

# **Specification of Transformer Solar Light (Monitoring version)**

## **1. Product Overview**

This is our patented product, designed for providing our users integrated lighting and security services. We have passed multiple international certifications such as CE and UL.

The main advantages of our product include: "High-definition monitor", "5G IOT", "ultra-low power consumption", "strong battery life", "signal stability /no disconnection", "outstanding luminous efficiency".

The lamp body has an inner high-capacity lithium battery, which relies on the solar panel to absorb sunlight energy then convert it into electrical energy in the battery, which then being provided to the solar lamp and monitoring work. Wi-Fi connection is required for monitoring operation, then the operation can be viewed remotely in real time, switch lights on&off or playback through APP. Products are widely used in home backyard, farms, orchards, etc.

## **2. Product design**

The company's product appearance designing team inherits the future SI-FI sense and the industrial visual style, aiming to

break through the traditional design of outdoor lighting products. Our patented product (patent number: 2020300165392) is out there to create a new visual appearance for outdoor lighting products, and strive to create the next hottest product in the market.



### 3. Product parameter

Product model	100W	200W	300W	400W
<b>Basic parameters</b>				
Lamp body material	Die-casting aluminum	Die-casting aluminum	Die-casting aluminum	Die-casting aluminum
Lens material	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
Lamp body size (mm)	217 * 179 * 45	258 * 213 * 45	312 * 270 * 50	365 * 295 * 50
Number of LED (pcs)	82	144	236	324
Battery capacity (mAh)	18000	24000	30000	42000
Photovoltaic panel	5 V/ 20 W (350 * 350 mm)	5 V/ 28 W (500 * 350 mm)	5 V/ 35 W (580 * 350 mm)	5 V/ 40 W (630 * 350 mm)
Discharge current	3.2 V/ 1.8 A	3.2 V/ 2.5A	3.2 V/ 4A	3.2 V/ 5A
Luminous flux	730 LM	1160 LM	2600 LM	3000 LM
<b>Monitoring parameters</b>				
Resolution	1080P day and night full-color			
Focal length	4MM			
System	Linux			
Nighttime visual range	Better within ten meters			
Active Wi-Fi range	Up to 50 meters if there's no obstacle			
APP PLATFORM	Tuya Smart			
TF card	Options from 16Gto 128G			

## **4. Monitoring function**

### **4.1 Low power consumption monitoring program**

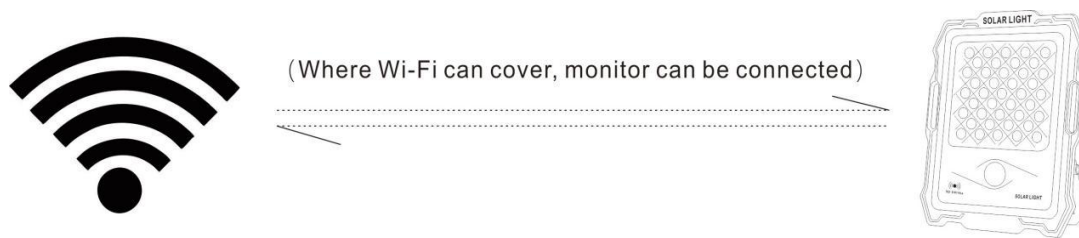
The ultra-low power monitoring program independently developed by our company which consumes power less than 5 ampere hours in 24 hours. It means consumption is much lower than similar products on the market. We manage to greatly reduce the requirements for solar panels and batteries then greatly reduce the price threshold for solar monitor. At the same time, it also ensures a good rainy day efficiency.

### **4.2 HD camera**

The use of 1080P HD chip and lens ensuring the clarity of video and pictures. Meanwhile the day and night full-color function is adopted to ensure the same excellent monitoring efficiency at night (check Annex 1 for details)

### **4.3 Signal stability**

In the early stage of research and development of our product, the special outdoor conditions have been fully considered, then we designed the special enhanced signal to make sure the strong signal penetration which is not easy to drop. If Wi Fi gets disconnected, the product can automatically connect to Wi Fi after recovering.



(Where Wi-Fi can cover, monitor can be connected)

#### **4.4 International APP platform**

This product selects the international famous platform "Tuya Smart" as our APP service provider. The platform is compatible with more than 100 national languages. The platform can automatically switch the corresponding language according to the user's mobile phone voice version. Large platforms are more stable, more reliable, and more convenient for using, without worrying about potential risks such as background server shut down.

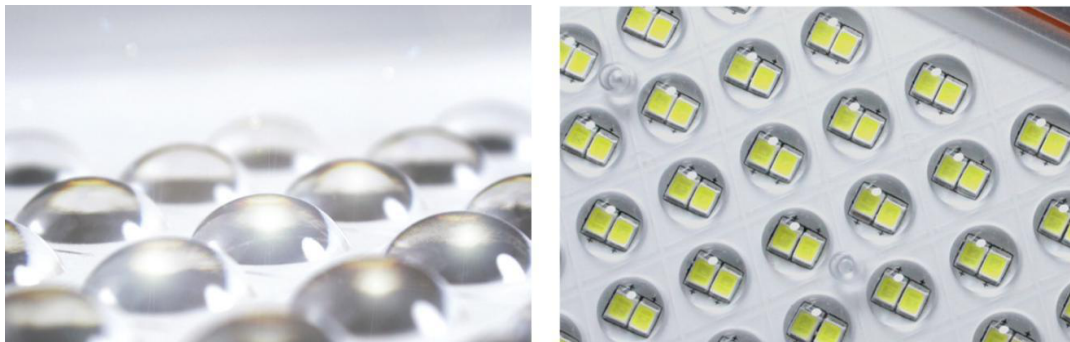
#### **4.5 Rich in functions**

Products can remotely switch lights on/off through APP, multiple people at the same time use or control, moving monitoring alarm and other functions to bring users the latest Internet of Things technical experience; At the same time, it has multiple functions such as photographing, video recording, playback, and time-power-off/on which can fully meet the user's monitoring needs (check Annex 2 for details).

### **5. Product advantages**

### **5.1 High lumens, brightness increased by 50%**

This product adopts the design of LED optical lens. The lens can effectively gather the ray of the light source to improve the brightness and reduce the light loss. The light is improved by more than 20 compared to the traditional reflector. At the same time, the PC (Teijin) material is used in the lens of this product which has a transmittance of 92 after processing, which is much higher than 80 of the transmittance. Summing up the advantages, under the same configuration, the overall lighting efficiency of this product is improved by 30-50% compared with competition (See Annex 3 for details).

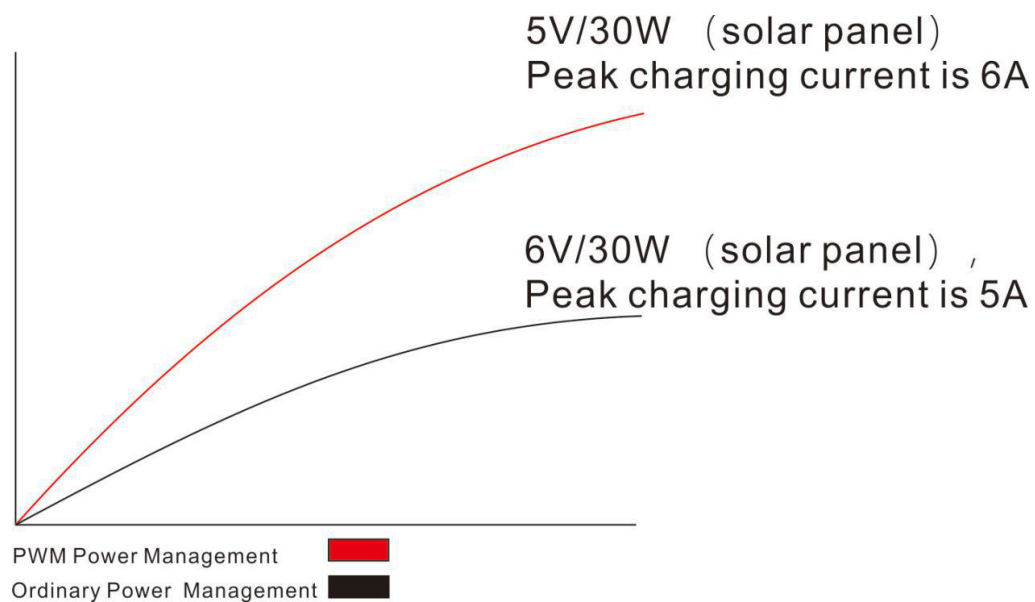


### **5.2 P-MOS charging, charging efficiency increased by 20%**

This solar controller uses PWM-controlled P-MOS charging, a unique charge/discharge management system with more efficient charge/discharge efficiency. For example: The market routinely uses 6 V/ 30 W photovoltaic panels with a peak charging current of 5 A; but our product uses 5 V/ 30 W photovoltaic panels with a peak charging current of 6A. The

charging efficiency is improved by 20%.

In the meantime, the product can be used for high-power lighting with a maximum power of 30 W, which can be applied to floodlit court, 10-meter high pole street lights, architectural lights, etc.



### **5.3 Smart power management system, automatic power distribution at night**

We are committed to meet the needs of customers "365 days, daily brightness", our company has developed an smart power management system in cooperation with the University of Electronic Science and Technology to make sure our product not only has higher charging efficiency, but also can actively identify the amount of charging per day, so as to independently adjust the capacity to achieve a better rainy day efficiency.

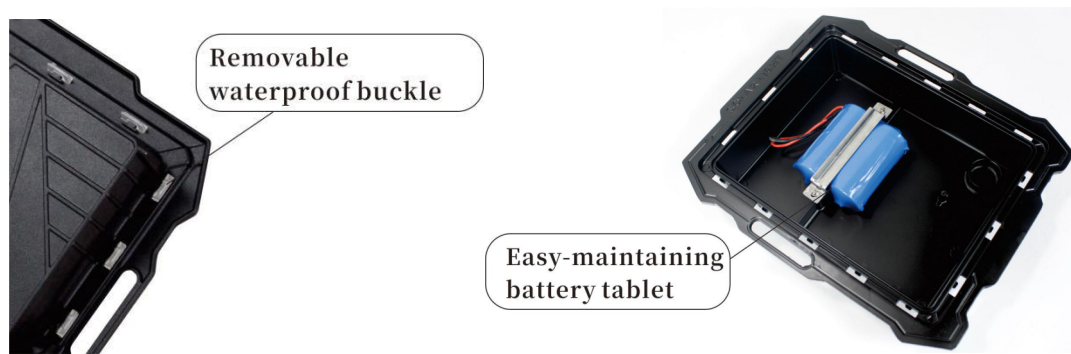
At the same time, the user can choose the radar module. After

adding the radar module, users can pick a variety of brightness modes through the remote control, such as bum steady, full radar mode, 3 + X mode (steady light for 3 hours, automatically turn to radar after 3 hours), 4 + X mode (steady light for 3 hours, automatically turn to radar after 3 hours), etc. Users can choose the most suitable lighting and monitoring plan according to different regions and seasons. The radar sensing distance is 6-8 meters, which can be triggered continuously.

#### **5.4 “Special” structural design to keep maintenance problems away**

**5.4.1 Waterproof design.** This product adopts Snap-On design, does not need to be glued. It has the characteristics of quick assembly and easy opening and an IP 66 waterproof rating which means it can withstand a short period of shallow water immersion (please be careful).

**5.4.2 Tableting design.** The battery is fixed by metal pressing, which is better than the methods of the battery gluing in this very industry. It has the characteristics of not easy to fall off, easy disassembling and assembling for environmental protection.



## 5.5 Multifunctional and portable design for wider practical scenes

The product is equipped with high-end leather handles, which can be used as portable lights, emergency lights, etc. It is suitable for outdoor camping, night fishing and other application scenarios.



## 6. Lighting model

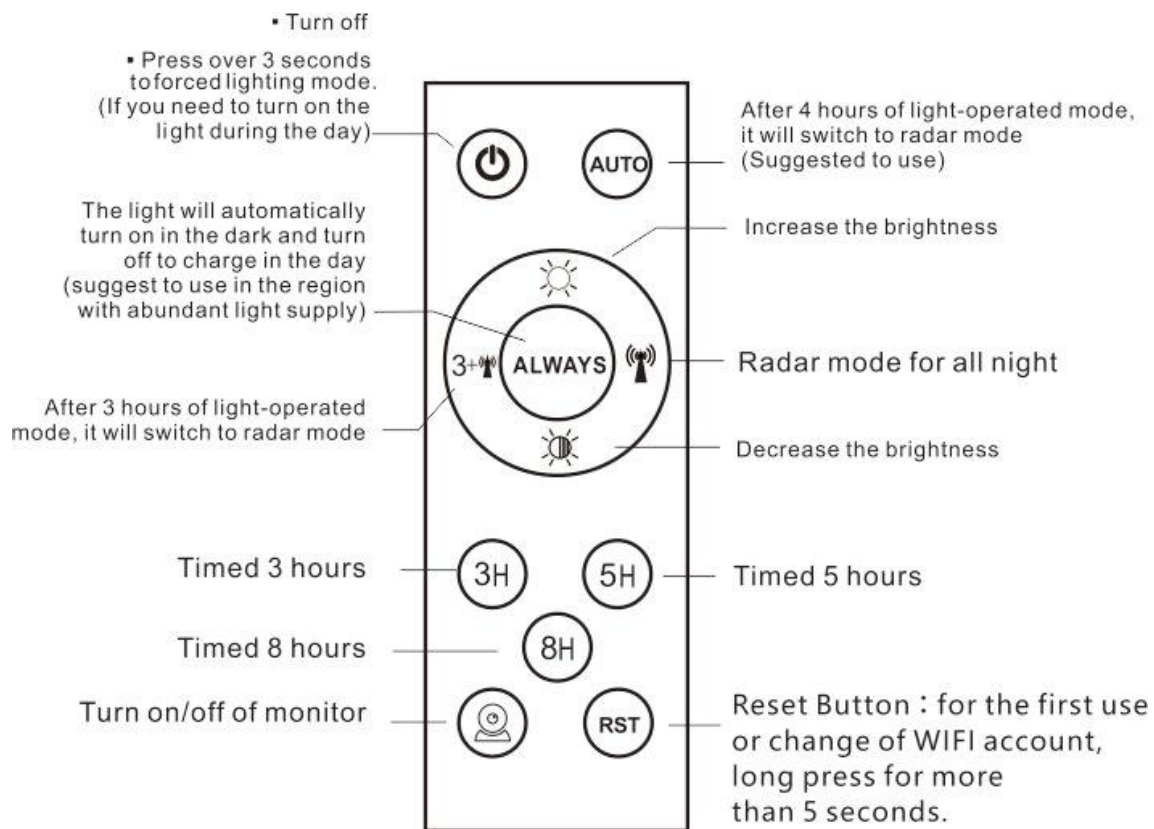
Power reduction in different modes	Model-On Time				
	0-0.5H	0.5H-2H	2H-4H	4H-5H	5H to morning
Auto model	100-80%	80-60%	60-50%	radar	
Constant lighting model	100-80%	80-60%	60-50%	50-40%	40-30%
Full radar model	People moving can reduce the power by the proportion of the constant lighting mode, down to 40% with walking by 10%				



3+X	The power is reduced according to the ratio of the constant light mode, and after 3 hours, the radar sensor will be turned on.
4+X	The power is reduced according to the ratio of the constant light mode, and after 4 hours, Tit will be turned to radar sensor.

(P.S. In the constant light mode, when the cell voltage is lower than 3.0 V, the system will automatically switch to radar mode.)

## 7. Illustration of remote control



## 8. Product packaging



Portable



Outer packing

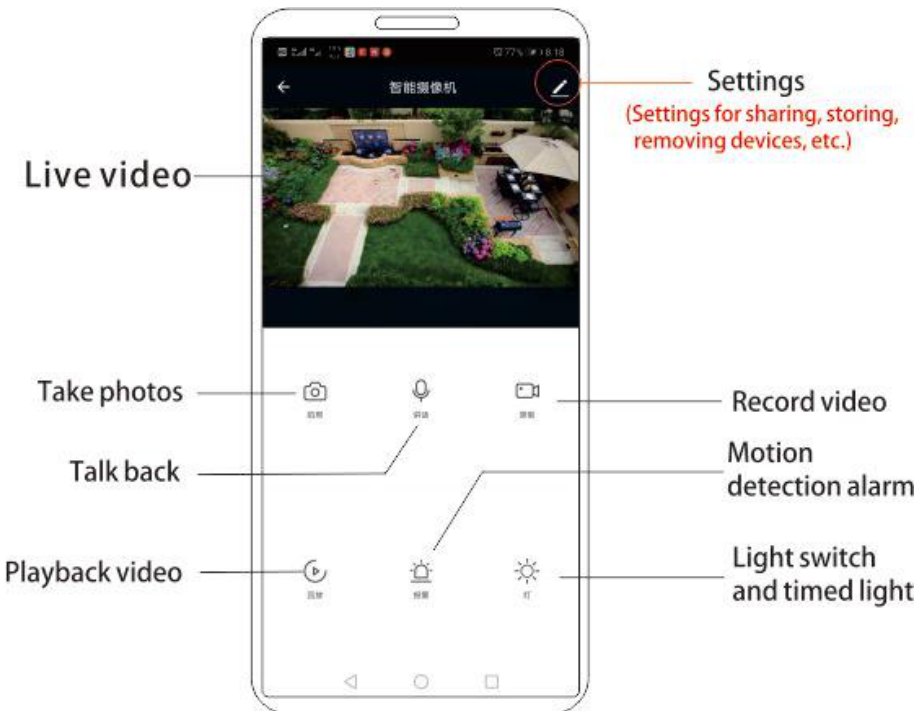
Packing List					
Model	box size(CM)	Carton size(CM)	Packing N (PCS)	N.W(KGS)	G.W.(KGS)
100W	36.5*8*36.5	66*37.5*38	8	19.2	21.5
200W	51.5*8*36.5	52.5*51*38	6	20.7	24.2
300W	59.5*8*36.5	60.5*43*38	5	21.25	24.5
400W	65*8*36.5	66*34.5*38	4	20	22.85

## Attachment File

### 1. HD video rindering



### 2. APP function display



### 3. Electric light source testing

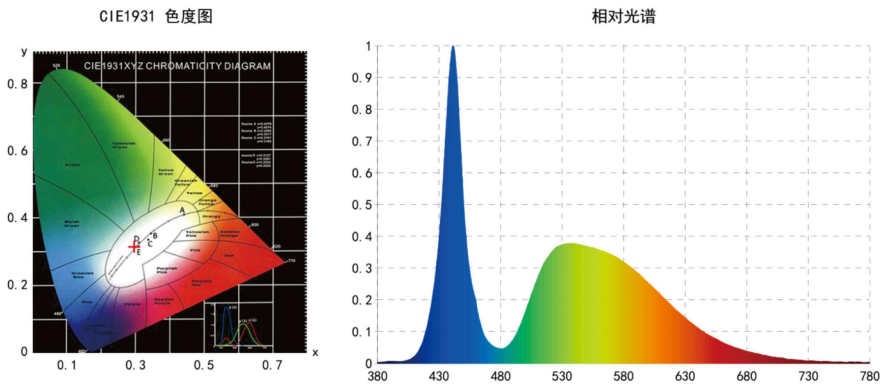
(p.s: This test is processed when the battery voltage is 3.2 V.

If the battery power is different, slight change in the test result is possible)

100W电光源测试报告

颜色参数  
色品坐标:  $x=0.2965$   $y=0.3155$   $u=0.1915$   $v=0.3057$   
色品坐标:  $u'=0.1915$   $v'=0.4585$   
相关色温: CCT=7669K 主波长:  $\lambda_d=485.3\text{nm}$  质心波长:  $\lambda_b=532\text{nm}$  峰值波长:  $\lambda_p=441.7\text{nm}$   
半宽度:  $\Delta\lambda=17.42\text{nm}$  色纯度:  $Pe=13.83\%$  红色比:  $R=0.106$  绿色比:  $G=0.86$  蓝色比:  $B=0.033$   
显色指数:  $Ra=66.62$   
R 1=67 R 2=67 R 3=68 R 4=68 R 5=70 R 6=61 R 7=73  
R 8=59 R 9=-43 R10=23 R11=71 R12=42 R13=65 R14=82  
R15=60

光度参数  
光通量(380-780nm): 727.045lm 光功率(380-780nm): 2.325W 发光效率(380-780nm): 0lm/W



200W

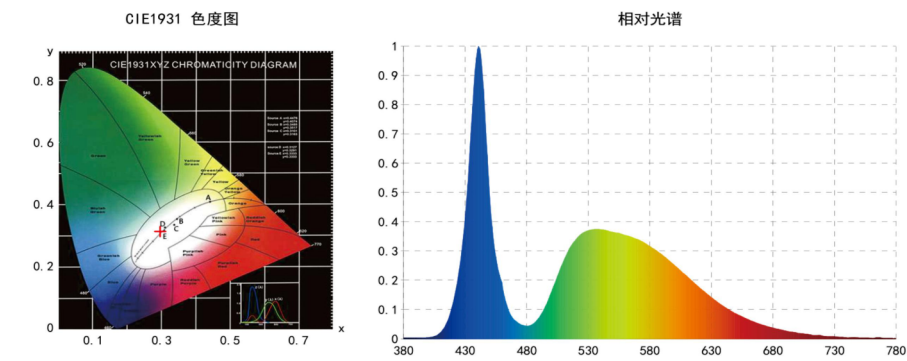
电光源测试报告

颜色参数

色品坐标:  $x=0.2965$      $y=0.3152$      $u=0.1916$      $v=0.3056$   
色品坐标:  $u'=0.1916$      $v'=0.4583$   
相关色温: CCT=7675K    主波长:  $\lambda_d=485.1\text{nm}$     质心波长:  $\lambda_b=532\text{nm}$     峰值波长:  $\lambda_p=441.3\text{nm}$   
半宽度:  $\Delta\lambda=17.39\text{nm}$     色纯度:  $Pe=13.88\%$     红色比:  $R=0.106$     绿色比:  $G=0.861$     蓝色比:  $B=0.033$   
显色指数:  $Ra=66.27$   
R 1=67    R 2=67    R 3=68    R 4=68    R 5=70    R 6=60    R 7=72  
R 8=59    R 9=-44    R10=22    R11=71    R12=42    R13=65    R14=82  
R15=60

光度参数

光通量 (380-780nm) : 1160.713 lm    光功率 (380-780nm) : 3.88W    发光效率 (380-780nm) : 0lm/W



300W

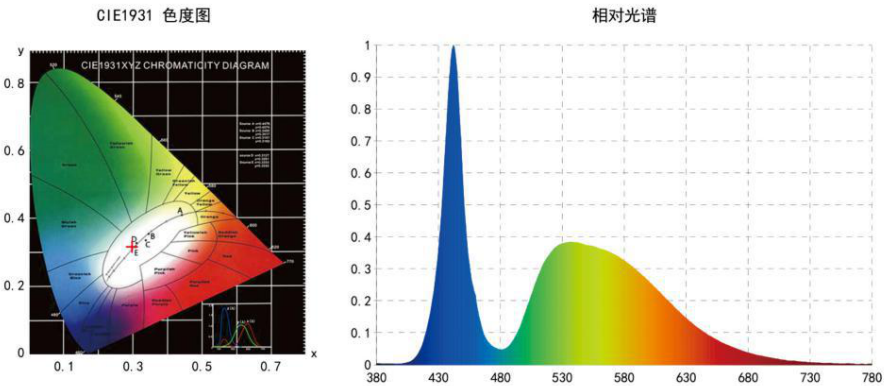
电光源测试报告

颜色参数

色品坐标:  $x=0.2975$      $y=0.3176$      $u=0.1915$      $v=0.3066$   
色品坐标:  $u'=0.1915$      $v'=0.4598$   
相关色温: CCT=7559K    主波长:  $\lambda_d=485.9\text{nm}$     质心波长:  $\lambda_b=533\text{nm}$     峰值波长:  $\lambda_p=442.3\text{nm}$   
半宽度:  $\Delta\lambda=17.29\text{nm}$     色纯度:  $Pe=13.34\%$     红色比:  $R=0.106$     绿色比:  $G=0.86$     蓝色比:  $B=0.034$   
显色指数:  $Ra=66.81$   
R 1=67    R 2=68    R 3=69    R 4=69    R 5=69    R 6=61    R 7=73  
R 8=58    R 9=-45    R10=24    R11=71    R12=41    R13=65    R14=83  
R15=60

光度参数

光通量 (380-780nm) : 2791.25lm    光功率 (380-780nm) : 8.819W    发光效率 (380-780nm) : 0lm/W



电光源测试报告

400W

颜色参数

色品坐标:  $x=0.2972$      $y=0.3167$      $u=0.1915$      $v=0.3062$   
色品坐标:  $u'=0.1915$      $v'=0.4593$   
相关色温: CCT=7601K    主波长:  $\lambda_d=485.6\text{nm}$     质心波长:  $\lambda_b=532\text{nm}$     峰值波长:  $\lambda_p=442\text{nm}$   
半宽度:  $\Delta\lambda=17.22\text{nm}$     色纯度:  $Pe=13.59\%$     红色比:  $R=0.106$     绿色比:  $G=0.86$     蓝色比:  $B=0.033$   
显色指数:  $Ra=66.66$   
R 1=67    R 2=68    R 3=69    R 4=69    R 5=69    R 6=61    R 7=73  
R 8=59    R 9=-44    R10=23    R11=71    R12=41    R13=65    R14=83  
R15=60

光度参数

光通量 (380-780nm) : 3060.71lm    光功率 (380-780nm) : 9.7W    发光效率 (380-780nm) : 0lm/W

