LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA000824-024A

Catalog Number: 3-635 Idol Pendant
Pendant mounted, formed steel canopy, spun aluminum housing,
cast aluminum heatsink and lamp holder with frosted glass enclosure below LEDs.
12 white LEDs, one Harvard Engineering LEDENG-163-930 LED board
One LTF DA6W150C2040LPD010-0014 dimming LED driver.
120.0Vac, 60.00Hz, 0.0593A, 6.64W, 0.934PF, 10.3%THD(i)

Performance Summary

Total Light Output	334	lm
Luminaire Power	6.64	W
Luminous Efficacy	50.3	lm/W

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

USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085, Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com

USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103, Ph: +1 484-273-0705, www.lightlabint.com (issuing laboratory)

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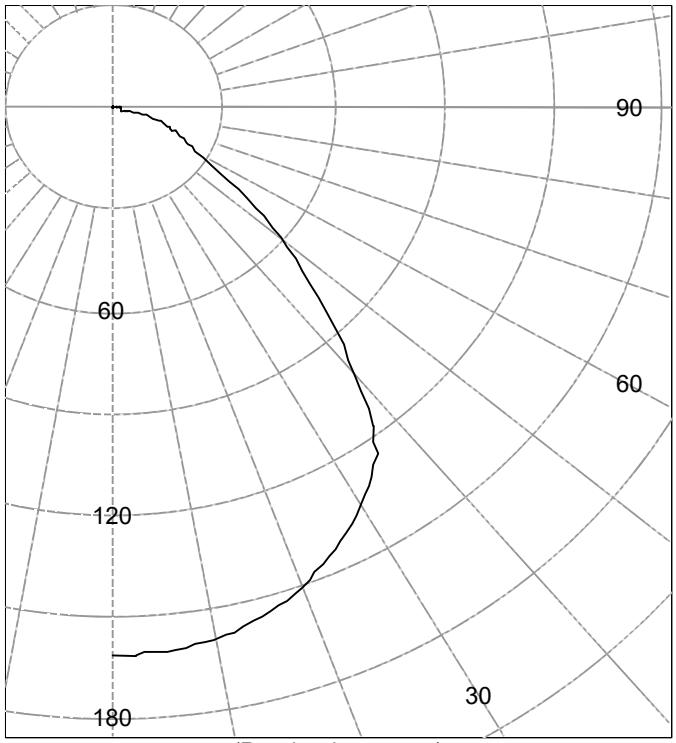
Legend: All planes - Solid (cd)



(Rotational symmetry)

INTENSITY SUMMARY (cd)

Gamma	All Planes	Flux (lm)	Gamma	C0	Flux (lm)
0	161		90	0	
5	161	15	95	0	0
10	159		100	0	
15	155	44	105	0	0
20	150		110	0	
25	143	66	115	0	0
30	135		120	0	
35	125	76	125	0	0
40	102		130	0	
45	79	61	135	0	0
50	59		140	0	
55	42	37	145	0	0
60	25		150	0	
65	20	20	155	0	0
70	16		160	0	
75	11	11	165	0	0
80	5		170	0	
85	1	2	175	0	0
90	0		180	0	

AVERAGE LUMINANCE (cd / m^2)

Gamma	C0
45.0	34852
55.0	22509
65.0	14894
75.0	13059
85.0	5286

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	%Lamp	%Luminaire
0-30	125	N / A	37.5
0-40	202	N / A	60.4
0-60	300	N / A	89.9
0-90	333	N / A	99.8
40-90	132	N / A	39.4
60-90	33	N / A	9.9
90-180	1	N / A	0.2
0-180	334	N / A	100.0

Total Light Output = 334 lm

Signed: Michael L. Grather

Authorized Signatory

Date of test 13-Sep-2017

Date of report 14-Sep-2017

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120.0Vac, 60.00Hz, 0.0593A, 6.64W, 0.934PF, 10.3%THD(i)

Intensity (cd) and Flux (lm) data

Gamma	Intensity	Flux	Gamma	Intensity	Flux
0.0	161		90.0	0	
2.5	161		92.5	0	
5.0	161	15	95.0	0	
7.5	160		97.5	0	0
10.0	159		100.0	0	
12.5	157		102.5	0	
15.0	155	44	105.0	0	
17.5	153		107.5	0	0
20.0	150		110.0	0	
22.5	147		112.5	0	
25.0	143	66	115.0	0	
27.5	140		117.5	0	0
30.0	135		120.0	0	
32.5	130		122.5	0	
35.0	125	76	125.0	0	
37.5	115		127.5	0	0
40.0	102		130.0	0	
42.5	91		132.5	0	
45.0	79	61	135.0	0	
47.5	68		137.5	0	0
50.0	59		140.0	0	
52.5	50		142.5	0	
55.0	42	37	145.0	0	
57.5	33		147.5	0	0
60.0	25		150.0	0	
62.5	23		152.5	0	
65.0	20	20	155.0	0	
67.5	18		157.5	0	0
70.0	16		160.0	0	
72.5	14		162.5	0	
75.0	11	11	165.0	0	
77.5	7		167.5	0	0
80.0	5		170.0	0	
82.5	3		172.5	0	
85.0	1	2	175.0	0	
87.5	1		177.5	0	0
90.0	0		180.0	0	

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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
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	103	100	108	105	101	99	100	98	95	97	94	93	93	91	90	88
2	102	96	90	85	100	94	88	84	90	86	82	87	83	80	84	81	78	76
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67
4	88	77	70	64	86	76	69	63	74	67	62	71	66	62	69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	54	49	60	54	49	58	53	49	47
7	71	58	50	45	69	58	50	45	56	49	44	55	49	44	53	48	44	42
8	66	54	46	41	65	53	46	40	52	45	40	51	44	40	49	44	40	38
9	62	50	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	35
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32

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	4.5	7.46	7.46
8.0	2.5	9.95	9.95
10.0	1.6	12.43	12.43
12.0	1.1	14.92	14.92
14.0	0.8	17.41	17.41
16.0	0.6	19.89	19.89

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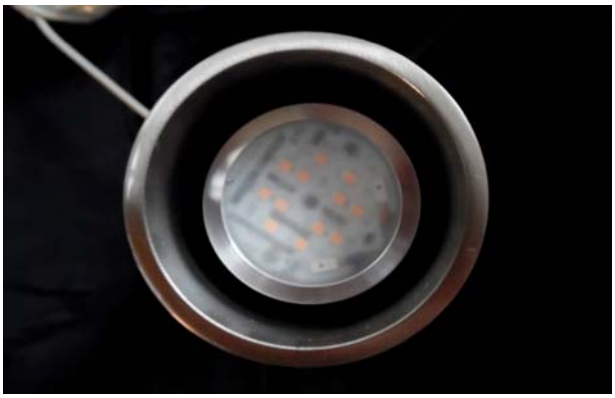

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Test Distance	9.5 m
Test Temperature	25.0 °C

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.

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Report of Test

LLIA000824-024B

Integrating Sphere Report
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Performance Summary

Voltage	120.0	Vac
Current	0.0591	A
Power	6.63	W
Frequency	60.00	Hz
Power Factor	0.934	
Current THD	10.2	%
Total Luminous Flux	330.1	lm
Efficacy	49.8	lm/W
Chromaticity (x,y)	(0.4303, 0.3963)	
(u',v')	(0.2497, 0.5173)	
Duv	-0.0022	
CCT	3050	K
CRI (Ra)	97	
R9	88	

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

Test date: 09/12/2017
Report date: 09/14/2017

Test Report Number: LLIA000824-024B

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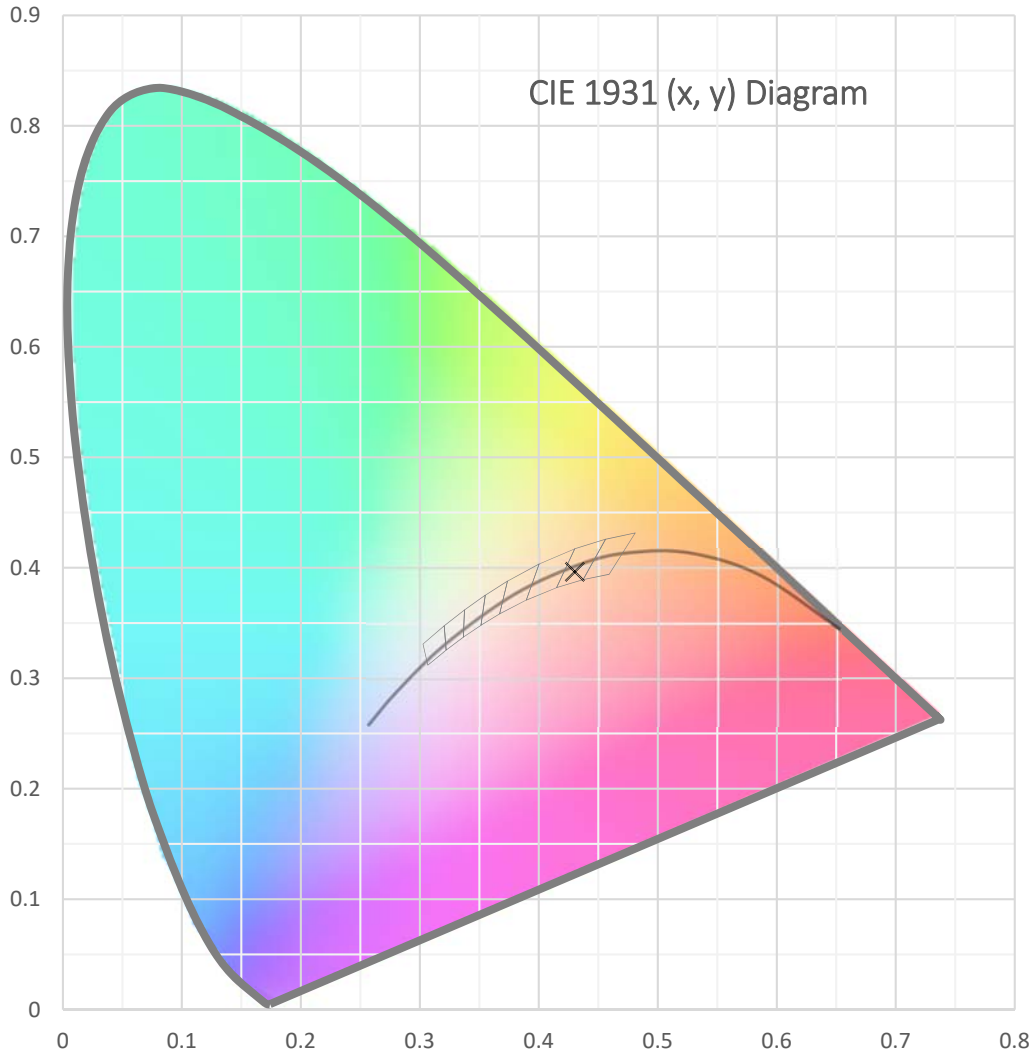

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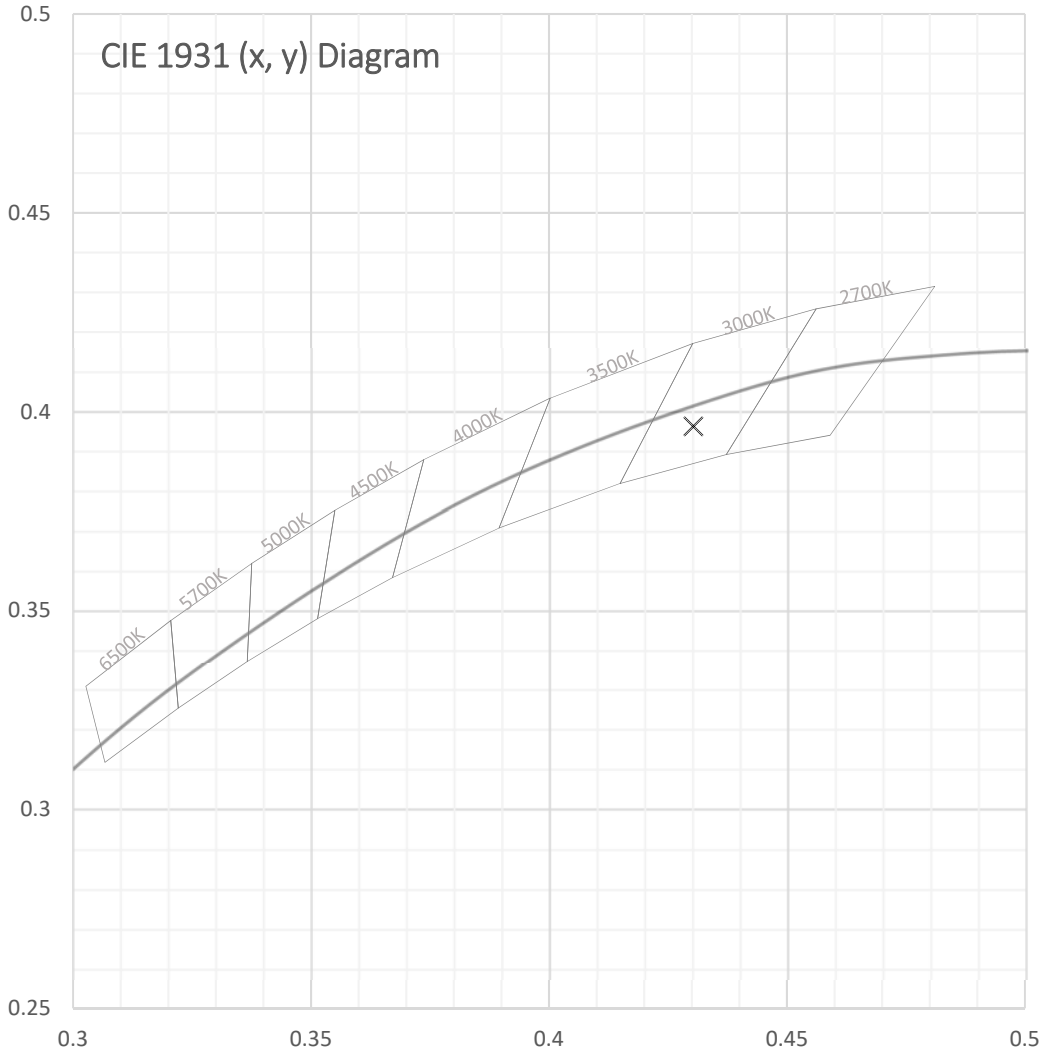

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Spectral Data	Total Radiant Flux	1.233	W
	Total Luminous Flux	330.1	Lm
	Chromaticity CIE 1931 (x, y)	(0.4303, 0.3963)	
	Chromaticity CIE 1976 (u', v')	(0.2497, 0.5173)	
	Correlated Color Temperature (CCT)	3050	K
	Color Rendering Index (Ra)	97	
	R1	99	
	R2	99	
	R3	96	
	R4	98	
	R5	98	
	R6	97	
	R7	97	
	R8	95	
	R9	88	
	R10	95	
	R11	97	
	R12	85	
	R13	99	
	R14	97	
	Distance from Planckian Locus (Duv)	-0.0022	
	Scotopic/Photopic Ratio *	1.474	
Electrical Data			
	Voltage	120.0	Vac
	Current	0.0591	A
	Power	6.63	W
	Frequency	60.00	Hz
	Power Factor	0.934	
	Current THD	10.2	%

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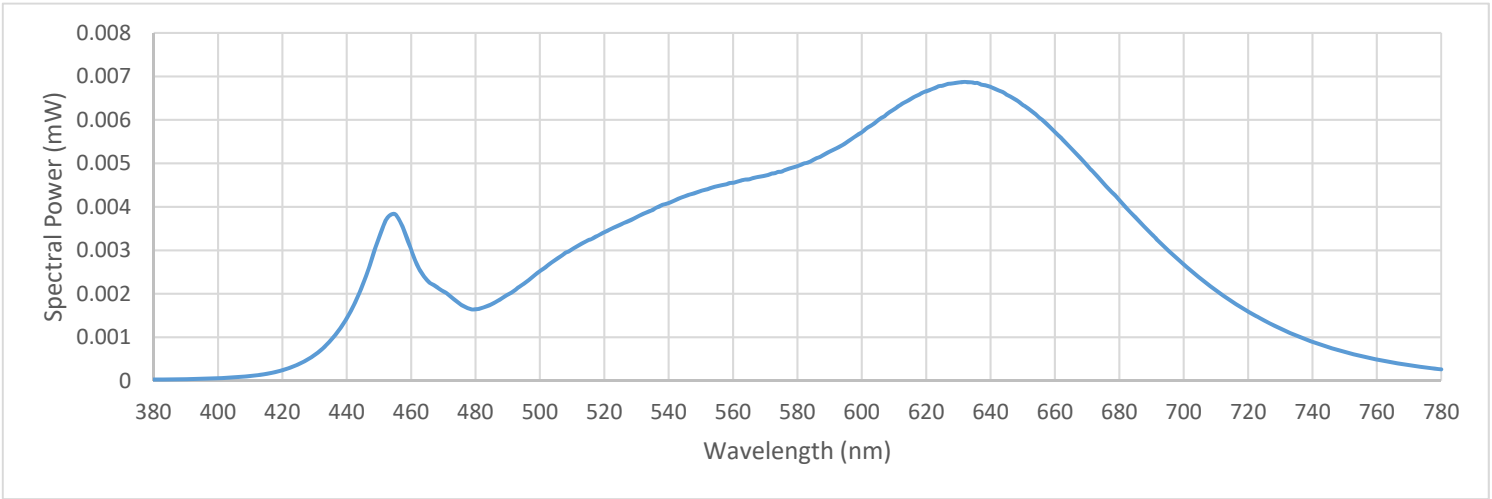
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000028	480	0.001645	580	0.004938	680	0.004152
385	0.000030	485	0.001763	585	0.005085	685	0.003761
390	0.000036	490	0.001978	590	0.005271	690	0.003376
395	0.000045	495	0.002232	595	0.005469	695	0.003008
400	0.000059	500	0.002526	600	0.005712	700	0.002678
405	0.000078	505	0.002790	605	0.005992	705	0.002366
410	0.000109	510	0.003021	610	0.006238	710	0.002077
415	0.000158	515	0.003234	615	0.006467	715	0.001824
420	0.000245	520	0.003418	620	0.006656	720	0.001593
425	0.000379	525	0.003590	625	0.006785	725	0.001383
430	0.000596	530	0.003758	630	0.006860	730	0.001204
435	0.000930	535	0.003927	635	0.006850	735	0.001038
440	0.001438	540	0.004085	640	0.006759	740	0.000893
445	0.002222	545	0.004243	645	0.006580	745	0.000770
450	0.003288	550	0.004363	650	0.006344	750	0.000663
455	0.003832	555	0.004477	655	0.006058	755	0.000569
460	0.003023	560	0.004552	660	0.005725	760	0.000490
465	0.002310	565	0.004632	665	0.005346	765	0.000420
470	0.002058	570	0.004717	670	0.004950	770	0.000358
475	0.001772	575	0.004809	675	0.004551	775	0.000308
						780	0.000263



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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 4π geometry
Test Temperature:	25.2 °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.

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