

## Report of Test

**LLIA001599-002A**

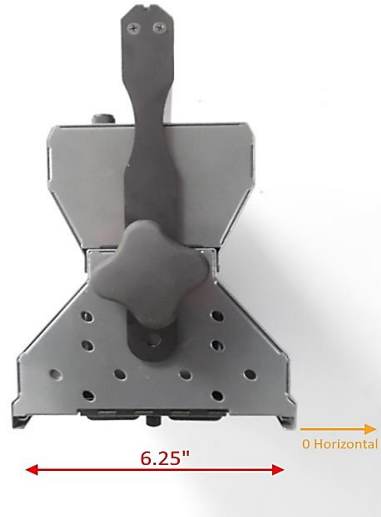
Indoor Distribution Photometry Test Report

Catalog Number: L1.2X-VW 5600K Open Face

Yoke mounted, formed aluminum housing, extruded aluminum heatsink,  
formed white enamel steel reflector, diffuse plastic enclosure.

272 white LEDs - 136 WW, 136 CW. Controller set for 5600K, full output.

One EldoLED POWERdrive 1061/S LED driver.



Prepared For:

Brightline L.P.

580 Mayer Street

Suite 7

Bridgeville, PA 15017, USA

### Performance Summary

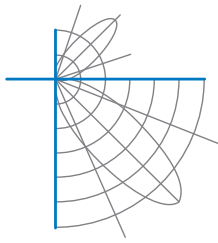
Input Voltage	120.0 Vac	Luminous Flux	8999.2 Lumens
Input Current	0.8664 A	Total Efficacy	86.9 Lm/W
Input Power	103.5 W	Downward Flux	8989.0 Lumens
Frequency	60.00 Hz	Downward Flux	99.9 % of Total
Power Factor	0.995		
Current THD	5.2 %		

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

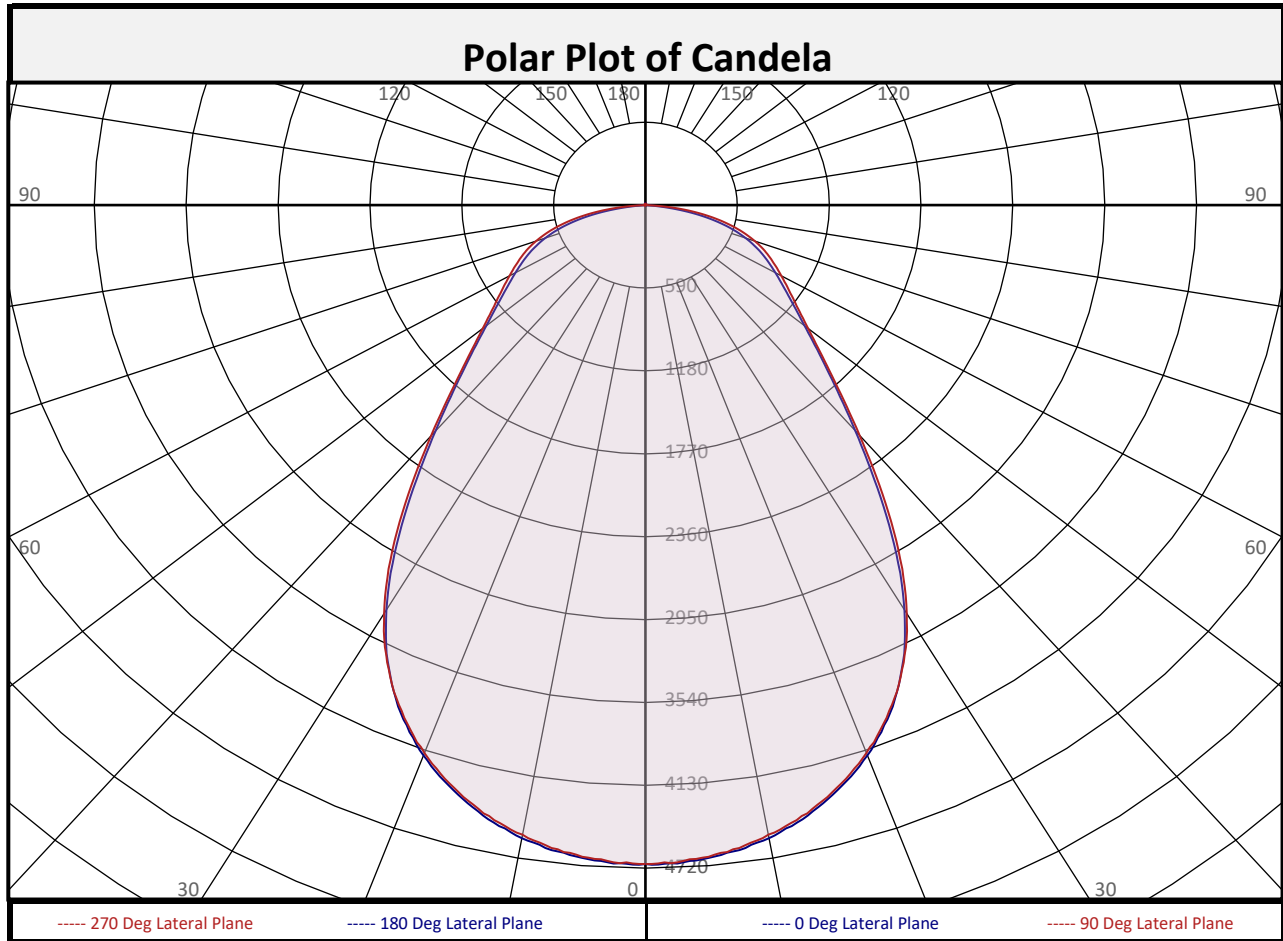
Test date: 12/09/2021

Report date: 12/10/2021

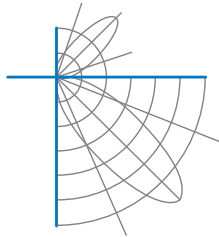
Signed: \_\_\_\_\_



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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	442.0	4.9%		90-100	0.6	0.0%		0-20	1679	18.7%
10-20	1237	13.7%		100-110	0.9	0.0%		0-30	3423	38.0%
20-30	1744	19.4%		110-120	1.4	0.0%		0-40	5117	56.9%
30-40	1694	18.8%		120-130	1.6	0.0%		0-60	7444	82.7%
40-50	1296	14.4%		130-140	1.6	0.0%		0-80	8869	98.6%
50-60	1031	11.5%		140-150	1.4	0.0%		10-90	8547	95.0%
60-70	853.8	9.5%		150-160	1.2	0.0%		20-50	4734	52.6%
70-80	571.1	6.3%		160-170	1.0	0.0%		40-90	3872	43.0%
80-90	120.4	1.3%		170-180	0.4	0.0%		60-90	1545	17.2%
0-90	8989	99.9%		90-180	10.2	0.1%		0-180	8999	100.0%

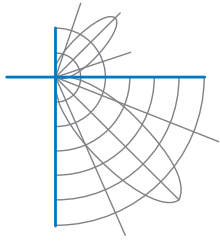


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Luminous Intensity (Candela) Table

		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	4691	4691	4691	4691	4691	4691	4691	4691	4691
	2.5	4691	4687	4682	4680	4683	4680	4682	4687	4691
	5	4664	4660	4663	4656	4657	4656	4663	4660	4664
	7.5	4631	4621	4621	4612	4616	4612	4621	4621	4631
	10	4576	4571	4560	4556	4550	4556	4560	4571	4576
	12.5	4502	4496	4492	4486	4485	4486	4492	4496	4502
	15	4409	4408	4401	4397	4392	4397	4401	4408	4409
	17.5	4298	4294	4287	4279	4282	4279	4287	4294	4298
	20	4169	4161	4155	4149	4150	4149	4155	4161	4169
	22.5	4007	4008	3998	3995	3996	3995	3998	4008	4007
	25	3823	3821	3817	3813	3822	3813	3817	3821	3823
	27.5	3601	3594	3591	3599	3606	3599	3591	3594	3601
	30	3328	3330	3331	3344	3357	3344	3331	3330	3328
	32.5	3022	3023	3032	3056	3070	3056	3032	3023	3022
	35	2699	2703	2714	2738	2752	2738	2714	2703	2699
	37.5	2381	2386	2400	2422	2435	2422	2400	2386	2381
	40	2097	2100	2111	2129	2140	2129	2111	2100	2097
	42.5	1851	1855	1865	1879	1887	1879	1865	1855	1851
	45	1646	1651	1658	1669	1674	1669	1658	1651	1646
	47.5	1475	1483	1489	1497	1503	1497	1489	1483	1475
50	1333	1343	1354	1359	1362	1359	1354	1343	1333	
52.5	1218	1226	1242	1248	1249	1248	1242	1226	1218	
55	1120	1130	1150	1155	1158	1155	1150	1130	1120	
57.5	1037	1047	1071	1077	1080	1077	1071	1047	1037	
60	965	974	1000	1009	1008	1009	1000	974	965	
62.5	897	907	935	946	944	946	935	907	897	
65	831	843	871	886	882	886	871	843	831	
67.5	758	772	804	825	819	825	804	772	758	
70	683	697	731	756	747	756	731	697	683	
72.5	598	614	651	674	666	674	651	614	598	
75	502	519	557	582	578	582	557	519	502	
77.5	395	412	448	478	480	478	448	412	395	
80	277	294	327	365	372	365	327	294	277	
82.5	150	165	198	242	255	242	198	165	150	
85	27	38	73	113	127	113	73	38	27	
87.5	7	6	8	19	18	19	8	6	7	
90	0	0	1	1	1	1	1	0	0	

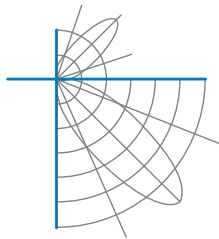


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### LLIA001599-002A

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	0	0	1	1	1	1	1	0	0
	92.5	0	0	1	1	0	1	1	0	0
	95	0	0	1	1	0	1	1	0	0
	97.5	0	0	1	1	0	1	1	0	0
	100	1	1	1	1	1	1	1	1	1
	102.5	1	1	1	1	1	1	1	1	1
	105	1	1	1	1	1	1	1	1	1
	107.5	1	1	1	1	1	1	1	1	1
	110	1	1	1	1	1	1	1	1	1
	112.5	2	1	1	1	1	1	1	1	2
	115	2	2	1	1	1	1	1	2	2
	117.5	2	2	2	2	1	2	2	2	2
	120	2	2	2	2	2	2	2	2	2
	122.5	2	2	2	2	2	2	2	2	2
	125	2	2	2	2	2	2	2	2	2
	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	2	2	2	2	2	2	2	2	2
	147.5	2	2	2	2	2	2	2	2	2
	150	2	2	2	2	2	2	2	2	2
	152.5	2	2	2	2	2	2	2	2	2
	155	3	3	2	2	2	2	2	3	3
	157.5	3	3	3	3	3	3	3	3	3
160	3	3	3	3	3	3	3	3	3	
162.5	3	3	3	3	3	3	3	3	3	
165	4	4	4	4	4	4	4	4	4	
167.5	4	4	4	4	4	4	4	4	4	
170	4	4	4	4	4	4	4	4	4	
172.5	4	4	4	4	4	4	4	4	4	
175	4	4	4	5	4	5	4	4	4	
177.5	4	4	4	4	4	4	4	4	4	
180	4	4	4	4	4	4	4	4	4	



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	100	96	99	96	93	95	93	90	91	89	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	64
4	86	75	67	61	84	73	66	60	71	64	59	69	63	59	67	62	58	56
5	80	68	59	53	78	67	59	53	65	58	52	63	57	52	61	56	51	49
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44
7	69	57	49	43	68	56	48	43	54	47	42	53	47	42	52	46	42	40
8	65	52	44	39	63	52	44	39	50	43	39	49	43	38	48	42	38	36
9	61	48	41	36	60	48	40	35	47	40	35	46	39	35	45	39	35	33
10	57	45	38	33	56	45	37	33	44	37	32	43	37	32	42	36	32	31

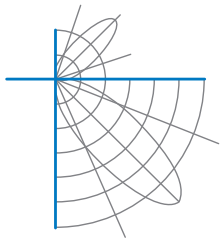
For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are 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	130.3	6.57	6.60	
8.0	73.3	8.75	8.80	
10.0	46.9	10.94	11.00	
12.0	32.6	13.13	13.20	
14.0	23.9	15.32	15.39	
16.0	18.3	17.51	17.59	

Spacing Criterion	
0 deg:	1.1
90 deg:	1.1
180 deg:	1.1
270 deg:	1.1

Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	119309	119309	119309
45	59215	59631	60217
55	49663	50985	51365
65	49986	52422	53083
75	49337	54738	56773
85	8017	21383	37048

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	75.6°
Field Angle:	151.6°
90-270 Degree Plane	
Beam Angle:	76.4°
Field Angle:	155.5°



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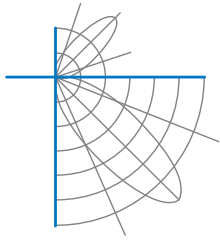
#### UGR Table - Corrected

#### 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

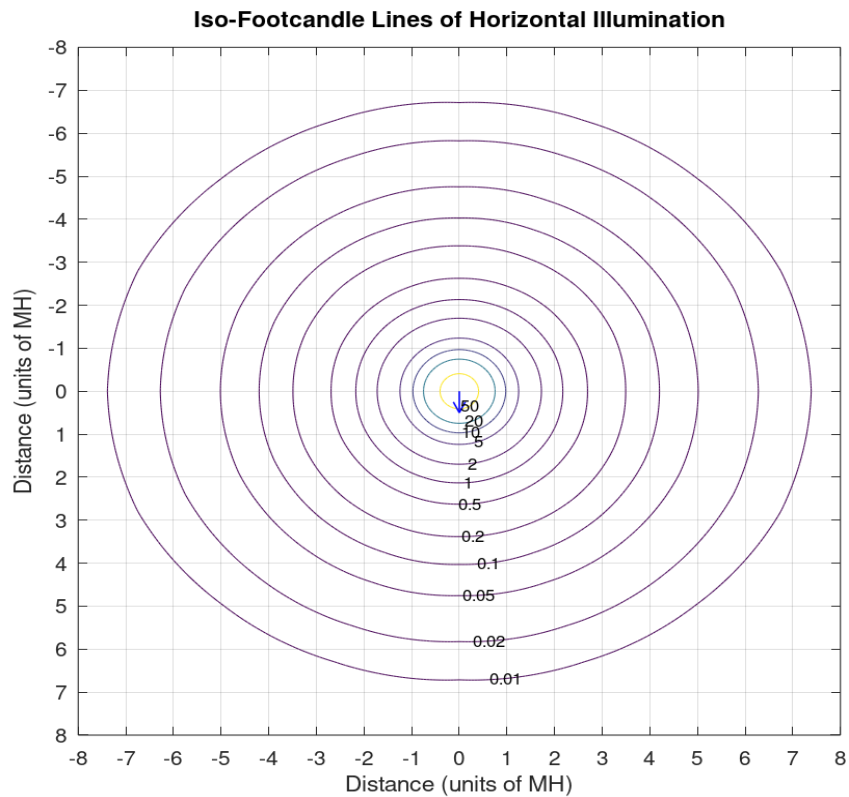
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	24.6	26.1	25.0	26.4	26.8	24.9	26.3	25.2	26.7	27.0
	3H	26.8	28.2	27.2	28.5	28.9	27.2	28.6	27.6	28.9	29.2
	4H	27.7	29.0	28.1	29.3	29.7	28.2	29.5	28.6	29.8	30.2
	6H	28.3	29.4	28.7	29.8	30.2	28.9	30.1	29.3	30.5	30.9
	8H	28.4	29.5	28.8	29.9	30.3	29.2	30.3	29.6	30.7	31.1
	12H	28.4	29.4	28.8	29.8	30.3	29.3	30.4	29.7	30.7	31.2
4H	2H	25.4	26.7	25.8	27.0	27.4	25.6	26.8	26.0	27.2	27.6
	3H	27.8	28.9	28.3	29.3	29.7	28.2	29.2	28.6	29.6	30.0
	4H	28.8	29.8	29.3	30.2	30.7	29.3	30.3	29.7	30.7	31.1
	6H	29.5	30.4	30.0	30.8	31.3	30.2	31.0	30.6	31.5	31.9
	8H	29.7	30.4	30.1	30.9	31.4	30.5	31.3	30.9	31.7	32.2
	12H	29.7	30.4	30.2	30.9	31.3	30.6	31.3	31.1	31.8	32.3
8H	4H	29.3	30.1	29.7	30.5	31.0	29.7	30.5	30.1	30.9	31.4
	6H	30.1	30.7	30.6	31.2	31.7	30.7	31.3	31.2	31.8	32.3
	8H	30.3	30.8	30.8	31.3	31.8	31.1	31.6	31.6	32.1	32.6
	12H	30.3	30.8	30.8	31.3	31.9	31.3	31.8	31.8	32.3	32.8
12H	4H	29.3	30.0	29.8	30.5	31.0	29.7	30.4	30.2	30.9	31.4
	6H	30.2	30.7	30.7	31.2	31.7	30.8	31.3	31.3	31.8	32.3
	8H	30.4	30.9	30.9	31.4	31.9	31.1	31.7	31.6	32.1	32.7

Maximum UGR = 32.8

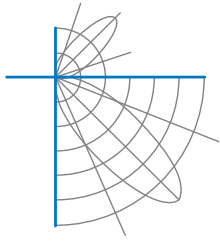


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**Iso-Illuminance Plot**



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.

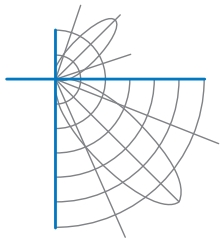


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**Additional Pictures of Test Subject**







## Report of Test

### LLIA001599-002A

Test Distance                    9.5 m  
Ambient Temperature        24.9 °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.

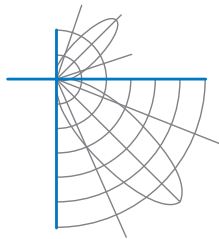
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

**LLIA001599-002B**

Integrating Sphere Report

Catalog Number: L1.2X-VW 5600K Open Face

Yoke mounted, formed aluminum housing, extruded aluminum heatsink,  
formed white enamel steel reflector, diffuse plastic enclosure.

272 white LEDs - 136 WW, 136 CW. Controller set for 5600K, full output.

One EldoLED POWERdrive 1061/S LED driver.



### Performance Summary

Voltage	120.0 Vac
Current	0.8604 A
Power	102.7 W
Frequency	59.99 Hz
Power Factor	0.995
Current THD	5.2 %
Total Luminous Flux	9107.5 lm
Efficacy	88.7 lm/W
Chromaticity (x,y)	(0.3273, 0.3325)
(u',v')	(0.2066, 0.4724)
Duv	-0.0021
CCT	5744 K
CRI (Ra)	95
R9	88
TM-30: Rf	89
TM-30: Rg	98
TM-30: Rcs,h1	0

Prepared For:

Brightline L.P.

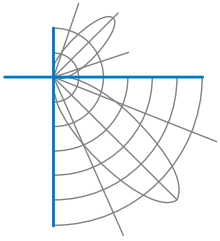
580 Mayer Street

Suite 7

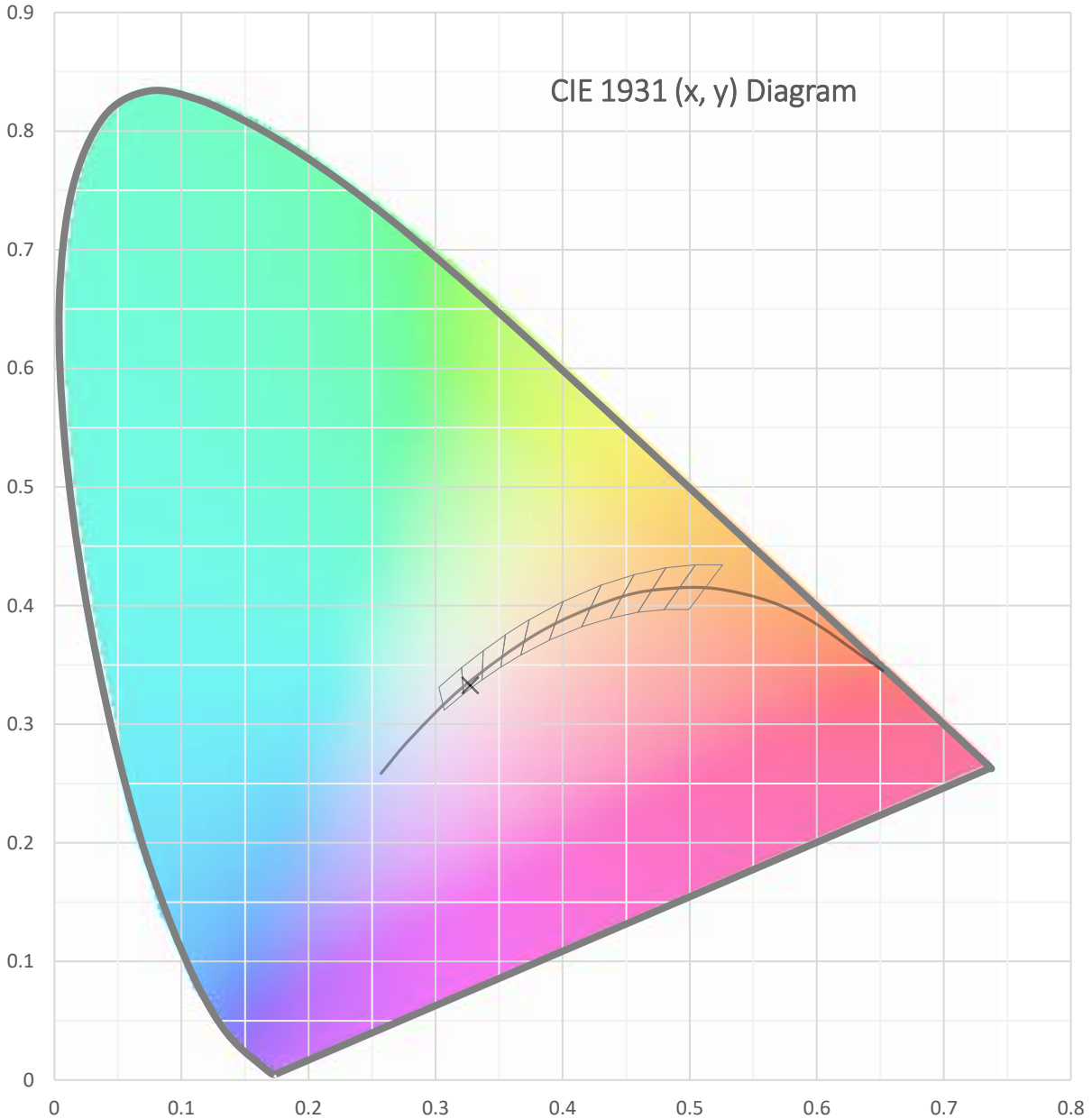
Bridgeville, PA 15017, USA

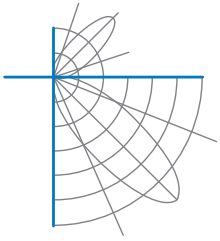
Test date: 12/03/2021

Report date: 12/10/2021

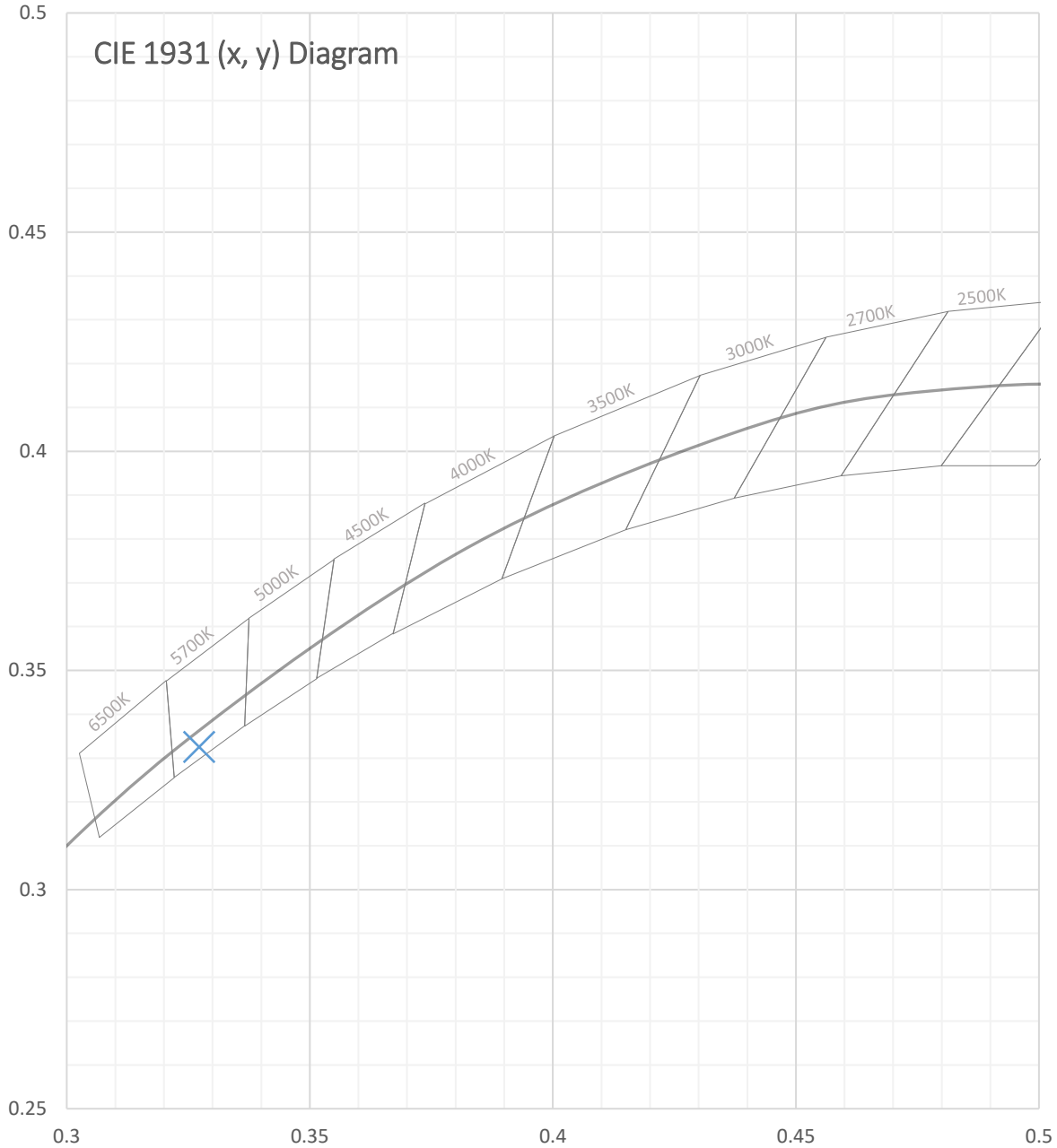


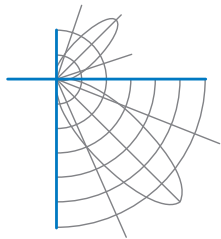
Test Report Number: LLIA001599-002B





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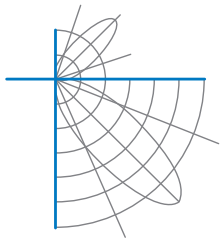


**Test Report Number: LLIA001599-002B**

Total Radiant Flux	34.61 W
Total Luminous Flux	9107.5 Lm
Chromaticity CIE 1931 (x, y)	(0.3273, 0.3325)
Chromaticity CIE 1976 (u', v')	(0.2066, 0.4724)
Correlated Color Temperature (CCT)	5744 K
Color Rendering Index (Ra)	95
R1	95
R2	96
R3	98
R4	94
R5	94
R6	94
R7	94
R8	95
R9	88
R10	94
R11	97
R12	74
R13	95
R14	99
TM-30: Rf	89
TM-30: Rg	98
TM-30: Rcs,h1	0
Distance from Planckian Locus (Duv)	-0.0021
Scotopic/Photopic Ratio ‡	2.331

**Electrical Data**

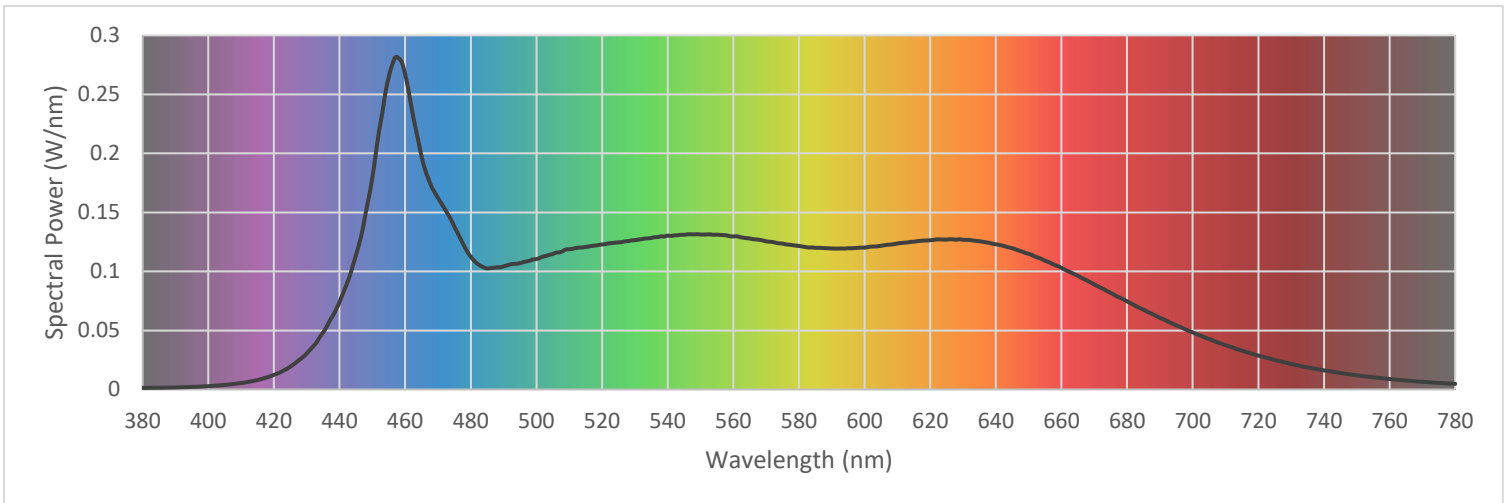
Voltage	120.0 Vac
Current	0.8604 A
Power	102.7 W
Frequency	59.99 Hz
Power Factor	0.995
Current THD	5.2 %

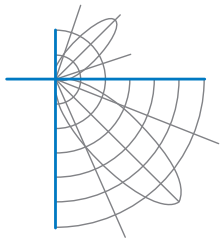


Test Report Number: LLIA001599-002B

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

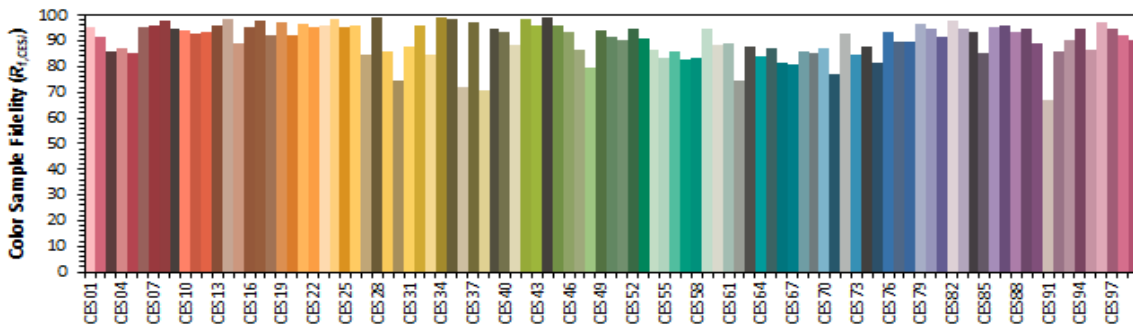
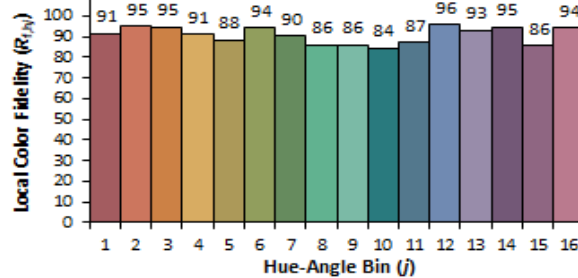
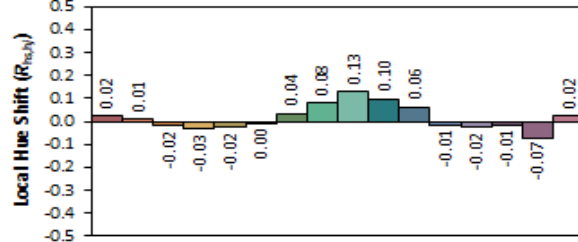
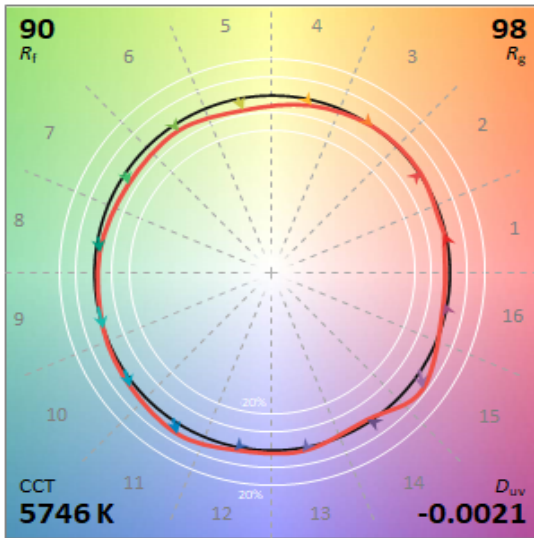
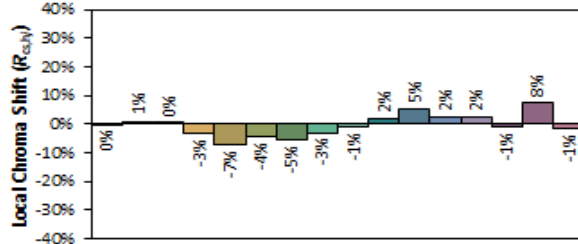
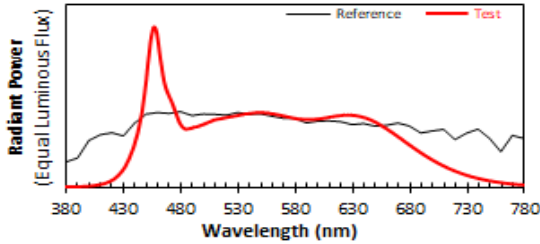
380	0.001347	480	0.112402	580	0.121583	680	0.074643
385	0.001444	485	0.102528	585	0.120034	685	0.067623
390	0.001698	490	0.104301	590	0.119434	690	0.060675
395	0.002188	495	0.106985	595	0.119638	695	0.054317
400	0.002789	500	0.110501	600	0.120234	700	0.048338
405	0.003847	505	0.114794	605	0.121730	705	0.042668
410	0.005450	510	0.118815	610	0.123688	710	0.037533
415	0.007947	515	0.120750	615	0.125185	715	0.032937
420	0.012357	520	0.122868	620	0.126456	720	0.028697
425	0.019351	525	0.124606	625	0.126970	725	0.024971
430	0.030523	530	0.126479	630	0.126762	730	0.021713
435	0.048425	535	0.128325	635	0.125560	735	0.018712
440	0.074116	540	0.130380	640	0.123042	740	0.016137
445	0.113802	545	0.131041	645	0.119721	745	0.013976
450	0.179558	550	0.131292	650	0.114870	750	0.012017
455	0.264851	555	0.131186	655	0.109054	755	0.010309
460	0.266927	560	0.129645	660	0.103088	760	0.008874
465	0.197261	565	0.127928	665	0.096246	765	0.007593
470	0.162201	570	0.125504	670	0.088996	770	0.006488
475	0.137865	575	0.123567	675	0.081744	775	0.005561
						780	0.004762



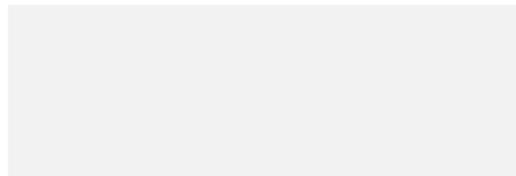


Test Report Number: LLIA001599-002B

IES TM-30 Details

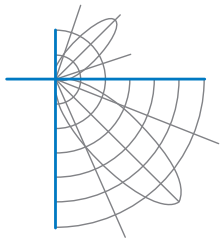


Notes:



x 0.3272  
y 0.3324  
u' 0.2066  
v' 0.4723

CIE 13.3-1995 (CRI)	
R <sub>a</sub>	95
R <sub>s</sub>	88



## Test Report Number: LLIA001599-002B

**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:** 25.5 °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.