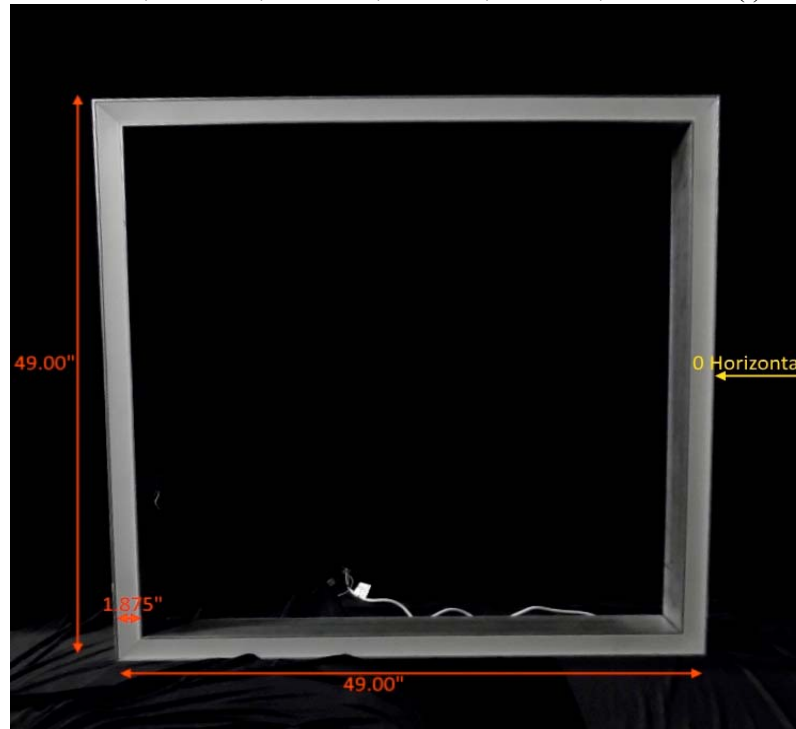


Report of Test

LLIA000833-010A

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

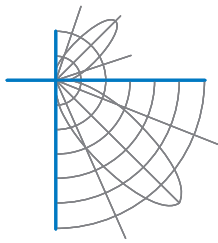
368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.
One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver
120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%THD(i)



Performance Summary

Total Light Output	11733 lm
Luminaire Power	119.4 W
Luminous Efficacy	98.3 lm/W

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



Test Report No. LLIA000833-010A

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

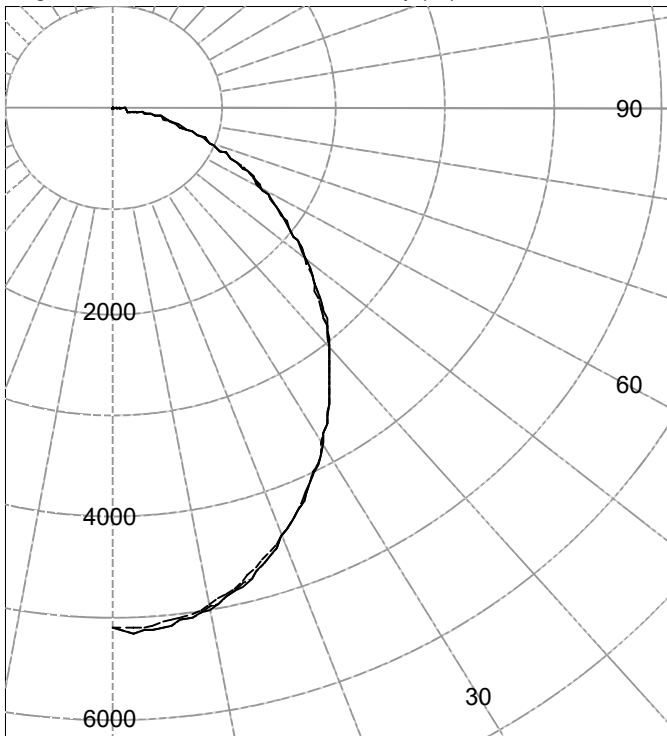
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.

368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%THD(i)

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



INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	5107	5107	5107	5107	5107	
5.0	5110	5073	5072	5076	5105	481
10.0	4983	4947	4946	4948	4978	
15.0	4771	4746	4744	4742	4769	1336
20.0	4486	4477	4473	4479	4481	
25.0	4155	4162	4152	4160	4142	1911
30.0	3791	3808	3799	3803	3785	
35.0	3418	3426	3419	3425	3415	2138
40.0	3045	3037	3028	3033	3036	
45.0	2669	2653	2639	2648	2661	2046
50.0	2277	2280	2267	2274	2271	
55.0	1907	1914	1912	1911	1898	1709
60.0	1557	1565	1565	1563	1552	
65.0	1236	1237	1237	1234	1231	1225
70.0	928	931	930	928	924	
75.0	639	643	642	640	636	681
80.0	381	385	385	383	378	
85.0	163	164	165	162	161	186
90.0	1	1	1	1	2	

AVERAGE LUMINANCE (cd / m²)

Gamma	C0	C45	C90
45.0	2435	2408	2428
55.0	2145	2150	2135
65.0	1887	1889	1879
75.0	1593	1600	1585
85.0	1208	1220	1189

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	3728	N / A	31.8
0-40	5866	N / A	50.0
0-60	9621	N / A	82.0
0-90	11713	N / A	99.8
40-90	5847	N / A	49.8
60-90	2092	N / A	17.8
90-180	20	N / A	0.2
0-180	11733	N / A	100.0

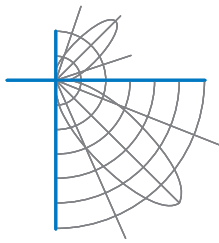
Total Light Output = 11,733 lm

Spacing Criterion: 0-180 1.1
Spacing Criterion: 90-270 1.1

Signed:

Authorized Signatory

Date of test 1-Oct-2017
Date of report 3-Oct-2017



Test Report No. LLIA000833-010A

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

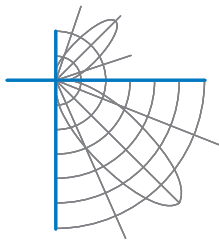
368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	5107	5107	5107	5107	5107
2.5	5141	5107	5106	5106	5138
5.0	5110	5073	5072	5076	5105
7.5	5054	5024	5021	5021	5053
10.0	4983	4947	4946	4948	4978
12.5	4890	4854	4854	4857	4887
15.0	4771	4746	4744	4742	4769
17.5	4634	4618	4617	4619	4628
20.0	4486	4477	4473	4479	4481
22.5	4324	4326	4318	4322	4316
25.0	4155	4162	4152	4160	4142
27.5	3974	3988	3978	3986	3968
30.0	3791	3808	3799	3803	3785
32.5	3609	3618	3609	3617	3599
35.0	3418	3426	3419	3425	3415
37.5	3233	3231	3226	3229	3224
40.0	3045	3037	3028	3033	3036
42.5	2859	2844	2834	2842	2853
45.0	2669	2653	2639	2648	2661
47.5	2471	2463	2451	2461	2464
50.0	2277	2280	2267	2274	2271
52.5	2088	2094	2087	2091	2083
55.0	1907	1914	1912	1911	1898
57.5	1726	1737	1737	1734	1721
60.0	1557	1565	1565	1563	1552
62.5	1394	1398	1398	1394	1389
65.0	1236	1237	1237	1234	1231
67.5	1080	1082	1081	1079	1077
70.0	928	931	930	928	924
72.5	780	785	784	782	776
75.0	639	643	642	640	636
77.5	505	509	508	507	502
80.0	381	385	385	383	378
82.5	267	269	270	268	264
85.0	163	164	165	162	161
87.5	70	69	68	68	69
90.0	1	1	1	1	2



Test Report No. LLIA000833-010A

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

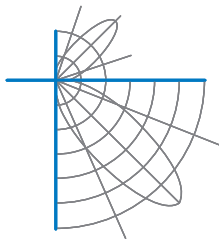
368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	1	1	1	1	2
92.5	1	1	1	1	1
95.0	1	1	1	1	1
97.5	1	1	1	1	1
100.0	1	1	2	1	1
102.5	1	1	2	1	1
105.0	1	1	2	1	1
107.5	2	1	2	1	2
110.0	2	2	2	2	2
112.5	2	2	3	2	2
115.0	2	2	3	2	2
117.5	3	3	3	3	3
120.0	3	3	3	3	3
122.5	4	4	4	4	4
125.0	4	4	4	4	4
127.5	5	5	5	5	5
130.0	5	5	5	5	5
132.5	5	5	5	5	5
135.0	5	5	5	5	5
137.5	5	5	5	5	5
140.0	5	5	5	5	5
142.5	5	5	5	5	5
145.0	5	5	5	5	5
147.5	5	5	5	5	6
150.0	5	5	5	5	5
152.5	5	5	5	5	5
155.0	5	5	5	5	5
157.5	4	4	4	4	5
160.0	5	4	4	4	5
162.5	5	4	4	4	5
165.0	4	4	4	4	5
167.5	4	5	4	4	5
170.0	5	4	4	5	5
172.5	5	4	4	4	4
175.0	4	4	4	4	4
177.5	4	4	4	4	4
180.0	4	4	4	4	4



Test Number: LLIA000833-010A

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
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One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%THD(i)

Coefficients Of Utilization - Zonal Cavity Method

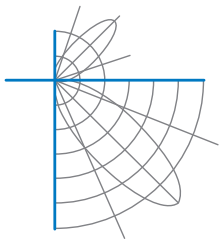
Effective Floor Cavity Reflectance 0.20

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	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	95	98	95	92	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	65	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	57	67	61	56	64	59	55	53
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	42	34	29	41	34	29	40	33	29	39	33	29	27

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	141.9	6.73	6.72
8.0	79.8	8.97	8.96
10.0	51.1	11.21	11.19
12.0	35.5	13.46	13.43
14.0	26.1	15.70	15.67
16.0	20.0	17.94	17.91



Test Report No. LLIA000833-010A

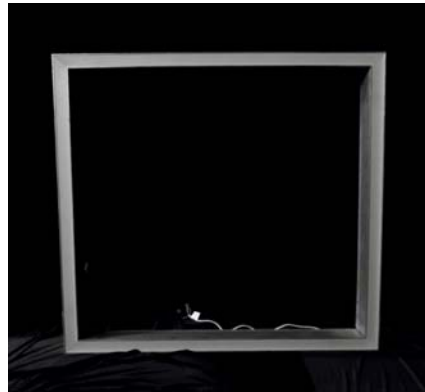
Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

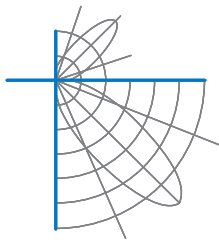
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%THD(i)





Test Report No. LLIA000833-010A

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
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One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver
120.0Vac, 60.00Hz, 0.9988A, 119.4W, 0.997PF, 3.7%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.

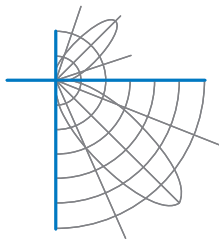
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

LLIA000833-010B

Integrating Sphere Report

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver



Performance Summary

Voltage	120.0 Vac
Current	1.001 A
Power	119.5 W
Frequency	60.00 Hz
Power Factor	0.995
Current THD	3.5 %

Chromaticity (x,y)	(0.4087, 0.3933)
(u',v')	(0.2369, 0.5128)

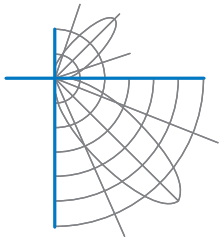
Duv	0.0004
CCT	3447 K
CRI (Ra)	82
R9	11

Prepared For:

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

Test date: 10/02/2017

Report date: 10/04/2017



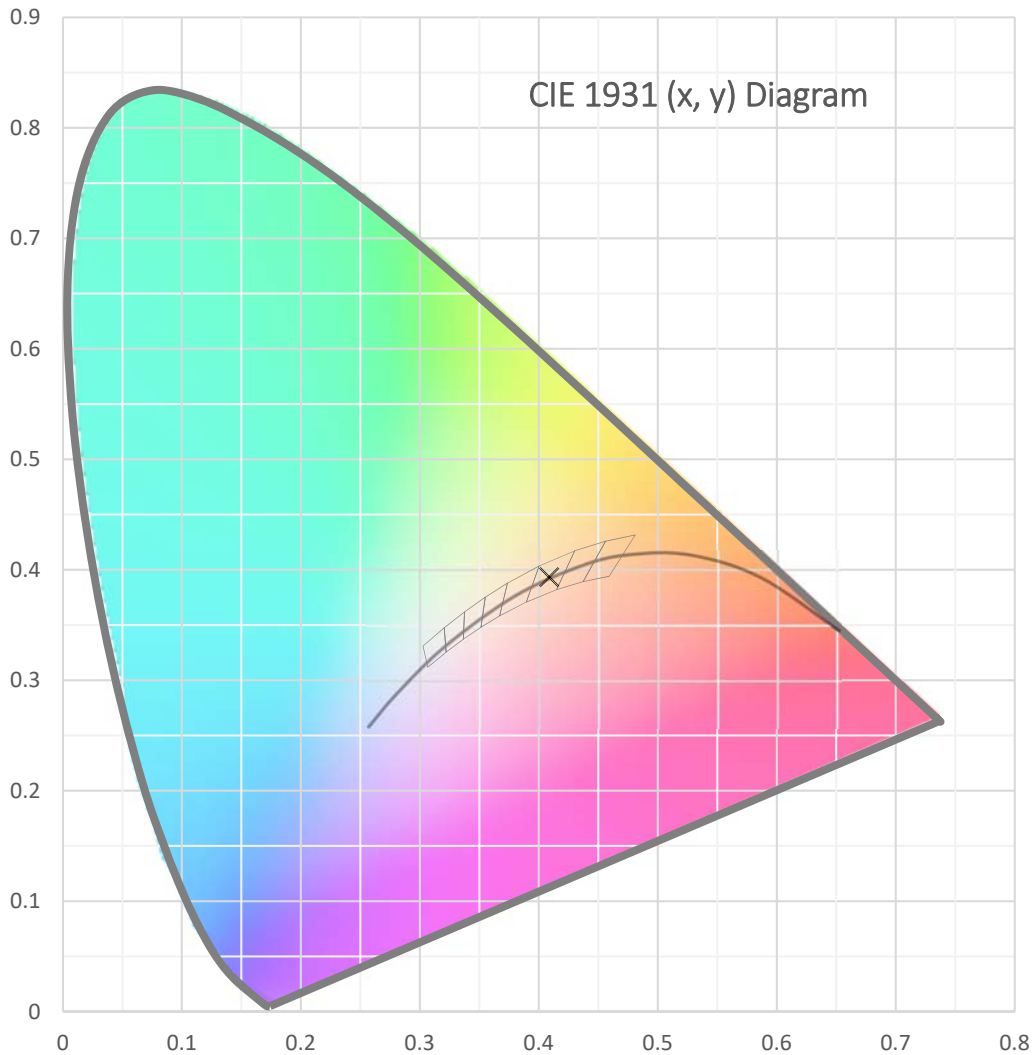
Test Report Number: LLIA000833-010B

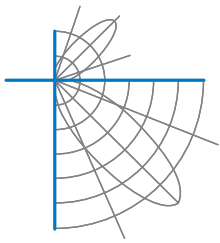
Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver





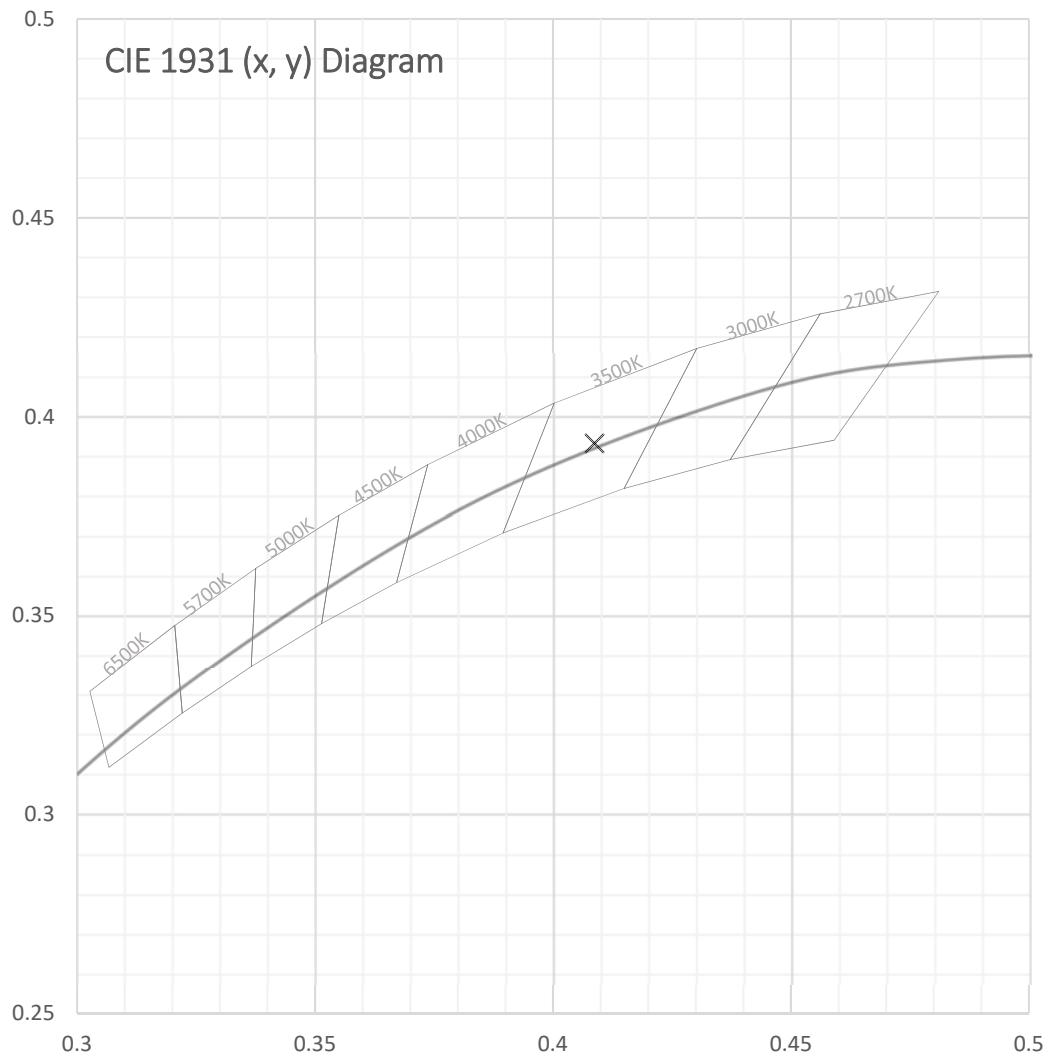
Test Report Number: LLIA000833-010B

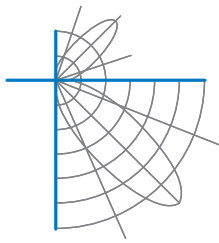
Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

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One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver





Test Report Number: LLIA000833-010B

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

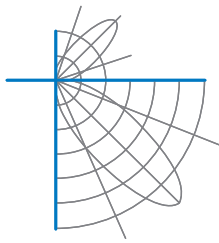
One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

Spectral Data

Chromaticity CIE 1931 (x, y)	(0.4087, 0.3933)
Chromaticity CIE 1976 (u', v')	(0.2369, 0.5128)
Correlated Color Temperature (CCT)	3447 K
Color Rendering Index (Ra)	82
R1	80
R2	89
R3	95
R4	80
R5	80
R6	84
R7	86
R8	64
R9	11
R10	72
R11	78
R12	61
R13	82
R14	97
Distance from Planckian Locus (Duv)	0.0004
Scotopic/Photopic Ratio *	1.480

Electrical Data

Voltage	120.0 Vac
Current	1.001 A
Power	119.5 W
Frequency	60.00 Hz
Power Factor	0.995
Current THD	3.5 %



Test Report Number: LLIA000833-010B

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

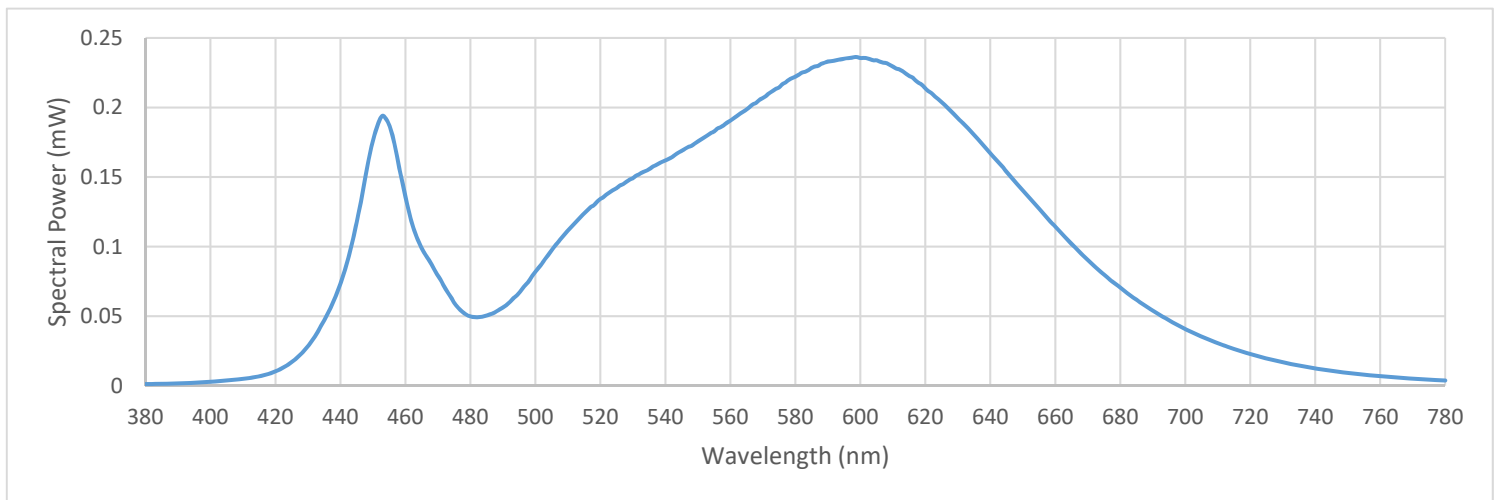
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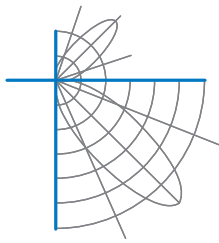
368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 L- LED driver

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

380	0.001219	480	0.049938	580	0.222162	680	0.070433
385	0.001356	485	0.050494	585	0.228474	685	0.061819
390	0.001686	490	0.056299	590	0.233055	690	0.054065
395	0.002189	495	0.066730	595	0.235100	695	0.046931
400	0.002874	500	0.081989	600	0.235565	700	0.040808
405	0.003780	505	0.097378	605	0.233915	705	0.035422
410	0.005017	510	0.111331	610	0.229465	710	0.030541
415	0.006823	515	0.123949	615	0.222732	715	0.026496
420	0.010329	520	0.134225	620	0.213769	720	0.022795
425	0.016885	525	0.142054	625	0.203817	725	0.019651
430	0.028703	530	0.149204	630	0.192253	730	0.016935
435	0.046950	535	0.155603	635	0.180249	735	0.014490
440	0.073161	540	0.161833	640	0.167164	740	0.012455
445	0.117527	545	0.168755	645	0.153688	745	0.010719
450	0.176243	550	0.175581	650	0.140261	750	0.009238
455	0.187597	555	0.182780	655	0.127176	755	0.007956
460	0.136295	560	0.190518	660	0.114580	760	0.006920
465	0.098886	565	0.198512	665	0.101842	765	0.005925
470	0.079245	570	0.206830	670	0.090352	770	0.005122
475	0.059619	575	0.214449	675	0.079915	775	0.004403
						780	0.003794





Test Report Number: LLIA000833-010B

Catalog Number: MQS2-D-HO-K35-80-4X4-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

368 white LEDs, 4 PAL-Lighting LED boards with 92 LEDs each.

One Osram Optotronic OTi 85/120-277/2A6 DIMLT2 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: 24.7 °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
Note: Luminaire was oriented vertically during testing.

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.

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