



Report of Test

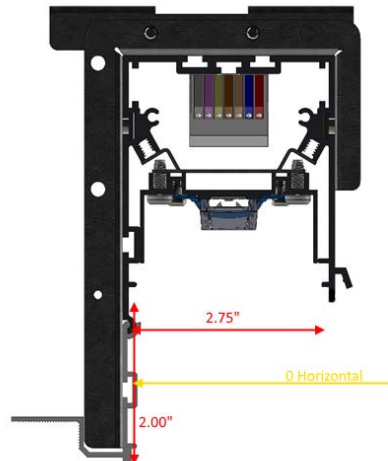
LLIA000977-004A

Catalog Number: PSWG3-MO-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 plastic lenses below LEDs.

One Osram Optotronic OTi30/120-277/1A0 DIM L LED driver
120.0Vac, 60.00Hz, 0.1554A, 18.54W, 0.995PF, 5.2%THD(i)



Performance Summary

Total Light Output	2522 lm
Luminaire Power	18.5 W
Luminous Efficacy	136.3 lm/W

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



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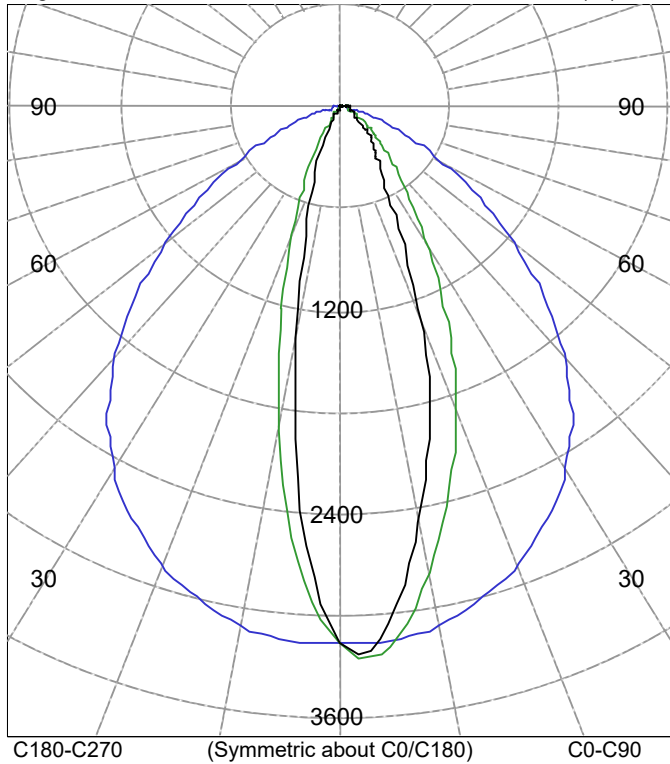
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Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	3170	3170	3170	3170	3170	
5.0	3057	3097	3188	3210	3165	263
10.0	2479	2553	2794	3094	3110	
15.0	1907	2005	2327	2828	2990	541
20.0	1259	1434	1847	2504	2868	
25.0	710	857	1398	2133	2685	533
30.0	457	529	971	1771	2460	
35.0	347	368	673	1407	2205	434
40.0	282	288	465	1073	1903	
45.0	217	230	325	800	1574	324
50.0	145	169	240	590	1238	
55.0	104	114	185	440	927	202
60.0	94	96	137	326	652	
65.0	86	85	94	243	427	115
70.0	77	77	74	175	262	
75.0	69	69	64	104	145	56
80.0	61	60	55	49	69	
85.0	55	54	48	36	24	27
90.0	51	49	40	26	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	1337	N / A	53.0
0-40	1771	N / A	70.2
0-60	2297	N / A	91.1
0-90	2494	N / A	98.9
40-90	723	N / A	28.7
60-90	197	N / A	7.8
90-180	28	N / A	1.1
0-180	2522	N / A	100.0

Total Light Output = 2,522 lm

Signed:

Authorized Signatory

Date of test

30-Apr-2018

Date of report

2-May-2018



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120.0Vac, 60.00Hz, 0.1554A, 18.54W, 0.995PF, 5.2%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	3170	3170	3170	3170	3170
2.5	3226	3243	3256	3201	3173
5.0	3057	3097	3188	3210	3165
7.5	2772	2832	3019	3168	3138
10.0	2479	2553	2794	3094	3110
12.5	2189	2276	2564	2976	3056
15.0	1907	2005	2327	2828	2990
17.5	1603	1731	2082	2664	2938
20.0	1259	1434	1847	2504	2868
22.5	939	1124	1620	2322	2772
25.0	710	857	1398	2133	2685
27.5	558	666	1176	1957	2590
30.0	457	529	971	1771	2460
32.5	391	434	804	1581	2339
35.0	347	368	673	1407	2205
37.5	312	325	560	1236	2048
40.0	282	288	465	1073	1903
42.5	252	258	387	933	1731
45.0	217	230	325	800	1574
47.5	179	199	277	688	1400
50.0	145	169	240	590	1238
52.5	119	141	211	512	1078
55.0	104	114	185	440	927
57.5	99	102	161	382	785
60.0	94	96	137	326	652
62.5	89	90	107	281	532
65.0	86	85	94	243	427
67.5	81	82	82	209	337
70.0	77	77	74	175	262
72.5	73	73	70	142	198
75.0	69	69	64	104	145
77.5	64	64	60	61	102
80.0	61	60	55	49	69
82.5	60	59	51	43	44
85.0	55	54	48	36	24
87.5	54	53	44	31	9
90.0	51	49	40	26	0



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	51	49	40	26	0
92.5	48	46	37	20	0
95.0	44	42	31	18	0
97.5	39	38	30	13	0
100.0	38	37	27	10	0
102.5	36	34	23	8	0
105.0	32	30	18	0	0
107.5	27	24	15	0	0
110.0	22	20	12	0	0
112.5	18	16	11	0	0
115.0	15	14	6	0	0
117.5	13	12	0	0	0
120.0	11	9	0	0	0
122.5	7	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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120.0Vac, 60.00Hz, 0.1554A, 18.54W, 0.995PF, 5.2%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	3170	3170	3170	3170	3170
2.5	3173	3050	2979	2891	2854
5.0	3165	2918	2686	2474	2397
7.5	3138	2744	2329	1986	1869
10.0	3110	2553	1939	1514	1382
12.5	3056	2333	1562	1112	976
15.0	2990	2094	1231	793	685
17.5	2938	1855	938	573	490
20.0	2868	1626	713	422	343
22.5	2772	1398	549	242	166
25.0	2685	1190	427	129	73
27.5	2590	1010	313	66	52
30.0	2460	848	179	50	42
32.5	2339	703	103	43	39
35.0	2205	587	62	39	34
37.5	2048	492	48	34	30
40.0	1903	412	41	29	23
42.5	1731	346	37	23	17
45.0	1574	252	33	17	12
47.5	1400	183	28	12	11
50.0	1238	119	22	11	9
52.5	1078	60	17	9	0
55.0	927	39	13	0	0
57.5	785	33	11	0	0
60.0	652	29	8	0	0
62.5	532	25	0	0	0
65.0	427	19	0	0	0
67.5	337	15	0	0	0
70.0	262	12	0	0	0
72.5	198	9	0	0	0
75.0	145	0	0	0	0
77.5	102	0	0	0	0
80.0	69	0	0	0	0
82.5	44	0	0	0	0
85.0	24	0	0	0	0
87.5	9	0	0	0	0
90.0	0	0	0	0	0



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120.0Vac, 60.00Hz, 0.1554A, 18.54W, 0.995PF, 5.2%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



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Coefficients Of Utilization - Zonal Cavity Method

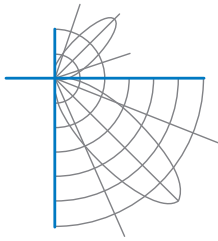
Effective Floor Cavity Reflectance 0.20

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	106	106	106	101	101	101	99
1	111	108	105	102	109	106	103	100	101	99	97	97	95	94	94	92	91	89
2	104	98	93	89	102	96	92	88	93	89	85	89	86	83	86	84	81	80
3	98	90	83	78	95	88	82	78	85	80	76	82	78	75	80	77	74	72
4	91	82	76	70	89	81	75	70	79	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	60
6	81	70	63	58	79	70	63	58	68	62	57	66	61	57	65	60	56	55
7	76	66	59	54	75	65	58	53	63	57	53	62	57	53	61	56	52	51
8	72	61	54	50	71	61	54	50	59	54	49	58	53	49	57	52	49	47
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44
10	65	54	48	43	64	54	48	43	53	47	43	52	47	43	51	46	43	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	88.1	2.63	6.97
8.0	49.5	3.51	9.30
10.0	31.7	4.39	11.62
12.0	22.0	5.27	13.94
14.0	16.2	6.15	16.27
16.0	12.4	7.02	18.59



Test Report No. LLIA000977-004A

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Recessed mounted, extruded aluminum housing, no enclosure.

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120.0Vac, 60.00Hz, 0.1554A, 18.54W, 0.995PF, 5.2%THD(i)





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120.0Vac, 60.00Hz, 0.1554A, 18.54W, 0.995PF, 5.2%THD(i)

Test Distance 9.5 m
Test Temperature 24.7 °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

LLIA000977-004B

Integrating Sphere Report

Catalog Number: PSWG3-MO-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 plastic lenses below LEDs.

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



Performance Summary

Voltage	120.0 Vac
Current	0.1555 A
Power	18.56 W
Frequency	59.97 Hz
Power Factor	0.995
Current THD	5.2 %

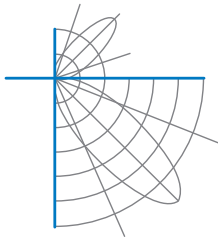
Total Luminous Flux	2571.8 lm
Efficacy	138.6 lm/W
Chromaticity (x,y)	(0.3802, 0.3768)
(u',v')	(0.2249, 0.5016)
Duv	0.0001
CCT	4007 K
CRI (Ra)	84
R9	17
TM-30: Rf	83
TM-30: Rg	95

Prepared For:

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

Test date: 04/27/2018

Report date: 05/02/2018



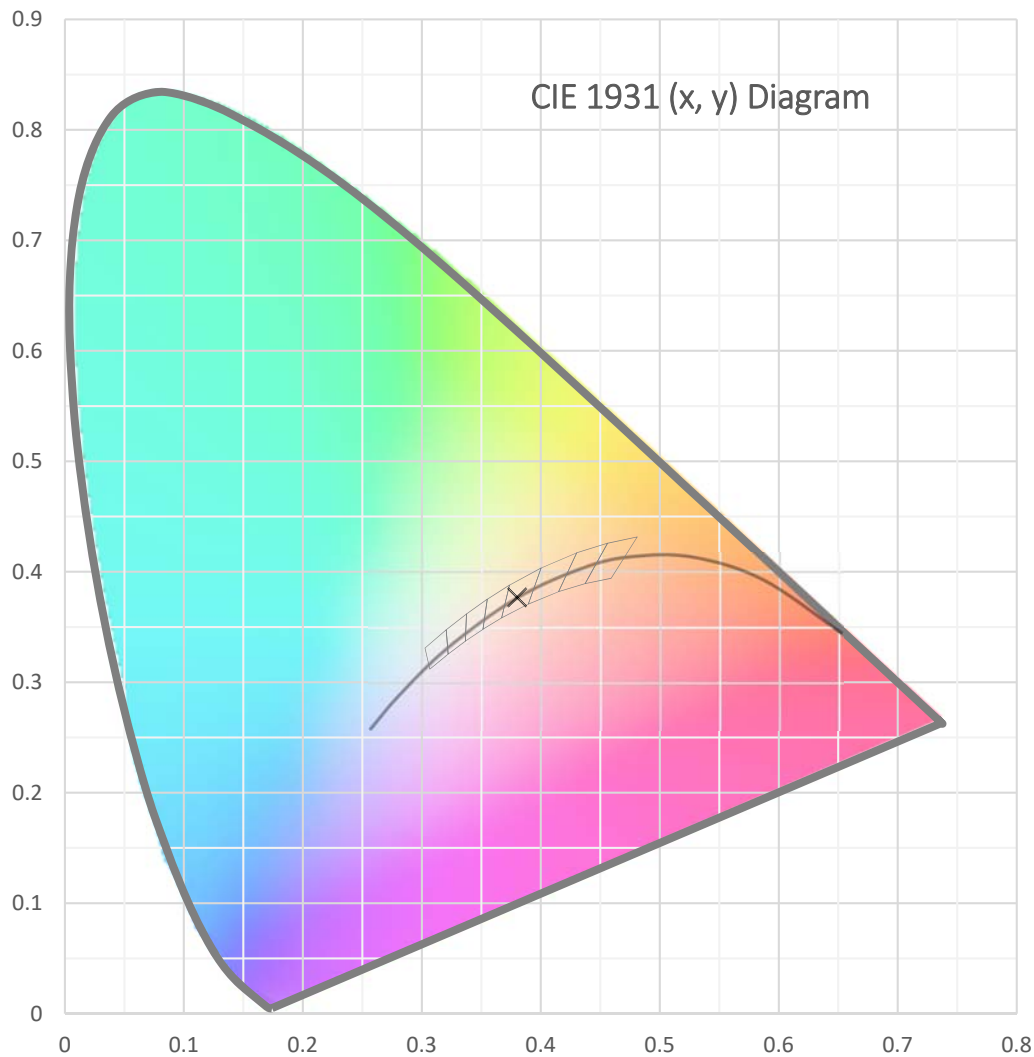
Test Report Number: LLIA000977-004B

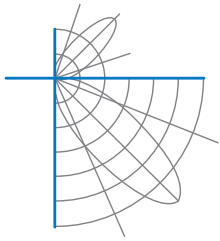
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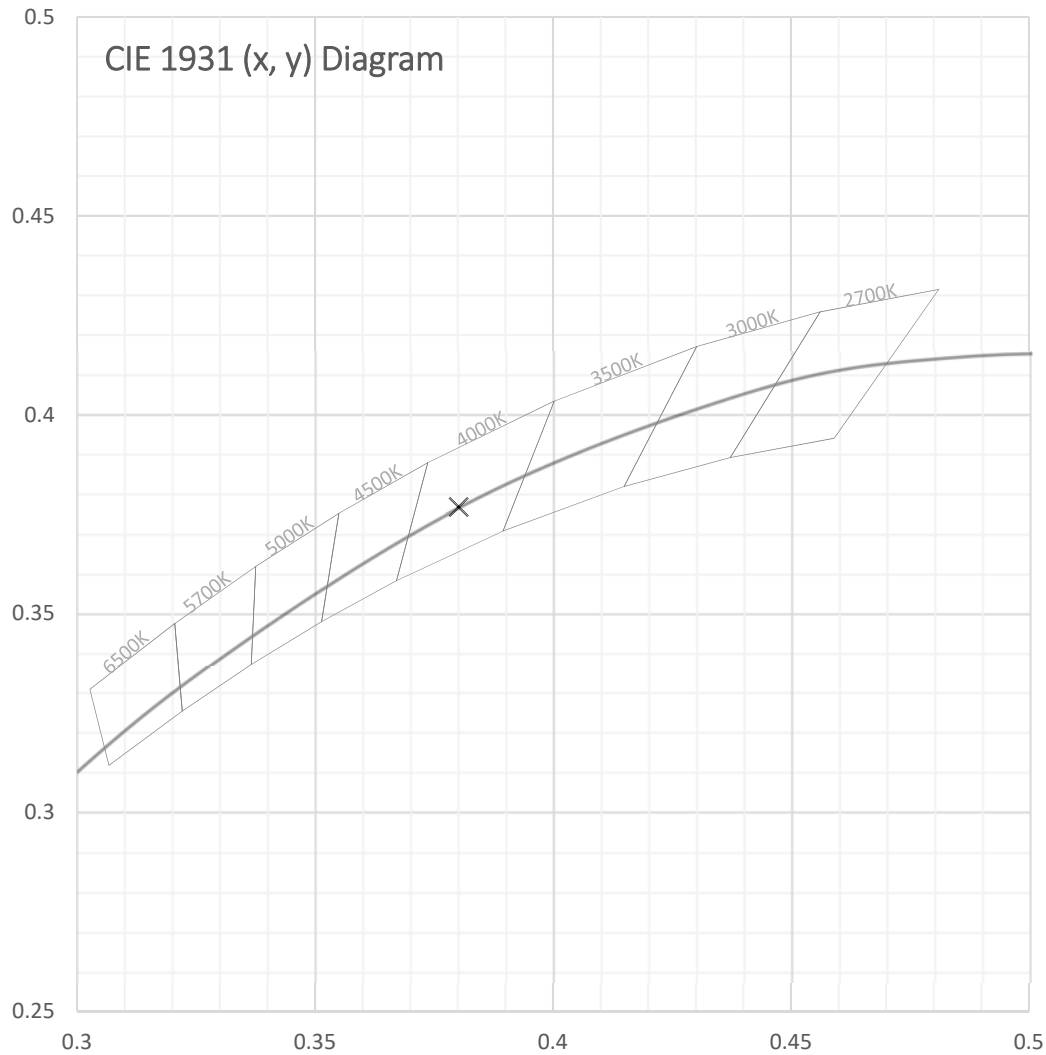
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One Osram Optotronic OTi30/120-277/1A0 DIM L LED driver

Spectral Data

Total Radiant Flux	7.975 W
Total Luminous Flux	2571.8 Lm
Chromaticity CIE 1931 (x, y)	(0.3802, 0.3768)
Chromaticity CIE 1976 (u', v')	(0.2249, 0.5016)
Correlated Color Temperature (CCT)	4007 K
Color Rendering Index (Ra)	84
R1	83
R2	91
R3	95
R4	82
R5	83
R6	86
R7	87
R8	67
R9	17
R10	77
R11	81
R12	61
R13	85
R14	98
TM-30: Rf	83
TM-30: Rg	95
Distance from Planckian Locus (Duv)	0.0001
Scotopic/Photopic Ratio *	1.709

Electrical Data

Voltage	120.0 Vac
Current	0.1555 A
Power	18.56 W
Frequency	59.97 Hz
Power Factor	0.995
Current THD	5.2 %



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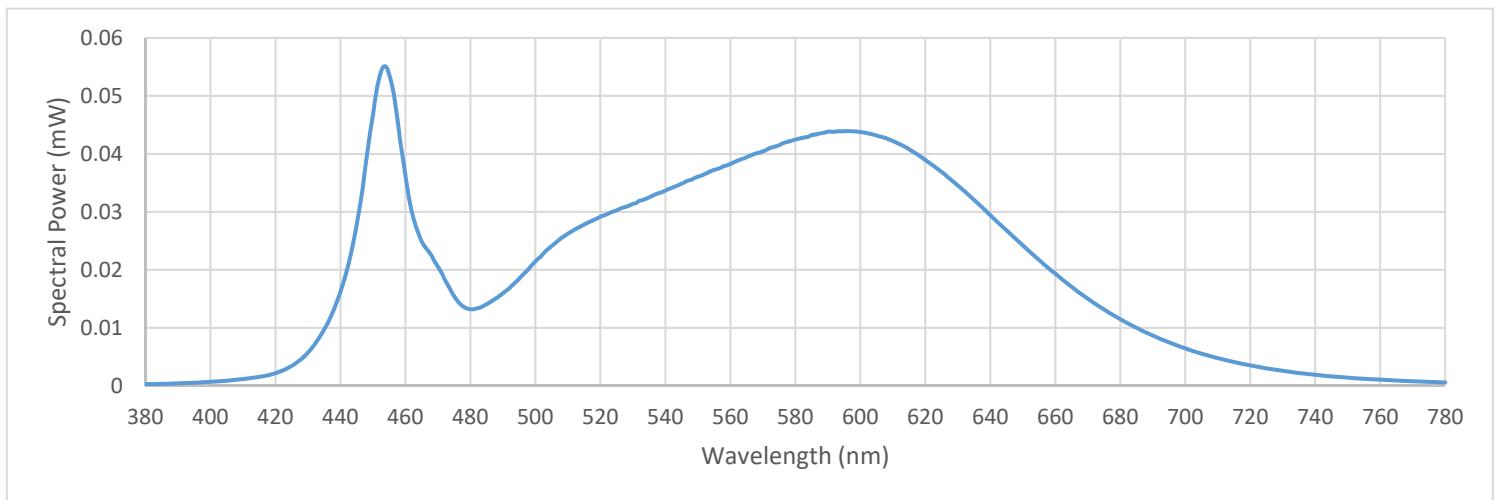
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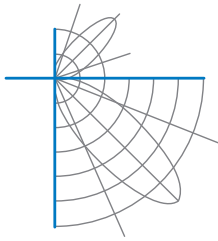
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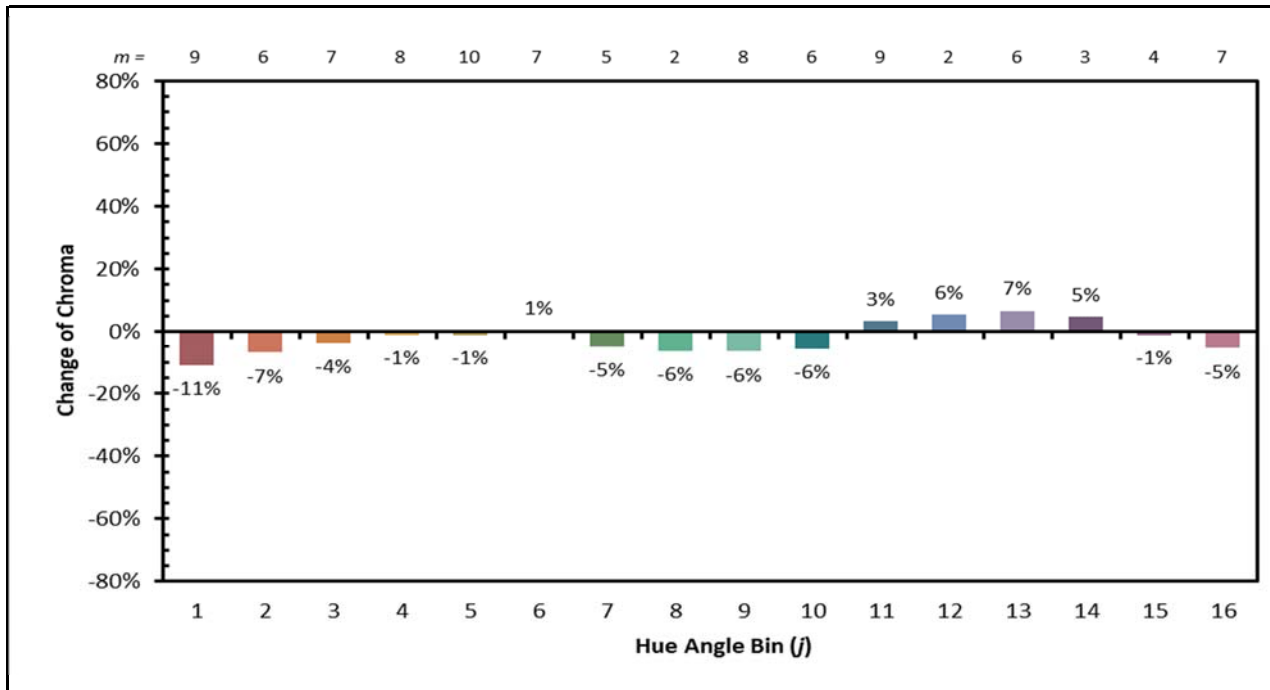
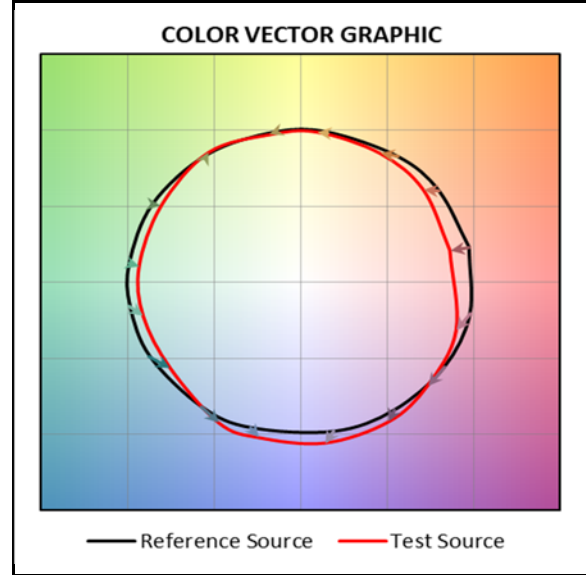
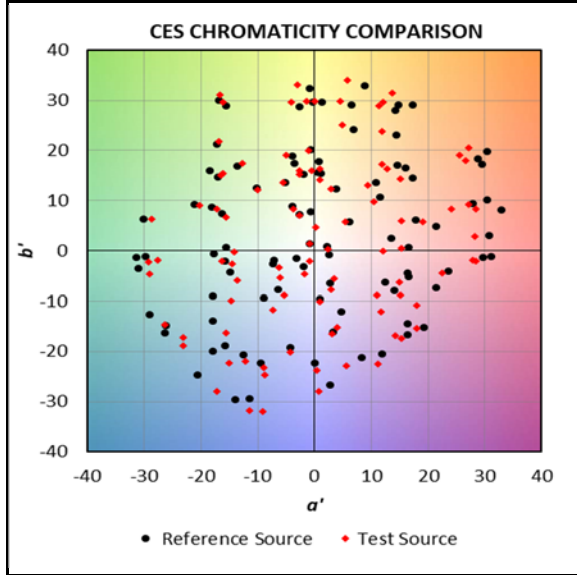
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000285	480	0.013202	580	0.042473	680	0.011474
385	0.000316	485	0.014089	585	0.043240	685	0.009996
390	0.000396	490	0.015947	590	0.043833	690	0.008646
395	0.000511	495	0.018481	595	0.043896	695	0.007469
400	0.000682	500	0.021460	600	0.043776	700	0.006464
405	0.000894	505	0.024114	605	0.043164	705	0.005542
410	0.001141	510	0.026206	610	0.042215	710	0.004752
415	0.001511	515	0.027797	615	0.040822	715	0.004096
420	0.002175	520	0.029162	620	0.038931	720	0.003506
425	0.003414	525	0.030255	625	0.036852	725	0.003002
430	0.005768	530	0.031379	630	0.034506	730	0.002575
435	0.009732	535	0.032523	635	0.032098	735	0.002203
440	0.016161	540	0.033650	640	0.029437	740	0.001884
445	0.027859	545	0.034840	645	0.026828	745	0.001624
450	0.046704	550	0.036069	650	0.024198	750	0.001394
455	0.053801	555	0.037250	655	0.021684	755	0.001200
460	0.036255	560	0.038272	660	0.019353	760	0.001041
465	0.024909	565	0.039450	665	0.017061	765	0.000896
470	0.020521	570	0.040443	670	0.015016	770	0.000770
475	0.015412	575	0.041469	675	0.013162	775	0.000664
						780	0.000572





IES TM-30 Summary





Test Report Number: LLIA000977-004B

Catalog Number: PSWG3-MO-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 plastic lenses below LEDs.

One Osram Optotronic OTi30/120-277/1A0 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 π 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.