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TEST REPORT

IES LM-79-19

Electrical and Photometric Measurements of Solid-State Lighting Products

Report reference No. : AOCE260509749-P

Tested by (name + signature)..... : Sam He

Supervised by (name + signature).... : Leroy Liu

Approved by (name + signature)..... : Sanji Guan

Date of issue..... : 2026-06-12

Testing Laboratory Name : Zhongshan AOCE Testing Technology Co., Ltd.

Address : 5/F, Building A, No.5 Jingdi Road, Henglan, Zhongshan, Guangdong, China.

Applicant's Name : ZHEJIANG ALITE LIGHTING CO., LTD

Address : 2nd Floor, 8th Building, No. 188 East Development Avenue, Taizhou City, Zhejiang, China

Test specification

Standard..... : ANSI/IES LM-79-19

Test Report Form No..... : TRF. IES LM-79-19_B

TRF Originator..... : AOCE

Master TRF..... : Dated 2026-04

Test item description : LED Street Light

Trademark : 

Manufacturer..... : ZHEJIANG ALITE LIGHTING CO., LTD

Address : 2nd Floor, 8th Building, No. 188 East Development Avenue, Taizhou City, Zhejiang, China

Model and/or type reference : ZS03 120W

Rating(s) (V; Hz)..... : 85-265V~,50/60Hz, 120W, 4000K

LED Source	:	
LED Packages/Modules type	:	LUXEON 5050
LED Packages/Modules quantity...	:	96 pcs
LED Package/Modules supplier	:	Lumileds
Number of test objects	:	1 sample

Date of receipt of test item	:	2026-06-01
Date(s) of performance of tests.....	:	2026-06-01 to 2026-06-11

General remarks

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

The test results presented in this report relate only to the object tested.

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Testing Summary

1. Integrating sphere Test
2. Goniophotometer Test

TEST METHOD**1.1 Seasoning in Sample Orientation - LED Products**

No Seasoning was performed in accordance with ANSI/IES LM-79-19.

1.2 Light Output and Light Distribution Measurements

Light Output and Light Distribution were measured using a Everfine Go-2000 Goniophotometer. The DUT rotates only around the fixed vertical axle in the prescribed burning position and a reflecting mirror rotates around the horizontal axle, meanwhile, the mirror in the opposite side reflect the measured beam perpendicularly towards to a fixed detector at the horizontal rotation axis. The combined motion of the DUT and mirror permit the measurement of luminous intensity at the direction of any horizontal or vertical angle without tilting the DUT. The DUT was allowed to stabilize before measurements were made. The calibration of the Goniophotometer system is by the reference/standard lamps which are traceable to NIM. Electrical measurements including voltage, current, power and power factor were measured using the Everfine Model PF-9811.

1.3 Color Performance

Color Performance was measured using an Everfine 2 m Integrating Sphere Unit at the ambient temperature of $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. Temperature was measured at the same height as the sample inside the sphere.

Correlated color temperature and color rendering index was measured using an Everfine Model HS2000 Spectrophotometer attached to the detector port of the integrating sphere and it was calculated from the spectral radiant flux measurements taken over the range 380 to 780 nm. The calibration of the integrating sphere spectrometer system is by the reference/standard luminaires which are traceable to NIM.

Electrical measurements including voltage, current, power and power factor were measured using the Everfine Model PF-210.

Self-absorption factor of integrating sphere was considered during the testing.

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Equipment List

No.	Equipment	Model No.	Calibration certificate number	Equipment number	Last Cal.	Cal.Due	Used (√)
1	Large integrating sphere	HS2000	ZS26040665D095	AOCE-P-001	2026-04-11	2027-04-10	√
2	Light-distribution photometer	GO-2000	ZS26040665D096	AOCE-P-002	2026-04-11	2027-04-10	√
3	Standard light source	D204	YG202601152	AOCE-P-003	2026-04-17	2027-04-16	√
4	Standard light source	500cd	YG2026012100	AOCE-P-004	2026-04-22	2027-04-21	√
5	Purified Power Source	DPS-1010	ZS26040665D100	AOCE-P-005	2026-04-11	2027-04-10	√
6	DC source	WY305	ZS26040665D101	AOCE-P-006	2026-04-11	2027-04-10	√
7	Power Meter	PF-210	ZS26040665D102	AOCE-P-007	2026-04-11	2027-04-10	√
8	Purified Power Source	DPS-1005	ZS26040665D097	AOCE-P-008	2026-04-11	2027-04-10	√
9	Purified Power Source	WY3010	ZS26040665D098	AOCE-P-009	2026-04-11	2027-04-10	√
10	Power meter	PF-9811	ZS26040665D099	AOCE-P-010	2026-04-11	2027-04-10	√
11	Hygrothermograph	DM-3210	ZS26040665D027	AOCE-P-011	2026-04-20	2027-04-19	√
12	Hygrothermograph	DM-3210	ZS26040665D125	AOCE-S-131	2026-04-20	2027-04-19	√
13	Long steel tape	5m	C26AX002891218	AOCE-S-133	2026-04-11	2027-04-10	√
14	Thermal anemometer	HT-9829	ZS26040665D146	AOCE-P-012	2026-04-18	2027-04-17	√

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1. Integrating Sphere Test

Temperature: 24,9 °C

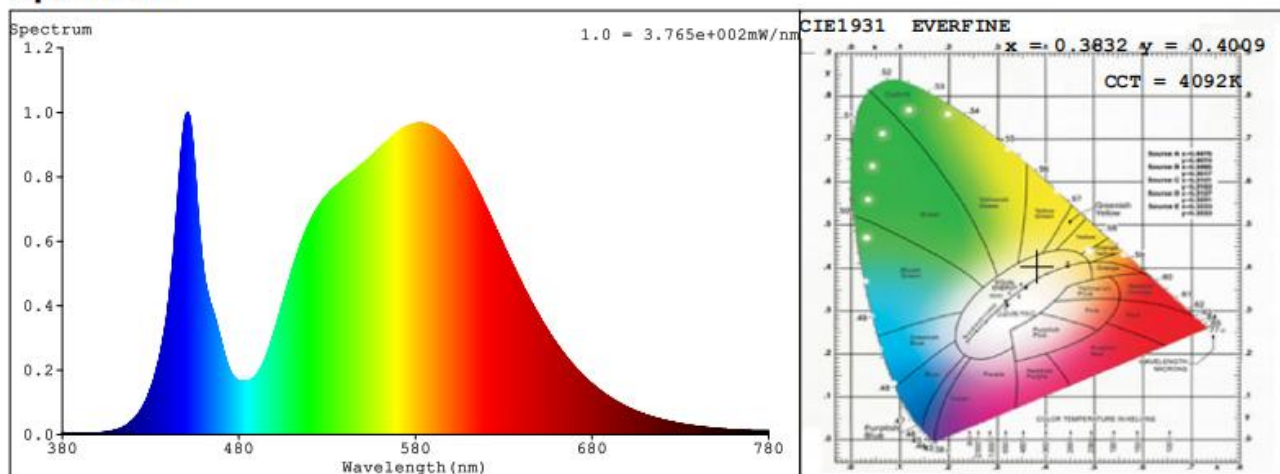
Environmental Condition:**Test Result:**

Sample ID	Voltage (Vac)	Frequency (Hz)	Current (A)	Power Factor	Power (W)	Stabilization time (min)
002	230,0	50	0,532	0,977	119.47	120

Sample ID	CCT (K)	Ra
002	4092	71,9

Orientation of installation: Downward Light

Operation time: 140 min

Spectrum**Colorimetric Parameters**Chromaticity Coordinate: $x = 0.3832$ $y = 0.4009$ / $u' = 0.2176$ $v' = 0.5122$ ($duv=1.01e-02$)CCT= 4092K Prcp WL: $L_d=574.4nm$ Purity=35.3%Peak WL: $L_p=451nm$ FWHM: =18.1nm Ratio: R=15.8% G=81.7% B=2.5%Render Index: $R_a = 71.9$

EEI: 0.07989 A++ Highest

R1 =67 R2 =78 R3 =89 R4 =71 R5 =67 R6 =70 R7 =83

R8 =50 R9 =0 R10=49 R11=66 R12=38 R13=69 R14=94 R15=59

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2.Goniophotometer Test

Environmental Condition:

Temperature:	25,0°C
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Test Result:

Sample ID	Voltage (Vdc)	Frequency (Hz)	Current (A)	Power Factor	Power (W)	Stabilization time (min)
001	230,0	50	0,532	0,9779	119.59	120

Sample ID	Flux (lm)	Downward		Upward		Luminous Efficacy (lm/W)
		Street side (%)	House side (%)	Street side (%)	House side (%)	
001	20388	70,7	29,3	0	0	170,48

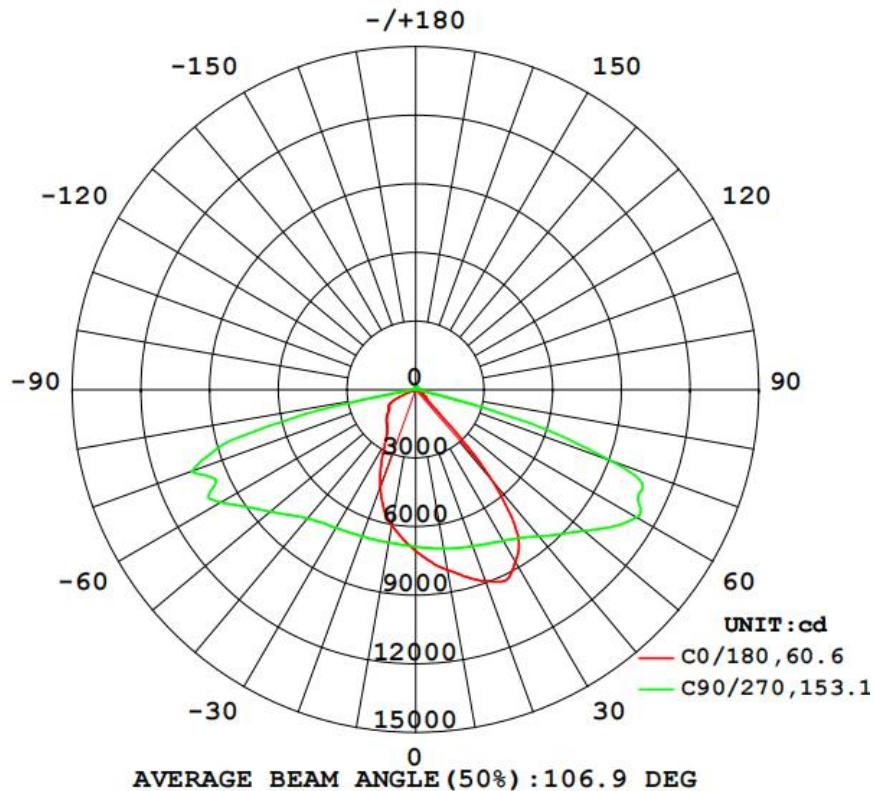
Orientation of installation: Downward Light

Operation time: 150 min

Roadway Summary

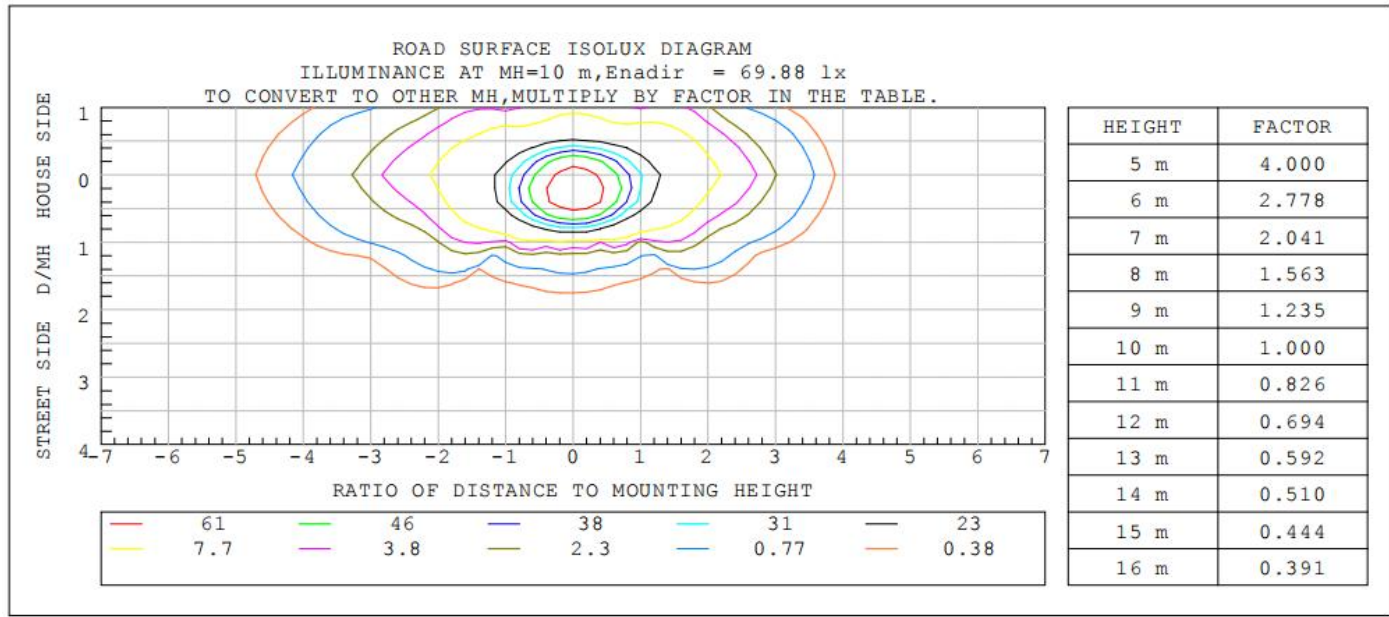
Cutoff Classification:	FULL CUTOFF
Distribution:	TYPE III, SHORT
Max Cd, 90 Deg Vert:	0 cd/klm
Max Cd, 80 to <90 Deg:	66,59 cd/klm

Light Distribution

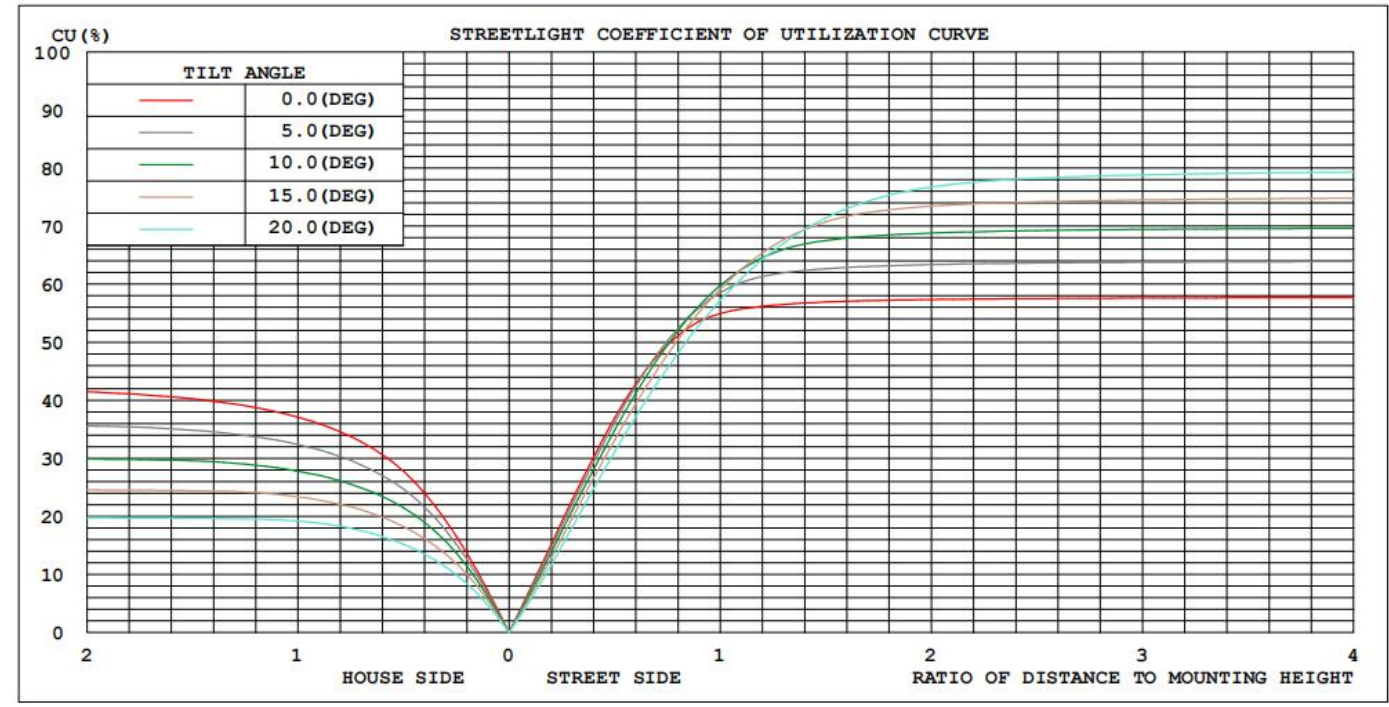


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ISO Lux Diagram



Coefficient of Utilization Curve



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Luminous Intensity Distribution Data

Table--1

UNIT: ×10cd

C (DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	706	699	695	690	687	686	684	685	706	699	695	690	687	686	684	685			
5	755	747	736	717	696	675	654	641	655	649	655	665	682	699	714	729			
10	800	794	778	746	706	665	623	596	603	599	616	643	679	716	748	773			
15	847	840	816	776	717	655	592	544	540	542	578	624	681	738	782	816			
20	891	889	861	802	730	646	558	471	455	469	535	607	684	761	821	860			
25	922	927	901	836	744	638	508	385	357	383	482	590	689	788	861	898			
30	872	901	932	876	764	631	444	284	267	288	415	573	698	822	898	875			
35	780	825	893	915	793	626	372	220	217	221	334	556	712	857	882	811			
40	531	615	830	946	838	623	280	193	198	189	248	537	736	894	826	629			
45	147	266	642	910	894	619	218	181	180	171	197	519	777	884	686	310			
50	64.5	63.0	367	903	962	611	191	173	159	159	171	502	830	864	455	73.8			
55	43.9	41.6	80.5	790	1046	610	176	163	146	149	156	485	895	812	137	45.7			
60	31.0	30.9	44.6	638	1116	600	156	145	133	138	142	468	985	667	50.3	33.2			
65	21.2	23.6	32.6	373	1077	465	112	105	80.6	113	119	410	965	461	36.4	25.6			
70	16.7	16.3	23.2	171	904	152	43.8	27.3	22.2	43.2	72.2	245	1039	226	26.8	17.7			
75	13.5	11.4	14.6	31.3	310	21.5	13.7	14.9	17.3	16.3	27.7	44.4	784	67.9	17.9	12.4			
80	10.0	6.81	7.53	10.7	16.9	5.47	5.11	9.00	12.2	10.8	9.37	8.43	136	12.8	10.3	7.76			
85	4.91	2.71	2.93	4.97	4.72	2.43	0.94	2.04	3.46	4.33	2.52	3.26	6.74	6.19	4.61	3.36			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			
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			

Sample Photo



-- END OF TEST REPORT --

STATEMENT

The test report merely corresponds to the test sample.

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If you have any objection to this report, please submit it to the test unit within 15 days from the date of receipt of the report.

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