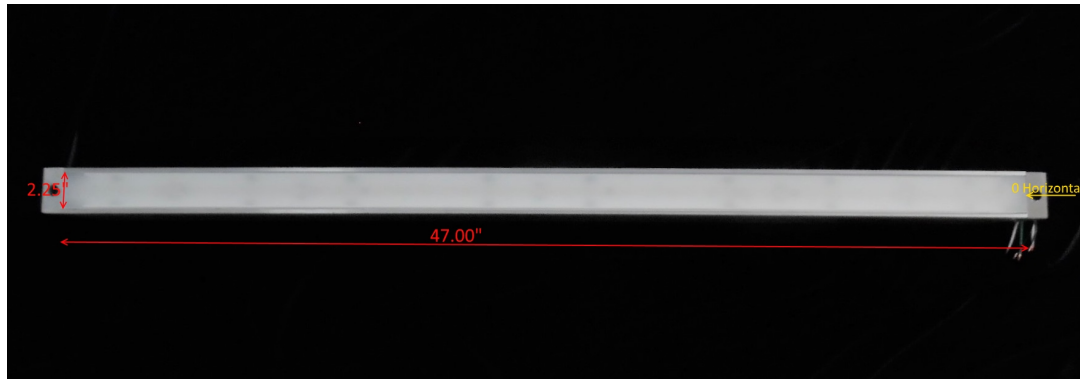


Report of Test

LLIA000844-005A-R01*

*This test report supersedes test report LLIA000844-005A

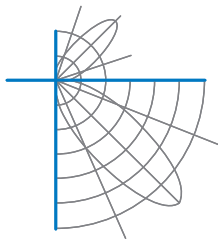
Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120
Pendant mounted, extruded aluminum housing with aluminum end caps,
formed white enamel aluminum LED tray/reflector, frosted plastic enclosure.
Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA
120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%THD(i)



Performance Summary

Total Light Output	3541 lm
Luminaire Power	27.7 W
Luminous Efficacy	127.8 lm/W

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



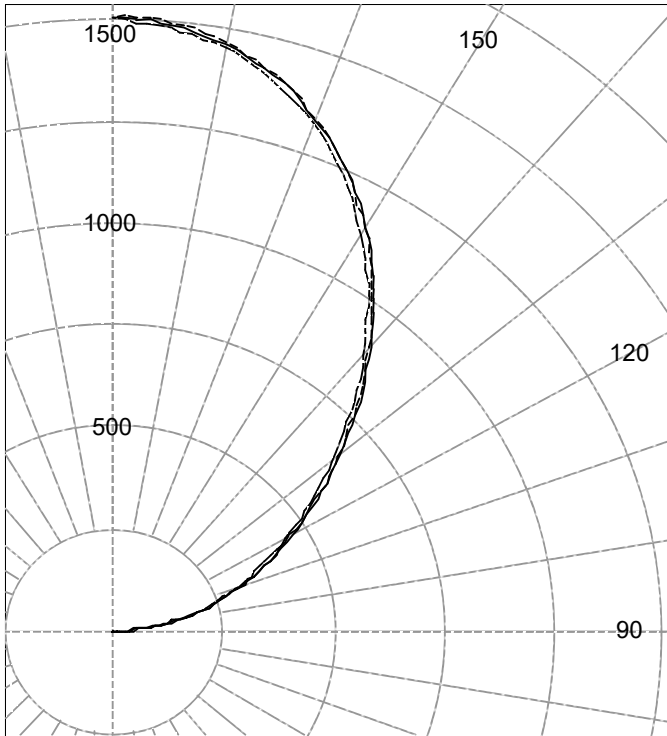
Test Report No. LLIA000844-005A-R01

Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
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Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA
120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%THD(i)

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



(Two plane symmetry) C0-C90

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
90.0	1	5	10	14	16	
95.0	74	77	81	82	83	86
100.0	147	150	151	152	151	
105.0	222	223	223	221	220	235
110.0	300	301	297	293	291	
115.0	379	383	377	369	367	373
120.0	467	469	464	453	451	
125.0	565	563	560	547	544	499
130.0	673	667	666	653	648	
135.0	788	781	781	768	762	599
140.0	909	899	902	890	883	
145.0	1030	1019	1024	1014	1006	636
150.0	1145	1133	1141	1134	1125	
155.0	1250	1237	1248	1242	1233	571
160.0	1339	1327	1341	1335	1326	
165.0	1410	1399	1414	1408	1400	396
170.0	1462	1451	1467	1462	1454	
175.0	1493	1482	1498	1494	1486	141
180.0	1501	1501	1501	1501	1501	

ZONAL FLUX AND PERCENTAGES

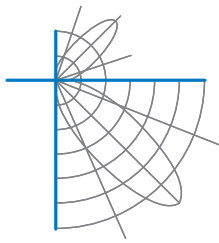
Zone	Flux (lm)	% Lamp	% Luminaire
180-150	1108	N / A	31.3
180-140	1744	N / A	49.3
180-120	2843	N / A	80.3
180-90	3536	N / A	99.9
140-90	1792	N / A	50.6
120-90	694	N / A	19.6
90-0	4	N / A	0.1
180-0	3541	N / A	100.0

Total Light Output = 3,541 lm

Signed:

Authorized Signatory

Date of test 30-Aug-2017
Date of report 15-Dec2017



Test Report No. LLIA000844-005A-R01

Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
formed white enamel aluminum LED tray/reflector, frosted plastic enclosure.

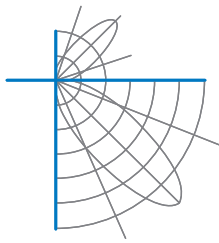
Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic

OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA

120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%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	1
77.5	0	0	0	1	2
80.0	0	0	1	2	3
82.5	0	0	2	3	4
85.0	0	0	3	5	6
87.5	0	1	5	8	9
90.0	1	5	10	14	16



Test Report No. LLIA000844-005A-R01

Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
formed white enamel aluminum LED tray/reflector, frosted plastic enclosure.

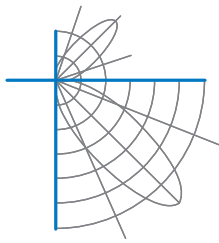
Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic

OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA

120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	1	5	10	14	16
92.5	37	40	44	47	48
95.0	74	77	81	82	83
97.5	110	114	116	117	117
100.0	147	150	151	152	151
102.5	185	186	187	186	185
105.0	222	223	223	221	220
107.5	261	262	259	257	255
110.0	300	301	297	293	291
112.5	340	341	336	330	328
115.0	379	383	377	369	367
117.5	422	425	419	410	408
120.0	467	469	464	453	451
122.5	515	515	511	499	496
125.0	565	563	560	547	544
127.5	617	614	612	599	595
130.0	673	667	666	653	648
132.5	730	723	723	709	704
135.0	788	781	781	768	762
137.5	848	840	841	829	822
140.0	909	899	902	890	883
142.5	970	959	963	952	945
145.0	1030	1019	1024	1014	1006
147.5	1089	1077	1083	1075	1066
150.0	1145	1133	1141	1134	1125
152.5	1199	1187	1197	1190	1181
155.0	1250	1237	1248	1242	1233
157.5	1296	1284	1297	1290	1282
160.0	1339	1327	1341	1335	1326
162.5	1377	1365	1379	1374	1366
165.0	1410	1399	1414	1408	1400
167.5	1438	1427	1443	1438	1430
170.0	1462	1451	1467	1462	1454
172.5	1480	1469	1485	1480	1473
175.0	1493	1482	1498	1494	1486
177.5	1501	1490	1506	1501	1494
180.0	1501	1501	1501	1501	1501



Test Number: LLIA000844-005A-R01

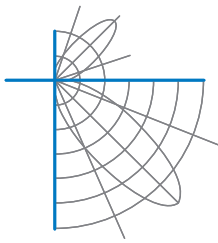
Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
formed white enamel aluminum LED tray/reflector, frosted plastic enclosure.

Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA
120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%THD(i)

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	95	95	95	95	81	81	81	81	56	56	56	32	32	32	10	10	10	0
1	87	83	79	76	74	71	68	65	48	47	45	28	27	26	9	9	8	0
2	79	72	66	62	67	62	57	53	42	40	37	24	23	22	8	7	7	0
3	72	63	56	51	61	54	49	44	37	34	31	21	20	18	7	6	6	0
4	65	56	48	43	56	48	42	37	33	29	26	19	17	16	6	6	5	0
5	60	49	42	36	51	42	36	32	29	25	22	17	15	13	5	5	4	0
6	55	44	36	31	47	38	32	27	26	22	19	15	13	11	5	4	4	0
7	50	39	32	27	43	34	28	23	23	19	17	14	11	10	4	4	3	0
8	47	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3	0
9	43	32	25	20	37	27	22	18	19	15	13	11	9	8	4	3	3	0
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2	0

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.



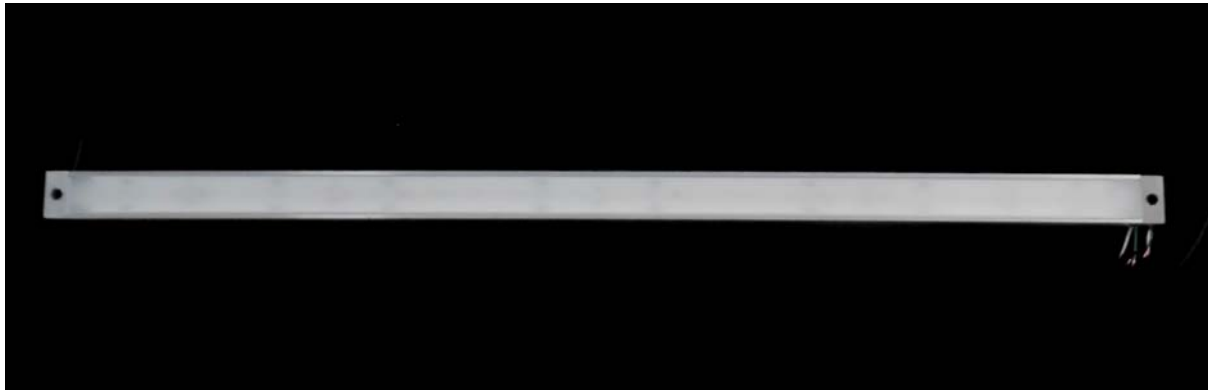
Test Report No. LLIA000844-005A-R01

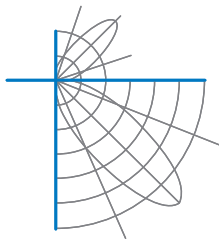
Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
formed white enamel aluminum LED tray/reflector, frosted plastic enclosure.

Three connected PAL-Lighting LED boards with 92 white LEDs.

One Osram Optotronic OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA
120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%THD(i)





Test Report No. LLIA000844-005A-R01

Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
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OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA
120.0Vac, 60.00Hz, 0.2315A, 27.69W, 0.997PF, 6.4%THD(i)

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

LLIA000844-005B-R01*

Integrating Sphere Report

Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
formed white enamel aluminum LED tray/reflector, frosted plastic enclosure.

Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA



Performance Summary

Voltage	120.0 Vac
Current	0.2314 A
Power	27.69 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.4 %

Total Luminous Flux	3629.4 lm
Efficacy	131.1 lm/W
Chromaticity (x,y)	(0.3824, 0.3787)
(u',v')	(0.2256, 0.5027)
Duv	0.0003
CCT	3962 K
CRI (Ra)	84
R9	16

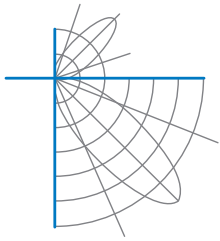
Prepared For:

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

*This test report supersedes test report LLIA000844-005B

Test date: 08/23/2017

Report date: 12/15/2017

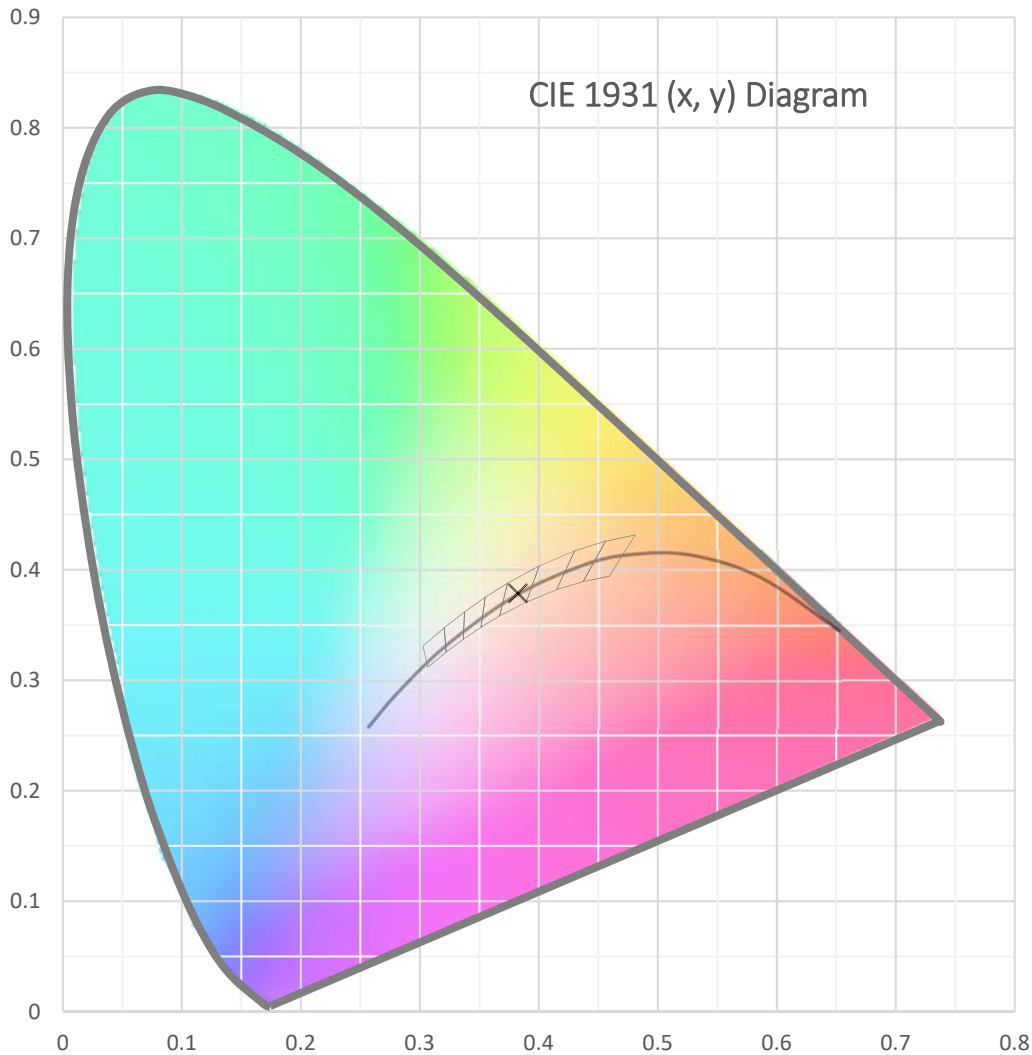


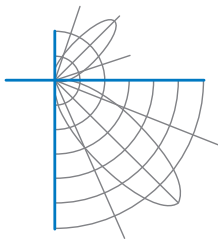
Test Report Number: LLIA000844-005B-R01

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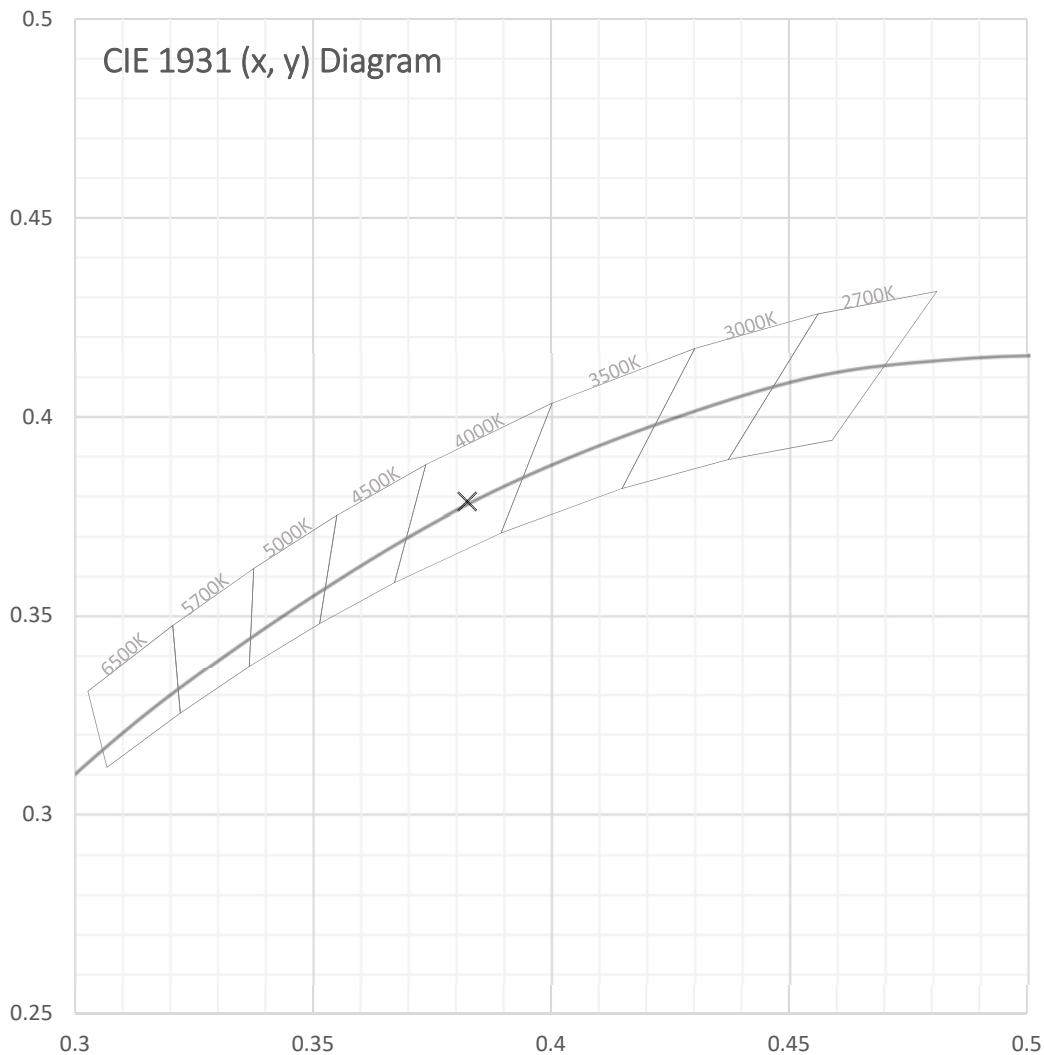


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Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA

Spectral Data

Total Radiant Flux	11.23 W
Total Luminous Flux	3629.4 Lm
Chromaticity CIE 1931 (x, y)	(0.3824, 0.3787)
Chromaticity CIE 1976 (u', v')	(0.2256, 0.5027)
Correlated Color Temperature (CCT)	3962 K
Color Rendering Index (Ra)	84
R1	83
R2	91
R3	96
R4	82
R5	82
R6	86
R7	87
R8	67
R9	16
R10	77
R11	80
R12	61
R13	85
R14	98
Distance from Planckian Locus (Duv)	0.0003
Scotopic/Photopic Ratio *	1.695

Electrical Data

Voltage	120.0 Vac
Current	0.2314 A
Power	27.69 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.4 %



Test Report Number: LLIA000844-005B-R01

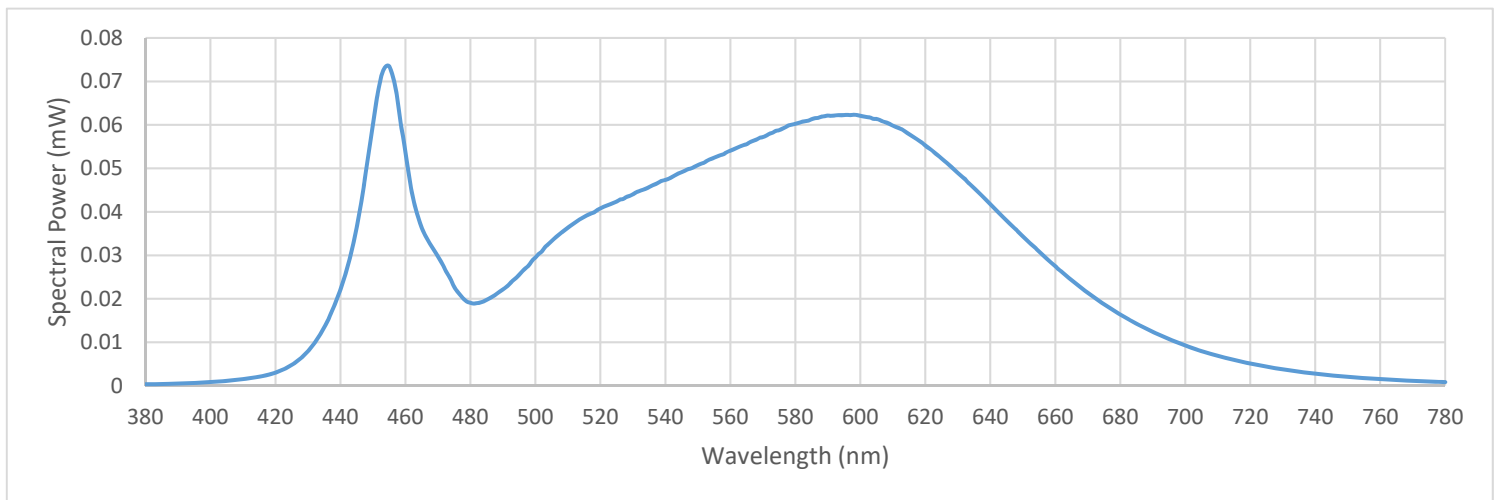
Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

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Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA

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

380	0.000349	480	0.019080	580	0.060251	680	0.016386
385	0.000385	485	0.019768	585	0.061304	685	0.014289
390	0.000490	490	0.022161	590	0.062141	690	0.012410
395	0.000643	495	0.025505	595	0.062247	695	0.010742
400	0.000866	500	0.029498	600	0.062070	700	0.009278
405	0.001146	505	0.033297	605	0.061367	705	0.007971
410	0.001524	510	0.036278	610	0.059815	710	0.006856
415	0.002049	515	0.038897	615	0.057842	715	0.005929
420	0.003030	520	0.040783	620	0.055243	720	0.005115
425	0.004802	525	0.042333	625	0.052263	725	0.004397
430	0.007994	530	0.044016	630	0.048880	730	0.003789
435	0.013468	535	0.045708	635	0.045484	735	0.003232
440	0.022147	540	0.047340	640	0.041718	740	0.002771
445	0.036436	545	0.049133	645	0.037978	745	0.002388
450	0.060094	550	0.050752	650	0.034341	750	0.002053
455	0.073471	555	0.052467	655	0.030826	755	0.001767
460	0.053791	560	0.054060	660	0.027513	760	0.001535
465	0.036374	565	0.055558	665	0.024288	765	0.001321
470	0.029807	570	0.057197	670	0.021354	770	0.001134
475	0.022748	575	0.058779	675	0.018751	775	0.000983
						780	0.000848





Test Report Number: LLIA000844-005B-R01

Catalog Number: MLS2-I-HO-K40-XX-4-XX-FDC-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps,
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Three connected PAL-Lighting LED boards with 92 white LEDs. One Osram Optotronic
OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA

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: 25.0 °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

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
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