

Report of Test

LLIA001532-001A

Indoor Distribution Photometry Test Report

Catalog Number: C20-L0690TH-9HCE0PA-P1, 15 degree optic
Track mounted steel driver housing with cylindrical aluminum luminaire housing,
clear multi-faceted clear conical lens below LED and black plastic baffle.

One white LED

One eldoLED SOLOdrive 361/S LED driver



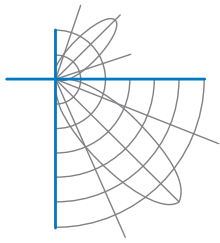
Prepared For:
LiteLab, Inc
251 Elm Street
Buffalo, NY 14203, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	262.2 Lumens
Input Current	0.0660 A	Total Efficacy	36.0 lm/W
Input Power	7.28 W	Downward Flux	262.2 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.919		
Current THD	15.9 %		

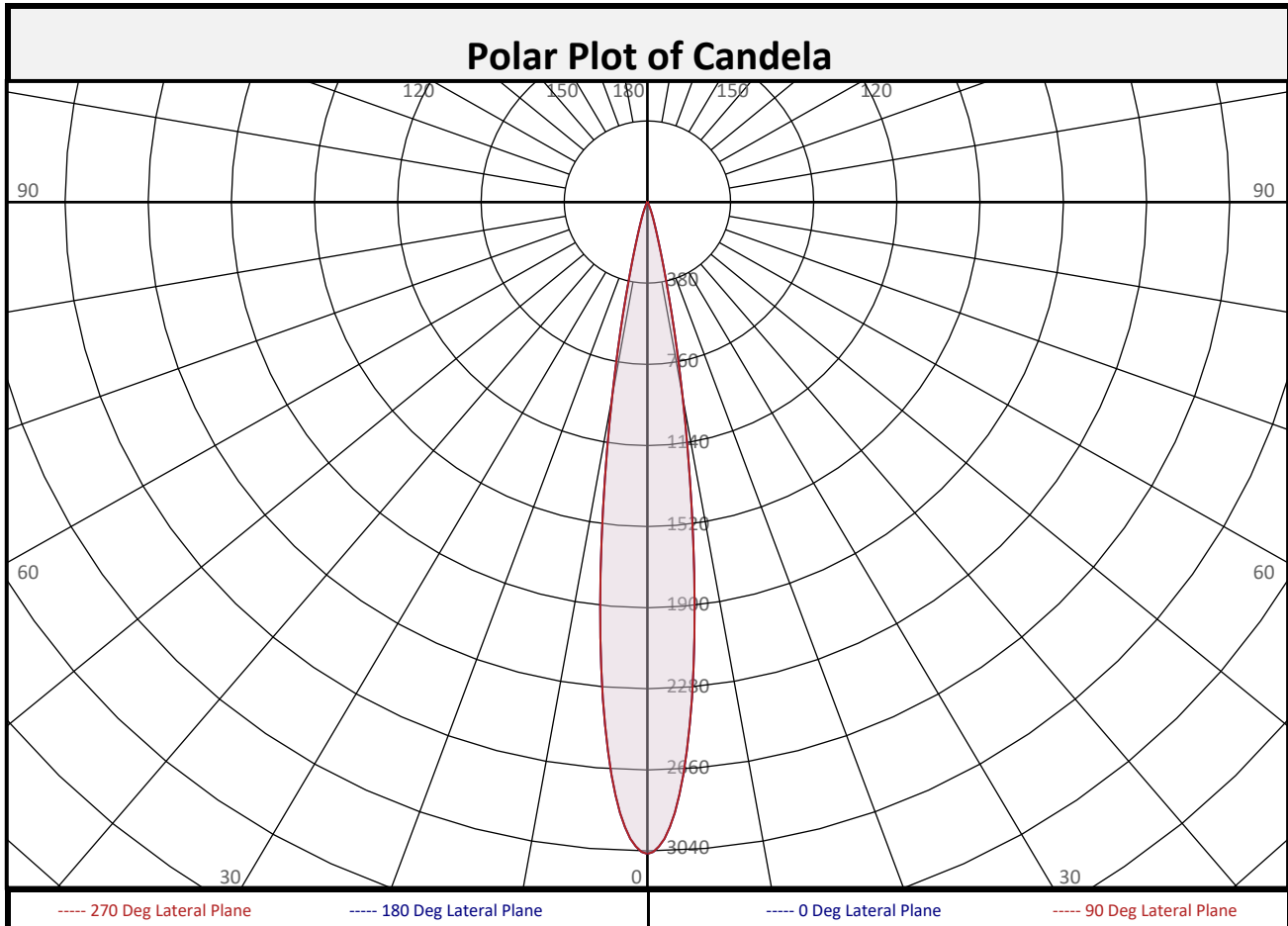
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 08/30/2021
Report date: 09/01/2021

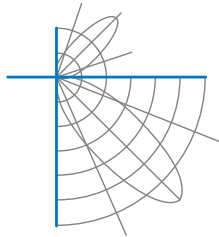
Signed: _____



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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	173.7	66.2%		90-100	0.0	0.0%		0-20	248.1	94.6%
10-20	74.4	28.4%		100-110	0.0	0.0%		0-30	258.6	98.6%
20-30	10.5	4.0%		110-120	0.0	0.0%		0-40	261.3	99.6%
30-40	2.8	1.1%		120-130	0.0	0.0%		0-60	262.1	99.9%
40-50	0.6	0.2%		130-140	0.0	0.0%		0-80	262.2	100.0%
50-60	0.2	0.1%		140-150	0.0	0.0%		10-90	88.5	33.7%
60-70	0.1	0.0%		150-160	0.0	0.0%		20-50	13.8	5.3%
70-80	0.0	0.0%		160-170	0.0	0.0%		40-90	0.9	0.3%
80-90	0.0	0.0%		170-180	0.0	0.0%		60-90	0.1	0.0%
0-90	262.2	100.0%		90-180	0.0	0.0%		0-180	262.2	100.0%

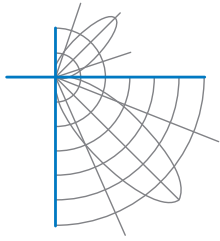


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	3053	3053	3053	3053	3053	3053	3053	3053	3053
	2.5	2863	2863	2863	2863	2863	2863	2863	2863	2863
	5	2333	2333	2333	2333	2333	2333	2333	2333	2333
	7.5	1600	1600	1600	1600	1600	1600	1600	1600	1600
	10	924	924	924	924	924	924	924	924	924
	12.5	453	453	453	453	453	453	453	453	453
	15	209	209	209	209	209	209	209	209	209
	17.5	109	109	109	109	109	109	109	109	109
	20	62	62	62	62	62	62	62	62	62
	22.5	34	34	34	34	34	34	34	34	34
	25	19	19	19	19	19	19	19	19	19
	27.5	11	11	11	11	11	11	11	11	11
	30	8	8	8	8	8	8	8	8	8
	32.5	6	6	6	6	6	6	6	6	6
	35	4	4	4	4	4	4	4	4	4
	37.5	3	3	3	3	3	3	3	3	3
	40	2	2	2	2	2	2	2	2	2
	42.5	1	1	1	1	1	1	1	1	1
	45	1	1	1	1	1	1	1	1	1
	47.5	1	1	1	1	1	1	1	1	1
	50	0	0	0	0	0	0	0	0	0
	52.5	0	0	0	0	0	0	0	0	0
	55	0	0	0	0	0	0	0	0	0
	57.5	0	0	0	0	0	0	0	0	0
	60	0	0	0	0	0	0	0	0	0
	62.5	0	0	0	0	0	0	0	0	0
	65	0	0	0	0	0	0	0	0	0
67.5	0	0	0	0	0	0	0	0	0	
70	0	0	0	0	0	0	0	0	0	
72.5	0	0	0	0	0	0	0	0	0	
75	0	0	0	0	0	0	0	0	0	
77.5	0	0	0	0	0	0	0	0	0	
80	0	0	0	0	0	0	0	0	0	
82.5	0	0	0	0	0	0	0	0	0	
85	0	0	0	0	0	0	0	0	0	
87.5	0	0	0	0	0	0	0	0	0	
90	0	0	0	0	0	0	0	0	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	90	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0
	142.5	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0
	147.5	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0
	152.5	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0	0	0	
160	0	0	0	0	0	0	0	0	0	
162.5	0	0	0	0	0	0	0	0	0	
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	



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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	116	114	113	111	114	112	111	109	108	107	106	105	104	103	101	101	100	98
2	113	110	108	106	111	109	106	105	106	104	102	103	101	100	100	99	98	97
3	111	107	104	102	109	106	103	101	103	101	100	101	99	98	99	98	97	96
4	108	104	101	99	107	103	100	98	101	99	97	100	98	96	98	96	95	94
5	106	102	99	97	105	101	98	96	100	97	95	98	96	95	97	95	94	93
6	105	100	97	95	103	99	96	94	98	96	94	97	95	93	96	94	93	92
7	103	98	95	93	102	98	95	93	97	94	92	96	93	92	95	93	91	91
8	101	96	93	91	100	96	93	91	95	93	91	94	92	91	94	92	90	90
9	100	95	92	90	99	95	92	90	94	91	90	93	91	89	93	91	89	89
10	98	94	91	89	98	93	91	89	93	90	89	92	90	88	92	90	88	88

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	84.8	1.60	1.60
8.0	47.7	2.14	2.14
10.0	30.5	2.67	2.67
12.0	21.2	3.21	3.21
14.0	15.6	3.74	3.74
16.0	11.9	4.28	4.28

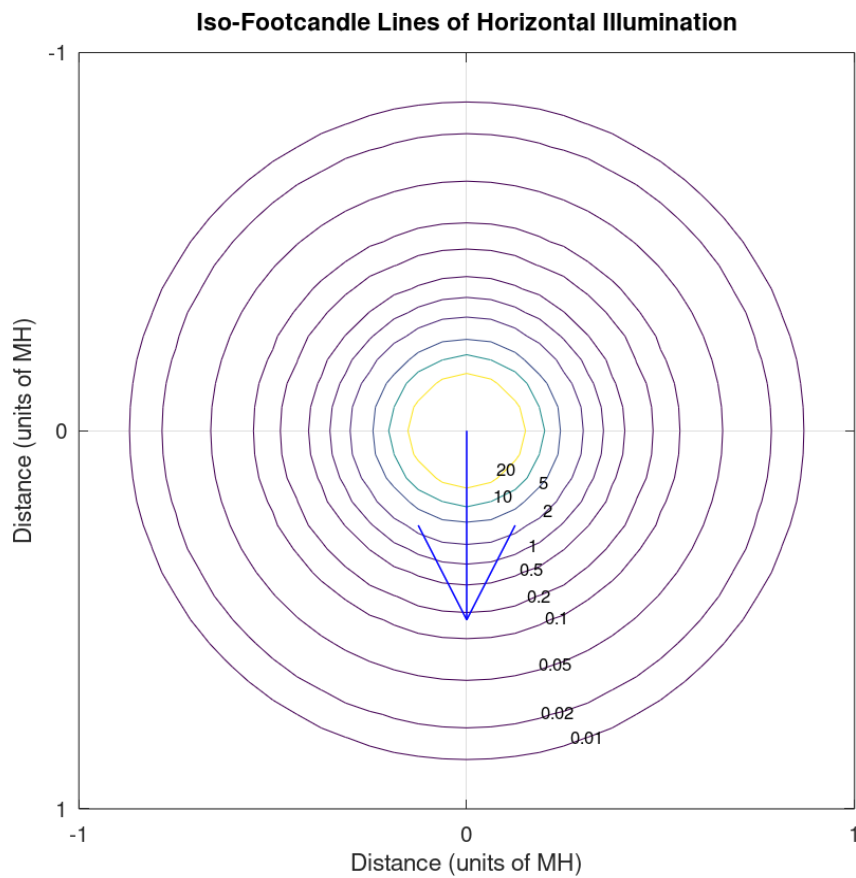
Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	1334237	1334237	1334237
45	397	397	397
55	83	83	83
65	55	55	55
75	71	71	71
85	0	0	0

Spacing Criterion	
Spacing Criterion:	0.3
Beam Angle:	15.6 °
Field Angle:	27.8 °

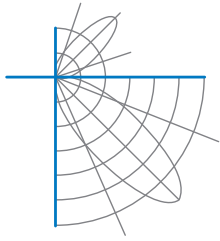


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Iso-Illuminance Plot

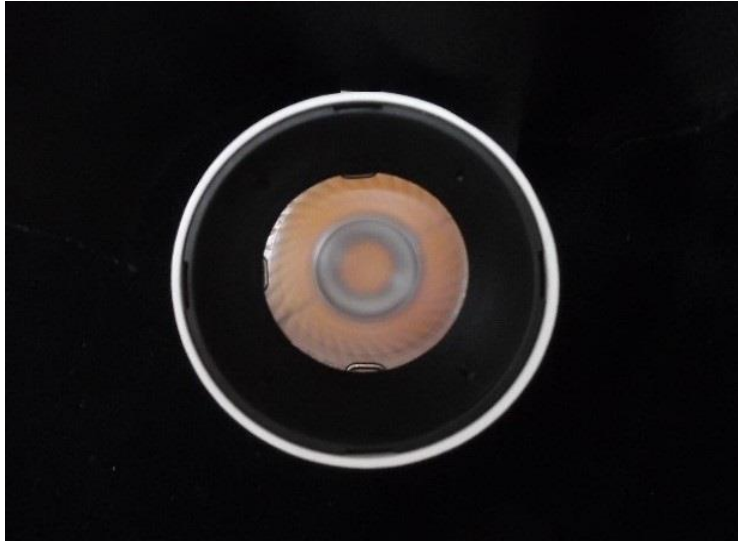


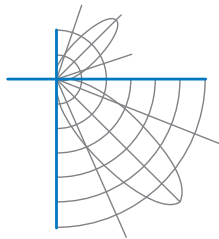
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



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Additional Pictures of Test Subject





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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-41-14 and LM-46-04.

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

LLIA001532-001B

Integrating Sphere Report

Catalog Number: C20-L0690TH-9HCE0PA-P1, 15 degree optic

Track mounted steel driver housing with cylindrical aluminum luminaire housing,
clear multi-faceted clear conical lens below LED and black plastic baffle.

One white LED

One eldoLED SOLOdrive 361/S LED driver

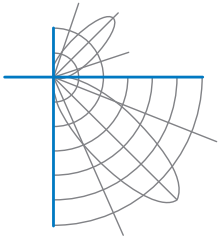


Performance Summary

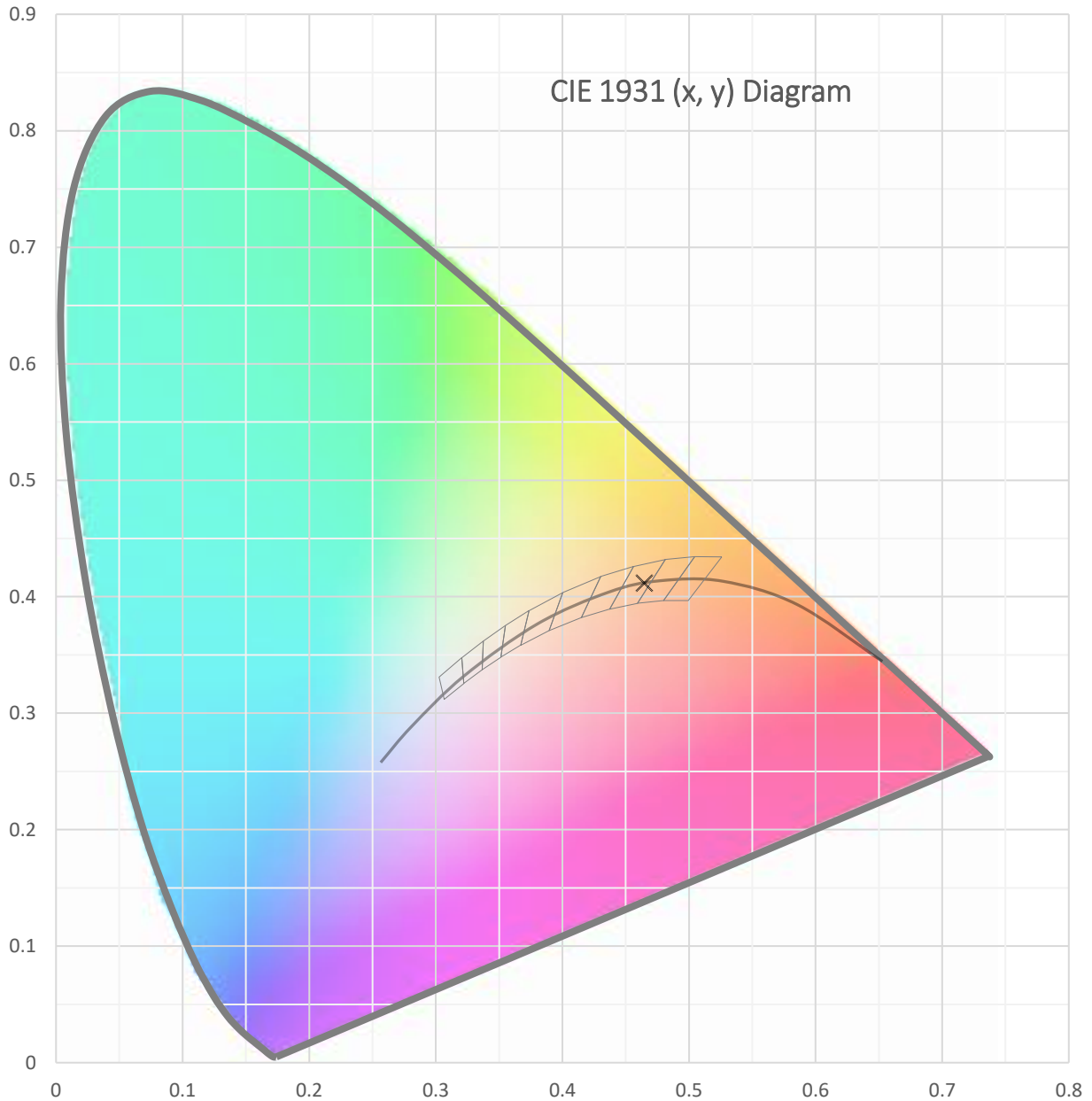
Voltage	120.0 Vac
Current	0.0661 A
Power	7.31 W
Frequency	59.99 Hz
Power Factor	0.921
Current THD	15.8 %
Total Luminous Flux	261.4 lm
Efficacy	35.8 lm/W
Chromaticity (x,y)	(0.4646, 0.4116)
(u',v')	(0.2651, 0.5285)
Duv	0.0000
CCT	2642 K
CRI (Ra)	92
R9	67
TM-30: Rf	89
TM-30: Rg	103
TM-30: Rcs,h1	-4

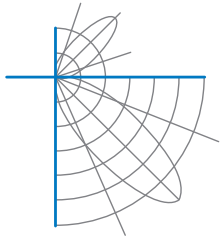
Prepared For:
LiteLab, Inc
251 Elm Street
Buffalo, NY 14203, USA

Test date: 08/30/2021
Report date: 09/01/2021

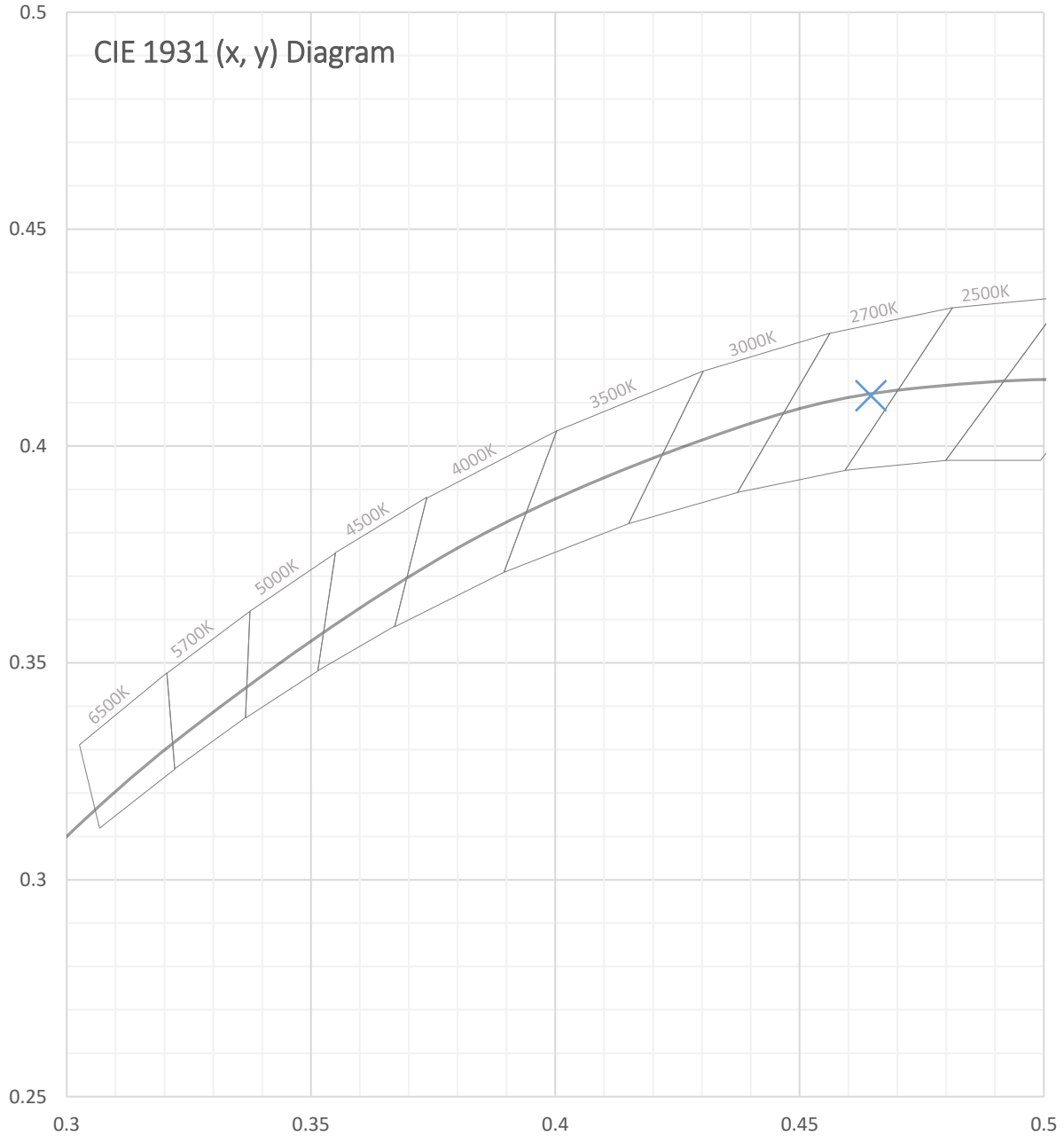


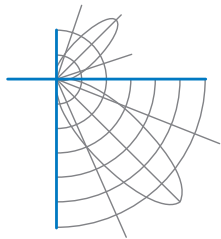
Test Report Number: LLIA001532-001B





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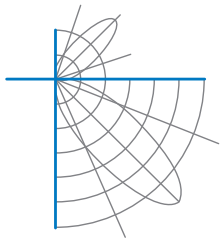


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Total Radiant Flux	0.959 W
Total Luminous Flux	261.4 Lm
Chromaticity CIE 1931 (x, y)	(0.4646, 0.4116)
Chromaticity CIE 1976 (u', v')	(0.2651, 0.5285)
Correlated Color Temperature (CCT)	2642 K
Color Rendering Index (Ra)	92
R1	93
R2	94
R3	92
R4	93
R5	92
R6	92
R7	94
R8	86
R9	67
R10	84
R11	93
R12	78
R13	93
R14	94
TM-30: Rf	89
TM-30: Rg	103
TM-30: Rcs,h1	-4
Distance from Planckian Locus (Duv)	0.0000
Scotopic/Photopic Ratio ‡	1.202

Electrical Data

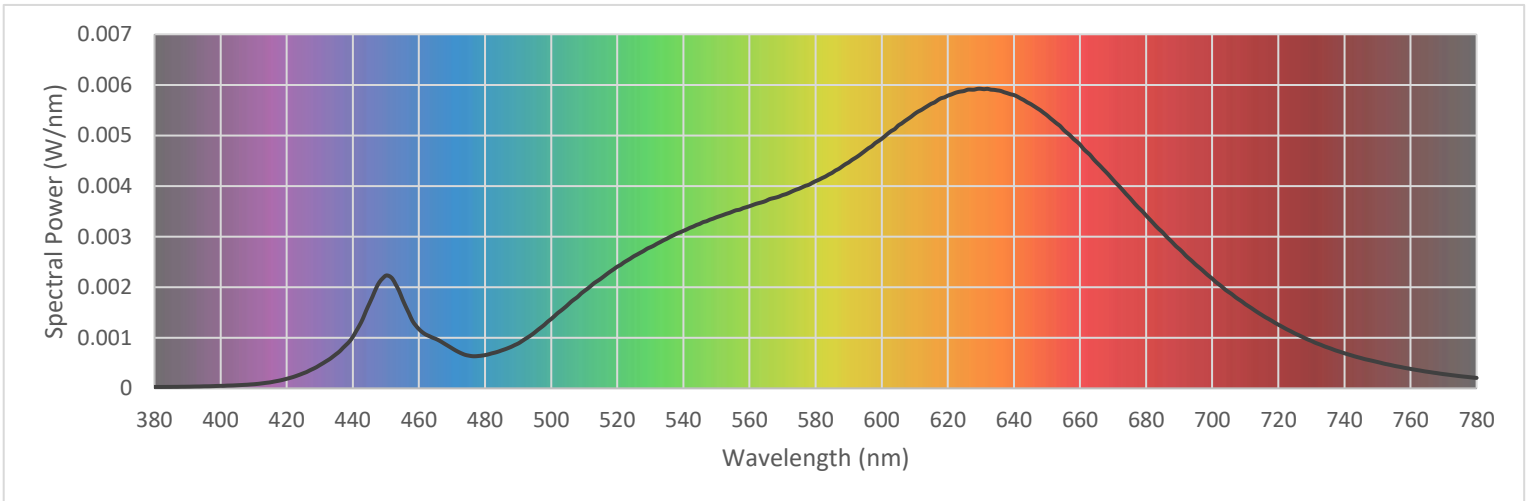
Voltage	120.0 Vac
Current	0.0661 A
Power	7.31 W
Frequency	59.99 Hz
Power Factor	0.921
Current THD	15.8 %



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

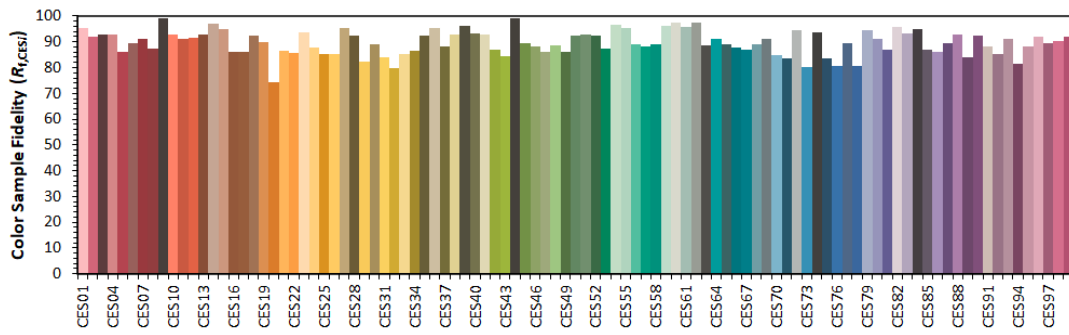
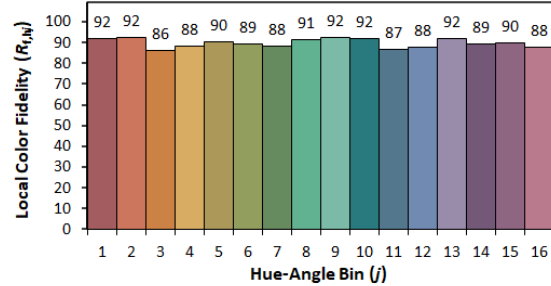
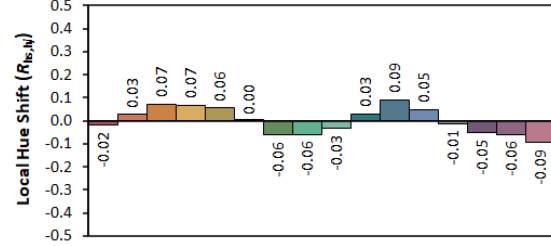
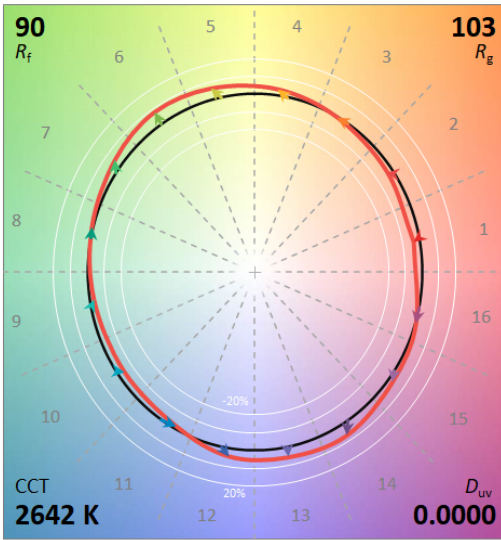
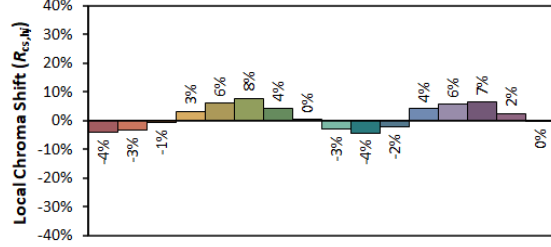
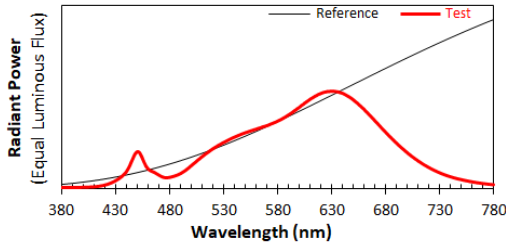
380	0.000028	480	0.000657	580	0.004096	680	0.003417
385	0.000028	485	0.000750	585	0.004260	685	0.003084
390	0.000032	490	0.000885	590	0.004467	690	0.002757
395	0.000040	495	0.001103	595	0.004696	695	0.002447
400	0.000049	500	0.001371	600	0.004933	700	0.002170
405	0.000061	505	0.001648	605	0.005195	705	0.001903
410	0.000081	510	0.001923	610	0.005427	710	0.001666
415	0.000119	515	0.002166	615	0.005626	715	0.001452
420	0.000189	520	0.002406	620	0.005787	720	0.001259
425	0.000298	525	0.002611	625	0.005879	725	0.001086
430	0.000460	530	0.002789	630	0.005923	730	0.000938
435	0.000680	535	0.002958	635	0.005891	735	0.000806
440	0.001018	540	0.003113	640	0.005799	740	0.000694
445	0.001676	545	0.003253	645	0.005624	745	0.000599
450	0.002229	550	0.003382	650	0.005400	750	0.000521
455	0.001763	555	0.003497	655	0.005113	755	0.000446
460	0.001170	560	0.003601	660	0.004820	760	0.000385
465	0.000980	565	0.003706	665	0.004468	765	0.000329
470	0.000792	570	0.003820	670	0.004122	770	0.000281
475	0.000648	575	0.003947	675	0.003771	775	0.000241
						780	0.000206





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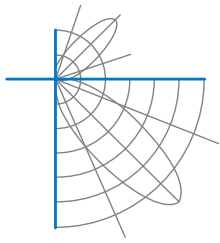
IES TM-30 Details



Notes:

x 0.4646
 y 0.4116
 u' 0.2651
 v' 0.5284

CIE 13.3-1995
(CRI)
 R_a 92
 R_g 67



Test Report Number: LLIA001532-001B

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: 25.0 °C

Test Procedure: Tested in accordance with the applicable sections of:
LM-79-19, LM-78-07, LM-58-13, ANSI_ANSLG C78.377-2017, TM-30-18

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.

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