

# Report of Test

## LLIA001084-009A

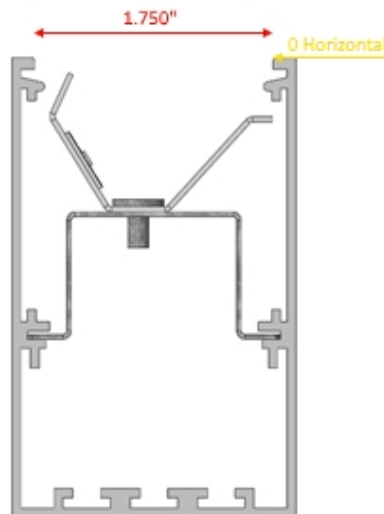
Catalog Number: MLP2-IASY-HO-K40-80-4-W-OP-FXXX-UNV-XXX

Pendant mounted, extruded aluminum housing, formed  
white enamel aluminum LED tray, no enclosure.

92 white LEDs, one PAL-Lighting LED board with 92 white LEDs

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

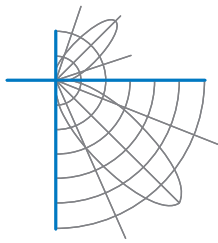
120.0Vac, 60.00Hz, 0.2321A, 27.77W, 0.997PF, 5.7%THD(i)



### Performance Summary

Total Light Output	3777 lm
Luminaire Power	27.8 W
Luminous Efficacy	135.9 lm/W

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



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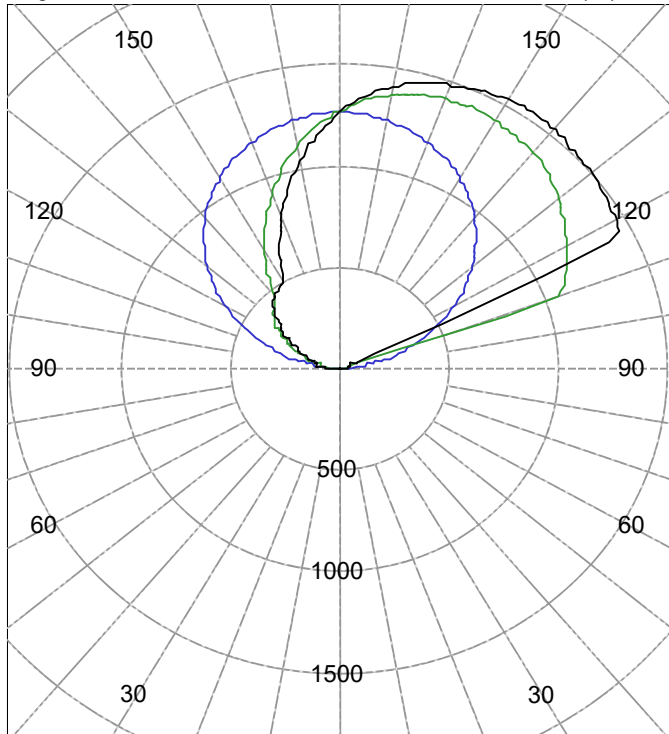
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120.0Vac, 60.00Hz, 0.2321A, 27.77W, 0.997PF, 5.7%THD(i)

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



C180-C270 (Symmetric about C0/C180) C0-C90

**INTENSITY SUMMARY (cd)**

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
90.0	0	0	0	0	0	
95.0	17	16	14	15	57	38
100.0	34	34	30	185	153	
105.0	44	44	39	612	258	204
110.0	52	52	1059	713	370	
115.0	518	1264	1134	818	480	549
120.0	1454	1383	1196	909	587	
125.0	1477	1419	1242	986	690	701
130.0	1499	1441	1300	1056	788	
135.0	1510	1468	1346	1119	876	694
140.0	1526	1494	1375	1178	956	
145.0	1536	1506	1397	1223	1026	624
150.0	1530	1504	1410	1261	1086	
155.0	1512	1491	1417	1289	1138	510
160.0	1486	1470	1412	1304	1181	
165.0	1452	1440	1397	1310	1215	339
170.0	1409	1399	1369	1304	1239	
175.0	1347	1341	1327	1286	1253	119
180.0	1262	1262	1262	1262	1262	

**ZONAL FLUX AND PERCENTAGES**

Zone	Flux (lm)	% Lamp	% Luminaire
180-150	968	N / A	25.6
180-140	1592	N / A	42.1
180-120	2987	N / A	79.1
180-90	3777	N / A	100.0
140-90	2185	N / A	57.9
120-90	790	N / A	20.9
90-0	0	N / A	0.0
180-0	3777	N / A	100.0

Total Light Output = 3,777 lm

Signed:

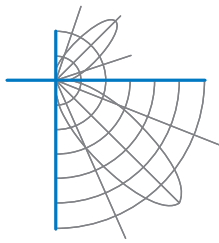
Authorized Signatory

Date of test

26-Feb-2019

Date of report

4-Mar-2019



**Test Report No. LLIA001084-009A**

Catalog Number: MLP2-IASY-HO-K40-80-4-W-OP-FXXX-UNV-XXX

Pendant mounted, extruded aluminum housing, formed  
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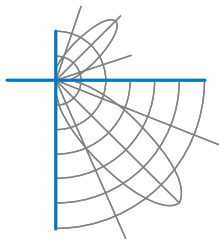
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One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver.

120.0Vac, 60.00Hz, 0.2321A, 27.77W, 0.997PF, 5.7%THD(i)

**Intensity data (cd)**

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	0	0	0	0	0
2.5	0	0	0	0	0
5.0	0	0	0	0	0
7.5	0	0	0	0	0
10.0	0	0	0	0	0
12.5	0	0	0	0	0
15.0	0	0	0	0	0
17.5	0	0	0	0	0
20.0	0	0	0	0	0
22.5	0	0	0	0	0
25.0	0	0	0	0	0
27.5	0	0	0	0	0
30.0	0	0	0	0	0
32.5	0	0	0	0	0
35.0	0	0	0	0	0
37.5	0	0	0	0	0
40.0	0	0	0	0	0
42.5	0	0	0	0	0
45.0	0	0	0	0	0
47.5	0	0	0	0	0
50.0	0	0	0	0	0
52.5	0	0	0	0	0
55.0	0	0	0	0	0
57.5	0	0	0	0	0
60.0	0	0	0	0	0
62.5	0	0	0	0	0
65.0	0	0	0	0	0
67.5	0	0	0	0	0
70.0	0	0	0	0	0
72.5	0	0	0	0	0
75.0	0	0	0	0	0
77.5	0	0	0	0	0
80.0	0	0	0	0	0
82.5	0	0	0	0	0
85.0	0	0	0	0	0
87.5	0	0	0	0	0
90.0	0	0	0	0	0



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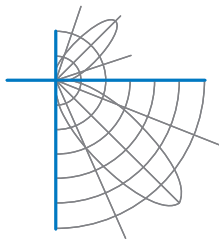
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**Intensity data (cd)**

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	0	0	0	0	0
92.5	7	8	8	7	17
95.0	17	16	14	15	57
97.5	22	22	26	20	103
100.0	34	34	30	185	153
102.5	39	38	35	562	205
105.0	44	44	39	612	258
107.5	49	47	160	663	314
110.0	52	52	1059	713	370
112.5	58	218	1103	767	425
115.0	518	1264	1134	818	480
117.5	1435	1369	1164	864	534
120.0	1454	1383	1196	909	587
122.5	1464	1400	1217	948	640
125.0	1477	1419	1242	986	690
127.5	1490	1434	1272	1022	740
130.0	1499	1441	1300	1056	788
132.5	1502	1454	1326	1087	834
135.0	1510	1468	1346	1119	876
137.5	1519	1481	1363	1151	917
140.0	1526	1494	1375	1178	956
142.5	1534	1502	1387	1202	992
145.0	1536	1506	1397	1223	1026
147.5	1535	1506	1405	1243	1057
150.0	1530	1504	1410	1261	1086
152.5	1522	1499	1413	1276	1113
155.0	1512	1491	1417	1289	1138
157.5	1499	1481	1415	1298	1161
160.0	1486	1470	1412	1304	1181
162.5	1471	1456	1405	1308	1199
165.0	1452	1440	1397	1310	1215
167.5	1432	1421	1385	1309	1228
170.0	1409	1399	1369	1304	1239
172.5	1380	1372	1350	1297	1247
175.0	1347	1341	1327	1286	1253
177.5	1309	1305	1300	1272	1257
180.0	1262	1262	1262	1262	1262



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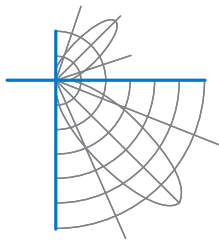
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120.0Vac, 60.00Hz, 0.2321A, 27.77W, 0.997PF, 5.7%THD(i)

**Intensity data (cd)**

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	0	0	0	0	0
2.5	0	0	0	0	0
5.0	0	0	0	0	0
7.5	0	0	0	0	0
10.0	0	0	0	0	0
12.5	0	0	0	0	0
15.0	0	0	0	0	0
17.5	0	0	0	0	0
20.0	0	0	0	0	0
22.5	0	0	0	0	0
25.0	0	0	0	0	0
27.5	0	0	0	0	0
30.0	0	0	0	0	0
32.5	0	0	0	0	0
35.0	0	0	0	0	0
37.5	0	0	0	0	0
40.0	0	0	0	0	0
42.5	0	0	0	0	0
45.0	0	0	0	0	0
47.5	0	0	0	0	0
50.0	0	0	0	0	0
52.5	0	0	0	0	0
55.0	0	0	0	0	0
57.5	0	0	0	0	0
60.0	0	0	0	0	0
62.5	0	0	0	0	0
65.0	0	0	0	0	0
67.5	0	0	0	0	0
70.0	0	0	0	0	0
72.5	0	0	0	0	0
75.0	0	0	0	0	0
77.5	0	0	0	0	0
80.0	0	0	0	0	0
82.5	0	0	0	0	0
85.0	0	0	0	0	0
87.5	0	0	0	0	0
90.0	0	0	0	0	0



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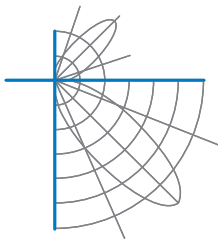
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**Intensity data (cd)**

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	0	0	0	0	0
92.5	17	21	30	25	26
95.0	57	38	46	53	55
97.5	103	55	68	70	72
100.0	153	77	79	92	98
102.5	205	103	96	99	103
105.0	258	133	117	117	116
107.5	314	163	140	136	135
110.0	370	196	166	157	155
112.5	425	228	196	178	175
115.0	480	252	226	206	199
117.5	534	275	257	233	227
120.0	587	297	287	263	255
122.5	640	317	317	291	283
125.0	690	366	347	321	312
127.5	740	418	372	350	341
130.0	788	464	390	379	370
132.5	834	511	407	406	398
135.0	876	559	422	431	424
137.5	917	609	434	445	447
140.0	956	660	447	459	460
142.5	992	710	516	471	472
145.0	1026	761	571	479	482
147.5	1057	810	624	489	489
150.0	1086	857	680	573	501
152.5	1113	903	737	628	592
155.0	1138	947	795	689	650
157.5	1161	989	852	752	714
160.0	1181	1029	908	816	779
162.5	1199	1066	962	880	847
165.0	1215	1101	1015	943	913
167.5	1228	1133	1065	1003	977
170.0	1239	1163	1112	1063	1040
172.5	1247	1189	1157	1118	1100
175.0	1253	1213	1199	1171	1157
177.5	1257	1235	1237	1219	1209
180.0	1262	1262	1262	1262	1262



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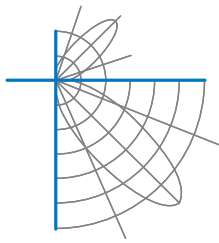
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**Test Distance** 9.5 m  
**Test Temperature** 24.9 °C

**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.

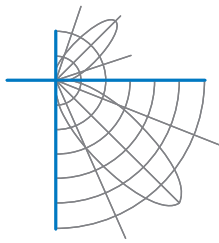
This report is free of erasures and corrections.

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

**LLIA001084-009B**

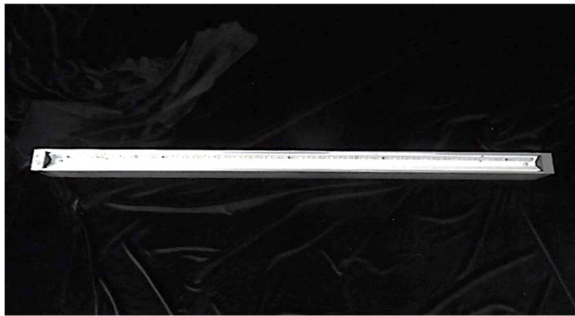
Integrating Sphere Report

Catalog Number: MLP2-IASY-HO-K40-80-4-W-OP-FXXX-UNV-XXX

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



### Performance Summary

Voltage	120.0 Vac
Current	0.2322 A
Power	27.78 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	5.7 %

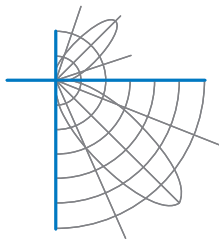
Total Luminous Flux	3865.6 lm
Efficacy	139.2 lm/W
Chromaticity (x,y)	(0.3817, 0.3788)
(u',v')	(0.2251, 0.5027)
Duv	0.0006
CCT	3981 K
CRI (Ra)	83
R9	13
TM-30: Rf	82
TM-30: Rg	96

Prepared For:

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

Test date: 02/27/2019

Report date: 03/01/2019



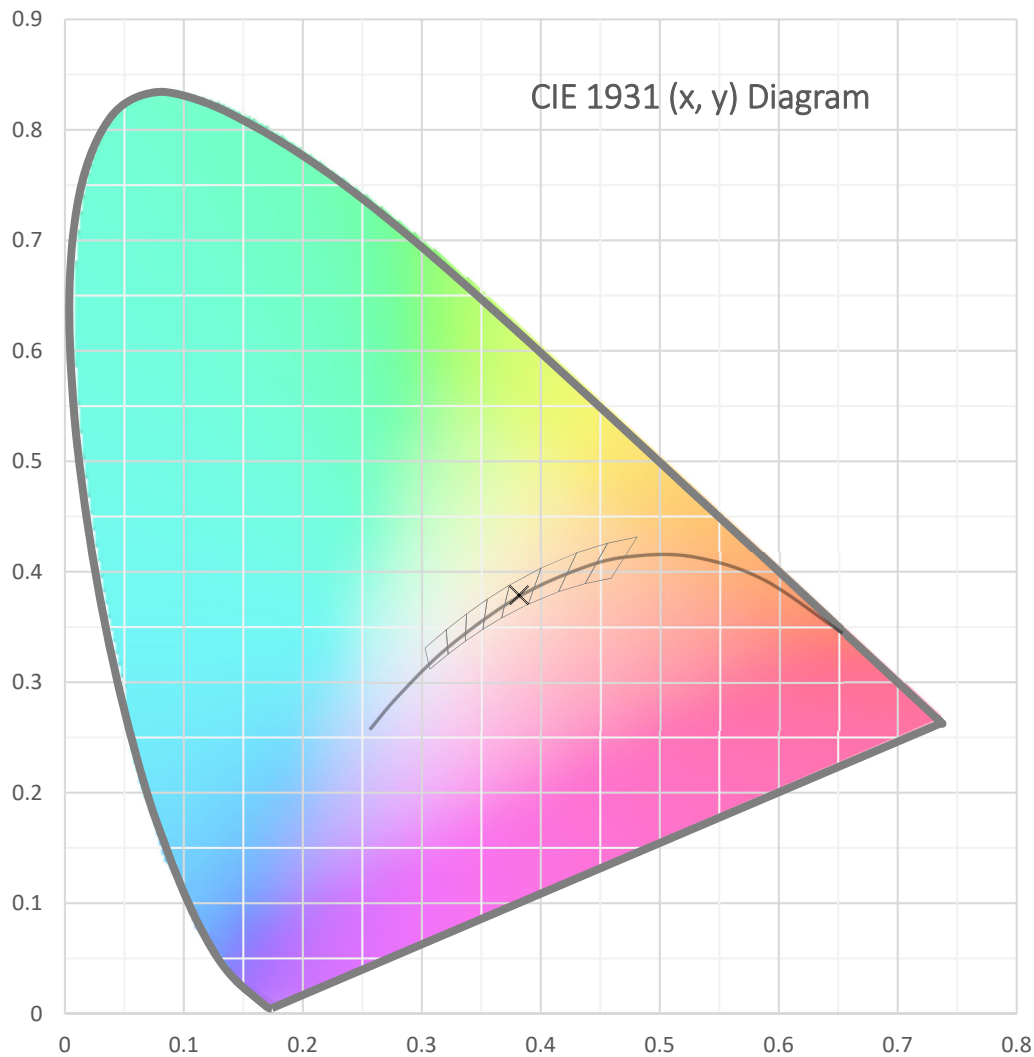
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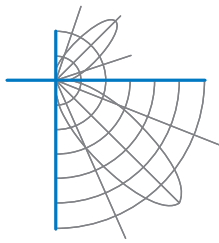
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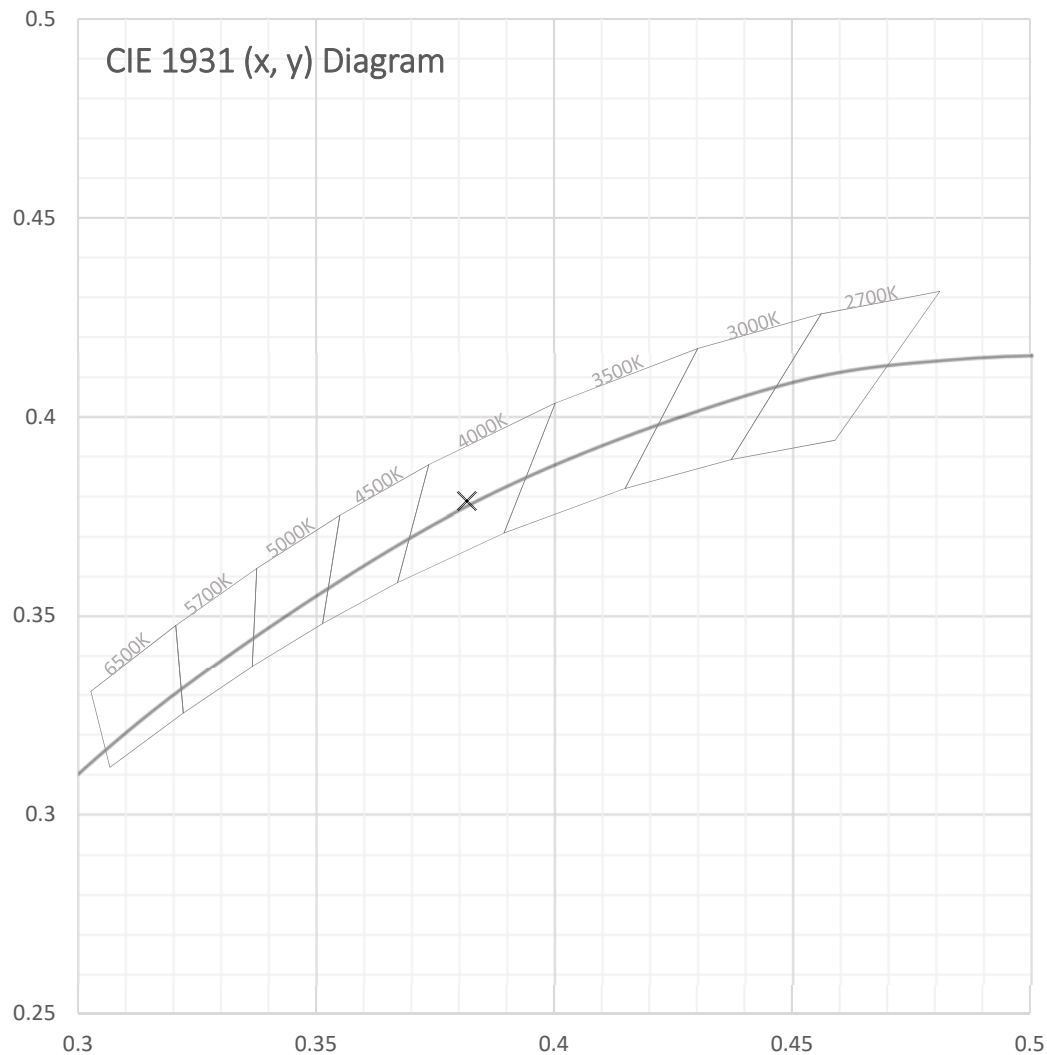


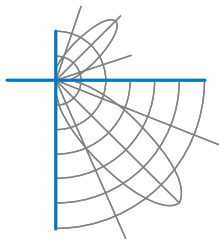
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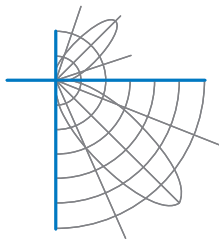
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**Spectral Data**

Total Radiant Flux	11.93 W
Total Luminous Flux	3865.6 Lm
Chromaticity CIE 1931 (x, y)	(0.3817, 0.3788)
Chromaticity CIE 1976 (u', v')	(0.2251, 0.5027)
Correlated Color Temperature (CCT)	3981 K
Color Rendering Index (Ra)	83
R1	82
R2	89
R3	94
R4	82
R5	81
R6	84
R7	87
R8	66
R9	13
R10	74
R11	80
R12	60
R13	83
R14	97
TM-30: Rf	82
TM-30: Rg	96
Distance from Planckian Locus (Duv)	0.0006
Scotopic/Photopic Ratio *	1.678

**Electrical Data**

Voltage	120.0 Vac
Current	0.2322 A
Power	27.78 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	5.7 %



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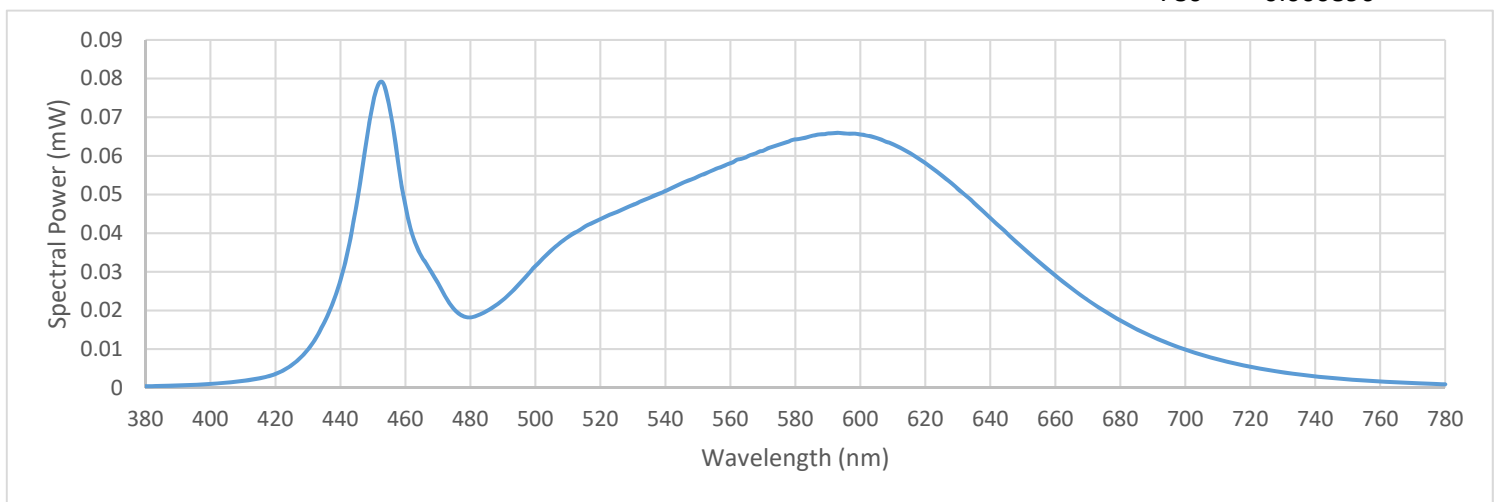
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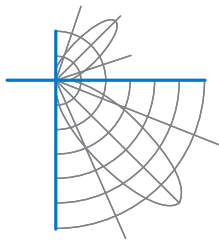
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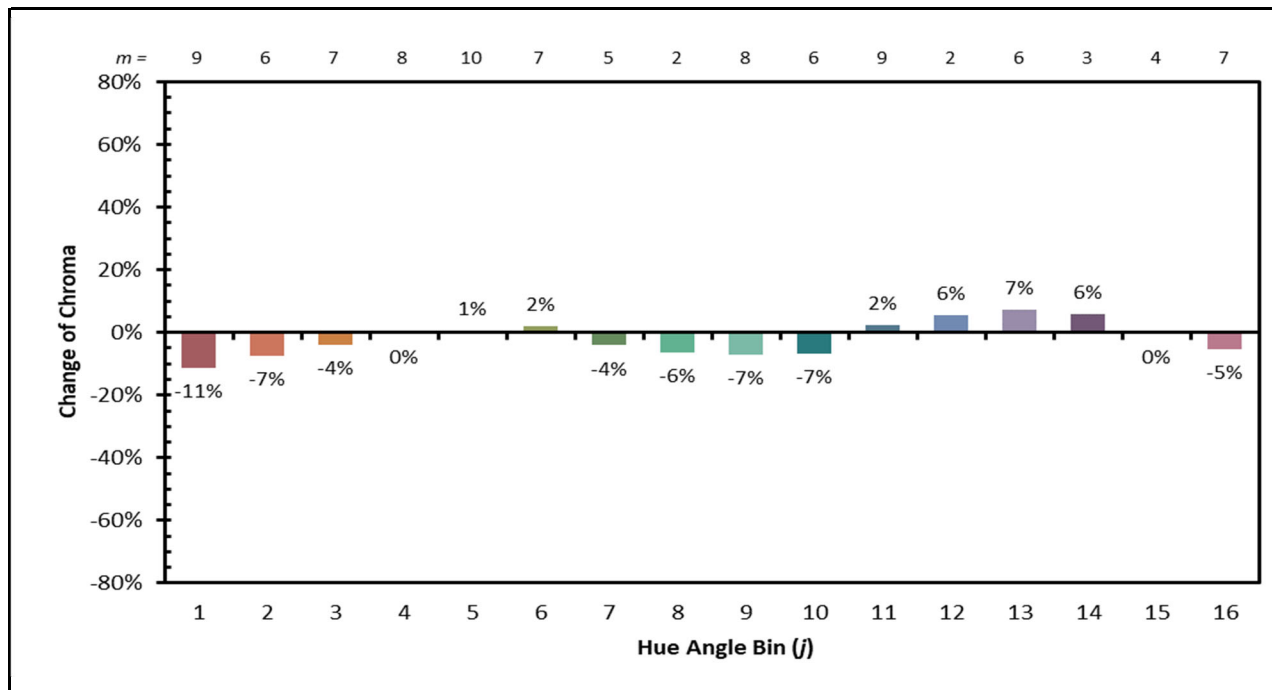
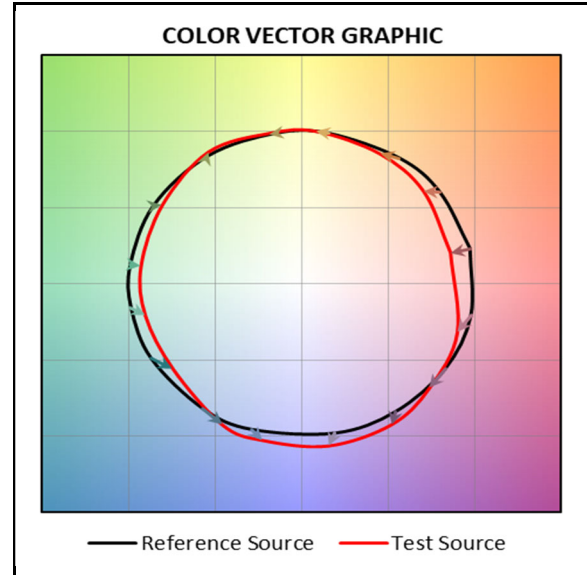
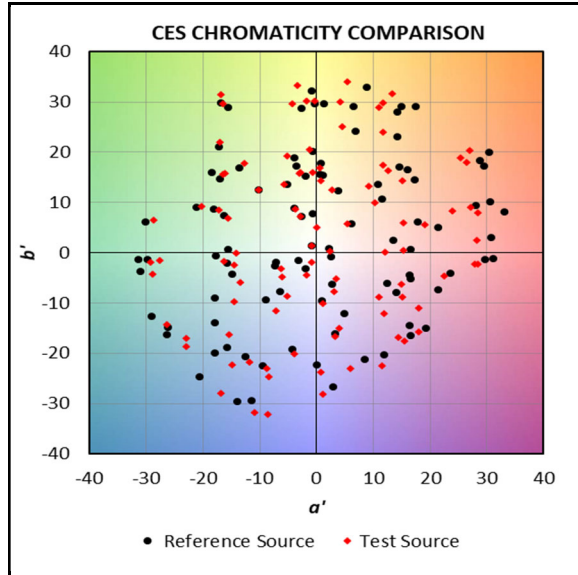
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

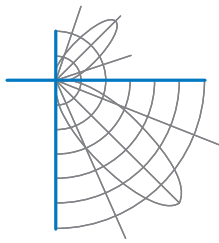
380	0.000403	480	0.018207	580	0.064267	680	0.017409
385	0.000437	485	0.019865	585	0.065179	685	0.015197
390	0.000575	490	0.022698	590	0.065802	690	0.013182
395	0.000752	495	0.026835	595	0.065831	695	0.011411
400	0.001004	500	0.031511	600	0.065528	700	0.009887
405	0.001339	505	0.035666	605	0.064654	705	0.008518
410	0.001780	510	0.038945	610	0.062964	710	0.007331
415	0.002407	515	0.041587	615	0.060783	715	0.006331
420	0.003614	520	0.043677	620	0.058098	720	0.005441
425	0.005856	525	0.045443	625	0.055001	725	0.004687
430	0.009917	530	0.047338	630	0.051419	730	0.004026
435	0.016874	535	0.049090	635	0.047831	735	0.003451
440	0.027721	540	0.050914	640	0.043876	740	0.002955
445	0.047630	545	0.052841	645	0.040078	745	0.002540
450	0.073606	550	0.054622	650	0.036239	750	0.002177
455	0.072986	555	0.056417	655	0.032532	755	0.001876
460	0.047171	560	0.058081	660	0.029089	760	0.001627
465	0.033829	565	0.059719	665	0.025694	765	0.001396
470	0.027124	570	0.061293	670	0.022633	770	0.001198
475	0.020303	575	0.062882	675	0.019956	775	0.001040
						780	0.000896





IES TM-30 Summary





**Test Report Number: LLIA001084-009B**

Catalog Number: MLP2-IASY-HO-K40-80-4-W-OP-FXXX-UNV-XXX

Pendant mounted, extruded aluminum housing, formed  
white enamel aluminum LED tray, no enclosure.

92 white LEDs, one PAL-Lighting LED board with 92 white 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 $\pi$  geometry

Test Temperature: 26.0 °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.