

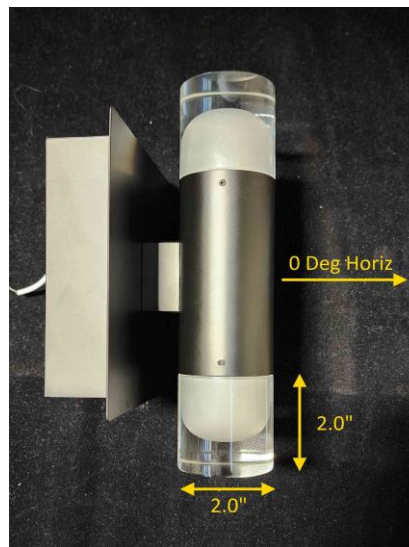


## Report of Test

**LLIA002028-006A**

Indoor Distribution Photometry Test Report

Catalog Number: 3-594-15 ALARUM 2LT LED WLMT - BK  
Wall mounted, black painted formed steel housing,  
clear glass enclosures with frosted interior.  
24 white LEDs. Two white circuit boards with 12 LEDs each.  
One Novbo NE007040018-6G LED driver



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

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	378.2 Lumens
Input Current	0.0643 A	Total Efficacy	50.0 lm/W
Input Power	7.56 W	Downward Flux	186.9 Lumens
Frequency	60.00 Hz	Downward Flux	49.4 % of Total
Power Factor	0.979		
Current THD	12.5 %		

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

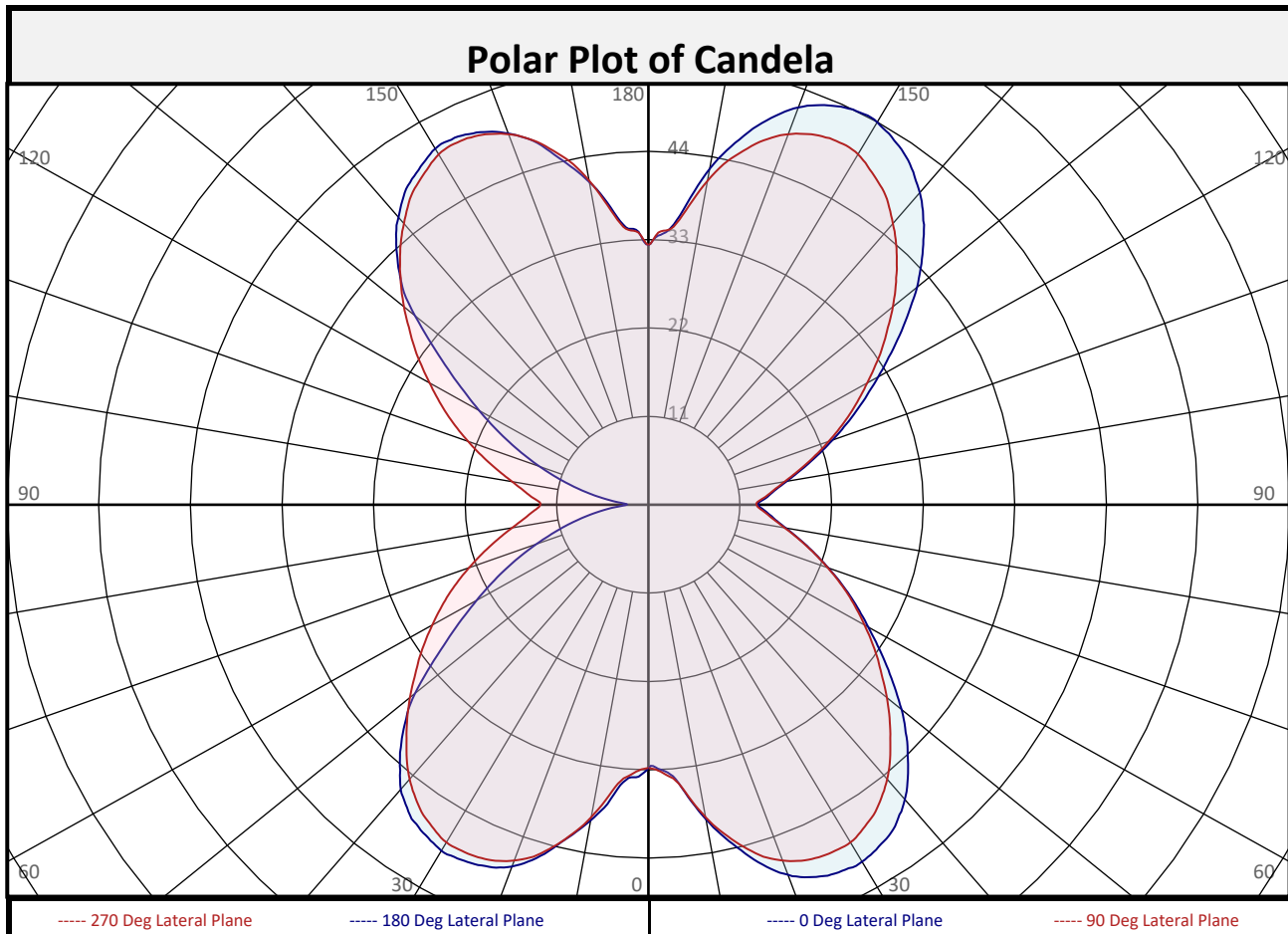
Test date: 03/17/2023  
Report date: 03/21/2023

Signed: \_\_\_\_\_



## Report of Test

### LLIA002028-006A



### 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	0.9%	90-100	12.8	3.4%	0-20	16.2	4.3%
10-20	12.7	3.4%	100-110	18.1	4.8%	0-30	39.0	10.3%
20-30	22.9	6.0%	110-120	24.6	6.5%	0-40	69.5	18.4%
30-40	30.4	8.0%	120-130	30.3	8.0%	0-60	131.6	34.8%
40-50	32.6	8.6%	130-140	33.5	8.9%	0-80	174.0	46.0%
50-60	29.6	7.8%	140-150	31.4	8.3%	10-90	183.4	48.5%
60-70	24.3	6.4%	150-160	23.9	6.3%	20-50	85.8	22.7%
70-80	18.1	4.8%	160-170	13.3	3.5%	40-90	117.4	31.0%
80-90	12.9	3.4%	170-180	3.6	0.9%	60-90	55.3	14.6%
0-90	186.9	49.4%	90-180	191.3	50.6%	0-180	378.2	100.0%



## Report of Test

### LLIA002028-006A

#### 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	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
	2.5	33.0	32.9	32.9	33.1	33.3	33.5	33.8	33.9	34.0
	5	33.9	33.9	33.8	33.8	34.2	34.7	34.7	34.7	34.7
	7.5	36.7	36.8	36.5	36.4	36.6	37.3	37.6	37.6	37.6
	10	39.7	39.7	39.4	39.4	39.5	40.2	40.7	40.1	39.9
	12.5	42.4	42.4	42.1	41.9	41.9	42.7	42.5	42.2	42.1
	15	45.0	45.0	44.7	44.3	44.1	44.9	44.5	44.3	44.3
	17.5	47.3	47.3	46.9	46.3	46.0	46.9	46.3	46.3	46.4
	20	49.0	49.1	48.5	47.7	47.1	47.9	47.4	47.9	48.0
	22.5	50.2	50.2	49.5	48.6	48.0	48.6	48.2	49.0	48.9
	25	50.9	51.0	50.2	49.2	48.4	49.1	48.7	49.5	49.4
	27.5	51.2	51.3	50.5	49.5	48.6	49.3	48.8	49.8	49.7
	30	51.3	51.5	50.6	49.5	48.5	49.3	48.9	50.1	49.7
	32.5	50.9	51.1	50.0	49.0	47.9	48.7	48.5	49.7	49.2
	35	50.3	50.5	49.4	48.3	47.2	47.9	47.8	49.4	48.6
	37.5	49.2	49.6	48.3	47.2	46.0	46.8	47.0	48.7	47.6
	40	47.9	48.2	47.0	46.0	44.6	45.4	45.7	47.2	46.3
	42.5	46.1	46.1	45.1	44.2	43.0	43.5	43.5	44.6	44.2
	45	44.0	43.9	43.0	42.2	41.1	41.5	40.8	41.8	41.9
	47.5	41.9	41.8	41.0	40.2	39.3	39.5	38.2	39.2	39.4
50	39.7	39.5	38.8	38.1	37.4	37.4	35.8	36.5	36.6	
52.5	37.3	37.1	36.6	36.0	35.4	35.2	33.2	33.6	32.9	
55	34.9	34.9	34.5	34.1	33.7	33.2	30.9	30.4	29.5	
57.5	32.6	32.7	32.4	32.2	31.8	31.3	28.7	27.4	26.6	
60	30.5	30.6	30.4	30.3	30.0	29.4	26.4	24.5	23.8	
62.5	28.6	28.7	28.6	28.4	28.2	27.5	24.0	21.9	21.2	
65	26.7	26.8	26.7	26.7	26.5	25.7	21.7	19.5	18.8	
67.5	24.8	24.9	24.9	24.8	24.7	23.9	19.6	17.1	16.5	
70	23.0	23.1	23.1	23.1	22.9	22.1	17.2	14.9	14.3	
72.5	21.3	21.4	21.4	21.3	21.2	20.4	15.0	12.9	12.2	
75	19.7	19.7	19.8	19.7	19.6	18.6	12.9	11.1	10.3	
77.5	18.2	18.2	18.2	18.2	18.0	16.9	11.2	9.4	8.6	
80	16.8	16.9	16.8	16.8	16.6	15.4	9.7	7.9	7.0	
82.5	15.6	15.6	15.6	15.5	15.4	14.1	8.4	6.5	5.5	
85	14.7	14.7	14.7	14.6	14.4	13.1	7.3	5.3	4.3	
87.5	13.8	13.9	13.8	13.7	13.5	12.1	6.4	4.2	3.1	
90	13.2	13.3	13.3	13.2	13.0	11.6	5.9	3.6	2.6	

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

**North America (issuing laboratory)**

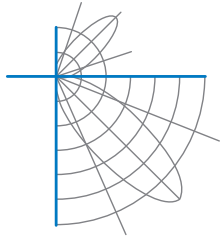
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## Report of Test

### LLIA002028-006A

#### 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	13.2	13.3	13.3	13.2	13.0	11.6	5.9	3.6	2.6
	92.5	13.7	13.8	13.8	13.7	13.5	12.0	6.3	3.9	2.8
	95	14.6	14.8	14.8	14.7	14.5	13.1	7.2	4.8	3.8
	97.5	15.6	15.7	15.7	15.6	15.4	14.0	8.2	6.0	5.1
	100	16.9	17.0	16.9	16.8	16.7	15.3	9.4	7.4	6.6
	102.5	18.3	18.4	18.4	18.2	18.1	16.8	10.9	8.9	8.2
	105	19.9	20.0	20.0	19.8	19.6	18.5	12.6	10.7	9.9
	107.5	21.7	21.7	21.7	21.5	21.3	20.4	14.7	12.6	11.9
	110	23.5	23.5	23.5	23.2	23.0	22.2	17.0	14.6	13.9
	112.5	25.4	25.5	25.4	25.1	24.9	24.0	19.4	16.9	16.1
	115	27.5	27.5	27.3	26.9	26.7	25.9	21.7	19.3	18.4
	117.5	29.6	29.5	29.3	28.8	28.5	27.8	24.2	21.7	20.9
	120	31.9	31.7	31.4	30.7	30.4	29.8	26.7	24.4	23.5
	122.5	34.2	34.1	33.5	32.8	32.3	31.8	29.2	27.3	26.2
	125	36.8	36.6	35.8	34.9	34.3	33.9	31.6	30.5	29.3
	127.5	39.4	39.2	38.2	37.0	36.3	36.0	34.0	33.8	32.8
	130	42.1	41.8	40.6	39.2	38.3	38.1	36.6	37.1	36.6
	132.5	44.5	44.3	42.9	41.3	40.3	40.3	39.0	39.7	40.0
	135	46.7	46.5	45.0	43.3	42.2	42.3	41.3	42.4	42.5
	137.5	48.8	48.8	47.1	45.3	44.0	44.3	43.6	44.8	44.8
140	50.7	50.7	48.9	47.1	45.7	46.1	45.7	47.0	46.7	
142.5	52.2	52.3	50.5	48.7	47.3	47.7	47.2	48.4	48.3	
145	53.5	53.5	51.7	49.9	48.5	49.0	48.4	49.5	49.5	
147.5	54.3	54.3	52.6	50.9	49.5	49.9	49.2	50.3	50.4	
150	55.0	54.9	53.3	51.7	50.4	50.6	50.0	51.0	51.2	
152.5	55.1	54.9	53.4	51.8	50.6	50.9	50.1	51.0	51.2	
155	54.7	54.5	53.1	51.7	50.4	50.7	49.9	50.6	50.9	
157.5	53.9	53.6	52.4	51.0	49.9	50.2	49.4	50.0	50.2	
160	52.7	52.4	51.3	50.1	49.1	49.4	48.6	48.9	49.2	
162.5	50.8	50.6	49.6	48.6	47.7	48.1	47.4	47.5	47.7	
165	48.5	48.3	47.5	46.6	45.9	46.2	45.7	45.4	45.5	
167.5	45.7	45.5	44.9	44.3	43.8	43.8	43.5	43.2	43.1	
170	42.5	42.4	41.9	41.2	40.9	41.1	41.3	40.9	40.8	
172.5	38.6	38.6	38.3	37.8	37.6	37.8	38.0	38.0	37.9	
175	35.0	35.1	34.9	34.8	34.7	35.0	35.0	35.0	35.0	
177.5	33.6	33.6	33.6	33.8	34.1	34.2	34.2	34.2	34.3	
180	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	

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

**North America (issuing laboratory)**

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## Report of Test

### LLIA002028-006A

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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	49			
1	96	91	87	83	88	84	80	77	71	68	65	58	56	54	47	45	44	39			
2	87	79	72	66	80	73	67	62	61	57	53	50	47	44	40	38	36	31			
3	79	69	61	55	72	63	56	51	53	48	44	44	40	37	35	32	30	26			
4	72	60	52	46	66	56	48	43	47	41	37	39	34	31	31	28	25	22			
5	66	54	45	39	60	49	42	36	42	36	31	35	30	26	28	24	22	18			
6	60	48	39	33	55	44	37	31	37	31	27	31	26	23	25	22	19	16			
7	56	43	35	29	51	40	32	27	34	28	23	28	23	20	23	19	16	14			
8	52	39	31	25	47	36	29	24	31	25	21	25	21	18	21	17	15	12			
9	48	35	28	22	44	33	26	21	28	22	18	23	19	16	19	15	13	11			
10	45	32	25	20	41	30	23	19	26	20	16	21	17	14	18	14	12	10			

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	0.9	11.57	11.29
8.0	0.5	15.43	15.05
10.0	0.3	19.28	18.81
12.0	0.2	23.14	22.57
14.0	0.2	26.99	26.34
16.0	0.1	30.85	30.10

Spacing Criterion	
0 deg:	1.9
90 deg:	1.9
180 deg:	1.9
270 deg:	1.9

Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	16175	16175	16175
45	8659	8467	8082
55	6476	6405	6248
65	4819	4826	4782
75	3578	3585	3553
85	2759	2761	2709



## Report of Test

### LLIA002028-006A

#### 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

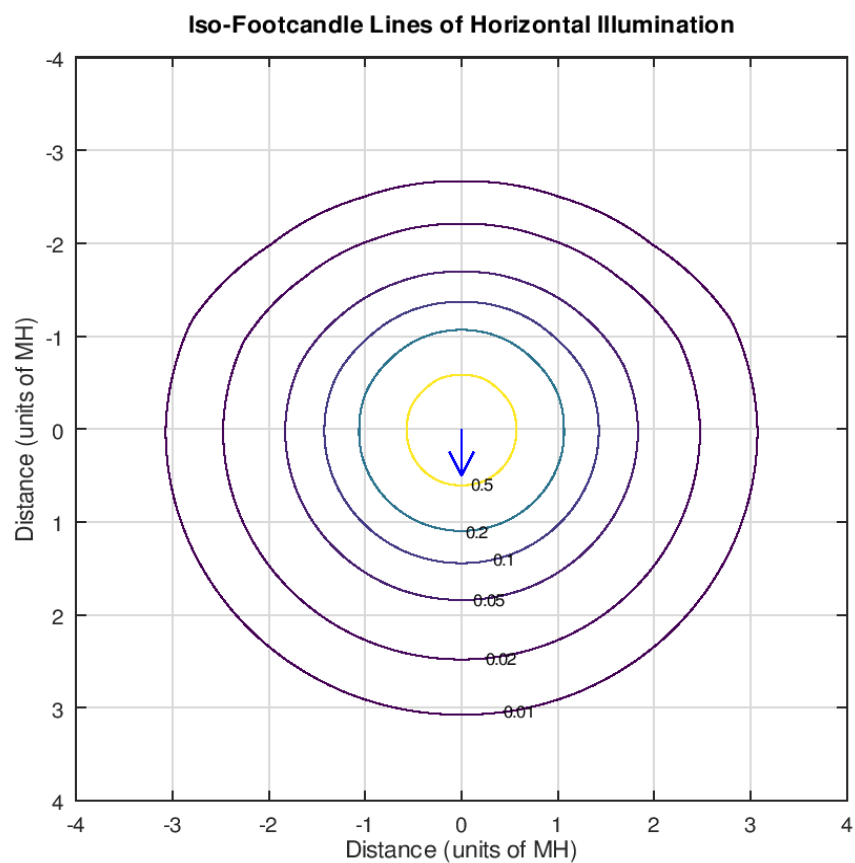
X=2H	Y=2H	11.8	12.7	12.7	13.7	14.9	11.6	12.5	12.5	13.5	14.7
	3H	13.5	14.3	14.5	15.3	16.6	13.4	14.2	14.3	15.2	16.5
	4H	14.2	15.0	15.2	16.0	17.3	14.1	14.9	15.1	15.9	17.2
	6H	14.9	15.6	15.9	16.6	17.9	14.8	15.5	15.7	16.5	17.8
	8H	15.2	15.9	16.2	16.9	18.2	15.0	15.7	16.0	16.7	18.1
	12H	15.5	16.1	16.5	17.1	18.5	15.3	16.0	16.3	17.0	18.3
4H	2H	12.2	13.0	13.2	14.0	15.3	11.9	12.7	12.9	13.7	15.0
	3H	14.1	14.8	15.1	15.8	17.1	13.9	14.6	14.9	15.6	16.9
	4H	15.0	15.6	16.0	16.6	18.0	14.8	15.4	15.8	16.4	17.8
	6H	15.8	16.3	16.8	17.4	18.7	15.6	16.1	16.6	17.2	18.5
	8H	16.2	16.7	17.2	17.7	19.1	16.0	16.5	17.0	17.5	18.9
	12H	16.6	17.0	17.6	18.0	19.4	16.4	16.8	17.4	17.8	19.2
8H	4H	15.3	15.8	16.3	16.8	18.1	15.0	15.5	16.0	16.5	17.8
	6H	16.2	16.6	17.3	17.7	19.1	15.9	16.3	17.0	17.4	18.8
	8H	16.7	17.1	17.8	18.1	19.5	16.4	16.8	17.5	17.9	19.2
	12H	17.2	17.6	18.3	18.6	20.0	16.9	17.3	18.0	18.3	19.7
12H	4H	15.3	15.7	16.3	16.8	18.1	15.0	15.4	16.0	16.4	17.8
	6H	16.3	16.7	17.4	17.7	19.1	16.0	16.3	17.0	17.4	18.8
	8H	16.9	17.2	17.9	18.2	19.7	16.5	16.8	17.6	17.9	19.3

Maximum UGR = 20.0



## Report of Test LLIA002028-006A

### Iso-Illuminance Plot

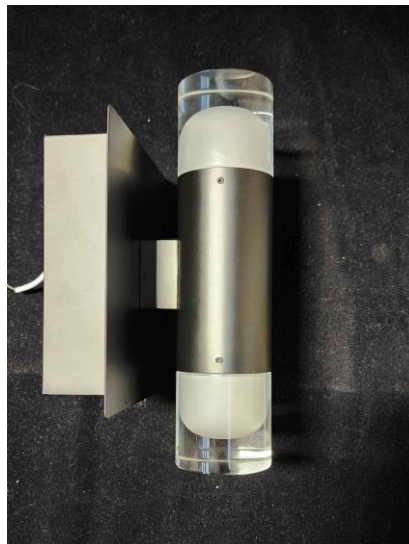
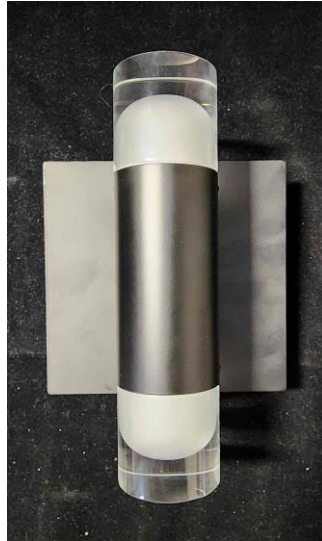


The isofootcandle values shown in the plot above are based on a mounting height of  $h = 8.0$  feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the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



Report of Test  
LLIA002028-006A

**Additional Pictures of Test Subject**







## Report of Test

### LLIA002028-006A

Test Distance                    9.5 m  
Ambient 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 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.

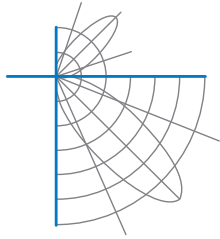
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

**LLIA002028-006B**

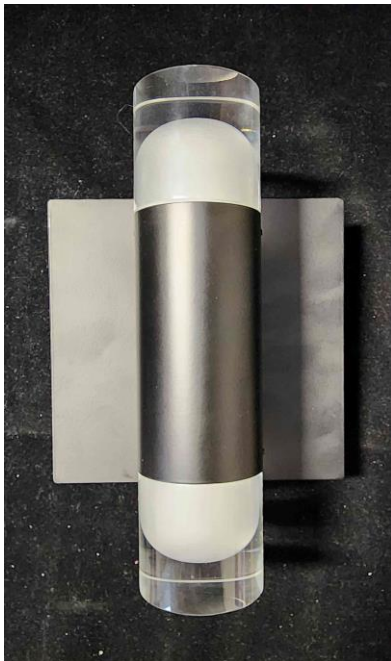
Integrating Sphere Report

Catalog Number: 3-594-15 ALARUM 2LT LED WLMT - BK

Wall mounted, black painted formed steel housing,  
clear glass enclosures with frosted interior.

24 white LEDs. Two white circuit boards with 12 LEDs each.

One Novbo NE007040018-6G LED driver



### Performance Summary

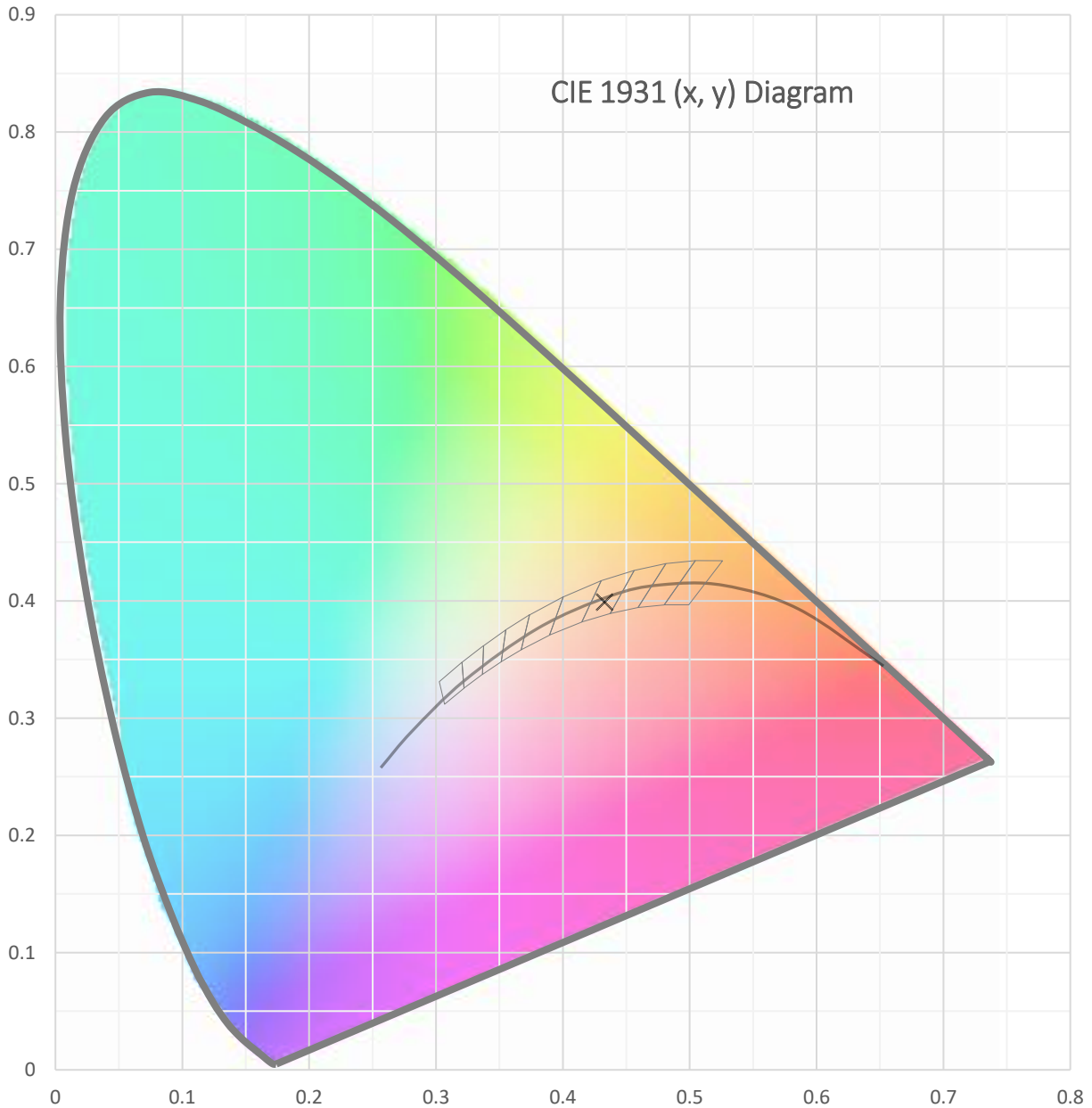
Voltage	120.0 Vac
Current	0.0645 A
Power	7.58 W
Frequency	59.99 Hz
Power Factor	0.979
Current THD	12.5 %
Total Luminous Flux	379.5 lm
Efficacy	50.1 lm/W
Chromaticity (x,y)	(0.4330, 0.3990)
(u',v')	(0.2502, 0.5188)
Duv	-0.0015
CCT	3026 K
CRI (Ra)	92
R9	61
TM-30: Rf	90
TM-30: Rg	99
TM-30: Rcs,h1	-5

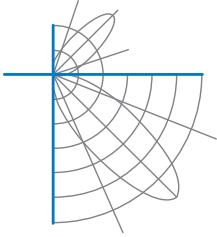
Prepared For:  
Oxygen Lighting  
201 Railhead Road  
Fort Worth, TX 76106, USA

Test date: 03/14/2023  
Report date: 03/21/2023

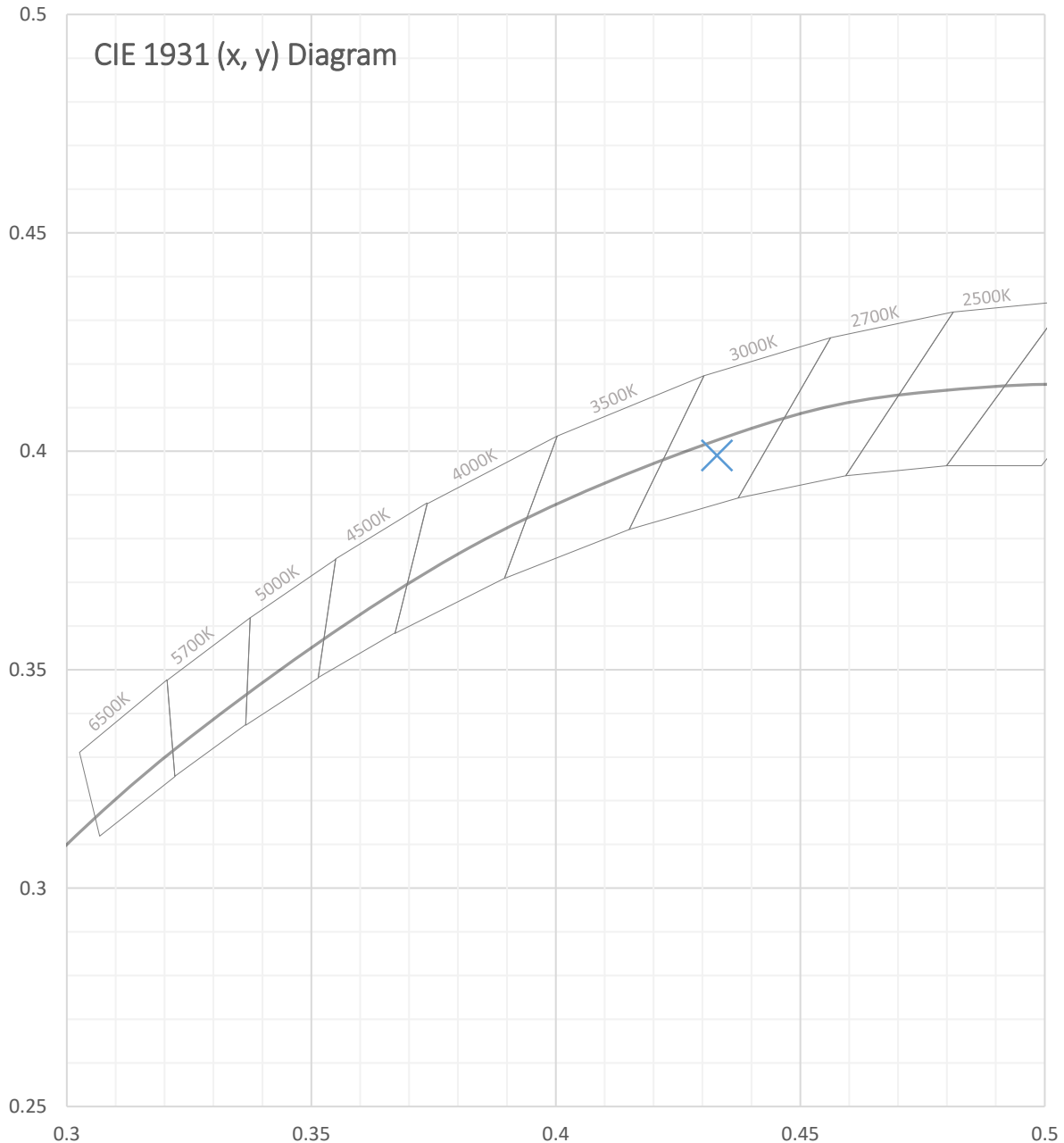


Test Report Number: LLIA002028-006B





Test Report Number: LLIA002028-006B





Test Report Number: LLIA002028-006B

Total Radiant Flux	1.341 W
Total Luminous Flux	379.5 Lm
Chromaticity CIE 1931 (x, y)	(0.4330, 0.3990)
Chromaticity CIE 1976 (u', v')	(0.2502, 0.5188)
Correlated Color Temperature (CCT)	3026 K
Color Rendering Index (Ra)	92
R1	92
R2	96
R3	97
R4	91
R5	92
R6	94
R7	92
R8	83
R9	61
R10	89
R11	91
R12	79
R13	93
R14	98
TM-30: Rf	90
TM-30: Rg	99
TM-30: Rcs,h1	-5
Distance from Planckian Locus (Duv)	-0.0015
Scotopic/Photopic Ratio ‡	1.425

**Electrical Data**

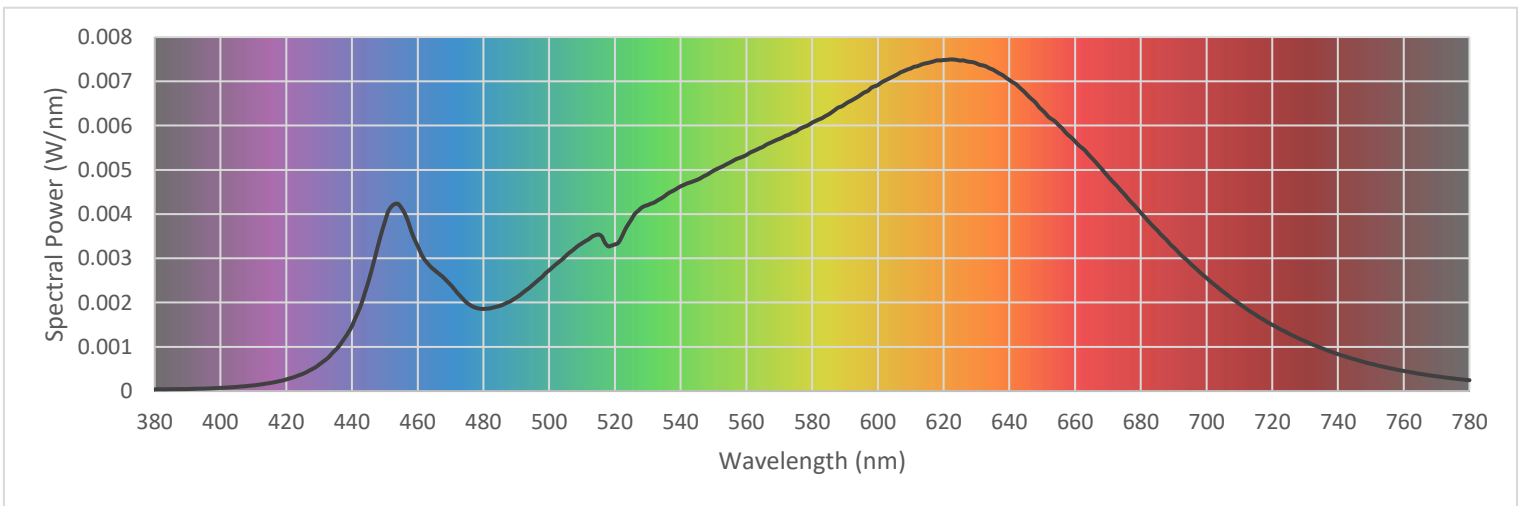
Voltage	120.0 Vac
Current	0.0645 A
Power	7.58 W
Frequency	59.99 Hz
Power Factor	0.979
Current THD	12.5 %



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

380	0.000040	480	0.001856	580	0.006066	680	0.004028
385	0.000042	485	0.001926	585	0.006251	685	0.003634
390	0.000046	490	0.002112	590	0.006482	690	0.003248
395	0.000055	495	0.002401	595	0.006705	695	0.002887
400	0.000072	500	0.002729	600	0.006913	700	0.002557
405	0.000094	505	0.003049	605	0.007122	705	0.002247
410	0.000128	510	0.003339	610	0.007290	710	0.001969
415	0.000181	515	0.003538	615	0.007411	715	0.001723
420	0.000262	520	0.003314	620	0.007480	720	0.001497
425	0.000388	525	0.003875	625	0.007469	725	0.001299
430	0.000597	530	0.004203	630	0.007405	730	0.001127
435	0.000927	535	0.004399	635	0.007266	735	0.000971
440	0.001469	540	0.004627	640	0.007030	740	0.000834
445	0.002472	545	0.004772	645	0.006729	745	0.000719
450	0.003820	550	0.004980	650	0.006350	750	0.000616
455	0.004145	555	0.005164	655	0.006010	755	0.000529
460	0.003278	560	0.005334	660	0.005643	760	0.000455
465	0.002741	565	0.005516	665	0.005273	765	0.000389
470	0.002403	570	0.005698	670	0.004853	770	0.000333
475	0.001993	575	0.005864	675	0.004451	775	0.000286
						780	0.000245

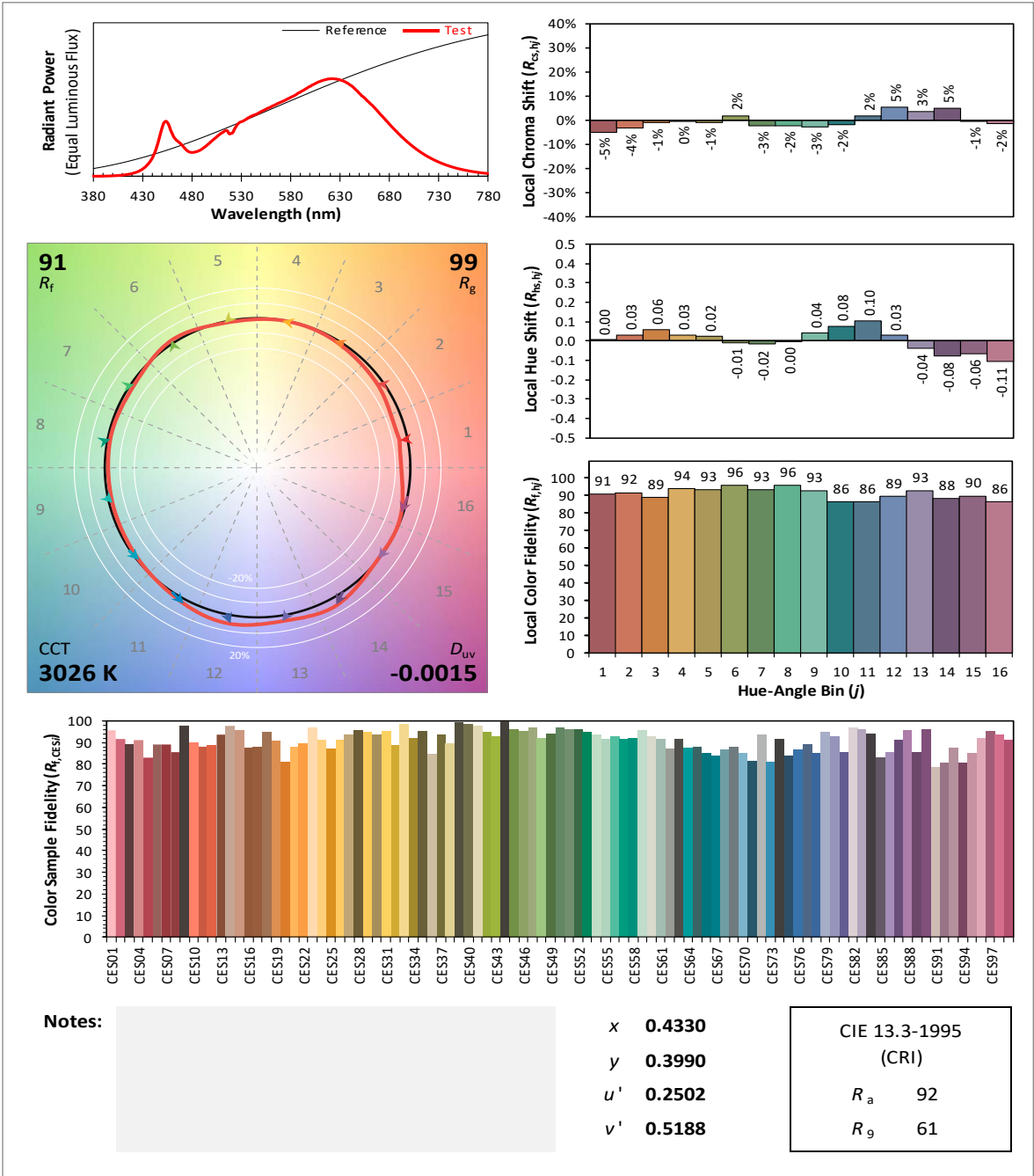




Test Report Number: LLIA002028-006B

IES TM-30 Details

<b>Source:</b> LLIA002028-006B	<b>Manufacturer:</b> Oxygen Lighting
<b>Date:</b> 3/21/2023	<b>Model:</b> 3-594-15 ALARUM 2LT LED WLMT - BK





## Test Report Number: LLIA002028-006B

**Test Equipment Configuration:** LightLab International Allentown 2m Integrating Sphere  
Measurements acquired using a Labsphere CDS 2600 spectroradiometer  
Testing was performed using  $4\pi$  geometry

**Test Temperature:** 24.6 °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.

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.

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.