Test Report of ANSI/IES LM-79-19

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

Report Number.....	:	N01A25071476L00601
Client.....	:	Shenzhen Fluence Lighting Technology Co., Ltd.
Address.....	:	B701, Building 1, Tian'an Digital City Innovation Park, No.475 Huangge North Road, Huanggekeng Community, Longcheng Street,Longgang District, Shenzhen.
Test Model.....	:	CP-SL01-0125-E02S
Brand Name.....	:	N/A
Testing Laboratory...	:	Guangdong GTG Testing Technology Co., Ltd.
Address.....	:	1-2/F., Building A, and 1/F., Building B, No.11, & Room 102, Unit 1, and Room 101 Unit 2, Building 1, No.9, Zongbu 2nd Road, Songshan Lake High-Tech Industrial Development Zone, Dongguan, Guangdong, China
Testing Location.....	:	As above
Date of Receipt.....	:	Aug. 15, 2025
Date of Test	:	Aug. 21, 2025
Date of Report.....	:	Oct. 17, 2025

Tested by:	**Checked by:**	**Approved by:**
Sujay Zhou/ Test Engineer	Allen Chen/ Project Engineer	Sandy Chen/ Approver

Note 1: The test data was only valid for the test sample(s).This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Guangdong GTG Testing Technology Co., Ltd. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP,NIST, or any agency of the Federal Government.
Note 2: This report does not imply product certification, approval, or endorsement by NVLAP, NIST,or any agency of the Federal Government.

1. Product Description for Equipment under Test (EUT)

Representative (Tested) Model:	CP-SL01-0125-E02S
Manufacturer:	Shenzhen Fluence Lighting Technology Co., Ltd.
Product Type:	Smart Bright Solar All-in-One Street Light
Rated Voltage/Current:	DC45.0V, 1.92A
Rated Power:	90.2W
Rated Luminous Flux:	18000lm
Nominal CCT:	5700K

2. Standards Used

- ANSI/IES LM-79-19:APPROVED METHOD:OPTICAL AND ELECTRICAL MEASUREMENTS OF SOLID-STATE LIGHTING PRODUCTS
- IES TM-30-18 IES Method for Evaluating Light Source Color Rendition (This Method is not in Nvlap accreditation scope)

3. Test Equipment List

Test Equipment	Serial No.	Model No.	Calibration Due Date
Full-field Speed Goniophotometer	01-L-182	GO-R5000	2026/03/11
Digital Power Meter	01-L-161	PF2010	2026/03/11
AC Testing Power Source	01-L-162	DPS1060	2026/03/11
Total Spectral Radiant Flux Standard Lamp	01-L-165	D908S	2026/03/24
Integrating Sphere System	01-L-183	2M	2026/03/11
High Accuracy Array Spectroradio Meter	01-L-169	HAAS-3000	2026/03/11
Digital Power Meter	01-L-166	PF310	2026/03/11
AC Testing Power Source	01-L-168	DPS1010	2026/03/11
Standard Lamp	01-L-190	D204	2026/03/24

Statement of Traceability: Guangdong GTG Testing Technology Co., Ltd. attested that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit(SI).

4. Test Method

Requirements of Ambient Condition
Product was tested with no seasoning. All stabilization and measurements were made in compliance with ANSI/IES LM-79-19. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1.2°C during measurement. And relative humidity between 10% and 65%.

Goniophotometer System
The sample was tested according to the ANSI/IES LM-79-19.

Photometric paramters were measured using a type C goniophotometer and software. 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.Photometric distance was more than five times of the Largest dimension of the test SSL product.

Integrating Sphere System
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. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. 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.

Fidelity Index (R_f) and Gamut Index (R_g) Calculation
The R_f, R_g was calculated according to IES TM-30-18 by using calculation tools. The calculation was based on the measured SPD from 380nm to 780nm with 1nm intervals. All the colors in this report is for reference only.

5. Integrating Sphere Test Results

5.1 Test Data

Test Ambient Temperature (Integrating Sphere Internal Temperature)	25.0℃	Test Orientation	Downward
Operate Time(Min.)	60	Stabilization Time(Min.)	30

Optical and Electrical Measurement Result

Mode	Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)	SDCM
5700K	44.53	/	2.04	90.84	1	18560	56534	0.3

Mode	CCT (K)	Ra	R9	x	y	u'	v'	Duv
5700K	5687	72.2	-31	0.3282	0.3417	0.2037	0.4773	2.24e-003

5.2 Color Rendering Index

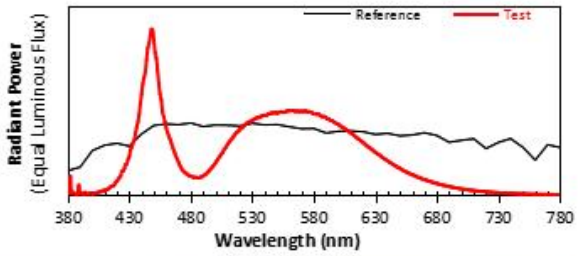
Ra
72.2

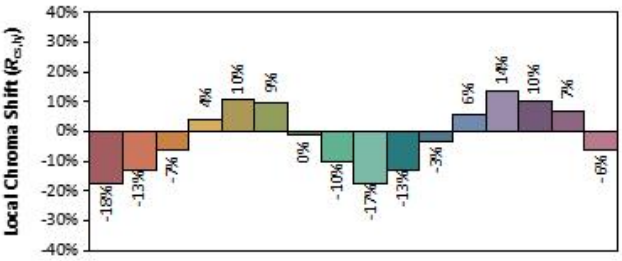
R1	R2	R3	R4	R5
70	76	80	74	71
R6	R7	R8	R9	R10
68	81	58	-31	43
R11	R12	R13	R14	R15
71	44	70	88	65

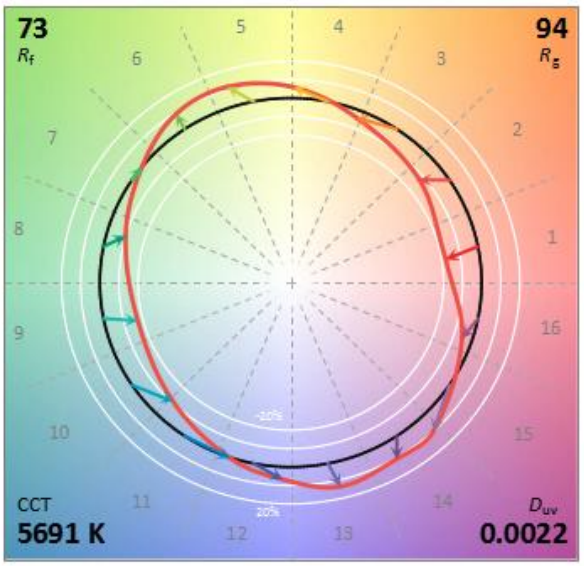
***5.3 ANSI/IES TM-30-18 Color Rendition Report**

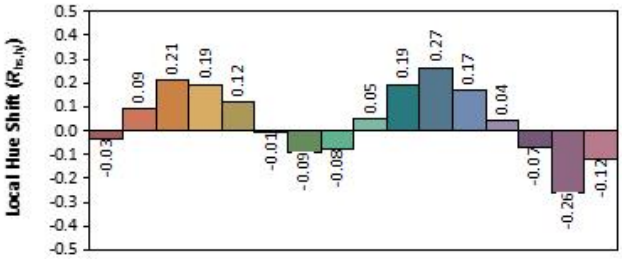
ANSI/IES TM-30-18 Color Rendition Report

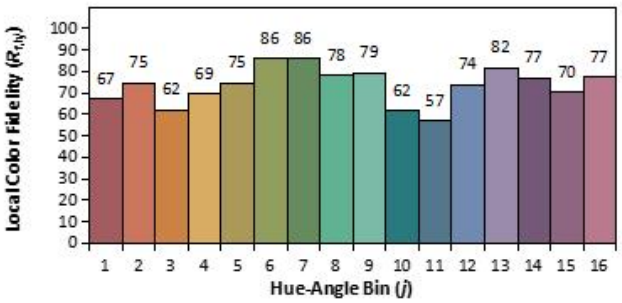
Source:		**Manufacturer:**	Shenzhen Fluence Lighting Technology Co., Ltd.
Date:	2025/8/21	**Model:**	CP-SL01-0125-E02S

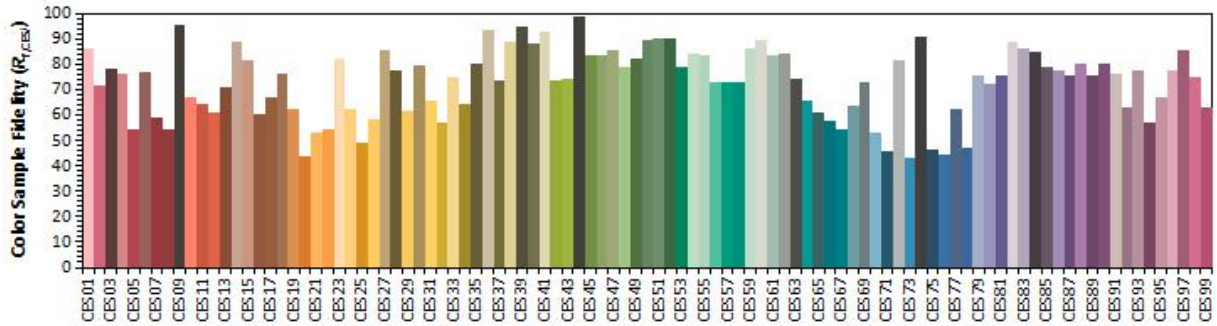












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

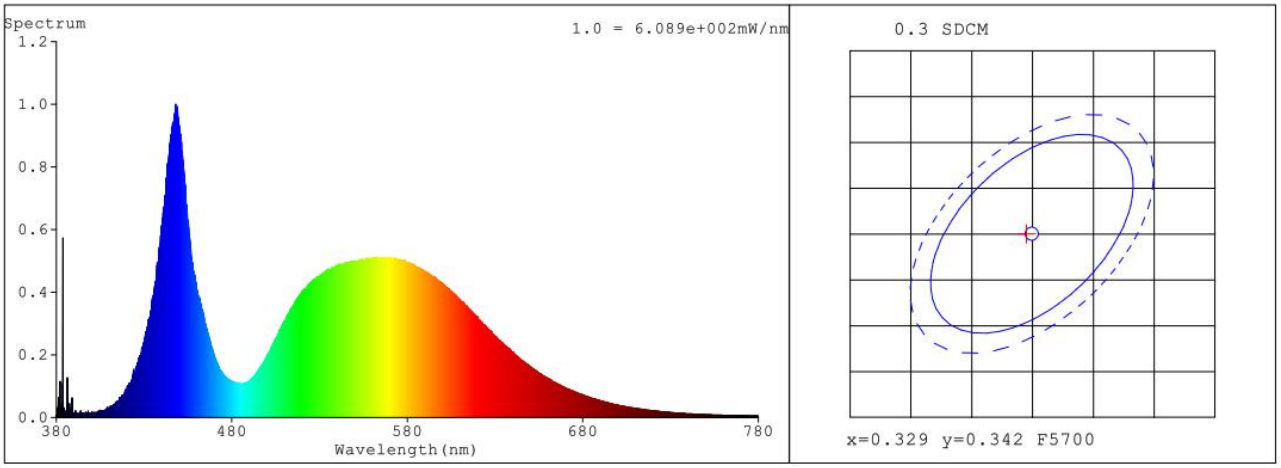
x	0.3281
y	0.3415
u'	0.2038
v'	0.4771

CIE 13.3-1995 (CRI)

R_a	72
R_9	-31

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

5.4 Relative Spectral Power Distribution



nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0084	414	0.0464	448	1	482	0.1093	516	0.368
381	0.0227	415	0.0534	449	0.992	483	0.1084	517	0.3765
382	0.1153	416	0.0548	450	0.9303	484	0.109	518	0.384
383	0.0111	417	0.0571	451	0.858	485	0.1069	519	0.3868
384	0.0198	418	0.0672	452	0.8243	486	0.1059	520	0.4043
385	0.0121	419	0.0795	453	0.7515	487	0.1084	521	0.4059
386	0.0099	420	0.087	454	0.6712	488	0.11	522	0.4066
387	0.0022	421	0.0979	455	0.6087	489	0.1118	523	0.4175
388	0.0133	422	0.1075	456	0.5737	490	0.1172	524	0.4244
389	0.062	423	0.1179	457	0.5027	491	0.1215	525	0.4305
390	0.0101	424	0.145	458	0.4706	492	0.1272	526	0.4378
391	0.0165	425	0.1463	459	0.4425	493	0.1328	527	0.4409
392	0.0097	426	0.1627	460	0.4069	494	0.1415	528	0.4417
393	0.0059	427	0.1859	461	0.3801	495	0.1483	529	0.45
394	0.0177	428	0.1905	462	0.3588	496	0.1591	530	0.4515
395	0.0096	429	0.2172	463	0.3403	497	0.1643	531	0.4554
396	0.0093	430	0.2342	464	0.3194	498	0.1779	532	0.46
397	0.0093	431	0.2737	465	0.2936	499	0.1833	533	0.4645
398	0.0147	432	0.2906	466	0.2739	500	0.1948	534	0.4667
399	0.0134	433	0.315	467	0.2545	501	0.206	535	0.4705
400	0.0067	434	0.3318	468	0.2334	502	0.2165	536	0.4677
401	0.0128	435	0.372	469	0.2165	503	0.2298	537	0.4768
402	0.0125	436	0.4118	470	0.1992	504	0.2388	538	0.4774
403	0.0147	437	0.4417	471	0.1816	505	0.2512	539	0.4807
404	0.0187	438	0.4875	472	0.1688	506	0.2575	540	0.4822
405	0.0181	439	0.5524	473	0.1541	507	0.2769	541	0.481
406	0.0208	440	0.6112	474	0.1463	508	0.2835	542	0.4822
407	0.0211	441	0.6719	475	0.1381	509	0.2956	543	0.4902
408	0.0241	442	0.7096	476	0.1327	510	0.308	544	0.4902
409	0.031	443	0.7419	477	0.1286	511	0.3191	545	0.4959
410	0.0251	444	0.8152	478	0.1217	512	0.3292	546	0.4948
411	0.0324	445	0.8849	479	0.1177	513	0.3369	547	0.4939
412	0.0362	446	0.9124	480	0.1159	514	0.3454	548	0.4993
413	0.0396	447	0.9593	481	0.1121	515	0.3574	549	0.4982

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
550	0.4945	599	0.4298	648	0.1705	697	0.0432	746	0.0098
551	0.4959	600	0.4288	649	0.1665	698	0.042	747	0.0094
552	0.4997	601	0.4196	650	0.1624	699	0.04	748	0.0095
553	0.5026	602	0.4155	651	0.158	700	0.0395	749	0.0096
554	0.5003	603	0.4115	652	0.1534	701	0.0379	750	0.0088
555	0.5002	604	0.4072	653	0.1487	702	0.0368	751	0.0088
556	0.5002	605	0.4031	654	0.1449	703	0.0358	752	0.0086
557	0.5029	606	0.3963	655	0.1408	704	0.035	753	0.008
558	0.5085	607	0.3912	656	0.1392	705	0.034	754	0.0083
559	0.5071	608	0.3869	657	0.1345	706	0.0325	755	0.0082
560	0.5088	609	0.3814	658	0.1307	707	0.0314	756	0.0077
561	0.5102	610	0.3756	659	0.1277	708	0.0304	757	0.0075
562	0.5096	611	0.3689	660	0.1235	709	0.03	758	0.0074
563	0.5117	612	0.3666	661	0.1225	710	0.028	759	0.0074
564	0.5076	613	0.3588	662	0.1196	711	0.0278	760	0.0071
565	0.5052	614	0.353	663	0.1141	712	0.0275	761	0.0067
566	0.5071	615	0.3455	664	0.112	713	0.0262	762	0.0066
567	0.5061	616	0.342	665	0.1089	714	0.0256	763	0.0062
568	0.5028	617	0.3361	666	0.1059	715	0.0248	764	0.0065
569	0.508	618	0.3298	667	0.1025	716	0.0238	765	0.0061
570	0.5063	619	0.3232	668	0.0996	717	0.0238	766	0.0061
571	0.5051	620	0.3194	669	0.0966	718	0.0232	767	0.0059
572	0.5034	621	0.3116	670	0.0943	719	0.0224	768	0.0056
573	0.5099	622	0.3053	671	0.0919	720	0.0214	769	0.0058
574	0.5065	623	0.2994	672	0.0905	721	0.0206	770	0.0053
575	0.5012	624	0.2923	673	0.0869	722	0.0204	771	0.0055
576	0.504	625	0.2899	674	0.0848	723	0.0197	772	0.0052
577	0.5011	626	0.2829	675	0.0829	724	0.019	773	0.0054
578	0.4988	627	0.2762	676	0.08	725	0.0183	774	0.0054
579	0.4955	628	0.2723	677	0.0782	726	0.0177	775	0.0049
580	0.4904	629	0.2645	678	0.0746	727	0.0176	776	0.0048
581	0.4902	630	0.2594	679	0.0738	728	0.0166	777	0.0049
582	0.4879	631	0.2549	680	0.0712	729	0.0166	778	0.0045
583	0.4886	632	0.248	681	0.069	730	0.0157	779	0.0044
584	0.4884	633	0.2448	682	0.0673	731	0.0153	780	0.0044
585	0.4813	634	0.2404	683	0.0655	732	0.0148		
586	0.4766	635	0.2322	684	0.0642	733	0.0145		
587	0.4737	636	0.2278	685	0.0612	734	0.0146		
588	0.4729	637	0.2219	686	0.0594	735	0.0137		
589	0.4732	638	0.217	687	0.0591	736	0.0133		
590	0.467	639	0.2133	688	0.0568	737	0.0132		
591	0.4605	640	0.2083	689	0.055	738	0.0129		
592	0.4607	641	0.2014	690	0.0536	739	0.0122		
593	0.4537	642	0.1985	691	0.0512	740	0.012		
594	0.4497	643	0.1936	692	0.0507	741	0.0113		
595	0.4498	644	0.1869	693	0.0483	742	0.0118		
596	0.4428	645	0.1834	694	0.0478	743	0.0106		
597	0.4387	646	0.1787	695	0.0459	744	0.0108		
598	0.4339	647	0.1741	696	0.0446	745	0.0105		

6. Goniophotometer Test Results

6.1 Test Data

Test Ambient Temperature	25.2℃	Test Orientation	Downward
Operate Time(Min.)	90	Stabilization Time(Min.)	30

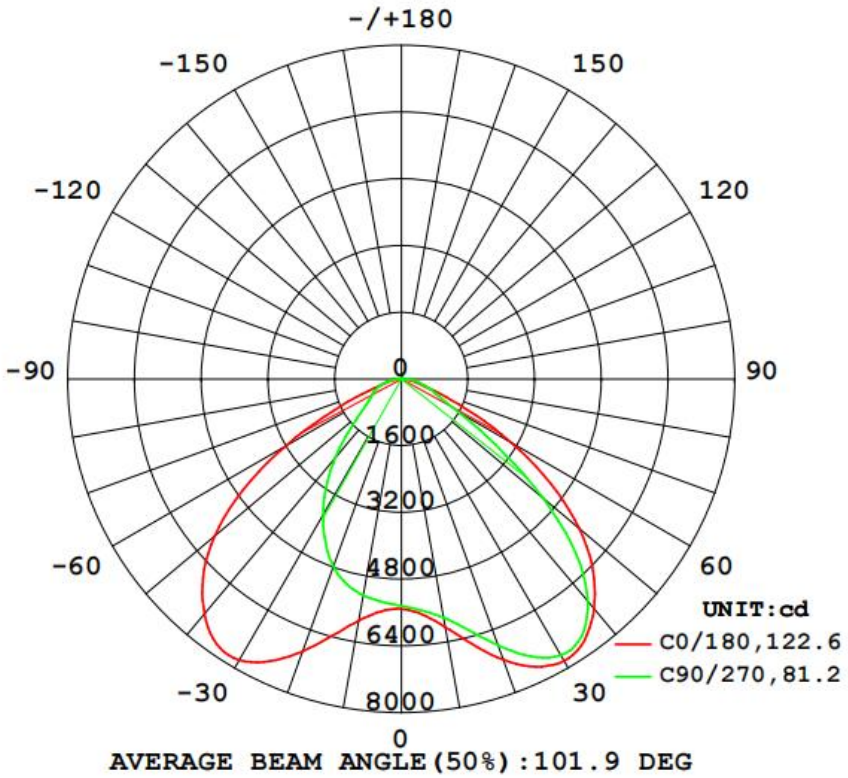
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current(A)	Power Factor	Power(W)
44.54	/	2.040	1	90.86

Optical Measurement

Luminous Flux (lm)	Efficacy(lm/W)	Imax (cd)	ŋ up(%)	ŋ down(%)
18542.3	204.07	8384	0.6	99.4

6.2 Luminous Intensity Distribution



6.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	6036	5940	5808	5773	5879	5572	5267	5669	0- 10	535.9	535.9	2.89,2.89
20	7159	7238	6794	6863	6945	5745	4779	5734	10- 20	1729	2265	12.2,12.2
30	7804	8339	7644	8103	7781	5334	3766	5098	20- 30	3074	5339	28.8,28.8
40	7188	7794	6952	7903	7353	4295	2475	3984	30- 40	4043	9382	50.6,50.6
50	5570	5937	4422	6219	5842	2823	1298	2552	40- 50	4031	13414	72.3,72.3
60	3042	3001	1578	3319	3207	1332	840.7	1146	50- 60	2909	16322	88,88
70	832.6	999.2	755.2	1079	839.8	547.5	600.0	526.6	60- 70	1375	17697	95.4,95.4
80	266.6	379.6	371.6	407.0	254.5	271.2	287.7	261.7	70- 80	538.9	18236	98.3,98.3
90	45.54	93.89	104.9	111.5	29.25	29.30	37.57	32.57	80- 90	189.8	18426	99.4,99.4
100	19.30	25.99	29.47	20.03	9.143	18.95	30.20	24.40	90-100	33.35	18459	99.6,99.6
110	14.55	21.42	28.30	17.23	7.854	18.46	25.12	23.49	100-110	21.83	18481	99.7,99.7
120	13.38	21.39	26.06	18.62	7.016	20.12	31.76	23.31	110-120	20.02	18501	99.8,99.8
130	12.66	17.51	22.31	14.92	7.061	15.25	22.07	17.83	120-130	16.12	18517	99.9,99.9
140	10.64	12.23	15.75	10.84	8.235	10.98	17.13	12.63	130-140	10.64	18528	99.9,99.9
150	8.800	7.595	10.91	7.098	9.327	9.639	12.99	10.63	140-150	6.776	18534	100,100
160	7.730	7.588	8.000	6.818	9.811	10.04	10.89	11.03	150-160	4.241	18539	100,100
170	9.392	9.241	8.568	8.405	10.45	10.60	11.45	11.56	160-170	2.626	18541	100,100
180	10.52	10.71	10.36	10.16	10.66	10.34	10.47	10.42	170-180	0.9694	18542	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

6.4 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	5513	5509	5472	5443	5441	5456	5488	5530	5513	5509	5472	5443	5441	5456	5488	5530			
5	5659	5704	5609	5570	5567	5557	5544	5526	5587	5524	5477	5391	5362	5417	5546	5720			
10	6036	6144	5940	5834	5808	5785	5773	5741	5879	5716	5572	5352	5267	5379	5669	6044			
15	6578	6792	6504	6295	6230	6206	6215	6186	6362	6036	5692	5259	5090	5272	5764	6405			
20	7159	7511	7238	6927	6794	6802	6863	6840	6945	6402	5745	5046	4779	5026	5734	6669			
25	7605	8085	7930	7553	7335	7402	7578	7545	7463	6682	5635	4683	4324	4614	5513	6705			
30	7804	8376	8339	7937	7644	7800	8103	8083	7781	6749	5334	4192	3766	4081	5098	6494			
35	7654	8227	8274	7895	7533	7794	8227	8306	7745	6566	4877	3611	3147	3489	4575	6084			
40	7188	7689	7794	7368	6952	7318	7903	8089	7353	6162	4295	2951	2475	2839	3984	5550			
45	6501	6883	7004	6453	5931	6419	7222	7486	6733	5591	3597	2248	1819	2158	3304	4856			
50	5570	5835	5937	5145	4422	5091	6219	6653	5842	4815	2823	1600	1298	1542	2552	3983			
55	4372	4499	4560	3539	2782	3467	4881	5539	4641	3858	2040	1128	996	1101	1794	2991			
60	3042	3072	3001	2093	1578	2034	3319	4131	3207	2784	1332	839	841	832	1146	1995			
65	1735	1785	1706	1202	996	1174	1902	2643	1813	1735	800	661	729	660	724	1141			
70	833	932	999	770	755	760	1079	1411	840	940	547	513	600	518	527	613			
75	440	509	618	535	537	527	654	715	436	502	400	385	452	389	389	375			
80	267	307	380	369	372	361	407	445	254	296	271	261	288	265	262	211			
85	144	147	228	240	224	233	246	222	131	148	144	124	136	128	128	94.5			
90	45.5	49.0	93.9	117	105	111	112	88.7	29.2	33.9	29.3	32.2	37.6	34.7	32.6	29.1			
95	22.4	24.8	30.2	34.3	34.8	31.5	23.7	15.5	9.92	13.8	20.9	27.1	30.2	29.5	28.1	25.3			
100	19.3	23.1	26.0	28.7	29.5	27.0	20.0	13.2	9.14	13.2	19.0	26.3	30.2	28.3	24.4	21.5			
105	17.4	17.7	22.8	27.5	29.7	26.2	18.2	11.4	8.39	11.5	17.6	24.1	28.0	25.9	22.6	17.5			
110	14.5	16.2	21.4	25.8	28.3	24.5	17.2	10.6	7.85	11.7	18.5	22.7	25.1	25.5	23.5	18.5			
115	13.6	16.2	21.7	25.6	25.8	23.2	18.0	11.0	7.37	12.5	22.0	26.3	27.7	30.3	26.4	18.0			
120	13.4	15.6	21.4	26.3	26.1	23.9	18.6	10.6	7.02	11.1	20.1	27.3	31.8	30.8	23.3	16.0			
125	13.1	13.6	19.7	25.2	25.8	23.1	17.1	9.68	6.87	8.42	17.3	22.8	26.2	24.9	20.2	13.4			
130	12.7	11.8	17.5	21.0	22.3	19.8	14.9	7.69	7.06	7.31	15.3	19.7	22.1	20.4	17.8	11.6			
135	11.6	10.3	15.3	17.3	18.7	16.8	13.0	6.81	7.55	7.29	12.8	17.4	19.3	18.1	14.9	10.9			
140	10.6	9.44	12.2	14.4	15.8	14.2	10.8	6.24	8.24	8.10	11.0	15.1	17.1	16.1	12.6	10.8			
145	9.61	8.63	9.66	12.3	13.3	12.1	8.56	6.29	8.87	8.83	9.78	13.1	14.6	13.9	11.2	10.5			
150	8.80	7.99	7.60	9.83	10.9	9.72	7.10	6.22	9.33	9.34	9.64	11.5	13.0	12.7	10.6	10.1			
155	8.15	7.59	6.82	8.43	9.18	8.28	6.27	6.46	9.55	9.59	10.0	10.8	11.2	11.4	10.9	10.1			
160	7.73	7.64	7.59	7.46	8.00	7.31	6.82	6.96	9.81	9.79	10.0	10.7	10.9	11.1	11.0	10.4			
165	8.44	8.44	8.24	7.81	7.61	7.62	7.42	7.45	9.93	9.77	10.2	11.0	11.2	11.2	11.3	10.8			
170	9.39	9.29	9.24	8.85	8.57	8.67	8.41	8.43	10.4	10.3	10.6	11.2	11.4	11.4	11.6	11.0			
175	10.2	10.1	10.1	9.74	9.40	9.61	9.36	9.22	10.7	10.6	10.6	10.9	11.0	10.9	11.0	10.6			
180	10.5	10.6	10.7	10.5	10.4	10.4	10.2	10.0	10.7	10.5	10.3	10.6	10.5	10.3	10.4	10.1			

7. Photo of Sample

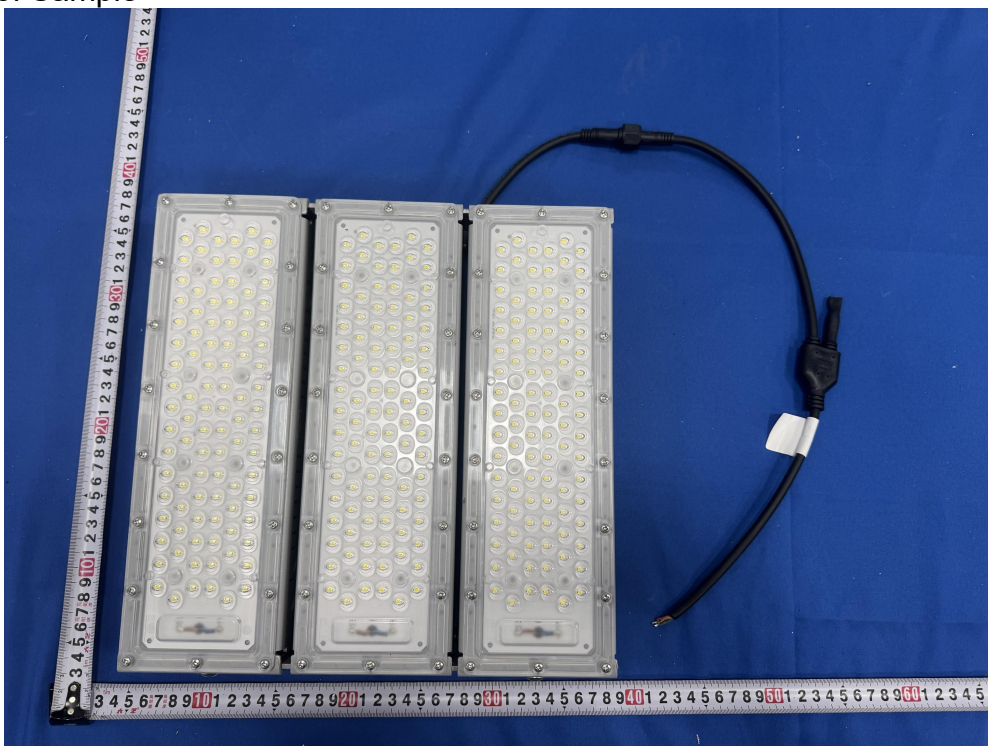


Figure 1 Overview

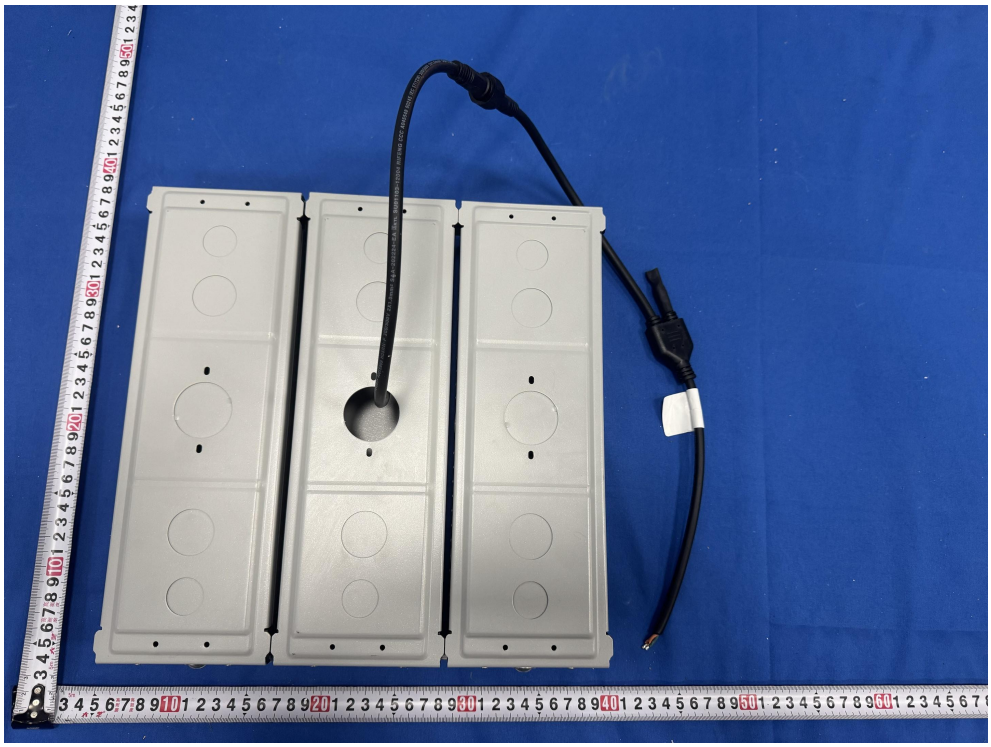


Figure 2 Overview

---End of Report---