

ZHONGSHAN Y-CHEN LIGHTING  
TECHNOLOGY CO.LTD

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# TEST REPORT

Prepared For :	ZHONGSHAN Y-CHEN LIGHTING TECHNOLOGY CO.LTD 6F,01B,No.28, Kanglong N0.3Rd, Xinmao Industrial, Henglan Town, Zhongshan City
Product Name:	LED STREET LIGHT
Model :	YC-S 028-50W S(small)
Prepared By :	Guangdong KEYS Testing Technology Co., Ltd.  Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
Test Date:	May 18, 2024 - May 23, 2024
Date of Report :	May 18, 2024
Report No.:	KEYS240522088001LD-01

<b>TEST REPORT</b> <b>OPTICAL AND ELECTRICAL MEASUREMENTS OF SOLID-STATE LIGHTING PRODUCTS ACCORDING TO LM-79-19 APPROVED METHOD</b>	
<b>Testing laboratory</b> .....	Guangdong KEYS Testing Technology Co., Ltd.
<b>Address</b> .....	Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
<b>Testing location</b> .....	Guangdong KEYS Testing Technology Co., Ltd.
<b>Applicant</b> .....	ZHONGSHAN Y-CHEN LIGHTING TECHNOLOGY CO.LTD
<b>Address</b> .....	6F,01B,No.28, Kanglong N0.3Rd, Xinmao Industrial, Henglan Town, Zhongshan City
<b>Test Procedure</b> .....	Optical and Electrical Measurements of Solid-State Lighting Products According to LM-79-19 Approved Method.
<b>Non-standard test method</b> .....	N/A
<b>Type of test object</b> .....	LED STREET LIGHT
<b>Trademark</b> .....	N/A
<b>Model/type reference</b> .....	YC-S 028-50W S(small)
<b>Rating</b> .....	TMX-50W 80-450V
<b>Manufacturer of LED driver</b> .....	8KV
<b>LED driver surge protection</b> .....	PCT3030
<b>LED type</b> .....	PCT3030
<b>LED Manufacturer</b> .....	SHENZHEN LVMING PHOTOELECTRIC CO., LTD
<b>Rating</b> .....	AC85-375V, 50/60Hz, 50W
<b>Manufacturer</b> .....	ZHONGSHAN Y-CHEN LIGHTING TECHNOLOGY CO.LTD
<b>Address</b> .....	6F,01B,No.28, Kanglong N0.3Rd, Xinmao Industrial, Henglan Town, Zhongshan City
<b>Particulars: test item vs. test requirements</b>	

Name and address of the testing laboratory: Guangdong KEYS Testing Technology Co., Ltd.  
Building 1, No.18, Shihuan Road, Dongcheng  
Subdistrict, Dongguan, Guangdong, China

Tested by (name + signature): Sunny Li



Approved by (name + signature): Jason Zhan



## 1.0 TEST METHOD

Test methods according to IESNA LM-79-19 following chapter:

### 4.0 Physical and Environmental Test Conditions

Due to the thermal characteristics of LEDs, photometric values, optical measurements, and electrical characteristics of SSL products are sensitive to changes in ambient temperature or air movement.

#### Ambient Temperature:

The ambient temperature in which measurements are taken shall be maintained at 25 °C with a tolerance interval of  $\pm 1.2$  °C, measured at a point not more than 1.5 m from the SSL product and at the same height as the SSL product. (See Annex D.)

For example, if the expanded uncertainty ( $k=2$ ) of the thermometer is 0.2 °C, the reading of the thermometer shall be  $\pm 1.0$  °C. The temperature sensor shall be shielded from direct optical radiation from the SSL product and direct optical radiation from any other source, such as an auxiliary lamp. Measurements performed at other than this recommended temperature constitute a nonstandard condition and shall be noted in the test report.

### 5.0 Electrical Test Conditions

#### 5.1 Power Supply Requirements

**5.1.1 Voltage Waveform and Frequency.** During operation of the SSL product, the AC power supply shall have a sinusoidal voltage waveform at the prescribed frequency (typically 60 Hz or 50 Hz) such that the total harmonic distortion or RMS summation of the harmonic components (as discussed in Section 5.3.4) shall not exceed 3% of the fundamental frequency during operation of the DUT. The supplied frequency shall have a tolerance interval of  $\pm 2$  Hz from the prescribed frequency.

**5.1.2 AC Voltage Regulation.** The voltage of an AC power supply (RMS voltage) applied to the DUT shall be regulated to within  $\pm 0.2\%$  under load. The AC power supply shall have a current crest factor capability greater than required by the DUT. If the current crest factor of the waveform required by the DUT is unknown, the power supply shall have a current crest factor capability of at least 10.

**5.1.3 DC Voltage Regulation.** The voltage of a DC power supply (instantaneous voltage) applied to the DUT shall be regulated to within  $\pm 0.2\%$  under load. The AC voltage component or ripple factor of the DC regulated voltage shall be less than 0.5% (RMS) of the DC regulated voltage.

### 6.0 Test Preparation

#### 6.1 DUT Identification

It is always good laboratory practice to mark or clearly identify DUTs.

#### 6.2 DUT Handling

While SSL products are not as sensitive to movement as incandescent lamps, vibrations and mechanical shocks should be minimized. Devices to be tested should not be stored under temperature extremes or at high-humidity conditions.

#### 6.3 Seasoning

SSL products shall be tested with no seasoning.

#### **6.4 Pre-burn and Stabilization**

Before measurements are taken, the DUT shall be operated long enough to reach photometric and electrical stabilization and temperature equilibrium.

The time required for stabilization depends on the type of SSL product. The stabilization time typically ranges from 30 minutes for small integrated LED lamps to two or more hours for large SSL luminaires. During stabilization, the SSL product shall be operated in ambient temperature as specified in Section 4.2.1, and in the operating orientation as specified in Section 6.5. Stability shall be achieved when the variation (maximum to minimum) of at least three readings of the light output and electrical power consumption, taken at a maximum of 10-minute intervals over a period of 20 minutes and divided by the last of these measurements chronologically, is less than 0.5%. Readings should be taken at regular intervals.

For subsequent measurements of the same SSL product (which has reached initial stabilization) at a different color or intensity control setting, an alternate method of determining stability is the point at which the variation in lumen output and electrical power is projected via linear regression to be less than 0.5% over 20 minutes; the linear regression shall be based on at least three measurements taken at least one minute apart. The stabilization time used for each measurement shall be recorded.

SSL products may be pre-burned for several hours to decrease the stabilization time required and the magnitude of change in light output and power consumption during the stabilization period. For the case in which the intended use requires only a limited lifetime (on the order of 1,000 hours or less), DUTs should not be pre-burned prior to performing measurements.

#### **7.0 TEST METHODS FOR TOTAL LUMINOUS FLUX MEASUREMENT**

##### **8.0 Luminous Intensity or Optical Angular Distribution Measurement**

##### **9.0 Chromaticity Uniformity Measurements**

#### **10.0 UNCERTAINTY STATEMENT**

As the tolerance intervals that have been provided throughout this standard are intended to limit the magnitude

of the measurement uncertainty, direct calculation of the measurement uncertainty for an SSL product measurement is not required. If the provided guidelines are adhered to, the expected expanded measurement uncertainty for the measurement of total luminous flux is on the order of  $\pm 4\%$  ( $k=2$ ). This is consistent with the summary results of a proficiency test conducted by 118 laboratories worldwide.'

#### **Remark:**

1. 0 hour season, pre-heating the lamp for 45 minutes at least;
2. Ambient: 65%RH, 25°C.

**SUMMARY OF TEST RESULT:**

<b>SPECTRORADIOMETRIC TESTING IN INTEGRATING SPHERE</b>	
<b>PHOTOMETRIC</b>	--
Total integrated flux(lumens)	6031.14
<b>EFFICACY</b>	--
Lumens/watt	121.62

<b>LUMINOUS INTENSITY DISTRIBUTION</b>	
Maximum intensity (if applicable)(cd)	2517
Beam angle(50%Imax)(°)	120.7°
Zonal lumens in the 0°-60°zone (%)	85.2
Zonal lumens in the 0°-90°zone (%)	100
Zonal lumens in the 0°-120°zone (%)	-
Zonal lumens in the 0°-180°zone (%)	-

**Note:** The test data was only good for the test sample. It may have deviation for other test sample.

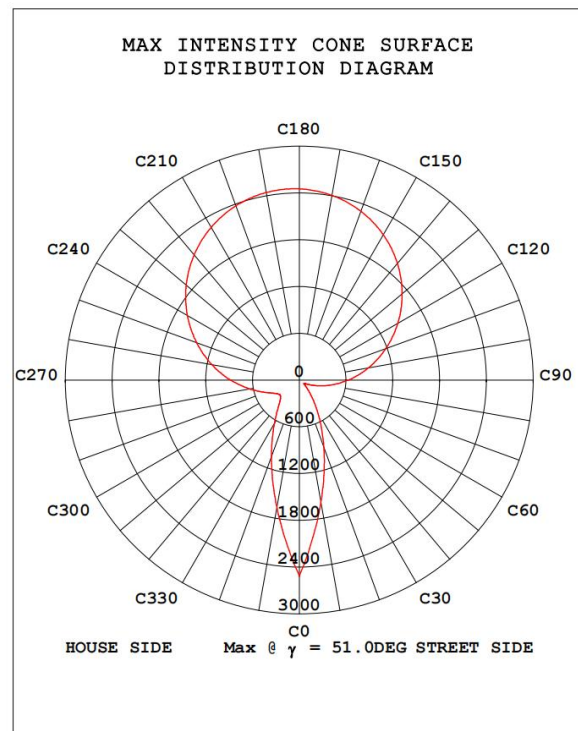
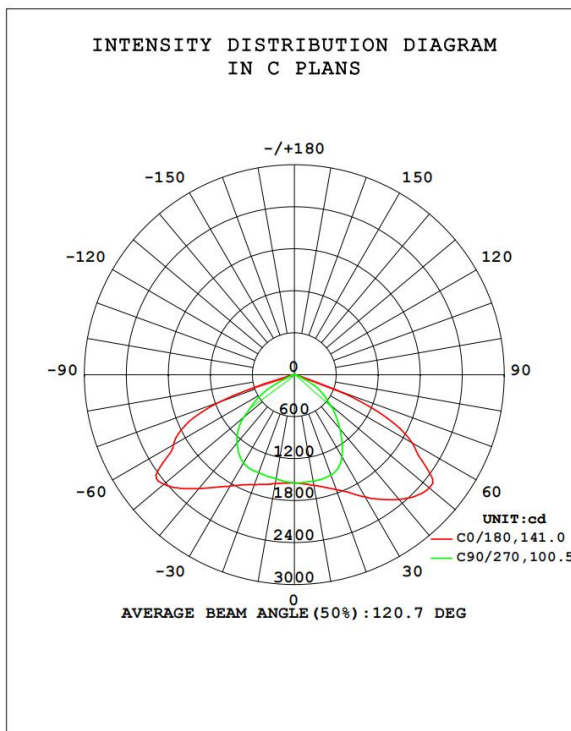


Image View

## STREETLIGHT PHOTOMETRIC TEST REPORT

Test:U:219.15V I:0.2316A P:50.168W PF:0.9883 Freq:60.04Hz Lamp Flux:6031.14x1 lm		
SPEC.:	TYPE:	WEIGHT:
MFR.: EVERFINE	DIM.:	SERIAL No.:
	SUR.:360*145mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 120.22 lm/W
MODEL	--	I <sub>max</sub> (cd)	2517	η street_up (%)	0.0	
NOMINAL POWER(W)	--	LOR (%)	100.0	η street_down (%)	48.5	
RATED VOLTAGE(V)	--	TOTAL FLUX(lm)	6031	η house_up (%)	0.0	
NOMINAL FLUX(lm)	6031.14	MAXIMUM @ (C, γ )	0,51.0	η house_down (%)	51.5	
LAMPS INSIDE	1	η up (%)	0.0	76 FLASHAREA(m2)	0.00100	
TEST VOLTAGE (V)	--	η down (%)	100.0	SLI	16.064	



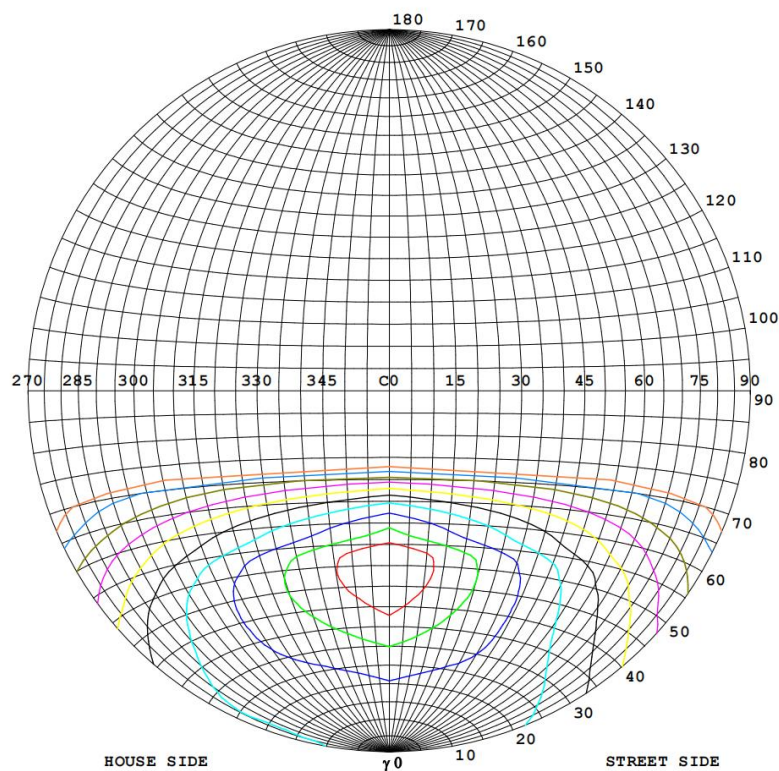
C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2024-04-20

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
Humidity:65.0%  
Test Distance:10.200m [K=1.0000]  
Remarks:



### STREETLIGHT ISOCANDELA DIAGRAM

Test:U:219.15V I:0.2316A P:50.168W PF:0.9883 Freq:60.04Hz Lamp Flux:6031.14x1 lm		
SPEC.:	TYPE:	WEIGHT:
MFR.: EVERFINE	DIM.:	SERIAL No.:
	SUR.:360*145mm	Shielding Angle:



#### Classification:

IES:Type I - Short  
 CIE:Narrow - Short  
 IES:Cut-off  
 CIE:Full cut-off  
 Max.At80:6.927cd/klm  
 Max.At90:0.1294cd/klm  
 Max.80-90:6.927cd/klm

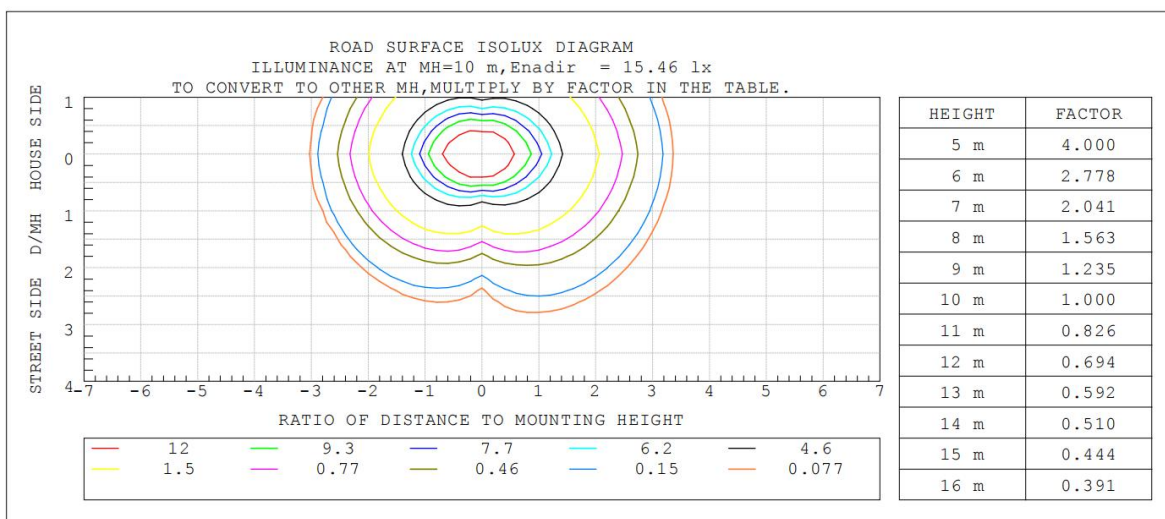
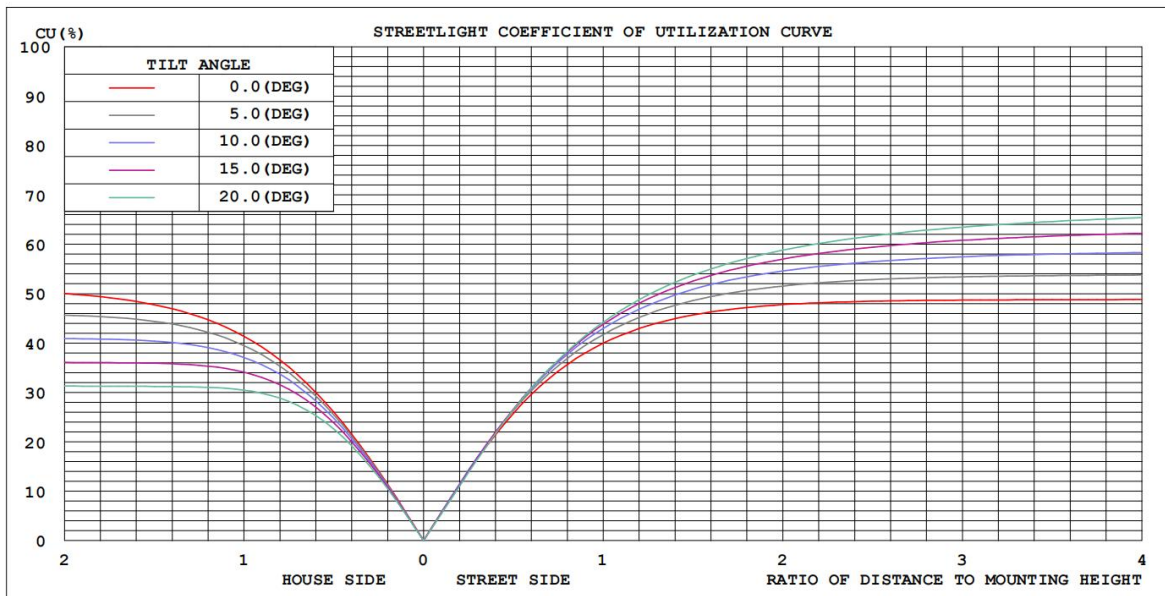
ISOCANDELA DIAGRAM	
UNIT	cd
Imax=100%	2517
90%	2265
80%	2014
70%	1762
60%	1510
50%	1259
40%	1007
30%	755
20%	503
10%	252
5%	126

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2024-04-20

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
 Humidity:65.0%  
 Test Distance:10.200m [K=1.0000]  
 Remarks:



### COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM



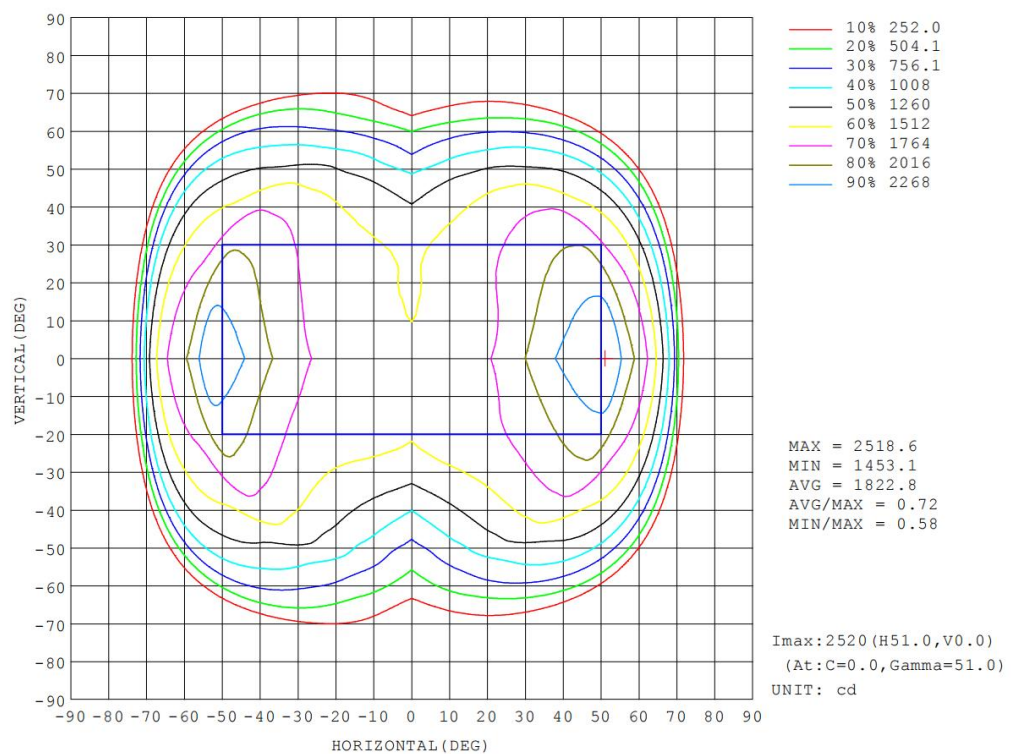
C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2024-04-20

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
Humidity: 65.0%  
Test Distance: 10.200m [K=1.0000]  
Remarks:



### ISOCANDELA DIAGRAM

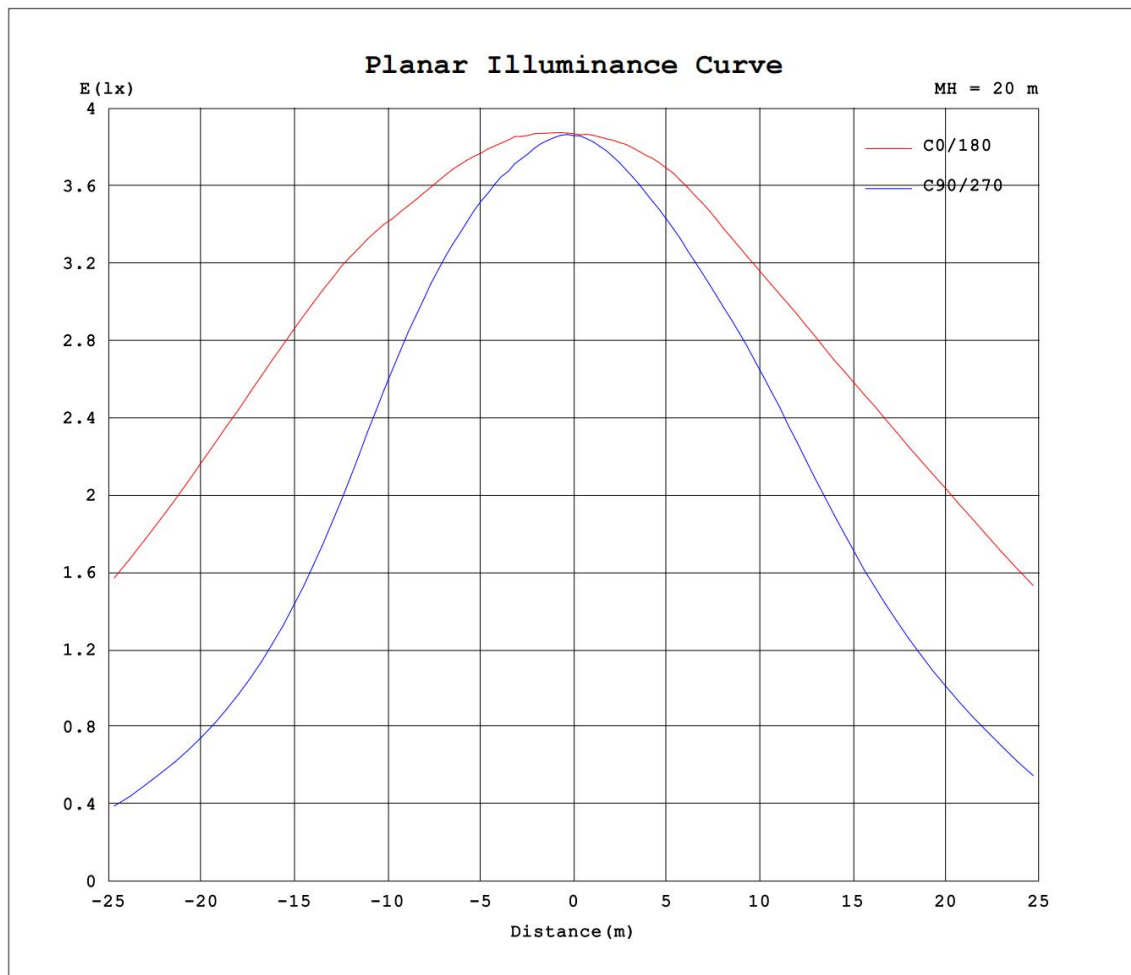
Test:U:219.15V I:0.2316A P:50.168W PF:0.9883 Freq:60.04Hz Lamp Flux:6031.14x1 lm		
SPEC.:	TYPE:	WEIGHT:
MFR.: EVERFINE	DIM.:	SERIAL No.:
	SUR.:360*145mm	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2024-04-20

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
Humidity:65.0%  
Test Distance:10.200m [K=1.0000]  
Remarks:

### Planar Illuminance Curve



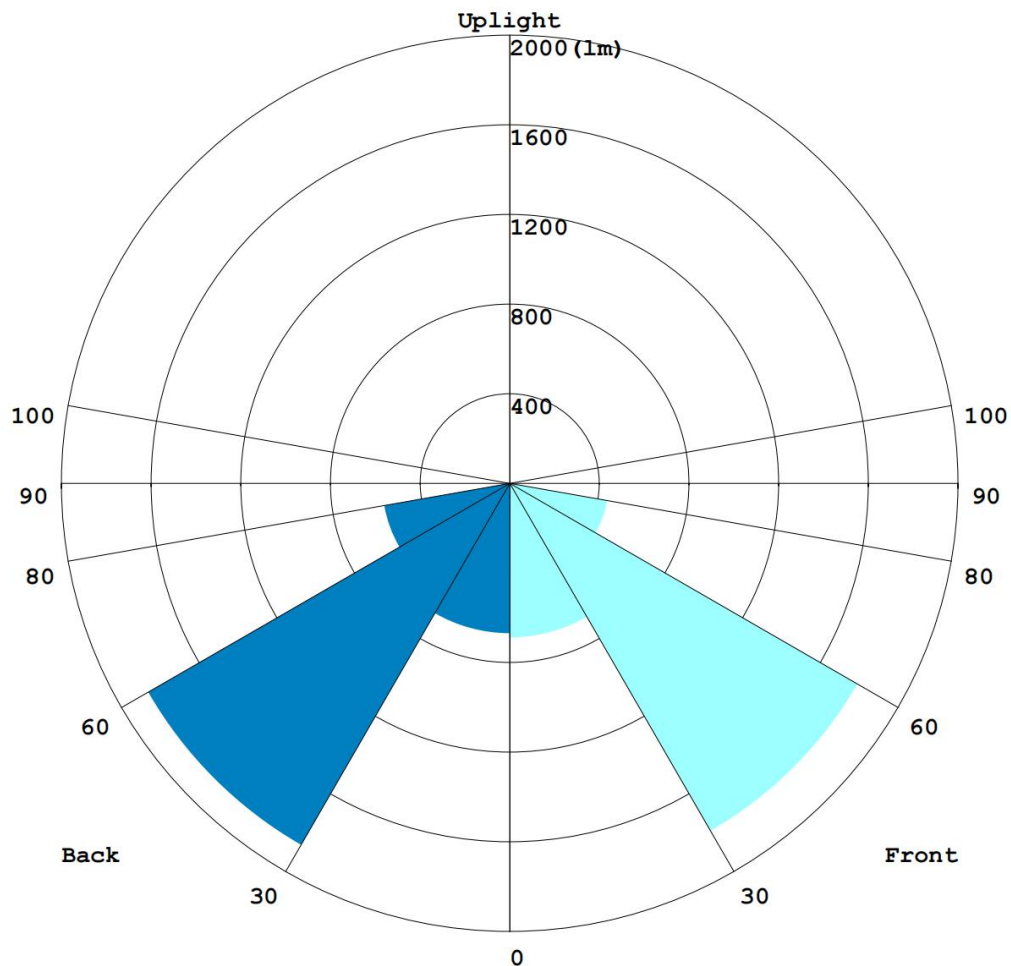
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2024-04-20

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
 Humidity: 65.0%  
 Test Distance: 10.200m [K=1.0000]  
 Remarks:

### LCS REPORT

Test:U:219.15V I:0.2316A P:50.168W PF:0.9883 Freq:60.04Hz Lamp Flux:6031.14x1 lm		
SPEC.:	TYPE:	WEIGHT:
MFR.: EVERFINE	DIM.:	SERIAL No.:
	SUR.:360*145mm	Shielding Angle:

### LUMINAIRE CLASSIFICATION SYSTEM(LCS) GRAPH



C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2024-04-20

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
Humidity:65.0%  
Test Distance:10.200m [K=1.0000]  
Remarks:







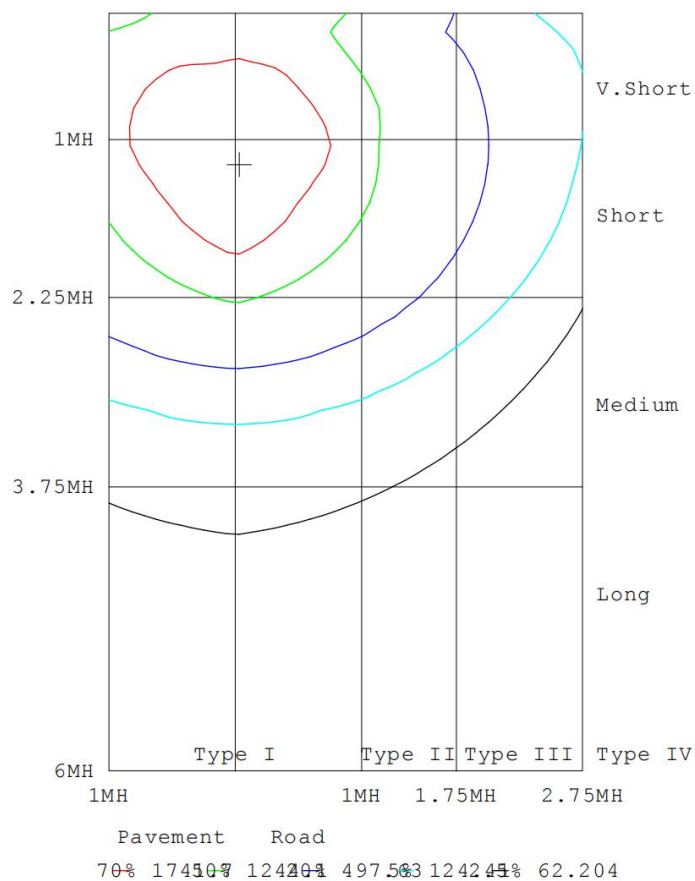


Image Viewer

## ROAD ISOCANDELA REPORT

Test:U:219.15V I:0.2316A P:50.168W PF:0.9883 Freq:60.04Hz Lamp Flux:6031.14x1 lm		
SPEC.:	TYPE:	WEIGHT:
MFR.: EVERFINE	DIM.:	SERIAL No.:
	SUR.:360*145mm	Shielding Angle:

ROAD SURFACE ISOCANDELA DIAGRAM

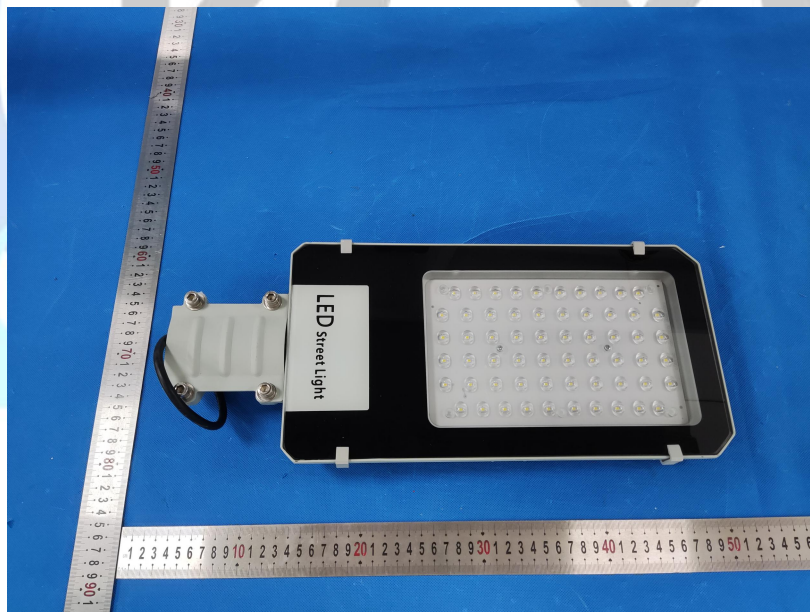
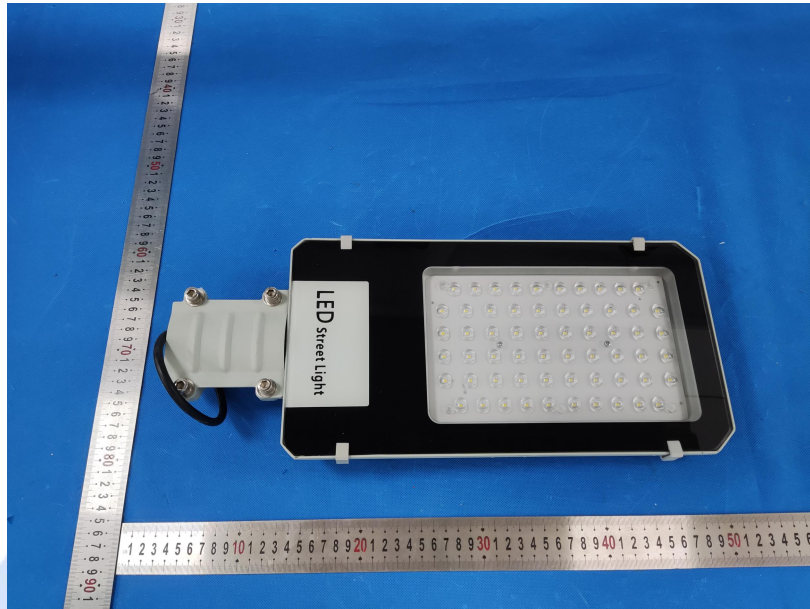


C Range: 0 - 360DEG  
C Interval: 90.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2024-04-20

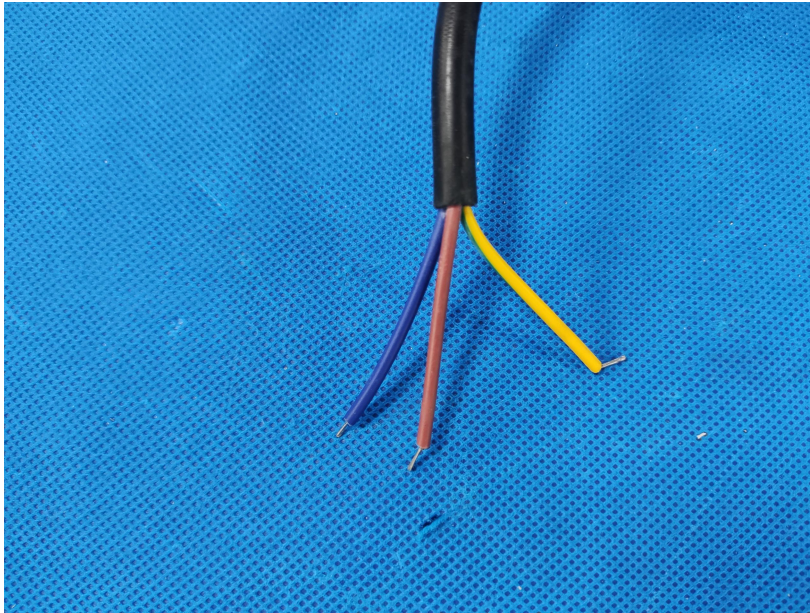
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.411  
Humidity:65.0%  
Test Distance:10.200m [K=1.0000]  
Remarks:

Report No: KEYS240522088001LD-01

## ANNEX A:









**Photo-documentation**