

# 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.:** PCANL191224005-01

**Product Description:** LED street light

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

**Model No.:** ST-52-240W I

**Model Difference:** N/A

**Test Date:** 2019-12-27

**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-52-240W 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>	29485	126.33
<b>Goniophotometer Test</b>	29272	125.63



## **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

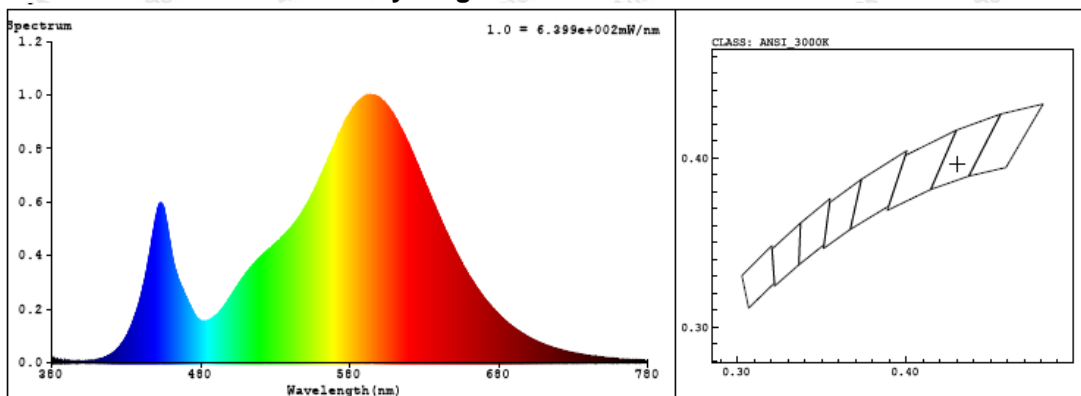
Input Voltage (V)	Frequency (Hz)	Current (A)	Power Factor	Power(W)	Correction factors
230.07	50	1.029	0.9859	233.4	1.3572

Luminous Flux (lm)	Radiant Flux (W)	CCT (K)	Duv	Luminous Efficacy (lm/W)
29485	85.96	3053	-0.0022	126.33

Ra	x	y	u'	v'
73.3	0.4302	0.3964	0.2495	0.5173

R1	R2	R3	R4	R5
70	86	93	68	70
R6	R7	R8	R9	R10
81	75	42	-33	69
R11	R12	R13	R14	R15
64	60	74	97	62

**Spectral Distribution & Chromaticity Diagram**



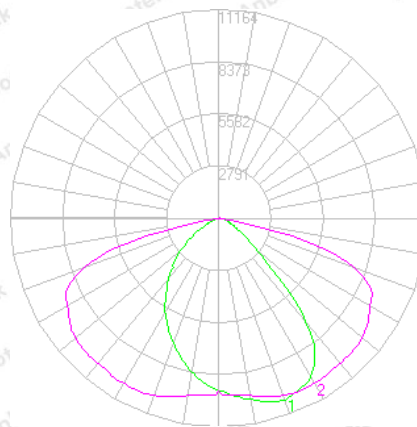
### 3.2.Goniophotometer

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)
229.99	50	1.027	0.9865	233.00

Luminous Flux (lm)	CBCP (cd)	Beam Angle (50%)[C0/180]	Beam Angle (50%)[C90/270]	Luminous Efficacy (lm/W)
29272	9277	150.3	81.7	125.63

### Luminous Intensity Distribution



### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixt	Zone	Lumens
0-20	3539.62	12.10	12.10	0-10	889.66
0-30	7814.31	26.70	26.70	10-20	2649.97
0-40	13270.44	45.30	45.30	20-30	4274.69
0-60	24084.01	82.30	82.30	30-40	5456.13
0-80	29075.4	99.30	99.30	40-50	5743.51
0-90	29189.51	99.70	99.70	50-60	5070.06
10-90	28299.86	96.70	96.70	60-70	3527.88
20-40	9730.81	33.20	33.20	70-80	1463.51
20-50	15474.33	52.90	52.90	80-90	114.11
40-70	14341.45	49.00	49.00	90-100	10.63
60-80	4991.39	17.10	17.10	100-110	7.90
70-80	1463.51	5.00	5.00	110-120	10.04
80-90	114.11	0.40	0.40	120-130	12.20
90-110	18.53	0.10	0.10	130-140	12.86
90-120	28.58	0.10	0.10	140-150	11.76
90-130	40.77	0.10	0.10	150-160	9.35
90-150	65.39	0.20	0.20	160-170	5.83
90-180	82.55	0.30	0.30	170-180	1.99
110-180	64.02	0.20	0.20		
0-180	29272.06	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	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277	9277
1	9290	9310	9322	9334	9481	9290	9228	9196	9168	9196	9228	9290	9481	9334	9322	9310	9290
2	9359	9367	9368	9353	9492	9272	9185	9143	9103	9143	9185	9272	9492	9353	9368	9367	9359
3	9420	9430	9413	9380	9504	9256	9146	9069	9034	9069	9146	9256	9504	9380	9413	9430	9420
4	9479	9490	9461	9410	9515	9245	9105	9002	8937	9002	9105	9245	9515	9410	9461	9490	9479
5	9551	9557	9512	9451	9529	9237	9056	8935	8858	8935	9056	9237	9529	9451	9512	9557	9551
10	9866	9893	9819	9665	9654	9196	8812	8520	8378	8520	8812	9196	9654	9665	9819	9893	9866
15	10186	10163	10123	9987	9850	9174	8519	7998	7780	7998	8519	9174	9850	9987	10123	10163	10186
20	10348	10407	10475	10371	10101	9145	8179	7417	7113	7417	8179	9145	10101	10371	10475	10407	10348
25	10136	10371	10827	10735	10210	9003	7824	6821	6445	6821	7824	9003	10210	10735	10827	10371	10136
30	9805	10214	10991	10957	10234	8753	7421	6208	5761	6208	7421	8753	10234	10957	10991	10214	9805
35	8987	9689	11051	11075	10175	8417	6938	5532	4972	5532	6938	8417	10175	11075	11051	9689	8987
40	7247	8717	10901	11006	10121	8080	6370	4811	4200	4811	6370	8080	10121	11006	10901	8717	7247
45	4578	6737	10385	11093	10116	7753	5568	4080	3458	4080	5568	7753	10116	11093	10385	6737	4578
50	2764	3783	9496	11091	10003	7277	4801	3297	2716	3297	4801	7277	10003	11091	9496	3783	2764
55	1808	2261	7963	11158	9752	6511	3798	2334	1849	2334	3798	6511	9752	11158	7963	2261	1808
60	1124	1285	5433	10859	9367	5289	2689	1369	1135	1369	2689	5289	9367	10859	5433	1285	1124
65	754	781	1755	10117	9001	3855	1338	751	677	751	1338	3855	9001	10117	1755	781	754
70	502	549	654	7797	7683	1999	537	463	424	463	537	1999	7683	7797	654	549	502
75	314	339	410	4115	4761	396	284	241	236	241	284	396	4761	4115	410	339	314
80	152	165	201	1269	1003	127	106	75	53	75	106	127	1003	1269	201	165	152
85	50	55	65	143	60	29	27	15	3	15	27	60	143	65	55	50	
90	25	27	26	26	16	13	8	4	1	4	8	13	26	26	27	25	
95	5	7	11	13	13	10	5	2	1	2	5	10	13	13	11	7	5
100	3	4	7	10	13	11	6	2	2	2	6	11	13	10	7	4	3
105	2	3	6	9	13	13	8	3	2	3	8	13	13	9	6	3	2
110	3	4	6	10	15	15	10	5	3	5	10	15	15	10	6	4	3
115	4	6	7	12	16	17	13	7	5	7	13	17	16	12	7	6	4
120	5	7	8	13	18	19	15	9	7	9	15	19	18	13	8	7	5
125	6	8	10	14	20	21	17	12	10	12	17	21	20	14	10	8	6
130	8	9	12	16	21	21	18	15	13	15	18	21	21	16	12	9	8
135	10	11	13	17	21	22	20	17	16	17	20	22	21	17	13	11	10
140	11	12	15	18	21	22	21	19	18	19	21	22	21	18	15	12	11
145	13	14	15	18	21	22	22	21	20	21	22	22	21	18	15	14	13
150	15	15	17	19	21	23	23	22	22	22	23	23	21	19	17	15	15
155	16	17	18	19	21	22	23	23	23	23	23	22	21	19	18	17	16
160	18	18	19	20	21	21	22	23	23	23	22	21	21	20	19	18	18
165	19	19	19	20	21	21	22	22	23	22	22	21	21	20	19	19	19
170	19	20	20	20	21	21	21	22	22	22	21	21	21	20	20	20	19
175	20	20	20	20	21	21	22	22	22	22	21	21	21	20	20	20	20
180	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21



**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:

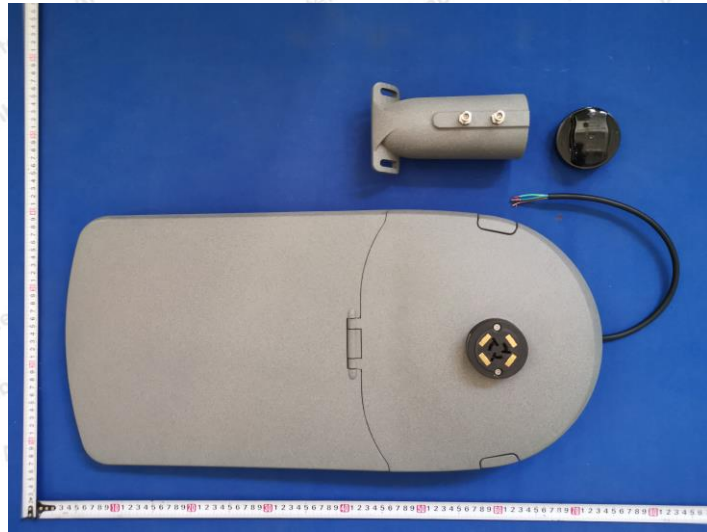
$\phi$ : Urel=2.78% (k=2)

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

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



**Attachment A – Product Photo**



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