



Report of Test

LLIA000954-011A

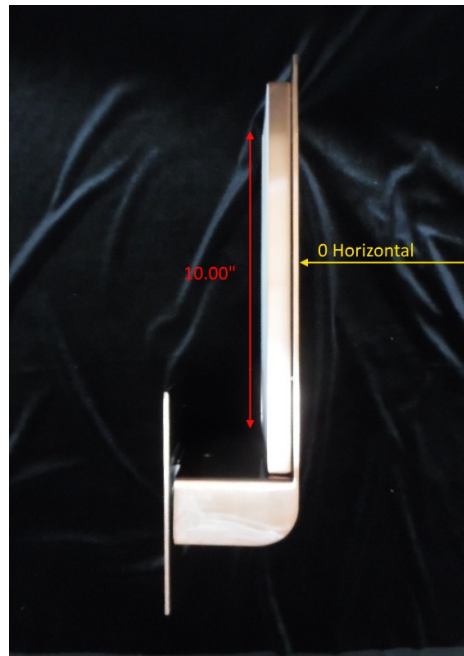
Catalog Number: 3-535-25 Halo Sconce

Wall mounted, formed steel housing, translucent white plastic enclosure.

30 white LEDs, one Harvard Engineering LEDENG-152-930-NL LED board

One LTF DA12W350C1834D010-0014 dimmable LED driver.

120.0Vac, 60.00Hz, 0.1110A, 12.95W, 0.973PF, 9.7%THD(i)



Performance Summary

Total Light Output	709 lm
Luminaire Power	13.0 W
Luminous Efficacy	54.5 lm/W

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



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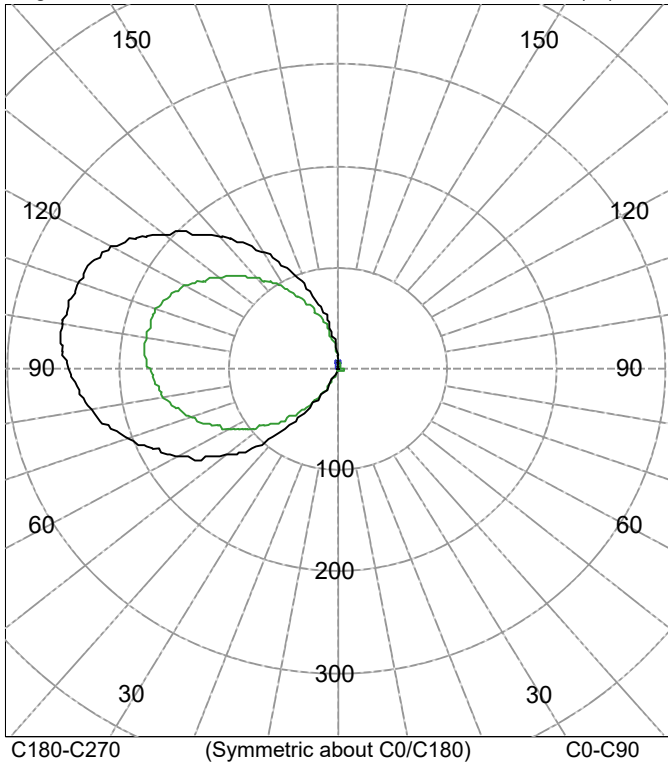
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Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	0	0	0	0	0	
5.0	0	0	0	0	0	0
10.0	0	0	0	0	0	0
15.0	0	0	0	0	0	0
20.0	0	0	0	0	0	0
25.0	0	0	1	0	0	3
30.0	0	0	1	1	0	13
35.0	0	0	2	1	0	27
40.0	0	1	2	1	0	44
45.0	0	1	3	1	0	59
50.0	0	1	4	1	0	73
55.0	0	1	5	1	0	82
60.0	0	1	5	1	0	
65.0	0	2	6	0	0	
70.0	0	2	6	0	0	
75.0	0	3	6	0	0	
80.0	0	3	5	0	0	
85.0	0	3	5	0	0	
90.0	0	3	4	0	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	3	N / A	0.5
0-40	17	N / A	2.3
0-60	87	N / A	12.3
0-90	302	N / A	42.6
40-90	285	N / A	40.2
60-90	214	N / A	30.2
90-180	407	N / A	57.4
0-180	709	N / A	100.0

Total Light Output = 709 lm

Signed:

Authorized Signatory

Date of test 22-Mar-2018

Date of report 22-Mar-2018



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	0	0	0	0	0
2.5	0	0	0	0	0
5.0	0	0	0	0	0
7.5	0	0	0	0	0
10.0	0	0	0	0	0
12.5	0	0	0	0	0
15.0	0	0	0	0	0
17.5	0	0	0	0	0
20.0	0	0	0	0	0
22.5	0	0	1	0	0
25.0	0	0	1	0	0
27.5	0	0	1	0	0
30.0	0	0	1	1	0
32.5	0	0	1	1	0
35.0	0	0	2	1	0
37.5	0	0	2	1	0
40.0	0	1	2	1	0
42.5	0	1	3	1	0
45.0	0	1	3	1	0
47.5	0	1	3	1	0
50.0	0	1	4	1	0
52.5	0	1	4	1	0
55.0	0	1	5	1	0
57.5	0	1	5	1	0
60.0	0	1	5	1	0
62.5	0	2	6	0	0
65.0	0	2	6	0	0
67.5	0	2	6	0	0
70.0	0	2	6	0	0
72.5	0	3	6	0	0
75.0	0	3	6	0	0
77.5	0	3	6	0	0
80.0	0	3	5	0	0
82.5	0	3	5	0	0
85.0	0	3	5	0	0
87.5	0	3	5	0	0
90.0	0	3	4	0	0



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	0	3	4	0	0
92.5	0	3	4	0	0
95.0	0	3	4	0	0
97.5	0	3	4	0	0
100.0	0	3	4	0	0
102.5	0	3	4	0	0
105.0	0	3	4	0	0
107.5	0	2	4	0	0
110.0	0	2	3	0	0
112.5	0	2	3	1	0
115.0	0	2	4	1	0
117.5	0	2	4	1	1
120.0	0	2	4	1	1
122.5	0	2	4	1	1
125.0	0	2	4	1	1
127.5	0	2	4	1	1
130.0	0	2	4	2	1
132.5	0	2	4	2	2
135.0	0	2	4	2	2
137.5	0	2	4	2	2
140.0	0	1	4	3	3
142.5	0	1	4	3	3
145.0	0	1	4	3	3
147.5	0	1	4	4	4
150.0	0	1	4	4	4
152.5	0	1	4	4	5
155.0	0	1	4	4	5
157.5	0	1	4	5	6
160.0	0	0	4	5	6
162.5	0	0	4	5	7
165.0	0	1	4	5	7
167.5	1	2	4	6	7
170.0	3	3	4	6	7
172.5	4	4	5	6	8
175.0	6	6	6	7	8
177.5	7	7	7	8	8
180.0	8	8	8	8	8



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Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	0	0	0	0	0
2.5	0	0	0	0	0
5.0	0	0	0	0	0
7.5	0	0	0	0	0
10.0	0	0	0	0	0
12.5	0	0	0	0	0
15.0	0	1	1	0	0
17.5	0	3	2	0	0
20.0	0	6	3	5	0
22.5	0	10	6	13	1
25.0	0	14	11	23	3
27.5	0	18	18	32	9
30.0	0	22	26	43	23
32.5	0	27	34	52	38
35.0	0	31	41	62	53
37.5	0	36	49	72	68
40.0	0	40	57	81	82
42.5	0	44	65	91	97
45.0	0	48	73	102	111
47.5	0	53	80	111	123
50.0	0	57	87	119	133
52.5	0	61	95	127	143
55.0	0	65	102	137	154
57.5	0	68	109	147	163
60.0	0	72	116	155	171
62.5	0	75	123	162	179
65.0	0	78	130	169	186
67.5	0	81	135	175	194
70.0	0	84	140	183	202
72.5	0	86	146	190	210
75.0	0	89	151	197	217
77.5	0	90	156	203	223
80.0	0	91	160	208	228
82.5	0	92	163	212	232
85.0	0	93	166	216	236
87.5	0	93	169	220	241
90.0	0	93	172	224	245



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120.0Vac, 60.00Hz, 0.1110A, 12.95W, 0.973PF, 9.7%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	0	93	172	224	245
92.5	0	93	174	228	249
95.0	0	92	176	231	252
97.5	0	92	176	233	254
100.0	0	91	177	233	254
102.5	0	90	176	233	254
105.0	0	89	177	232	253
107.5	0	88	176	231	251
110.0	0	87	175	231	250
112.5	0	85	173	230	249
115.0	0	83	169	227	247
117.5	1	81	165	223	243
120.0	1	79	161	218	238
122.5	1	77	156	211	231
125.0	1	75	151	204	224
127.5	1	73	146	197	216
130.0	1	70	140	189	207
132.5	2	67	135	181	199
135.0	2	65	129	173	189
137.5	2	62	123	165	180
140.0	3	59	116	156	171
142.5	3	56	110	148	161
145.0	3	53	103	139	151
147.5	4	49	97	129	141
150.0	4	46	90	120	131
152.5	5	43	83	111	121
155.0	5	39	76	101	110
157.5	6	36	69	91	100
160.0	6	33	62	82	89
162.5	7	29	54	72	78
165.0	7	25	47	62	67
167.5	7	22	40	52	56
170.0	7	18	32	42	46
172.5	8	14	25	32	34
175.0	8	11	17	22	23
177.5	8	9	11	13	13
180.0	8	8	8	8	8



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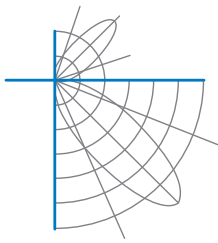
120.0Vac, 60.00Hz, 0.1110A, 12.95W, 0.973PF, 9.7%THD(i)

Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49	43
1	90	83	77	72	81	75	70	65	60	56	53	47	44	41	34	32	30	24
2	80	69	61	54	72	63	55	49	50	44	39	38	33	30	27	23	21	15
3	71	59	50	42	64	53	45	38	42	35	30	31	27	22	22	18	15	10
4	64	51	41	34	58	46	37	31	36	29	24	27	22	18	18	15	12	7
5	59	45	35	28	52	40	32	25	32	25	20	24	18	14	16	12	9	5
6	54	40	30	23	48	36	27	21	28	21	16	21	16	12	14	10	7	4
7	49	35	26	20	44	32	24	18	25	19	14	19	14	10	13	9	6	3
8	45	32	23	17	41	28	21	15	22	16	12	17	12	8	11	8	5	2
9	42	29	20	15	38	26	18	13	20	14	10	15	11	7	10	7	4	2
10	39	26	18	13	35	23	16	12	19	13	9	14	9	6	10	6	4	2

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.



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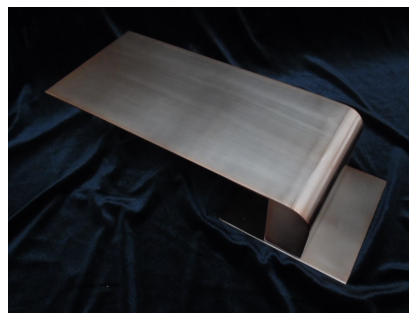
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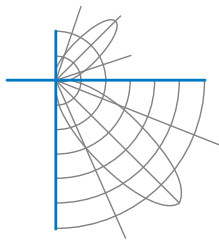
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120.0Vac, 60.00Hz, 0.1110A, 12.95W, 0.973PF, 9.7%THD(i)

Test Distance 9.5 m
Test Temperature 25.1 °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

LLIA000954-011B

Integrating Sphere Report

Catalog Number: 3-535-25 Halo Sconce

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30 white LEDs, one Harvard Engineering LEDENG-152-930-NL LED board

One LTF DA12W350C1834D010-0014 dimmable LED driver.



Performance Summary

Voltage	120.0 Vac
Current	0.1109 A
Power	12.97 W
Frequency	59.97 Hz
Power Factor	0.975
Current THD	10.1 %
Total Luminous Flux	719.1 lm
Efficacy	55.4 lm/W
Chromaticity (x,y)	(0.4366, 0.4032)
(u',v')	(0.2507, 0.5210)
Duv	-0.0003
CCT	2999 K
CRI (Ra)	94
R9	68
TM-30: Rf	92
TM-30: Rg	100

Prepared For:

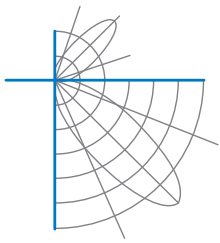
Oxygen Lighting

201 Railhead Road

Fort Worth, TX 76106, USA

Test date: 03/20/2018

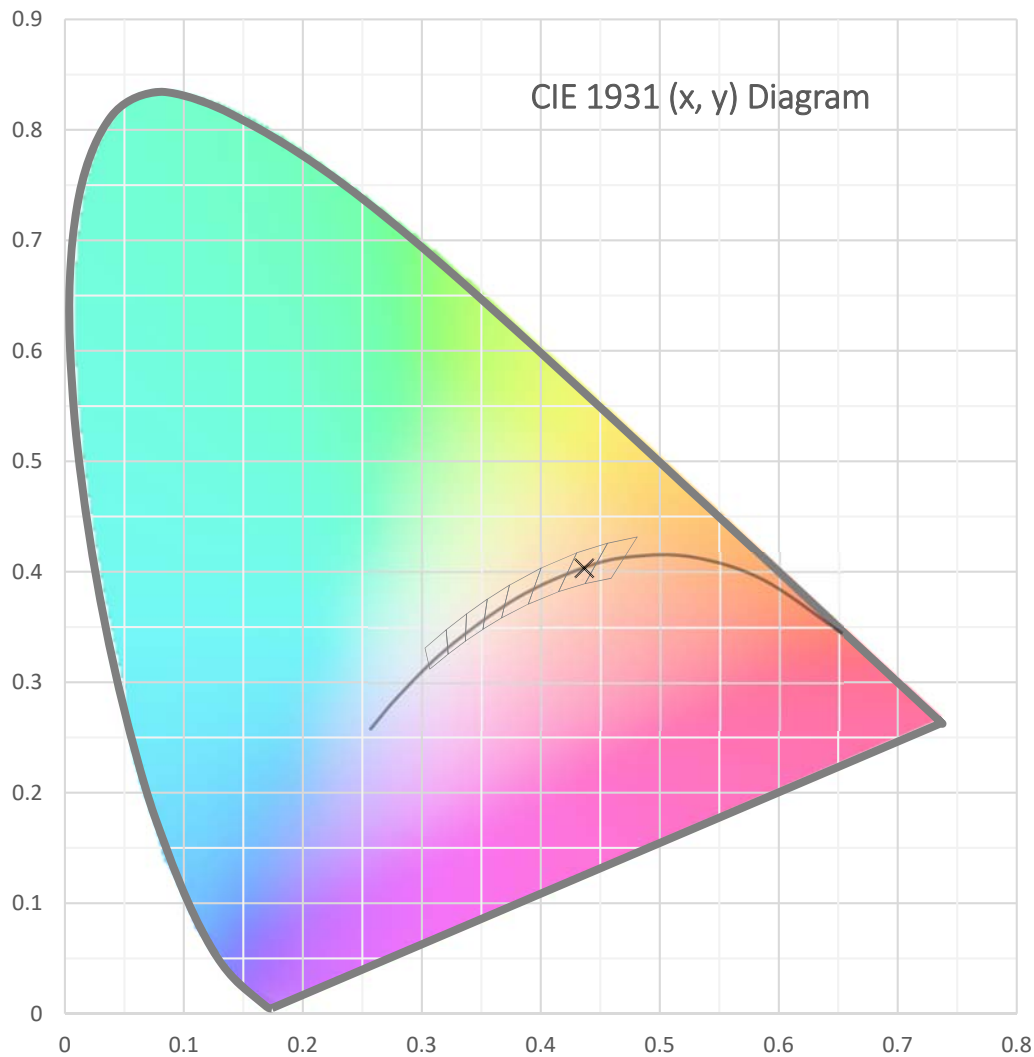
Report date: 03/22/2018

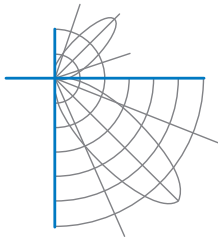


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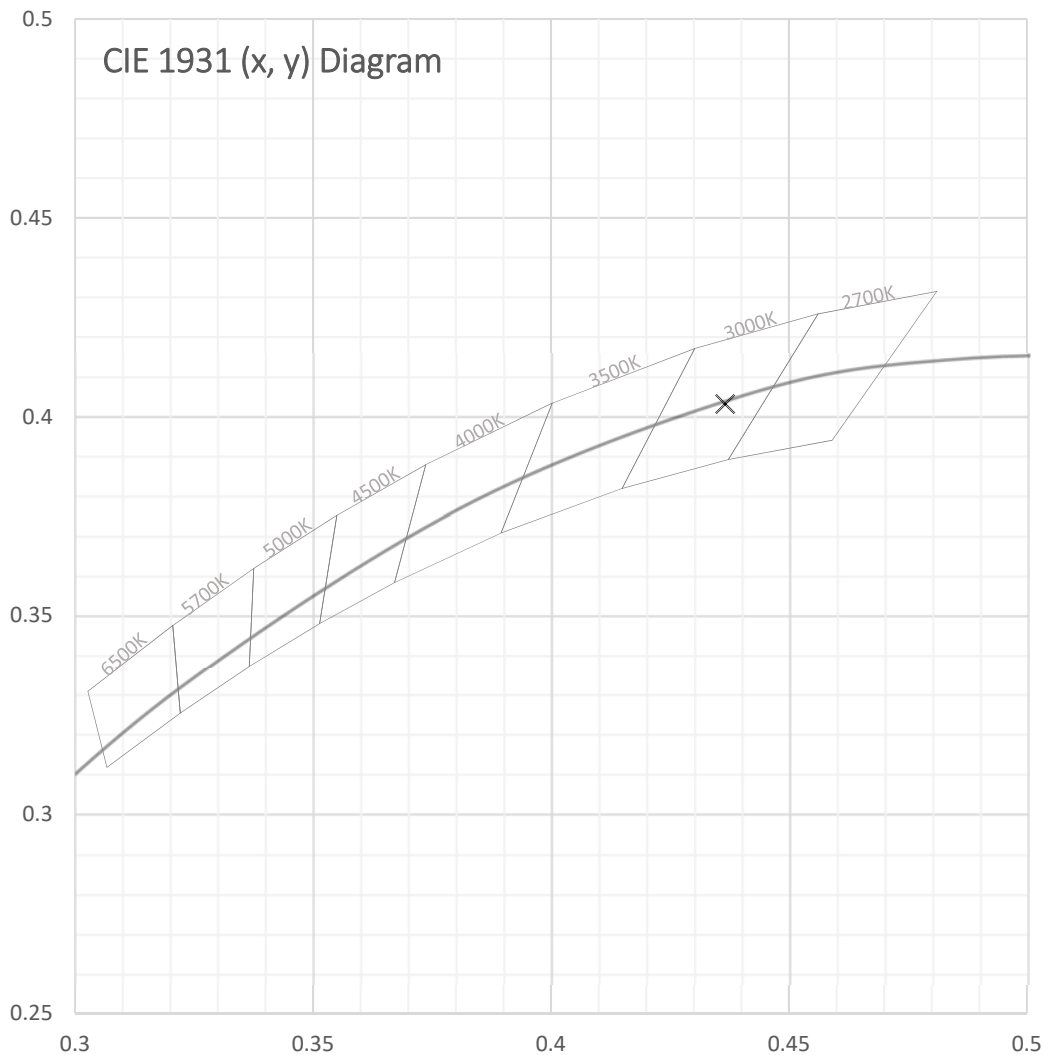




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Spectral Data

Total Radiant Flux	2.563 W
Total Luminous Flux	719.1 Lm
Chromaticity CIE 1931 (x, y)	(0.4366, 0.4032)
Chromaticity CIE 1976 (u', v')	(0.2507, 0.5210)
Correlated Color Temperature (CCT)	2999 K
Color Rendering Index (Ra)	94
R1	95
R2	97
R3	98
R4	95
R5	94
R6	96
R7	94
R8	86
R9	68
R10	92
R11	96
R12	84
R13	95
R14	98
TM-30: Rf	92
TM-30: Rg	100
Distance from Planckian Locus (Duv)	-0.0003
Scotopic/Photopic Ratio *	1.425

Electrical Data

Voltage	120.0 Vac
Current	0.1109 A
Power	12.97 W
Frequency	59.97 Hz
Power Factor	0.975
Current THD	10.1 %



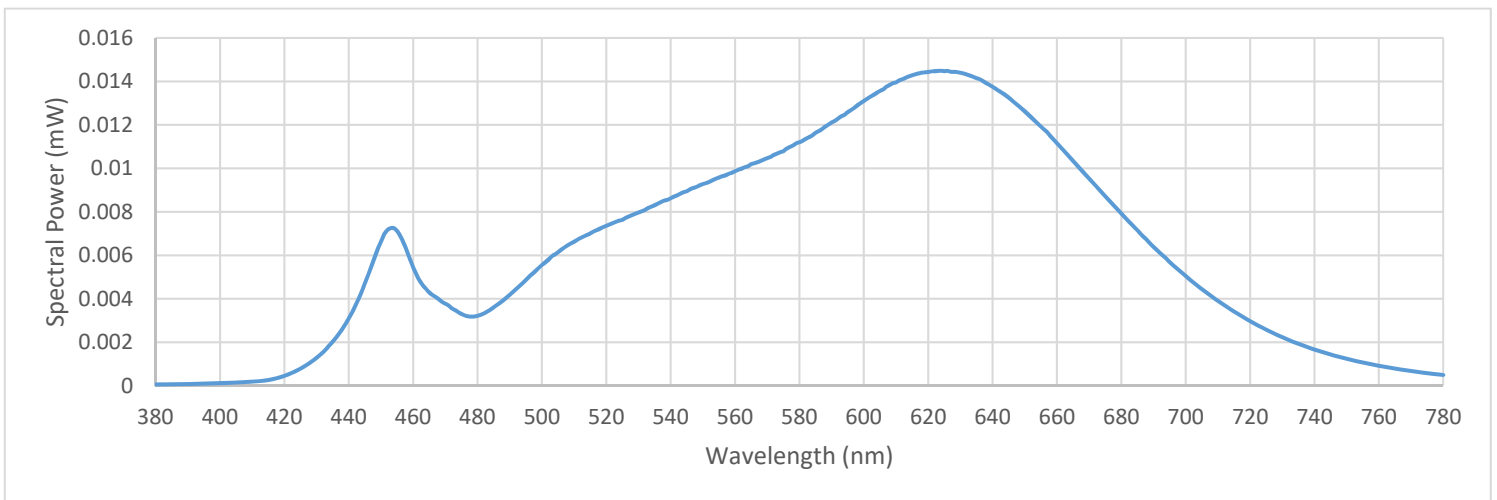
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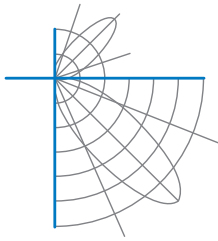
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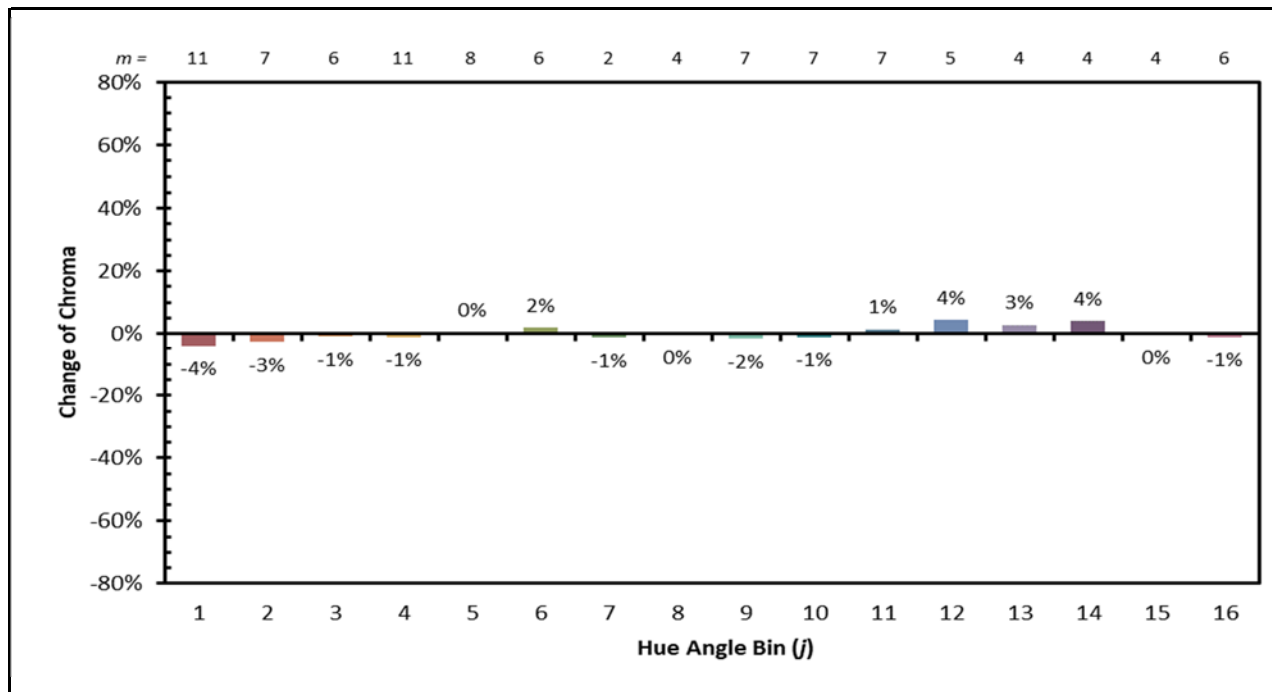
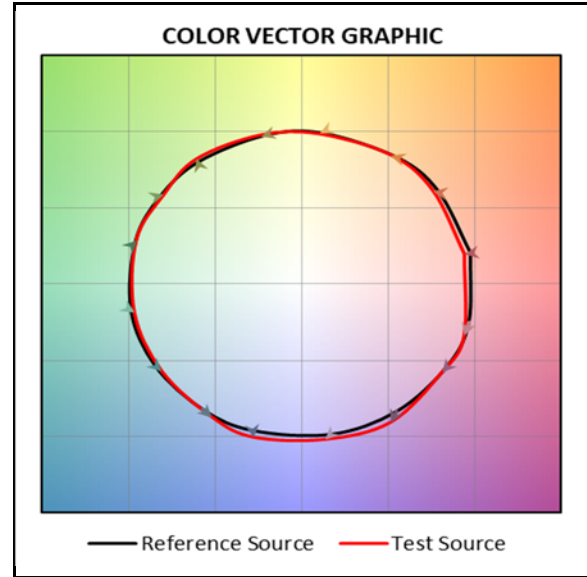
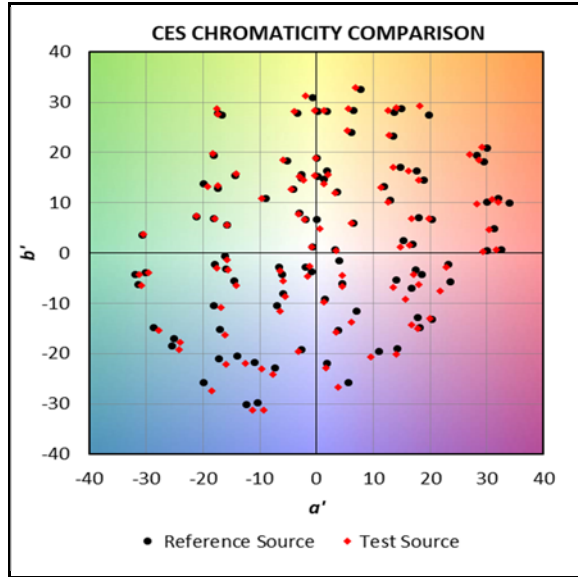
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000062	480	0.003219	580	0.011204	680	0.007917
385	0.000065	485	0.003608	585	0.011636	685	0.007156
390	0.000079	490	0.004180	590	0.012115	690	0.006393
395	0.000098	495	0.004862	595	0.012591	695	0.005682
400	0.000120	500	0.005556	600	0.013100	700	0.005056
405	0.000149	505	0.006140	605	0.013567	705	0.004446
410	0.000188	510	0.006620	610	0.013955	710	0.003904
415	0.000267	515	0.007006	615	0.014279	715	0.003420
420	0.000455	520	0.007358	620	0.014430	720	0.002973
425	0.000784	525	0.007635	625	0.014471	725	0.002579
430	0.001299	530	0.007967	630	0.014391	730	0.002237
435	0.002028	535	0.008307	635	0.014147	735	0.001929
440	0.003091	540	0.008628	640	0.013754	740	0.001663
445	0.004715	545	0.008950	645	0.013258	745	0.001442
450	0.006626	550	0.009280	650	0.012631	750	0.001241
455	0.007122	555	0.009578	655	0.011916	755	0.001068
460	0.005477	560	0.009868	660	0.011176	760	0.000923
465	0.004289	565	0.010192	665	0.010348	765	0.000793
470	0.003776	570	0.010476	670	0.009528	770	0.000677
475	0.003304	575	0.010791	675	0.008730	775	0.000579
						780	0.000497





IES TM-30 Summary





Test Report Number: LLIA000954-011B

Catalog Number: 3-535-25 Halo Sconce

Wall mounted, formed steel housing, translucent white plastic enclosure.
30 white LEDs, one Harvard Engineering LEDENG-152-930-NL LED board
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 4 π geometry

Test Temperature: 24.9 °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
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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.