LightLab INTERNATIONAL ALLENTOWN LLC

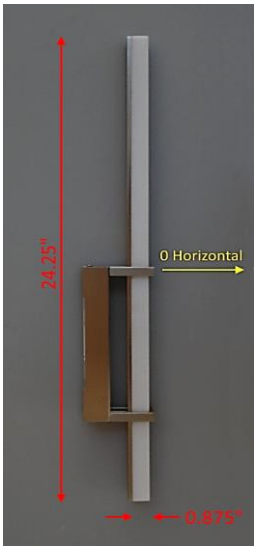
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001626-005A

Indoor Distribution Photometry Test Report

Catalog Number: Wand 3-55-xx
Wall mounted, formed steel and aluminum housing,
translucent white plastic enclosure.
48 white LEDs on Luxtech board
One ERP PSB50W-1200-42-XGN LED driver labelled as 700mA



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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	1977.3	Lumens
Input Current	0.2338	A	Total Efficacy	72.9	Lm/W
Input Power	27.11	W	Downward Flux	987.5	Lumens
Frequency	60.00	Hz	Downward Flux	49.9	% of Total
Power Factor	0.966				
Current THD	17.6	%			

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

Test date: 01/18/2022
Report date: 01/21/2022

Signed: Michael L. Grather

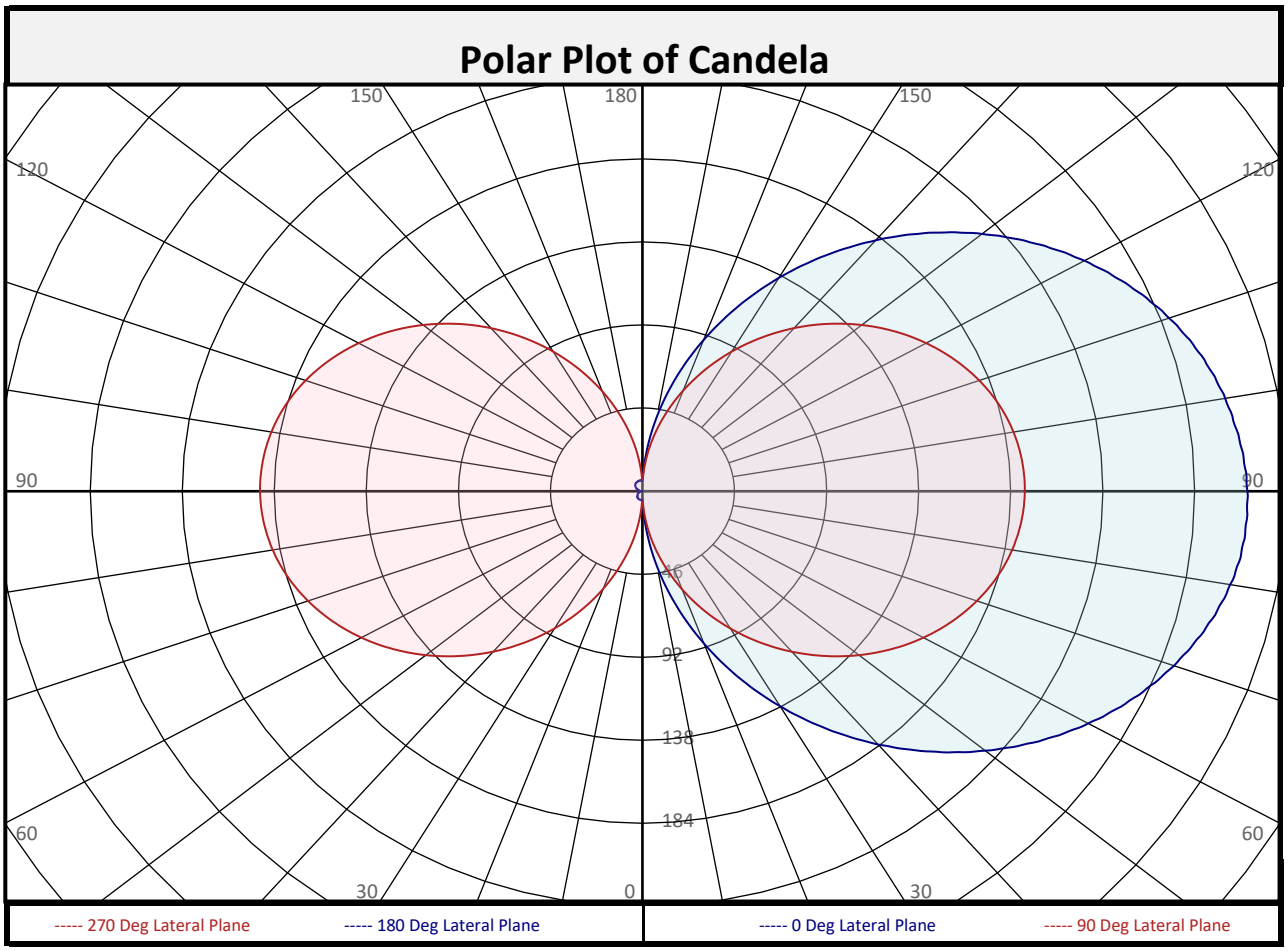
USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085, Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com

USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103, Ph: +1 484-273-0705, www.lightlaballentown.com (issuing laboratory)

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

Report of Test

LLIA001626-005A



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	1.8	0.1%		90-100	222.7	11.3%		0-20	14.9	0.8%
10-20	13.1	0.7%		100-110	208.7	10.6%		0-30	51.0	2.6%
20-30	36.1	1.8%		110-120	182.4	9.2%		0-40	119.8	6.1%
30-40	68.7	3.5%		120-130	147.3	7.4%		0-60	373.7	18.9%
40-50	107.2	5.4%		130-140	107.9	5.5%		0-80	764.5	38.7%
50-60	146.7	7.4%		140-150	69.2	3.5%		10-90	985.7	49.9%
60-70	182.1	9.2%		150-160	36.4	1.8%		20-50	212.0	10.7%
70-80	208.8	10.6%		160-170	13.3	0.7%		40-90	867.8	43.9%
80-90	223.0	11.3%		170-180	1.9	0.1%		60-90	613.8	31.0%
0-90	987.5	49.9%		90-180	989.7	50.1%		0-180	1977	100.0%

Report of Test

LLIA001626-005A

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	5	5	5	5	5	5	5	5	5
2.5	11	10	9	8	8	7	6	5	5
5	21	20	19	16	14	13	10	6	5
7.5	32	32	31	26	21	19	14	8	5
10	43	45	43	36	28	25	19	11	5
12.5	54	57	55	46	35	32	24	13	5
15	66	70	68	56	43	38	29	15	5
17.5	78	84	81	67	50	45	34	18	5
20	90	97	94	78	58	52	39	20	5
22.5	102	111	107	89	65	59	44	23	5
25	114	124	120	100	73	66	49	25	5
27.5	126	137	133	111	80	73	54	27	5
30	138	151	146	121	88	80	59	30	5
32.5	149	164	159	132	95	86	64	32	4
35	161	177	171	142	102	93	69	35	4
37.5	172	189	184	152	109	99	74	37	4
40	183	202	196	162	116	106	78	39	4
42.5	194	213	207	172	123	112	83	41	4
45	204	225	218	181	129	118	87	43	4
47.5	214	236	229	190	135	123	91	45	4
50	224	247	240	199	141	129	95	47	3
52.5	233	257	250	207	147	134	99	49	3
55	242	267	259	215	152	139	103	51	3
57.5	250	276	268	222	157	144	106	52	3
60	257	285	277	229	162	148	109	54	2
62.5	264	293	285	236	167	152	112	55	2
65	271	300	292	241	171	156	115	57	2
67.5	277	307	298	247	175	159	117	58	2
70	283	314	304	252	178	163	120	59	2
72.5	288	319	310	256	181	166	122	60	1
75	292	324	314	260	184	168	124	61	1
77.5	295	328	318	264	186	170	125	61	1
80	298	331	322	266	188	172	126	62	1
82.5	301	334	324	268	189	173	127	62	0
85	302	336	326	270	190	174	128	63	0
87.5	303	336	327	271	191	175	128	63	0
90	302	336	327	271	191	175	129	63	0

Report of Test

LLIA001626-005A

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	302	336	327	271	191	175	129	63	0
92.5	301	335	326	271	191	175	129	63	1
95	300	334	325	270	191	174	128	63	1
97.5	298	332	323	268	190	173	128	63	1
100	296	329	321	266	188	172	127	62	2
102.5	293	326	317	264	187	171	126	62	2
105	289	322	313	260	185	169	124	61	2
107.5	285	317	309	256	182	166	123	61	2
110	280	312	304	252	179	164	121	60	3
112.5	275	306	298	247	176	161	119	59	3
115	269	299	291	242	172	157	116	58	3
117.5	262	292	284	236	168	154	114	56	3
120	255	284	276	229	164	150	111	55	4
122.5	248	275	268	223	159	146	108	54	4
125	239	266	259	215	154	141	104	52	4
127.5	231	256	250	208	149	136	101	50	5
130	222	246	240	199	143	131	97	49	5
132.5	212	235	229	191	137	125	93	47	5
135	202	224	219	182	131	120	89	45	5
137.5	192	213	207	172	124	114	84	43	5
140	181	201	196	163	118	108	80	40	5
142.5	170	189	184	153	111	101	75	38	6
145	159	176	171	143	104	95	70	36	6
147.5	148	163	159	132	96	88	65	33	6
150	137	150	146	122	89	81	60	31	6
152.5	125	137	133	111	82	74	55	29	6
155	113	124	120	100	74	67	50	26	6
157.5	101	110	107	89	66	60	45	24	6
160	89	97	94	78	59	53	40	21	6
162.5	77	83	81	67	51	46	35	19	6
165	65	70	68	56	44	40	30	16	6
167.5	54	57	55	46	36	33	25	14	6
170	42	44	43	35	29	26	20	12	6
172.5	31	32	31	26	22	20	15	10	6
175	20	20	19	17	15	14	11	8	6
177.5	11	10	10	9	9	8	7	6	6
180	6	6	6	6	6	6	6	6	6

Report of Test

LLIA001626-005A

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	107	107	107	107		99	99	99	99		83	83	83		69	69	69		56	56	56	50
1	92	85	79	74		84	78	73	68		64	60	56		52	49	46		40	38	36	30
2	81	71	63	55		74	65	57	51		53	47	42		42	38	34		32	29	26	21
3	73	61	51	44		66	55	47	40		45	38	33		36	30	26		27	23	20	15
4	66	53	43	35		60	48	39	32		39	32	26		31	25	21		23	19	15	11
5	60	46	36	29		54	42	33	27		34	27	22		27	21	17		20	16	12	9
6	55	41	31	24		50	37	29	22		30	23	18		24	18	14		18	13	10	7
7	50	36	27	21		46	33	25	19		27	20	15		21	16	12		16	12	9	6
8	47	33	24	18		42	30	22	16		24	18	13		19	14	10		14	10	7	5
9	43	29	21	15		39	27	19	14		22	16	11		17	12	9		13	9	6	4
10	40	27	19	14		36	25	17	12		20	14	10		16	11	8		12	8	5	3

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.

Average Luminance (cd/m^2)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	10506	10506	10506
45	20341	15557	12868
55	21027	16073	13253
65	21480	16433	13536
75	21844	16700	13748
85	22080	16869	13905

Report of Test

LLIA001626-005A

UGR Table - Corrected

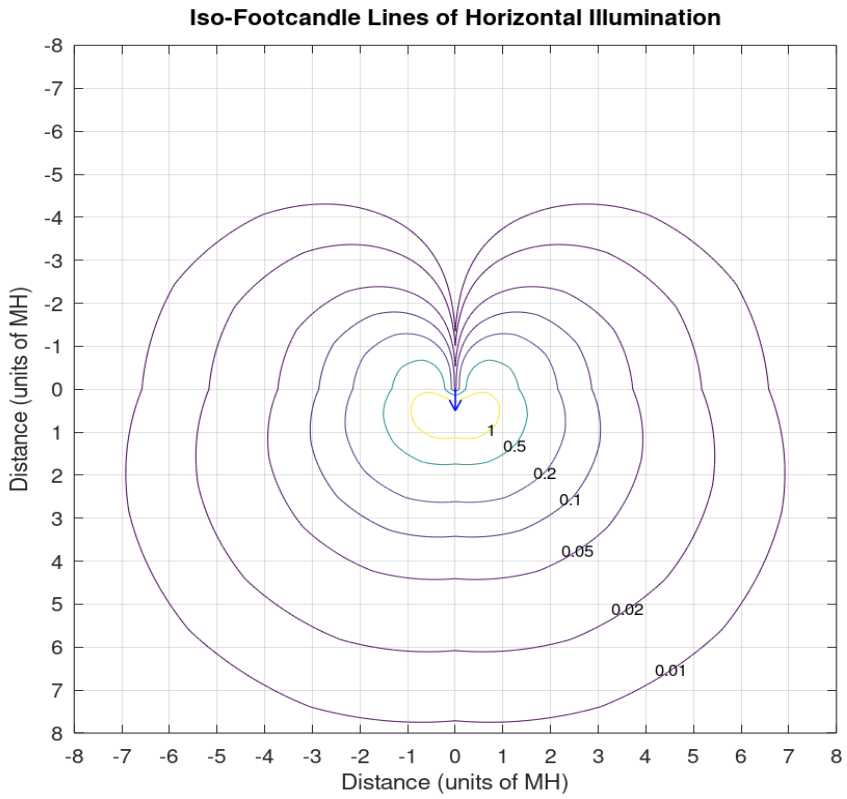
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	20.1	21.2	21.0	22.1	23.4	17.3	18.3	18.2	19.3	20.6
	3H	23.1	24.1	24.0	25.1	26.3	20.2	21.2	21.1	22.1	23.4
	4H	24.6	25.5	25.5	26.5	27.7	21.6	22.5	22.5	23.5	24.8
	6H	26.0	26.8	26.9	27.8	29.1	23.0	23.8	23.9	24.8	26.1
	8H	26.6	27.5	27.6	28.5	29.8	23.6	24.4	24.6	25.4	26.7
	12H	27.3	28.1	28.3	29.1	30.4	24.2	25.0	25.2	26.0	27.4
4H	2H	20.9	21.8	21.8	22.8	24.1	18.4	19.3	19.3	20.3	21.5
	3H	24.1	24.9	25.1	25.9	27.2	21.4	22.3	22.4	23.3	24.6
	4H	25.8	26.5	26.7	27.5	28.8	23.0	23.8	24.0	24.7	26.1
	6H	27.4	28.0	28.3	29.1	30.4	24.5	25.2	25.5	26.2	27.5
	8H	28.1	28.8	29.1	29.8	31.1	25.2	25.9	26.2	26.9	28.2
	12H	28.9	29.5	29.9	30.5	31.8	25.9	26.5	26.9	27.5	28.9
8H	4H	26.3	26.9	27.3	27.9	29.3	23.7	24.3	24.6	25.3	26.7
	6H	28.1	28.7	29.1	29.7	31.1	25.4	26.0	26.4	27.0	28.4
	8H	29.1	29.6	30.1	30.6	31.9	26.3	26.8	27.3	27.8	29.2
	12H	30.0	30.4	31.0	31.5	32.9	27.2	27.6	28.2	28.7	30.0
12H	4H	26.4	27.0	27.4	28.0	29.3	23.8	24.4	24.8	25.4	26.8
	6H	28.3	28.8	29.3	29.8	31.2	25.7	26.2	26.7	27.2	28.6
	8H	29.3	29.8	30.3	30.8	32.2	26.6	27.1	27.7	28.1	29.5

Maximum UGR = 32.9

Report of Test

LLIA001626-005A

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

LLIA001626-005A

Test Distance	9.5 m
Ambient Temperature	24.7 °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.

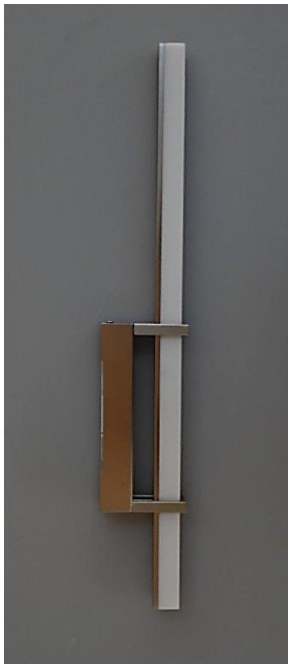
LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001626-005B

Integrating Sphere Report
Catalog Number: Wand 3-55-xx
Wall mounted, formed steel and aluminum housing,
translucent white plastic enclosure.
48 white LEDs on Luxtech board
One ERP PSB50W-1200-42-XGN LED driver labelled as 700mA



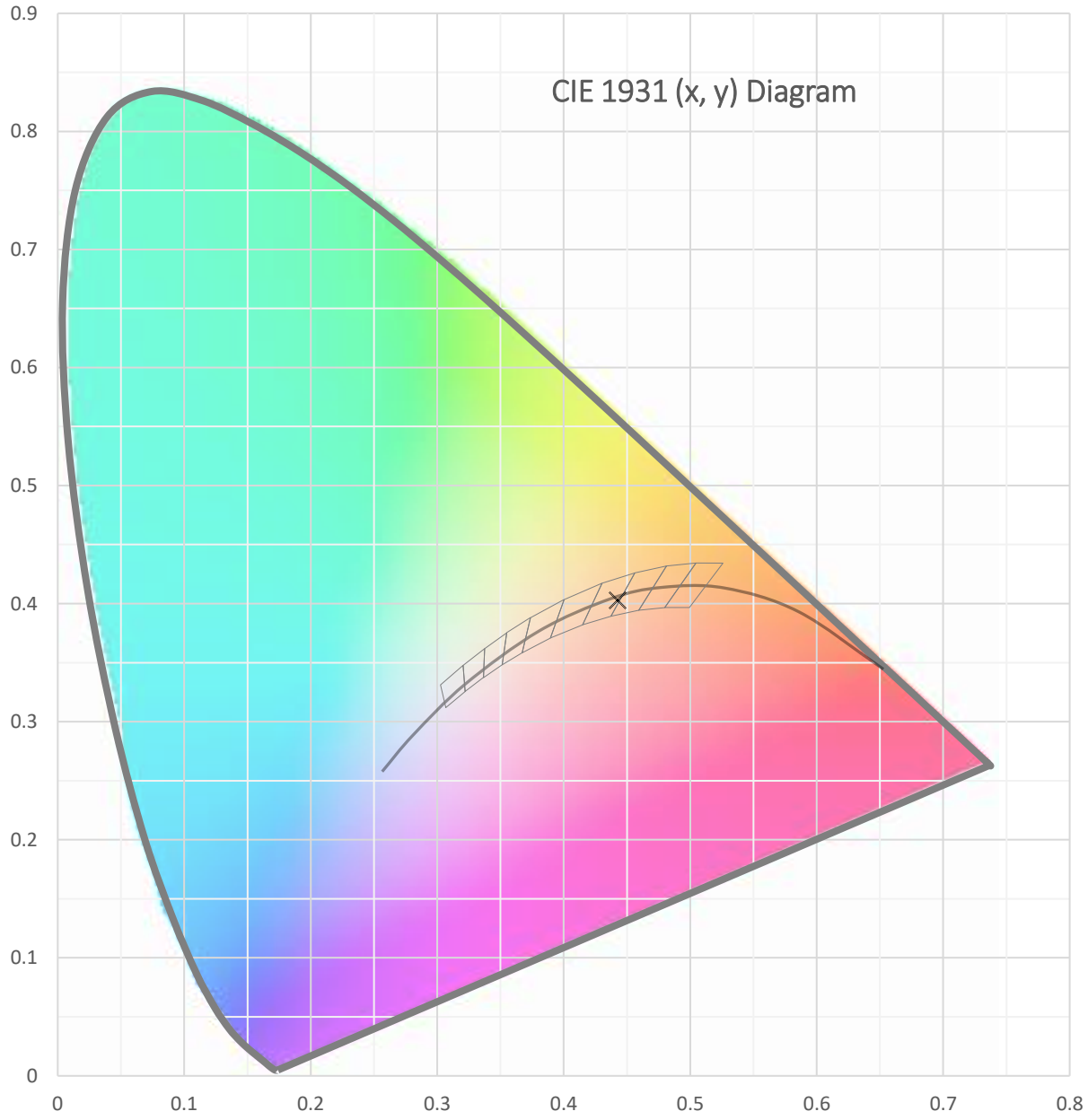
Performance Summary

Voltage	120.0	Vac
Current	0.2338	A
Power	27.09	W
Frequency	59.97	Hz
Power Factor	0.966	
Current THD	17.6	%
Total Luminous Flux	1976.2	lm
Efficacy	72.9	lm/W
Chromaticity (x,y)	(0.4426, 0.4026)	
(u',v')	(0.2549, 0.5217)	
Duv	-0.0013	
CCT	2894	K
CRI (Ra)	93	
R9	65	
TM-30: Rf	91	
TM-30: Rg	101	
TM-30: Rcs,h1	-4	

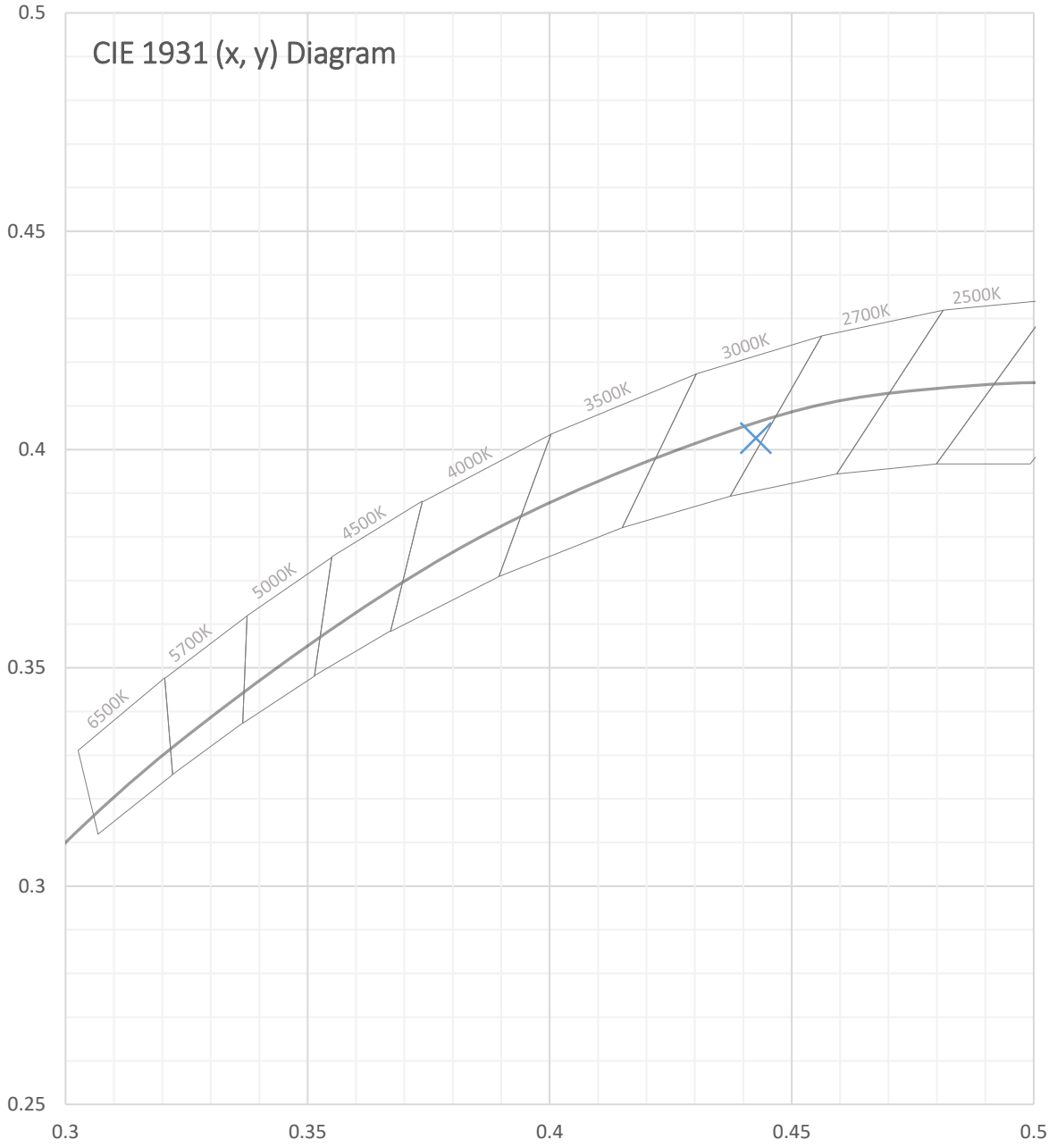
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 01/13/2022
Report date: 01/21/2022

Test Report Number: LLIA001626-005B



Test Report Number: LLIA001626-005B



Test Report Number: LLIA001626-005B

Total Radiant Flux	7.132	W
Total Luminous Flux	1976.2	Lm
Chromaticity CIE 1931 (x, y)	(0.4426, 0.4026)	
Chromaticity CIE 1976 (u', v')	(0.2549, 0.5217)	
Correlated Color Temperature (CCT)	2894	K
Color Rendering Index (Ra)	93	
R1	94	
R2	96	
R3	97	
R4	94	
R5	93	
R6	95	
R7	93	
R8	85	
R9	65	
R10	90	
R11	94	
R12	84	
R13	95	
R14	97	
TM-30: Rf	91	
TM-30: Rg	101	
TM-30: Rcs,h1	-4	
Distance from Planckian Locus (Duv)	-0.0013	
Scotopic/Photopic Ratio ǂ	1.366	

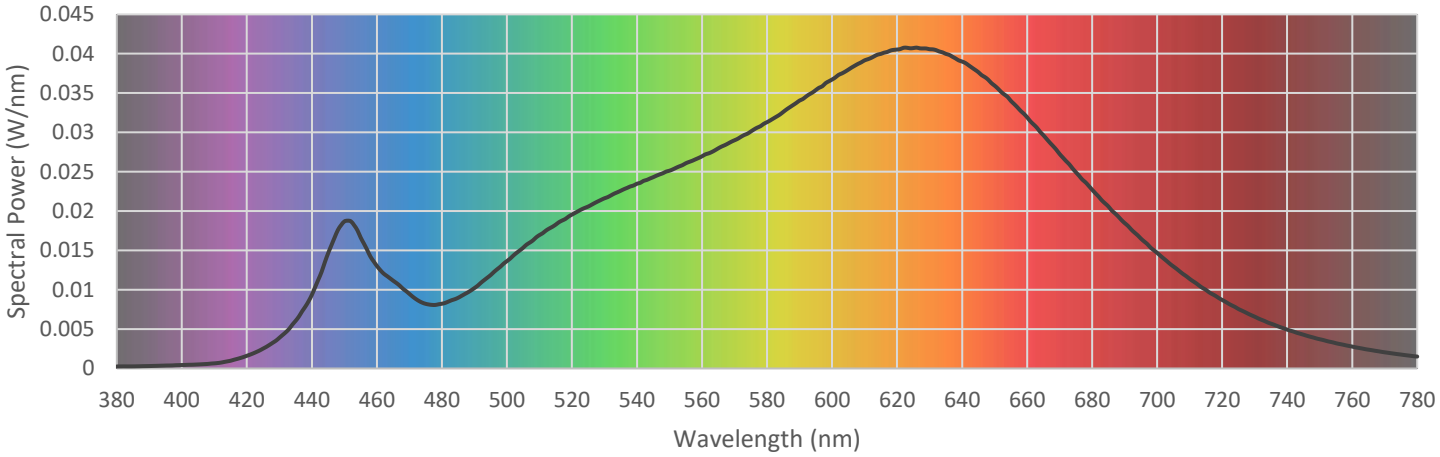
Electrical Data

Voltage	120.0	Vac
Current	0.2338	A
Power	27.09	W
Frequency	59.97	Hz
Power Factor	0.966	
Current THD	17.6	%

Test Report Number: LLIA001626-005B

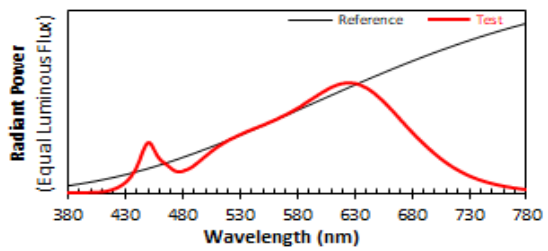
Summary Spectral Power Distribution (wavelength - nm, spectral power - W/nm)

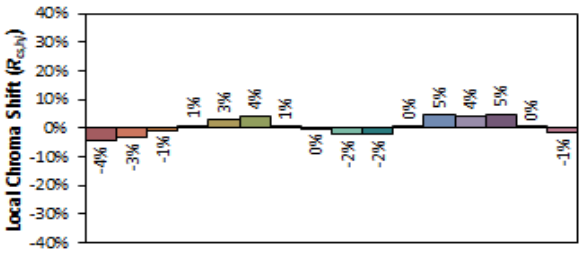
380	0.000257	480	0.008226	580	0.031299	680	0.022717
385	0.000266	485	0.008987	585	0.032604	685	0.020591
390	0.000307	490	0.010221	590	0.034042	690	0.018482
395	0.000370	495	0.011873	595	0.035378	695	0.016507
400	0.000436	500	0.013647	600	0.036718	700	0.014687
405	0.000509	505	0.015349	605	0.037969	705	0.012964
410	0.000650	510	0.016954	610	0.039153	710	0.011388
415	0.000982	515	0.018280	615	0.039977	715	0.009989
420	0.001611	520	0.019558	620	0.040531	720	0.008708
425	0.002526	525	0.020578	625	0.040715	725	0.007557
430	0.003899	530	0.021628	630	0.040571	730	0.006585
435	0.006055	535	0.022584	635	0.039980	735	0.005696
440	0.009363	540	0.023481	640	0.039006	740	0.004934
445	0.014645	545	0.024311	645	0.037657	745	0.004292
450	0.018687	550	0.025132	650	0.035945	750	0.003714
455	0.016636	555	0.026077	655	0.034006	755	0.003208
460	0.013023	560	0.026961	660	0.031925	760	0.002780
465	0.011153	565	0.027976	665	0.029645	765	0.002387
470	0.009476	570	0.029000	670	0.027255	770	0.002053
475	0.008214	575	0.030108	675	0.024937	775	0.001768
						780	0.001512

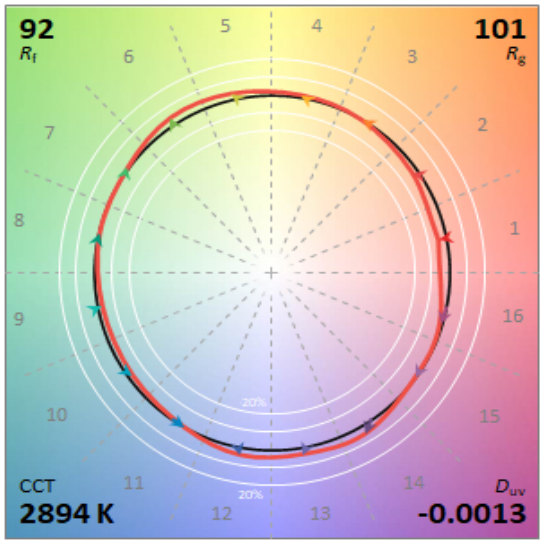


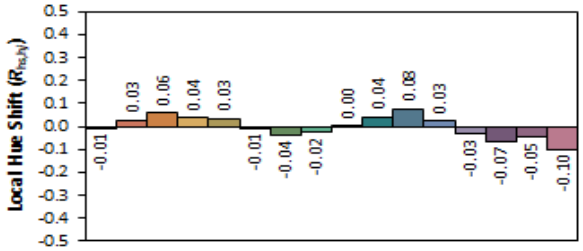
Test Report Number: LLIA001626-005B

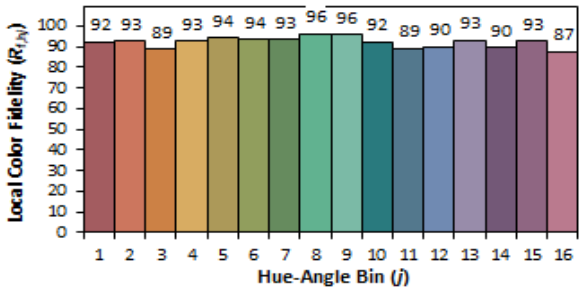
IES TM-30 Details

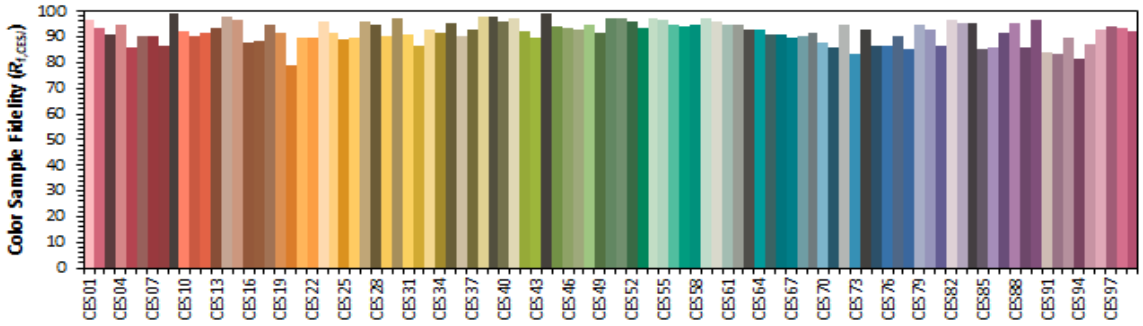












Notes:

x	0.4426
y	0.4025
u'	0.2549
v'	0.5216

CIE 13.3-1995 (CRI)

R_a	93
R_9	65

Test Report Number: LLIA001626-005B

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. This report is free of erasures and corrections This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ǂ 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.

USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085, Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com

USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103, Ph: +1 484-273-0705, www.lightlaballentown.com (issuing laboratory)

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