

Report of Test

LLIA000898-001A

Catalog Number: 3-649-6 Rhythm 14"
Ceiling mounted, formed white enamel steel
housing/reflector, translucent white plastic enclosure.
60 white LEDs, two Harvard Engineering LEDENG-152-930-NL LED boards
Two L.T.F. DA12W350C1834D010-0014 dimming LED drivers.
120.0Vac, 60.00Hz, 0.2215A, 25.83W, 0.972PF, 10.9%THD(i)



Performance Summary

Total Light Output	1866 lm
Luminaire Power	25.8 W
Luminous Efficacy	72.3 lm/W

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



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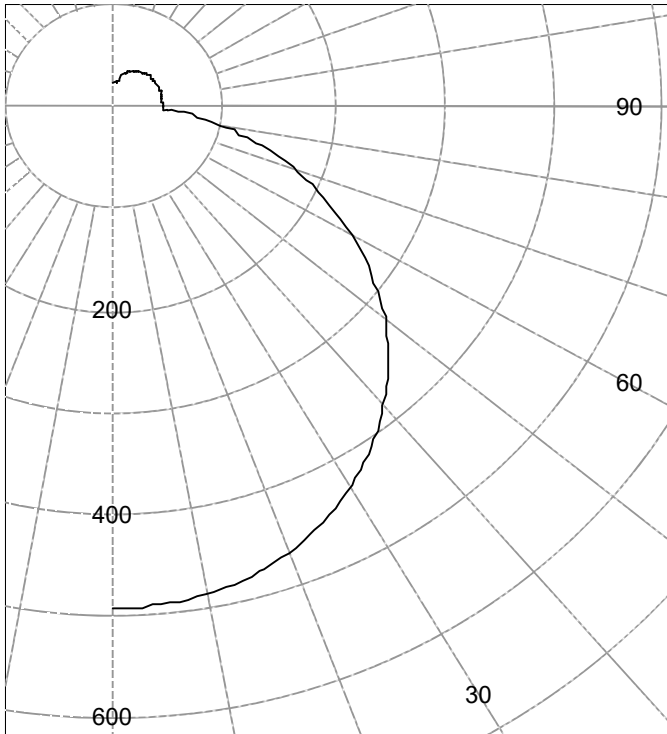
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Legend: All planes - Solid (cd)



(Rotational symmetry)

AVERAGE LUMINANCE (cd / m²)

Gamma	C0
45.0	4236
55.0	3980
65.0	3613
75.0	3084
85.0	2408

INTENSITY SUMMARY (cd)

Gamma	All Planes	Flux (lm)	Gamma	C0	Flux (lm)
0	492		90	44	
5	491	47	95	44	48
10	486		100	45	
15	478	135	105	45	47
20	466		110	45	
25	450	207	115	45	44
30	430		120	45	
35	408	255	125	45	40
40	381		130	44	
45	352	272	135	44	34
50	321		140	43	
55	286	256	145	43	27
60	250		150	42	
65	211	209	155	40	19
70	172		160	38	
75	134	141	165	34	10
80	97		170	29	
85	64	72	175	23	2
90	44		180	24	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	%Lamp	%Luminaire
0-30	389	N / A	20.8
0-40	644	N / A	34.5
0-60	1172	N / A	62.8
0-90	1595	N / A	85.4
40-90	951	N / A	50.9
60-90	423	N / A	22.6
90-180	272	N / A	14.6
0-180	1866	N / A	100.0

Total Light Output = 1,866 lm

Spacing Criterion: 0-180 1.3
Spacing Criterion: 90-270 1.3

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	492		90.0	44	
2.5	492		92.5	44	
5.0	491	47	95.0	44	
7.5	489		97.5	44	48
10.0	486		100.0	45	
12.5	482		102.5	45	
15.0	478	135	105.0	45	
17.5	472		107.5	45	47
20.0	466		110.0	45	
22.5	458		112.5	45	
25.0	450	207	115.0	45	
27.5	440		117.5	45	44
30.0	430		120.0	45	
32.5	419		122.5	45	
35.0	408	255	125.0	45	
37.5	395		127.5	45	40
40.0	381		130.0	44	
42.5	367		132.5	44	
45.0	352	272	135.0	44	
47.5	337		137.5	44	34
50.0	321		140.0	43	
52.5	304		142.5	43	
55.0	286	256	145.0	43	
57.5	268		147.5	42	27
60.0	250		150.0	42	
62.5	231		152.5	41	
65.0	211	209	155.0	40	
67.5	192		157.5	39	19
70.0	172		160.0	38	
72.5	153		162.5	36	
75.0	134	141	165.0	34	
77.5	115		167.5	31	10
80.0	97		170.0	29	
82.5	80		172.5	26	
85.0	64	72	175.0	23	
87.5	51		177.5	25	2
90.0	44		180.0	24	



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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	
0	116	116	116	116	111	111	111	111	103	103	103	96	96	96	89	89	89	85
1	104	99	94	90	100	95	91	87	88	85	82	82	79	77	76	74	72	69
2	94	86	78	72	90	82	76	70	76	71	66	71	67	63	66	62	59	56
3	86	75	66	59	82	72	64	58	67	60	55	62	57	52	58	53	50	47
4	78	66	57	50	75	64	55	49	59	52	47	55	49	44	51	46	42	40
5	72	59	49	43	68	57	48	42	53	46	40	49	43	38	46	41	37	34
6	66	53	43	37	63	51	42	36	48	40	35	44	38	33	42	36	32	30
7	61	47	39	32	58	46	38	32	43	36	31	40	34	29	38	32	28	26
8	57	43	35	29	54	42	34	28	39	32	27	37	31	26	35	29	25	23
9	53	40	31	26	51	38	31	25	36	29	24	34	28	24	32	27	23	21
10	50	36	28	23	48	35	28	23	33	27	22	31	25	21	30	24	21	19

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	13.7	7.79	7.79
8.0	7.7	10.38	10.38
10.0	4.9	12.98	12.98
12.0	3.4	15.57	15.57
14.0	2.5	18.17	18.17
16.0	1.9	20.77	20.77



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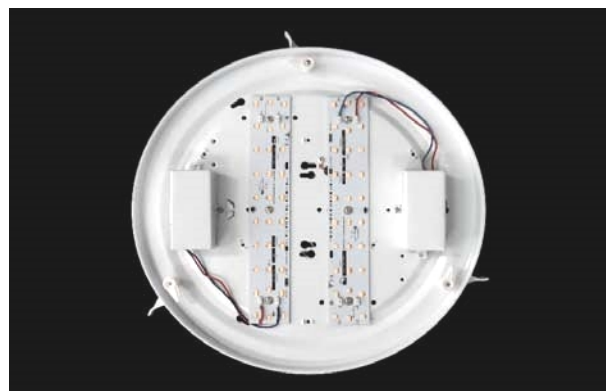
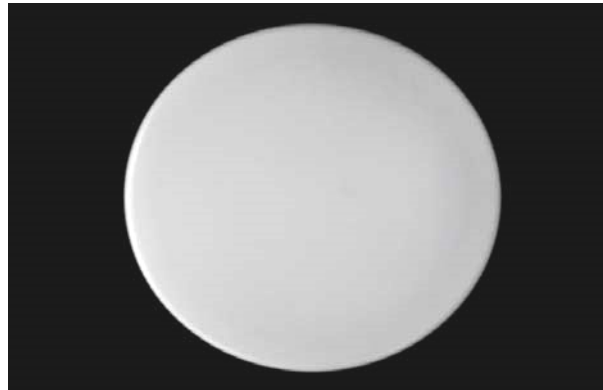
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Test Distance 9.5 m
Test Temperature 24.7 °C

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

LLIA000898-001B

Integrating Sphere Report

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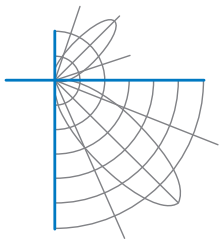
Performance Summary

Voltage	120.0 Vac
Current	0.2215 A
Power	25.85 W
Frequency	59.97 Hz
Power Factor	0.972
Current THD	11.0 %

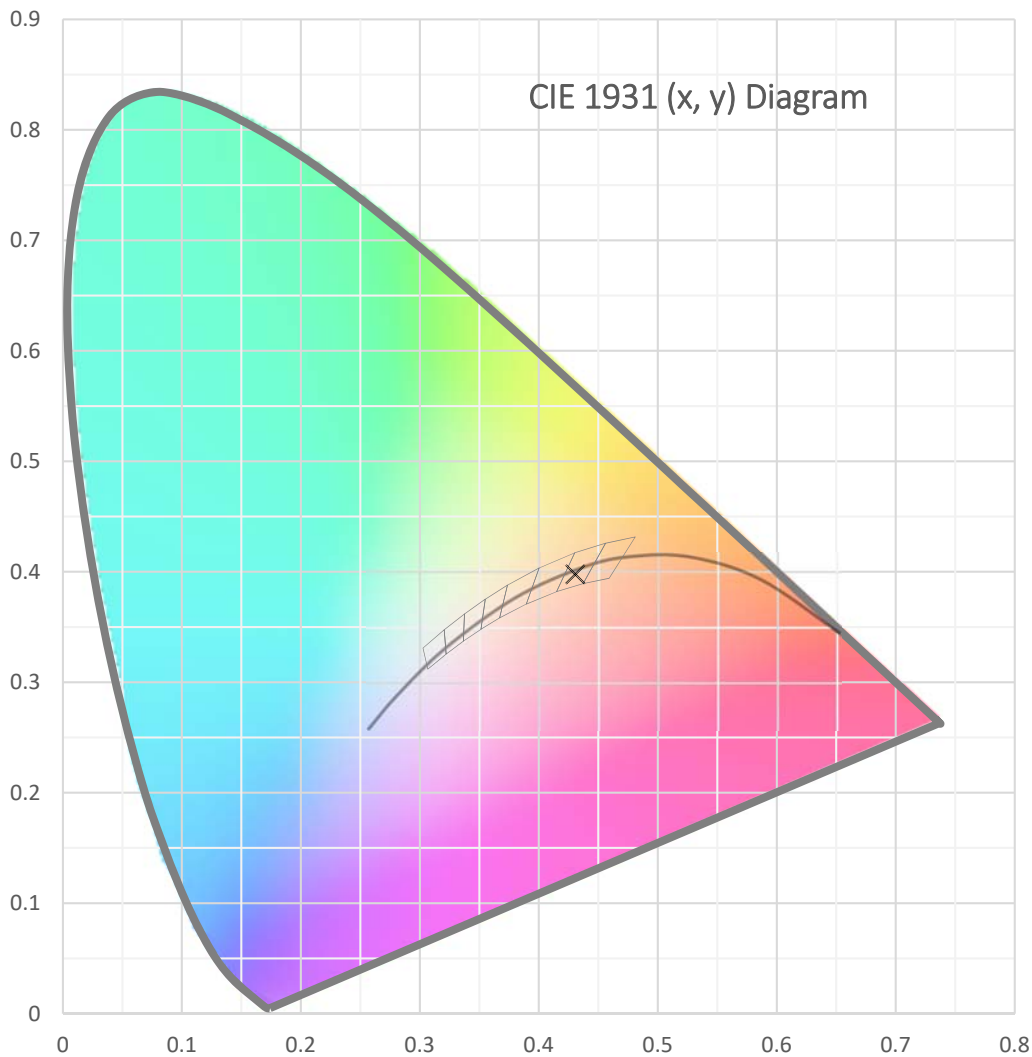
Total Luminous Flux	1873.1 lm
Efficacy	72.5 lm/W
Chromaticity (x,y)	(0.4308, 0.3976)
(u',v')	(0.2494, 0.5179)
Duv	-0.0017
CCT	3054 K
CRI (Ra)	94
R9	67

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

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

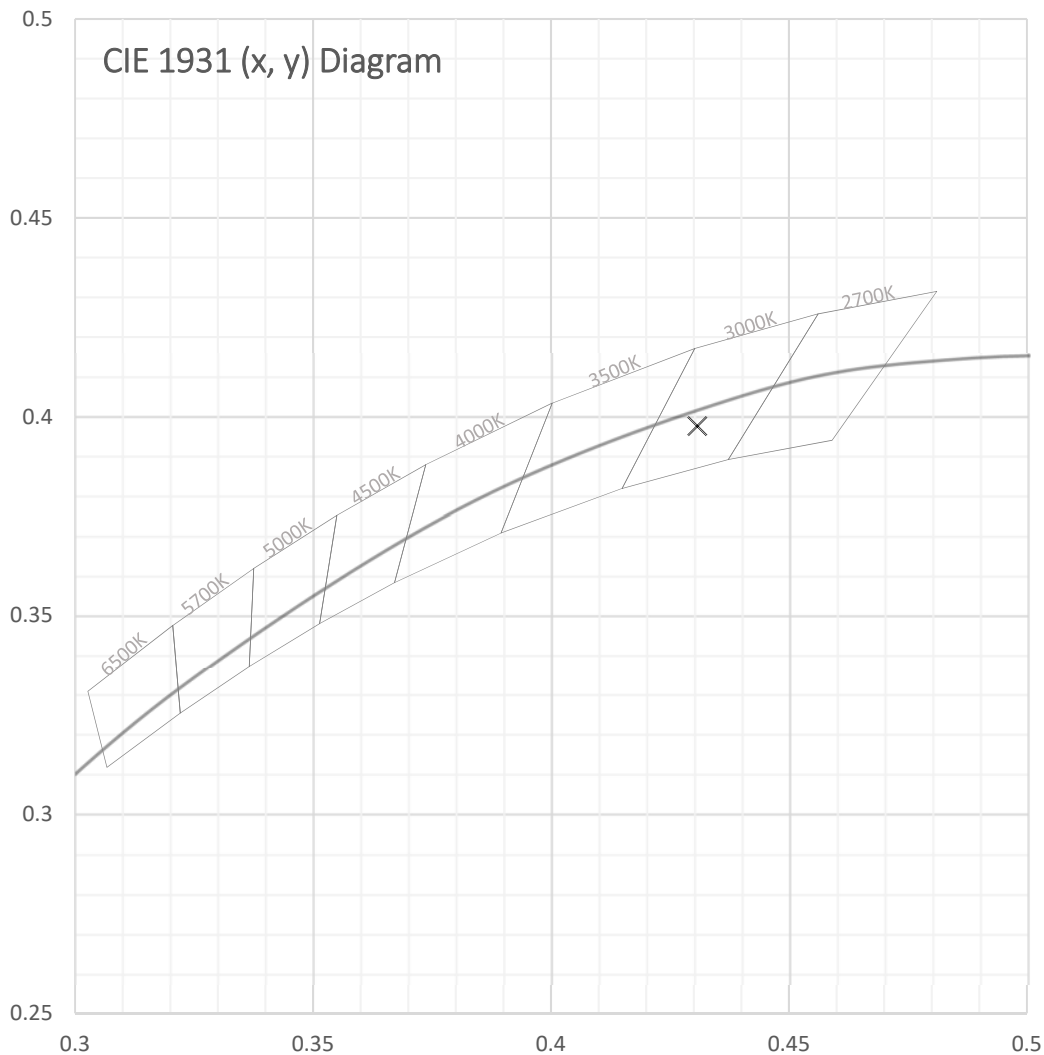


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Spectral Data

Total Radiant Flux	6.661 W
Total Luminous Flux	1873.1 Lm
Chromaticity CIE 1931 (x, y)	(0.4308, 0.3976)
Chromaticity CIE 1976 (u', v')	(0.2494, 0.5179)
Correlated Color Temperature (CCT)	3054 K
Color Rendering Index (Ra)	94
R1	95
R2	97
R3	98
R4	95
R5	95
R6	96
R7	93
R8	85
R9	67
R10	93
R11	95
R12	84
R13	96
R14	98
Distance from Planckian Locus (Duv)	-0.0017
Scotopic/Photopic Ratio *	1.457

Electrical Data

Voltage	120.0 Vac
Current	0.2215 A
Power	25.85 W
Frequency	59.97 Hz
Power Factor	0.972
Current THD	11.0 %



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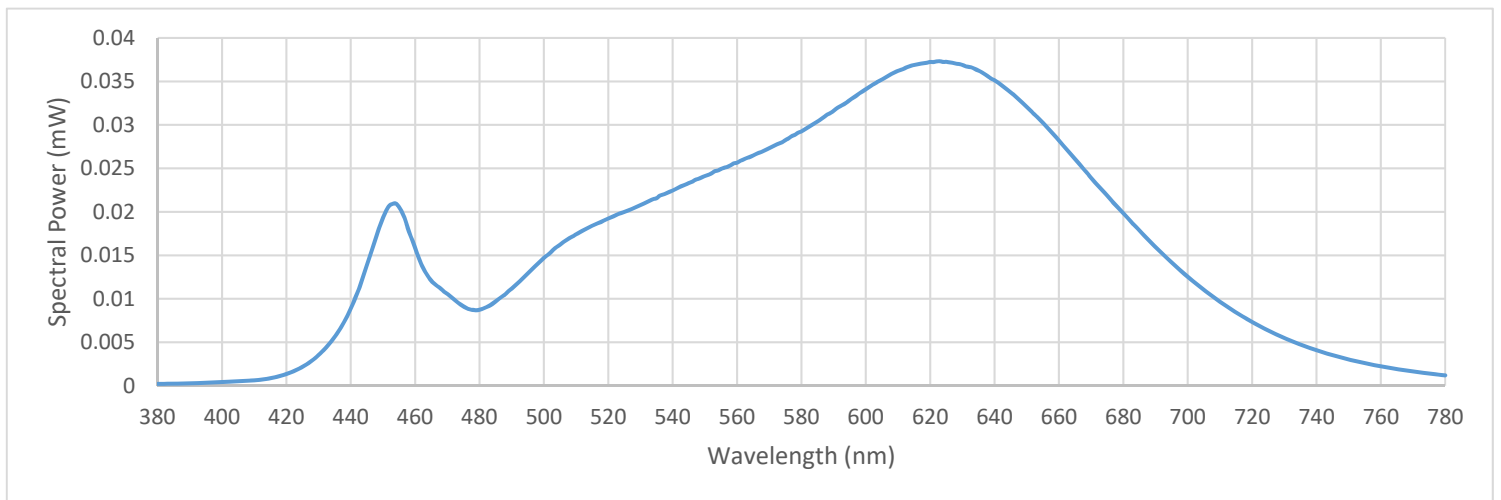
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000214	480	0.008743	580	0.029246	680	0.019817
385	0.000227	485	0.009690	585	0.030401	685	0.017861
390	0.000281	490	0.011180	590	0.031619	690	0.015948
395	0.000347	495	0.012911	595	0.032851	695	0.014162
400	0.000431	500	0.014701	600	0.034087	700	0.012561
405	0.000514	505	0.016217	605	0.035209	705	0.011038
410	0.000628	510	0.017422	610	0.036213	710	0.009644
415	0.000859	515	0.018422	615	0.036868	715	0.008434
420	0.001350	520	0.019244	620	0.037241	720	0.007343
425	0.002171	525	0.019977	625	0.037250	725	0.006362
430	0.003534	530	0.020793	630	0.036904	730	0.005505
435	0.005626	535	0.021571	635	0.036243	735	0.004743
440	0.008869	540	0.022440	640	0.035152	740	0.004081
445	0.013863	545	0.023307	645	0.033729	745	0.003519
450	0.019275	550	0.024120	650	0.032065	750	0.003023
455	0.020539	555	0.024926	655	0.030236	755	0.002603
460	0.015863	560	0.025656	660	0.028229	760	0.002246
465	0.012065	565	0.026490	665	0.026074	765	0.001920
470	0.010547	570	0.027327	670	0.023871	770	0.001644
475	0.009142	575	0.028247	675	0.021846	775	0.001403
						780	0.001202





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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:	25.0 °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. 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.