

Report of Test

LLIA000954-006A

Catalog Number: 3-353-224 Ellipse SM

Ceiling mounted, formed steel housing, formed steel center lamp holder, cast aluminum heatsink, frosted glass enclosure above LEDs, translucent white plastic enclosure with aluminum outer shade.

12 white LEDs, one Harvard Engineering E-C041041-01201J15-930 LED board

One LTF DA6W150C2040LPD010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.0592A, 6.56W, 0.924PF, 11.3%THD(i)



Performance Summary

Total Light Output	142 lm
Luminaire Power	6.56 W
Luminous Efficacy	21.6 lm/W

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



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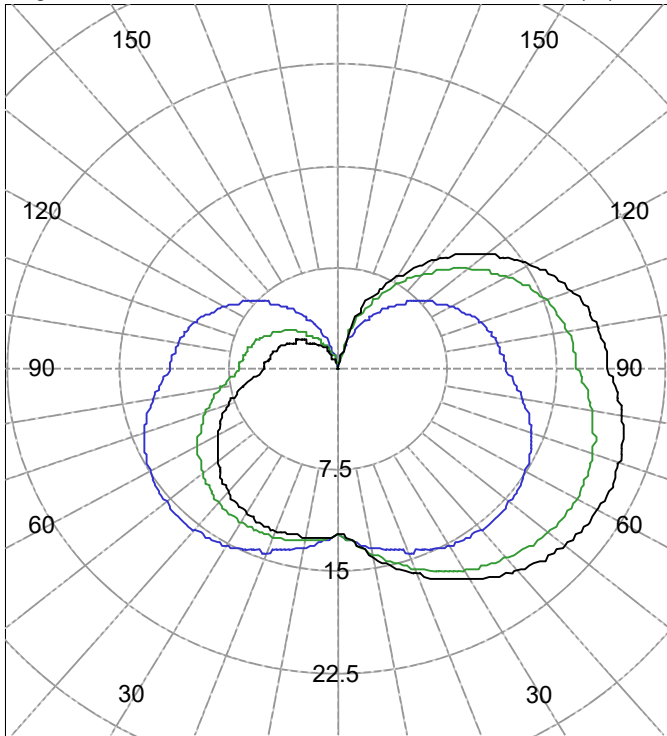
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Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



(Symmetric about C0/C180)

AVERAGE LUMINANCE (cd/m²)

Gamma	C0	C45	C90
45.0	2560	2384	1982
55.0	2545	2345	1879
65.0	2544	2316	1785
75.0	2549	2295	1703
85.0	2567	2283	1624

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	12.3	12.3	12.3	12.3	12.3	
5.0	12.9	12.9	12.9	12.9	12.8	1
10.0	14.1	14.1	13.9	13.7	13.4	
15.0	15.2	15.1	14.8	14.4	13.9	4
20.0	16.2	16.1	15.7	15.1	14.4	
25.0	17.1	17.0	16.4	15.6	14.7	7
30.0	18.0	17.8	17.1	16.2	15.1	
35.0	18.7	18.4	17.7	16.6	15.2	10
40.0	19.3	19.1	18.1	16.9	15.4	
45.0	19.9	19.5	18.5	17.1	15.4	12
50.0	20.3	19.9	18.8	17.2	15.3	
55.0	20.5	20.1	18.9	17.2	15.1	14
60.0	20.6	20.2	18.9	17.0	14.9	
65.0	20.6	20.1	18.8	16.8	14.5	14
70.0	20.4	20.0	18.5	16.4	14.0	
75.0	20.1	19.6	18.1	15.9	13.4	14
80.0	19.7	19.2	17.6	15.4	12.8	
85.0	19.1	18.6	17.0	14.7	12.1	13
90.0	18.4	17.9	16.4	14.1	11.4	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	12	N / A	8.5
0-40	22	N / A	15.3
0-60	47	N / A	33.3
0-90	89	N / A	62.9
40-90	68	N / A	47.7
60-90	42	N / A	29.6
90-180	53	N / A	37.1
0-180	142	N / A	100.0

Total Light Output = 142 lm

Signed:

Authorized Signatory

Date of test

8-Mar-2018

Date of report

18-Mar-2018



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120.0Vac, 60.00Hz, 0.0592A, 6.56W, 0.924PF, 11.3%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	12.3	12.3	12.3	12.3	12.3
2.5	12.4	12.4	12.5	12.5	12.5
5.0	12.9	12.9	12.9	12.9	12.8
7.5	13.5	13.5	13.4	13.3	13.1
10.0	14.1	14.1	13.9	13.7	13.4
12.5	14.7	14.6	14.4	14.0	13.7
15.0	15.2	15.1	14.8	14.4	13.9
17.5	15.7	15.6	15.3	14.7	14.1
20.0	16.2	16.1	15.7	15.1	14.4
22.5	16.7	16.5	16.0	15.4	14.6
25.0	17.1	17.0	16.4	15.6	14.7
27.5	17.6	17.4	16.8	15.9	14.9
30.0	18.0	17.8	17.1	16.2	15.1
32.5	18.4	18.1	17.4	16.4	15.2
35.0	18.7	18.4	17.7	16.6	15.2
37.5	19.1	18.8	18.0	16.7	15.3
40.0	19.3	19.1	18.1	16.9	15.4
42.5	19.6	19.3	18.4	17.0	15.4
45.0	19.9	19.5	18.5	17.1	15.4
47.5	20.1	19.7	18.7	17.1	15.4
50.0	20.3	19.9	18.8	17.2	15.3
52.5	20.4	20.0	18.9	17.2	15.3
55.0	20.5	20.1	18.9	17.2	15.1
57.5	20.6	20.2	18.9	17.1	15.0
60.0	20.6	20.2	18.9	17.0	14.9
62.5	20.6	20.2	18.9	16.9	14.7
65.0	20.6	20.1	18.8	16.8	14.5
67.5	20.6	20.1	18.7	16.6	14.2
70.0	20.4	20.0	18.5	16.4	14.0
72.5	20.3	19.8	18.4	16.2	13.8
75.0	20.1	19.6	18.1	15.9	13.4
77.5	19.9	19.4	17.9	15.7	13.2
80.0	19.7	19.2	17.6	15.4	12.8
82.5	19.4	18.9	17.3	15.1	12.5
85.0	19.1	18.6	17.0	14.7	12.1
87.5	18.8	18.2	16.7	14.4	11.7
90.0	18.4	17.9	16.4	14.1	11.4



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One LTF DA6W150C2040LPD010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.0592A, 6.56W, 0.924PF, 11.3%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	18.4	17.9	16.4	14.1	11.4
92.5	18.4	17.8	16.3	14.0	11.4
95.0	18.3	17.8	16.2	14.0	11.3
97.5	18.2	17.6	16.1	13.8	11.2
100.0	18.0	17.5	15.9	13.7	11.0
102.5	17.8	17.3	15.8	13.5	10.9
105.0	17.6	17.0	15.5	13.3	10.7
107.5	17.3	16.7	15.2	13.1	10.5
110.0	17.0	16.4	15.0	12.8	10.2
112.5	16.6	16.1	14.6	12.5	10.0
115.0	16.2	15.7	14.3	12.1	9.7
117.5	15.7	15.3	13.9	11.8	9.4
120.0	15.3	14.8	13.5	11.4	9.1
122.5	14.8	14.3	13.0	11.0	8.8
125.0	14.2	13.8	12.5	10.6	8.4
127.5	13.7	13.2	12.0	10.2	8.1
130.0	13.1	12.7	11.5	9.7	7.7
132.5	12.5	12.1	11.0	9.3	7.3
135.0	11.8	11.5	10.4	8.7	6.9
137.5	11.2	10.8	9.8	8.2	6.5
140.0	10.5	10.2	9.2	7.7	6.1
142.5	9.8	9.5	8.6	7.2	5.7
145.0	9.1	8.8	7.9	6.7	5.3
147.5	8.4	8.1	7.3	6.1	4.8
150.0	7.7	7.4	6.7	5.6	4.4
152.5	6.9	6.7	6.0	5.0	3.9
155.0	6.2	6.0	5.4	4.5	3.5
157.5	5.5	5.3	4.7	3.9	3.0
160.0	4.8	4.6	4.0	3.3	2.6
162.5	3.7	3.6	3.1	2.6	2.0
165.0	2.0	1.9	1.8	1.6	1.3
167.5	0.7	0.7	0.6	0.5	0.4
170.0	0.0	0.0	0.0	0.0	0.0
172.5	0.0	0.0	0.0	0.0	0.0
175.0	0.0	0.0	0.0	0.0	0.0
177.5	0.0	0.0	0.0	0.0	0.0
180.0	0.0	0.0	0.0	0.0	0.0



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One LTF DA6W150C2040LPD010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.0592A, 6.56W, 0.924PF, 11.3%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	12.3	12.3	12.3	12.3	12.3
2.5	12.5	12.5	12.5	12.5	12.5
5.0	12.8	12.7	12.6	12.6	12.6
7.5	13.1	12.9	12.8	12.6	12.6
10.0	13.4	13.1	12.8	12.7	12.6
12.5	13.7	13.3	12.9	12.7	12.6
15.0	13.9	13.4	13.0	12.8	12.7
17.5	14.1	13.6	13.1	12.8	12.7
20.0	14.4	13.7	13.1	12.8	12.7
22.5	14.6	13.8	13.2	12.7	12.6
25.0	14.7	13.9	13.2	12.7	12.5
27.5	14.9	14.0	13.1	12.6	12.5
30.0	15.1	14.0	13.1	12.5	12.3
32.5	15.2	14.0	13.1	12.4	12.2
35.0	15.2	14.0	13.0	12.3	12.1
37.5	15.3	14.0	12.9	12.1	11.9
40.0	15.4	13.9	12.8	12.0	11.7
42.5	15.4	13.9	12.6	11.8	11.5
45.0	15.4	13.8	12.4	11.6	11.3
47.5	15.4	13.7	12.3	11.3	11.0
50.0	15.3	13.5	12.0	11.1	10.7
52.5	15.3	13.4	11.8	10.8	10.4
55.0	15.1	13.2	11.6	10.5	10.1
57.5	15.0	13.0	11.3	10.2	9.8
60.0	14.9	12.8	11.0	9.8	9.5
62.5	14.7	12.5	10.7	9.5	9.1
65.0	14.5	12.2	10.3	9.1	8.7
67.5	14.2	12.0	10.0	8.8	8.3
70.0	14.0	11.6	9.7	8.4	8.0
72.5	13.8	11.3	9.3	8.0	7.6
75.0	13.4	11.0	8.9	7.6	7.2
77.5	13.2	10.6	8.5	7.2	6.8
80.0	12.8	10.2	8.1	6.8	6.4
82.5	12.5	9.8	7.7	6.4	6.0
85.0	12.1	9.5	7.3	6.0	5.6
87.5	11.7	9.1	6.9	5.6	5.2
90.0	11.4	8.8	6.7	5.4	5.0



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One LTF DA6W150C2040LPD010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.0592A, 6.56W, 0.924PF, 11.3%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	11.4	8.8	6.7	5.4	5.0
92.5	11.4	8.8	6.7	5.4	5.0
95.0	11.3	8.7	6.6	5.3	4.9
97.5	11.2	8.6	6.5	5.3	4.8
100.0	11.0	8.5	6.4	5.2	4.8
102.5	10.9	8.3	6.3	5.1	4.7
105.0	10.7	8.2	6.2	5.0	4.6
107.5	10.5	8.0	6.1	4.9	4.5
110.0	10.2	7.8	5.9	4.7	4.4
112.5	10.0	7.6	5.8	4.6	4.2
115.0	9.7	7.4	5.6	4.5	4.1
117.5	9.4	7.2	5.4	4.3	3.9
120.0	9.1	6.9	5.2	4.2	3.8
122.5	8.8	6.7	5.0	4.0	3.7
125.0	8.4	6.4	4.8	3.8	3.5
127.5	8.1	6.1	4.6	3.6	3.3
130.0	7.7	5.8	4.4	3.5	3.2
132.5	7.3	5.5	4.2	3.3	3.0
135.0	6.9	5.2	3.9	3.1	2.8
137.5	6.5	4.9	3.7	2.9	2.6
140.0	6.1	4.6	3.4	2.7	2.4
142.5	5.7	4.3	3.2	2.5	2.3
145.0	5.3	3.9	2.9	2.3	2.1
147.5	4.8	3.6	2.6	2.0	1.9
150.0	4.4	3.3	2.4	1.9	1.7
152.5	3.9	2.9	2.1	1.6	1.5
155.0	3.5	2.6	1.9	1.4	1.3
157.5	3.0	2.2	1.6	1.2	1.1
160.0	2.6	1.9	1.3	1.0	0.9
162.5	2.0	1.5	1.0	0.8	0.7
165.0	1.3	1.0	0.7	0.5	0.5
167.5	0.4	0.3	0.2	0.2	0.2
170.0	0.0	0.0	0.0	0.0	0.0
172.5	0.0	0.0	0.0	0.0	0.0
175.0	0.0	0.0	0.0	0.0	0.0
177.5	0.0	0.0	0.0	0.0	0.0
180.0	0.0	0.0	0.0	0.0	0.0



Test Number: LLIA000954-006A

Catalog Number: 3-353-224 Ellipse SM

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12 white LEDs, one Harvard Engineering E-C041041-01201115-930 LED board

One LTF DA6W150C2040LPD010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.0592A, 6.56W, 0.924PF, 11.3%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	10	0
0	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63
1	96	90	84	79	89	84	79	74	72	68	65	62	59	56	53	50	48	43
2	86	76	67	61	79	70	63	57	61	55	50	52	47	43	44	40	37	33
3	77	65	56	48	71	61	52	45	52	45	40	44	39	35	37	33	29	26
4	70	57	47	40	64	53	44	37	45	38	33	39	33	28	32	28	24	21
5	64	50	40	33	59	46	38	31	40	33	27	34	28	24	29	24	20	17
6	58	44	35	28	54	41	33	27	36	29	23	31	25	20	26	21	17	14
7	54	40	31	24	50	37	29	23	32	25	20	28	22	18	23	19	15	12
8	50	36	27	21	46	34	26	20	29	22	18	25	19	15	21	17	13	11
9	46	33	24	19	43	31	23	18	27	20	16	23	17	14	19	15	12	9
10	43	30	22	16	40	28	21	16	24	18	14	21	16	12	18	14	10	8

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	0.3	11.05	11.03
8.0	0.2	14.74	14.71
10.0	0.1	18.42	18.38
12.0	0.1	22.11	22.06
14.0	0.1	25.79	25.73
16.0	0.0	29.48	29.41



Test Report No. LLIA000954-006A

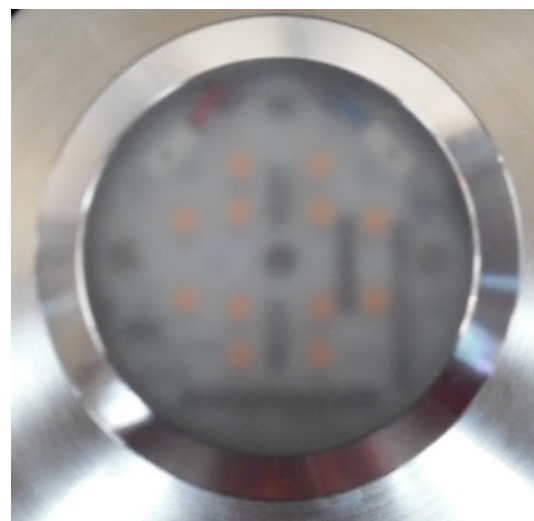
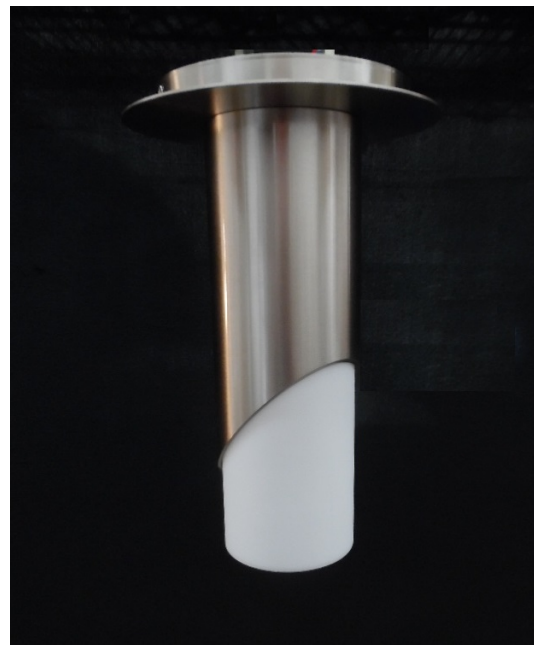
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Test Distance 9.5 m
Test Temperature 24.8 °C

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

LLIA000954-006B

Integrating Sphere Report

Catalog Number: 3-353-224 Ellipse SM

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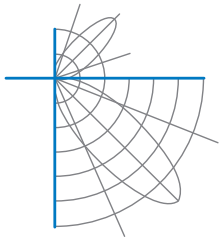


Performance Summary

Voltage	120.0 Vac
Current	0.0589 A
Power	6.55 W
Frequency	59.97 Hz
Power Factor	0.926
Current THD	11.0 %
Total Luminous Flux	143.6 lm
Efficacy	21.9 lm/W
Chromaticity (x,y)	(0.4373, 0.3998)
(u',v')	(0.2527, 0.5197)
Duv	-0.0018
CCT	2959 K
CRI (Ra)	97
R9	86
TM-30: Rf	93
TM-30: Rg	101

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

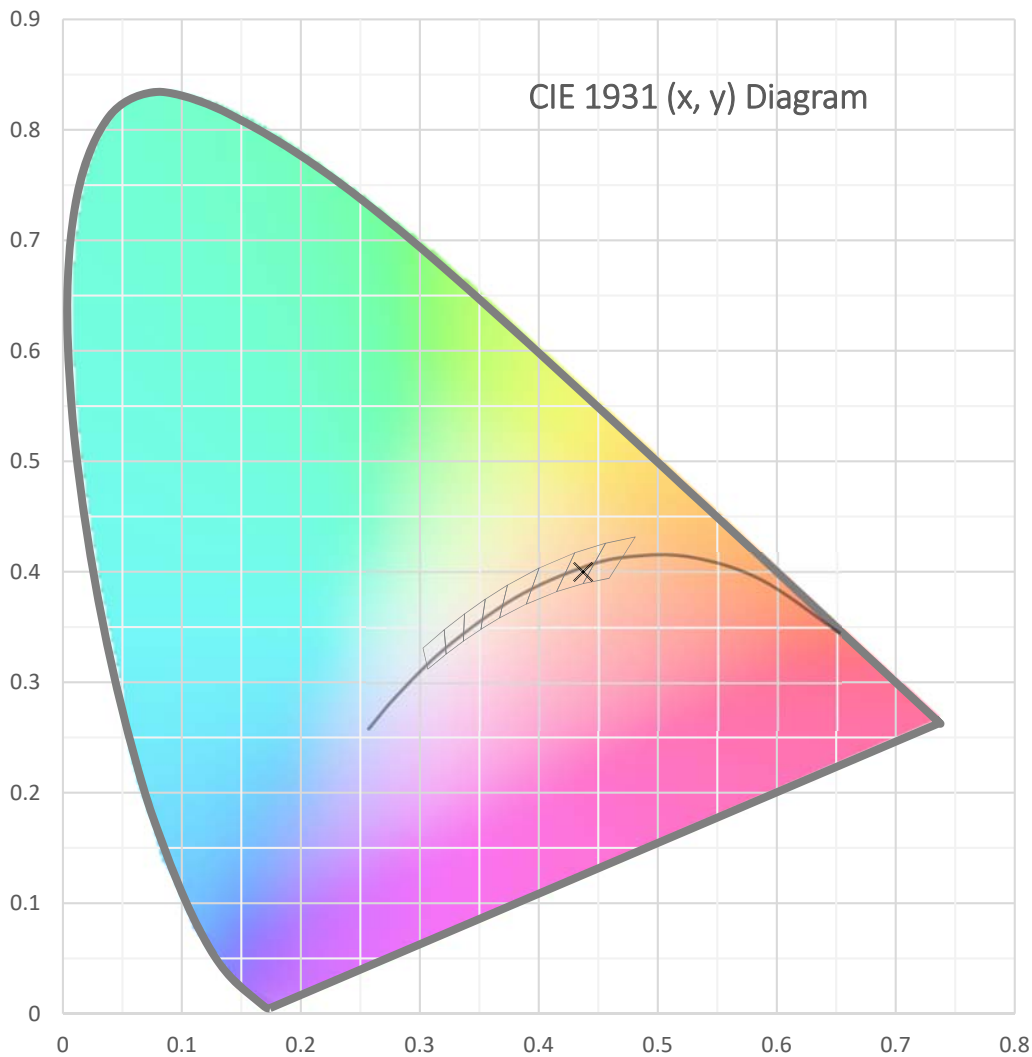
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Report date: 03/17/2018

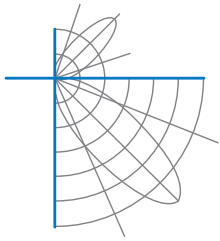


Test Report Number: LLIA000954-006B

Catalog Number: 3-353-224 Ellipse SM

Ceiling mounted, formed steel housing, formed steel center lamp holder, cast aluminum heatsink, frosted glass enclosure above LEDs, translucent white plastic enclosure with aluminum outer shade. 12 white LEDs, one Harvard Engineering E-C041041-01201115-930 LED board. One LTF DA6W150C2040LPD010-0014 dimmable LED driver.

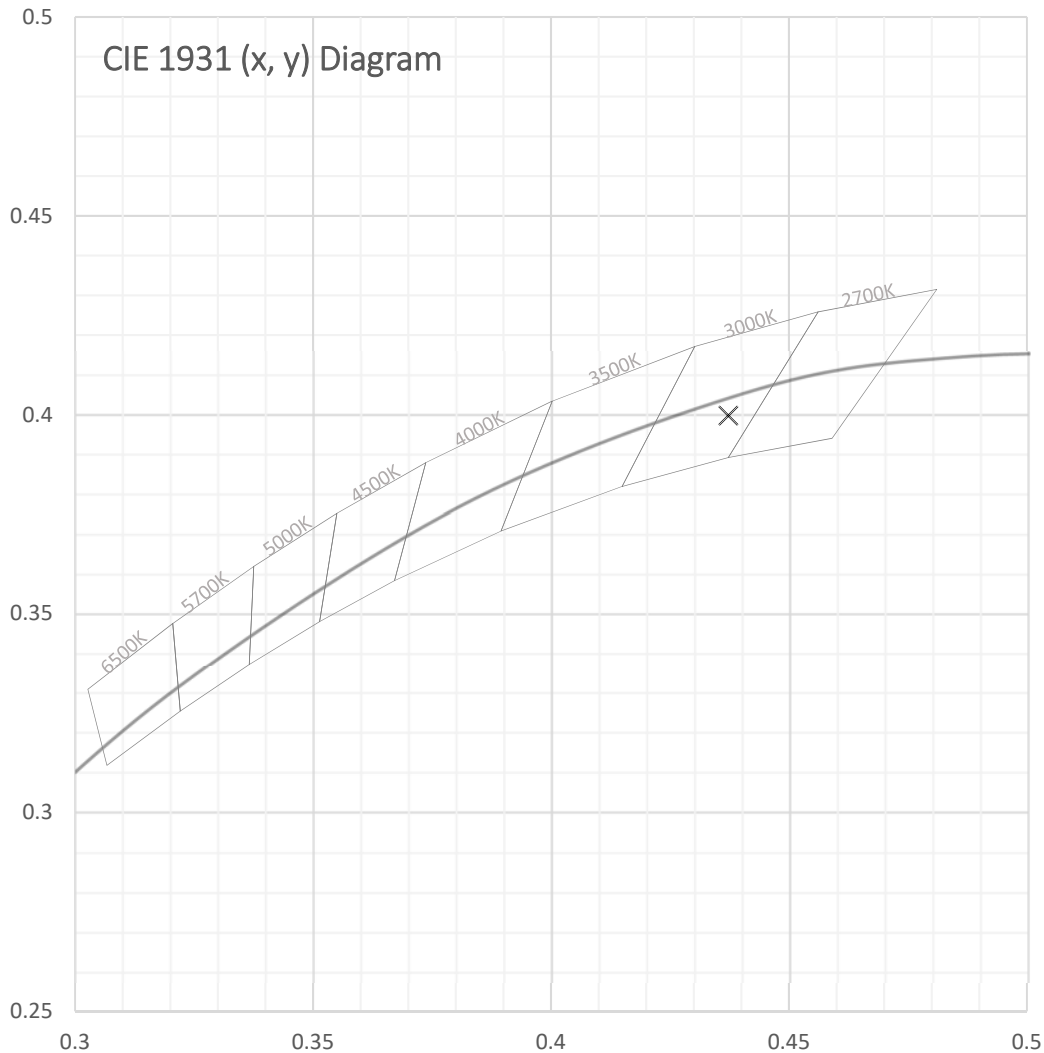




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Spectral Data

Total Radiant Flux	0.540 W
Total Luminous Flux	143.6 Lm
Chromaticity CIE 1931 (x, y)	(0.4373, 0.3998)
Chromaticity CIE 1976 (u', v')	(0.2527, 0.5197)
Correlated Color Temperature (CCT)	2959 K
Color Rendering Index (Ra)	97
R1	98
R2	99
R3	96
R4	97
R5	98
R6	97
R7	97
R8	94
R9	86
R10	95
R11	97
R12	84
R13	99
R14	97
TM-30: Rf	93
TM-30: Rg	101
Distance from Planckian Locus (Duv)	-0.0018
Scotopic/Photopic Ratio *	1.431

Electrical Data

Voltage	120.0 Vac
Current	0.0589 A
Power	6.55 W
Frequency	59.97 Hz
Power Factor	0.926
Current THD	11.0 %



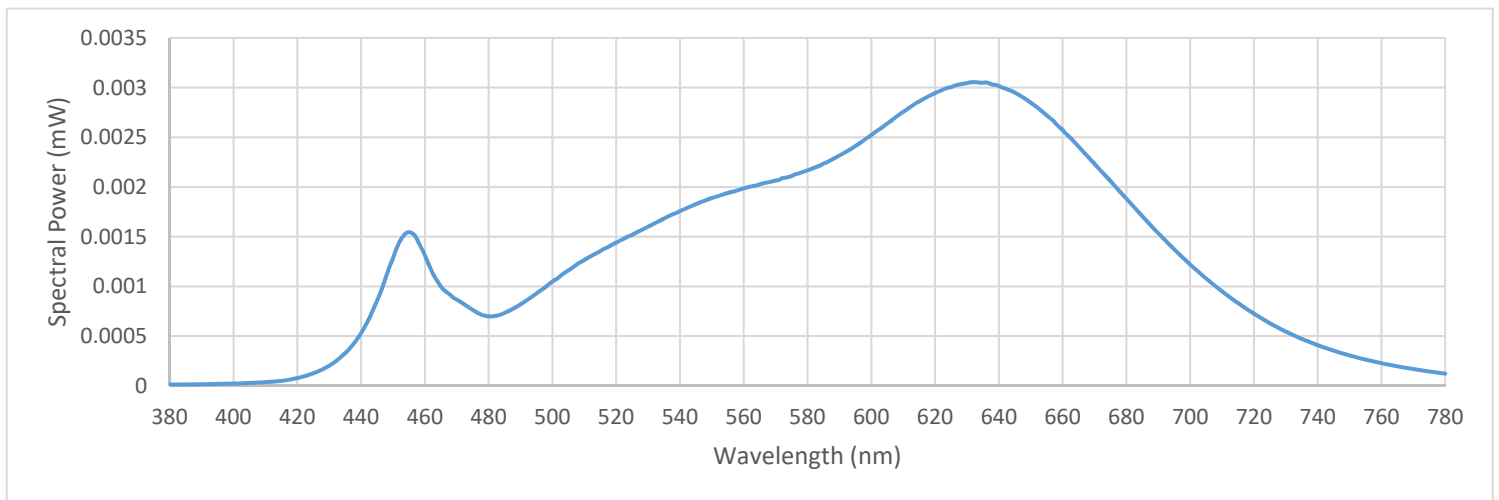
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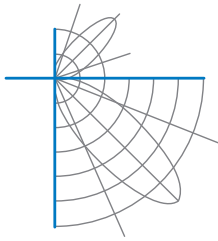
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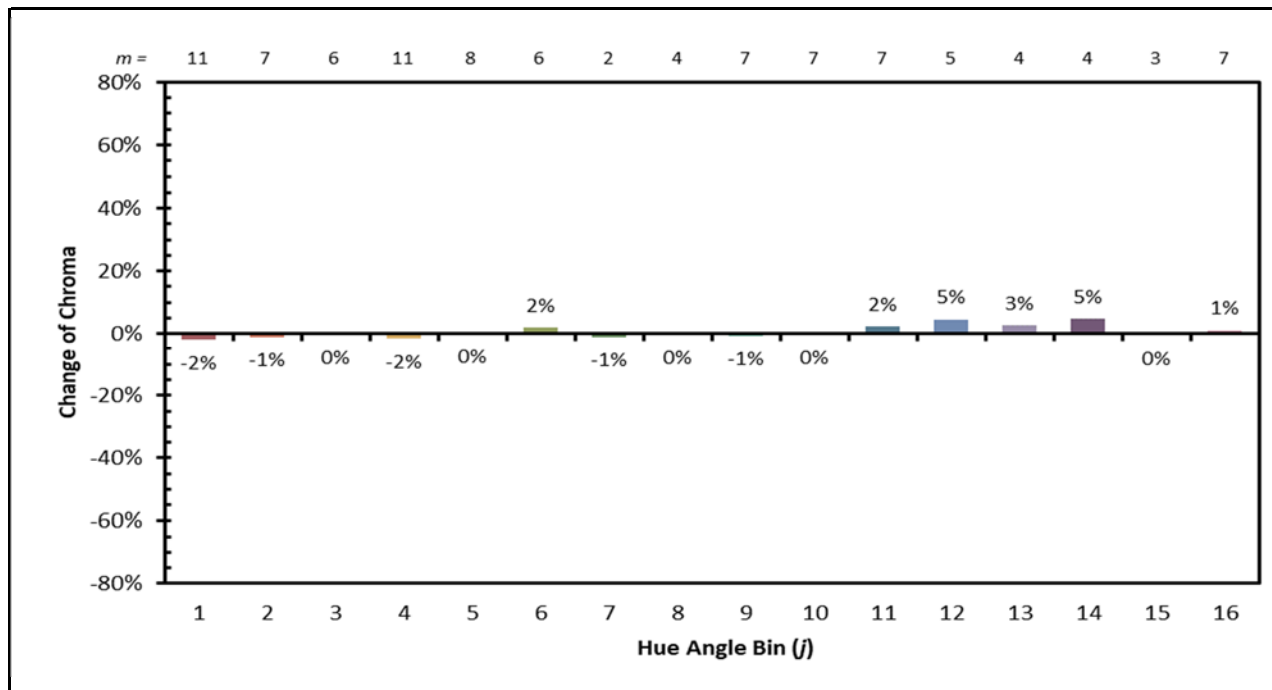
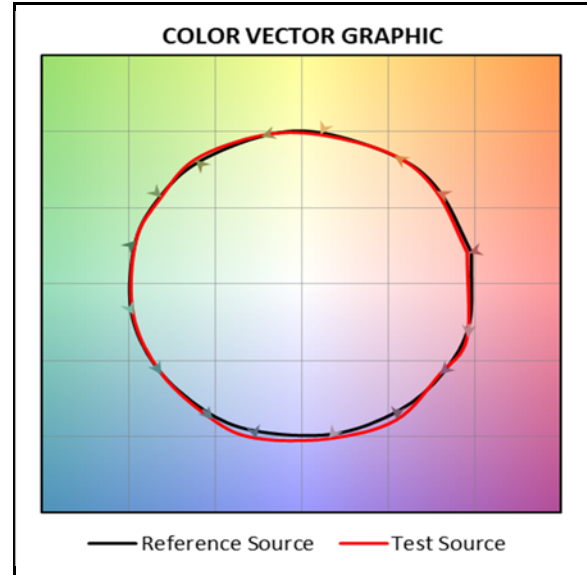
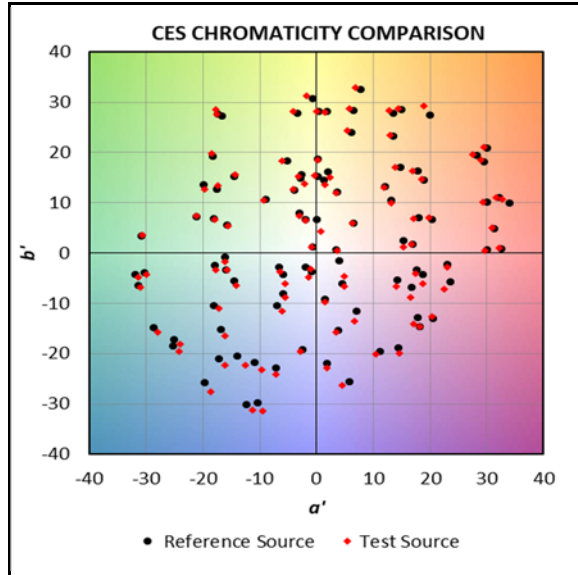
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000012	480	0.000700	580	0.002169	680	0.001882
385	0.000013	485	0.000734	585	0.002236	685	0.001709
390	0.000015	490	0.000820	590	0.002318	690	0.001535
395	0.000018	495	0.000928	595	0.002413	695	0.001370
400	0.000023	500	0.001048	600	0.002522	700	0.001224
405	0.000028	505	0.001160	605	0.002641	705	0.001078
410	0.000036	510	0.001266	610	0.002754	710	0.000949
415	0.000049	515	0.001355	615	0.002862	715	0.000832
420	0.000078	520	0.001441	620	0.002942	720	0.000725
425	0.000124	525	0.001518	625	0.003004	725	0.000629
430	0.000204	530	0.001602	630	0.003044	730	0.000546
435	0.000329	535	0.001682	635	0.003049	735	0.000472
440	0.000527	540	0.001757	640	0.003016	740	0.000407
445	0.000860	545	0.001826	645	0.002949	745	0.000354
450	0.001284	550	0.001889	650	0.002849	750	0.000305
455	0.001546	555	0.001941	655	0.002722	755	0.000264
460	0.001314	560	0.001986	660	0.002576	760	0.000228
465	0.000999	565	0.002027	665	0.002406	765	0.000196
470	0.000867	570	0.002065	670	0.002234	770	0.000167
475	0.000764	575	0.002110	675	0.002062	775	0.000143
						780	0.000122





IES TM-30 Summary





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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: 25.1 °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, TM-30-15

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.