



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS171221039BS

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, Bao' an District,
Shenzhen, Guangdong, China

Brand Name..... : Sinoco

Testing laboratory..... : Shenzhen 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-3000K

Rating..... : 100-240Vac, 50/60Hz, 60W, 3000K

Test by: William Lian

Signature: *William*

Reviewed by: Hart Qiu

Signature: *Hart Qiu*



Test date: January 04, 2018

Reviewed date: January 12, 2018

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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-3000K
Rated Inputs.....:	100-240VAC, 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.....:	January 03, 2018
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	2017/08/15	2018/08/14
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2017/08/15	2018/08/14
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2017/08/15	2018/08/14
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2017/08/14	2018/08/13
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2017/08/15	2018/08/14
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2017/08/15	2018/08/14
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2017/08/15	2018/08/14
SENSING	Standard Lamp	SLCS-S-118	S11010017	2017/08/14	2018/08/13



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4. Integrating Sphere Test Results:

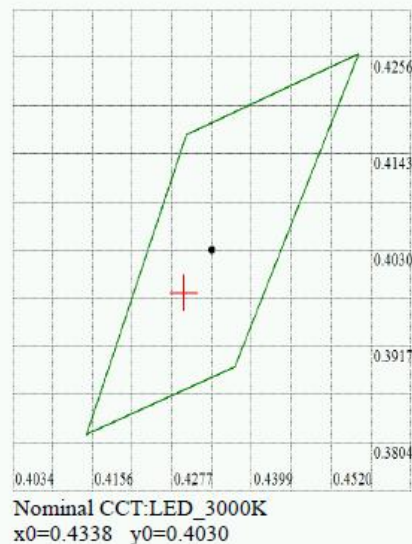
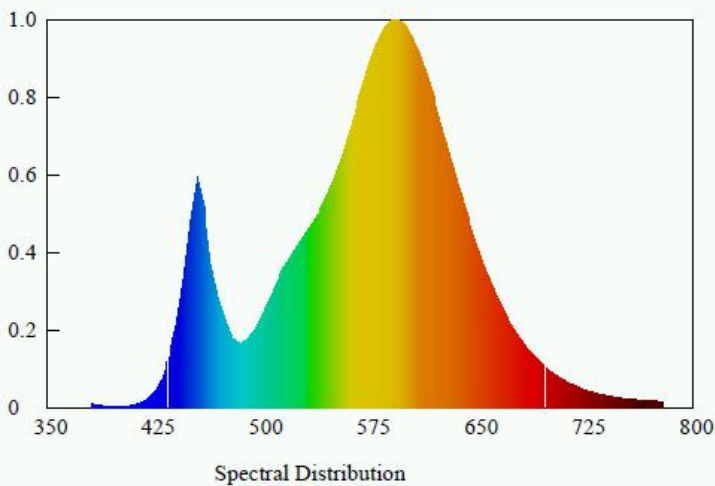
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.296	0.943	61.5

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	3079	72.5	6853.85	111.5

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.4295 y=0.3980 u'=0.2484 v'=0.5179

Correlated Color Temperature: 3079 K

Colour Fidelity Index: Rf=73

Luminous Flux: 6853.85 lm

Chromaticity Difference: -0.00139Duv

Color Ratio: Kr=44.9% Kg=48.7% Kb=6.4%

Bandwidth: 102.8nm

Photosynthetically Active Radiation(PAR): 17.13W

Rendering Index: Ra=72.5

R1=69 R2=86 R3=93 R4=66 R5=69 R6=81 R7=75 R8=41

R9=-35 R10=68 R11=61 R12=57 R13=74 R14=97 R15=61 Re=64

Dominant Wavelength: 582.0 nm(E)

Gamut Index: Rg=91

Purity: 0.4839

Peak Wavelength: 595.0 nm

Radiant Flux: 17.522 W

Photosynthetic Photon Flux(PPF):82.38μmol/s

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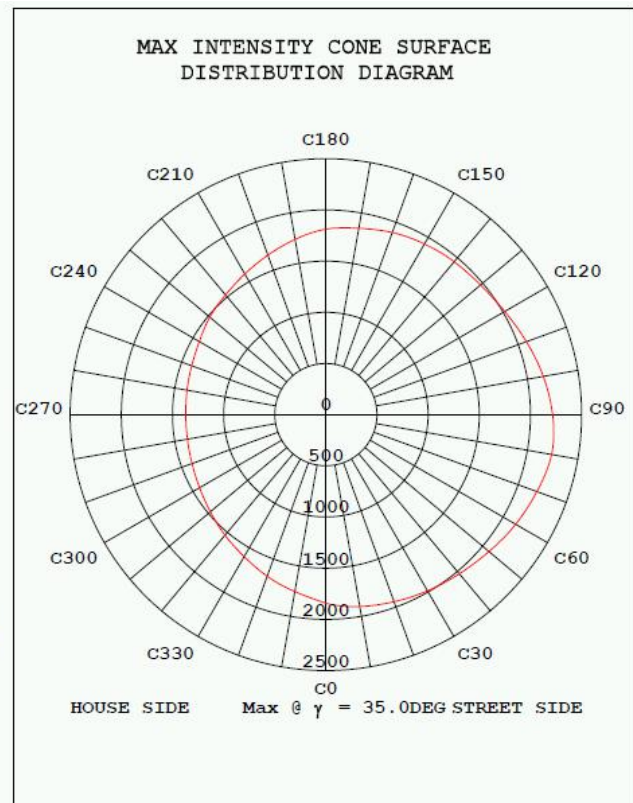
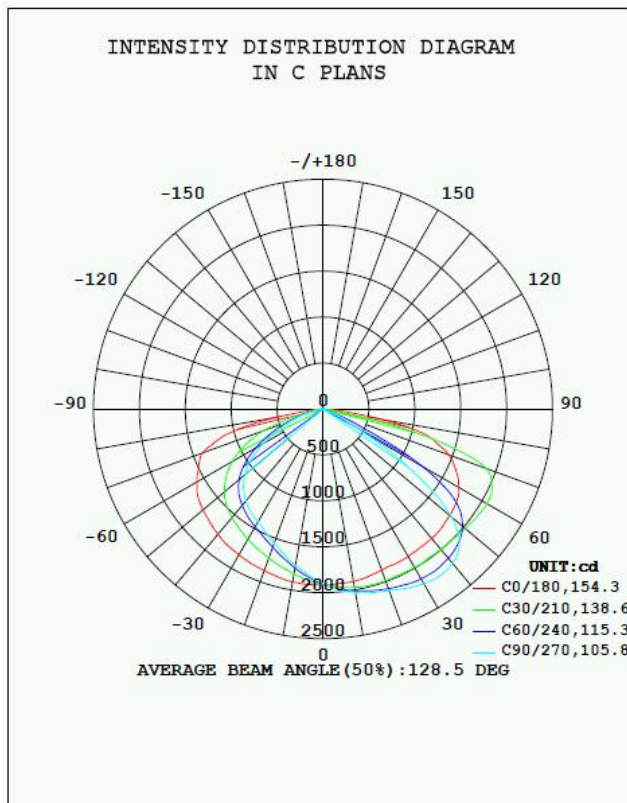
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.1	50.01	0.2976	0.9434	61.79

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	ZL (0~90°)	ZL (80~90°)
Output	6832.92	110.59	99.90%	0.70%

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	1906	1999	2027	1979	1911	1788	1728	1766	0- 10	180.7	180.7	2.64,2.64
20	1865	2034	2104	2000	1871	1658	1554	1652	10- 20	527.4	708.1	10.4,10.4
30	1853	2050	2195	1981	1832	1549	1419	1553	20- 30	842.3	1550	22.7,22.7
40	1841	2054	2195	1939	1780	1454	1310	1455	30- 40	1116	2667	39,39
50	1802	2026	1825	1888	1709	1280	1109	1300	40- 50	1312	3978	58.2,58.2
60	1709	1850	510.9	1701	1587	979.4	748.6	1036	50- 60	1308	5286	77.4,77.4
70	1458	746.5	86.49	677.9	1397	495.7	326.6	586.1	60- 70	1001	6287	92,92
80	634.0	16.14	0.8972	10.80	506.7	81.33	89.83	100.8	70- 80	492.4	6780	99.2,99.2
90	1.269	0.3984	0	0.1593	1.031	0	0	0	80- 90	43.94	6824	99.9,99.9
100	1.031	0.0791	0	0	1.744	0.6736	0	0.5604	90-100	0.4860	6824	99.9,99.9
110	1.031	0.0791	0	0.0796	2.220	1.865	0.3960	1.713	100-110	0.7893	6825	99.9,99.9
120	1.031	0.1585	0.1584	0.1991	2.061	2.377	1.745	2.549	110-120	1.139	6826	99.9,99.9
130	1.348	0.8319	0.6336	0.6766	2.061	2.061	2.455	2.587	120-130	1.262	6827	99.9,99.9
140	2.290	1.466	1.575	1.354	2.061	2.101	2.931	2.705	130-140	1.441	6829	99.9,99.9
150	2.695	2.574	2.455	2.265	2.461	2.815	3.406	3.303	140-150	1.523	6830	100,100
160	2.849	2.694	2.688	2.587	2.933	3.289	3.485	3.462	150-160	1.339	6832	100,100
170	3.174	3.444	3.088	3.024	3.409	3.606	3.485	3.661	160-170	0.8839	6833	100,100
180	3.964	3.923	3.327	3.462	3.964	3.804	3.485	3.661	170-180	0.3345	6833	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	1918	1915	1913	1911	1909	1907	1905	1904	1902	1901	1899	1898	1897	1895	1894	1893	1892	1891	1918
5	1907	1927	1935	1943	1951	1966	1962	1963	1972	1973	1974	1957	1953	1947	1939	1928	1916	1901	1916
10	1906	1928	1945	1972	1989	2009	2008	2013	2027	2027	2020	2009	2002	1986	1972	1947	1935	1904	1911
15	1888	1920	1945	1985	2008	2034	2048	2059	2075	2069	2057	2046	2022	2002	1990	1958	1935	1901	1892
20	1865	1910	1944	1987	2012	2056	2081	2103	2119	2104	2094	2068	2037	2012	1987	1960	1928	1894	1871
25	1860	1913	1944	1986	2017	2069	2110	2149	2168	2151	2125	2084	2040	2001	1981	1952	1918	1882	1856
30	1853	1903	1944	1991	2024	2077	2135	2184	2215	2195	2148	2090	2039	1989	1973	1934	1911	1867	1832
35	1842	1903	1944	1987	2028	2080	2142	2194	2240	2216	2158	2085	2018	1972	1951	1926	1895	1849	1813
40	1841	1912	1956	1997	2026	2082	2122	2170	2214	2195	2132	2053	1987	1951	1927	1915	1884	1832	1780
45	1828	1914	1971	2002	2024	2061	2077	2107	2124	2099	2051	1986	1947	1917	1908	1913	1883	1814	1744
50	1802	1916	1983	2020	2026	2027	1983	1926	1864	1825	1821	1840	1861	1872	1904	1909	1880	1793	1709
55	1773	1907	2001	2048	2021	1949	1770	1505	1303	1224	1290	1458	1649	1801	1891	1920	1876	1774	1664
60	1709	1883	1997	2063	1988	1713	1246	805	569	511	551	756	1155	1556	1846	1929	1872	1742	1587
65	1601	1827	1984	2029	1824	1151	455	283	226	211	218	263	427	1054	1672	1944	1897	1714	1500
70	1458	1741	1942	1894	1220	273	115	91.6	86.1	86.5	83.1	85.2	99.7	228	1127	1825	1936	1697	1397
75	1217	1475	1602	1178	267	61.4	37.7	28.1	24.9	24.2	24.0	25.4	32.0	46.4	217	935	1379	1323	1108
80	634	528	552	226	24.6	7.68	3.18	1.76	1.12	0.90	0.95	1.23	1.99	4.82	16.8	143	260	263	507
85	67.6	24.2	9.45	3.12	1.59	0.64	0.40	0.01	0.00	0.00	0.00	0.00	0.00	0.33	0.96	2.09	3.73	8.63	34.2
90	1.27	1.43	1.35	1.03	0.56	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.72	1.12	1.43	1.03
95	1.11	1.03	0.87	0.56	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.72	1.03	1.19
100	1.03	0.87	0.71	0.48	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.64	0.96	1.74
105	1.03	0.87	0.71	0.40	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.32	0.64	0.96	2.14
110	1.03	0.79	0.71	0.32	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.32	0.64	0.96	2.22
115	1.03	0.79	0.71	0.32	0.16	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.32	0.64	1.03	2.22
120	1.03	0.79	0.71	0.32	0.16	0.16	0.08	0.00	0.16	0.16	0.08	0.16	0.00	0.08	0.32	0.32	0.64	1.19	2.06
125	1.27	0.79	0.71	0.40	0.31	0.24	0.08	0.31	0.23	0.24	0.24	0.16	0.16	0.31	0.48	0.72	1.11	1.42	2.06
130	1.35	1.35	1.18	1.03	0.95	0.71	0.71	0.63	0.56	0.63	0.56	0.56	0.63	0.56	0.80	1.11	1.20	1.51	2.06
135	1.59	1.35	1.27	1.27	1.42	1.19	1.27	1.19	1.11	1.35	1.27	1.35	1.27	1.11	1.35	1.35	1.43	1.67	2.06
140	2.29	2.06	1.82	1.67	1.58	1.35	1.90	1.66	1.59	1.57	1.51	1.66	1.59	1.36	1.35	1.67	2.07	2.47	2.06
145	2.54	2.54	2.61	2.06	1.90	2.06	2.61	2.14	1.98	1.98	1.90	1.91	1.91	1.83	1.67	1.83	2.47	2.55	2.14
150	2.70	2.54	2.61	2.54	2.53	2.62	2.77	2.45	2.22	2.46	2.22	2.14	2.30	2.38	2.15	2.23	2.55	2.55	2.46
155	2.78	2.70	2.77	2.54	2.61	2.62	2.85	2.53	2.46	2.53	2.62	2.46	2.70	2.62	2.55	2.47	2.55	2.55	2.70
160	2.85	2.70	2.69	2.62	2.61	2.78	2.85	2.61	2.62	2.69	2.62	2.46	2.63	2.62	2.55	2.47	2.55	2.63	2.93
165	3.17	2.94	2.85	3.01	2.92	3.09	3.01	2.77	2.78	2.77	2.78	2.62	2.78	2.70	2.71	2.86	2.87	3.02	3.09
170	3.17	3.25	3.25	3.33	3.32	3.57	3.25	3.17	3.17	3.09	3.02	3.09	3.10	3.02	3.03	3.02	3.03	3.10	3.41
175	4.04	3.82	3.72	3.72	3.88	3.81	3.48	3.48	3.33	3.33	3.57	3.34	3.73	3.41	3.27	3.42	3.59	3.35	3.81
180	3.96	3.81	3.72	3.81	3.80	4.05	3.88	3.48	3.49	3.33	3.49	3.65	3.82	3.42	3.50	3.66	3.75	3.50	3.96



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6. Photo of sample:



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

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