



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200901054BS

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, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming Street,
Guangming New District, Shenzhen, Guangdong Prov .518000 China

Product description .. : LED Street Light

Models..... : ST-52-60W-T3-3000K

Rating..... : AC220V, 50/60Hz, 60W, 3000K

Date of Test..... : September 02, 2020

Date of Issue..... : September 08, 2020

Test by:

William Lian

William Lian/ Project Engineer

Check by:

Ian Luo

Ian Luo/ Director

Approved by:



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1. Test Method

Test Item.....	: Integrating Sphere Test
Ambient Condition	: 25.1℃
Number of hours operated prior to Measurement	: 0h
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):	: 2.5h
Correction factors applied.....	: Intensity distribution
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-52-60W-T3-3000K
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	60W
Declared CCT.....:	3000K
LED Manufacturer.....:	N/A
LED Model.....:	N/A
LED Package, Array or Module.....:	N/A
Forward current of the LED chip.....:	N/A
Date of Receipt Samples.....:	September 02, 2020
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	2020/07/02	2021/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2020/06/24	2021/06/23
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2020/06/24	2021/06/23
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2020/07/02	2021/07/01
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2020/07/02	2021/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2020/06/24	2021/06/23
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2020/06/24	2021/06/23
SENSING	Standard Lamp	SLCS-S-118	S11010017	2020/07/02	2021/07/01



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4. Integrating Sphere Test Results:

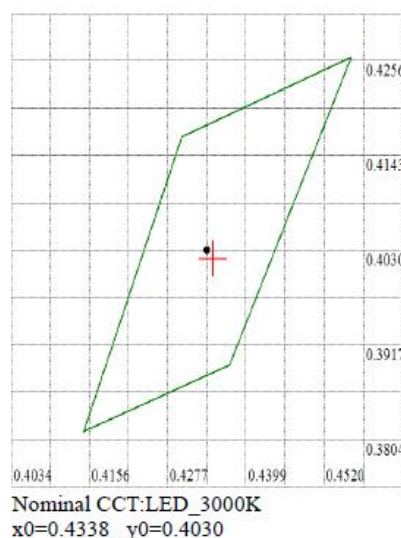
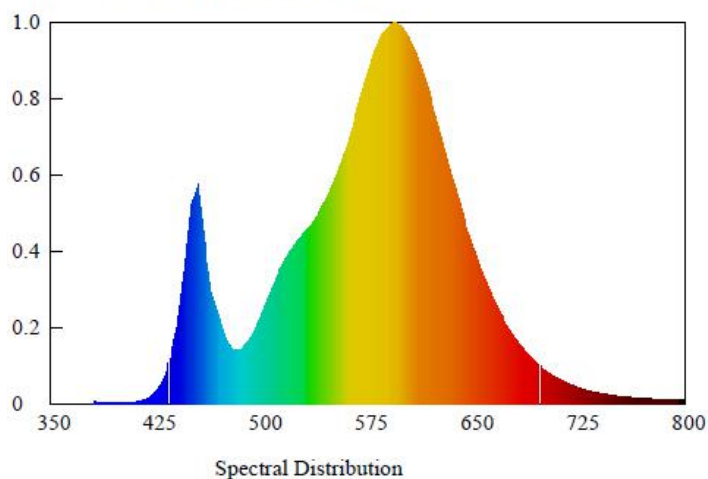
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.06	50.0	0.2811	0.9920	61.34

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3020	72.8	-0.00054	9232.90	150.52

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.4347 y=0.4020 u'=0.2501 v'=0.5202

Correlated Color Temperature: 3020 K

Dominant Wavelength: 581.0 nm(E)

Colour Fidelity Index: Rf=74

Gamut Index: Rg=92

Luminous Flux: 9232.90 lm

Purity: 0.5146

Chromaticity Difference: -0.00054Duv

Peak Wavelength: 595.0 nm

Color Ratio: Kr=45.5% Kg=48.2% Kb=6.3%

Bandwidth: 101.5nm

Radiant Flux: 25.329 W

Photosynthetically Active Radiation(PAR): 24.78W

Photosynthetic Photon Flux(PPF):119.47μmol/s

Rendering Index: Ra=72.8

R1=69 R2=85 R3=94 R4=68 R5=69 R6=81 R7=75 R8=41

R9=-36 R10=68 R11=64 R12=56 R13=74 R14=97 R15=60 Re=64



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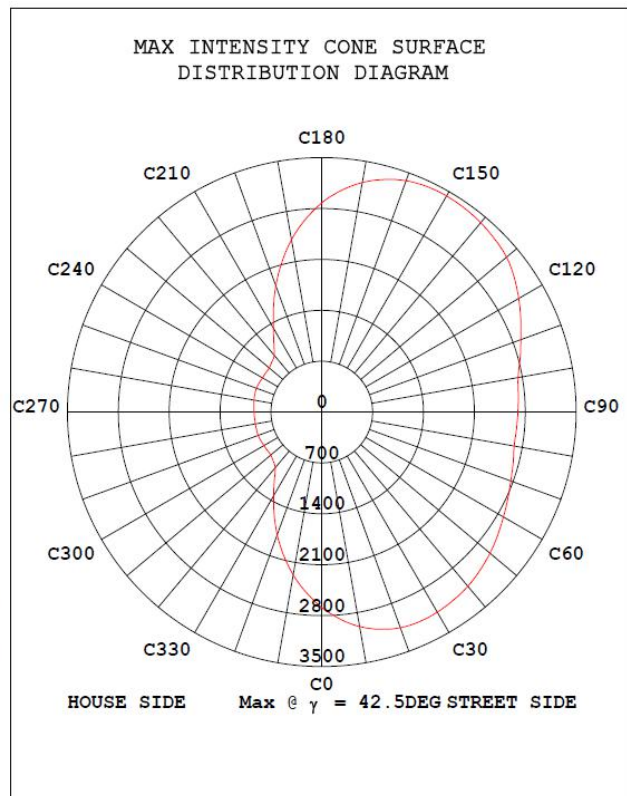
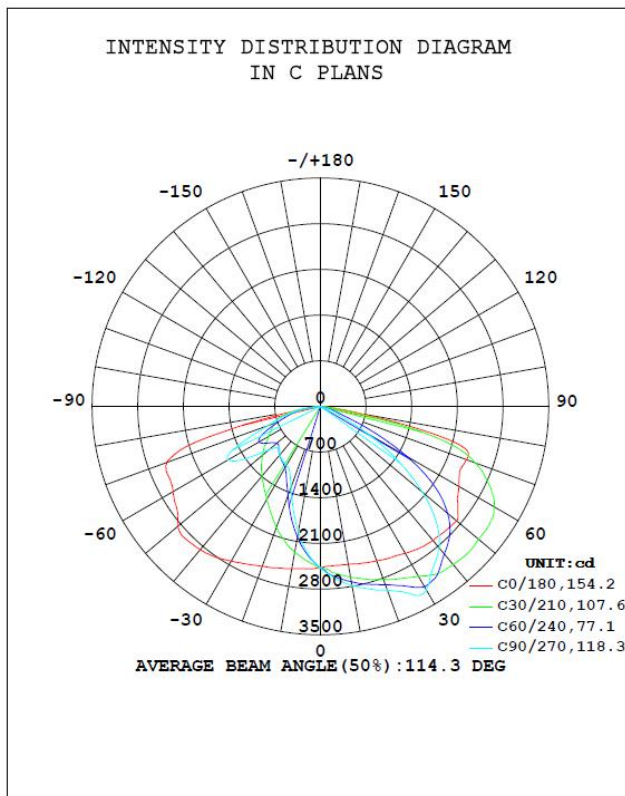
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.01	0.2802	0.9916	61.15

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	9211.16	150.64	100%	0.9%

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





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5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Flum, lamp
10	2459	2706	2790	2730	2525	2133	1955	2120	0- 10	233.6	233.6	2.54, 2.54
20	2519	2885	2996	2973	2606	1660	1324	1662	10- 20	671.7	905.3	9.83, 9.83
30	2599	3101	3245	3283	2736	1254	1039	1262	20- 30	1070	1975	21.4, 21.4
40	2684	3092	2831	3363	2866	1017	973.5	997.1	30- 40	1430	3405	37, 37
50	2726	2968	2039	3263	2850	867.8	1036	814.8	40- 50	1662	5067	55, 55
60	2455	2427	839.9	2734	2608	776.7	1635	708.0	50- 60	1728	6794	73.8, 73.8
70	2391	1134	178.6	1399	2505	584.2	855.9	536.5	60- 70	1486	8280	89.9, 89.9
80	636.2	84.83	5.949	66.93	392.6	339.2	269.6	322.0	70- 80	852.0	9132	99.1, 99.1
90	0	0	0	0	0	0	0	0	80- 90	79.17	9211	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	9211	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	9211	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	9211	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	9211	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	9211	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	9211	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	9211	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	9211	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	9211	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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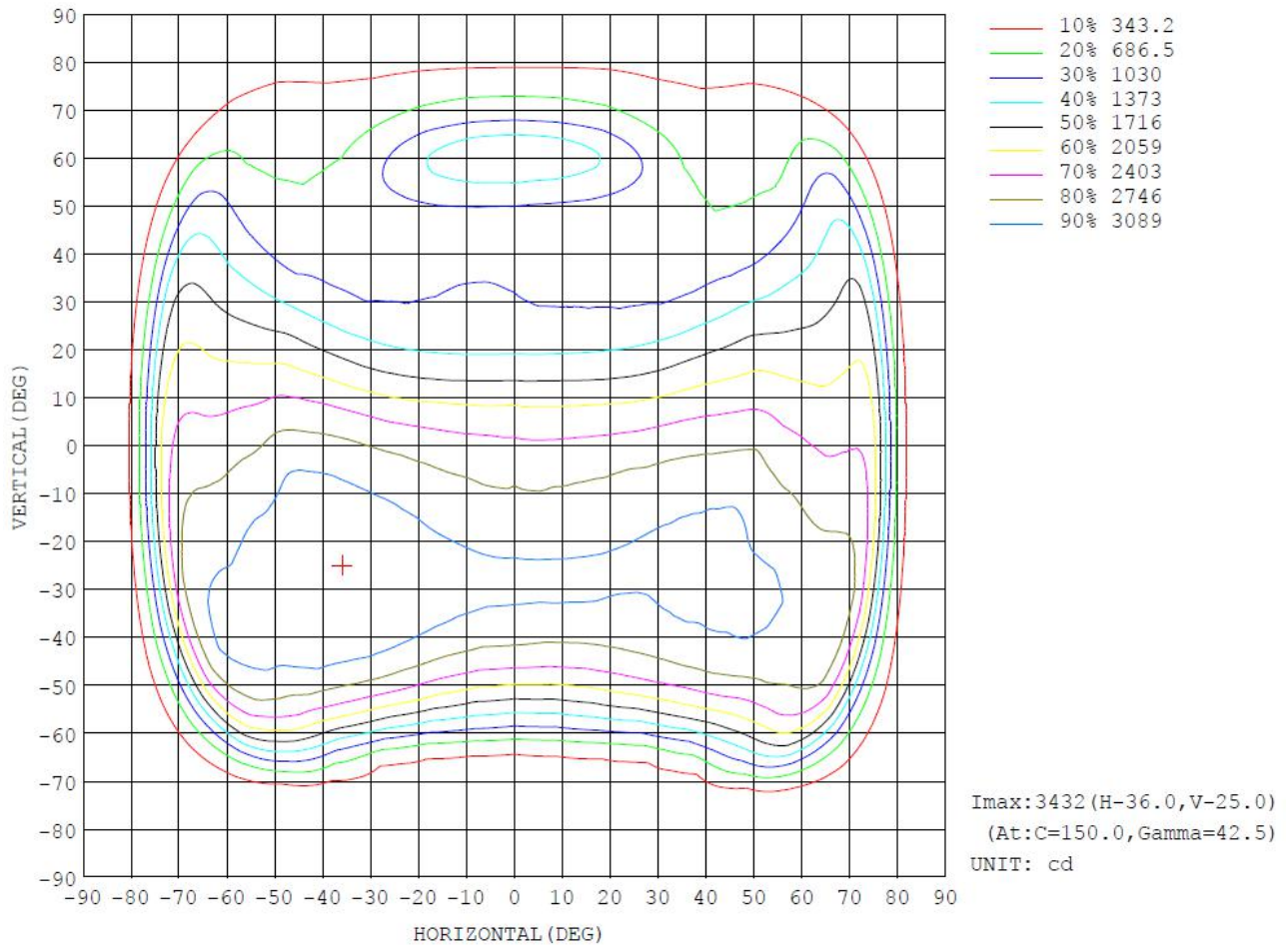
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5.4 Isocandela Diagram





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5.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474
5	2450	2466	2484	2508	2532	2553	2565	2576	2589	2600	2609	2616	2620	2622	2627	2634	2641	2646	2651
10	2459	2506	2554	2585	2606	2630	2655	2673	2690	2706	2717	2719	2725	2737	2746	2754	2761	2773	2790
15	2486	2557	2609	2642	2677	2715	2743	2765	2782	2797	2804	2811	2821	2833	2844	2851	2857	2873	2895
20	2519	2613	2669	2717	2757	2793	2819	2842	2866	2885	2890	2897	2909	2924	2941	2954	2965	2980	2996
25	2556	2668	2741	2805	2848	2886	2911	2933	2953	2973	2991	3011	3035	3061	3088	3110	3129	3142	3154
30	2599	2719	2801	2873	2927	2973	3006	3039	3073	3101	3125	3154	3188	3209	3223	3226	3227	3235	3245
35	2651	2783	2875	2958	3029	3087	3130	3147	3139	3132	3126	3129	3134	3101	3053	3022	2998	3004	3015
40	2684	2833	2951	3050	3129	3165	3165	3150	3124	3092	3058	3009	2956	2912	2872	2843	2816	2820	2831
45	2704	2879	3028	3119	3170	3189	3185	3161	3124	3059	2984	2894	2801	2716	2634	2575	2522	2516	2517
50	2726	2891	3022	3104	3153	3166	3163	3129	3080	2968	2834	2690	2545	2401	2259	2160	2071	2052	2039
55	2571	2753	2915	3035	3135	3162	3160	3078	2968	2784	2581	2362	2142	1946	1758	1632	1517	1483	1454
60	2455	2668	2872	3012	3125	3121	3078	2912	2713	2427	2124	1821	1525	1330	1153	1029	914	875	840
65	2354	2592	2821	2948	3047	2971	2856	2568	2244	1848	1442	1112	794	629	483	416	352	334	318
70	2391	2651	2905	2975	3007	2790	2530	2080	1602	1134	676	471	296	254	227	209	192	185	179
75	2128	2298	2484	2484	2442	2162	1828	1340	827	519	234	171	133	111	91.3	81.0	71.8	68.3	64.9
80	636	688	738	712	676	556	415	280	131	84.8	45.0	32.6	22.0	16.6	11.4	9.44	7.64	6.66	5.95
85	61.0	69.0	75.5	65.2	50.9	34.5	13.5	9.88	5.41	4.10	3.02	2.53	2.04	1.75	1.46	1.32	1.17	1.12	1.04
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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