

# Test Report

Client Name : Shenzhen Sinoco Lighting Technologies Co.,Ltd.

Address : G building,Shasi , High-Tec ,Industrial park,Shajing  
Town,Baoan District,Shenzhen, Guangdong,China

Product Name : LED street light

Date : 2019-12-31

## Shenzhen Anbotek Pengcheng Compliance Laboratory Limited



**Report No.:** PCANL191224002-01

**Product Description:** LED street light

**Electrical Rating:** 220-240VAC, 50Hz, 100W

**Model No.:** ST-52-100W I

**Model Difference:** N/A

**Test Date:** 2019-12-24

**Test Standard:** LM-79-08

**Test Laboratory:** Shenzhen Anbotek Pengcheng Compliance Laboratory Limited

**Testing location:** Zone B, 1/F., Building 2, Hengchangrong High Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.


**Tested by**

Ocean Deng



**Reviewed by**

Flora Zhang



Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Anbotek Pengcheng Compliance Laboratory Limited.

**General Information**

<b>Applicant:</b>	Shenzhen Sinoco Lighting Technologies Co.,Ltd.
<b>Applicant Address:</b>	G building,Shasi , High-Tec ,Industrial park,Shajing Town,Baoan District,Shenzhen, Guangdong,China
<b>Manufacturer:</b>	Shenzhen Sinoco Lighting Technologies Co.,Ltd.
<b>Manufacturer Address:</b>	G building,Shasi , High-Tec ,Industrial park,Shajing Town,Baoan District,Shenzhen, Guangdong,China
<b>Brand Name:</b>	SINOCO
<b>Tested Model:</b>	ST-52-100W I
<b>Nominal CCT</b>	3000K

**Summary of Result**

Test Item	Test Result	
	Luminous Flux (lm)	Luminous Efficacy (lm/W)
<b>Integrating Sphere Test</b>	15201	150.61
<b>Goniophotometer Test</b>	15064	151.25





## **1 Test Condition**

### **1.1 Air Temperature**

The ambient temperature in which measurements are being taken shall be maintained at  $25^{\circ}\text{C}\pm 1^{\circ}\text{C}$ , measured at a point not more than 1 m from the SSL product and at the same height as the SSL product. The temperature sensor shall be shielded from direct optical radiation from the SSL product and optical radiation from any other source. If measurements are performed at other than this recommended temperature, this is a non-standard condition and shall be noted in the test report.

### **1.2 Thermal Conditions for Mounting SSL Products**

The method of mounting can be the primary path for heat flow away from the device and can affect measurement results significantly. The SSL product under test shall be mounted to the measuring instrument so that heat conduction through supporting objects causes negligible cooling effects. If the SSL product under test is provided with a support structure that is designated to be used as a component of the luminaire thermal management system, the product shall be tested with the support structure attached. Any such support structure included in the measurement shall be reported.

### **1.3 Air Movement**

The incidence of air movements on the surface of a SSL product under test may substantially affect electrical and photometric values. Air flow around the SSL product being tested should be such that normal convective air flow induced by device under test is not affected.

### **1.4 Waveshape of AC Power Supply**

The AC power supply, while operating the SSL product, shall have a sinusoidal voltage waveshape at the prescribed frequency (typically 50/60 Hz or 50 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

### **1.5 Voltage Regulation**

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within  $\pm 0.2$  percent under load.

### **1.6 Seasoning**

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning.

### **1.7 Stabilization**

Before measurements are taken, the SSL product under test shall be operated long enough to reach stabilization and temperature equilibrium. The time required for stabilization depends on the type of SSL products under test. The stabilization time typically ranges from 30 min to 2 or more hours for large SSL products.

### **1.8 Operating Orientation**

The SSL product under test shall be evaluated in the operating orientation recommended by the manufacturer for an intended use of the SSL product. Stabilization and photometric measurements of SSL products shall be done in such operating orientation.



## **2 Test Method**

### **2.1 Integrating Sphere Measurement**

The integrating sphere system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The system is calibrated by standard lamp before measurement weekly. The standard lamp has been calibrated regularly and traced to the National Primary Standard.

The 4 $\pi$  geometry was used to measure total luminous, luminous efficacy, chromaticity coordinates, correlated color temperature, and color rendering index, the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm. The product was operated in its intended orientation and was recorded in the report.

### **2.2 Goniophotometer Measurement**

The goniophotometer system is calibrated by standard lamp before measurement weekly. The standard lamp has been calibrated regularly and traced to National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous efficacy, luminous intensity distribution, and color angular uniformity, which were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. The product was operated in its intended orientation and was recorded in the report.

### **2.3 Electrical Measurement**

According to ANSI C82.77-2002, the measurement was made using a digital power meter and power supply, the SSL product under test was operated at rated voltage and stabilized enough before measurement. The total harmonic distortion of current and power factor can be calculated from the digital power meter. The digital power meter was calibrated regularly and traced to National Primary Standards.



## 3 Test Result

### 3.1 Integrating Sphere

Temperature (°C)	Test Humidity	Orientation	Stabilization Time(min)	Test Time(min)	Number of hours operated prior to measurement
25.1	55%RH	Face Down	30min	1min	0

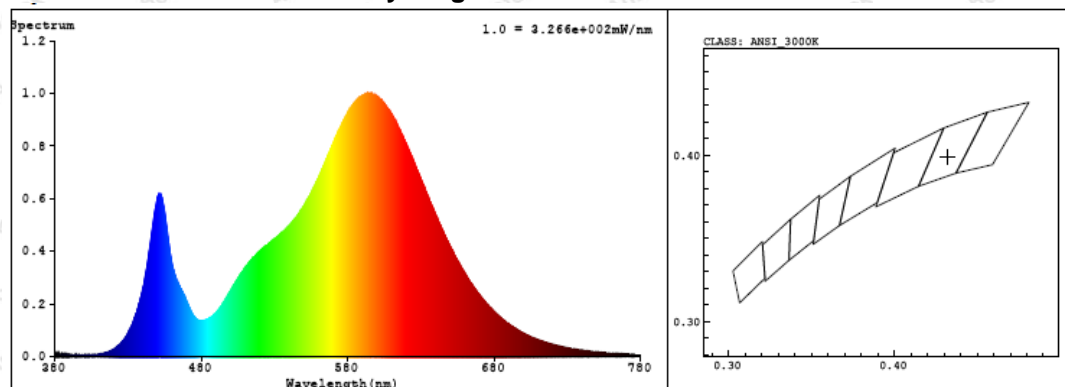
Input Voltage (V)	Frequency (Hz)	Current (A)	Power Factor	Power(W)	Correction factors
230.08	50	0.4468	0.9818	43.20	1.2722

Luminous Flux (lm)	Radiant Flux (W)	CCT (K)	Duv	Luminous Efficacy (lm/W)
15201	43.20	3037	-0.0014	150.61

Ra	x	y	u'	v'
73.1	0.4323	0.3989	0.2498	0.5186

R1	R2	R3	R4	R5
70	85	94	68	70
R6	R7	R8	R9	R10
81	75	41	-35	68
R11	R12	R13	R14	R15
65	59	73	97	61

### Spectral Distribution & Chromaticity Diagram





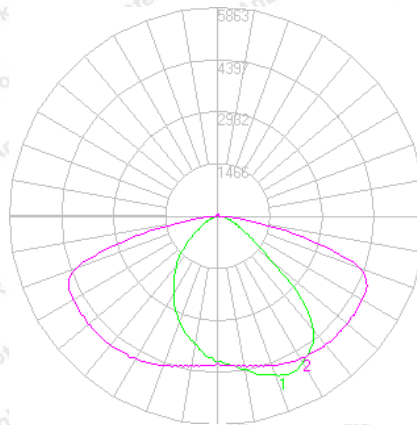
### 3.2.Goniophotometer

Temperature (°C)	Test Humidity	Orientation	Stabilization Time(min)	Test Time(min)	Number of hours operated prior to measurement
25.1	54%	Face down	30	45	0

Input Voltage (V)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
229.92	50	0.4410	0.9814	99.60

Luminous Flux (lm)	CBCP (cd)	Beam Angle (50%)[C0/180]	Beam Angle (50%)[C90/270]	Luminous Efficacy (lm/W)
15064	4119	154.9	85.7	151.25

### Luminous Intensity Distribution



### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixt	Zone	Lumens
0-20	1575.36	10.50	10.50	0-10	393.71
0-30	3520.72	23.40	23.40	10-20	1181.65
0-40	6091.83	40.40	40.40	20-30	1945.36
0-60	11607.83	77.10	77.10	30-40	2571.11
0-80	14684.56	97.50	97.50	40-50	2879.7
0-90	14888.38	98.80	98.80	50-60	2636.3
10-90	14494.68	96.20	96.20	60-70	2007.68
20-40	4516.47	30.00	30.00	70-80	1069.05
20-50	7396.17	49.10	49.10	80-90	203.82
40-70	7523.69	49.90	49.90	90-100	29.38
60-80	3076.73	20.40	20.40	100-110	24.61
70-80	1069.05	7.10	7.10	110-120	26.13
80-90	203.82	1.40	1.40	120-130	25.79
90-110	53.98	0.40	0.40	130-140	23.52
90-120	80.12	0.50	0.50	140-150	19.60
90-130	105.91	0.70	0.70	150-160	14.86
90-150	149.04	1.00	1.00	160-170	8.79
90-180	175.64	1.20	1.20	170-180	2.96
110-180	121.66	0.80	0.80		
0-180	15064.02	100.00	100.00		

Total Luminaire Efficiency = 100.00%

**Luminous Intensity (cd) Distribution Data**

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119	4119
1	4100	4109	4118	4144	4198	4144	4109	4119	4119	4082	4109	4144	4119	4144	4118	4109	4100
2	4135	4135	4135	4135	4207	4144	4100	4055	4028	4055	4100	4144	4207	4135	4135	4135	4135
3	4153	4135	4144	4135	4216	4127	4091	4019	3992	4019	4091	4127	4216	4135	4144	4135	4153
4	4153	4162	4171	4153	4216	4118	4073	3992	3974	3992	4073	4118	4216	4153	4171	4162	4153
5	4207	4198	4180	4171	4225	4135	4046	3965	3939	3965	4046	4135	4225	4171	4180	4198	4207
10	4386	4368	4332	4252	4279	4135	3939	3742	3670	3742	3939	4135	4279	4252	4332	4368	4386
15	4601	4583	4538	4395	4377	4144	3777	3527	3419	3527	3777	4144	4377	4395	4538	4583	4601
20	4762	4735	4708	4565	4476	4118	3679	3294	3133	3294	3679	4118	4476	4565	4708	4735	4762
25	4887	4887	4896	4789	4565	4091	3545	3034	2846	3034	3545	4091	4565	4789	4896	4887	4887
30	4780	4923	5111	5013	4628	4037	3384	2730	2488	2730	3384	4037	4628	5013	5111	4923	4780
35	4529	4753	5281	5174	4681	3983	3196	2435	2130	2435	3196	3983	4681	5174	5281	4753	4529
40	4189	4556	5299	5335	4717	3903	2891	2095	1808	2095	2891	3903	4717	5335	5299	4556	4189
45	3330	4055	5272	5469	4735	3751	2569	1763	1486	1763	2569	3751	4735	5469	5272	4055	3330
50	1916	3008	5219	5586	4735	3518	2112	1361	1074	1361	2112	3518	4735	5586	5219	3008	1916
55	1271	1710	4825	5666	4717	3061	1647	931	716	931	1647	3061	4717	5666	4825	1710	1271
60	859	1047	3974	5782	4699	2408	1020	537	483	537	1020	2408	4699	5782	3974	1047	859
65	573	636	2274	5863	4628	1611	448	358	322	358	448	1611	4628	5863	2274	636	573
70	394	439	644	5460	4234	609	269	215	215	215	269	609	4234	5460	644	439	394
75	286	304	358	4028	2730	188	152	125	125	125	152	188	2730	4028	358	304	286
80	179	215	233	1960	1298	81	72	45	36	45	72	81	1298	1960	233	215	179
85	107	107	125	555	188	36	27	18	18	18	27	36	188	555	125	107	107
90	54	54	63	72	45	27	27	27	36	27	27	27	45	72	63	54	54
95	36	45	36	27	27	18	18	18	18	18	18	18	27	27	36	45	36
100	0	18	27	27	27	36	27	18	18	18	27	36	27	27	27	18	0
105	18	18	9	27	18	36	18	18	18	18	18	36	18	27	9	18	18
110	18	18	27	27	27	36	18	18	18	18	18	36	27	27	27	18	18
115	18	27	27	27	36	27	27	18	36	18	27	27	36	27	27	27	18
120	18	27	27	27	36	27	36	27	36	27	36	27	36	27	27	27	18
125	18	27	36	36	36	36	27	27	18	27	27	36	36	36	36	27	18
130	36	18	18	27	36	27	27	27	36	27	27	27	36	27	18	18	36
135	36	18	27	36	36	27	27	36	36	36	27	27	36	36	27	18	36
140	18	27	27	36	36	36	36	36	36	36	36	36	36	36	27	27	18
145	18	36	27	27	36	36	36	36	36	36	36	36	36	27	27	36	18
150	18	27	36	36	45	27	36	36	36	36	36	27	45	36	36	27	18
155	36	27	18	36	36	36	27	36	18	36	27	36	36	36	18	27	36
160	18	36	18	36	27	36	36	27	36	27	36	36	27	36	18	36	18
165	36	18	36	27	36	36	27	27	36	27	27	36	36	27	36	18	36
170	18	27	36	27	36	27	36	27	36	27	36	27	36	27	36	27	18
175	36	27	27	27	27	36	27	36	36	36	27	36	27	27	27	27	36
180	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29



### 1 Test Equipment

Equipment Name	Manufacturer	Model No	Reference No	Calibration Due Date
Integrating Sphere (2.0m)	EVERFINE	YF-1000	SE-599	Before use
Standard Lamp	SENSING	DC24V100W	SE-2091	2020-05-06
Digital Power Meter	YOKOGAWA	WT210	SE-074	2020-05-06
Goniophotometer System	SENSING	GMS-3000	SE-450	Before use
Digital Power Meter	YOKOGAWA	WT310	SE-381	2020-05-06
AC Power Source	HUAYANG	HY9010	SE-114	2020-05-06
DC Power Source	EVERFINE	WY605	SE-605	2020-05-06
Temperature Sensor	WALVICO	HG126D	SE-616	2020-05-06

Measurement Uncertainty Statement:

$\phi$  :Urel=2.78% (k=2)

$U_p(u')$ : Urel=0.04%

$U_p(v')$ : Urel=0.02%



**Attachment A – Product Photo**



\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*