



Report of Test

LLIA000898-002A

Catalog Number: 3-648-6 Rhythm 10"
Ceiling mounted, formed white enamel steel
housing/reflector, translucent white plastic enclosure.
24 white LEDs, one Harvard Engineering LEDENG-165-930 LED boards
One L.T.F. DA12W350C1834D010-0014 dimming LED driver.
120.0Vac, 60.00Hz, 0.0899A, 10.30W, 0.956PF, 11.6%THD(i)



Performance Summary

Total Light Output	803 lm
Luminaire Power	10.3 W
Luminous Efficacy	78.0 lm/W

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



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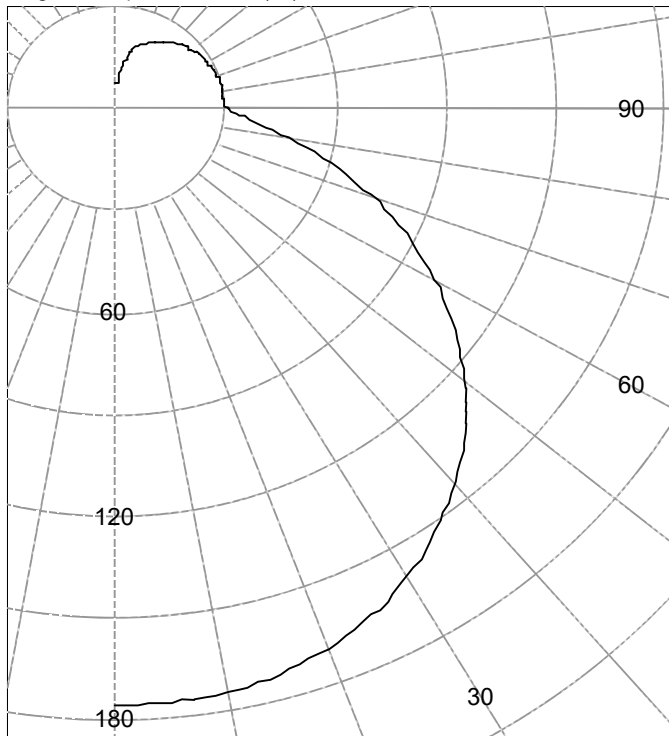
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Legend: All planes - Solid (cd)



(Rotational symmetry)

AVERAGE LUMINANCE (cd / m²)

Gamma	C0
45.0	2991
55.0	2842
65.0	2636
75.0	2364
85.0	2139

INTENSITY SUMMARY (cd)

Gamma	All Planes	Flux (lm)	Gamma	C0	Flux (lm)
0	176		90	31	
5	176	17	95	29	32
10	175		100	30	
15	173	49	105	29	31
20	169		110	29	
25	165	76	115	29	29
30	159		120	29	
35	152	95	125	28	25
40	144		130	27	
45	135	104	135	27	21
50	124		140	26	
55	113	101	145	24	15
60	100		150	23	
65	87	86	155	22	10
70	74		160	20	
75	61	64	165	19	5
80	48		170	15	
85	37	41	175	11	1
90	31		180	7	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	%Lamp	%Luminaire
0-30	142	N / A	17.6
0-40	237	N / A	29.5
0-60	441	N / A	55.0
0-90	633	N / A	78.9
40-90	396	N / A	49.4
60-90	192	N / A	23.9
90-180	170	N / A	21.1
0-180	803	N / A	100.0

Total Light Output = 803 lm

Spacing Criterion: 0-180 1.4
Spacing Criterion: 90-270 1.4

Signed:

Authorized Signatory

Date of test 8-Nov-2017
Date of report 10-Nov-2017



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Intensity (cd) and Flux (lm) data

Gamma	Intensity	Flux	Gamma	Intensity	Flux
0.0	176		90.0	31	
2.5	176		92.5	30	
5.0	176	17	95.0	29	
7.5	175		97.5	29	32
10.0	175		100.0	30	
12.5	174		102.5	30	
15.0	173	49	105.0	29	
17.5	171		107.5	29	31
20.0	169		110.0	29	
22.5	167		112.5	29	
25.0	165	76	115.0	29	
27.5	162		117.5	29	29
30.0	159		120.0	29	
32.5	156		122.5	28	
35.0	152	95	125.0	28	
37.5	148		127.5	28	25
40.0	144		130.0	27	
42.5	139		132.5	27	
45.0	135	104	135.0	27	
47.5	129		137.5	26	21
50.0	124		140.0	26	
52.5	119		142.5	25	
55.0	113	101	145.0	24	
57.5	107		147.5	24	15
60.0	100		150.0	23	
62.5	94		152.5	23	
65.0	87	86	155.0	22	
67.5	81		157.5	21	10
70.0	74		160.0	20	
72.5	67		162.5	20	
75.0	61	64	165.0	19	
77.5	54		167.5	17	5
80.0	48		170.0	15	
82.5	42		172.5	13	
85.0	37	41	175.0	11	
87.5	33		177.5	8	1
90.0	31		180.0	7	



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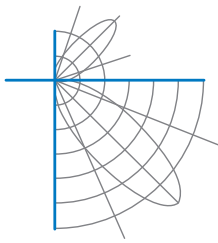
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Coefficients Of Utilization - Zonal Cavity Method																		
Effective Floor Cavity Reflectance 0.20																		
RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
0	114	114	114	114	109	109	109	109	99	99	99	91	91	91	83	83	83	79
1	102	97	92	87	97	92	88	84	84	80	77	77	74	71	70	67	65	62
2	92	83	76	69	87	79	73	67	72	67	62	66	61	58	60	56	53	50
3	83	72	64	57	79	69	61	55	63	57	51	57	52	48	52	48	44	41
4	76	64	54	47	72	61	52	46	56	49	43	51	45	40	46	41	37	35
5	70	56	47	40	66	54	45	39	49	42	37	45	39	34	41	36	32	30
6	64	50	41	35	61	48	40	34	44	37	32	41	35	30	37	32	28	26
7	59	46	37	30	56	44	35	30	40	33	28	37	31	26	34	29	25	22
8	55	41	33	27	52	40	32	26	37	30	25	34	28	23	31	26	22	20
9	51	38	30	24	49	36	29	23	34	27	22	31	25	21	29	24	20	18
10	48	35	27	22	46	33	26	21	31	24	20	29	23	19	27	22	18	16

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	4.9	8.07	8.07
8.0	2.7	10.75	10.75
10.0	1.8	13.44	13.44
12.0	1.2	16.13	16.13
14.0	0.9	18.82	18.82
16.0	0.7	21.51	21.51



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Test Distance 9.5 m
Test Temperature 24.4 °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

LLIA000898-002B

Integrating Sphere Report

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Performance Summary

Voltage	120.0 Vac
Current	0.0895 A
Power	10.29 W
Frequency	59.97 Hz
Power Factor	0.958
Current THD	11.6 %

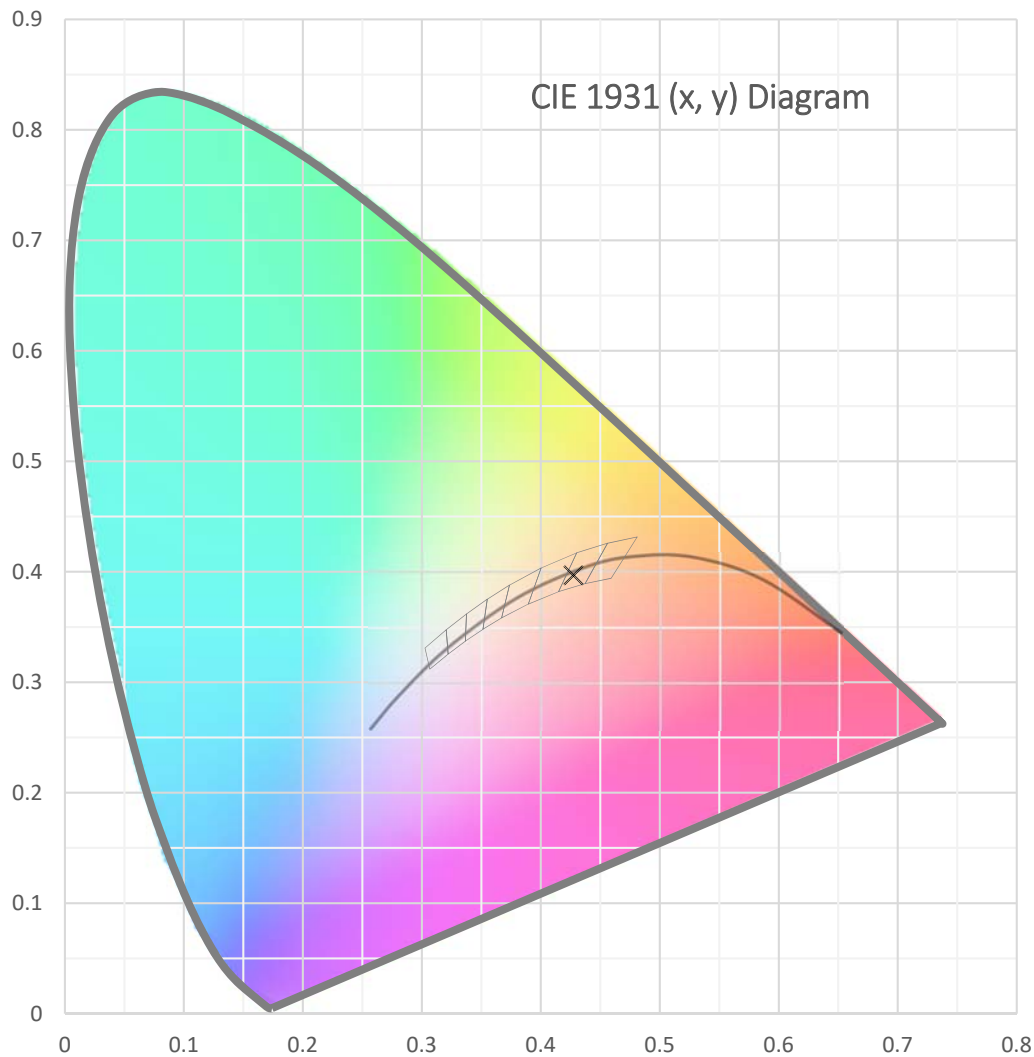
Total Luminous Flux	803.8 lm
Efficacy	78.1 lm/W
Chromaticity (x,y)	(0.4275, 0.3967)
(u',v')	(0.2476, 0.5170)
Duv	-0.0016
CCT	3104 K
CRI (Ra)	93
R9	64

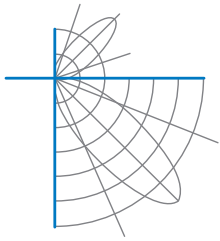
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 11/07/2017
Report date: 11/10/2017

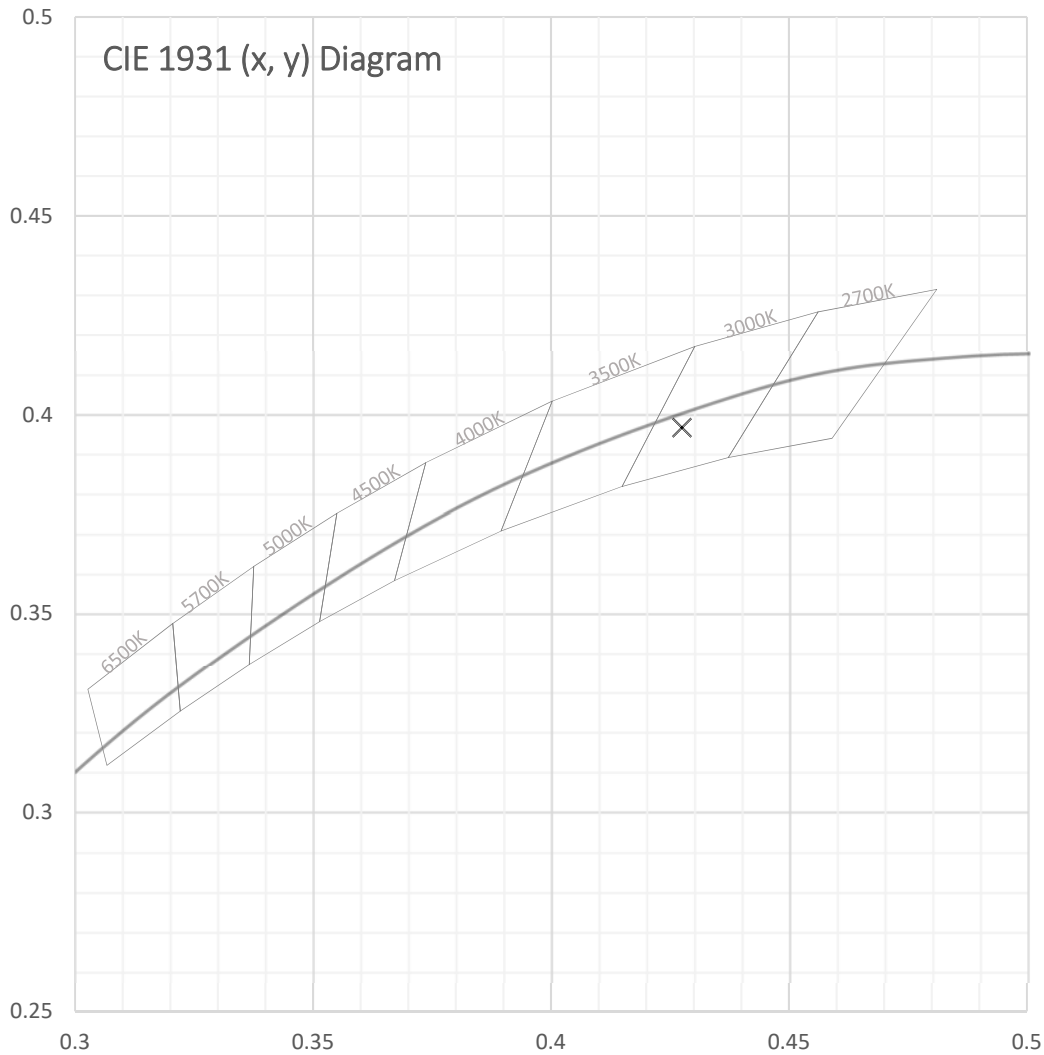


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Spectral Data

Total Radiant Flux	2.834 W
Total Luminous Flux	803.8 Lm
Chromaticity CIE 1931 (x, y)	(0.4275, 0.3967)
Chromaticity CIE 1976 (u', v')	(0.2476, 0.5170)
Correlated Color Temperature (CCT)	3104 K
Color Rendering Index (Ra)	93
R1	94
R2	96
R3	97
R4	94
R5	93
R6	95
R7	93
R8	84
R9	64
R10	90
R11	94
R12	83
R13	94
R14	97
Distance from Planckian Locus (Duv)	-0.0016
Scotopic/Photopic Ratio *	1.458

Electrical Data

Voltage	120.0 Vac
Current	0.0895 A
Power	10.29 W
Frequency	59.97 Hz
Power Factor	0.958
Current THD	11.6 %



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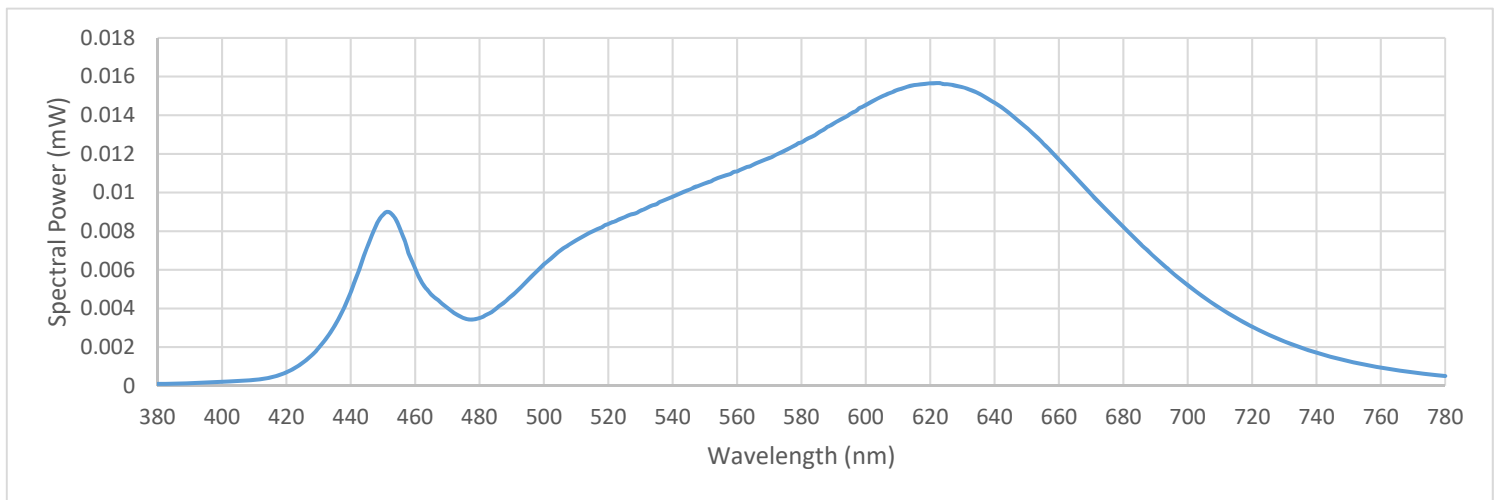
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000096	480	0.003505	580	0.012594	680	0.008206
385	0.000103	485	0.003967	585	0.013064	685	0.007408
390	0.000134	490	0.004654	590	0.013563	690	0.006609
395	0.000166	495	0.005457	595	0.014049	695	0.005870
400	0.000208	500	0.006286	600	0.014524	700	0.005215
405	0.000248	505	0.006983	605	0.014972	705	0.004580
410	0.000307	510	0.007518	610	0.015321	710	0.004008
415	0.000424	515	0.007988	615	0.015552	715	0.003516
420	0.000698	520	0.008370	620	0.015655	720	0.003057
425	0.001174	525	0.008718	625	0.015607	725	0.002653
430	0.001957	530	0.009062	630	0.015459	730	0.002300
435	0.003111	535	0.009401	635	0.015127	735	0.001986
440	0.004835	540	0.009777	640	0.014648	740	0.001707
445	0.007129	545	0.010131	645	0.014052	745	0.001475
450	0.008841	550	0.010475	650	0.013344	750	0.001267
455	0.008253	555	0.010801	655	0.012552	755	0.001093
460	0.006061	560	0.011095	660	0.011720	760	0.000943
465	0.004721	565	0.011440	665	0.010818	765	0.000808
470	0.004032	570	0.011784	670	0.009916	770	0.000690
475	0.003505	575	0.012179	675	0.009060	775	0.000592
						780	0.000507





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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: 24.6 °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.
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