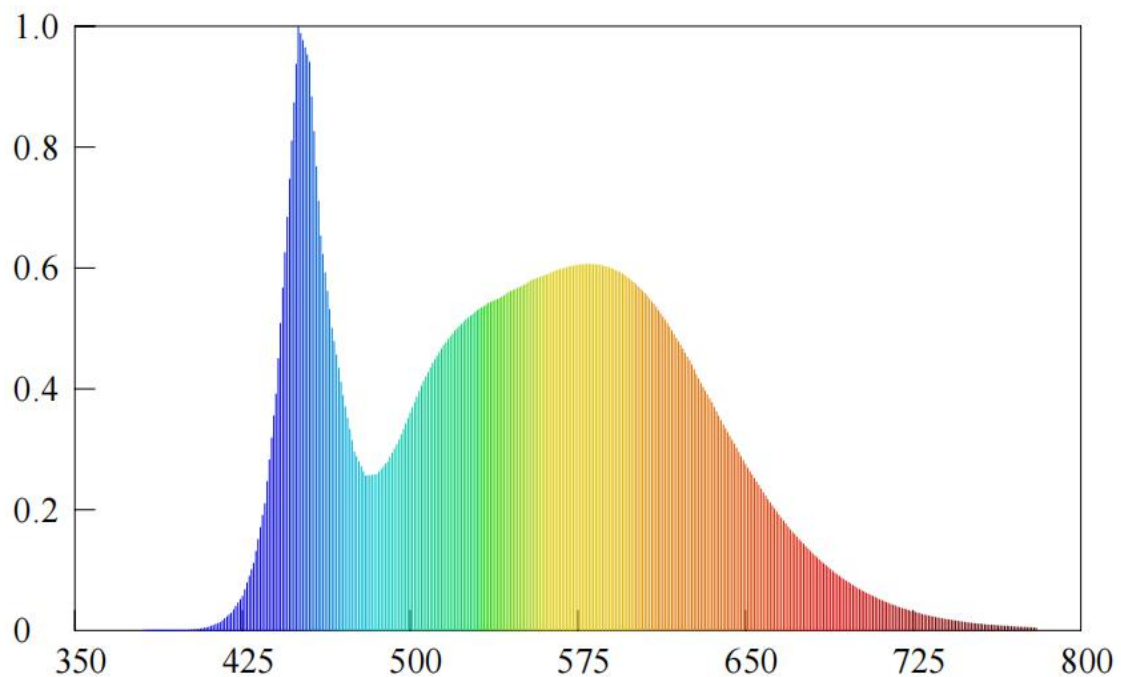
Phone: 0574-8790 8011, Fax: +(86) 0574-8790 6976, <http://www.lcs-cert.com>

**ATTACHMENT 2(S)**

Luminous Intensity Distribution Diagram



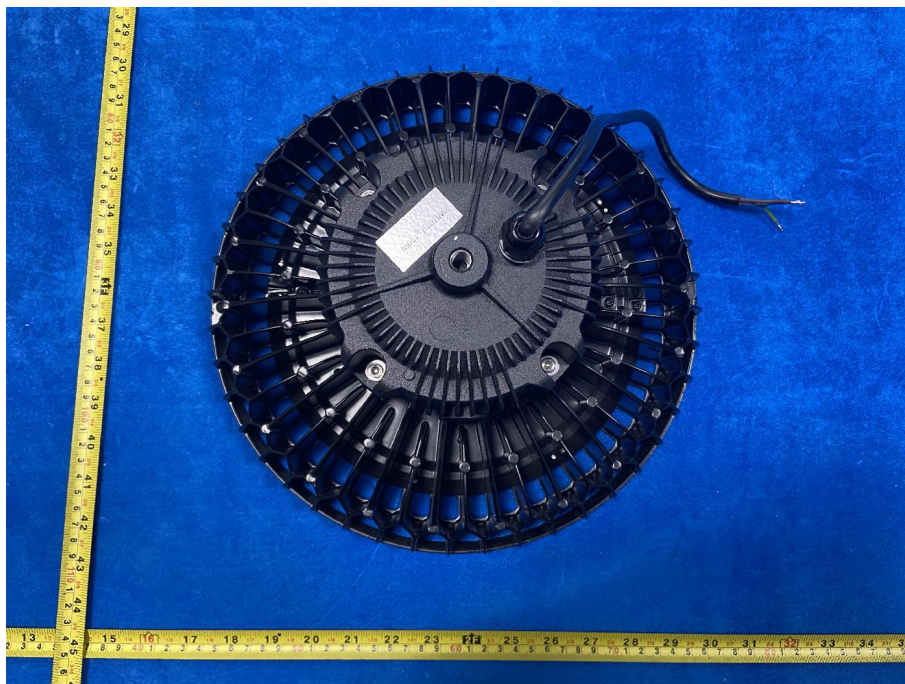
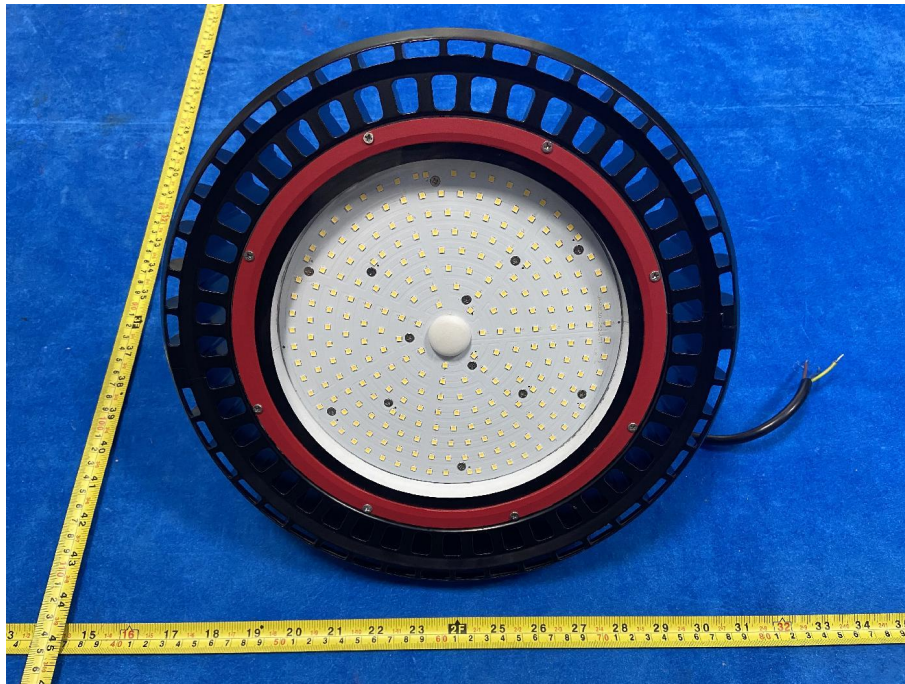
Spectral power distribution





**ATTACHMENT 3(S)**

## Photos



----- End of test report-----