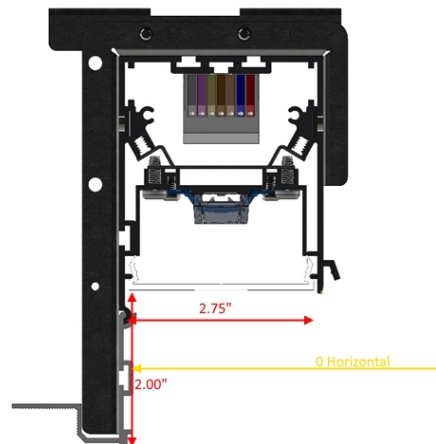




Report of Test

LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX
Recessed mounted, extruded aluminum housing, clear plastic enclosure.
One PAL-Lighting LED board with 88 LEDs and clear plastic lenses below LEDs.
One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver
120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)



Performance Summary

Total Light Output	3508 lm
Luminaire Power	28.1 W
Luminous Efficacy	124.8 lm/W

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



Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

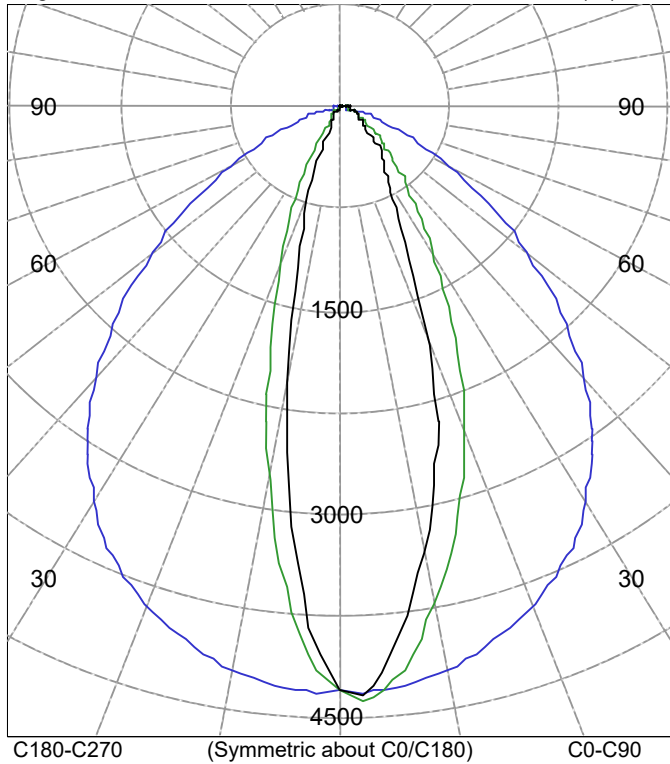
Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver

120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

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	4305	4305	4305	4305	4305	
5.0	4056	4110	4245	4309	4303	359
10.0	3331	3426	3721	4110	4219	
15.0	2562	2701	3122	3749	4062	745
20.0	1681	1906	2482	3329	3907	
25.0	981	1176	1870	2861	3653	740
30.0	674	753	1316	2367	3348	
35.0	540	551	931	1883	3001	610
40.0	452	447	670	1442	2593	
45.0	312	347	488	1087	2136	458
50.0	213	239	373	812	1674	
55.0	181	187	285	607	1241	284
60.0	157	159	188	459	862	
65.0	140	140	145	334	544	159
70.0	122	121	120	225	315	
75.0	109	108	99	109	157	74
80.0	91	90	85	71	68	
85.0	81	79	67	51	29	37
90.0	75	72	58	35	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	1845	N / A	52.6
0-40	2455	N / A	70.0
0-60	3197	N / A	91.1
0-90	3466	N / A	98.8
40-90	1011	N / A	28.8
60-90	269	N / A	7.7
90-180	42	N / A	1.2
0-180	3508	N / A	100.0

Total Light Output = 3,508 lm

Signed:

Authorized Signatory

Date of test

30-Apr-2018

Date of report

2-May-2018



Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver

120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	4305	4305	4305	4305	4305
2.5	4309	4339	4369	4322	4312
5.0	4056	4110	4245	4309	4303
7.5	3696	3774	4013	4218	4259
10.0	3331	3426	3721	4110	4219
12.5	2930	3057	3425	3944	4150
15.0	2562	2701	3122	3749	4062
17.5	2129	2321	2787	3538	3997
20.0	1681	1906	2482	3329	3907
22.5	1274	1503	2175	3103	3776
25.0	981	1176	1870	2861	3653
27.5	798	929	1582	2620	3525
30.0	674	753	1316	2367	3348
32.5	586	642	1103	2117	3181
35.0	540	551	931	1883	3001
37.5	485	501	783	1655	2793
40.0	452	447	670	1442	2593
42.5	374	414	560	1249	2356
45.0	312	347	488	1087	2136
47.5	255	297	419	944	1896
50.0	213	239	373	812	1674
52.5	196	202	328	700	1455
55.0	181	187	285	607	1241
57.5	167	174	223	529	1042
60.0	157	159	188	459	862
62.5	149	149	164	390	689
65.0	140	140	145	334	544
67.5	130	130	131	287	419
70.0	122	121	120	225	315
72.5	115	114	109	158	226
75.0	109	108	99	109	157
77.5	101	100	92	85	105
80.0	91	90	85	71	68
82.5	85	83	74	59	44
85.0	81	79	67	51	29
87.5	78	75	62	40	12
90.0	75	72	58	35	0



Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver

120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	75	72	58	35	0
92.5	72	69	55	29	0
95.0	66	62	47	25	0
97.5	59	57	45	19	0
100.0	57	55	40	14	0
102.5	54	51	34	11	0
105.0	49	45	26	5	0
107.5	41	36	22	0	0
110.0	33	30	18	0	0
112.5	28	25	15	0	0
115.0	23	21	8	0	0
117.5	20	19	0	0	0
120.0	17	13	0	0	0
122.5	11	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



Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver

120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	4305	4305	4305	4305	4305
2.5	4312	4172	4104	3999	3950
5.0	4303	4028	3733	3467	3372
7.5	4259	3804	3291	2852	2701
10.0	4219	3548	2786	2222	2049
12.5	4150	3269	2276	1677	1484
15.0	4062	2969	1842	1218	1059
17.5	3997	2652	1426	888	773
20.0	3907	2352	1103	667	561
22.5	3776	2042	852	437	307
25.0	3653	1764	674	250	156
27.5	3525	1517	520	136	109
30.0	3348	1280	308	105	88
32.5	3181	1064	197	87	78
35.0	3001	890	126	77	68
37.5	2793	753	98	67	59
40.0	2593	633	82	57	46
42.5	2356	537	72	45	35
45.0	2136	424	62	33	23
47.5	1896	296	53	23	19
50.0	1674	217	42	19	13
52.5	1455	119	31	13	0
55.0	1241	79	22	0	0
57.5	1042	62	17	0	0
60.0	862	53	11	0	0
62.5	689	43	0	0	0
65.0	544	34	0	0	0
67.5	419	24	0	0	0
70.0	315	16	0	0	0
72.5	226	9	0	0	0
75.0	157	0	0	0	0
77.5	105	0	0	0	0
80.0	68	0	0	0	0
82.5	44	0	0	0	0
85.0	29	0	0	0	0
87.5	12	0	0	0	0
90.0	0	0	0	0	0



Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

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120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

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



Test Number: LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver
120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

Coefficients Of Utilization - Zonal Cavity Method

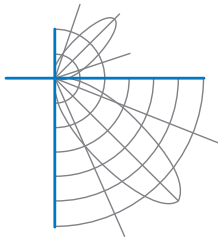
Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101	99
1	111	108	105	102	109	106	103	100	101	99	97	97	95	94	93	92	91	89
2	104	98	93	89	102	96	91	88	93	89	85	89	86	83	86	84	81	79
3	98	90	83	78	95	88	82	78	85	80	76	82	78	75	80	76	74	72
4	91	82	75	70	89	81	75	70	78	73	69	76	72	68	74	70	67	65
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	59
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	64	60	56	55
7	76	65	58	53	75	65	58	53	63	57	53	62	56	52	60	56	52	50
8	72	61	54	50	71	60	54	49	59	53	49	58	53	49	57	52	48	47
9	68	57	51	46	67	57	50	46	56	50	46	55	49	45	54	49	45	44
10	65	54	47	43	64	54	47	43	53	47	43	52	46	43	51	46	42	41

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	119.6	2.68	6.98
8.0	67.3	3.57	9.31
10.0	43.0	4.46	11.64
12.0	29.9	5.36	13.97
14.0	22.0	6.25	16.29
16.0	16.8	7.14	18.62



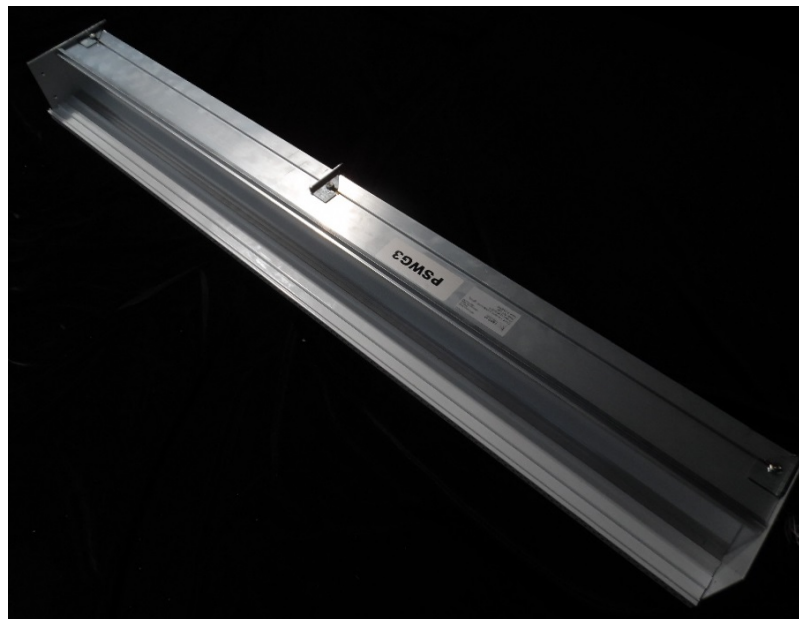
Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver
120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)





Test Report No. LLIA000977-001A

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver
120.0Vac, 60.00Hz, 0.2352A, 28.14W, 0.997PF, 5.9%THD(i)

Test Distance 9.5 m
Test Temperature 24.8 °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

LLIA000977-001B

Integrating Sphere Report

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.2355 A
Power	28.18 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	5.9 %

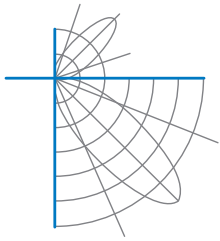
Total Luminous Flux	3574.2 lm
Efficacy	126.8 lm/W
Chromaticity (x,y)	(0.3800, 0.3768)
(u',v')	(0.2248, 0.5016)
Duv	0.0002
CCT	4012 K
CRI (Ra)	84
R9	16
TM-30: Rf	83
TM-30: Rg	95

Prepared For:

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

Test date: 04/27/2018

Report date: 05/02/2018



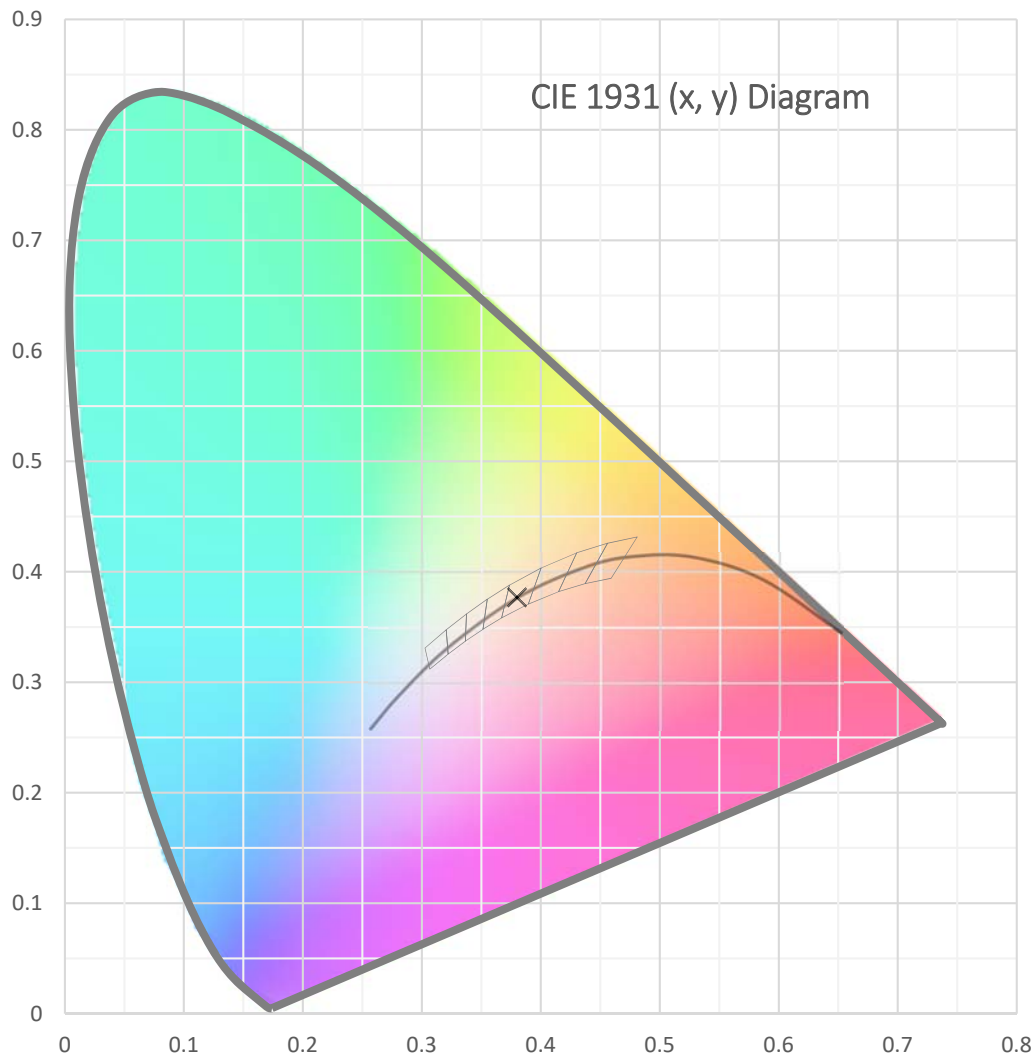
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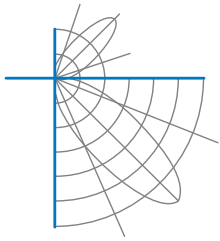
Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver





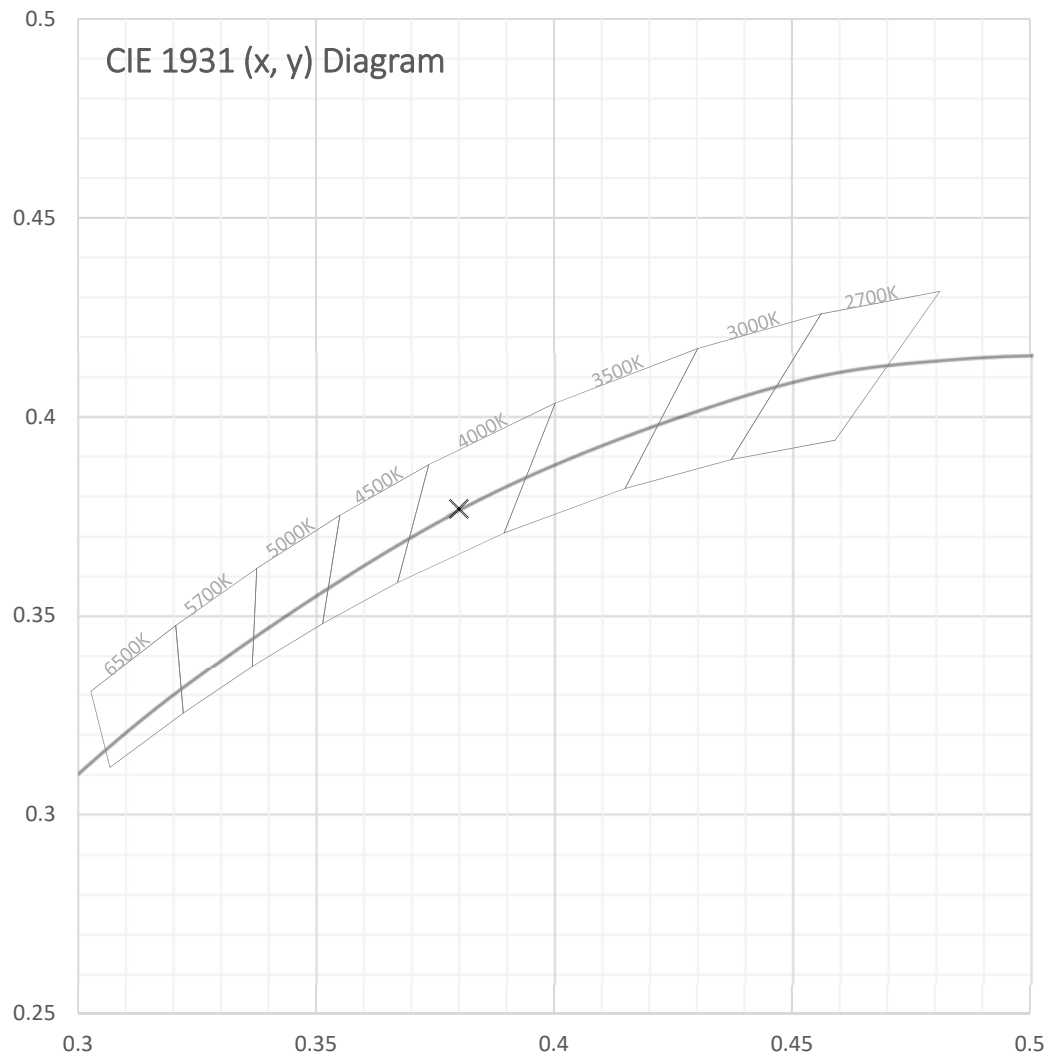
Test Report Number: LLIA000977-001B

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver





Test Report Number: LLIA000977-001B

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver

Spectral Data

Total Radiant Flux	11.09 W
Total Luminous Flux	3574.2 Lm
Chromaticity CIE 1931 (x, y)	(0.3800, 0.3768)
Chromaticity CIE 1976 (u', v')	(0.2248, 0.5016)
Correlated Color Temperature (CCT)	4012 K
Color Rendering Index (Ra)	84
R1	83
R2	91
R3	95
R4	82
R5	82
R6	86
R7	87
R8	67
R9	16
R10	77
R11	81
R12	61
R13	85
R14	98
TM-30: Rf	83
TM-30: Rg	95
Distance from Planckian Locus (Duv)	0.0002
Scotopic/Photopic Ratio *	1.708

Electrical Data

Voltage	120.0 Vac
Current	0.2355 A
Power	28.18 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	5.9 %



Test Report Number: LLIA000977-001B

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

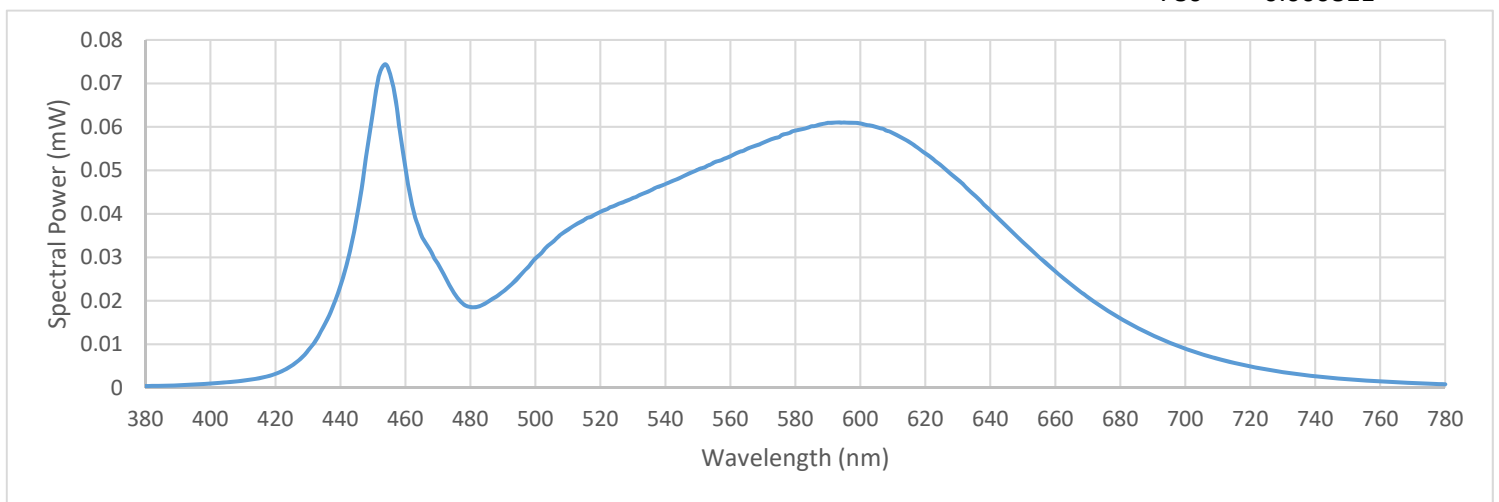
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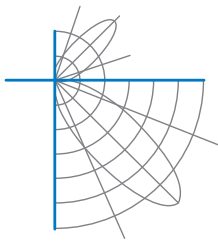
One PAL-Lighting LED board with 88 LEDs and clear plastic lenses below LEDs.

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver

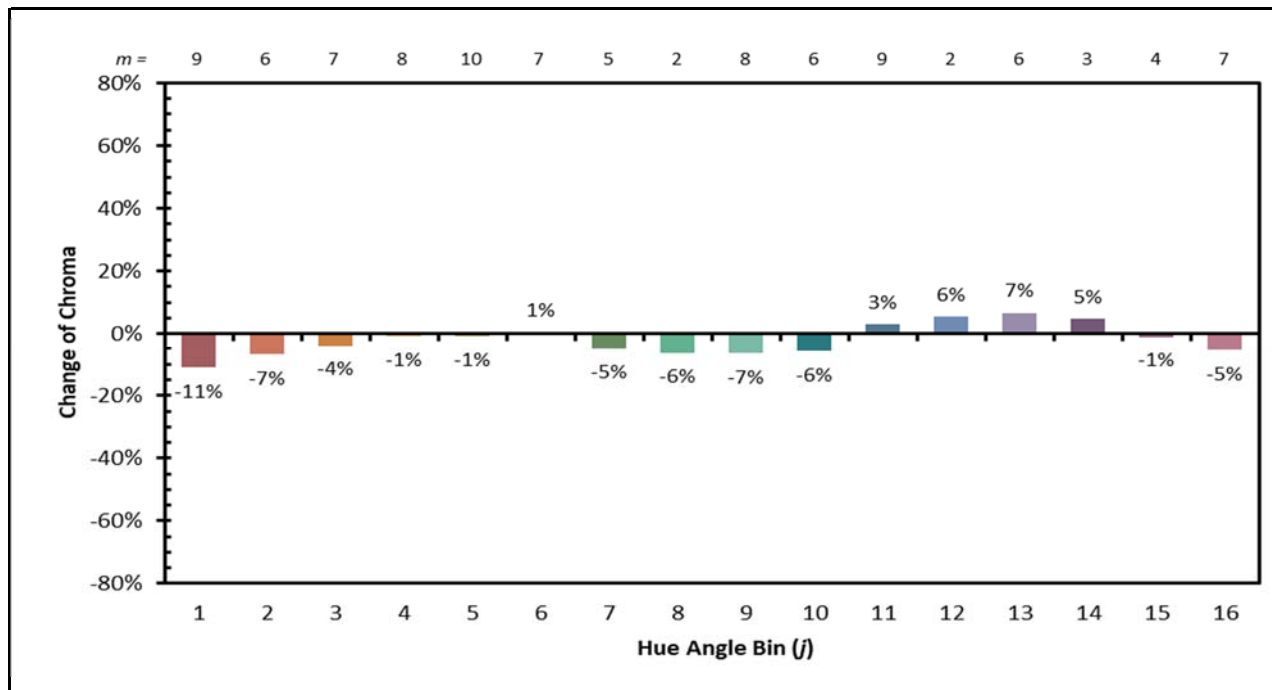
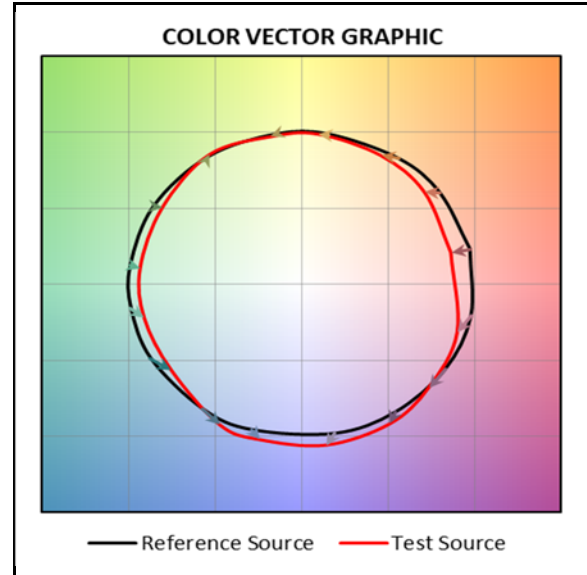
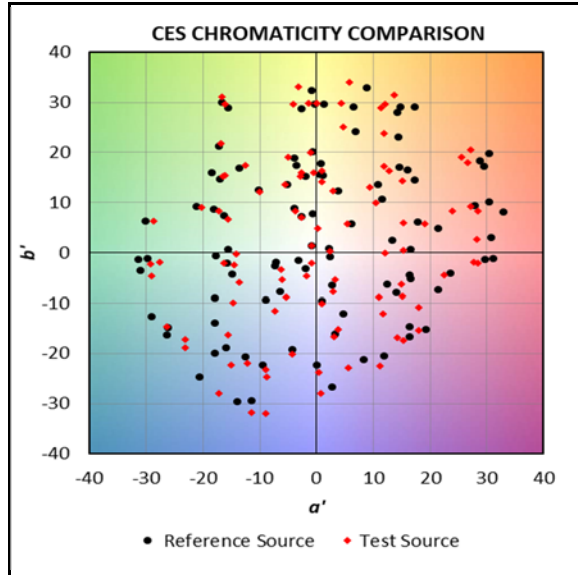
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000410	480	0.018584	580	0.059158	680	0.015952
385	0.000454	485	0.019650	585	0.060142	685	0.013917
390	0.000568	490	0.022127	590	0.060931	690	0.012037
395	0.000729	495	0.025529	595	0.061017	695	0.010402
400	0.000979	500	0.029742	600	0.060783	700	0.009011
405	0.001267	505	0.033301	605	0.059974	705	0.007737
410	0.001633	510	0.036337	610	0.058534	710	0.006645
415	0.002194	515	0.038605	615	0.056566	715	0.005723
420	0.003207	520	0.040417	620	0.053886	720	0.004903
425	0.005064	525	0.042047	625	0.051059	725	0.004203
430	0.008523	530	0.043648	630	0.047844	730	0.003605
435	0.014372	535	0.045263	635	0.044408	735	0.003085
440	0.023387	540	0.046866	640	0.040733	740	0.002644
445	0.039229	545	0.048433	645	0.037139	745	0.002280
450	0.063332	550	0.050171	650	0.033540	750	0.001965
455	0.072842	555	0.051817	655	0.029996	755	0.001692
460	0.050625	560	0.053243	660	0.026837	760	0.001467
465	0.034876	565	0.054921	665	0.023666	765	0.001266
470	0.028530	570	0.056360	670	0.020831	770	0.001085
475	0.021714	575	0.057665	675	0.018301	775	0.000940
						780	0.000811





IES TM-30 Summary





Test Report Number: LLIA000977-001B

Catalog Number: PSWG3-HO-K40-80-4-XXX-XX-CL-UNV-XXX

Recessed mounted, extruded aluminum housing, clear plastic enclosure.

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

One Osram Optotronic OTi30/120-277/1A0 DIM-1 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 π geometry

Test Temperature: 24.3 °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.