

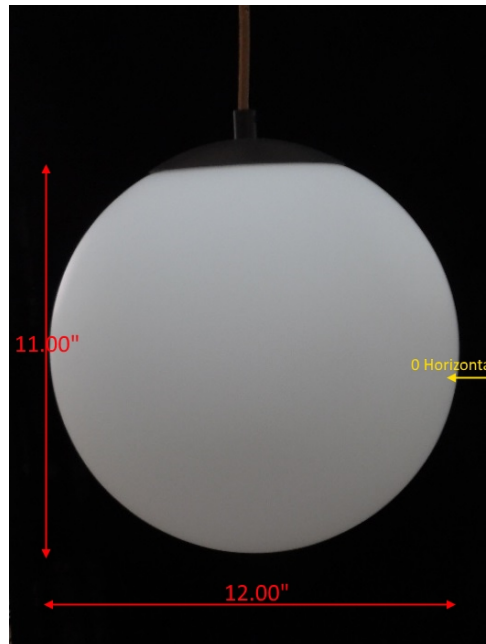


# Report of Test

## LLIA000954-016A

Catalog Number: 3-673-22 Luna 12" Pendant

Pendant mounted, formed steel and aluminum housing, translucent white glass enclosure.  
24 white LEDs, one Harvard Engineering LEDENG-165-930 LED board with white plastic diffuser  
One LTF DA12W350C1834D010-0014 dimmable LED driver.  
120.0Vac, 60.00Hz, 0.0896A, 10.28W, 0.955PF, 11.9%THD(i)



### Performance Summary

Total Light Output	740 lm
Luminaire Power	10.3 W
Luminous Efficacy	71.8 lm/W

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



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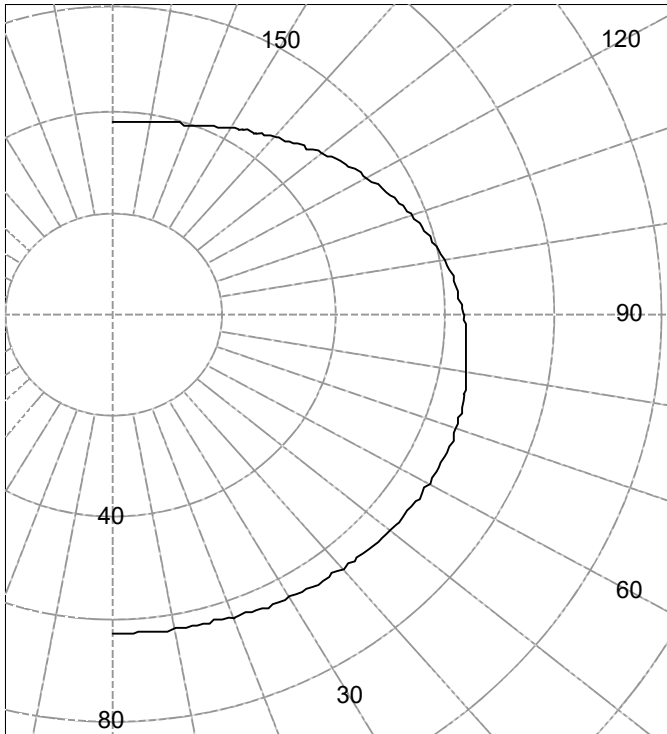
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Legend: All planes - Black (cd)



(Rotational symmetry)

**AVERAGE LUMINANCE (cd / m<sup>2</sup>)**

Gamma	C0
45.0	896
55.0	905
65.0	907
75.0	901
85.0	884

**INTENSITY SUMMARY (cd)**

Gamma	All Planes	Flux (lm)	Gamma	C0	Flux (lm)
0	62.6		90	63.6	
5	62.7	6	95	62.4	68
10	62.8		100	61.0	
15	63.1	18	105	59.3	63
20	63.4		110	57.5	
25	63.8	30	115	55.5	55
30	64.2		120	53.4	
35	64.6	41	125	51.4	46
40	65.0		130	49.4	
45	65.5	51	135	47.5	37
50	65.8		140	45.6	
55	66.1	59	145	43.9	28
60	66.3		150	42.3	
65	66.3	66	155	41.0	19
70	66.1		160	39.8	
75	65.8	70	165	39.0	11
80	65.3		170	38.3	
85	64.6	70	175	38.0	4
90	63.6		180	37.9	

**ZONAL FLUX AND PERCENTAGES**

Zone	Flux (lm)	%Lamp	%Luminaire
0-30	53	N / A	7.2
0-40	94	N / A	12.7
0-60	204	N / A	27.6
0-90	410	N / A	55.4
40-90	316	N / A	42.7
60-90	206	N / A	27.8
90-180	330	N / A	44.6
0-180	740	N / A	100.0

Total Light Output = 740 lm

Spacing Criterion:	0-180	1.6
Spacing Criterion:	90-270	1.6

Signed:

Authorized Signatory

Date of test 29-Mar-2018  
Date of report 29-Mar-2018



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**Intensity (cd) and Flux (lm) data**

Gamma	Intensity	Flux	Gamma	Intensity	Flux
0.0	62.6		90.0	63.6	
2.5	62.6		92.5	63.1	
5.0	62.7	6	95.0	62.4	68
7.5	62.7		97.5	61.8	
10.0	62.8		100.0	61.0	
12.5	62.9		102.5	60.2	
15.0	63.1	18	105.0	59.3	63
17.5	63.2		107.5	58.4	
20.0	63.4		110.0	57.5	
22.5	63.6		112.5	56.5	
25.0	63.8	30	115.0	55.5	55
27.5	64.0		117.5	54.4	
30.0	64.2		120.0	53.4	
32.5	64.4		122.5	52.4	
35.0	64.6	41	125.0	51.4	46
37.5	64.8		127.5	50.4	
40.0	65.0		130.0	49.4	
42.5	65.3		132.5	48.4	
45.0	65.5	51	135.0	47.5	37
47.5	65.6		137.5	46.5	
50.0	65.8		140.0	45.6	
52.5	66.0		142.5	44.7	
55.0	66.1	59	145.0	43.9	28
57.5	66.2		147.5	43.1	
60.0	66.3		150.0	42.3	
62.5	66.3		152.5	41.6	
65.0	66.3	66	155.0	41.0	19
67.5	66.2		157.5	40.4	
70.0	66.1		160.0	39.8	
72.5	66.0		162.5	39.4	
75.0	65.8	70	165.0	39.0	11
77.5	65.6		167.5	38.6	
80.0	65.3		170.0	38.3	
82.5	65.0		172.5	38.1	
85.0	64.6	70	175.0	38.0	4
87.5	64.1		177.5	37.9	
90.0	63.6		180.0	37.9	



**Test Number: LLIA000954-016A**

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24 white LEDs, one Harvard Engineering LEDENG-165-930 LED board with white plastic diffuser

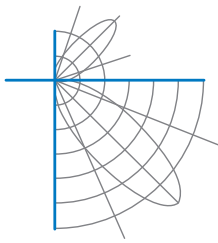
One LTF DA12W350C1834D010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.0896A, 10.28W, 0.955PF, 11.9%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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55
1	94	88	82	77	87	81	76	72	69	65	61	57	54	51	47	44	42	37
2	84	74	66	59	77	69	61	55	58	52	47	48	43	40	38	35	32	28
3	76	64	55	48	69	59	51	44	50	43	38	41	36	32	33	29	26	21
4	69	56	46	39	63	51	43	36	43	36	31	36	30	26	29	24	21	17
5	63	49	40	33	57	45	37	30	38	31	26	31	26	22	25	21	18	14
6	57	44	34	28	53	40	32	26	34	27	22	28	23	19	23	18	15	12
7	53	39	30	24	49	36	28	22	31	24	19	25	20	16	21	16	13	10
8	49	35	27	21	45	33	25	20	28	21	17	23	18	14	19	15	11	9
9	46	32	24	18	42	30	22	17	25	19	15	21	16	12	17	13	10	8
10	43	29	22	16	39	27	20	15	23	17	13	20	15	11	16	12	9	7

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	1.7	9.50	9.50
8.0	1.0	12.67	12.67
10.0	0.6	15.84	15.84
12.0	0.4	19.00	19.00
14.0	0.3	22.17	22.17
16.0	0.2	25.34	25.34



**Test Report No. LLIA000954-016A**

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120.0Vac, 60.00Hz, 0.0896A, 10.28W, 0.955PF, 11.9%THD(i)

**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.



## Report of Test

**LLIA000954-016B**

Integrating Sphere Report

Catalog Number: 3-673-22 Luna 12" Pendant

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One LTF DA12W350C1834D010-0014 dimmable LED driver.



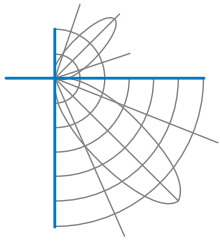
### Performance Summary

Voltage	120.0 Vac
Current	0.0896 A
Power	10.29 W
Frequency	59.97 Hz
Power Factor	0.958
Current THD	12.1 %

Total Luminous Flux	739.2 lm
Efficacy	71.8 lm/W
Chromaticity (x,y)	(0.4319, 0.4010)
(u',v')	(0.2487, 0.5194)
Duv	-0.0005
CCT	3061 K
CRI (Ra)	93
R9	65
TM-30: Rf	91
TM-30: Rg	101

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

Test date: 03/20/2018  
Report date: 03/29/2018



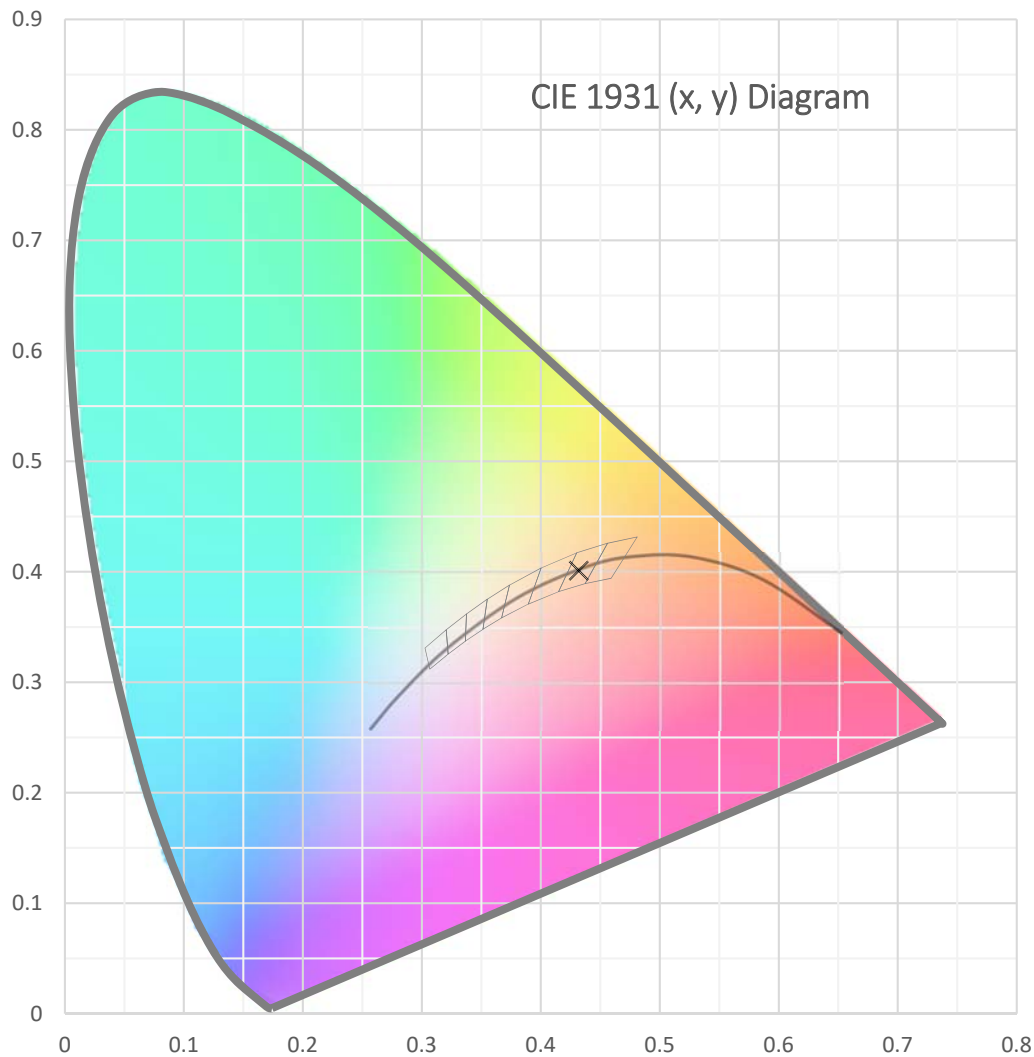
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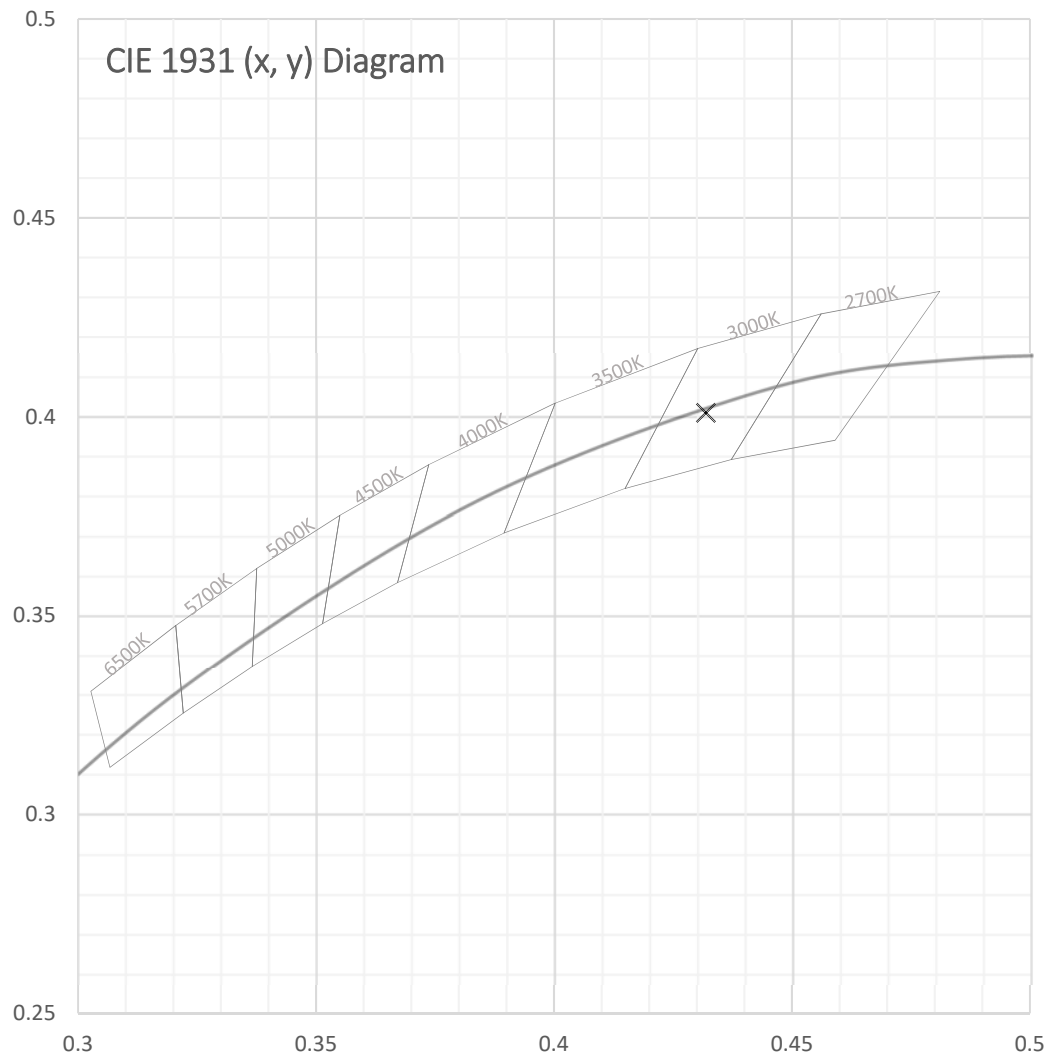
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**Spectral Data**

Total Radiant Flux	2.628 W
Total Luminous Flux	739.2 Lm
Chromaticity CIE 1931 (x, y)	(0.4319, 0.4010)
Chromaticity CIE 1976 (u', v')	(0.2487, 0.5194)
Correlated Color Temperature (CCT)	3061 K
Color Rendering Index (Ra)	93
R1	94
R2	95
R3	96
R4	94
R5	93
R6	94
R7	94
R8	85
R9	65
R10	89
R11	95
R12	83
R13	94
R14	97
TM-30: Rf	91
TM-30: Rg	101
Distance from Planckian Locus (Duv)	-0.0005
Scotopic/Photopic Ratio *	1.431

**Electrical Data**

Voltage	120.0 Vac
Current	0.0896 A
Power	10.29 W
Frequency	59.97 Hz
Power Factor	0.958
Current THD	12.1 %



**Test Report Number: LLIA000954-016B**

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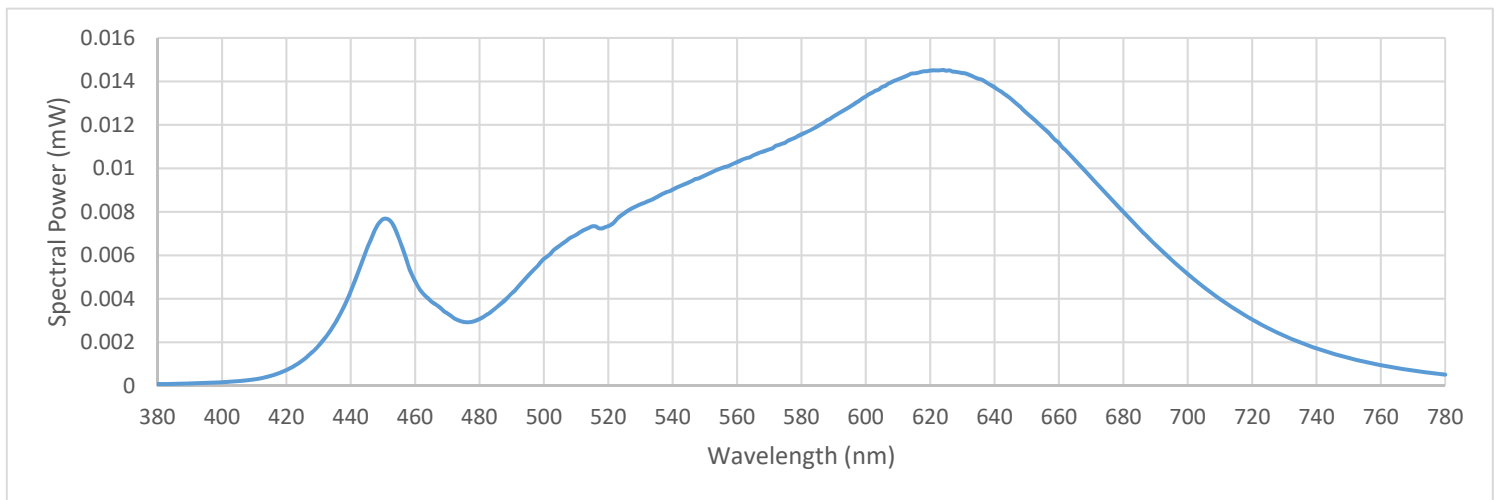
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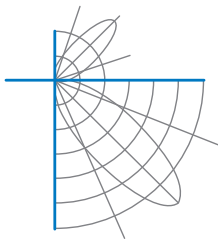
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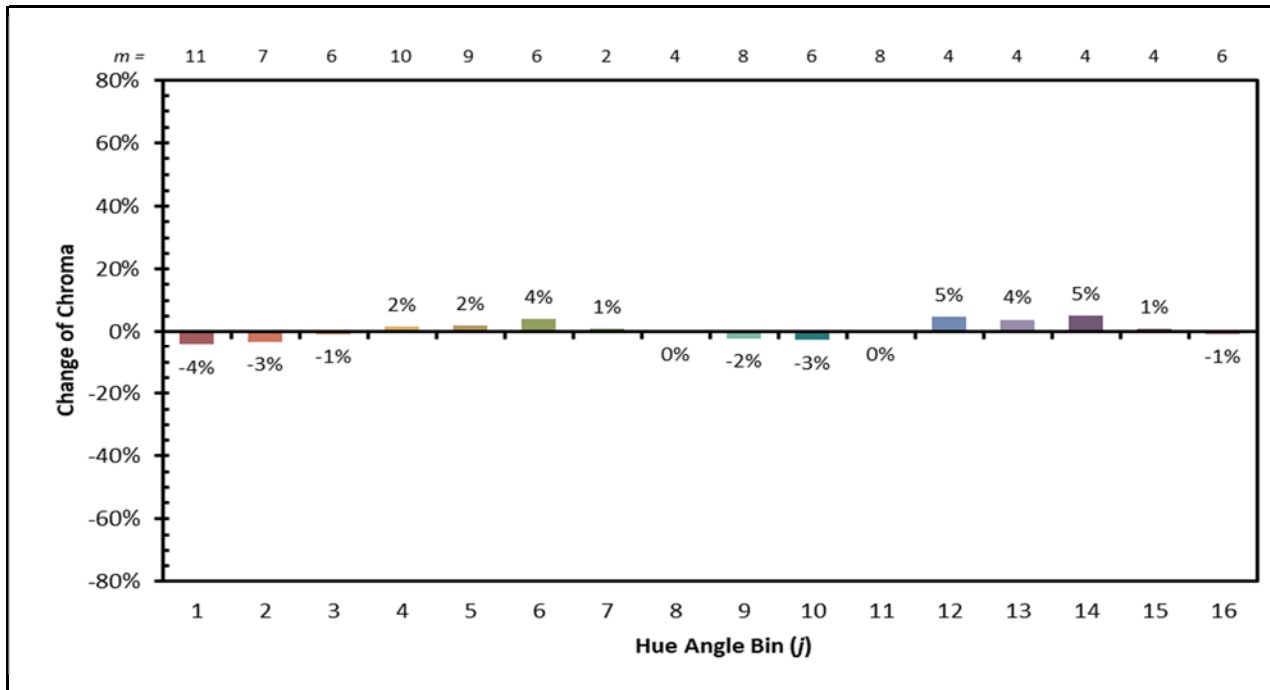
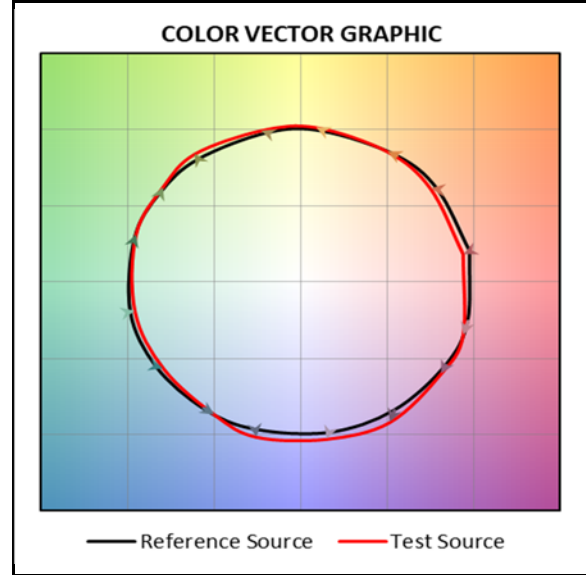
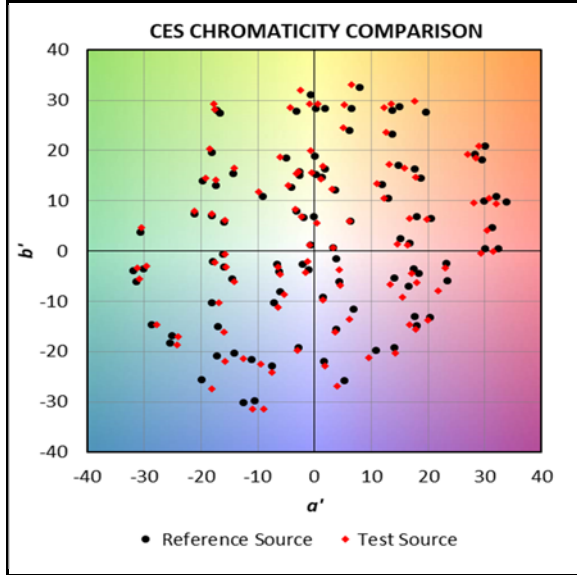
**Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)**

380	0.000081	480	0.003077	580	0.011572	680	0.008000
385	0.000086	485	0.003574	585	0.011947	685	0.007235
390	0.000105	490	0.004254	590	0.012399	690	0.006489
395	0.000129	495	0.005040	595	0.012832	695	0.005777
400	0.000163	500	0.005838	600	0.013305	700	0.005150
405	0.000209	505	0.006456	605	0.013743	705	0.004535
410	0.000295	510	0.006946	610	0.014089	710	0.003980
415	0.000446	515	0.007332	615	0.014375	715	0.003499
420	0.000722	520	0.007348	620	0.014496	720	0.003047
425	0.001161	525	0.007939	625	0.014492	725	0.002650
430	0.001851	530	0.008348	630	0.014385	730	0.002303
435	0.002849	535	0.008677	635	0.014119	735	0.001988
440	0.004339	540	0.009022	640	0.013730	740	0.001714
445	0.006298	545	0.009348	645	0.013204	745	0.001483
450	0.007664	550	0.009680	650	0.012543	750	0.001277
455	0.006759	555	0.010006	655	0.011875	755	0.001098
460	0.004810	560	0.010286	660	0.011170	760	0.000952
465	0.003881	565	0.010600	665	0.010379	765	0.000818
470	0.003330	570	0.010876	670	0.009580	770	0.000700
475	0.002938	575	0.011184	675	0.008798	775	0.000599
						780	0.000515





IES TM-30 Summary





**Test Report Number: LLIA000954-016B**

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24 white LEDs, one Harvard Engineering LEDENG-165-930 LED board with white plastic diffuser

One LTF DA12W350C1834D010-0014 dimmable LED driver.

**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:** 24.1 °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  
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Prorating the performance of the sample for the use of other component  
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