LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001626-003A

Indoor Distribution Photometry Test Report

Catalog Number: Guapo 3-401-xx
Wall mounted, formed steel housing, translucent white plastic top and bottom enclosures.
48 white LEDs, two Luxtech 3-9-30040 LED boards with 24 LEDs, one aimed up, one aimed down.
One ERP ESS010W-0180-42-XGN LED driver

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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	277.2	Lumens
Input Current	0.0586	A	Total Efficacy	40.1	Lm/W
Input Power	6.91	W	Downward Flux	126.8	Lumens
Frequency	60.00	Hz	Downward Flux	45.7	% of Total
Power Factor	0.982				
Current THD	14.4	%			

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

Test date: 01/13/2022
Report date: 01/19/2022

Signed: Michael L. Grather

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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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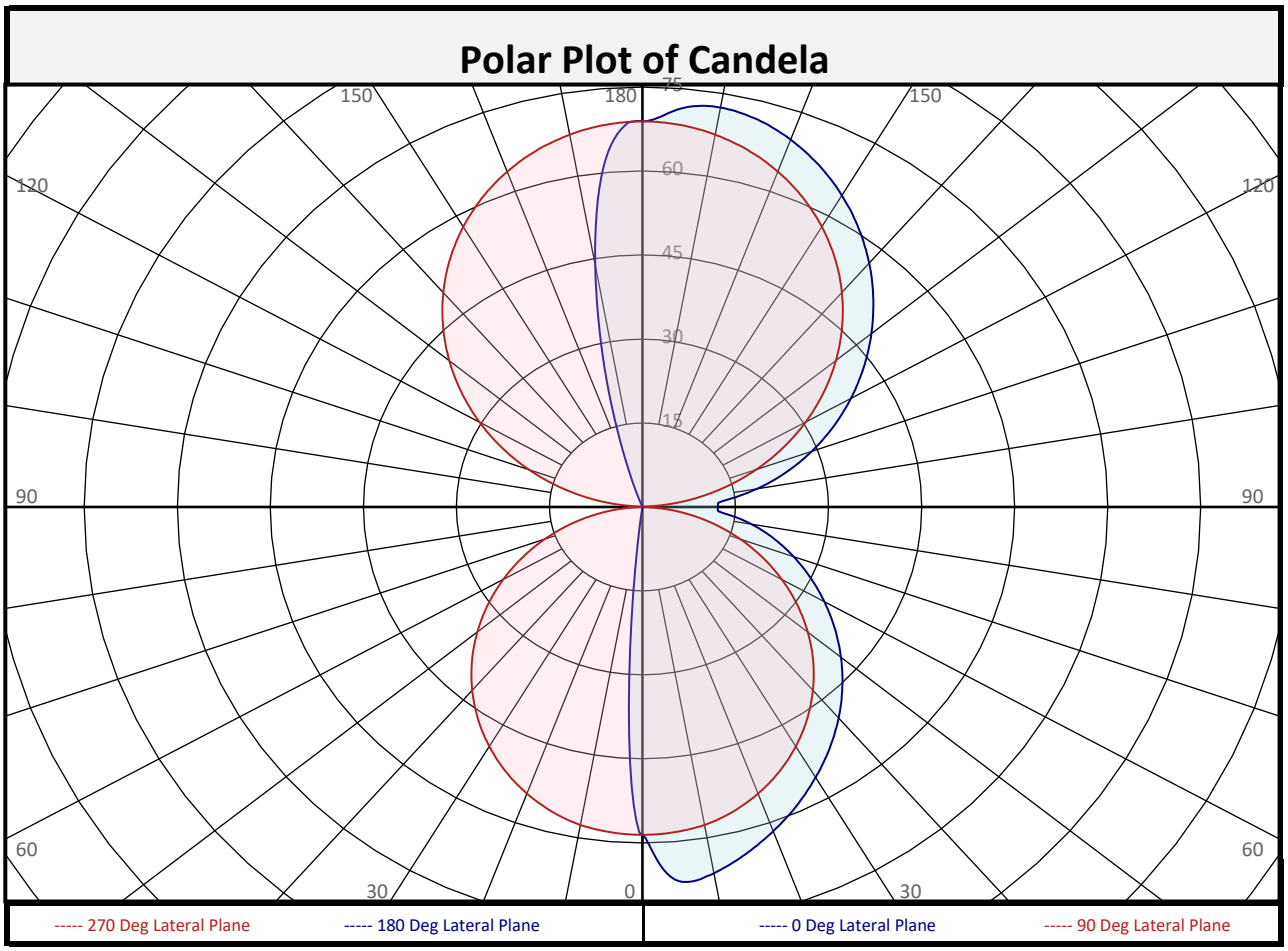

Zonal Flux Summary												
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	4.5	1.6%		90-100	6.0	2.2%		0-20	15.6	5.6%
10-20	11.1	4.0%		100-110	12.8	4.6%		0-30	32.2	11.6%
20-30	16.6	6.0%		110-120	18.8	6.8%		0-40	52.3	18.9%
30-40	20.1	7.3%		120-130	22.9	8.3%		0-60	93.1	33.6%
40-50	21.1	7.6%		130-140	24.5	8.8%		0-80	121.0	43.7%
50-60	19.7	7.1%		140-150	23.4	8.4%		10-90	122.3	44.1%
60-70	16.3	5.9%		150-160	20.0	7.2%		20-50	57.8	20.9%
70-80	11.5	4.1%		160-170	15.6	5.6%		40-90	74.6	26.9%
80-90	5.9	2.1%		170-180	6.4	2.3%		60-90	33.7	12.2%
0-90	126.8	45.7%		90-180	150.4	54.3%		0-180	277.2	100.0%

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LLIA001626-003A

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	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6
2.5	63.9	63.4	62.2	60.1	58.5	56.4	51.7	47.4	45.8
5	67.1	66.8	65.4	62.2	58.4	50.7	35.7	24.2	20.4
7.5	67.3	67.2	66.6	63.7	58.1	43.2	17.7	5.1	2.7
10	66.4	66.5	66.3	64.0	57.7	36.8	5.6	0.0	0.0
12.5	65.4	65.4	65.2	63.3	57.1	33.8	2.0	0.0	0.0
15	64.2	64.2	64.0	62.1	56.4	33.0	2.0	0.0	0.0
17.5	62.9	62.9	62.5	60.8	55.5	32.7	2.1	0.0	0.0
20	61.6	61.6	61.1	59.4	54.5	32.4	2.1	0.0	0.0
22.5	60.3	60.2	59.7	57.9	53.4	32.0	2.1	0.0	0.0
25	58.9	58.8	58.1	56.4	52.2	31.4	2.1	0.0	0.0
27.5	57.3	57.2	56.6	54.9	50.9	30.8	2.1	0.0	0.0
30	55.8	55.7	55.0	53.3	49.4	30.0	2.0	0.0	0.0
32.5	54.2	54.1	53.3	51.6	47.9	29.2	2.0	0.0	0.0
35	52.6	52.4	51.6	49.9	46.3	28.3	1.9	0.0	0.0
37.5	50.9	50.7	49.8	48.1	44.5	27.3	1.9	0.0	0.0
40	49.2	48.9	47.9	46.2	42.7	26.3	1.9	0.0	0.0
42.5	47.4	47.1	46.0	44.3	40.9	25.2	1.8	0.0	0.0
45	45.6	45.2	44.1	42.2	38.9	24.0	1.7	0.0	0.0
47.5	43.7	43.3	42.1	40.2	36.9	22.8	1.6	0.0	0.0
50	41.8	41.4	40.1	38.1	34.8	21.5	1.5	0.0	0.0
52.5	39.8	39.4	38.0	36.0	32.6	20.2	1.4	0.0	0.0
55	37.9	37.4	35.9	33.8	30.4	18.9	1.3	0.0	0.0
57.5	35.9	35.3	33.8	31.6	28.2	17.5	1.2	0.0	0.0
60	33.9	33.3	31.7	29.4	25.9	16.1	1.1	0.0	0.0
62.5	31.9	31.2	29.5	27.1	23.6	14.7	1.0	0.0	0.0
65	29.9	29.2	27.4	24.9	21.3	13.3	0.9	0.0	0.0
67.5	27.9	27.2	25.3	22.6	19.0	11.9	0.8	0.0	0.0
70	26.0	25.2	23.2	20.4	16.7	10.4	0.7	0.0	0.0
72.5	24.0	23.2	21.1	18.2	14.4	9.0	0.6	0.0	0.0
75	22.0	21.2	19.0	16.0	12.1	7.6	0.5	0.0	0.0
77.5	20.0	19.2	17.0	13.8	9.8	6.1	0.0	0.0	0.0
80	17.9	17.1	14.9	11.6	7.5	4.7	0.0	0.0	0.0
82.5	15.8	15.0	12.8	9.4	5.2	3.3	0.0	0.0	0.0
85	13.3	12.6	10.5	7.0	2.7	1.7	0.0	0.0	0.0
87.5	12.1	11.2	8.6	4.6	0.0	0.0	0.0	0.0	0.0
90	12.2	11.2	8.5	4.4	0.0	0.0	0.0	0.0	0.0

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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
90	12.2	11.2	8.5	4.4	0.0	0.0	0.0	0.0	0.0
92.5	12.2	11.3	8.5	4.5	0.0	0.0	0.0	0.0	0.0
95	13.3	12.5	10.5	6.9	2.5	1.4	0.0	0.0	0.0
97.5	16.0	15.3	13.3	10.0	5.7	3.5	0.0	0.0	0.0
100	18.7	18.0	16.0	12.7	8.5	5.3	0.0	0.0	0.0
102.5	21.4	20.6	18.6	15.4	11.2	7.0	0.0	0.0	0.0
105	24.0	23.2	21.1	18.0	14.0	8.7	0.0	0.0	0.0
107.5	26.5	25.7	23.7	20.7	16.8	10.5	0.6	0.0	0.0
110	29.0	28.3	26.3	23.4	19.5	12.2	0.6	0.0	0.0
112.5	31.5	30.8	28.8	26.0	22.3	14.0	0.7	0.0	0.0
115	34.0	33.2	31.4	28.7	25.0	15.7	0.8	0.0	0.0
117.5	36.4	35.7	33.9	31.4	27.7	17.4	0.9	0.0	0.0
120	38.8	38.2	36.5	34.0	30.4	19.0	1.0	0.0	0.0
122.5	41.2	40.6	39.0	36.6	33.0	20.7	1.1	0.0	0.0
125	43.5	43.0	41.5	39.2	35.6	22.3	1.2	0.0	0.0
127.5	45.9	45.4	44.0	41.8	38.2	23.9	1.2	0.0	0.0
130	48.2	47.7	46.5	44.3	40.7	25.5	1.3	0.0	0.0
132.5	50.4	50.0	48.8	46.8	43.1	27.0	1.4	0.0	0.0
135	52.6	52.3	51.2	49.2	45.5	28.5	1.5	0.0	0.0
137.5	54.8	54.5	53.4	51.5	47.8	29.9	1.5	0.0	0.0
140	56.9	56.6	55.6	53.8	50.0	31.2	1.6	0.0	0.0
142.5	58.8	58.6	57.8	56.0	52.1	32.6	1.6	0.0	0.0
145	60.8	60.5	59.8	58.1	54.1	33.9	1.7	0.0	0.0
147.5	62.6	62.4	61.7	60.1	56.0	35.3	1.7	0.0	0.0
150	64.3	64.1	63.5	62.0	57.8	37.0	2.4	0.0	0.0
152.5	65.9	65.8	65.2	63.7	59.5	39.5	4.5	0.0	0.0
155	67.4	67.2	66.7	65.3	61.0	42.6	8.4	0.0	0.0
157.5	68.7	68.6	68.0	66.6	62.5	46.5	14.6	2.5	0.7
160	69.8	69.7	69.2	67.7	63.7	50.7	22.4	7.2	4.1
162.5	70.8	70.7	70.1	68.6	64.9	55.1	30.9	15.2	10.6
165	71.7	71.5	70.9	69.2	65.9	59.1	39.7	25.3	20.5
167.5	72.2	72.0	71.4	69.5	66.8	62.4	48.4	36.3	31.9
170	72.5	72.3	71.5	69.6	67.5	65.0	56.3	47.4	44.0
172.5	72.3	72.0	71.2	69.5	68.1	67.0	62.5	57.5	55.3
175	71.5	71.2	70.4	69.2	68.5	68.4	66.5	64.5	63.7
177.5	69.8	69.7	69.4	69.0	68.8	68.8	68.8	68.3	68.1
180	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9

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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	106	106	106	106		97	97	97	97		81	81	81		66	66	66		52	52	52	46
1	96	91	87	83		88	84	80	77		70	67	65		57	55	53		45	44	43	37
2	87	79	73	67		79	73	67	63		61	57	53		49	46	44		39	37	35	30
3	79	69	62	56		72	64	57	52		53	48	44		43	40	37		34	32	30	25
4	72	61	53	47		66	56	49	44		47	42	37		38	34	31		30	28	25	21
5	66	54	46	40		60	50	43	37		42	36	32		34	30	27		27	24	22	18
6	61	49	40	35		56	45	38	32		38	32	28		31	27	23		25	22	19	16
7	56	44	36	30		51	41	33	28		34	28	24		28	24	21		23	19	17	14
8	52	40	32	27		48	37	30	25		31	26	22		26	21	18		21	18	15	13
9	49	36	29	24		44	34	27	22		28	23	19		24	19	16		19	16	14	11
10	45	33	26	21		42	31	24	20		26	21	17		22	18	15		18	15	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	1.6	4.59	7.52
8.0	0.9	6.12	10.03
10.0	0.6	7.65	12.53
12.0	0.4	9.18	15.04
14.0	0.3	10.71	17.54
16.0	0.2	12.24	20.05

Spacing Criterion

0 deg:	1.4
90 deg:	1.3
180 deg:	0.1
270 deg:	1.3

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	17200	17200	17200
45	1821	2398	16143
55	1345	1755	15571
65	983	1250	14812
75	693	838	13728
85	415	459	9218

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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	11.2	12.1	12.2	13.1	14.4	7.9	8.8	8.9	9.8	11.1
	3H	13.1	13.9	14.1	14.9	16.2	9.3	10.1	10.3	11.1	12.4
	4H	13.9	14.6	14.9	15.6	17.0	9.8	10.5	10.8	11.5	12.9
	6H	14.5	15.2	15.6	16.2	17.6	10.0	10.7	11.0	11.7	13.1
	8H	14.8	15.5	15.8	16.5	17.8	10.1	10.7	11.1	11.7	13.1
	12H	15.0	15.6	16.1	16.7	18.1	10.0	10.7	11.1	11.7	13.1
4H	2H	11.5	12.2	12.5	13.2	14.6	8.3	9.0	9.3	10.1	11.4
	3H	13.5	14.1	14.5	15.2	16.5	9.9	10.5	10.9	11.5	12.9
	4H	14.4	15.0	15.5	16.0	17.4	10.5	11.0	11.5	12.1	13.4
	6H	15.3	15.8	16.3	16.8	18.2	10.8	11.3	11.9	12.4	13.8
	8H	15.6	16.1	16.6	17.1	18.5	10.9	11.4	11.9	12.4	13.8
	12H	15.9	16.3	17.0	17.4	18.8	10.9	11.3	12.0	12.4	13.8
8H	4H	14.5	15.0	15.6	16.0	17.4	10.7	11.2	11.8	12.2	13.6
	6H	15.5	15.9	16.6	17.0	18.4	11.2	11.6	12.3	12.7	14.1
	8H	15.9	16.3	17.0	17.4	18.8	11.4	11.7	12.4	12.8	14.2
	12H	16.3	16.6	17.4	17.7	19.2	11.4	11.7	12.5	12.8	14.2
12H	4H	14.5	14.9	15.6	16.0	17.4	10.7	11.2	11.8	12.2	13.6
	6H	15.5	15.8	16.6	16.9	18.3	11.3	11.6	12.4	12.7	14.1
	8H	16.0	16.3	17.1	17.3	18.8	11.5	11.8	12.5	12.8	14.3

Maximum UGR = 19.2

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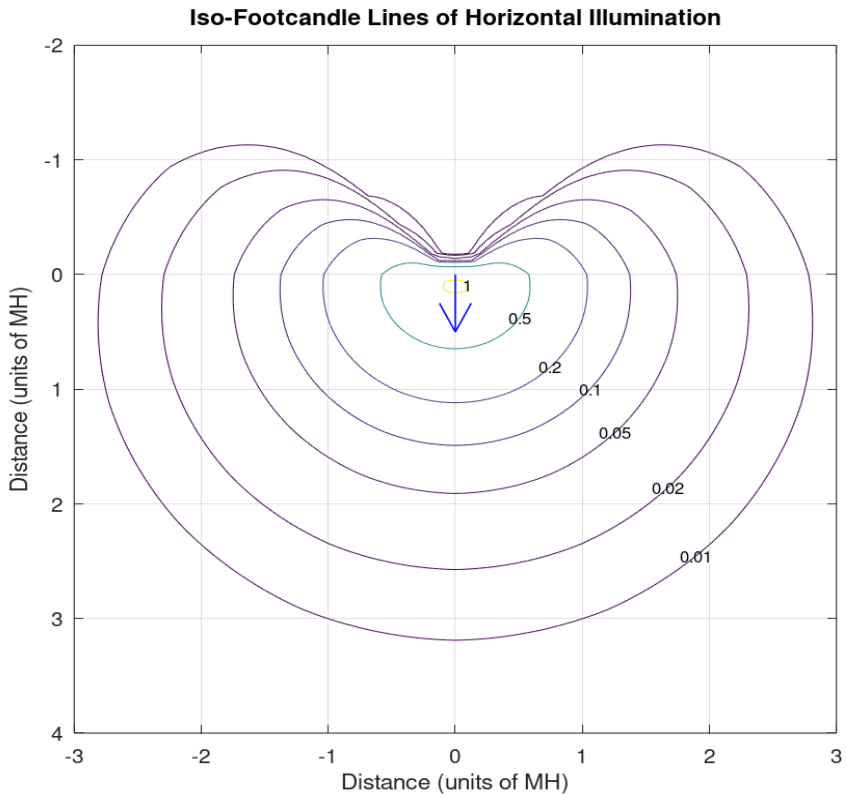
Iso-Illuminance Plot



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.

Report of Test

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Test Distance	9.5 m
Ambient Temperature	25.2 °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.

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001626-003B

Integrating Sphere Report

Catalog Number: Guapo 3-401-xx

Wall mounted, formed steel housing, translucent white plastic top and bottom enclosures.

48 white LEDs, two Luxtech 3-9-30040 LED boards with 24 LEDs, one aimed up, one aimed down.

One ERP ESS010W-0180-42-XGN LED driver

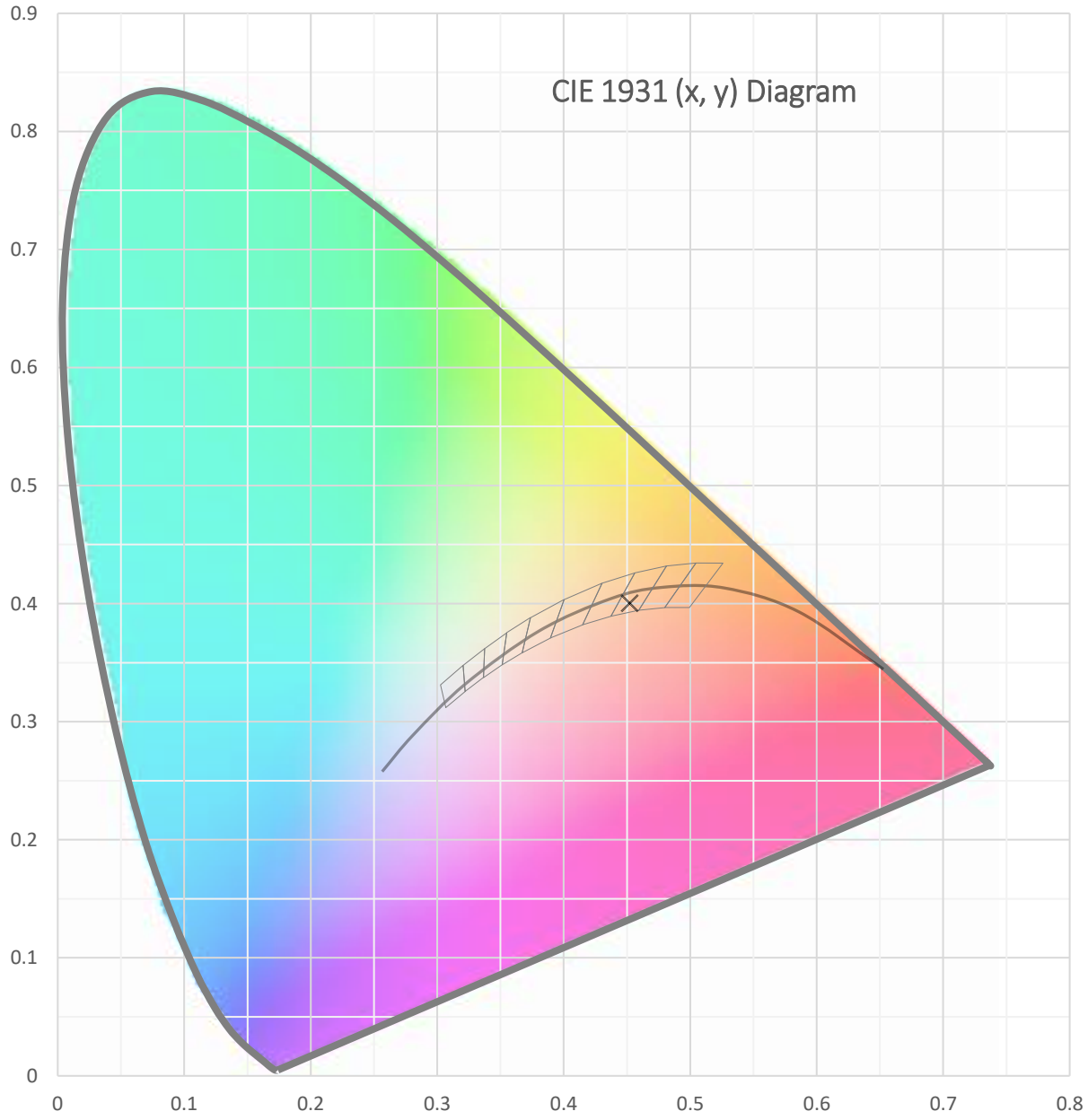
Performance Summary

Voltage	120.0	Vac
Current	0.0587	A
Power	6.92	W
Frequency	59.99	Hz
Power Factor	0.983	
Current THD	14.3	%
Total Luminous Flux	275.5	lm
Efficacy	39.8	lm/W
Chromaticity (x,y)	(0.4521, 0.4002)	
(u',v')	(0.2622, 0.5221)	
Duv	-0.0032	
CCT	2729	K
CRI (Ra)	93	
R9	64	
TM-30: Rf	90	
TM-30: Rg	98	
TM-30: Rcs,h1	-5	

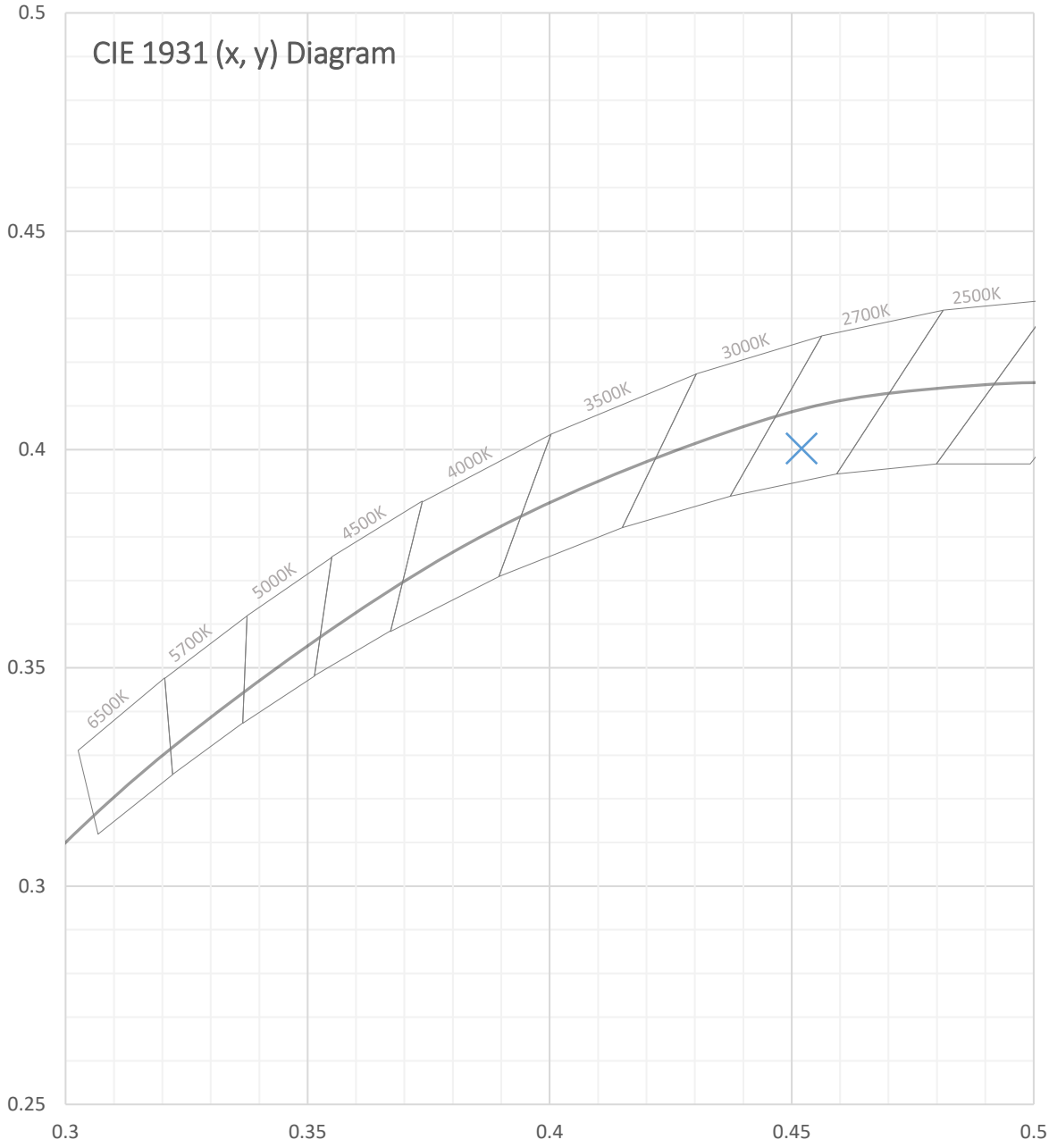
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 01/11/2022
Report date: 01/19/2022

Test Report Number: LLIA001626-003B



Test Report Number: LLIA001626-003B



Test Report Number: LLIA001626-003B

Total Radiant Flux	0.996	W
Total Luminous Flux	275.5	Lm
Chromaticity CIE 1931 (x, y)	(0.4521, 0.4002)	
Chromaticity CIE 1976 (u', v')	(0.2622, 0.5221)	
Correlated Color Temperature (CCT)	2729	K
Color Rendering Index (Ra)	93	
R1	96	
R2	99	
R3	95	
R4	94	
R5	96	
R6	94	
R7	89	
R8	82	
R9	64	
R10	99	
R11	96	
R12	85	
R13	98	
R14	99	
TM-30: Rf	90	
TM-30: Rg	98	
TM-30: Rcs,h1	-5	
Distance from Planckian Locus (Duv)	-0.0032	
Scotopic/Photopic Ratio ǂ	1.361	

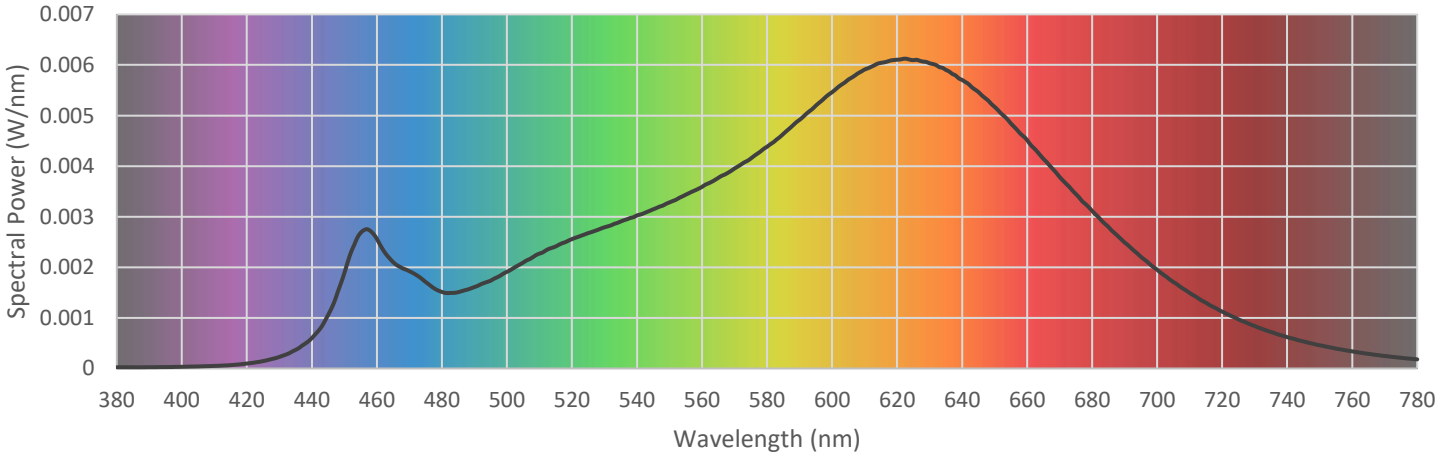
Electrical Data

Voltage	120.0	Vac
Current	0.0587	A
Power	6.92	W
Frequency	59.99	Hz
Power Factor	0.983	
Current THD	14.3	%

Test Report Number: LLIA001626-003B

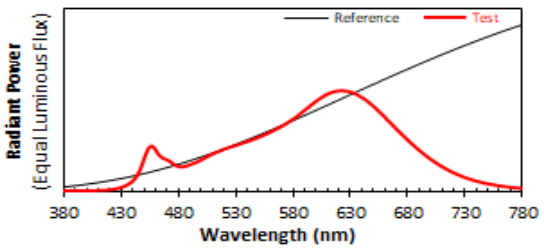
Summary Spectral Power Distribution (wavelength - nm, spectral power - W/nm)

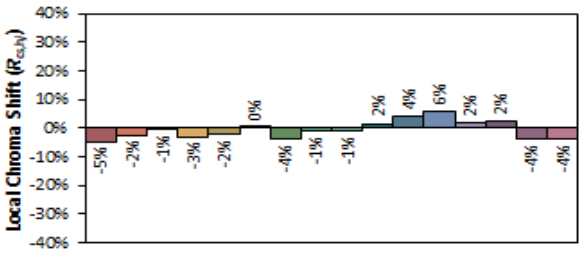
380	0.000024	480	0.001513	580	0.004383	680	0.003115
385	0.000024	485	0.001508	585	0.004636	685	0.002799
390	0.000025	490	0.001610	590	0.004914	690	0.002491
395	0.000028	495	0.001736	595	0.005195	695	0.002207
400	0.000033	500	0.001911	600	0.005460	700	0.001951
405	0.000040	505	0.002093	605	0.005710	705	0.001709
410	0.000051	510	0.002271	610	0.005909	710	0.001493
415	0.000066	515	0.002412	615	0.006041	715	0.001299
420	0.000097	520	0.002557	620	0.006103	720	0.001124
425	0.000146	525	0.002676	625	0.006095	725	0.000971
430	0.000229	530	0.002790	630	0.006034	730	0.000839
435	0.000368	535	0.002905	635	0.005902	735	0.000721
440	0.000601	540	0.003026	640	0.005705	740	0.000619
445	0.001058	545	0.003147	645	0.005467	745	0.000534
450	0.001887	550	0.003283	650	0.005172	750	0.000459
455	0.002681	555	0.003435	655	0.004844	755	0.000393
460	0.002560	560	0.003590	660	0.004516	760	0.000338
465	0.002102	565	0.003768	665	0.004145	765	0.000288
470	0.001922	570	0.003953	670	0.003786	770	0.000247
475	0.001708	575	0.004150	675	0.003448	775	0.000211
						780	0.000180

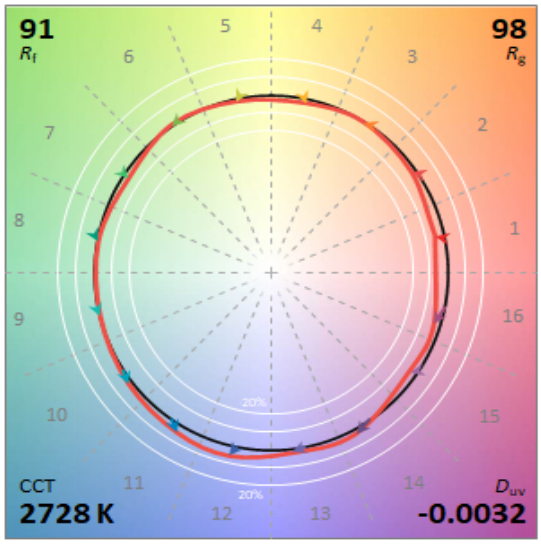


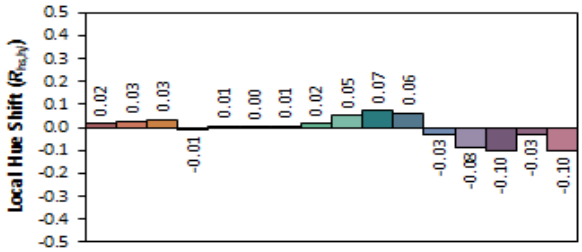
Test Report Number: LLIA001626-003B

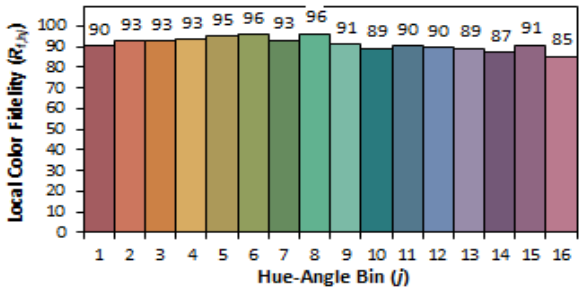
IES TM-30 Details

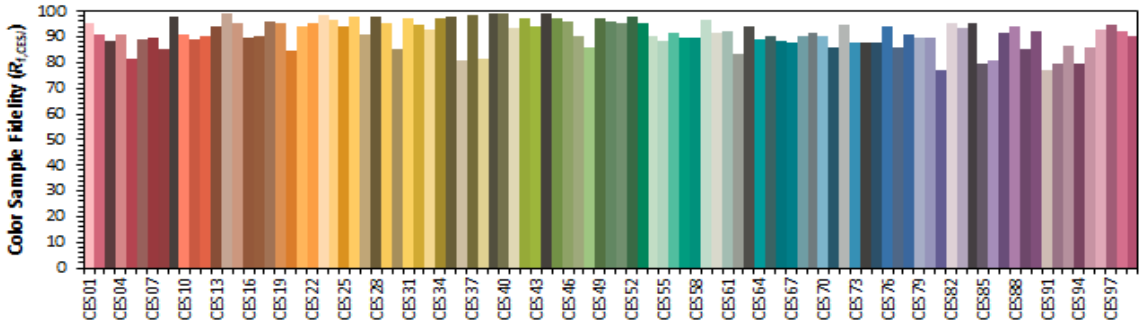












Notes:

x	0.4521
y	0.4002
u'	0.2622
v'	0.5221

CIE 13.3-1995 (CRI)

R_a	93
R_9	64

Test Report Number: LLIA001626-003B

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:	25.2 °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.

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