



# Report of Test

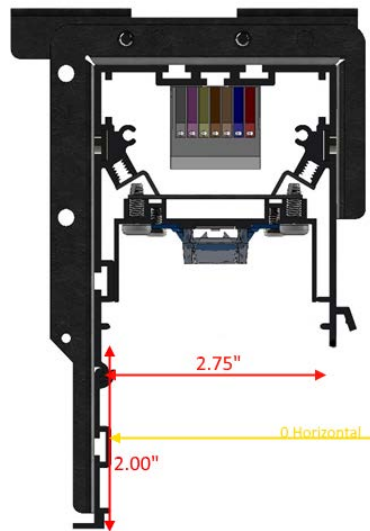
## LLIA000977-007A

Catalog Number: PSWW3-HO-K40-80-4-XXX-XX-OP-UNV-XXX

Recessed mounted, extruded aluminum housing, no enclosure.

One PAL-Lighting LED board with 88 LEDs and clear prismatic plastic lenses below LEDs.

One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver  
120.0Vac, 60.00Hz, 0.2324A, 27.79W, 0.997PF, 6.2%THD(i)



### Performance Summary

Total Light Output	3131 lm
Luminaire Power	27.8 W
Luminous Efficacy	112.6 lm/W

**PREPARED FOR : Precision Architectural Lighting, 4830 Timber Creek Drive, Houston, TX 77017**



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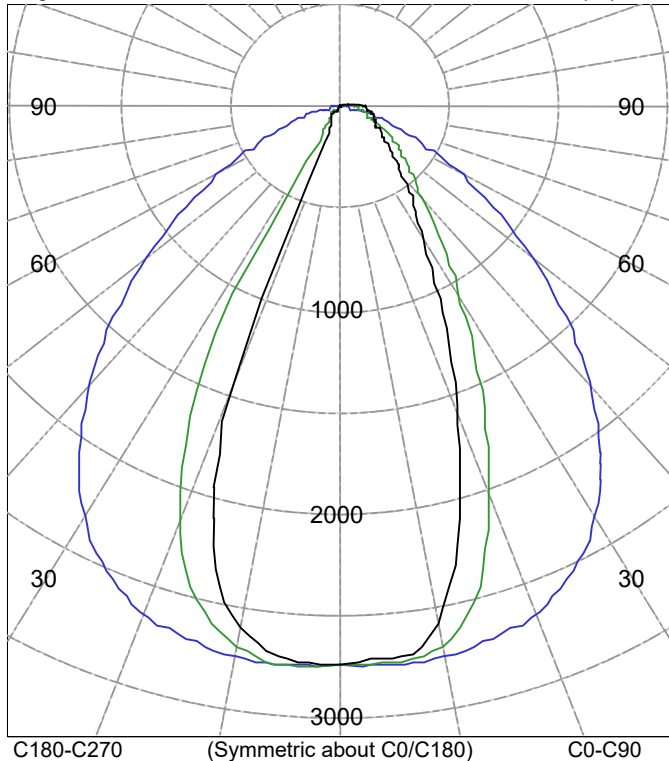
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Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



**INTENSITY SUMMARY (cd)**

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	2736	2736	2736	2736	2736	
5.0	2724	2732	2737	2714	2752	259
10.0	2574	2609	2694	2708	2747	
15.0	2103	2192	2442	2622	2700	676
20.0	1554	1656	1994	2438	2641	
25.0	1114	1187	1529	2124	2517	695
30.0	763	840	1110	1757	2319	
35.0	589	602	818	1379	2065	532
40.0	443	495	581	1043	1765	
45.0	367	381	469	775	1455	379
50.0	284	311	374	592	1146	
55.0	239	242	318	466	854	237
60.0	192	207	249	360	605	
65.0	178	171	189	291	411	148
70.0	169	163	142	224	273	
75.0	153	148	130	131	177	89
80.0	137	130	112	83	101	
85.0	125	120	98	63	34	53
90.0	116	109	84	47	0	

**ZONAL FLUX AND PERCENTAGES**

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	1630	N / A	52.1
0-40	2162	N / A	69.1
0-60	2778	N / A	88.7
0-90	3068	N / A	98.0
40-90	905	N / A	28.9
60-90	290	N / A	9.3
90-180	63	N / A	2.0
0-180	3131	N / A	100.0

Total Light Output = 3,131 lm

Signed:

Authorized Signatory

Date of test

27-Apr-2018

Date of report

2-May-2018



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**Intensity data (cd)**

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	2736	2736	2736	2736	2736
2.5	2723	2734	2739	2714	2749
5.0	2724	2732	2737	2714	2752
7.5	2691	2706	2731	2716	2753
10.0	2574	2609	2694	2708	2747
12.5	2367	2431	2599	2681	2728
15.0	2103	2192	2442	2622	2700
17.5	1822	1922	2231	2543	2678
20.0	1554	1656	1994	2438	2641
22.5	1308	1405	1757	2292	2580
25.0	1114	1187	1529	2124	2517
27.5	935	1007	1310	1949	2434
30.0	763	840	1110	1757	2319
32.5	654	691	952	1561	2204
35.0	589	602	818	1379	2065
37.5	534	546	691	1204	1914
40.0	443	495	581	1043	1765
42.5	402	416	515	904	1607
45.0	367	381	469	775	1455
47.5	322	349	425	672	1297
50.0	284	311	374	592	1146
52.5	251	276	346	528	996
55.0	239	242	318	466	854
57.5	221	229	283	405	723
60.0	192	207	249	360	605
62.5	182	179	212	327	500
65.0	178	171	189	291	411
67.5	174	167	156	258	335
70.0	169	163	142	224	273
72.5	161	156	136	190	221
75.0	153	148	130	131	177
77.5	144	139	121	96	137
80.0	137	130	112	83	101
82.5	135	128	102	75	67
85.0	125	120	98	63	34
87.5	123	116	91	55	11
90.0	116	109	84	47	0



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**Intensity data (cd)**

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	116	109	84	47	0
92.5	110	103	78	37	0
95.0	101	92	67	34	0
97.5	90	84	64	25	0
100.0	87	82	60	18	0
102.5	85	78	52	15	0
105.0	78	70	40	4	0
107.5	69	57	33	0	0
110.0	54	47	27	0	0
112.5	46	40	25	0	0
115.0	38	33	13	0	0
117.5	33	31	0	0	0
120.0	31	24	0	0	0
122.5	22	0	0	0	0
125.0	0	0	0	0	0
127.5	0	0	0	0	0
130.0	0	0	0	0	0
132.5	0	0	0	0	0
135.0	0	0	0	0	0
137.5	0	0	0	0	0
140.0	0	0	0	0	0
142.5	0	0	0	0	0
145.0	0	0	0	0	0
147.5	0	0	0	0	0
150.0	0	0	0	0	0
152.5	0	0	0	0	0
155.0	0	0	0	0	0
157.5	0	0	0	0	0
160.0	0	0	0	0	0
162.5	0	0	0	0	0
165.0	0	0	0	0	0
167.5	0	0	0	0	0
170.0	0	0	0	0	0
172.5	0	0	0	0	0
175.0	0	0	0	0	0
177.5	0	0	0	0	0
180.0	0	0	0	0	0



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**Intensity data (cd)**

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	2736	2736	2736	2736	2736
2.5	2749	2724	2757	2754	2736
5.0	2752	2729	2756	2745	2727
7.5	2753	2728	2738	2701	2679
10.0	2747	2713	2693	2624	2595
12.5	2728	2676	2617	2506	2456
15.0	2700	2619	2507	2316	2229
17.5	2678	2554	2345	2021	1866
20.0	2641	2472	2132	1652	1396
22.5	2580	2353	1851	995	228
25.0	2517	2211	1537	160	119
27.5	2434	2051	1150	115	95
30.0	2319	1861	312	92	78
32.5	2204	1648	141	76	68
35.0	2065	1435	104	67	63
37.5	1914	1223	86	63	57
40.0	1765	1017	71	56	48
42.5	1607	836	63	46	34
45.0	1455	595	58	32	25
47.5	1297	254	51	25	21
50.0	1146	143	42	21	16
52.5	996	91	30	16	0
55.0	854	69	23	0	0
57.5	723	53	19	0	0
60.0	605	45	14	0	0
62.5	500	40	0	0	0
65.0	411	32	0	0	0
67.5	335	22	0	0	0
70.0	273	17	0	0	0
72.5	221	12	0	0	0
75.0	177	0	0	0	0
77.5	137	0	0	0	0
80.0	101	0	0	0	0
82.5	67	0	0	0	0
85.0	34	0	0	0	0
87.5	11	0	0	0	0
90.0	0	0	0	0	0



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**Intensity data (cd)**

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	0	0	0	0	0
92.5	0	0	0	0	0
95.0	0	0	0	0	0
97.5	0	0	0	0	0
100.0	0	0	0	0	0
102.5	0	0	0	0	0
105.0	0	0	0	0	0
107.5	0	0	0	0	0
110.0	0	0	0	0	0
112.5	0	0	0	0	0
115.0	0	0	0	0	0
117.5	0	0	0	0	0
120.0	0	0	0	0	0
122.5	0	0	0	0	0
125.0	0	0	0	0	0
127.5	0	0	0	0	0
130.0	0	0	0	0	0
132.5	0	0	0	0	0
135.0	0	0	0	0	0
137.5	0	0	0	0	0
140.0	0	0	0	0	0
142.5	0	0	0	0	0
145.0	0	0	0	0	0
147.5	0	0	0	0	0
150.0	0	0	0	0	0
152.5	0	0	0	0	0
155.0	0	0	0	0	0
157.5	0	0	0	0	0
160.0	0	0	0	0	0
162.5	0	0	0	0	0
165.0	0	0	0	0	0
167.5	0	0	0	0	0
170.0	0	0	0	0	0
172.5	0	0	0	0	0
175.0	0	0	0	0	0
177.5	0	0	0	0	0
180.0	0	0	0	0	0



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**Coefficients Of Utilization - Zonal Cavity Method**

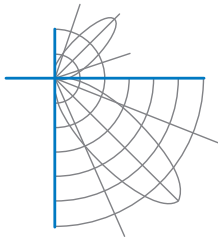
Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	100	100	100	98
1	111	107	104	101	108	105	102	99	100	98	95	96	94	92	92	91	89	87
2	103	97	92	87	101	95	90	86	91	87	84	88	85	82	85	82	80	78
3	97	88	82	77	94	87	81	76	84	79	75	81	77	73	78	75	72	70
4	91	81	74	69	88	80	73	68	77	72	67	75	70	66	73	69	65	63
5	85	75	68	62	83	74	67	62	71	66	61	69	64	60	68	63	60	58
6	80	69	62	57	78	68	61	56	66	60	56	65	59	55	63	58	55	53
7	75	64	57	52	74	63	57	52	62	56	51	60	55	51	59	54	51	49
8	71	60	53	48	70	59	53	48	58	52	48	57	51	47	55	51	47	45
9	67	56	49	45	66	56	49	45	54	49	44	53	48	44	52	47	44	42
10	64	53	46	42	63	52	46	42	51	45	41	50	45	41	49	45	41	40

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

**Circle of Light Plot**

Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	76.0	4.17	7.46
8.0	42.7	5.57	9.95
10.0	27.4	6.96	12.44
12.0	19.0	8.35	14.93
14.0	14.0	9.74	17.42
16.0	10.7	11.13	19.91



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120.0Vac, 60.00Hz, 0.2324A, 27.79W, 0.997PF, 6.2%THD(i)

**Test Distance** 9.5 m  
**Test Temperature** 25.1 °C

**Notes**

The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2015, ANSI C82.77-10:2014.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with \* are not covered.

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.



## Report of Test

LLIA000977-007B

Integrating Sphere Report

Catalog Number: PSWW3-HO-K40-80-4-XXX-XX-OP-UNV-XXX

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One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver



### Performance Summary

Voltage	120.0 Vac
Current	0.2328 A
Power	27.85 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.2 %

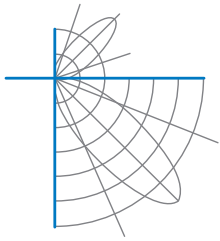
Total Luminous Flux	3218.6 lm
Efficacy	115.6 lm/W
Chromaticity (x,y)	(0.3777, 0.3747)
(u',v')	(0.2241, 0.5003)
Duv	-0.0001
CCT	4062 K
CRI (Ra)	85
R9	20
TM-30: Rf	83
TM-30: Rg	95

Prepared For:

Precision Architectural Lighting  
4830 Timber Creek Drive  
Houston, TX 77017, USA

Test date: 04/26/2018

Report date: 05/02/2018



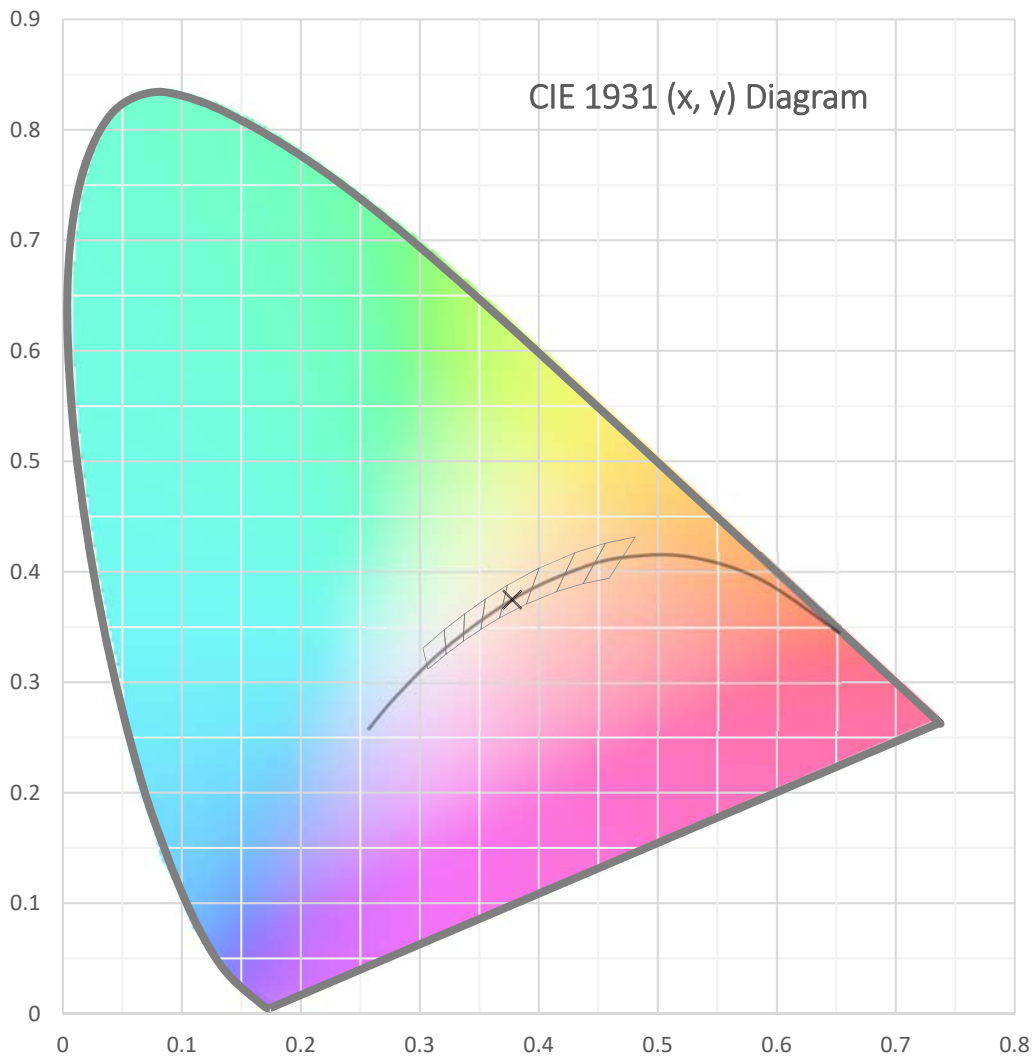
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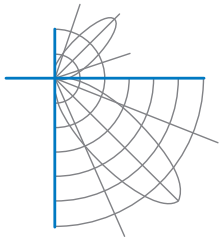
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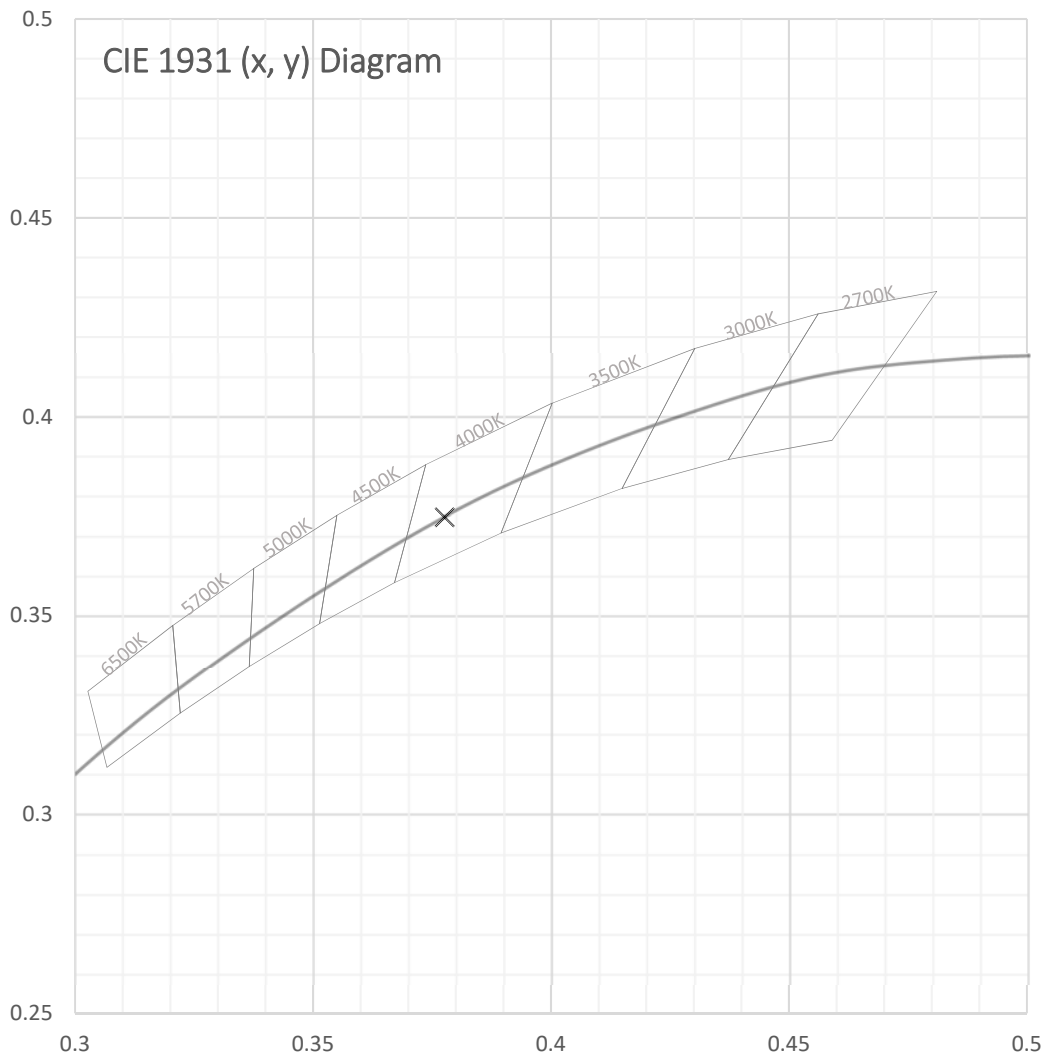
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**Spectral Data**

Total Radiant Flux	10.09 W
Total Luminous Flux	3218.6 Lm
Chromaticity CIE 1931 (x, y)	(0.3777, 0.3747)
Chromaticity CIE 1976 (u', v')	(0.2241, 0.5003)
Correlated Color Temperature (CCT)	4062 K
Color Rendering Index (Ra)	85
R1	84
R2	91
R3	95
R4	83
R5	83
R6	87
R7	87
R8	69
R9	20
R10	78
R11	82
R12	62
R13	86
R14	98
TM-30: Rf	83
TM-30: Rg	95
Distance from Planckian Locus (Duv)	-0.0001
Scotopic/Photopic Ratio *	1.733

**Electrical Data**

Voltage	120.0 Vac
Current	0.2328 A
Power	27.85 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.2 %



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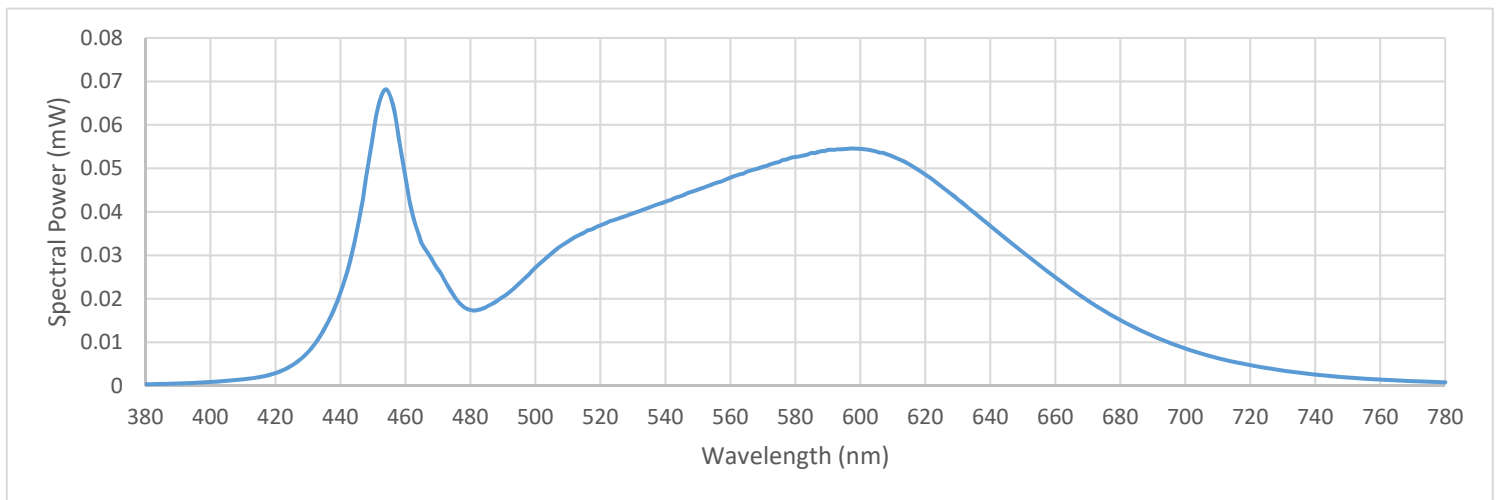
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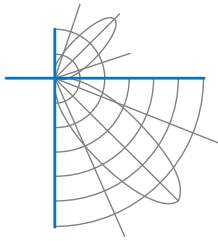
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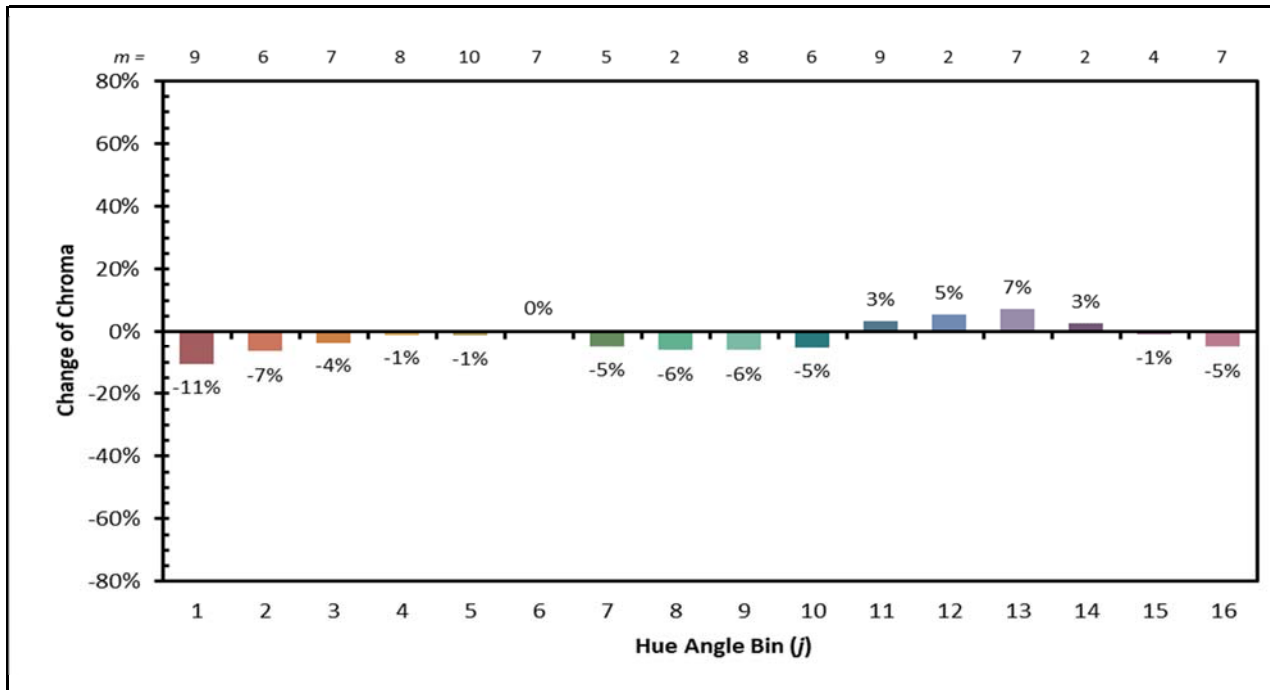
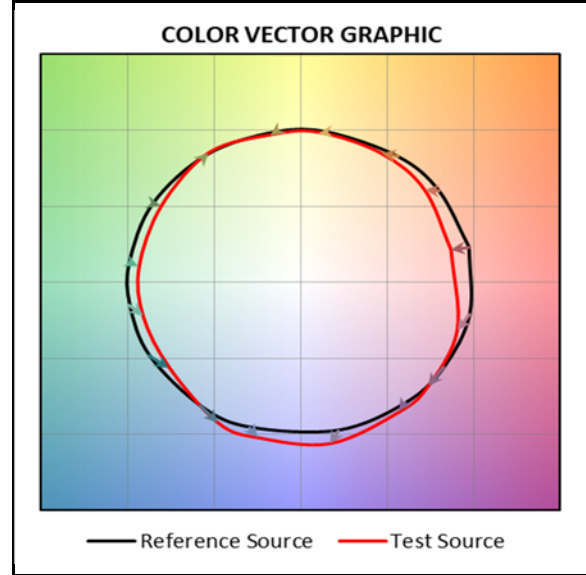
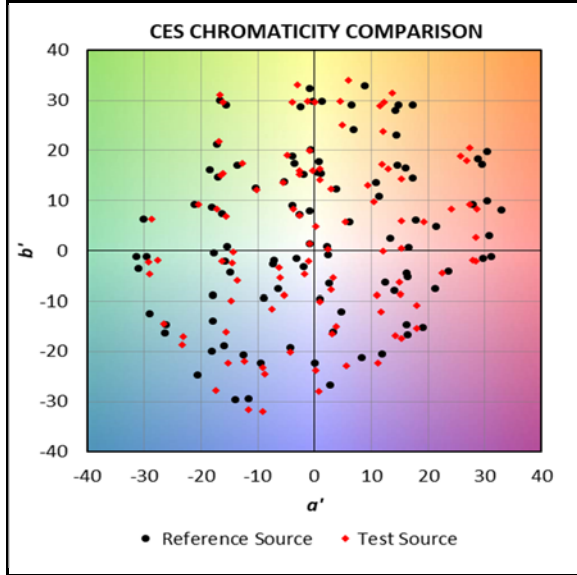
**Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)**

380	0.000372	480	0.017446	580	0.052626	680	0.015105
385	0.000413	485	0.018190	585	0.053545	685	0.013206
390	0.000509	490	0.020426	590	0.054236	690	0.011463
395	0.000664	495	0.023512	595	0.054460	695	0.009904
400	0.000879	500	0.027198	600	0.054482	700	0.008590
405	0.001135	505	0.030413	605	0.053850	705	0.007371
410	0.001479	510	0.033180	610	0.052710	710	0.006343
415	0.001996	515	0.035195	615	0.050966	715	0.005504
420	0.002923	520	0.036895	620	0.048547	720	0.004734
425	0.004613	525	0.038314	625	0.045770	725	0.004072
430	0.007751	530	0.039616	630	0.042856	730	0.003504
435	0.013072	535	0.040992	635	0.039855	735	0.003002
440	0.021323	540	0.042330	640	0.036743	740	0.002566
445	0.035504	545	0.043646	645	0.033695	745	0.002212
450	0.057434	550	0.045086	650	0.030718	750	0.001904
455	0.067311	555	0.046476	655	0.027759	755	0.001643
460	0.048020	560	0.047876	660	0.024991	760	0.001424
465	0.032771	565	0.049208	665	0.022160	765	0.001228
470	0.026822	570	0.050367	670	0.019589	770	0.001059
475	0.020625	575	0.051474	675	0.017257	775	0.000916
						780	0.000789





IES TM-30 Summary





**Test Report Number: LLIA000977-007B**

Catalog Number: PSWW3-HO-K40-80-4-XXX-XX-OP-UNV-XXX

Recessed mounted, extruded aluminum housing, no enclosure.

One PAL-Lighting LED board with 88 LEDs and clear prismatic plastic lenses below LEDs.

One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver

**Test Equipment Configuration:** LightLab International Allentown 2m Integrating Sphere  
Measurements acquired using a Labsphere CDS 2600 spectroradiometer  
Testing was performed using 4 $\pi$  geometry

**Test Temperature:** 24.6 °C

**Test Procedure:** Tested in accordance with the applicable sections of:  
LM-79-08, LM-78-07, LM-58-13, ANSI\_ANSLG C78.377-2015,  
ANSI C82-77-10:2014, TM-30-15

**Significance:** The laboratory has not participated in the selection of samples to be tested.  
All testing is performed on the understanding that the significance of the report  
is limited to the extent that the test sample is representative of production units.

**Notes:** The measurements and other derived quantities contained in this report  
are based on the absolute data as measured.

Prorating the performance of the sample for the use of other component  
combinations (such as lamp / LED / Ballast / driver), or for use in different  
environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections

This report may contain data that are not covered by the NVLAP accreditation.  
Quantities marked with \* are not covered.