



Report of Test

LLIA000824-023A

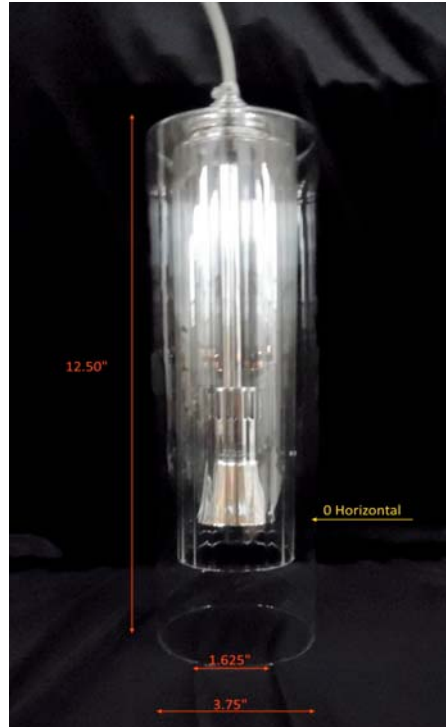
Catalog Number: 3-609-14 Gratis Pendant

Pendant mounted, formed steel canopy, formed steel center lamp holder with cast aluminum heatsink, spun steel reflector, frosted glass enclosure below LEDs, clear glass outer enclosures.

12 white LEDs, one Harvard Engineering LEDENG-163-930 LED board

One LTF DA6W150C2040LPD010-0014 dimming LED driver.

120.0Vac, 60.00Hz, 0.0580A, 6.50W, 0.935PF, 10.5%THD(i)



Performance Summary

Total Light Output	391 lm
Luminaire Power	6.50 W
Luminous Efficacy	60.2 lm/W

PREPARED FOR : Oxygen Lighting, 201 Railhead Road, Fort Worth, TX 76106, USA



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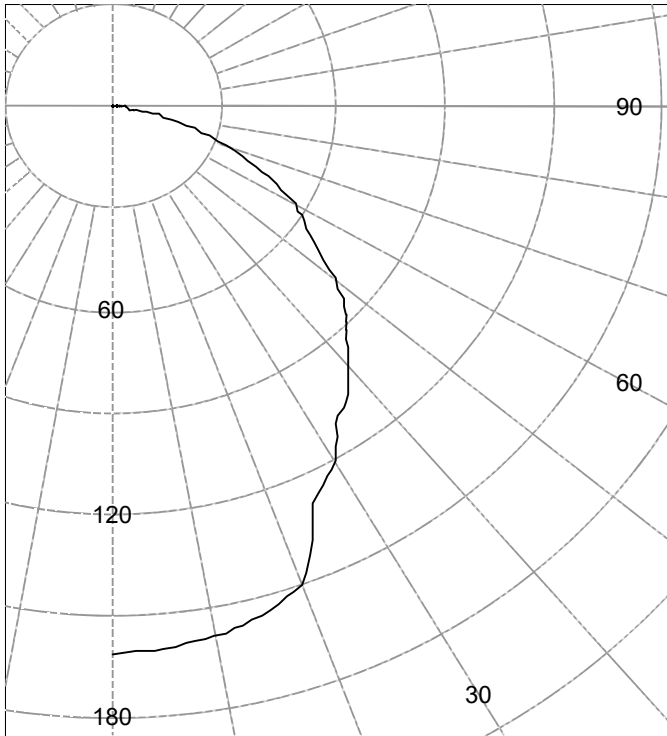
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Legend: All planes - Solid (cd)



(Rotational symmetry)

AVERAGE LUMINANCE (cd / m²)

Gamma	C0
45.0	88055
55.0	76248
65.0	66776
75.0	44315
85.0	17451

INTENSITY SUMMARY (cd)

Gamma	All Planes	Flux (lm)	Gamma	C0	Flux (lm)
0	161		90	1	
5	160	15	95	1	1
10	158		100	1	
15	155	44	105	0	1
20	150		110	0	
25	129	61	115	0	0
30	120		120	0	
35	109	68	125	0	0
40	100		130	0	
45	90	69	135	0	0
50	79		140	0	
55	65	59	145	0	0
60	57		150	0	
65	45	44	155	0	0
70	33		160	0	
75	20	22	165	0	0
80	11		170	0	
85	4	5	175	0	0
90	1		180	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	%Lamp	%Luminaire
0-30	120	N / A	30.6
0-40	188	N / A	48.1
0-60	317	N / A	81.0
0-90	388	N / A	99.3
40-90	200	N / A	51.2
60-90	71	N / A	18.2
90-180	3	N / A	0.7
0-180	391	N / A	100.0

Total Light Output = 391 lm

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

Signed:

Authorized Signatory

Date of test 14-Sep-2017
Date of report 20-Sep-2017



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Intensity (cd) and Flux (lm) data

Gamma	Intensity	Flux	Gamma	Intensity	Flux
0.0	161		90.0	1	
2.5	161		92.5	1	
5.0	160	15	95.0	1	
7.5	160		97.5	1	1
10.0	158		100.0	1	
12.5	157		102.5	1	
15.0	155	44	105.0	0	
17.5	153		107.5	0	1
20.0	150		110.0	0	
22.5	141		112.5	0	
25.0	129	61	115.0	0	
27.5	124		117.5	0	0
30.0	120		120.0	0	
32.5	113		122.5	0	
35.0	109	68	125.0	0	
37.5	106		127.5	0	0
40.0	100		130.0	0	
42.5	95		132.5	0	
45.0	90	69	135.0	0	
47.5	85		137.5	0	0
50.0	79		140.0	0	
52.5	71		142.5	0	
55.0	65	59	145.0	0	
57.5	61		147.5	0	0
60.0	57		150.0	0	
62.5	51		152.5	0	
65.0	45	44	155.0	0	
67.5	39		157.5	0	0
70.0	33		160.0	0	
72.5	26		162.5	0	
75.0	20	22	165.0	0	
77.5	15		167.5	0	0
80.0	11		170.0	0	
82.5	7		172.5	0	
85.0	4	5	175.0	0	
87.5	2		177.5	0	0
90.0	1		180.0	0	



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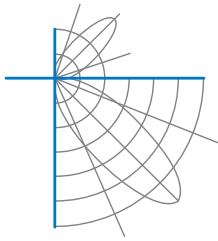
One LTF DA6W150C2040LPD010-0014 dimming LED driver.

120.0Vac, 60.00Hz, 0.0580A, 6.50W, 0.935PF, 10.5%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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	101	101	101	99
1	109	105	101	97	106	102	99	95	98	95	92	94	92	89	90	88	86	84
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	76	73	71
3	91	81	73	67	89	79	72	66	76	70	65	74	68	64	71	66	63	60
4	84	72	64	57	81	71	63	57	68	61	56	66	60	55	64	58	54	52
5	77	65	56	50	75	64	55	49	61	54	49	59	53	48	57	52	47	45
6	71	58	50	44	70	58	49	43	56	48	43	54	47	42	52	47	42	40
7	66	53	45	39	65	52	44	38	51	43	38	49	43	38	48	42	38	36
8	62	49	40	35	60	48	40	35	47	39	34	45	39	34	44	38	34	32
9	58	45	37	31	56	44	37	31	43	36	31	42	35	31	41	35	31	29
10	54	41	34	29	53	41	33	28	40	33	28	39	33	28	38	32	28	26

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	4.5	6.76	6.76
8.0	2.5	9.01	9.01
10.0	1.6	11.26	11.26
12.0	1.1	13.52	13.52
14.0	0.8	15.77	15.77
16.0	0.6	18.02	18.02



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120.0Vac, 60.00Hz, 0.0580A, 6.50W, 0.935PF, 10.5%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

LLIA000824-023B

Integrating Sphere Report

Catalog Number: 3-609-14 Gratis Pendant

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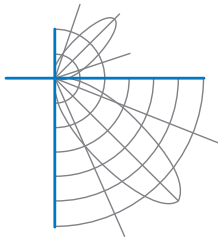
Performance Summary

Voltage	120.0 Vac
Current	0.0580 A
Power	6.51 W
Frequency	60.00 Hz
Power Factor	0.935
Current THD	10.6 %
Total Luminous Flux	390.9 lm
Efficacy	60.0 lm/W
Chromaticity (x,y)	(0.4337, 0.3968)
(u',v')	(0.2516, 0.5180)
Duv	-0.0025
CCT	2995 K
CRI (Ra)	97
R9	86

Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 09/14/2017

Report date: 09/20/2017



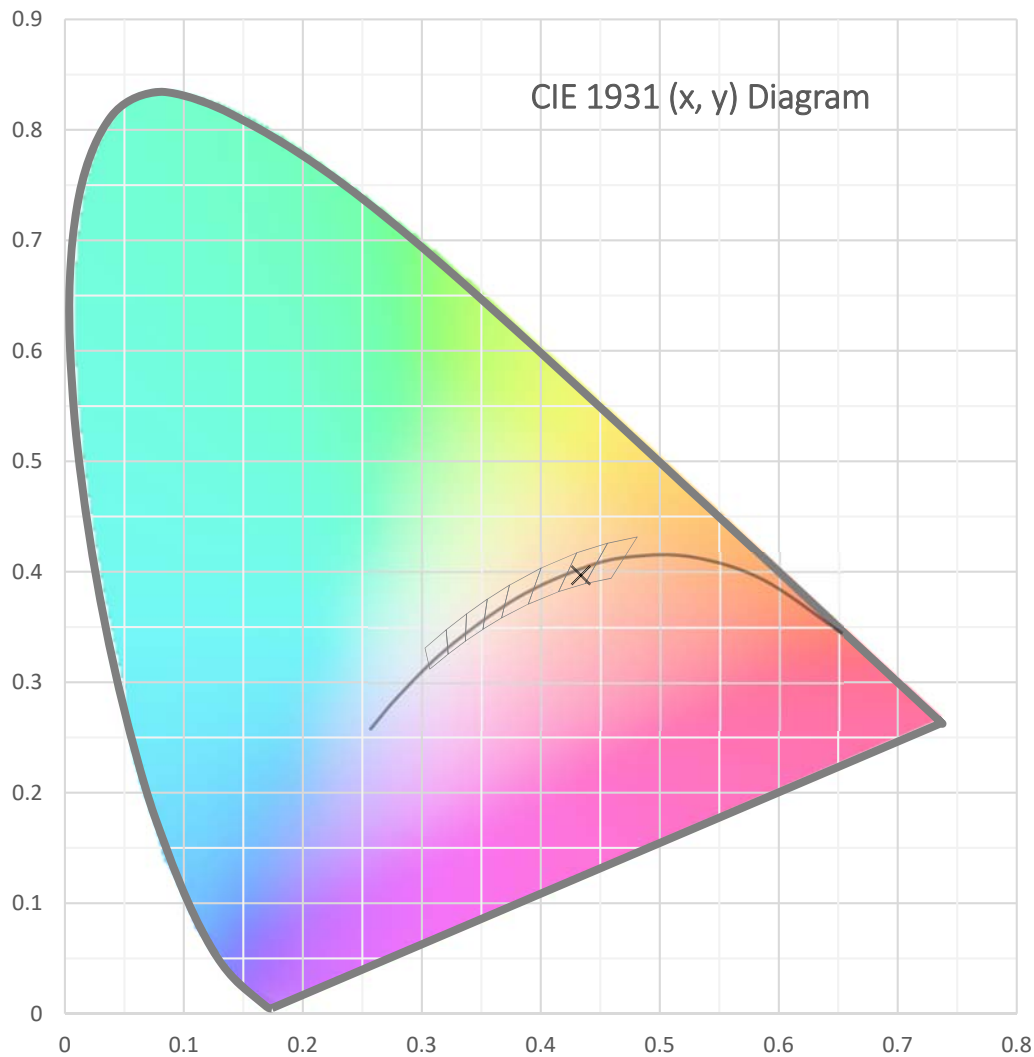
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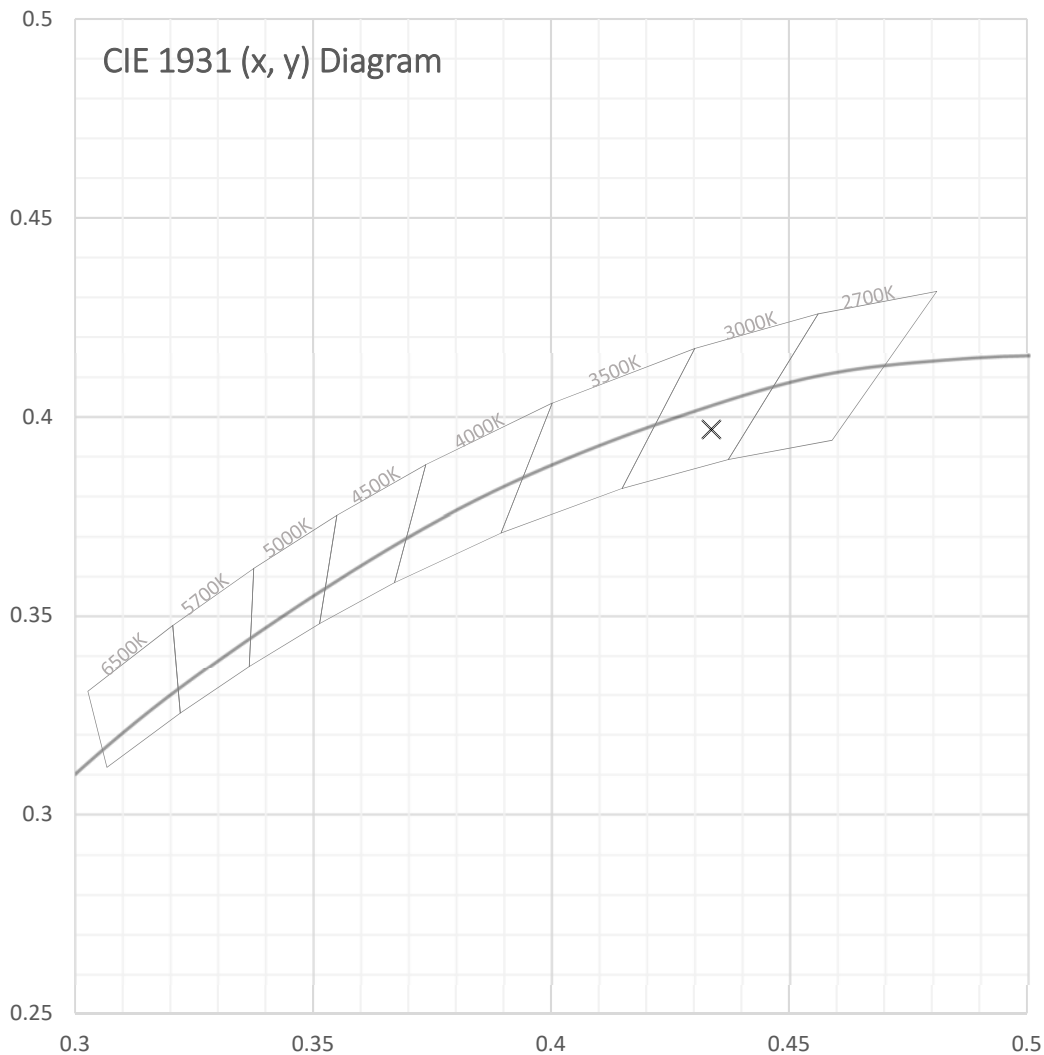




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Spectral Data

Total Radiant Flux	1.464 W
Total Luminous Flux	390.9 Lm
Chromaticity CIE 1931 (x, y)	(0.4337, 0.3968)
Chromaticity CIE 1976 (u', v')	(0.2516, 0.5180)
Correlated Color Temperature (CCT)	2995 K
Color Rendering Index (Ra)	97
R1	99
R2	99
R3	96
R4	97
R5	98
R6	97
R7	96
R8	94
R9	86
R10	95
R11	97
R12	85
R13	99
R14	97
Distance from Planckian Locus (Duv)	-0.0025
Scotopic/Photopic Ratio *	1.450

Electrical Data

Voltage	120.0 Vac
Current	0.0580 A
Power	6.51 W
Frequency	60.00 Hz
Power Factor	0.935
Current THD	10.6 %



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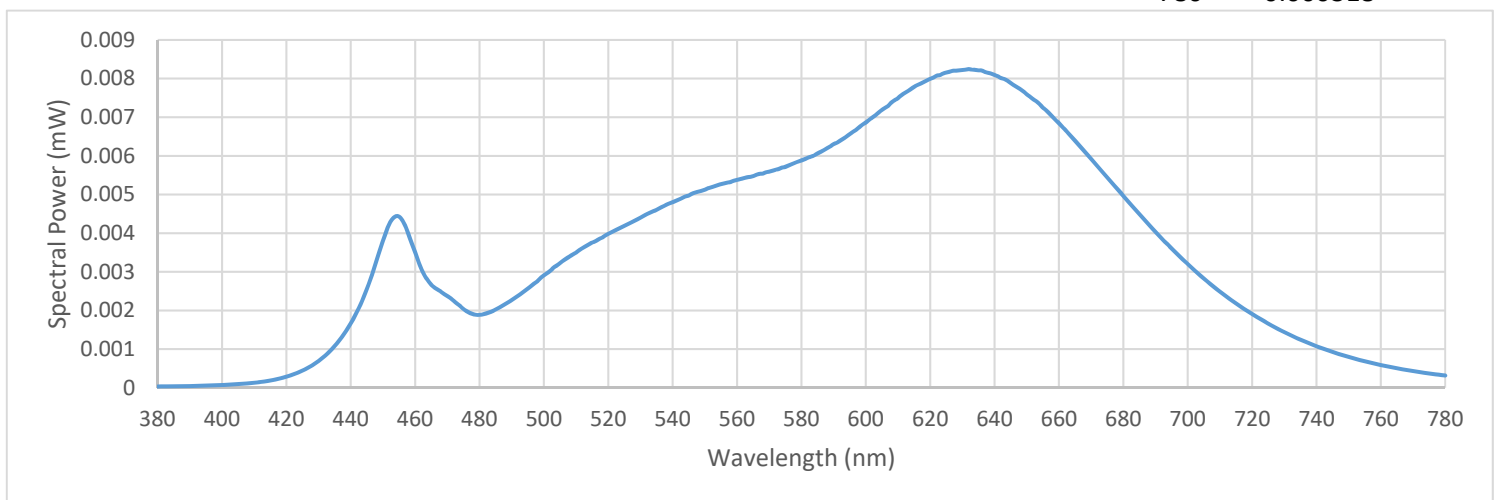
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000035	480	0.001885	580	0.005881	680	0.004962
385	0.000037	485	0.002028	585	0.006064	685	0.004494
390	0.000045	490	0.002266	590	0.006305	690	0.004036
395	0.000055	495	0.002563	595	0.006563	695	0.003594
400	0.000071	500	0.002908	600	0.006859	700	0.003206
405	0.000095	505	0.003225	605	0.007189	705	0.002832
410	0.000130	510	0.003499	610	0.007493	710	0.002484
415	0.000187	515	0.003759	615	0.007785	715	0.002184
420	0.000288	520	0.003984	620	0.007988	720	0.001907
425	0.000446	525	0.004190	625	0.008158	725	0.001658
430	0.000695	530	0.004400	630	0.008225	730	0.001444
435	0.001080	535	0.004602	635	0.008211	735	0.001245
440	0.001667	540	0.004800	640	0.008094	740	0.001072
445	0.002559	545	0.004974	645	0.007885	745	0.000927
450	0.003804	550	0.005128	650	0.007591	750	0.000796
455	0.004429	555	0.005266	655	0.007249	755	0.000685
460	0.003507	560	0.005378	660	0.006851	760	0.000592
465	0.002663	565	0.005473	665	0.006390	765	0.000507
470	0.002377	570	0.005590	670	0.005915	770	0.000433
475	0.002032	575	0.005713	675	0.005443	775	0.000371
						780	0.000318





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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: 24.0 °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 environmental conditions than that tested, may produce erroneous results.

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