TEST REPORT

LED GARDEN LIGHT

Test Model: GL-45W

Report Number	:	LCSB02286009S
Applicant	:	Shenzhen Penel Optoelectronics Technology Co.,Limited.
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Manufacturer	:	Shenzhen Penel Optoelectronics Technology Co.,Limited.
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Prepared by	:	Shenzhen Southern LCS Compliance Testing Lab Ltd.
Address	:	101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street Guangming New District, Shenzhen,Guangdong Prov. 518000 China
Date of receipt sample	:	March 09, 2026
Date of test	:	March 10, 2026
Date of issue	:	March 11, 2026

Remarks:

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TEST REPORT

Testing Laboratory.....:	Shenzhen Southern LCS Compliance Testing Lab Ltd. 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street Guangming New District, Shenzhen, Guangdong Prov. 518000 China
Test Specification: **Standard.....:**	ANSI/IES LM-79-19: Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products
Test item description.....:	LED GARDEN LIGHT
Trademark..... :	PENEL
Test Model/Type.....:	GL-45W
Rating..... :	AC85-265V, 50/60Hz, 45W
Test Results .....:	Please see the following test data
Prepare by..... :	Zero Huang (Project Engineer)
Check by..... :	Ian Luo (Director)
Approved by ..... :	Jesse Liu (Manager)
Test Report Form No.....:	TRF-4-S-123 A/0
TRF Originator.....:	Shenzhen Southern LCS Compliance Testing Lab Ltd.
Master TRF..... :	/

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1. Test Method

Test Item.....:	Integrating Sphere Test
Ambient Condition .....:	25.0℃
Stabilization time .....:	32 min
Orientation(burning position) of SSL product during test .....:	down
Test Method .....:	The sample was tested according to the ANSI/IES LM-79-19. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. 4π geometry was used during measurement.The sample was self-absorption correction used for integrating sphere, then 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.....:	24.7℃
Stabilization time .....:	33 min
Orientation(burning position) of SSL product during test .....:	down
Test Method.....:	The sample was tested according to the ANSI/IES LM-79-19. 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.

Remarks....:	The general information of applicant and manufacturer (such as the name and address), product name, model/type reference, trademark and other similar information contained in this report are all provided by the applicant, the laboratory is not responsible for verifying its authenticity.

2. Product Information

Product description.....:	LED GARDEN LIGHT
Model Number.....:	GL-45W
Rated Inputs.....:	AC85-265V
Rated Power.....:	45W
Declared CCT.....:	4000K
LED Manufacturer.....:	/
LED Model.....:	/
Forward current of the LED chip....:	/
Date of Receipt Samples.....:	March 09, 2026
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	2025/05/27	2026/05/26
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2025/05/27	2026/05/26
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2025/05/27	2026/05/26
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2025/06/02	2026/06/01
EVERFINE	2 Meter Integrating Sphere	SLCS-S-312	HAAS2000	2025/05/27	2026/05/26
EVERFINE	Digital Power Meter	SLCS-S-309	PF9810	2025/05/27	2026/05/26
EVERFINE	AC Testing Power Source	SLCS-S-310	DPS1005	2025/05/27	2026/05/26
EVERFINE	DC Testing Power Source	SLCS-S-311	WY605	2025/05/27	2026/05/26
OSRAM	Standard Lamp	SLCS-S-313	DC24V/50W	2025/06/02	2026/06/01
Statement of Traceability: All calibration of the equipment has been performed using suitable standards traceable to national primary standards and International System of Unit(SI).					

4. Integrating Sphere Test Results

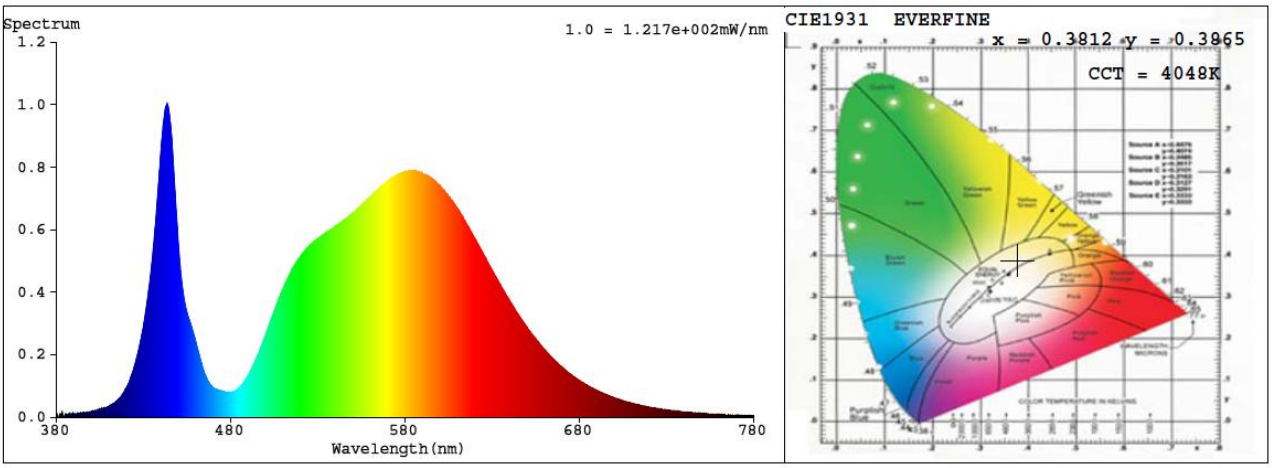
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.22	50.0	0.2075	0.9458	45.19

Luminous flux (lm)	Luminous efficacy(lm/W)	CCT (K)	x	y	u'	v'
6799.7	150.47	4048	0.3812	0.3865	0.2218	0.5059

Duv	CRI	R9	Rf	Rg	IES Rcs
4.27e-03	70.5	-41	74	93	-18%

4.2 Spectrum

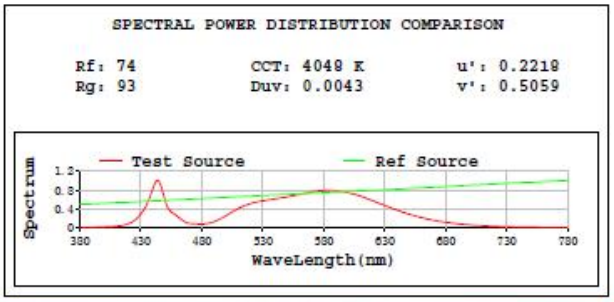


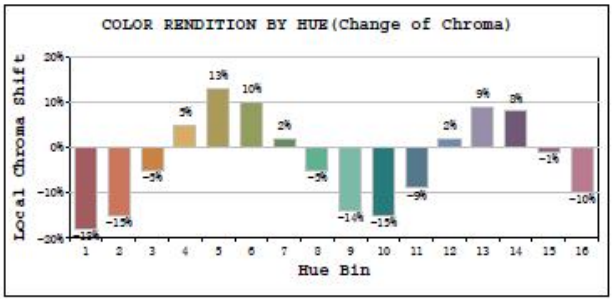
Colorimetric Parameters

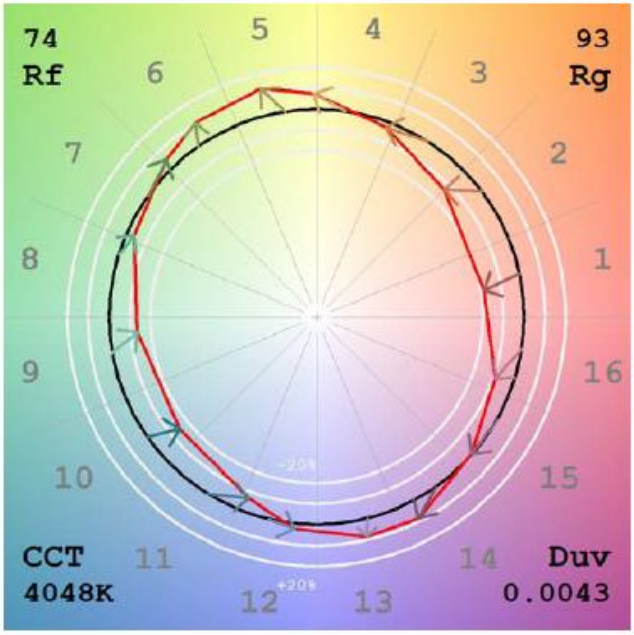
Chromaticity Coordinate: x = 0.3812 y = 0.3865 / u' = 0.2218 v' = 0.5059 (duv=4.27e-03)
CCT= 4048K Prcp WL: Ld=576.8nm Purity=30.4%
Peak WL: Lp=444nm FWHM: =15.9nm Ratio:R=16.2% G=81.7% B=2.1%
Render Index: Ra = 70.5 TM30:Rf=74 Rg=93

R1 =67 R2 =76 R3 =85 R4 =71 R5 =68 R6 =68 R7 =79
R8 =50 R9 =-41 R10=45 R11=69 R12=44 R13=68 R14=92 R15=59
LEVEL:OUT

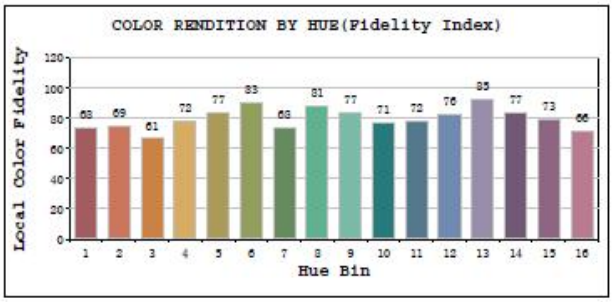
4.3 IES TM-30-18 Color Rendition Result

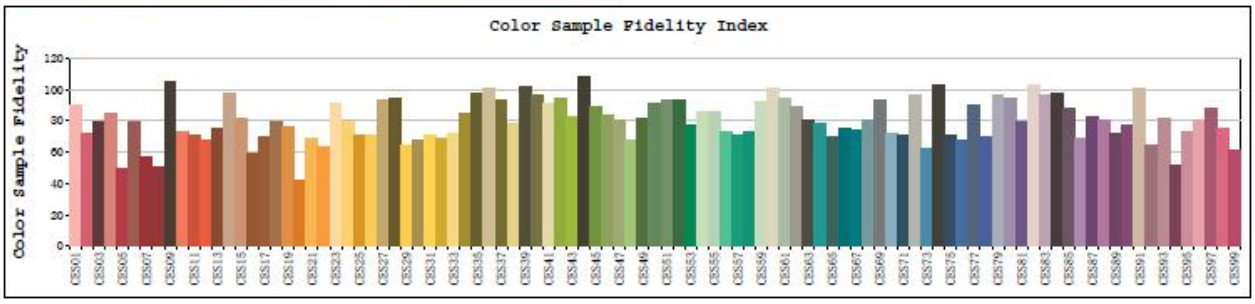












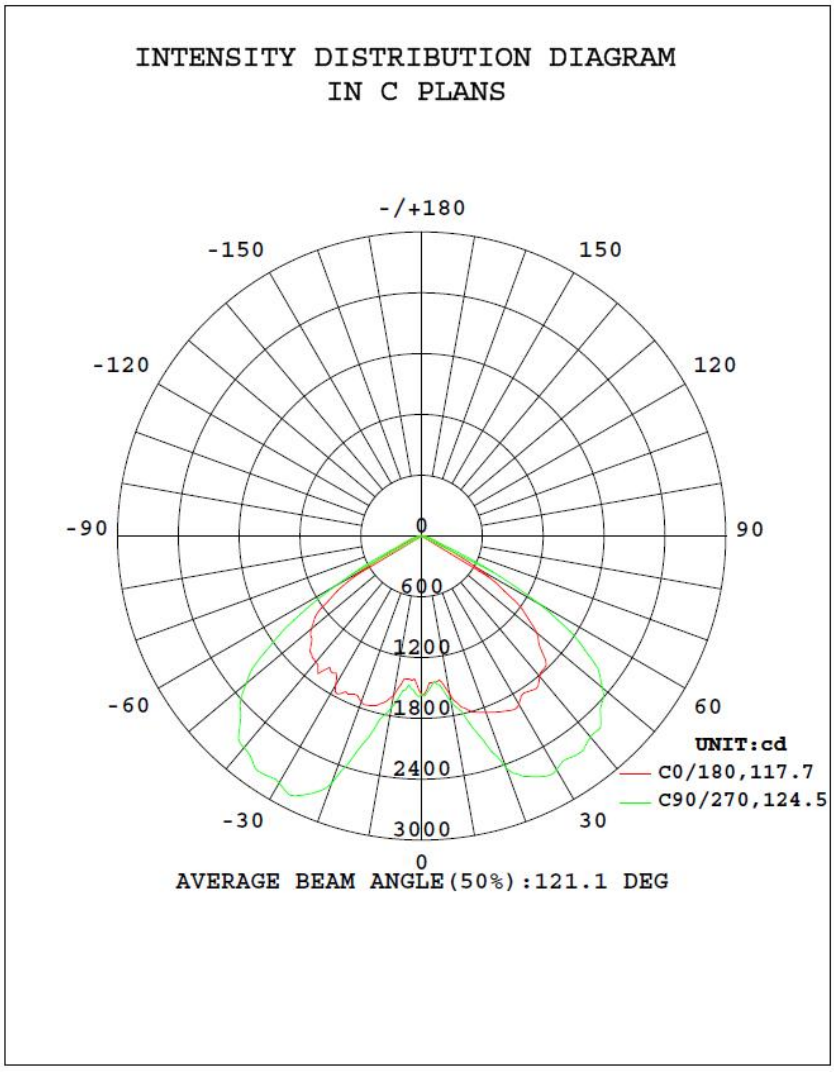
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.2	50.01	0.2072	0.9457	45.10

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	Imax (cd)	ZL (0~90°)	ZL (80~90°)
Output	6791.15	150.58	2868	99.6%	0.3%

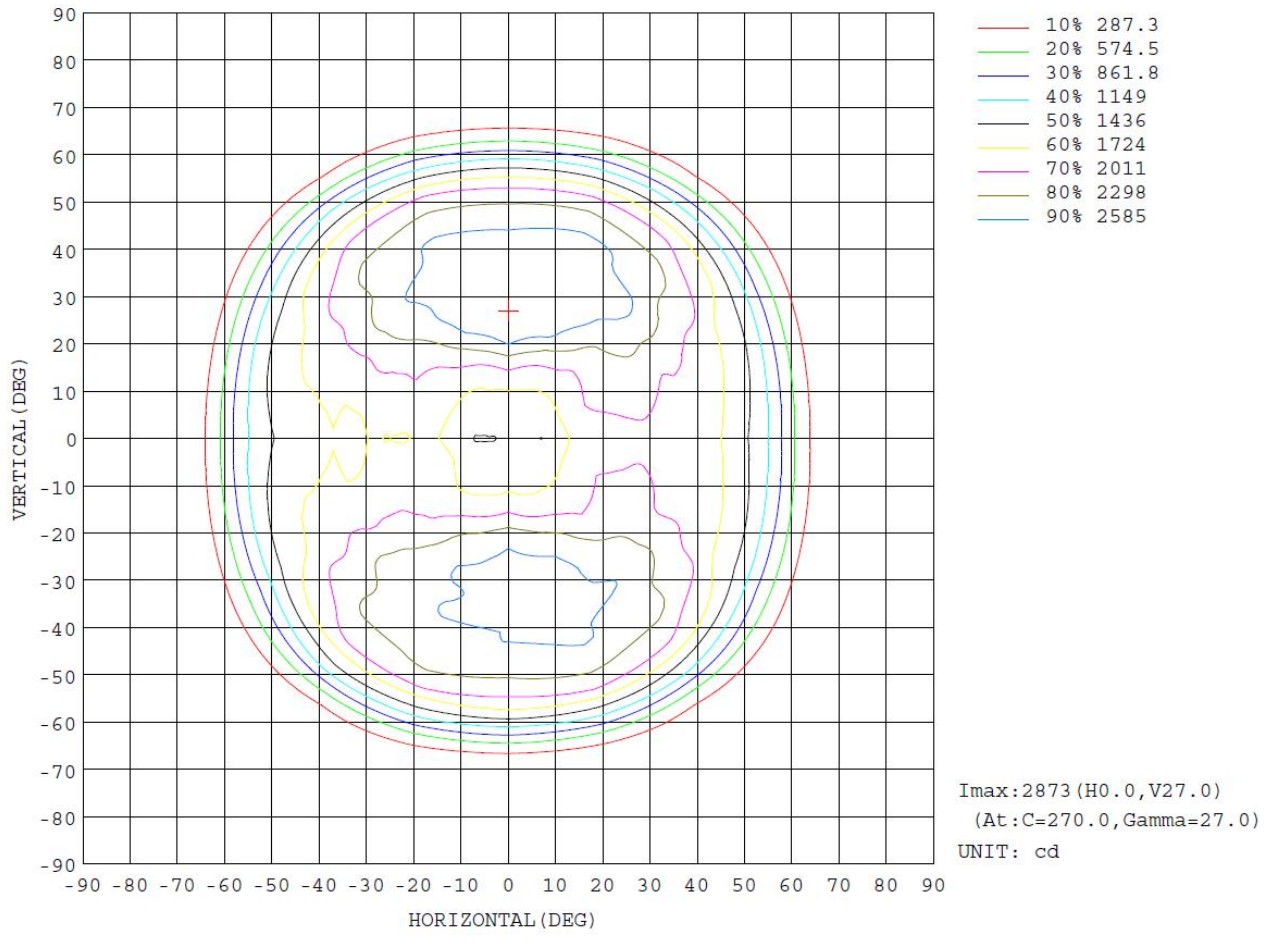
5.2 Luminous Intensity Distribution Diagram



5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	1579	1549	1657	1513	1596	1536	1718	1609	0- 10	144.5	144.5	2.13,2.13
20	1853	1946	2433	1899	1742	1985	2595	2036	10- 20	530.1	674.6	9.93,9.93
30	1918	2341	2663	2244	1706	2376	2814	2461	20- 30	1041	1716	25.3,25.3
40	1809	2480	2589	2326	1629	2379	2728	2508	30- 40	1471	3187	46.9,46.9
50	1485	2170	2328	2129	1421	2106	2262	2100	40- 50	1694	4880	71.9,71.9
60	623.8	1003	1342	1022	675.1	822.8	984.7	824.5	50- 60	1377	6258	92.1,92.1
70	128.3	164.0	166.0	150.5	107.4	153.6	178.4	171.5	60- 70	383.0	6641	97.8,97.8
80	44.98	57.38	49.65	47.07	30.72	47.38	54.54	60.20	70- 80	102.1	6743	99.3,99.3
90	3.690	7.175	4.826	6.115	1.842	5.646	4.813	7.085	80- 90	22.89	6766	99.6,99.6
100	3.288	4.132	2.686	3.242	1.573	3.151	3.387	3.485	90-100	5.508	6771	99.7,99.7
110	2.705	3.097	2.268	2.043	1.984	2.717	3.513	3.380	100-110	3.296	6775	99.8,99.8
120	2.778	3.139	2.496	1.951	3.014	3.481	4.608	3.661	110-120	2.979	6778	99.8,99.8
130	2.807	3.559	4.715	2.834	3.115	3.663	5.187	4.037	120-130	3.081	6781	99.8,99.8
140	3.977	4.883	5.674	3.923	4.003	3.753	5.486	4.234	130-140	3.235	6784	99.9,99.9
150	4.414	5.152	5.870	5.015	3.979	4.457	5.999	4.688	140-150	2.987	6787	99.9,99.9
160	4.411	5.324	5.731	5.560	4.692	5.326	5.815	4.851	150-160	2.346	6789	100,100
170	4.408	5.194	5.857	5.477	5.057	5.458	5.335	5.231	160-170	1.465	6791	100,100
180	5.806	5.326	5.812	5.560	5.699	5.543	5.264	5.669	170-180	0.5158	6791	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

5.4 Isocandela Diagram

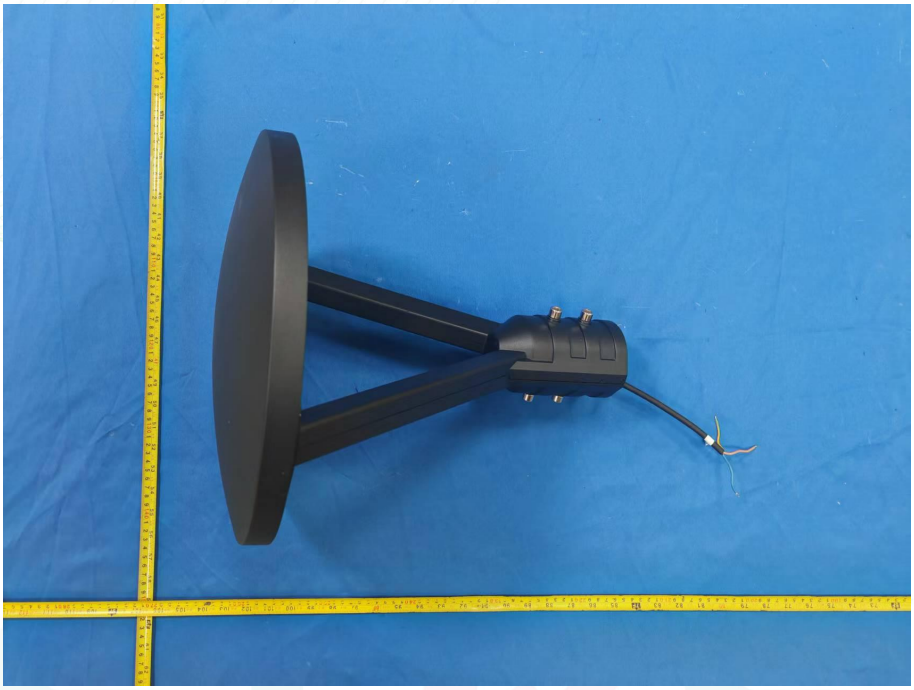
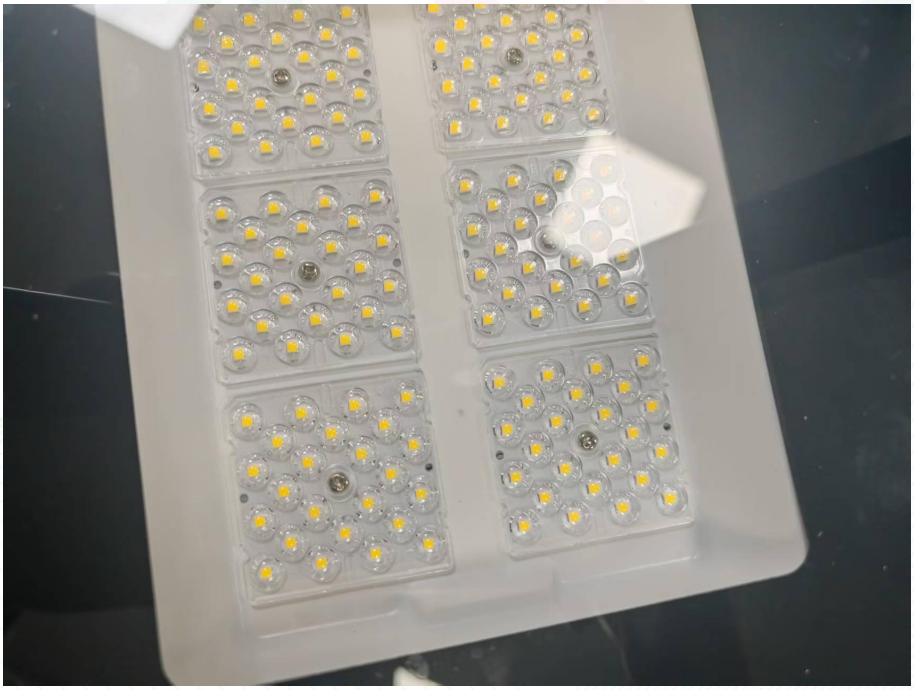


5.5 Luminous Distribution Intensity Data

Table--1 UNIT: cd

γ (DEG) \ C (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	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564			
5	1446	1479	1473	1443	1442	1437	1456	1475	1413	1489	1484	1471	1474	1461	1481	1504			
10	1579	1595	1549	1634	1657	1579	1513	1621	1596	1617	1536	1652	1718	1683	1609	1626			
15	1778	1857	1808	1811	1965	1796	1720	1838	1732	1815	1831	1887	2069	1896	1866	1894			
20	1853	2009	1946	2188	2433	2159	1899	1945	1742	1843	1985	2292	2595	2298	2036	2077			
25	1909	2067	2117	2531	2621	2468	2061	1877	1722	1930	2160	2640	2823	2683	2224	2148			
30	1918	2095	2341	2684	2663	2598	2244	1865	1706	1958	2376	2758	2814	2828	2461	2168			
35	1865	1977	2516	2654	2644	2563	2407	1810	1581	1895	2533	2742	2826	2816	2631	2026			
40	1809	1988	2480	2681	2589	2578	2326	1861	1629	1893	2379	2681	2728	2759	2508	2020			
45	1730	1874	2410	2622	2497	2538	2338	1824	1551	1838	2378	2575	2524	2632	2435	1906			
50	1485	1615	2170	2398	2328	2349	2129	1646	1421	1654	2106	2297	2262	2312	2100	1647			
55	1144	1299	1754	2043	1970	2007	1717	1322	1142	1310	1565	1780	1742	1783	1564	1300			
60	624	764	1003	1256	1342	1267	1022	736	675	725	823	988	985	987	824	716			
65	225	263	260	422	499	455	265	256	230	228	228	316	329	319	245	233			
70	128	150	164	169	166	162	151	125	107	127	154	169	178	179	171	147			
75	80.8	97.9	105	104	95.2	95.9	90.5	77.4	62.4	79.3	94.4	104	106	113	111	95.1			
80	45.0	57.3	57.4	53.4	49.7	48.1	47.1	42.4	30.7	42.1	47.4	50.3	54.5	57.7	60.2	54.8			
85	13.5	22.9	20.6	18.6	18.3	15.8	15.3	16.6	7.25	16.3	14.4	16.1	18.7	19.3	20.5	21.1			
90	3.69	11.1	7.17	5.58	4.83	5.01	6.11	10.0	1.84	9.50	5.65	4.59	4.81	5.66	7.08	9.13			
95	3.37	10.5	5.98	3.94	3.30	3.27	4.59	9.14	1.51	8.51	3.90	2.74	3.63	3.70	5.33	8.59			
100	3.29	6.61	4.13	3.11	2.69	2.14	3.24	4.79	1.57	4.20	3.15	2.84	3.39	3.49	3.48	4.23			
105	2.91	4.97	3.48	2.98	2.58	2.02	2.41	3.38	1.72	3.11	2.88	3.03	3.40	3.71	3.38	3.37			
110	2.71	3.56	3.10	2.77	2.27	2.11	2.04	2.72	1.98	3.07	2.72	3.40	3.51	4.14	3.38	3.04			
115	2.61	2.92	3.09	2.86	2.38	2.21	1.92	2.39	2.47	3.02	3.15	3.83	4.17	4.48	3.44	2.99			
120	2.78	2.59	3.14	2.95	2.50	2.30	1.95	2.39	3.01	3.22	3.48	3.83	4.61	4.52	3.66	3.03			
125	2.94	2.59	3.37	4.04	3.62	2.40	2.18	2.39	3.26	3.35	3.62	3.83	5.05	4.57	3.85	3.19			
130	2.81	3.39	3.56	4.92	4.72	3.70	2.83	2.39	3.11	3.67	3.66	4.70	5.19	4.72	4.04	3.47			
135	3.12	3.59	3.85	5.20	5.26	4.58	3.60	3.59	3.61	3.70	3.71	4.92	5.32	4.80	4.11	3.94			
140	3.98	3.91	4.88	5.36	5.67	5.12	3.92	4.60	4.00	3.76	3.75	5.29	5.49	4.89	4.23	4.05			
145	4.52	4.03	5.10	5.60	5.94	5.34	4.27	4.68	4.30	3.82	3.80	5.47	5.88	5.25	4.36	4.17			
150	4.41	4.43	5.15	5.90	5.87	5.49	5.01	4.60	3.98	3.88	4.46	5.47	6.00	5.44	4.69	4.28			
155	4.41	4.43	5.19	5.77	5.80	5.55	5.38	4.64	4.31	4.43	5.33	5.47	6.12	5.56	4.75	4.47			
160	4.41	4.43	5.32	5.63	5.73	5.61	5.56	4.71	4.69	4.97	5.33	5.47	5.81	5.62	4.85	4.55			
165	4.41	4.46	4.78	5.36	5.78	5.68	5.52	4.78	4.80	5.03	5.22	5.47	5.48	5.69	4.95	4.61			
170	4.41	4.86	5.19	5.36	5.86	5.74	5.48	5.39	5.06	5.08	5.46	5.47	5.34	5.75	5.23	4.66			
175	5.05	5.18	5.26	5.36	5.81	5.67	5.56	5.65	5.81	5.62	5.52	5.47	5.28	5.77	5.78	5.22			
180	5.81	5.72	5.33	5.36	5.81	5.67	5.56	5.65	5.70	5.62	5.54	5.47	5.26	5.77	5.67	5.54			

6. Photo of sample

Photo document
Photos of GL-45W  

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