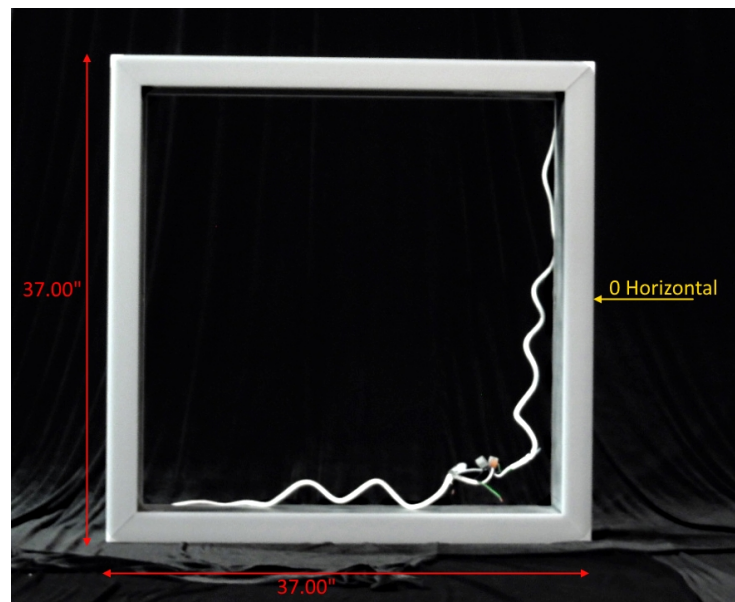




Report of Test

LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.
272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.
One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%THD(i)



Performance Summary

Total Light Output	8129 lm
Luminaire Power	82.6 W
Luminous Efficacy	98.4 lm/W

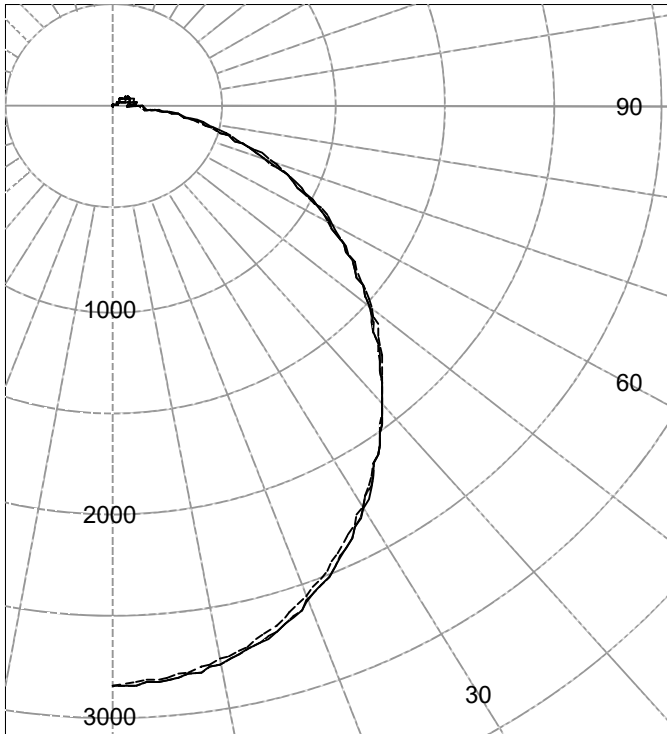
PREPARED FOR : Precision Architectural Lighting, 4830 Timber Creek Drive, Houston, TX 77017



Test Report No. LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.
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120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%THD(i)

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



(Two plane symmetry) C0-C90

AVERAGE LUMINANCE (cd / m²)

Gamma	C0	C45	C90
45.0	11650	11685	11637
55.0	11028	11022	11014
65.0	10438	10384	10418
75.0	9526	9564	9486
85.0	9888	9979	9739

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	2836	2836	2836	2836	2836	
5.0	2829	2819	2813	2818	2828	267
10.0	2778	2767	2763	2767	2777	
15.0	2700	2681	2674	2680	2696	756
20.0	2583	2564	2558	2564	2581	
25.0	2441	2426	2417	2424	2438	1117
30.0	2274	2265	2258	2264	2271	
35.0	2091	2091	2087	2090	2088	1307
40.0	1898	1906	1907	1905	1895	
45.0	1702	1716	1720	1715	1700	1322
50.0	1507	1522	1527	1521	1506	
55.0	1318	1328	1332	1326	1316	1186
60.0	1125	1135	1139	1133	1123	
65.0	932	939	943	937	930	927
70.0	731	741	745	740	729	
75.0	537	550	554	548	534	580
80.0	361	376	380	373	358	
85.0	214	228	233	226	211	248
90.0	65	69	69	65	59	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	2141	N / A	26.3
0-40	3447	N / A	42.4
0-60	5955	N / A	73.3
0-90	7710	N / A	94.8
40-90	4263	N / A	52.4
60-90	1755	N / A	21.6
90-180	419	N / A	5.2
0-180	8129	N / A	100.0

Total Light Output = 8,129 lm

Spacing Criterion: 0-180 1.2
Spacing Criterion: 90-270 1.2

Signed:

Authorized Signatory

Date of test 15-Sep-2017
Date of report 17-Sep-2017



Test Report No. LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel
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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	2836	2836	2836	2836	2836
2.5	2841	2832	2826	2832	2840
5.0	2829	2819	2813	2818	2828
7.5	2808	2797	2791	2796	2807
10.0	2778	2767	2763	2767	2777
12.5	2742	2728	2723	2727	2743
15.0	2700	2681	2674	2680	2696
17.5	2646	2625	2619	2625	2643
20.0	2583	2564	2558	2564	2581
22.5	2516	2497	2490	2498	2513
25.0	2441	2426	2417	2424	2438
27.5	2361	2347	2340	2346	2357
30.0	2274	2265	2258	2264	2271
32.5	2183	2179	2174	2179	2180
35.0	2091	2091	2087	2090	2088
37.5	1995	2000	1998	1998	1992
40.0	1898	1906	1907	1905	1895
42.5	1800	1812	1815	1811	1798
45.0	1702	1716	1720	1715	1700
47.5	1604	1619	1624	1618	1602
50.0	1507	1522	1527	1521	1506
52.5	1412	1425	1429	1424	1410
55.0	1318	1328	1332	1326	1316
57.5	1222	1231	1235	1230	1220
60.0	1125	1135	1139	1133	1123
62.5	1028	1037	1041	1036	1027
65.0	932	939	943	937	930
67.5	832	840	844	838	830
70.0	731	741	745	740	729
72.5	632	645	648	643	630
75.0	537	550	554	548	534
77.5	446	460	464	458	443
80.0	361	376	380	373	358
82.5	284	298	303	296	281
85.0	214	228	233	226	211
87.5	153	165	169	163	150
90.0	65	69	69	65	59



Test Report No. LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel
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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	65	69	69	65	59
92.5	59	64	65	62	56
95.0	60	65	66	63	57
97.5	61	69	80	67	58
100.0	102	95	91	92	98
102.5	97	99	96	92	95
105.0	97	98	97	90	92
107.5	94	98	98	93	91
110.0	91	96	91	92	88
112.5	89	94	76	91	86
115.0	84	84	74	88	83
117.5	70	66	84	86	79
120.0	47	58	85	83	75
122.5	45	61	84	80	72
125.0	52	72	82	77	69
127.5	65	74	79	73	66
130.0	66	72	76	71	63
132.5	63	69	72	67	61
135.0	60	65	67	64	58
137.5	57	61	61	60	55
140.0	53	57	57	55	52
142.5	49	51	54	50	48
145.0	44	46	47	44	44
147.5	40	42	43	40	40
150.0	34	37	38	35	34
152.5	28	32	33	31	28
155.0	23	27	29	26	23
157.5	19	23	26	23	20
160.0	16	20	24	19	18
162.5	15	18	20	17	16
165.0	13	16	17	15	14
167.5	12	14	14	13	13
170.0	10	11	11	11	11
172.5	8	8	9	9	10
175.0	6	6	7	8	8
177.5	6	6	6	7	7
180.0	6	6	6	6	6



Test Number: LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel
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120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%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	
0	118	118	118	118	114	114	114	114	108	108	108	103	103	103	97	97	97	95
1	107	102	98	94	104	99	95	92	94	91	88	89	87	84	85	83	81	78
2	97	89	82	76	94	86	80	75	82	77	72	78	74	70	74	71	67	65
3	89	78	70	63	86	76	68	62	72	66	60	69	63	59	66	61	57	55
4	81	69	60	54	78	67	59	53	64	57	52	61	55	50	59	53	49	47
5	75	62	53	46	72	60	52	46	58	50	45	55	49	44	53	47	43	41
6	69	56	47	40	67	54	46	40	52	45	39	50	43	38	48	42	38	35
7	64	50	42	36	62	49	41	35	47	40	35	46	39	34	44	38	33	31
8	60	46	38	32	58	45	37	32	43	36	31	42	35	31	40	34	30	28
9	56	42	34	29	54	42	34	28	40	33	28	39	32	28	37	31	27	25
10	52	39	31	26	51	38	31	26	37	30	25	36	30	25	35	29	25	23

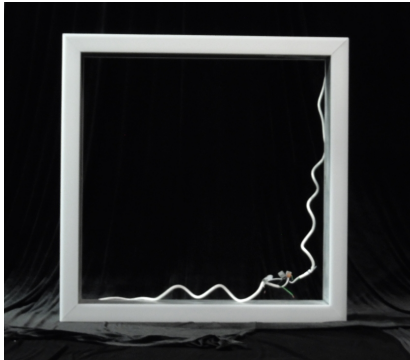
For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 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.

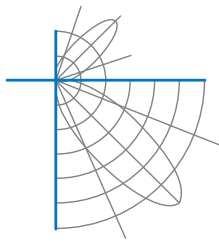
Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	78.8	7.17	7.17
8.0	44.3	9.56	9.55
10.0	28.4	11.95	11.94
12.0	19.7	14.35	14.33
14.0	14.5	16.74	16.72
16.0	11.1	19.13	19.11



Test Report No. LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel
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272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.
One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%THD(i)





Test Report No. LLIA000833-005A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV
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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.65W, 0.997PF, 7.8%THD(i)

Test Distance 9.5 m
Test Temperature 25.9 °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

LLIA000833-005B

Integrating Sphere Report

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV

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

272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.

One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.6913 A
Power	82.63 W
Frequency	60.00 Hz
Power Factor	0.997
Current THD	7.8 %

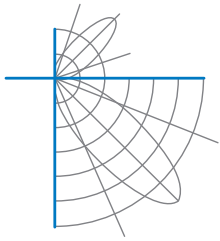
Total Luminous Flux	8756.3 lm
Efficacy	106.0 lm/W
Chromaticity (x,y)	(0.4061, 0.3891)
(u',v')	(0.2369, 0.5107)
Duv	-0.0009
CCT	3469 K
CRI (Ra)	84
R9	14

Prepared For:

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

Test date: 09/14/2017

Report date: 09/15/2017



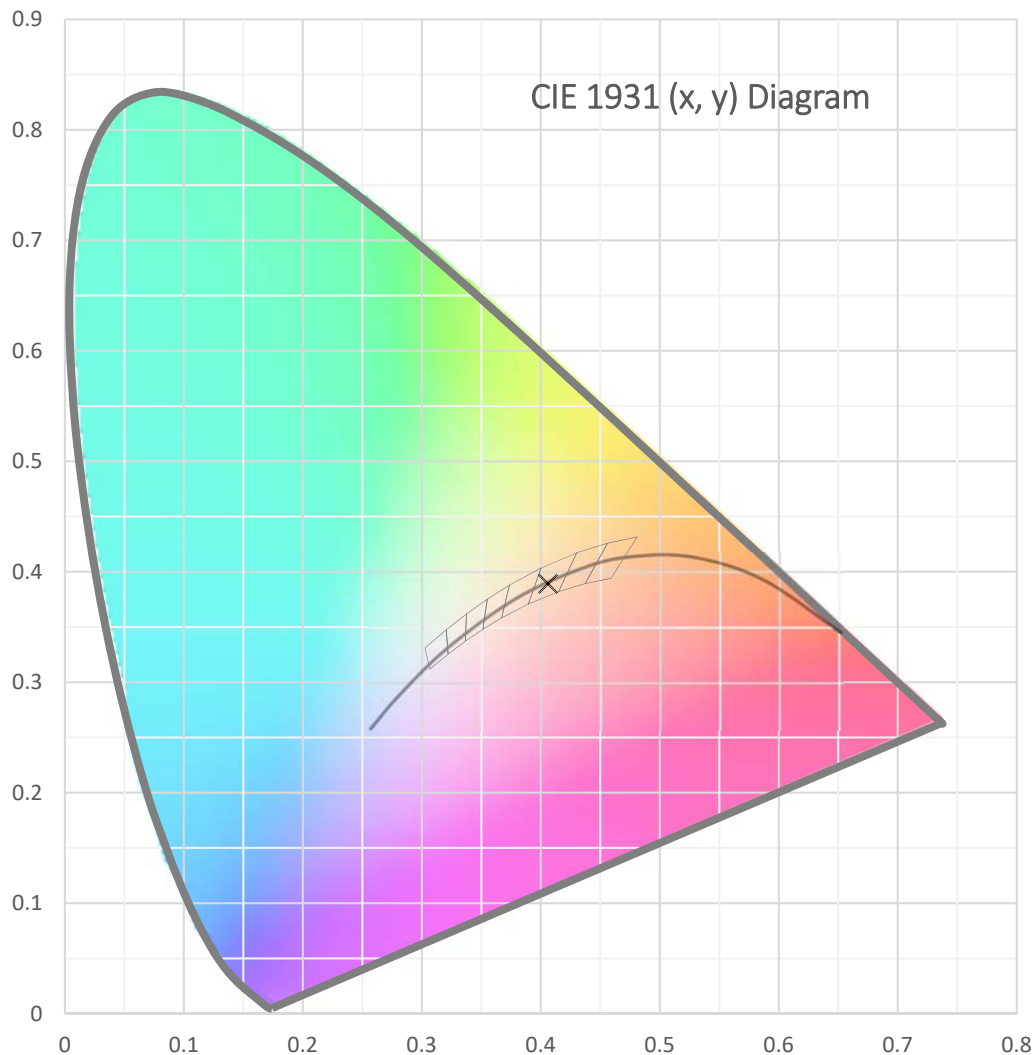
Test Report Number: LLIA000833-005B

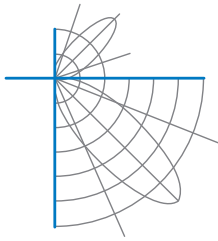
Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV

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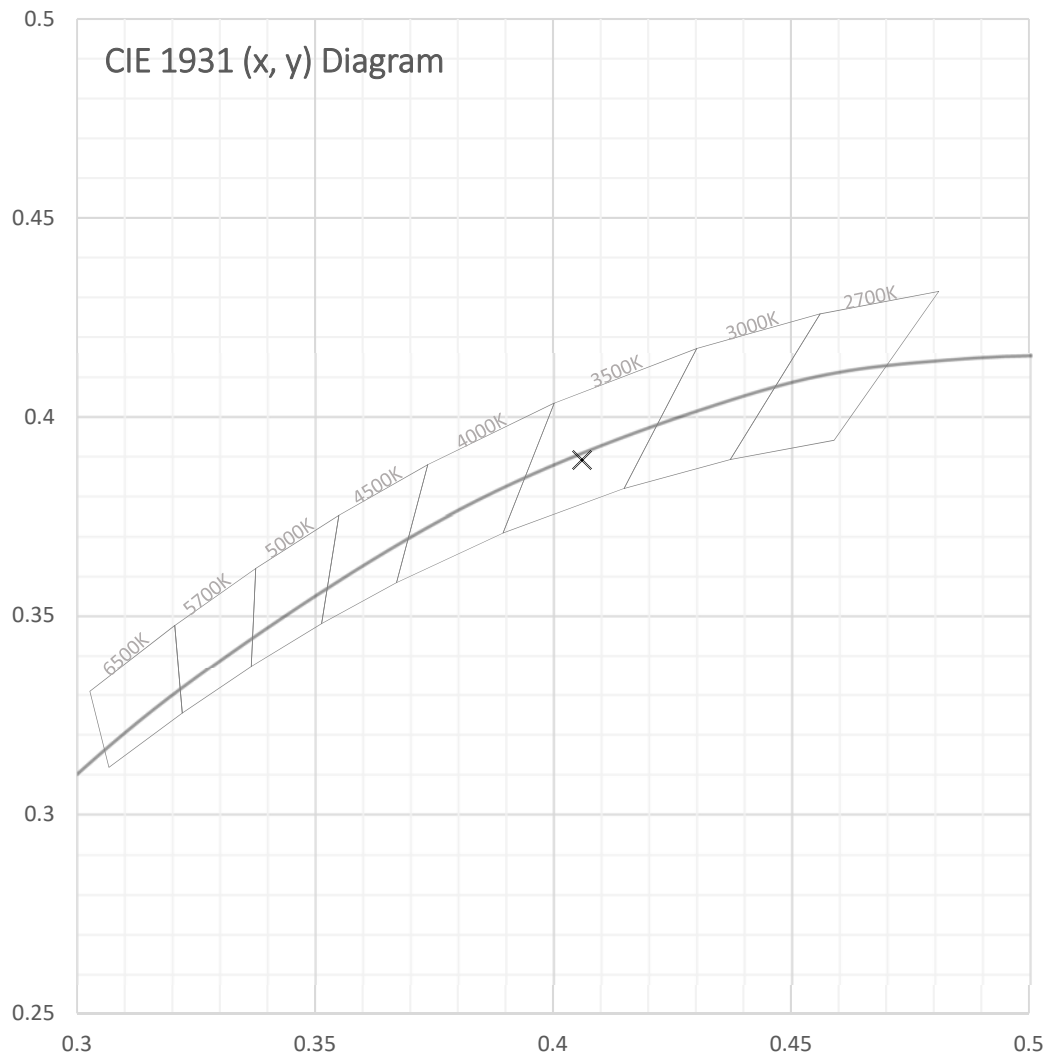
Test Report Number: LLIA000833-005B

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Test Report Number: LLIA000833-005B

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver

Spectral Data

Total Radiant Flux	27.05 W
Total Luminous Flux	8756.3 Lm
Chromaticity CIE 1931 (x, y)	(0.4061, 0.3891)
Chromaticity CIE 1976 (u', v')	(0.2369, 0.5107)
Correlated Color Temperature (CCT)	3469 K
Color Rendering Index (Ra)	84
R1	82
R2	91
R3	96
R4	82
R5	82
R6	88
R7	85
R8	64
R9	14
R10	79
R11	80
R12	66
R13	85
R14	98
Distance from Planckian Locus (Duv)	-0.0009
Scotopic/Photopic Ratio *	1.533

Electrical Data

Voltage	120.0 Vac
Current	0.6913 A
Power	82.63 W
Frequency	60.00 Hz
Power Factor	0.997
Current THD	7.8 %



Test Report Number: LLIA000833-005B

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV

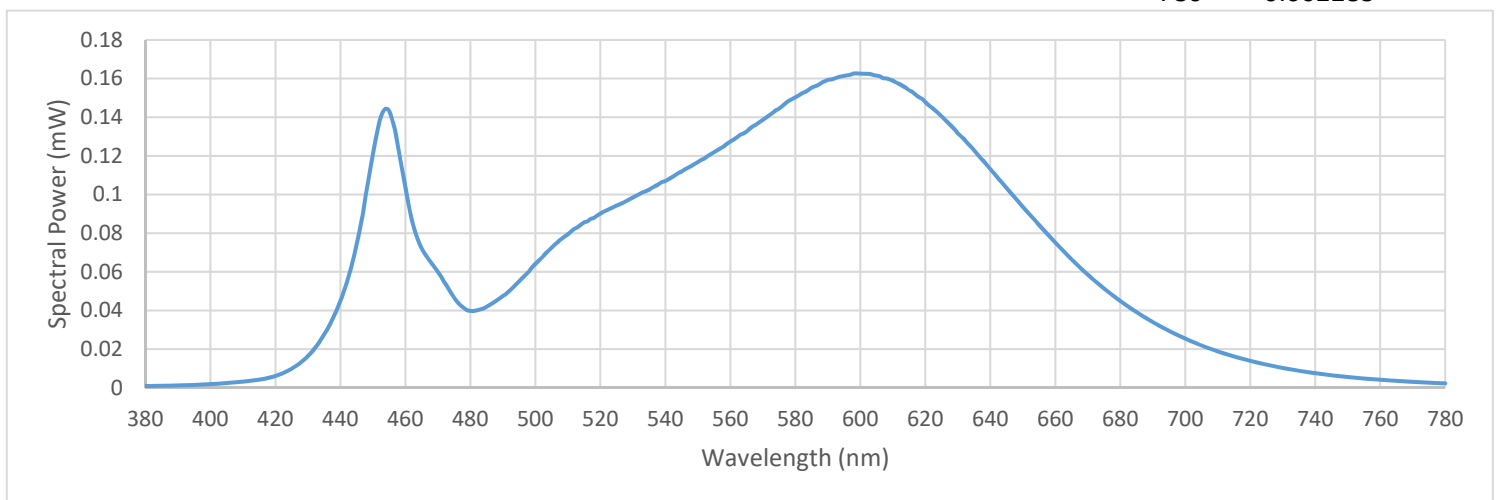
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
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272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.

One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver

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

380	0.000909	480	0.039785	580	0.150338	680	0.044865
385	0.000978	485	0.041953	585	0.155284	685	0.039147
390	0.001184	490	0.047499	590	0.159317	690	0.034007
395	0.001457	495	0.054979	595	0.161381	695	0.029372
400	0.001879	500	0.064163	600	0.162545	700	0.025456
405	0.002448	505	0.072497	605	0.161535	705	0.021898
410	0.003167	510	0.079435	610	0.158982	710	0.018792
415	0.004193	515	0.085570	615	0.153945	715	0.016223
420	0.006161	520	0.090075	620	0.147832	720	0.013913
425	0.009854	525	0.094292	625	0.140459	725	0.011933
430	0.016507	530	0.098383	630	0.131644	730	0.010270
435	0.027636	535	0.102498	635	0.122883	735	0.008777
440	0.044941	540	0.106956	640	0.113143	740	0.007527
445	0.074319	545	0.111924	645	0.103332	745	0.006471
450	0.120997	550	0.116738	650	0.093597	750	0.005562
455	0.143235	555	0.121849	655	0.084135	755	0.004792
460	0.103632	560	0.127304	660	0.075256	760	0.004157
465	0.072139	565	0.132548	665	0.066397	765	0.003578
470	0.060116	570	0.138574	670	0.058525	770	0.003062
475	0.046402	575	0.144430	675	0.051395	775	0.002650
						780	0.002283





Test Report Number: LLIA000833-005B

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-AL-XXXX-UNV

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

272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.

One Osram Optotronic Oti 50/120-277/1A4 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:	24.8 °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 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.