



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

REPORT NO.:LCS190322027BS001

TEST REPORT of IES LM-79-08

Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

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

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

Brand Name..... : **SINOCO**[®]

Testing laboratory..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Address..... : B Area, 1-2F, Building B, Zhongyu Green High-tech Industrial Park, Wenge Road,
Heshuikou, Gongming Street, Guangming New District, Shenzhen, China

Product description ... : LED street light

Models..... : ST-52-150W-V3-2700K

Rating..... : 220-240VAC, 50/60Hz, 150W

Date of Test..... : March 25, 2019

Date of Issue..... : April 08, 2019

Test by:

James

James Zhang/ Project Engineer

Check by:

Ian Luo

Ian Luo/ Director

Approved by:

Jesse Liu

Jesse Liu/ Manager



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TRF No. LM-79-2008

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1. Test Method

Test Item.....	Integrating Sphere Test
Ambient Condition	25.1℃
Stabilization time	0.5h
Orientation(burning position) of SSL product during test	down
Test Method	The sample was tested according to the IES LM-79-2008. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.
Test Item.....	Goniophotometer Test
Ambient Condition.....	25.1℃
Total operated time of the product for measurements including stabilization..... (h):	1.0h
Orientation(burning position) of SSL product during test	down
Test Method.....	The sample was tested according to the IES LM-79-2008. Photometric paramters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.



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2.Product Information

Product description.....:	LED street light
Model Number.....:	ST-52-150W-V3-2700K
Rated Inputs.....:	220-240VAC, 50/60Hz
Rated Power.....:	150W
Declared CCT.....:	2700K
Manufacturer.....:	Shenzhen Sinoco Lighting Technologies Co.,Ltd.
Address.....:	G building,Shasi , High-Tec ,Industrial park,Shajing Town,Baoan District,Shenzhen, Guangdong,China
LED Manufacturer.....:	N/A
LED Model.....:	N/A
Forward current of the LED chip.....:	N/A
Date of Receipt Samples.....:	March 25, 2019
Quantity of Receipt Samples.....:	1 unit

3.Test equipment list:

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2018/08/14	2019/08/13
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2018/08/14	2019/08/13
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2018/08/14	2019/08/13
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2018/08/22	2019/08/21
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2018/08/14	2019/08/13
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2018/08/14	2019/08/13
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2018/08/14	2019/08/13
SENSING	Standard Lamp	SLCS-S-118	S11010017	2018/08/22	2019/08/21

4. Integrating Sphere Test Results:

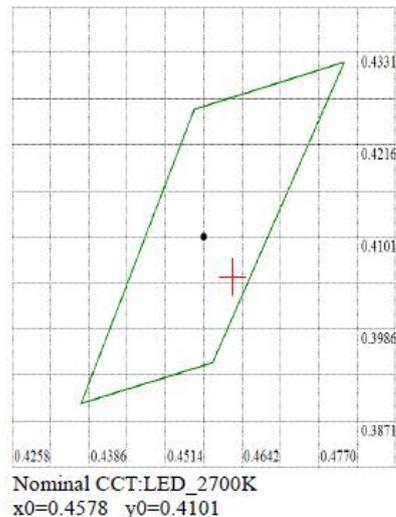
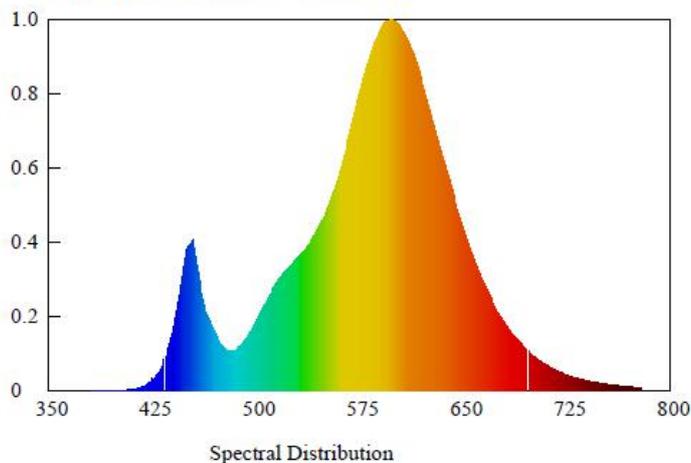
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.6918	0.9844	149.8

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	2619	71.3	21462.5	143.23

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4626$ $y=0.4051$ $u'=0.2668$ $v'=0.5256$

Correlated Color Temperature: 2619 K

Dominant Wavelength: 584.0 nm(E)

Colour Fidelity Index: Rf=73

Gamut Index: Rg=93

Luminous Flux: 21462.5 lm

Purity: 0.6068

Chromaticity Difference: -0.00225Duv

Peak Wavelength: 600.0 nm

Color Ratio: $K_r=50.0\%$ $K_g=44.7\%$ $K_b=5.3\%$

Bandwidth: 96nm

Radiant Flux: 56.896 W

Photosynthetically Active Radiation(PAR): 55.72W

Photosynthetic Photon Flux(PPF):272.38 μ mol/s

Rendering Index: Ra=71.3

R1=69 R2=87 R3=91 R4=65 R5=68 R6=83 R7=72 R8=36

R9=-37 R10=71 R11=61 R12=63 R13=73 R14=95 R15=59 R_e=64



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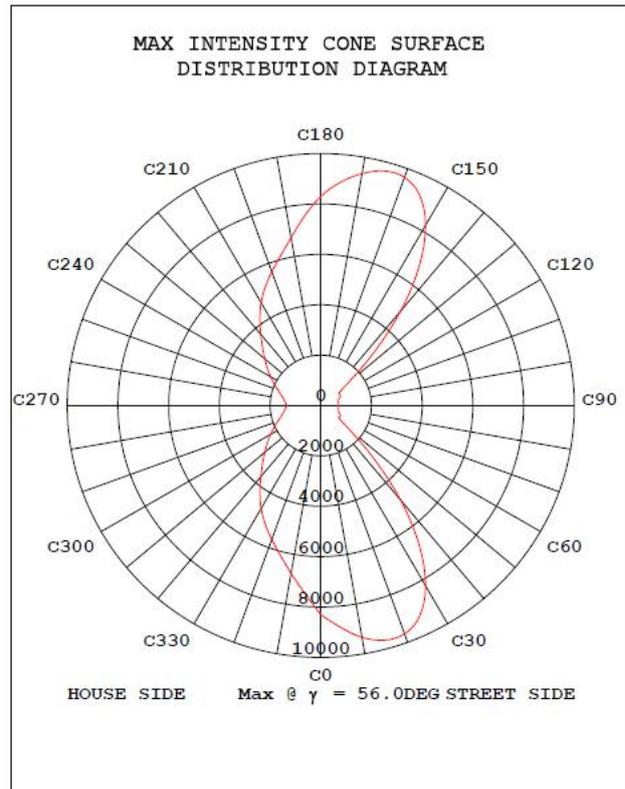
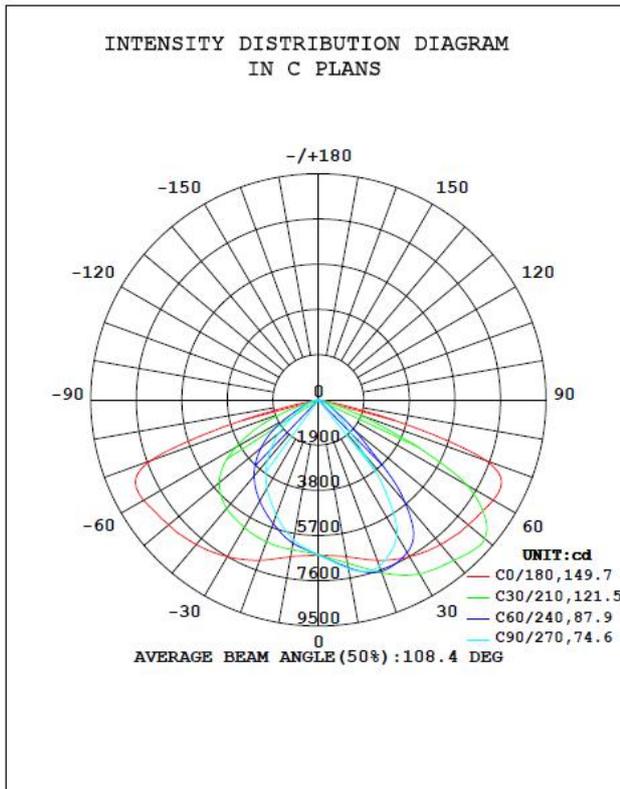
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.01	0.6918	0.9844	149.8

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	Imax (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	21459.2	143.22	9641	-	-

5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)





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5.3 Zonal Flux Diagram

y	C0	C45	C90	C135	C180	C225	C270	C315	y	Φ zone	Φ total	%lum, lamp
10	6689	7061	7191	7061	6689	6257	5973	6257	0- 10	628.7	628.7	2.93,2.93
20	7168	7753	7434	7753	7168	5916	5146	5916	10- 20	1911	2540	11.8,11.8
30	7601	8056	6540	8056	7601	5520	4291	5520	20- 30	3123	5663	26.4,26.4
40	7933	7865	2969	7865	7933	5064	3294	5064	30- 40	4002	9664	45,45
50	8164	5425	1177	5425	8164	4157	2144	4157	40- 50	4186	13850	64.5,64.5
60	8429	1528	545.2	1528	8429	2590	982.9	2590	50- 60	3812	17662	82.3,82.3
70	7427	341.6	236.1	341.6	7427	625.4	466.6	625.4	60- 70	2799	20461	95.3,95.3
80	277.3	70.76	28.96	70.76	277.3	191.4	195.5	191.4	70- 80	944.7	21406	99.8,99.8
90	0	0	0	0	0	0	0	0	80- 90	53.32	21459	100,100
100	0	0	0	0	0	0	0	0	90-100	0	21459	100,100
110	0	0	0	0	0	0	0	0	100-110	0	21459	100,100
120	0	0	0	0	0	0	0	0	110-120	0	21459	100,100
130	0	0	0	0	0	0	0	0	120-130	0	21459	100,100
140	0	0	0	0	0	0	0	0	130-140	0	21459	100,100
150	0	0	0	0	0	0	0	0	140-150	0	21459	100,100
160	0	0	0	0	0	0	0	0	150-160	0	21459	100,100
170	0	0	0	0	0	0	0	0	160-170	0	21459	100,100
180	0	0	0	0	0	0	0	0	170-180	0	21459	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

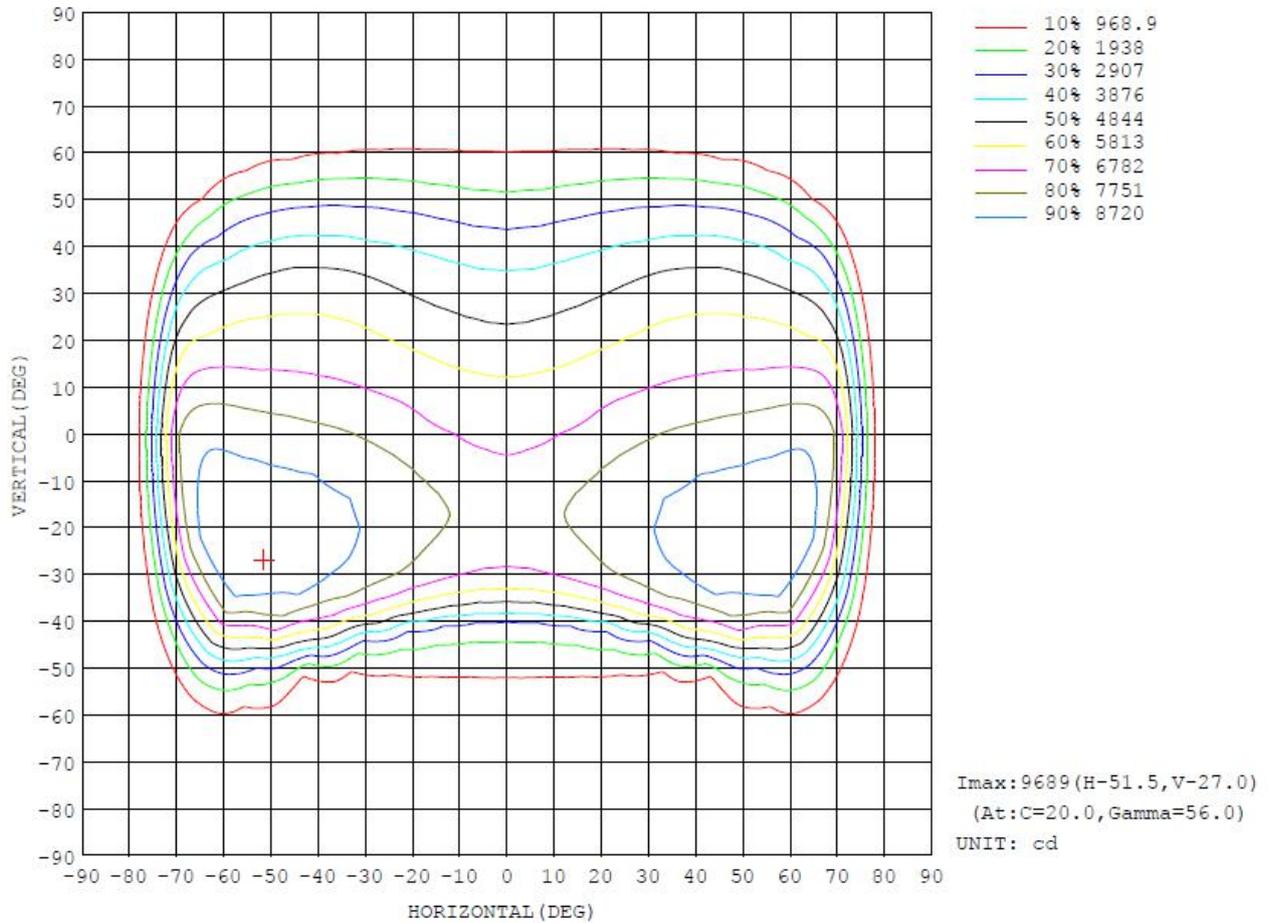


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5.4 Isocandela Diagram





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5.5 Luminous Distribution Intensity Data

Table--1 UNIT: cd

C (DEG) \ y (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509
5	6572	6620	6655	6699	6739	6760	6790	6803	6811	6822	6811	6803	6790	6760	6739	6699	6655	6620	6572
10	6689	6782	6877	6958	7032	7090	7142	7169	7178	7191	7178	7169	7142	7090	7032	6958	6877	6782	6689
15	6908	7065	7196	7304	7395	7440	7482	7481	7455	7470	7455	7481	7482	7440	7395	7304	7196	7065	6908
20	7168	7415	7608	7728	7776	7730	7670	7544	7458	7434	7458	7544	7670	7730	7776	7728	7608	7415	7168
25	7396	7735	7995	8122	8076	7863	7600	7348	7166	7090	7166	7348	7600	7863	8076	8122	7995	7735	7396
30	7601	8028	8339	8438	8248	7863	7404	6983	6652	6540	6652	6983	7404	7863	8248	8438	8339	8028	7601
35	7786	8324	8637	8627	8360	7788	6928	6006	5317	5129	5317	6006	6928	7788	8360	8627	8637	8324	7786
40	7933	8588	8870	8797	8433	7295	5620	4233	3225	2969	3225	4233	5620	7295	8433	8797	8870	8588	7933
45	8060	8803	9081	9014	8094	6059	3417	2336	1905	1820	1905	2336	3417	6059	8094	9014	9081	8803	8060
50	8164	9035	9392	9062	7087	3762	1963	1417	1219	1177	1219	1417	1963	3762	7087	9062	9392	9035	8164
55	8280	9308	9630	8464	5387	1691	1015	822	756	745	756	822	1015	1691	5387	8464	9630	9308	8280
60	8429	9556	9411	7149	2379	676	599	570	551	545	551	570	599	676	2379	7149	9411	9556	8429
65	8420	9199	8321	4281	642	466	431	412	393	382	393	412	431	466	642	4281	8321	9199	8420
70	7427	7228	5404	1780	375	309	286	262	241	236	241	262	286	309	375	1780	5404	7228	7427
75	3112	3069	2051	552	205	169	153	127	114	112	114	127	153	169	205	552	2051	3069	3112
80	277	399	379	132	78.2	63.4	46.9	34.1	29.5	29.0	29.5	34.1	46.9	63.4	78.2	132	379	399	277
85	47.5	44.2	35.6	17.6	8.11	3.05	1.41	0.88	0.66	0.73	0.66	0.88	1.41	3.05	8.11	17.6	35.6	44.2	47.5
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



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6. Photo of sample:



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

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Revision History

Revision	Issue Date	Revision Content	Revised By
V1.0	2019/03/27	The original report no:LCS190322027BS	James Zhang
V2.0	2019/04/08	Modify the trademark and models	James Zhang