LightLab INTERNATIONAL ALLENTOWN LLC

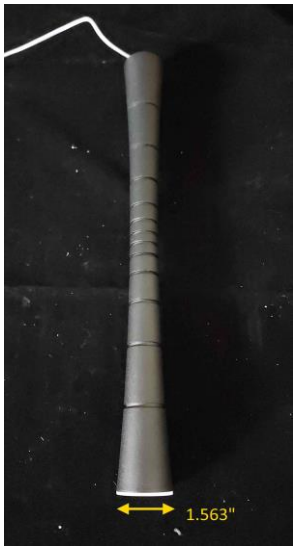
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002028-010A

Indoor Distribution Photometry Test Report

Catalog Number: 3-6004-15 SABRE 1LT LED PEND - BK
Pendant mounted, black painted aluminum housing, clear frosted plastic lens.
One multi-chip LED on one white circuit board.
One Novbo NE007040016-6G LED driver



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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	284.2	Lumens
Input Current	0.0558	A	Total Efficacy	43.7	Lm/W
Input Power	6.51	W	Downward Flux	268.9	Lumens
Frequency	60.00	Hz	Downward Flux	94.6	% of Total
Power Factor	0.973				
Current THD	13.4	%			

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

Test date: 03/24/2023
Report date: 03/24/2023

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2023.03.24 15:03:55 -04'00'

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

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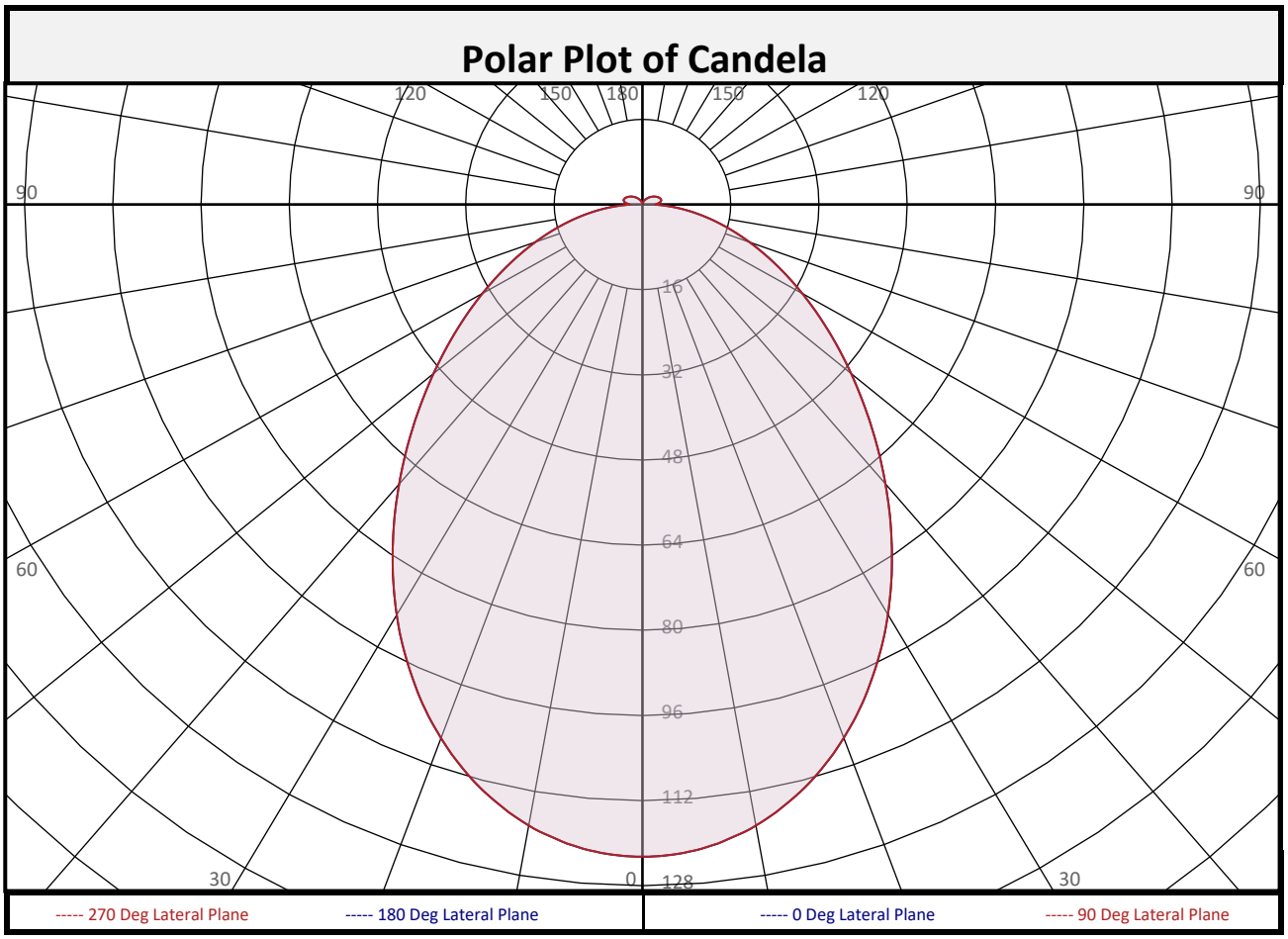

Zonal Flux Summary

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	11.5	4.1%	90-100	3.2	1.1%	0-20	43.4	15.3%
10-20	31.9	11.2%	100-110	3.7	1.3%	0-30	88.6	31.2%
20-30	45.2	15.9%	110-120	3.2	1.1%	0-40	137.9	48.5%
30-40	49.3	17.3%	120-130	2.3	0.8%	0-60	219.9	77.4%
40-50	45.3	15.9%	130-140	1.5	0.5%	0-80	262.6	92.4%
50-60	36.8	12.9%	140-150	0.9	0.3%	10-90	257.4	90.6%
60-70	26.5	9.3%	150-160	0.4	0.1%	20-50	139.7	49.2%
70-80	16.1	5.7%	160-170	0.1	0.0%	40-90	131.1	46.1%
80-90	6.4	2.2%	170-180	0.0	0.0%	60-90	49.0	17.3%
0-90	268.9	94.6%	90-180	15.3	5.4%	0-180	284.2	100.0%

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	123	123	123	123	123	123	123	123	123
	2.5	122	122	122	122	122	122	122	122	122
	5	122	122	122	122	122	122	122	122	122
	7.5	120	120	120	120	120	120	120	120	120
	10	119	119	119	119	119	119	119	119	119
	12.5	116	116	116	116	116	116	116	116	116
	15	113	113	113	113	113	113	113	113	113
	17.5	110	110	110	110	110	110	110	110	110
	20	107	107	107	107	107	107	107	107	107
	22.5	103	103	103	103	103	103	103	103	103
	25	98	98	98	98	98	98	98	98	98
	27.5	94	94	94	94	94	94	94	94	94
	30	89	89	89	89	89	89	89	89	89
	32.5	84	84	84	84	84	84	84	84	84
	35	79	79	79	79	79	79	79	79	79
	37.5	74	74	74	74	74	74	74	74	74
	40	69	69	69	69	69	69	69	69	69
	42.5	64	64	64	64	64	64	64	64	64
	45	59	59	59	59	59	59	59	59	59
	47.5	54	54	54	54	54	54	54	54	54
	50	49	49	49	49	49	49	49	49	49
	52.5	45	45	45	45	45	45	45	45	45
	55	41	41	41	41	41	41	41	41	41
	57.5	37	37	37	37	37	37	37	37	37
	60	33	33	33	33	33	33	33	33	33
	62.5	30	30	30	30	30	30	30	30	30
	65	27	27	27	27	27	27	27	27	27
	67.5	24	24	24	24	24	24	24	24	24
	70	21	21	21	21	21	21	21	21	21
	72.5	18	18	18	18	18	18	18	18	18
	75	15	15	15	15	15	15	15	15	15
	77.5	13	13	13	13	13	13	13	13	13
	80	10	10	10	10	10	10	10	10	10
	82.5	8	8	8	8	8	8	8	8	8
	85	6	6	6	6	6	6	6	6	6
	87.5	4	4	4	4	4	4	4	4	4
	90	2	2	2	2	2	2	2	2	2

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

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	2	2	2	2	2	2	2	2	2
	92.5	3	3	3	3	3	3	3	3	3
	95	3	3	3	3	3	3	3	3	3
	97.5	3	3	3	3	3	3	3	3	3
	100	3	3	3	3	3	3	3	3	3
	102.5	3	3	3	3	3	3	3	3	3
	105	4	4	4	4	4	4	4	4	4
	107.5	3	3	3	3	3	3	3	3	3
	110	3	3	3	3	3	3	3	3	3
	112.5	3	3	3	3	3	3	3	3	3
	115	3	3	3	3	3	3	3	3	3
	117.5	3	3	3	3	3	3	3	3	3
	120	3	3	3	3	3	3	3	3	3
	122.5	3	3	3	3	3	3	3	3	3
	125	3	3	3	3	3	3	3	3	3
	127.5	2	2	2	2	2	2	2	2	2
	130	2	2	2	2	2	2	2	2	2
	132.5	2	2	2	2	2	2	2	2	2
	135	2	2	2	2	2	2	2	2	2
	137.5	2	2	2	2	2	2	2	2	2
	140	2	2	2	2	2	2	2	2	2
	142.5	2	2	2	2	2	2	2	2	2
	145	1	1	1	1	1	1	1	1	1
	147.5	1	1	1	1	1	1	1	1	1
	150	1	1	1	1	1	1	1	1	1
	152.5	1	1	1	1	1	1	1	1	1
	155	1	1	1	1	1	1	1	1	1
	157.5	1	1	1	1	1	1	1	1	1
	160	1	1	1	1	1	1	1	1	1
	162.5	1	1	1	1	1	1	1	1	1
	165	0	0	0	0	0	0	0	0	0
	167.5	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0
	172.5	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0
	177.5	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0

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	0
RCR																						
0	118	118	118	118		114	114	114	114		108	108	108		102	102	102		97	97	97	95
1	108	103	99	96		105	101	97	93		95	92	90		91	88	86		86	84	82	80
2	99	91	84	79		96	89	83	78		84	79	75		80	76	73		76	73	70	68
3	91	81	73	67		88	79	71	66		75	69	64		71	66	62		68	64	60	58
4	83	72	64	57		81	70	63	57		67	61	55		64	59	54		62	57	53	50
5	77	65	56	50		75	63	55	49		61	54	48		58	52	47		56	51	46	44
6	71	59	50	44		69	57	49	44		55	48	43		53	47	42		51	46	41	39
7	66	54	45	39		64	52	45	39		50	43	38		49	42	38		47	41	37	35
8	62	49	41	35		60	48	40	35		46	39	35		45	39	34		43	38	34	32
9	58	45	37	32		56	44	37	32		43	36	31		41	35	31		40	35	31	29
10	55	42	34	29		53	41	34	29		40	33	29		39	33	28		37	32	28	26

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	3.4	6.62	6.62
8.0	1.9	8.82	8.82
10.0	1.2	11.03	11.03
12.0	0.9	13.23	13.23
14.0	0.6	15.44	15.44
16.0	0.5	17.64	17.64

Spacing Criterion

SC: 1.1

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	99072	99072	99072
45	63736	63736	63736
55	53867	53867	53867
65	46060	46060	46060
75	39838	39838	39838
85	33615	33615	33615

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 87.2°

Field Angle: 155.8°

90-270 Degree Plane

Beam Angle: 87.2°

Field Angle: 155.8°

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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	24.1	25.5	24.5	26.0	26.4	24.1	25.5	24.5	26.0	26.4
	3H	25.8	27.0	26.2	27.5	28.0	25.8	27.0	26.2	27.5	28.0
	4H	26.4	27.6	26.9	28.1	28.6	26.4	27.6	26.9	28.1	28.6
	6H	27.0	28.1	27.5	28.6	29.1	27.0	28.1	27.5	28.6	29.1
	8H	27.2	28.2	27.7	28.7	29.3	27.2	28.2	27.7	28.7	29.3
	12H	27.3	28.4	27.9	28.9	29.4	27.3	28.4	27.9	28.9	29.4
4H	2H	24.6	25.8	25.1	26.3	26.8	24.6	25.8	25.1	26.3	26.8
	3H	26.5	27.5	27.0	28.0	28.6	26.5	27.5	27.0	28.0	28.6
	4H	27.3	28.2	27.9	28.8	29.3	27.3	28.2	27.9	28.8	29.3
	6H	28.0	28.8	28.6	29.4	30.0	28.0	28.8	28.6	29.4	30.0
	8H	28.3	29.0	28.8	29.6	30.2	28.3	29.0	28.8	29.6	30.2
	12H	28.5	29.2	29.1	29.8	30.4	28.5	29.2	29.1	29.8	30.4
8H	4H	27.6	28.4	28.2	28.9	29.5	27.6	28.4	28.2	28.9	29.5
	6H	28.5	29.1	29.0	29.7	30.3	28.5	29.1	29.0	29.7	30.3
	8H	28.8	29.4	29.4	30.0	30.6	28.8	29.4	29.4	30.0	30.6
	12H	29.1	29.6	29.7	30.2	30.9	29.1	29.6	29.7	30.2	30.9
12H	4H	27.7	28.3	28.2	28.9	29.5	27.7	28.3	28.2	28.9	29.5
	6H	28.5	29.1	29.1	29.7	30.3	28.5	29.1	29.1	29.7	30.3
	8H	29.0	29.4	29.6	30.0	30.7	29.0	29.4	29.6	30.0	30.7

Maximum UGR = 30.9

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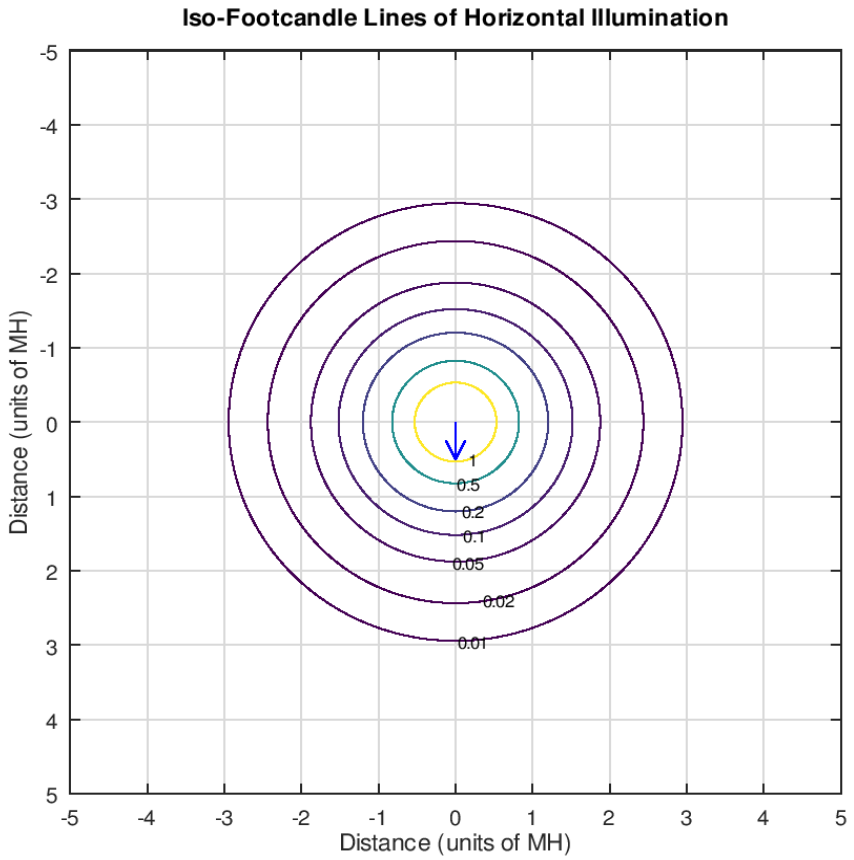
Iso-Illuminance Plot



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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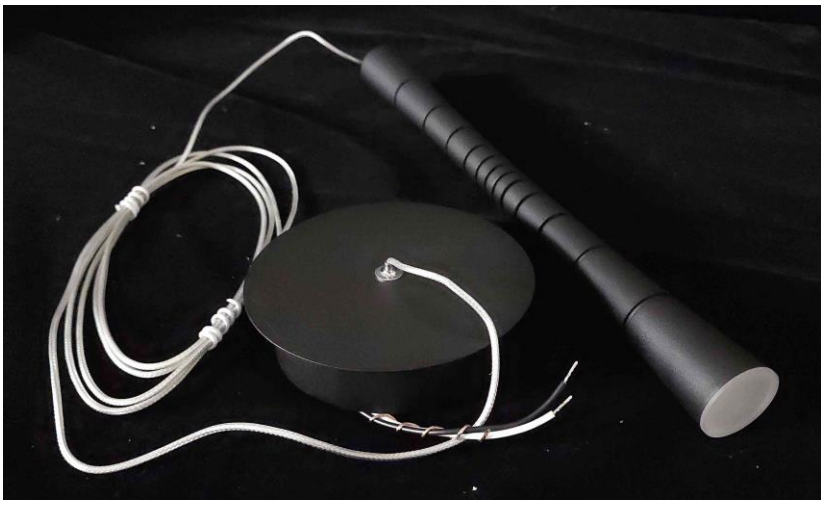
Additional Pictures of Test Subject



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Test Distance	9.5 m
Ambient Temperature	25.1 °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

LLIA002028-010B

Integrating Sphere Report
Catalog Number: 3-6004-15 SABRE 1LT LED PEND - BK
Pendant mounted, black painted aluminum housing, clear frosted plastic lens.
One multi-chip LED on one white circuit board.
One Novbo NE007040016-6G LED driver

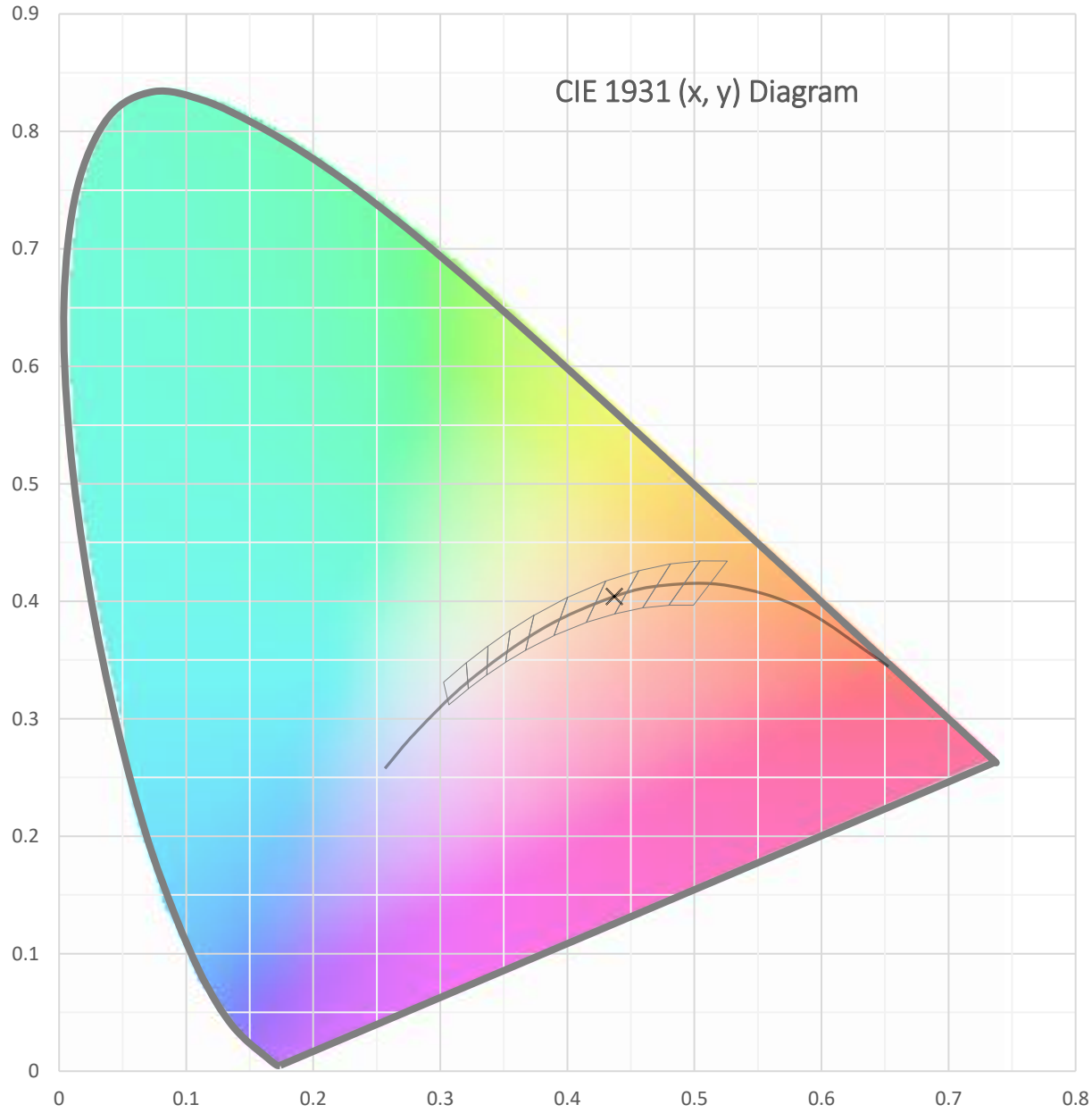
Performance Summary

Voltage	120.0	Vac
Current	0.0559	A
Power	6.53	W
Frequency	59.99	Hz
Power Factor	0.973	
Current THD	13.4	%
Total Luminous Flux	283.0	lm
Efficacy	43.3	lm/W
Chromaticity (x,y)	(0.4370, 0.4042)	
(u',v')	(0.2506, 0.5214)	
Duv	0.0000	
CCT	3000	K
CRI (Ra)	95	
R9	68	
TM-30: Rf	92	
TM-30: Rg	99	
TM-30: Rcs,h1	-4	

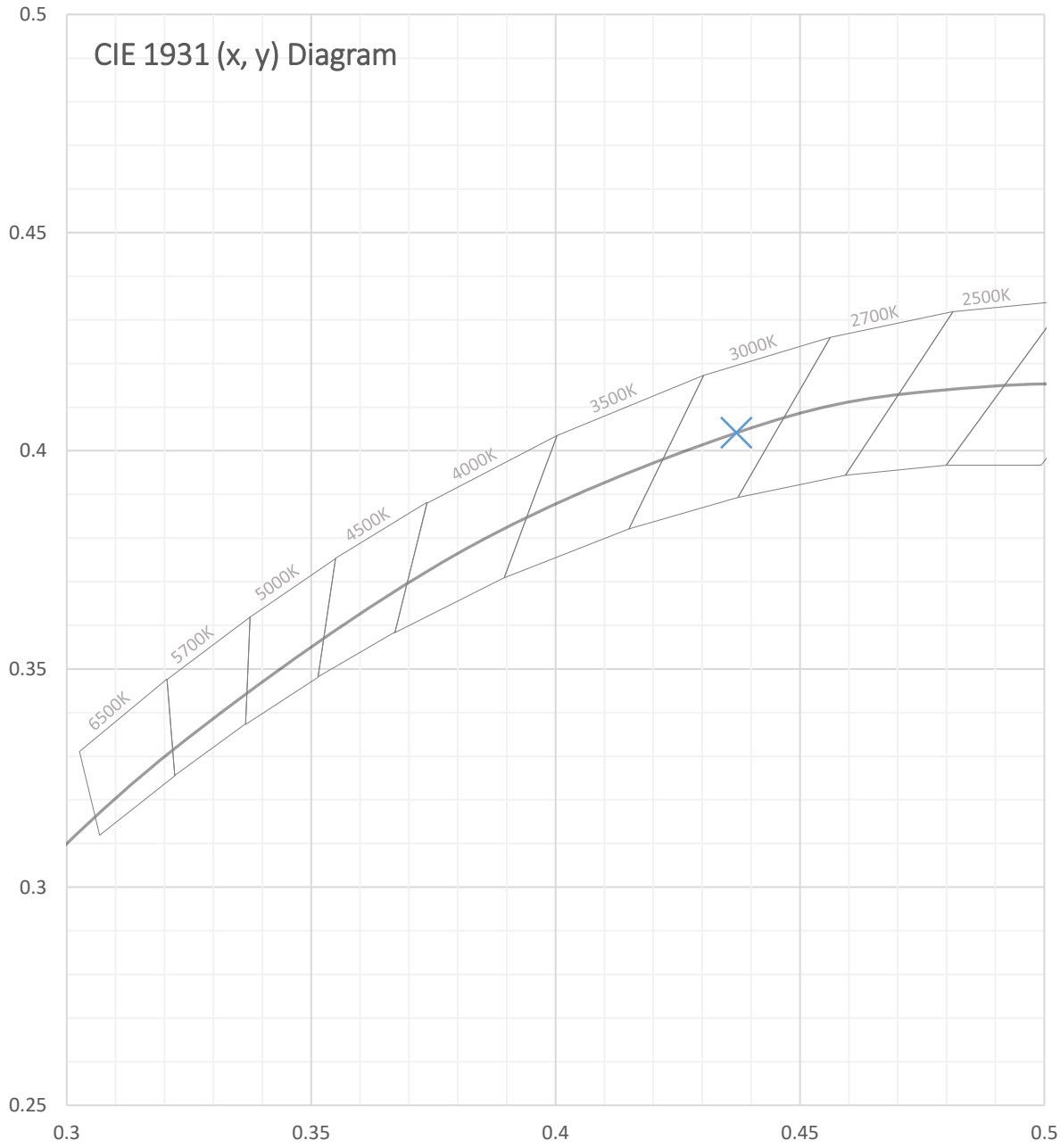
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 03/21/2023
Report date: 03/24/2023

Test Report Number: LLIA002028-010B



Test Report Number: LLIA002028-010B



Test Report Number: LLIA002028-010B

Total Radiant Flux	0.999	W
Total Luminous Flux	283.0	Lm
Chromaticity CIE 1931 (x, y)	(0.4370, 0.4042)	
Chromaticity CIE 1976 (u', v')	(0.2506, 0.5214)	
Correlated Color Temperature (CCT)	3000	K
Color Rendering Index (Ra)	95	
R1	95	
R2	98	
R3	99	
R4	95	
R5	95	
R6	97	
R7	94	
R8	86	
R9	68	
R10	94	
R11	96	
R12	85	
R13	96	
R14	98	
TM-30: Rf	92	
TM-30: Rg	99	
TM-30: Rcs,h1	-4	
Distance from Planckian Locus (Duv)	0.0000	
Scotopic/Photopic Ratio ǂ	1.437	

Electrical Data

Voltage	120.0	Vac
Current	0.0559	A
Power	6.53	W
Frequency	59.99	Hz
Power Factor	0.973	
Current THD	13.4	%

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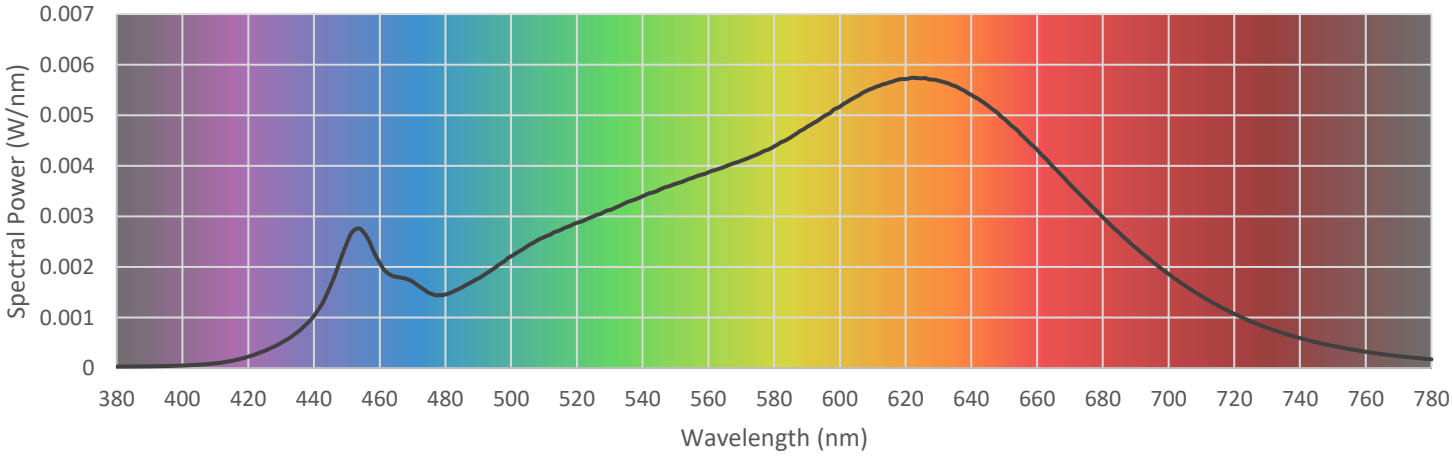
Summary Spectral Power Distribution (wavelength - nm, spectral power - W/nm)

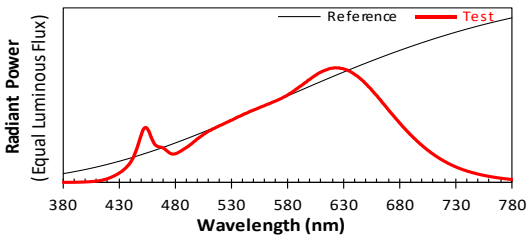
380	0.000030	480	0.001455	580	0.004383	680	0.002981
385	0.000031	485	0.001594	585	0.004560	685	0.002675
390	0.000033	490	0.001771	590	0.004769	690	0.002382
395	0.000040	495	0.001980	595	0.004972	695	0.002109
400	0.000050	500	0.002210	600	0.005166	700	0.001861
405	0.000066	505	0.002416	605	0.005366	705	0.001631
410	0.000093	510	0.002589	610	0.005531	710	0.001423
415	0.000142	515	0.002729	615	0.005647	715	0.001239
420	0.000225	520	0.002874	620	0.005715	720	0.001072
425	0.000341	525	0.002999	625	0.005728	725	0.000925
430	0.000498	530	0.003126	630	0.005682	730	0.000798
435	0.000711	535	0.003273	635	0.005576	735	0.000687
440	0.001030	540	0.003399	640	0.005402	740	0.000592
445	0.001621	545	0.003522	645	0.005190	745	0.000510
450	0.002468	550	0.003643	650	0.004929	750	0.000438
455	0.002693	555	0.003757	655	0.004626	755	0.000375
460	0.002083	560	0.003871	660	0.004320	760	0.000323
465	0.001806	565	0.003980	665	0.003973	765	0.000276
470	0.001710	570	0.004100	670	0.003635	770	0.000236
475	0.001486	575	0.004228	675	0.003310	775	0.000202
						780	0.000173

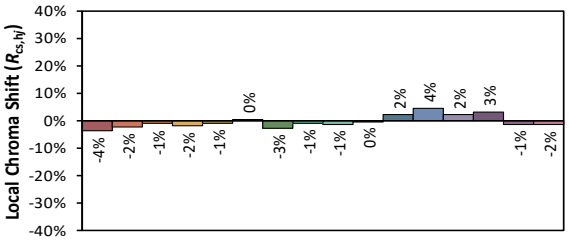


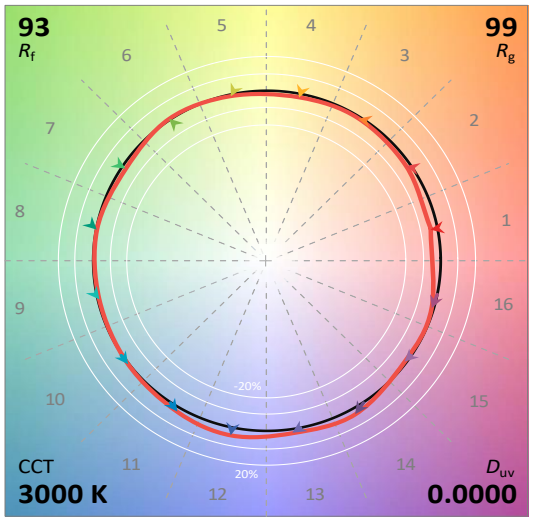
Test Report Number: LLIA002028-010B

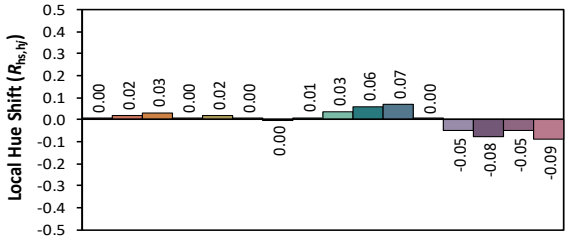
IES TM-30 Details

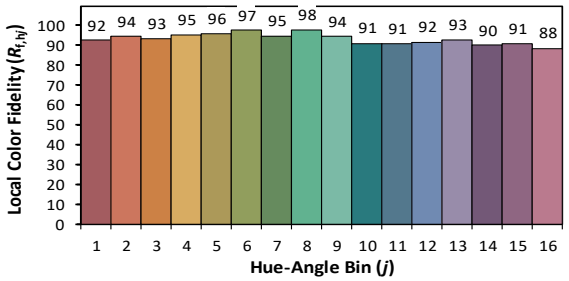
Source:	LLIA002028-010B	**Manufacturer:**	Oxygen Lighting
Date:	3/24/2023	**Model:**	3-6004-15 SABRE 1LT LED PEND - BK

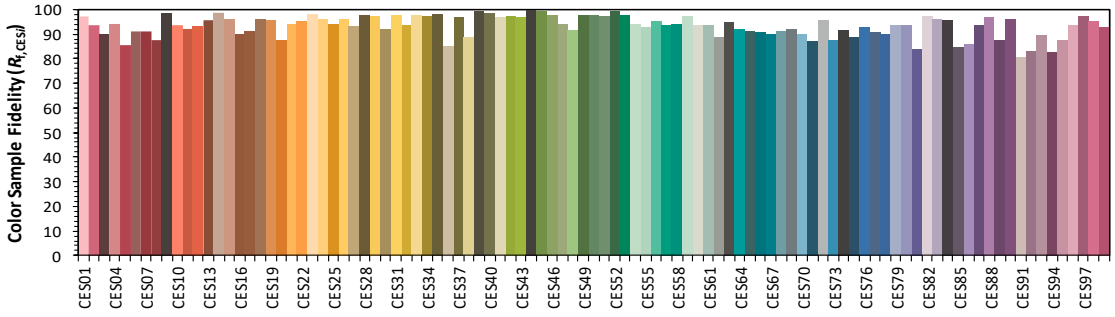












Notes:

x	**0.4370**
y	**0.4041**
u'	**0.2506**
v'	**0.5214**

CIE 13.3-1995 (CRI)

R_a	95
R_9	68

Test Report Number: LLIA002028-010B

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:	24.7 °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.

Sphere Report Template V2-18