

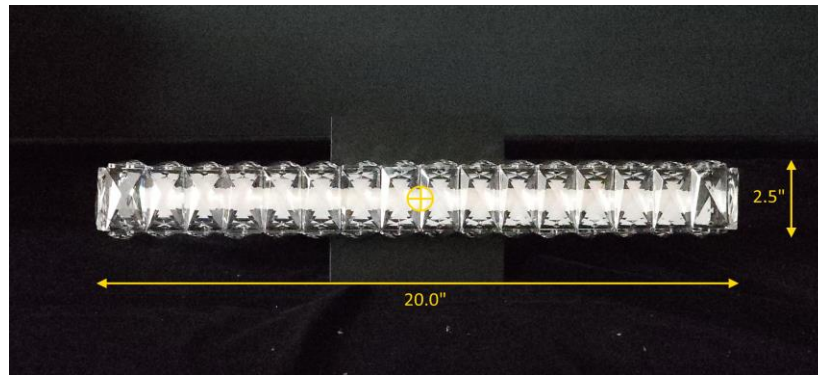


Report of Test

LLIA002028-004A

Indoor Distribution Photometry Test Report

Catalog Number: 3-573-15 ELAN 20" CCT LED WLMT - BK
Wall mounted, black painted formed steel housing,
translucent white ribbed LED enclosure with faceted glass enclosure.
116 white LEDs.
One Novbo NE009120025-2G LED driver



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

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	754.3 Lumens
Input Current	0.0873 A	Total Efficacy	73.0 lm/W
Input Power	10.33 W	Downward Flux	405.7 Lumens
Frequency	60.00 Hz	Downward Flux	53.8 % of Total
Power Factor	0.986		
Current THD	10.8 %		

This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

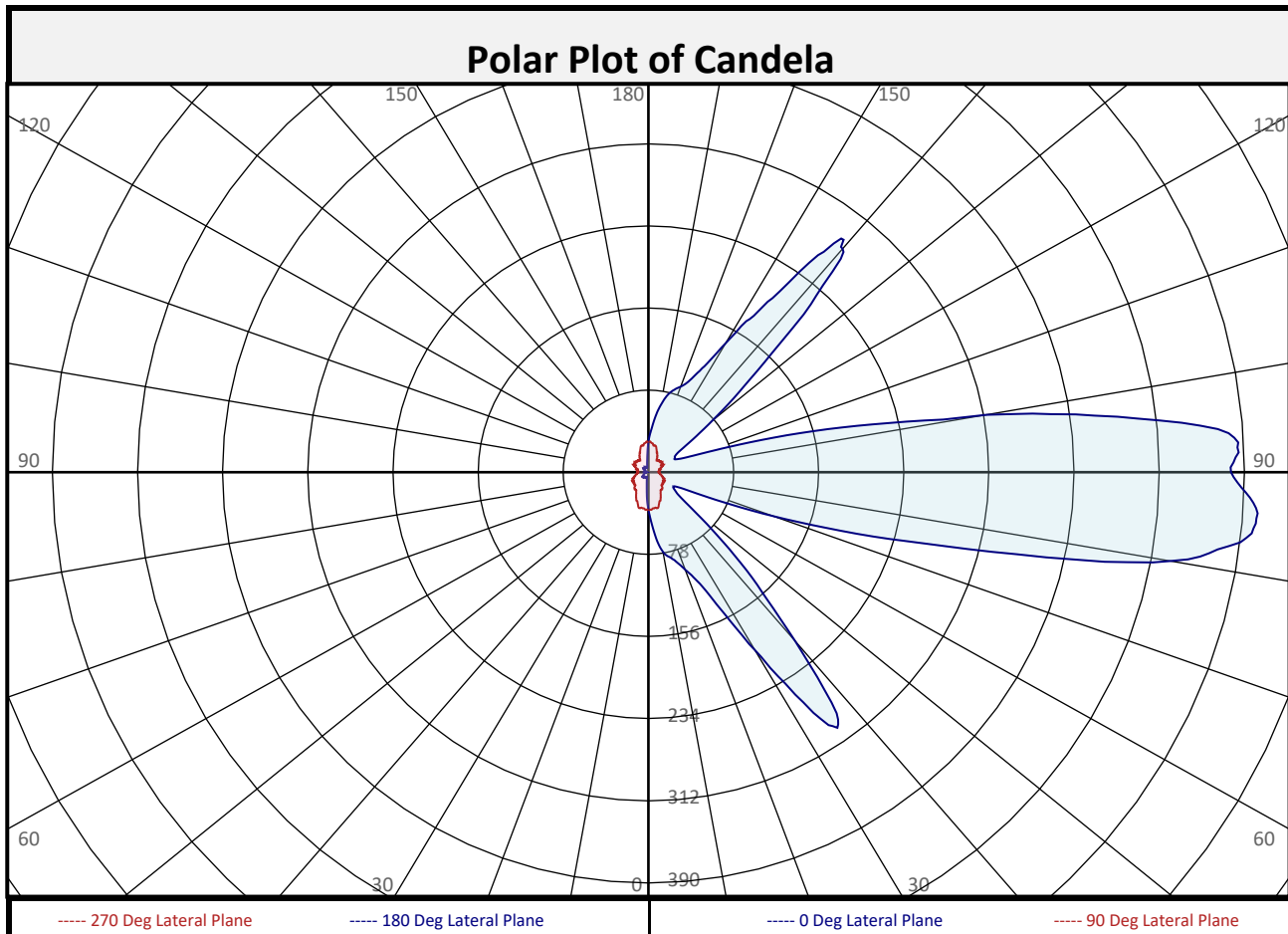
Test date: 03/09/2023
Report date: 03/14/2023

Signed: _____



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Zonal Flux Summary

Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	3.5	0.5%	90-100	124.2	16.5%	0-20	15.0	2.0%
10-20	11.5	1.5%	100-110	41.8	5.5%	0-30	37.6	5.0%
20-30	22.6	3.0%	110-120	27.4	3.6%	0-40	83.9	11.1%
30-40	46.3	6.1%	120-130	36.2	4.8%	0-60	161.5	21.4%
40-50	44.5	5.9%	130-140	48.3	6.4%	0-80	257.3	34.1%
50-60	33.1	4.4%	140-150	39.0	5.2%	10-90	402.2	53.3%
60-70	30.5	4.0%	150-160	19.1	2.5%	20-50	113.4	15.0%
70-80	65.4	8.7%	160-170	9.7	1.3%	40-90	321.9	42.7%
80-90	148.4	19.7%	170-180	2.8	0.4%	60-90	244.3	32.4%
0-90	405.7	53.8%	90-180	348.5	46.2%	0-180	754.3	100.0%



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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	0	35	35	35	35	35	35	35	35	35
	2.5	45	44	42	39	36	33	30	28	27
	5	56	53	48	42	36	29	23	19	17
	7.5	68	64	57	45	35	24	17	13	12
	10	77	73	64	49	34	20	12	10	9
	12.5	82	78	71	54	35	17	9	7	7
	15	85	81	75	59	35	14	7	5	5
	17.5	91	86	79	61	32	12	6	5	5
	20	98	96	82	62	30	11	6	4	5
	22.5	108	102	84	63	29	10	6	5	5
	25	123	111	86	65	27	9	6	5	5
	27.5	153	128	94	69	24	8	6	5	6
	30	195	159	103	70	23	8	5	6	6
	32.5	250	200	120	70	21	7	6	6	5
	35	294	228	132	72	20	7	6	6	6
	37.5	276	225	148	76	21	7	7	6	6
	40	209	205	146	77	20	7	7	6	6
	42.5	153	173	141	82	19	8	7	6	6
	45	111	138	142	87	17	7	6	5	7
	47.5	73	109	139	86	17	8	7	5	6
50	44	92	124	82	17	7	7	5	7	
52.5	33	75	106	87	16	8	7	5	7	
55	30	56	91	93	17	9	7	5	7	
57.5	27	39	82	91	17	9	6	5	6	
60	27	32	75	86	16	10	6	5	5	
62.5	31	32	66	79	17	10	6	5	5	
65	43	42	61	71	15	10	5	4	4	
67.5	74	58	58	66	15	9	5	4	4	
70	122	79	59	58	14	8	4	3	4	
72.5	185	114	67	50	13	8	4	3	3	
75	261	168	81	49	13	7	5	3	3	
77.5	373	246	109	48	12	7	5	3	3	
80	485	338	156	53	11	7	4	2	2	
82.5	536	419	223	62	11	7	5	2	2	
85	558	463	282	79	10	7	5	2	2	
87.5	551	490	317	89	10	8	5	3	2	
90	534	495	316	89	9	8	5	2	2	

16 lateral half-planes of data were acquired, 22.5 degree increments shown.



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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	534	495	316	89	9	8	5	2	2
	92.5	540	462	265	81	10	8	5	2	2
	95	508	389	204	64	10	7	5	2	2
	97.5	412	300	140	51	11	7	4	2	2
	100	314	212	97	47	11	6	4	2	2
	102.5	210	135	70	43	10	6	4	2	2
	105	144	90	61	44	11	6	4	2	2
	107.5	88	62	56	51	11	7	4	3	3
	110	52	45	56	59	13	7	4	3	3
	112.5	36	33	60	66	13	8	4	3	3
	115	30	30	64	70	15	9	5	4	4
	117.5	27	35	73	77	16	10	5	4	4
	120	28	48	81	80	13	9	5	4	5
	122.5	29	66	94	83	14	9	5	5	5
	125	34	82	106	81	15	9	6	5	6
	127.5	51	95	117	77	16	9	6	5	6
	130	77	114	120	83	15	8	6	5	6
	132.5	112	147	119	80	15	7	6	5	6
	135	160	175	128	76	14	7	6	5	5
	137.5	228	204	146	70	15	7	6	5	5
	140	277	227	142	68	15	6	6	6	5
	142.5	264	208	123	63	14	6	6	6	6
	145	210	172	110	60	13	6	6	6	5
	147.5	172	143	98	62	14	7	6	5	5
150	142	120	89	59	17	7	6	5	5	
152.5	116	108	82	57	18	7	6	5	5	
155	102	100	80	54	19	8	6	5	6	
157.5	92	92	77	52	20	9	6	5	5	
160	87	83	72	53	22	9	6	5	5	
162.5	83	78	69	51	24	9	5	5	4	
165	79	75	65	47	26	10	6	5	5	
167.5	73	69	59	42	26	12	7	5	5	
170	65	62	53	39	26	14	9	7	7	
172.5	55	53	46	37	28	17	12	10	9	
175	45	44	40	35	28	21	16	13	13	
177.5	37	36	34	32	29	25	22	20	19	
180	29	29	29	29	29	29	29	29	29	

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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Coefficients of Utilization/Room 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	50	30	10	0
RCR																					
0	108	108	108	108	100	100	100	100	85	85	85	72	72	72	60	60	60	54			
1	91	83	76	70	83	76	70	64	63	58	54	51	47	44	40	37	35	29			
2	81	70	61	53	74	64	56	49	53	47	41	43	38	33	33	29	26	21			
3	73	61	51	43	66	55	47	40	46	39	33	37	31	27	28	24	21	16			
4	67	53	43	36	60	49	40	33	40	33	28	32	27	22	25	21	17	13			
5	61	47	37	30	55	43	34	28	36	29	23	29	23	19	22	18	15	11			
6	56	42	33	26	51	39	30	24	32	25	20	26	20	16	20	16	13	9			
7	52	38	29	22	47	35	26	21	29	22	17	24	18	14	18	14	11	8			
8	48	34	25	19	44	31	23	18	26	20	15	21	16	12	17	13	10	7			
9	45	31	23	17	41	29	21	16	24	18	13	20	15	11	16	12	9	6			
10	42	28	20	15	38	26	19	14	22	16	12	18	13	10	14	10	8	5			

For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp 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)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	1.0	7.25	6.12
8.0	0.6	9.67	8.16
10.0	0.4	12.09	10.20
12.0	0.2	14.51	12.24
14.0	0.2	16.92	14.28
16.0	0.1	19.34	16.31

Spacing Criterion	
0 deg:	2.2
90 deg:	1.0
180 deg:	0.2
270 deg:	1.0

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	1099	1099	1099
45	2440	3471	676
55	659	2305	761
65	1011	1645	875
75	6596	2442	1057
85	15980	9939	1454



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UGR Table - Corrected

Reflectances

Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20

Room Size

UGR Viewed Crosswise

UGR Viewed Endwise

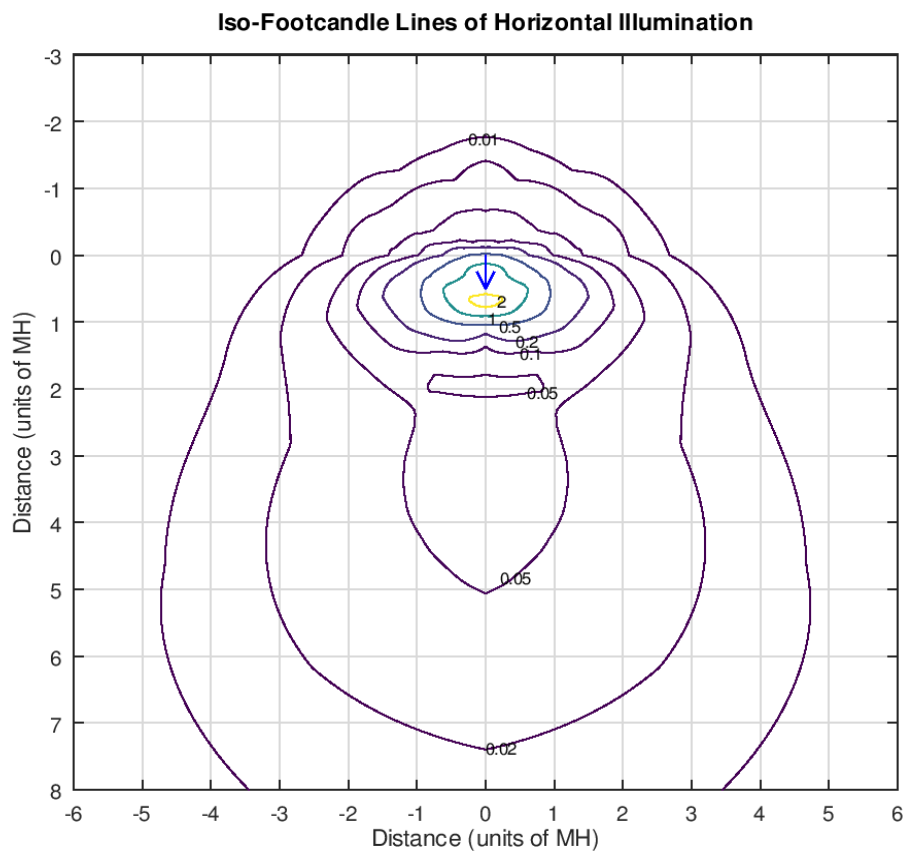
X=2H	Y=2H	7.2	8.3	8.1	9.2	10.4	8.6	9.7	9.5	10.6	11.8
	3H	14.8	15.8	15.7	16.7	17.9	9.6	10.6	10.5	11.5	12.7
	4H	21.7	22.7	22.6	23.6	24.8	9.8	10.8	10.8	11.8	13.0
	6H	28.3	29.2	29.2	30.2	31.4	10.1	11.0	11.0	12.0	13.2
	8H	30.9	31.7	31.8	32.7	34.0	10.3	11.2	11.2	12.1	13.4
	12H	33.0	33.8	33.9	34.8	36.1	10.4	11.3	11.4	12.2	13.5
4H	2H	9.0	10.0	9.9	10.9	12.1	9.2	10.1	10.1	11.1	12.3
	3H	15.8	16.6	16.7	17.6	18.8	10.7	11.6	11.7	12.6	13.8
	4H	22.5	23.3	23.4	24.3	25.5	11.4	12.2	12.3	13.2	14.4
	6H	29.2	29.9	30.1	30.9	32.2	12.0	12.8	13.0	13.8	15.0
	8H	31.9	32.6	32.8	33.6	34.9	12.4	13.1	13.3	14.1	15.3
	12H	34.2	34.9	35.2	35.9	37.1	12.7	13.4	13.7	14.4	15.6
8H	4H	22.7	23.4	23.7	24.4	25.7	13.9	14.7	14.9	15.6	16.9
	6H	29.6	30.2	30.5	31.2	32.5	15.4	16.0	16.3	17.0	18.3
	8H	32.5	33.0	33.4	34.0	35.3	16.0	16.5	16.9	17.5	18.8
	12H	35.0	35.5	35.9	36.5	37.8	16.4	17.0	17.4	18.0	19.3
12H	4H	22.7	23.4	23.7	24.4	25.7	16.6	17.3	17.6	18.3	19.5
	6H	29.6	30.2	30.6	31.2	32.5	18.3	18.8	19.2	19.8	21.1
	8H	32.6	33.1	33.5	34.1	35.4	19.1	19.6	20.1	20.6	21.9

Maximum UGR = 37.8



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Iso-Illuminance Plot

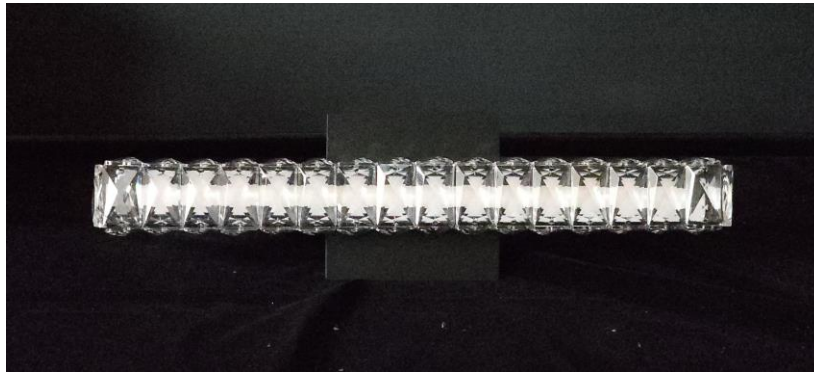


The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.



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Additional Pictures of Test Subject





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Test Distance 9.5 m
Ambient Temperature 25.4 °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 IES LM-79-19. Format of reports and angular increments based on IES LM-41-20 and LM-46-20.

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 C-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

LLIA002028-004B

Integrating Sphere Report

Catalog Number: 3-573-15 ELAN 20" CCT LED WLMT - BK

Wall mounted, black painted formed steel housing,
translucent white ribbed LED enclosure with faceted glass enclosure.

116 white LEDs.

One Novbo NE009120025-2G LED driver



Performance Summary

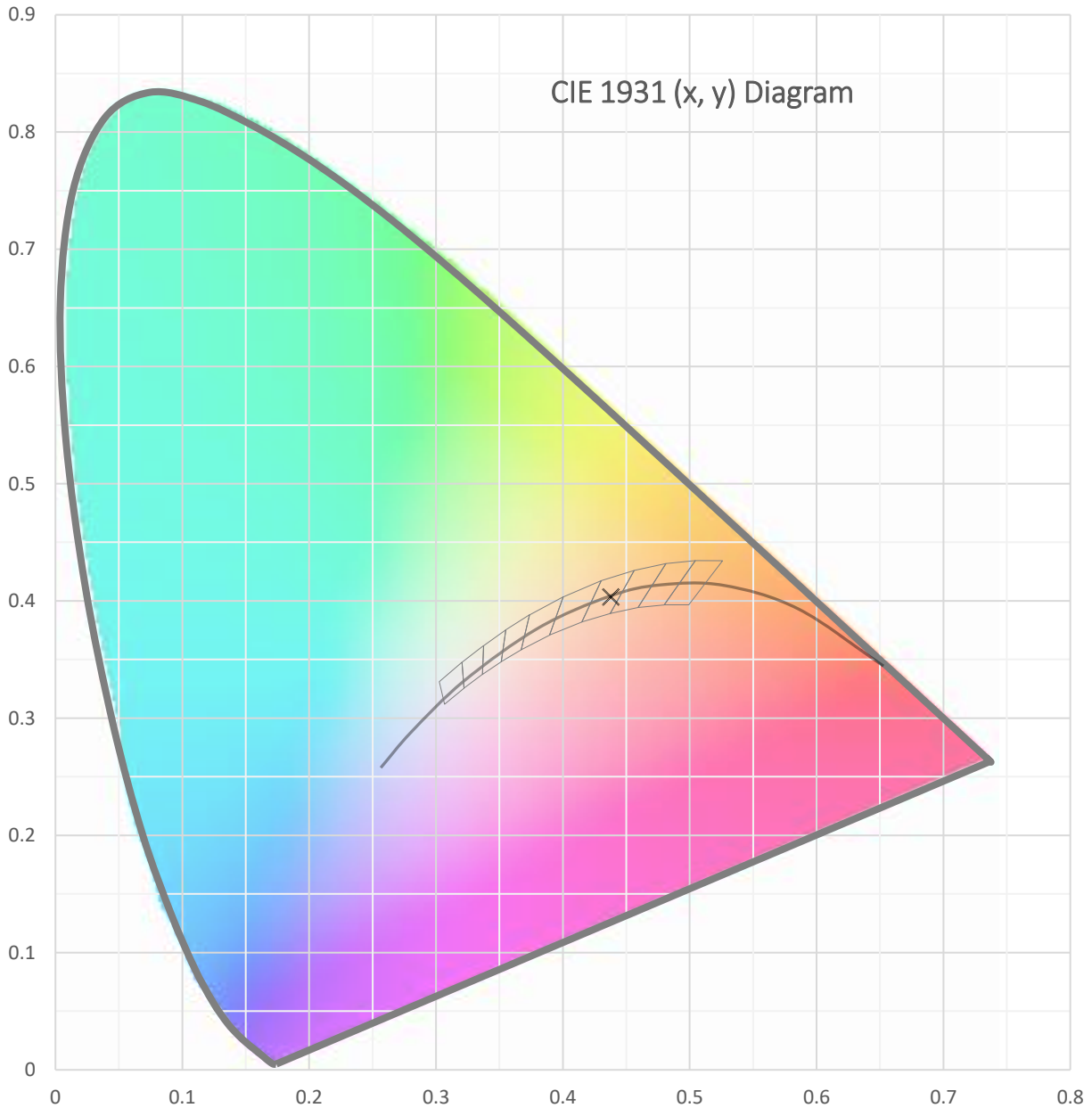
Voltage	120.0 Vac
Current	0.0873 A
Power	10.33 W
Frequency	59.99 Hz
Power Factor	0.986
Current THD	10.8 %
Total Luminous Flux	756.6 lm
Efficacy	73.2 lm/W
Chromaticity (x,y)	(0.4379, 0.4035)
(u',v')	(0.2515, 0.5213)
Duv	-0.0004
CCT	2978 K
CRI (Ra)	93
R9	64
TM-30: Rf	91
TM-30: Rg	99
TM-30: Rcs,h1	-5

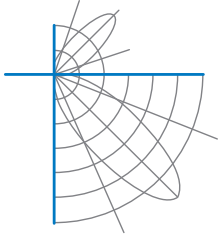
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 03/08/2023
Report date: 03/14/2023

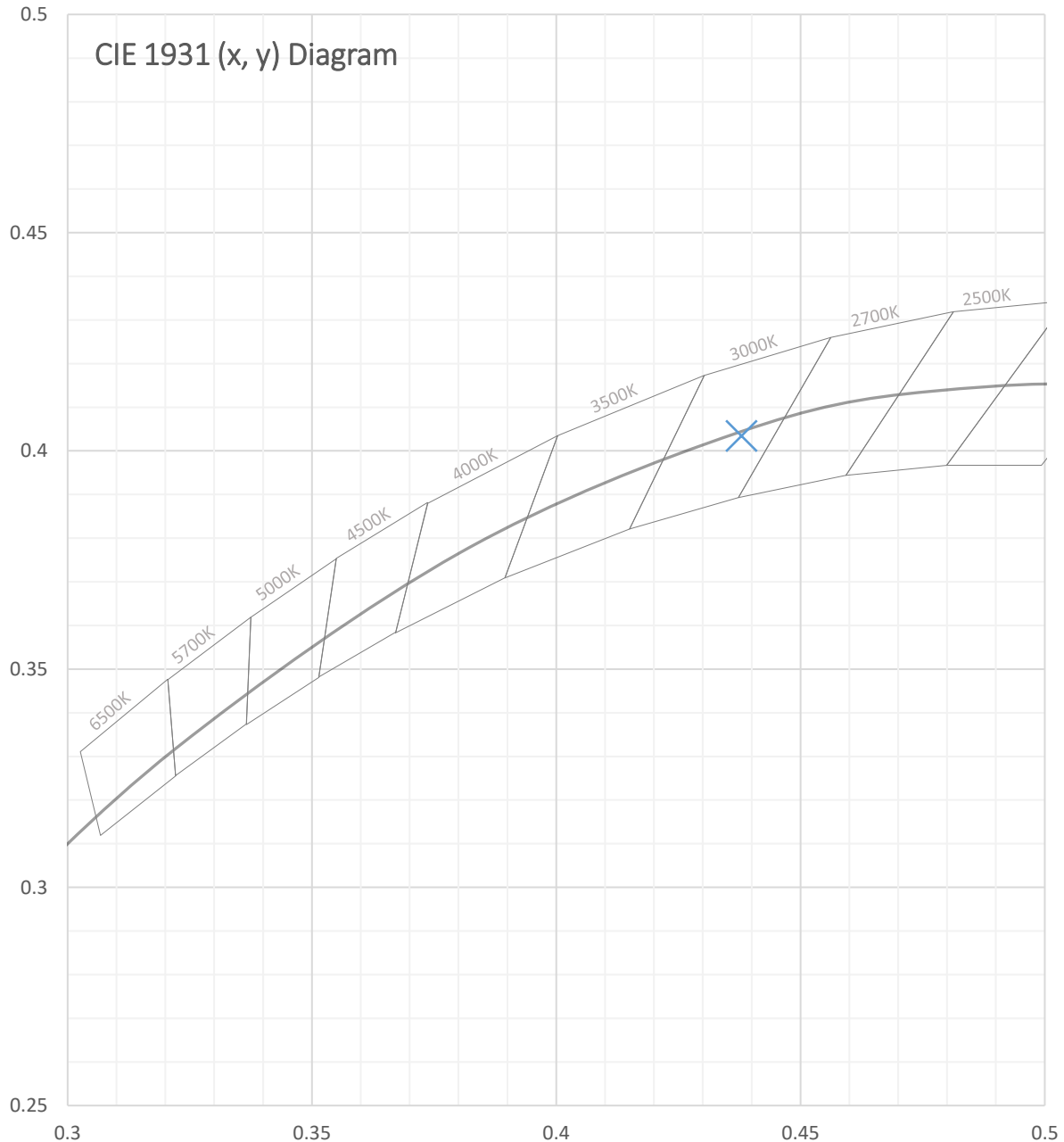


Test Report Number: LLIA002028-004B





Test Report Number: LLIA002028-004B





Test Report Number: LLIA002028-004B

Total Radiant Flux	2.661 W
Total Luminous Flux	756.6 Lm
Chromaticity CIE 1931 (x, y)	(0.4379, 0.4035)
Chromaticity CIE 1976 (u', v')	(0.2515, 0.5213)
Correlated Color Temperature (CCT)	2978 K
Color Rendering Index (Ra)	93
R1	93
R2	96
R3	97
R4	93
R5	92
R6	95
R7	93
R8	84
R9	64
R10	90
R11	93
R12	79
R13	94
R14	98
TM-30: Rf	91
TM-30: Rg	99
TM-30: Rcs,h1	-5
Distance from Planckian Locus (Duv)	-0.0004
Scotopic/Photopic Ratio ‡	1.402

Electrical Data

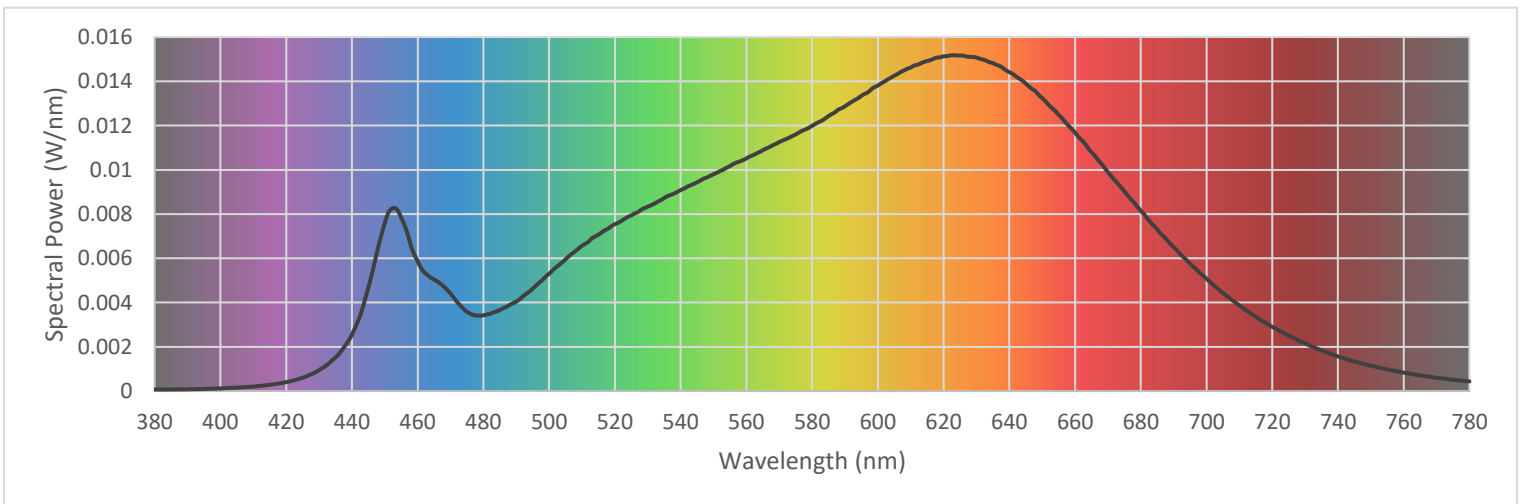
Voltage	120.0 Vac
Current	0.0873 A
Power	10.33 W
Frequency	59.99 Hz
Power Factor	0.986
Current THD	10.8 %



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

380	0.000071	480	0.003424	580	0.011989	680	0.008145
385	0.000072	485	0.003663	585	0.012430	685	0.007310
390	0.000078	490	0.004048	590	0.012871	690	0.006510
395	0.000096	495	0.004635	595	0.013346	695	0.005755
400	0.000121	500	0.005309	600	0.013807	700	0.005078
405	0.000157	505	0.005958	605	0.014254	705	0.004434
410	0.000206	510	0.006566	610	0.014624	710	0.003869
415	0.000282	515	0.007070	615	0.014918	715	0.003363
420	0.000403	520	0.007544	620	0.015132	720	0.002902
425	0.000602	525	0.007938	625	0.015162	725	0.002506
430	0.000953	530	0.008335	630	0.015074	730	0.002154
435	0.001519	535	0.008720	635	0.014823	735	0.001839
440	0.002547	540	0.009085	640	0.014415	740	0.001564
445	0.004680	545	0.009435	645	0.013899	745	0.001341
450	0.007593	550	0.009799	650	0.013240	750	0.001149
455	0.007835	555	0.010164	655	0.012481	755	0.000978
460	0.005858	560	0.010511	660	0.011688	760	0.000836
465	0.005039	565	0.010884	665	0.010796	765	0.000708
470	0.004411	570	0.011254	670	0.009897	770	0.000602
475	0.003579	575	0.011597	675	0.009030	775	0.000512
						780	0.000436

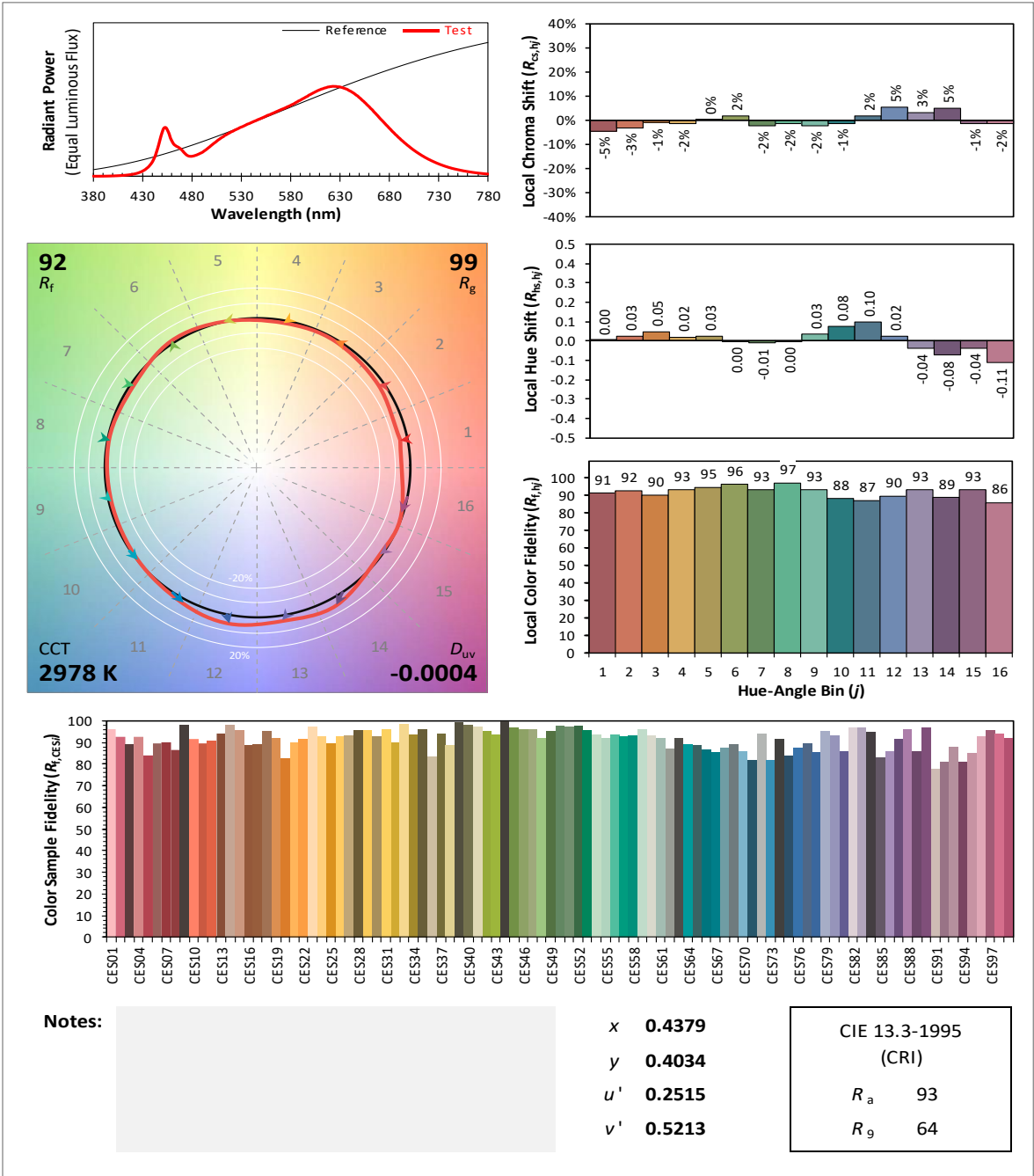


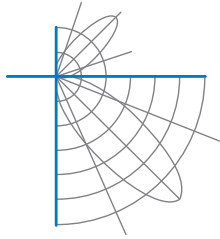


Test Report Number: LLIA002028-004B

IES TM-30 Details

Source: LLIA002028-004B	Manufacturer: Oxygen Lighting
Date: 3/14/2023	Model: 3-573-15 ELAN 20" CCT LED WLMT - BK





Test Report Number: LLIA002028-004B

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: 25.1 °C

Test Procedure: Tested in accordance with the applicable sections of:
LM-79-19, LM-78-20, LM-58-20, ANSI_ANSLG C78.377-2017, TM-30-20

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.

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