

TEST REPORT OF ANSI/IES LM-79-19

APPROVED METHOD FOR OPTICAL AND ELECTRICAL MEASUREMENTS OF SOLID-STATE LIGHTING PRODUCTS

Client..... : ROYALUX EXPORTS

Address..... : 150-B, NOIDA SPECIAL ECONOMIC ZONE, NOIDA, GAUTAM BUDHHA NAGA
UTTAR PRADESH, 201305, INDIA

Test Model..... : 401Y0185W30L70AI, 401Y0185W57L70AI

Brand Name..... : 

Testing Laboratory... : Guangdong Meide Testing Technology Co., Ltd.

Address..... : 1st floor, B Area, Jinbaisheng Industrial Park, Headquarters 2 Road, Songshan
Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China

Testing location..... : As above

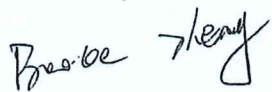
Report No..... : N02A21120306L00602

Date of receipt..... : Dec. 13, 2021

Date of test : Dec. 23, 2021 - Dec. 28, 2021

Date of report..... : Jan. 18, 2022

Tested by:



Brooke Zheng/ Test Engineer

Checked by:



Sandy Chen/ Project Engineer

Approved by:



Jessie Li/ Technical Manager



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 Meide 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.

Note 3: This report contains data that are not covered by the NVLAP accreditation. It is marked * in the title.



1. Product Description for Equipment under Test(EUT)

Model No.:	401Y0185W30L70AI, 401Y0185W57L70AI
Manufacturer:	ROYALUX EXPORTS
Product Type:	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Rated Voltage/Frequency:	100-277V AC, 50/60Hz
Rated Power:	185W
Rated luminous flux:	24050lm
Nominal CCT:	3000K, 5700K
LED Manufacturer:	Bridgelux Inc.
LED Model No.:	BXEM-30E-12H-6C, BXEM-57E-12H-6C

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)
- ANSI C82.77-10:2014 Harmonic Emission Limits – Related Power Quality Requirements for Lighting Equipment-Solid State

3. Test equipment list

Test Equipment	Serial No.	Model No.	Calibration due date
Full-field Speed Goniophotometer	MD-E028	GO-R5000	2022/09/17
Digital Power Meter	MD-E001	PF2010	2022/09/17
AC Testing Power Source	MD-E002	DPS1060	2022/09/17
Total Spectral Radiant Flux Standard Lamp	MD-E007	D908S	2022/10/13
Integrating Sphere System	MD-E029	2M	2022/09/17
High Accuracy Array Spectroradio Meter	MD-E011	HAAS-3000	2022/09/17
Digital Power Meter	MD-E008	PF310	2022/09/17
AC Testing Power Source	MD-E010	DPS1010	2022/09/17
Standard Lamp	MD-E036	D204	2022/10/13

Statement of Traceability: Guangdong Meide 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 $25^{\circ}\text{C}\pm 1.2^{\circ}\text{C}$ during measurement. And relative humidity between 10% and 65%.

Goniophotometer System

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

Photometric parameters 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.

THD and PF Test

The sample was tested according to the ANSI C82.77-10:2014.

The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.



5. Integrating Sphere Test Results

5.1 Test Data

Test Ambient Temperature (Integrating sphere internal temperature)	25.3°C	Test orientation	Downward
Operate time(Min.)	60	stabilization time(Min.)	45

Optical and Electrical Measurement Result

Model Number	Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)	CCT (K)
401Y0185W30L70AI	119.76	60	1.446	172.7	0.9974	23765	137.58	3002
401Y0185W57L70AI	119.77	60	1.444	172.5	0.9974	24466	141.85	5487

Model Number	Ra	R9	Rf	Rg	x	y	u'	v'	Duv
401Y0185W30L70AI	73.3	-22	74	97	0.4338	0.3978	0.2512	0.5184	-2.09E-03
401Y0185W57L70AI	73.9	-17	74	95	0.3328	0.3445	0.2058	0.4793	1.61E-03

5.2 Model # 401Y0185W30L70AI Color Rendering Index

Ra				
73.3				
R1	R2	R3	R4	R5
71	82	92	70	69
R6	R7	R8	R9	R10
75	79	48	-22	59
R11	R12	R13	R14	R15
65	51	73	95	64



***5.3.1 Model # 401Y0185W30L70AI ANSI/IES TM-30-18 Color Rendition Report**

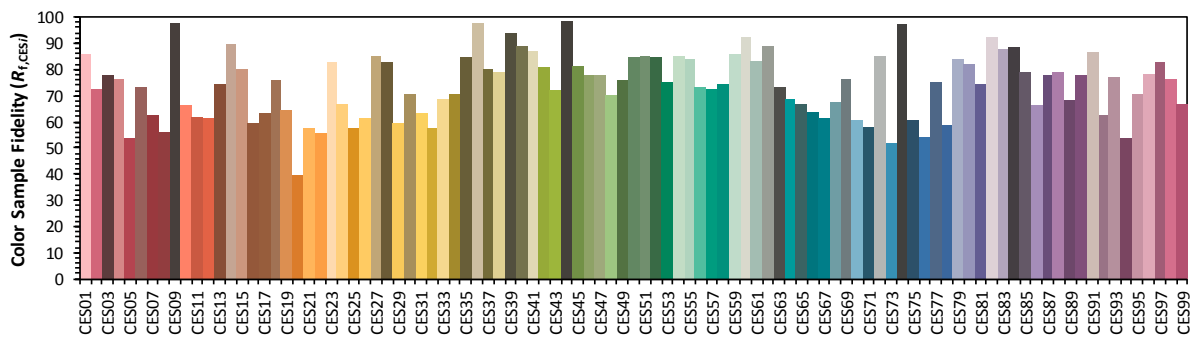
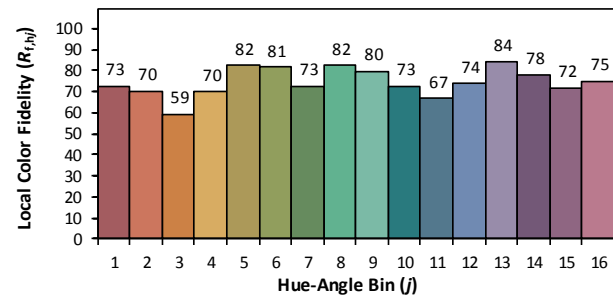
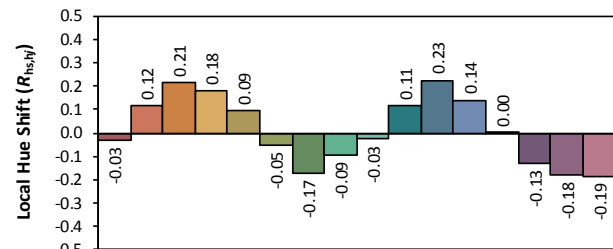
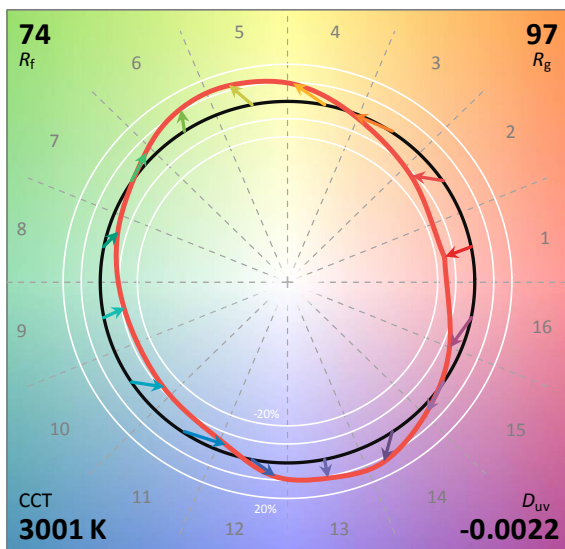
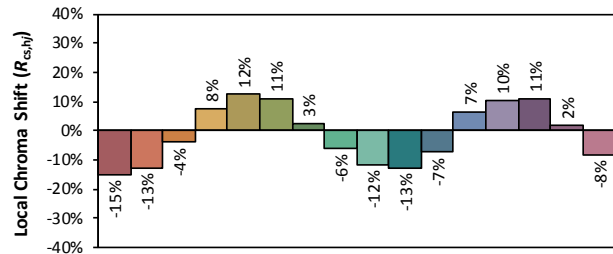
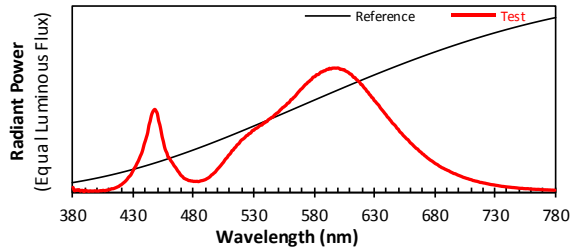
ANSI/IES TM-30-18 Color Rendition Report

Source: BXEM-30E-12H-6C

Manufacturer: ROYALUX EXPORTS

Date: 2021/12/28

Model: 401Y0185W30L70AI



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

x 0.4338
 y 0.3976
 u' 0.2513
 v' 0.5183

CIE 13.3-1995
(CRI)
 R_a 73
 R_g -22

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



***5.3.2 Model # 401Y0185W57L70AI ANSI/IES TM-30-18 Color Rendition Report**

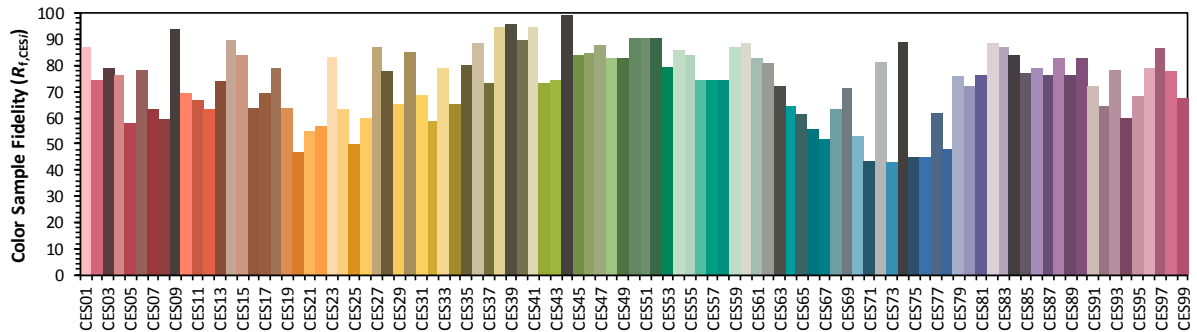
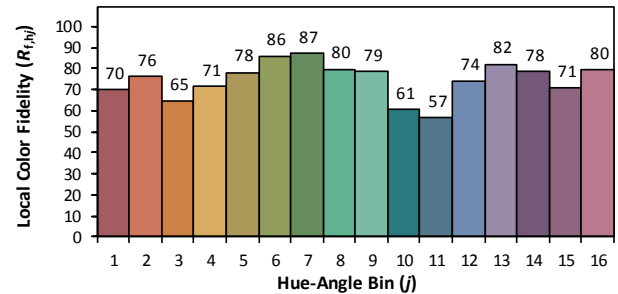
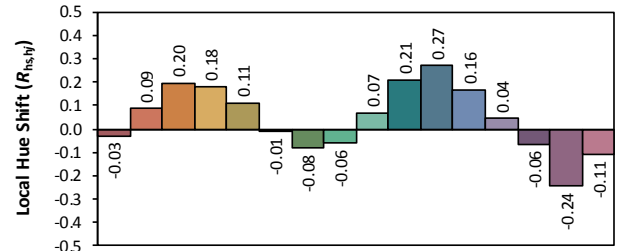
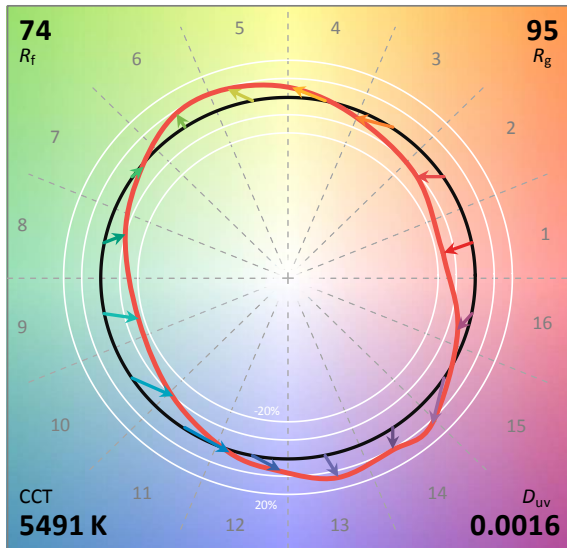
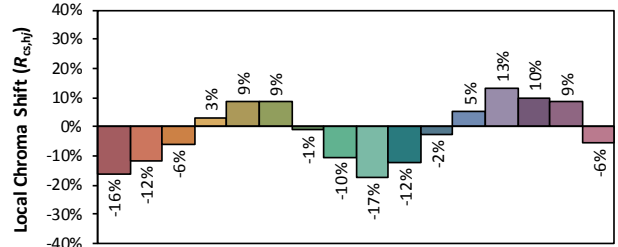
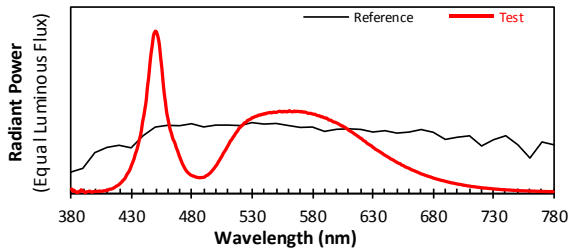
ANSI/IES TM-30-18 Color Rendition Report

Source: BXEM-57E-12H-6C

Manufacturer: ROYALUX EXPORTS

Date: 2021/12/28

Model: 401Y0185W57L70AI



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

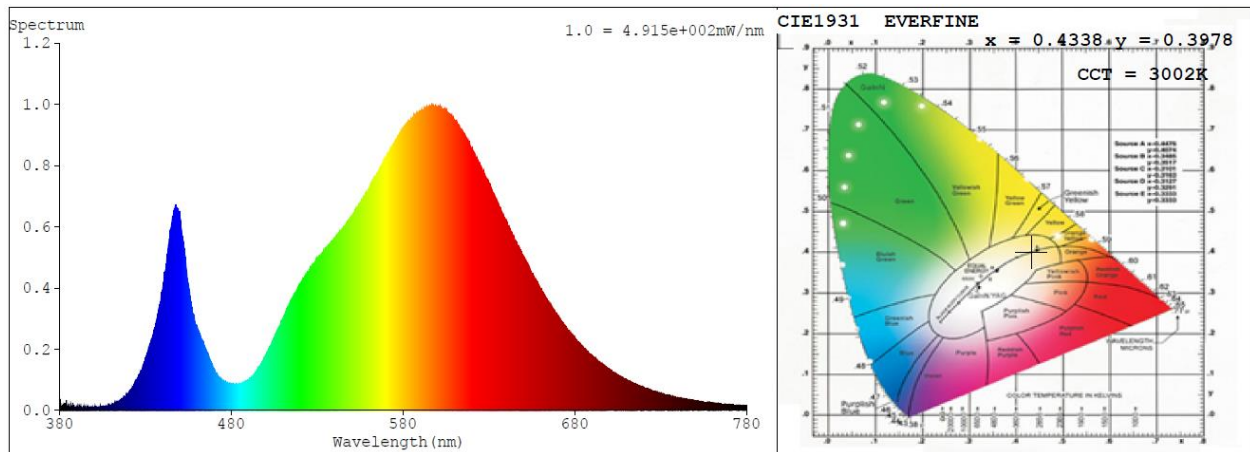
x 0.3327
 y 0.3443
 u' 0.2058
 v' 0.4792

CIE 13.3-1995 (CRI)	
R_a	74
R_g	-17

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



5.4 Model # 401Y0185W30L70AI Relative Spectral Power Distribution



nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0375	414	0.029	448	0.662	482	0.085	516	0.3753
381	0.0115	415	0.0331	449	0.6469	483	0.0863	517	0.3832
382	0.0141	416	0.0367	450	0.6274	484	0.0837	518	0.3918
383	0.0177	417	0.0417	451	0.5736	485	0.0862	519	0.4076
384	0.013	418	0.0454	452	0.5405	486	0.0898	520	0.4175
385	0.0193	419	0.0536	453	0.4944	487	0.0916	521	0.4238
386	0.0082	420	0.0587	454	0.4419	488	0.0937	522	0.4309
387	0.013	421	0.0666	455	0.4048	489	0.0971	523	0.4405
388	0.0127	422	0.0746	456	0.3595	490	0.1004	524	0.4519
389	0.003	423	0.0825	457	0.3303	491	0.1065	525	0.455
390	0.0146	424	0.0925	458	0.311	492	0.1116	526	0.467
391	0.0097	425	0.1035	459	0.2774	493	0.1177	527	0.4703
392	0.0094	426	0.1177	460	0.2724	494	0.1261	528	0.4793
393	0.0055	427	0.1271	461	0.2537	495	0.1369	529	0.4934
394	0.0098	428	0.1379	462	0.241	496	0.1429	530	0.4944
395	0.0084	429	0.1564	463	0.2264	497	0.1523	531	0.5046
396	0.0084	430	0.1746	464	0.2098	498	0.1596	532	0.51
397	0.0079	431	0.192	465	0.199	499	0.1724	533	0.5146
398	0.0105	432	0.2071	466	0.1844	500	0.1843	534	0.5227
399	0.0083	433	0.2281	467	0.1686	501	0.1946	535	0.5313
400	0.0089	434	0.2453	468	0.1573	502	0.2053	536	0.5359
401	0.0079	435	0.2675	469	0.1416	503	0.217	537	0.5379
402	0.0099	436	0.2909	470	0.1305	504	0.2293	538	0.5525
403	0.0114	437	0.312	471	0.1232	505	0.2404	539	0.5535
404	0.0109	438	0.3428	472	0.1111	506	0.2563	540	0.5633
405	0.0142	439	0.3815	473	0.1068	507	0.2683	541	0.5648
406	0.0113	440	0.4102	474	0.1018	508	0.2773	542	0.5781
407	0.0124	441	0.4422	475	0.0983	509	0.2934	543	0.5844
408	0.0153	442	0.4767	476	0.0921	510	0.302	544	0.5913
409	0.0161	443	0.5341	477	0.0921	511	0.3141	545	0.5982
410	0.0201	444	0.5669	478	0.0886	512	0.3318	546	0.6018
411	0.0217	445	0.6113	479	0.0885	513	0.3365	547	0.6142
412	0.0268	446	0.6384	480	0.0851	514	0.3524	548	0.6226
413	0.0265	447	0.655	481	0.0859	515	0.3596	549	0.6305



nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
550	0.6363	599	0.9927	648	0.5261	697	0.1473	746	0.0359
551	0.6452	600	0.9938	649	0.5102	698	0.1435	747	0.0348
552	0.6572	601	0.9898	650	0.5038	699	0.1383	748	0.034
553	0.6655	602	0.9822	651	0.4871	700	0.1344	749	0.0327
554	0.6762	603	0.9845	652	0.477	701	0.1306	750	0.0313
555	0.6814	604	0.9786	653	0.4685	702	0.1268	751	0.0303
556	0.6895	605	0.9811	654	0.4554	703	0.1227	752	0.0296
557	0.6974	606	0.9715	655	0.446	704	0.1182	753	0.03
558	0.7113	607	0.9665	656	0.4364	705	0.1155	754	0.0278
559	0.714	608	0.9617	657	0.4258	706	0.1122	755	0.0275
560	0.7254	609	0.955	658	0.4204	707	0.109	756	0.0267
561	0.7409	610	0.9456	659	0.408	708	0.1068	757	0.0272
562	0.7443	611	0.9434	660	0.3955	709	0.1029	758	0.0268
563	0.7559	612	0.9302	661	0.3876	710	0.1005	759	0.0251
564	0.7634	613	0.9184	662	0.3789	711	0.0977	760	0.0248
565	0.7747	614	0.9174	663	0.368	712	0.0929	761	0.0239
566	0.7874	615	0.9039	664	0.3592	713	0.0912	762	0.0227
567	0.7997	616	0.8972	665	0.3494	714	0.0882	763	0.0227
568	0.8101	617	0.8869	666	0.3451	715	0.0868	764	0.0218
569	0.8216	618	0.8799	667	0.3339	716	0.0844	765	0.0212
570	0.8288	619	0.8624	668	0.3245	717	0.0813	766	0.0219
571	0.8398	620	0.8592	669	0.3183	718	0.0774	767	0.0214
572	0.8512	621	0.8443	670	0.3069	719	0.0769	768	0.0203
573	0.8618	622	0.8322	671	0.302	720	0.0748	769	0.0195
574	0.8682	623	0.8231	672	0.2914	721	0.0726	770	0.0191
575	0.8799	624	0.807	673	0.2852	722	0.0714	771	0.0181
576	0.8853	625	0.7998	674	0.2756	723	0.0687	772	0.0182
577	0.8959	626	0.7832	675	0.2687	724	0.0668	773	0.0176
578	0.902	627	0.7742	676	0.261	725	0.0647	774	0.0178
579	0.917	628	0.7586	677	0.2541	726	0.0623	775	0.0166
580	0.9226	629	0.7524	678	0.2487	727	0.0602	776	0.0168
581	0.9257	630	0.7343	679	0.2416	728	0.0589	777	0.0156
582	0.9391	631	0.7261	680	0.2341	729	0.058	778	0.0157
583	0.9403	632	0.7136	681	0.2272	730	0.0563	779	0.0151
584	0.9438	633	0.7037	682	0.2225	731	0.0544	780	0.0149
585	0.954	634	0.6931	683	0.2167	732	0.053		
586	0.9625	635	0.6765	684	0.2084	733	0.0515		
587	0.9627	636	0.6641	685	0.2032	734	0.0494		
588	0.9703	637	0.6528	686	0.1966	735	0.0478		
589	0.9713	638	0.641	687	0.1926	736	0.0458		
590	0.9774	639	0.6283	688	0.188	737	0.0452		
591	0.9835	640	0.6175	689	0.1825	738	0.044		
592	0.9822	641	0.6018	690	0.1787	739	0.0426		
593	0.9916	642	0.5937	691	0.1736	740	0.0415		
594	0.9855	643	0.5802	692	0.1704	741	0.0405		
595	0.9919	644	0.5693	693	0.1638	742	0.0396		
596	0.9927	645	0.5545	694	0.1588	743	0.0387		
597	0.9933	646	0.5458	695	0.1545	744	0.0374		
598	0.9925	647	0.5371	696	0.149	745	0.0364		



6. Goniophotometer Test results for model # 401Y0185W30L70AI

6.1 Test Data

Test Ambient Temperature	25.1°C	Test orientation	Downward
Operate time(Min.)	90	stabilization time(Min.)	45

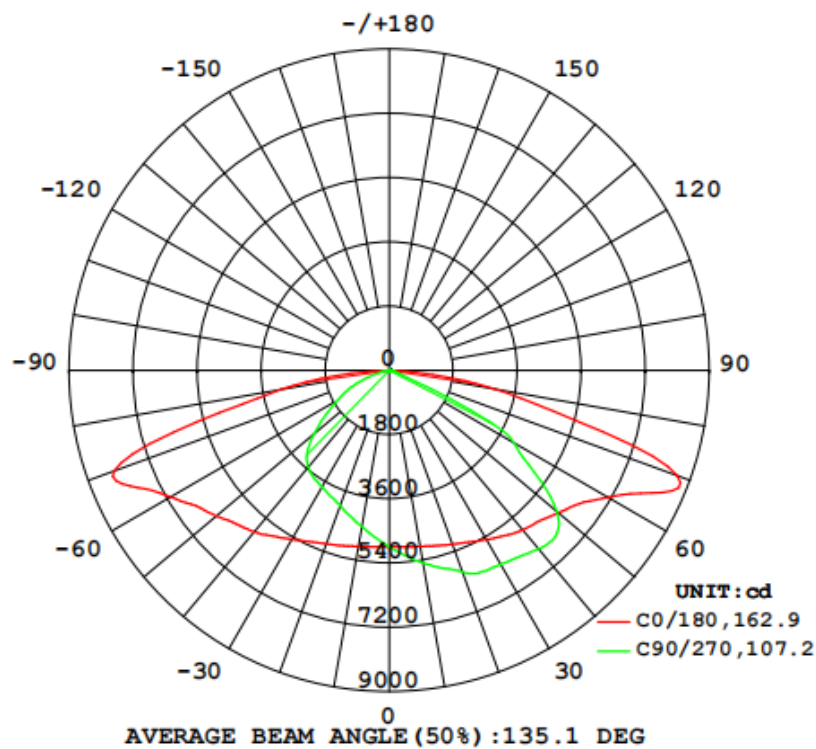
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current(A)	Power Factor	Power(W)
119.9	60	1.4226	0.9986	170.3

Optical Measurement

Luminous Flux (lm)	Efficacy(lm/W)	ZL (0-90°)	ZL (80-90°)
23351	137.08	99.8%	2%

6.2 Luminous Intensity Distribution

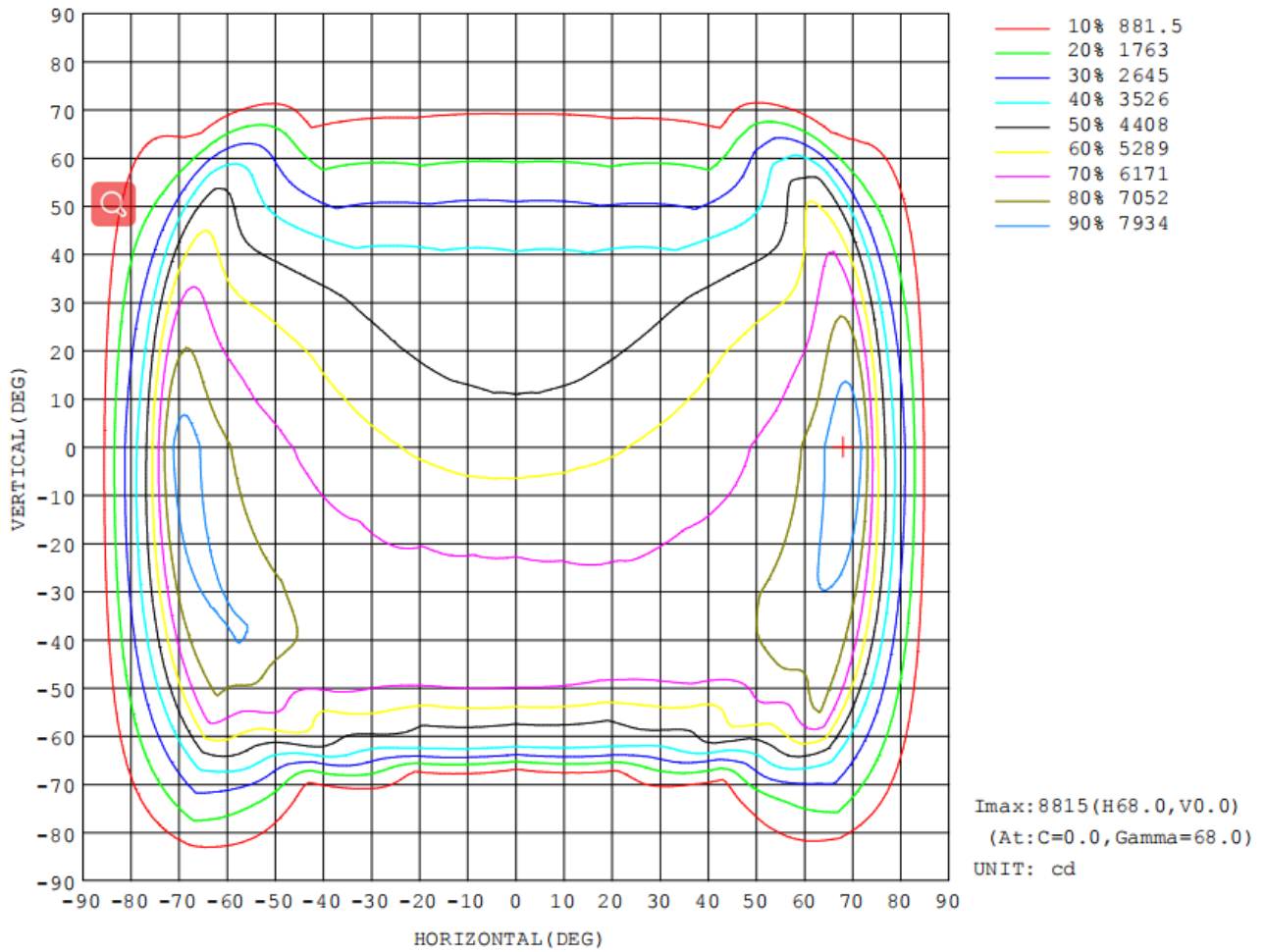




6.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	5011	5353	5481	5353	5009	4631	4452	4626	0- 10	474.4	474.4	2.03, 2.03
20	5185	5740	6013	5776	5171	4383	4045	4419	10- 20	1428	1902	8.15, 8.15
30	5476	6136	6272	6230	5469	4222	3784	4267	20- 30	2395	4298	18.4, 18.4
40	5841	6361	6529	6482	5913	4063	3550	4096	30- 40	3329	7627	32.7, 32.7
50	6211	6664	6151	6846	6353	3614	2753	3598	40- 50	4149	11776	50.4, 50.4
60	7121	5865	4045	6193	7102	2490	1686	2494	50- 60	4455	16231	69.5, 69.5
70	8610	3827	393.2	4216	8232	1223	791.5	1225	60- 70	4104	20335	87.1, 87.1
80	3010	295.1	118.3	355.9	3093	357.1	200.0	343.7	70- 80	2495	22829	97.8, 97.8
90	7.203	2.477	0.3596	1.339	6.664	0.5287	0	0.7995	80- 90	479.0	23308	99.8, 99.8
100	9.284	1.442	0.0886	1.196	12.19	3.974	0.2753	4.979	90-100	3.428	23312	99.8, 99.8
110	14.21	1.672	0.6179	1.864	16.04	8.725	4.434	9.066	100-110	6.154	23318	99.9, 99.9
120	13.42	3.169	2.391	3.226	14.01	10.01	8.332	11.01	110-120	7.781	23326	99.9, 99.9
130	10.44	4.127	3.102	3.817	10.60	8.811	10.81	9.419	120-130	7.174	23333	99.9, 99.9
140	8.844	4.307	4.364	4.368	8.555	8.054	10.51	8.529	130-140	5.837	23339	99.9, 99.9
150	8.242	5.493	5.471	5.063	8.606	8.724	10.46	9.595	140-150	4.797	23344	100, 100
160	7.542	5.991	5.828	6.041	10.17	9.862	10.46	10.64	150-160	3.761	23347	100, 100
170	10.26	8.719	8.947	8.525	11.32	10.93	11.26	11.28	160-170	2.587	23350	100, 100
180	11.66	11.37	11.34	10.65	11.66	11.28	11.34	11.37	170-180	1.007	23351	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

6.4 Isocandela Diagram





6.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945
5	4964	5008	5051	5092	5130	5161	5184	5200	5208	5210	5207	5198	5180	5156	5126	5092	5053	5009	4963
10	5011	5101	5183	5258	5324	5380	5424	5456	5475	5481	5474	5454	5422	5379	5323	5256	5179	5095	5009
15	5087	5216	5329	5426	5507	5578	5637	5683	5716	5729	5717	5686	5643	5586	5514	5427	5326	5211	5088
20	5185	5336	5471	5589	5693	5787	5869	5937	5988	6013	6000	5961	5901	5822	5726	5612	5481	5332	5171
25	5316	5471	5623	5781	5929	6043	6119	6171	6207	6225	6229	6215	6181	6116	5997	5828	5648	5479	5299
30	5476	5677	5846	5986	6094	6165	6205	6231	6256	6272	6276	6271	6269	6251	6193	6083	5923	5712	5469
35	5660	5886	6053	6148	6198	6242	6290	6329	6356	6376	6391	6394	6374	6336	6299	6250	6140	5938	5677
40	5841	6016	6158	6260	6333	6388	6432	6469	6502	6529	6556	6568	6550	6509	6460	6398	6297	6143	5913
45	5976	6166	6316	6424	6494	6524	6525	6530	6561	6597	6631	6659	6681	6687	6671	6620	6515	6341	6084
50	6211	6371	6497	6607	6666	6591	6401	6229	6156	6151	6242	6387	6584	6774	6866	6838	6744	6606	6353
55	6519	6738	6839	6841	6708	6314	5728	5237	5029	4993	5106	5384	5929	6556	6987	7148	7137	6975	6631
60	7121	7445	7425	6982	6268	5451	4673	4131	3995	4045	4075	4288	4908	5754	6614	7330	7711	7583	7102
65	8145	8188	7783	6764	5453	4336	3541	2859	2234	1928	2308	3001	3732	4569	5771	7172	8142	8261	7785
70	8610	8145	7339	6107	4614	2987	1441	416	248	393	250	446	1596	3304	5047	6564	7719	8317	8232
75	5427	7120	7264	5185	2196	395	152	257	208	218	216	279	240	533	2208	4948	6795	6535	5626
80	3010	3709	3664	2536	990	100	39.1	143	121	118	124	152	51.5	135	1130	2841	3996	3813	3093
85	796	1435	1618	1158	421	0.00	0.00	34.8	28.4	27.6	31.1	40.8	0.00	0.00	485	1327	1830	1569	1081
90	7.20	7.00	6.32	4.92	3.26	2.00	1.32	0.87	0.54	0.36	0.31	0.40	0.49	0.90	2.41	4.77	6.58	6.94	6.66
95	6.75	5.97	4.97	3.57	2.12	1.21	0.89	0.68	0.34	0.09	0.09	0.24	0.35	0.70	1.85	3.70	5.51	6.79	7.64
100	9.28	7.17	5.27	3.50	2.02	1.15	0.85	0.66	0.32	0.09	0.13	0.31	0.45	0.82	1.88	3.72	6.30	9.59	12.2
105	12.6	9.45	6.68	4.23	2.27	1.15	0.79	0.65	0.36	0.18	0.20	0.36	0.49	0.91	2.05	4.08	7.22	11.6	15.2
110	14.2	11.2	8.33	5.36	2.72	1.17	0.73	0.66	0.57	0.62	0.76	0.99	1.09	1.45	2.67	4.92	8.18	12.5	16.0
115	13.8	11.5	9.10	6.42	3.90	2.27	1.60	1.36	1.28	1.33	1.23	1.28	1.58	2.36	3.98	6.43	9.39	12.7	15.2
120	13.4	11.2	8.90	6.43	4.13	2.59	1.92	1.78	2.04	2.39	2.29	2.21	2.27	2.75	4.12	6.36	9.03	11.8	14.0
125	11.2	9.93	8.41	6.42	4.44	3.27	2.99	2.97	2.93	2.93	2.85	2.82	2.78	3.03	4.21	6.26	8.44	10.3	11.7
130	10.4	9.24	7.92	6.35	4.80	3.71	3.18	2.97	2.98	3.10	3.15	3.24	3.28	3.53	4.47	6.08	7.84	9.47	10.6
135	9.47	8.55	7.48	6.10	4.74	3.99	3.88	3.97	4.00	4.05	4.06	4.07	3.97	4.02	4.77	6.14	7.42	8.15	8.68
140	8.84	8.03	7.10	5.91	4.76	4.17	4.17	4.30	4.32	4.36	4.44	4.50	4.34	4.26	4.88	6.16	7.36	8.06	8.56
145	8.78	8.00	7.11	5.95	4.83	4.35	4.51	4.78	4.85	4.96	5.35	5.63	5.19	4.61	4.95	6.24	7.47	8.12	8.53
150	8.24	7.72	7.14	6.43	5.76	5.41	5.40	5.46	5.45	5.47	5.65	5.77	5.47	5.11	5.41	6.37	7.36	8.06	8.61
155	7.94	7.65	7.23	6.59	5.92	5.62	5.70	5.78	5.67	5.58	5.67	5.79	5.76	5.76	6.14	6.89	7.64	8.21	8.68
160	7.54	7.62	7.45	6.92	6.27	5.94	5.98	6.04	5.93	5.83	5.81	5.83	5.81	5.89	6.40	7.32	8.39	9.44	10.2
165	9.03	8.77	8.44	7.98	7.52	7.20	7.07	7.05	7.09	7.17	7.31	7.41	7.26	7.10	7.36	8.09	8.95	9.78	10.4
170	10.3	9.67	9.22	8.93	8.76	8.69	8.69	8.75	8.85	8.95	8.98	8.96	8.73	8.54	8.76	9.41	10.2	10.8	11.3
175	11.2	10.5	10.0	9.86	9.91	9.91	9.82	9.80	9.91	10.0	10.0	9.94	9.73	9.54	9.61	9.97	10.5	11.1	11.6
180	11.7	11.8	11.8	11.6	11.4	11.5	11.7	11.8	11.6	11.3	11.5	11.6	11.3	10.8	10.7	11.0	11.3	11.5	11.7



Table--2

UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945	4945		
5	4918	4874	4833	4795	4762	4732	4710	4697	4693	4698	4711	4730	4756	4788	4826	4868	4914		
10	4922	4835	4750	4669	4595	4530	4482	4458	4452	4463	4490	4534	4592	4664	4747	4835	4923		
15	4955	4820	4686	4560	4445	4348	4279	4245	4237	4250	4288	4357	4451	4565	4694	4828	4958		
20	5001	4825	4642	4465	4310	4185	4097	4055	4045	4056	4103	4201	4340	4503	4680	4858	5025		
25	5091	4868	4631	4400	4206	4061	3960	3909	3898	3914	3971	4084	4246	4452	4688	4922	5128		
30	5206	4928	4632	4348	4125	3972	3867	3803	3784	3809	3881	3998	4164	4396	4682	4972	5232		
35	5358	5010	4646	4305	4048	3885	3778	3709	3686	3707	3778	3897	4076	4344	4689	5042	5359		
40	5543	5115	4665	4245	3939	3759	3646	3574	3550	3562	3628	3755	3960	4286	4714	5144	5509		
45	5705	5248	4698	4148	3742	3508	3367	3287	3266	3271	3342	3494	3750	4177	4740	5273	5667		
50	5885	5301	4610	3921	3403	3093	2898	2785	2753	2771	2874	3065	3381	3925	4649	5333	5830		
55	6043	5304	4409	3514	2867	2513	2311	2204	2184	2193	2292	2491	2850	3523	4452	5342	6000		
60	6259	5216	4052	2954	2226	1906	1764	1688	1686	1680	1750	1895	2224	2965	4080	5232	6213		
65	6572	5066	3604	2354	1606	1368	1314	1267	1272	1258	1298	1352	1600	2379	3688	5172	6628		
70	6974	5245	3444	1853	969	809	846	799	792	792	835	774	941	1974	3829	5742	7264		
75	5055	4268	2847	1290	441	378	465	387	342	389	466	347	404	1425	3278	4845	5446		
80	2084	1071	559	386	309	254	230	207	200	210	234	250	296	386	587	1049	1878		
85	661	295	143	124	119	95.8	80.0	71.3	68.6	70.3	77.4	89.2	107	118	143	247	473		
90	6.18	5.24	3.22	1.18	1.26	3.21	4.09	2.17	0.00	0.00	0.00	0.05	0.42	1.60	3.48	5.25	6.41		
95	8.16	7.83	5.49	2.41	0.74	0.73	0.86	0.40	0.00	0.00	0.10	0.39	1.05	2.75	5.19	7.03	7.40		
100	12.5	11.4	8.77	5.53	2.96	1.44	0.55	0.23	0.28	0.28	0.70	1.95	3.85	6.46	9.29	11.1	10.9		
105	15.7	14.4	11.7	8.26	5.49	3.74	2.59	1.97	1.87	2.21	3.01	4.23	5.95	8.66	11.9	14.1	14.1		
110	16.7	15.9	13.4	10.3	7.68	6.05	5.00	4.51	4.43	4.55	5.10	6.25	7.98	10.7	13.8	15.9	15.9		
115	15.8	15.2	13.3	10.9	8.89	7.62	6.82	6.52	6.56	6.67	7.16	8.28	9.89	12.0	14.1	15.4	15.2		
120	14.5	14.0	12.7	10.9	9.37	8.39	7.91	8.01	8.33	8.38	8.59	9.31	10.4	11.8	13.2	14.1	14.1		
125	12.4	12.3	11.3	10.0	9.26	9.25	9.49	9.75	10.0	10.1	10.2	10.1	10.0	10.7	11.9	12.7	12.3		
130	10.5	9.91	9.35	8.93	8.88	9.22	9.75	10.3	10.8	10.8	10.6	10.1	9.60	9.52	9.91	10.3	10.4		
135	9.20	9.48	9.12	8.56	8.55	9.15	9.84	10.4	10.7	10.8	10.6	9.92	9.09	8.86	9.26	9.64	9.65		
140	9.02	9.24	8.82	8.24	8.32	9.13	9.91	10.3	10.5	10.7	10.6	9.86	8.91	8.59	8.94	9.26	9.16		
145	8.86	8.97	8.58	8.12	8.42	9.45	10.3	10.5	10.5	10.6	10.6	9.93	9.06	8.74	9.02	9.25	9.11		
150	9.02	9.24	9.05	8.78	9.02	9.77	10.4	10.5	10.5	10.6	10.6	10.3	9.80	9.53	9.44	9.26	8.83		
155	9.04	9.31	9.48	9.62	9.85	10.2	10.4	10.4	10.4	10.5	10.5	10.5	10.4	10.2	9.84	9.36	8.72		
160	9.97	9.57	9.52	9.72	10.0	10.3	10.5	10.5	10.5	10.5	10.5	10.6	10.7	10.5	10.1	9.42	8.58		
165	10.6	10.6	10.3	10.1	10.1	10.3	10.6	10.7	10.8	10.8	10.8	10.9	10.9	10.7	10.3	9.79	9.40		
170	11.6	11.7	11.5	11.1	10.9	10.9	11.1	11.2	11.3	11.4	11.4	11.4	11.4	11.1	10.7	10.3	10.2		
175	11.7	11.8	11.6	11.5	11.3	11.3	11.2	11.3	11.3	11.4	11.5	11.5	11.5	11.2	10.8	10.6	10.8		
180	11.8	11.8	11.6	11.4	11.2	11.2	11.2	11.3	11.3	11.3	11.3	11.4	11.4	11.2	10.9	10.7	11.0		

7. THD and PF Test

Model Number	Voltage (V AC)	Frequency (Hz)	Power Factor	THD (%)
401Y0185W30L70AI	100.0	60	0.999	3.55
	120.0	60	0.998	2.63
	277.0	60	0.969	10.47

8. Photo of sample



Figure 1



Figure 2

***** END OF REPORT*****