



## Report of Test

LLIA001431-002A

Indoor Distribution Photometry Test Report

Catalog Number: 3-21-15 Lucci

Pendant mounted, spun aluminum housing, formed white enamel steel reflector/LED tray translucent white plastic enclosure.

32 white LEDs, 4 LED boards with 8 LEDs each.

One Novbo NE048040100-1G LED driver



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

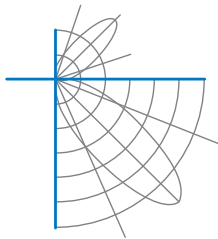
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	1708.6 Lumens
Input Current	0.3545 A	Total Efficacy	40.3 Lm/W
Input Power	42.35 W	Downward Flux	1708.6 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.995		
Current THD	5.8 %		

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

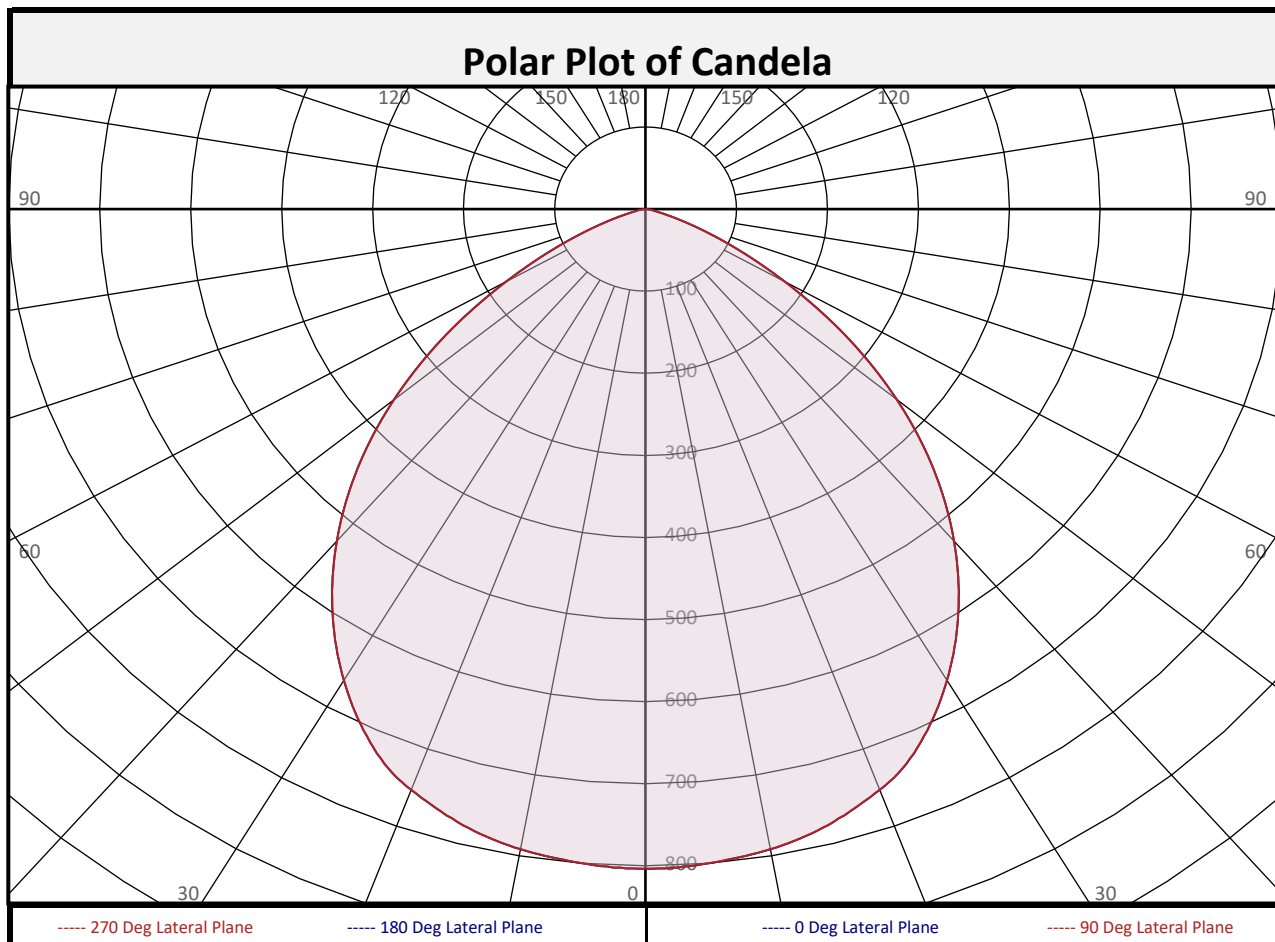
Test date: 04/01/2021

Report date: 04/05/2021

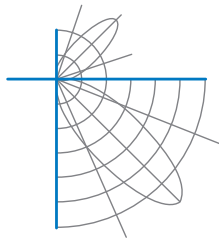
Signed: \_\_\_\_\_



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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	76.2	4.5%		90-100	0.0	0.0%		0-20	295.3	17.3%	
10-20	219.1	12.8%		100-110	0.0	0.0%		0-30	624.2	36.5%	
20-30	329.0	19.3%		110-120	0.0	0.0%		0-40	998.2	58.4%	
30-40	374.0	21.9%		120-130	0.0	0.0%		0-60	1581	92.5%	
40-50	343.8	20.1%		130-140	0.0	0.0%		0-80	1705	99.8%	
50-60	238.9	14.0%		140-150	0.0	0.0%		10-90	1632	95.5%	
60-70	103.2	6.0%		150-160	0.0	0.0%		20-50	1047	61.3%	
70-80	20.9	1.2%		160-170	0.0	0.0%		40-90	710.4	41.6%	
80-90	3.6	0.2%		170-180	0.0	0.0%		60-90	127.7	7.5%	
0-90	1709	100.0%		90-180	0.0	0.0%		0-180	1709	100.0%	

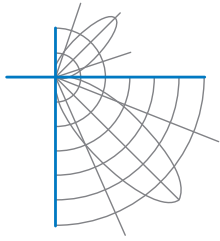


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	804	804	804	804	804	804	804	804	804
	2.5	803	803	803	803	803	803	803	803	803
	5	800	800	800	800	800	800	800	800	800
	7.5	796	796	796	796	796	796	796	796	796
	10	792	792	792	792	792	792	792	792	792
	12.5	785	785	785	785	785	785	785	785	785
	15	777	777	777	777	777	777	777	777	777
	17.5	765	765	765	765	765	765	765	765	765
	20	753	753	753	753	753	753	753	753	753
	22.5	738	738	738	738	738	738	738	738	738
	25	716	716	716	716	716	716	716	716	716
	27.5	691	691	691	691	691	691	691	691	691
	30	663	663	663	663	663	663	663	663	663
	32.5	632	632	632	632	632	632	632	632	632
	35	600	600	600	600	600	600	600	600	600
	37.5	565	565	565	565	565	565	565	565	565
	40	527	527	527	527	527	527	527	527	527
	42.5	489	489	489	489	489	489	489	489	489
	45	448	448	448	448	448	448	448	448	448
	47.5	405	405	405	405	405	405	405	405	405
50	360	360	360	360	360	360	360	360	360	
52.5	314	314	314	314	314	314	314	314	314	
55	268	268	268	268	268	268	268	268	268	
57.5	221	221	221	221	221	221	221	221	221	
60	177	177	177	177	177	177	177	177	177	
62.5	137	137	137	137	137	137	137	137	137	
65	101	101	101	101	101	101	101	101	101	
67.5	71	71	71	71	71	71	71	71	71	
70	47	47	47	47	47	47	47	47	47	
72.5	28	28	28	28	28	28	28	28	28	
75	16	16	16	16	16	16	16	16	16	
77.5	10	10	10	10	10	10	10	10	10	
80	7	7	7	7	7	7	7	7	7	
82.5	5	5	5	5	5	5	5	5	5	
85	3	3	3	3	3	3	3	3	3	
87.5	1	1	1	1	1	1	1	1	1	
90	0	0	0	0	0	0	0	0	0	

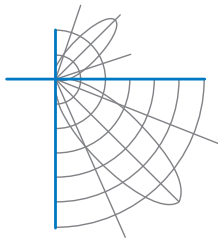


## Report of Test

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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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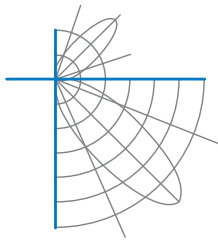
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																		
Effective Floor Cavity Reflectance 0.20																		
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72	79	75	71	77	73	70	68
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	47
7	70	58	50	45	69	57	50	44	56	49	44	54	48	44	53	48	44	42
8	66	53	45	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38
9	62	49	42	36	60	49	41	36	47	41	36	46	40	36	45	40	36	34
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	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	22.3	7.32	7.32	
8.0	12.6	9.76	9.76	
10.0	8.0	12.21	12.21	
12.0	5.6	14.65	14.65	
14.0	4.1	17.09	17.09	
16.0	3.1	19.53	19.53	

Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	2754	2754	2754
45	2170	2170	2170
55	1603	1603	1603
65	822	822	822
75	210	210	210
85	122	122	122

Spacing Criterion	
Spacing Criterion:	1.2



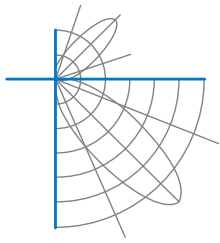
## Report of Test

### LLIA001431-002A

#### UGR TABLE - CORRECTED

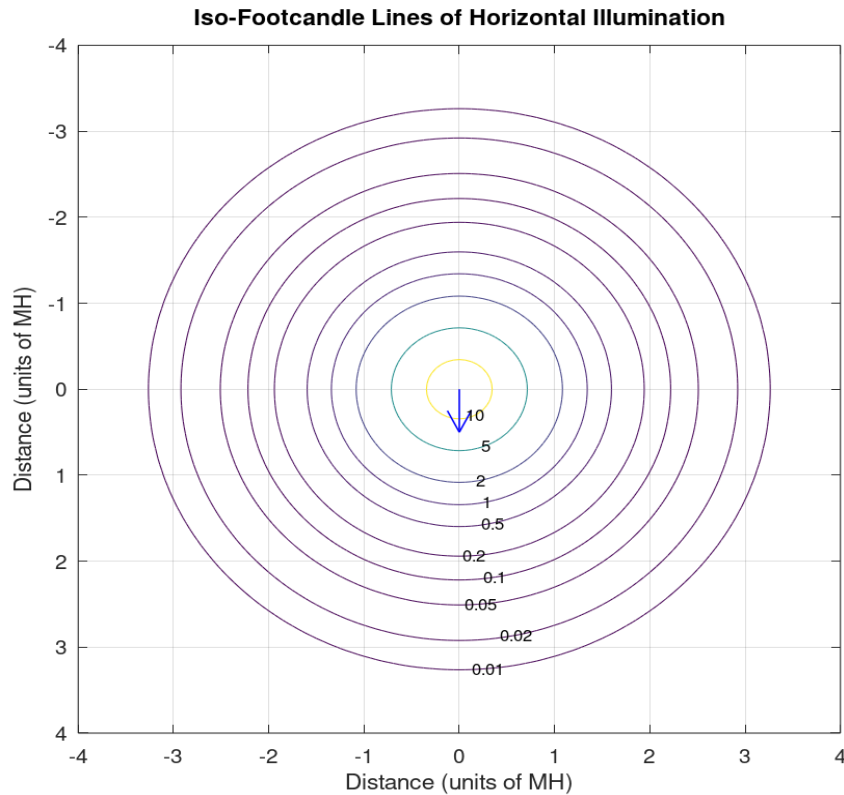
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	11.9	13.3	12.3	13.6	14.0	11.9	13.3	12.3	13.6	14.0
	3H	12.2	13.5	12.6	13.9	14.2	12.2	13.5	12.6	13.9	14.2
	4H	12.2	13.4	12.6	13.8	14.1	12.2	13.4	12.6	13.8	14.1
	6H	12.2	13.3	12.6	13.6	14.0	12.2	13.3	12.6	13.6	14.0
	8H	12.2	13.2	12.6	13.6	14.0	12.2	13.2	12.6	13.6	14.0
	12H	12.1	13.1	12.5	13.5	13.9	12.1	13.1	12.5	13.5	13.9
4H	2H	12.0	13.2	12.4	13.6	14.0	12.0	13.2	12.4	13.6	14.0
	3H	12.5	13.4	12.9	13.8	14.2	12.5	13.4	12.9	13.8	14.2
	4H	12.4	13.3	12.9	13.7	14.2	12.4	13.3	12.9	13.7	14.2
	6H	12.4	13.2	12.9	13.6	14.1	12.4	13.2	12.9	13.6	14.1
	8H	12.4	13.1	12.8	13.5	14.0	12.4	13.1	12.8	13.5	14.0
	12H	12.4	13.0	12.8	13.5	13.9	12.4	13.0	12.8	13.5	13.9
8H	4H	12.4	13.1	12.8	13.5	14.0	12.4	13.1	12.8	13.5	14.0
	6H	12.3	12.9	12.8	13.4	13.9	12.3	12.9	12.8	13.4	13.9
	8H	12.3	12.8	12.8	13.3	13.8	12.3	12.8	12.8	13.3	13.8
	12H	12.3	12.7	12.8	13.2	13.8	12.3	12.7	12.8	13.2	13.8
12H	4H	12.3	13.0	12.8	13.4	13.9	12.3	13.0	12.8	13.4	13.9
	6H	12.3	12.8	12.8	13.3	13.8	12.3	12.8	12.8	13.3	13.8
	8H	12.2	12.7	12.8	13.2	13.8	12.2	12.7	12.8	13.2	13.8

Maximum UGR = 14.2

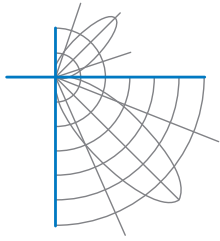


## Report of Test LLIA001431-002A

### 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.

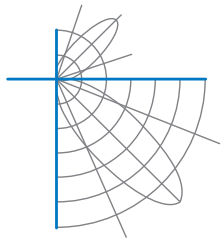


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**Additional Pictures of Test Subject**







## Report of Test

### LLIA001431-002A

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-41-14 and LM-46-04.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

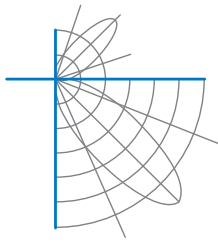
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

**LLIA001431-002B**

Integrating Sphere Report

Catalog Number: 3-21-15 Lucci

Pendant mounted, spun aluminum housing, formed white enamel steel reflector/LED tray translucent white plastic enclosure.

32 white LEDs, 4 LED boards with 8 LEDs each.

One Novbo NE048040100-1G LED driver



### Performance Summary

Voltage	120.0 Vac
Current	0.3567 A
Power	42.60 W
Frequency	59.99 Hz
Power Factor	0.996
Current THD	5.7 %
Total Luminous Flux	1725.0 lm
Efficacy	40.5 lm/W
Chromaticity (x,y)	(0.4492, 0.4155)
(u',v')	(0.2536, 0.5276)
Duv	0.0029
CCT	2893 K
CRI (Ra)	79
R9	3
TM-30: Rf	79
TM-30: Rg	98
TM-30: Rcs,h1	-11

Prepared For:

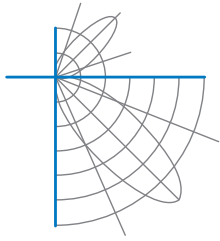
Oxygen Lighting

201 Railhead Road

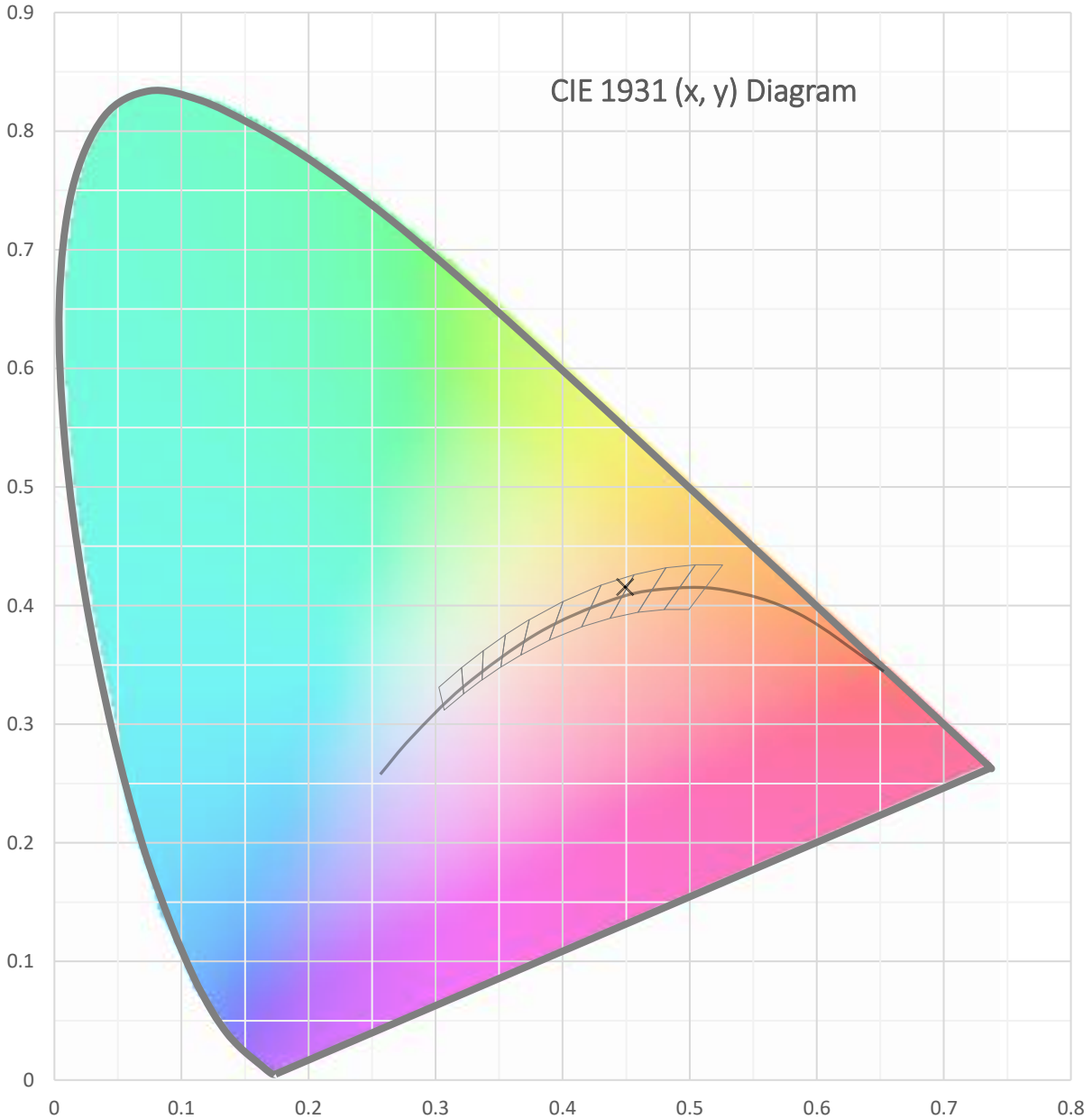
Fort Worth, TX 76106, USA

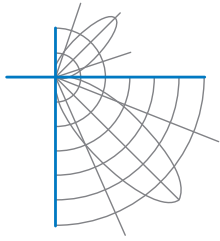
Test date: 03/31/2021

Report date: 04/05/2021

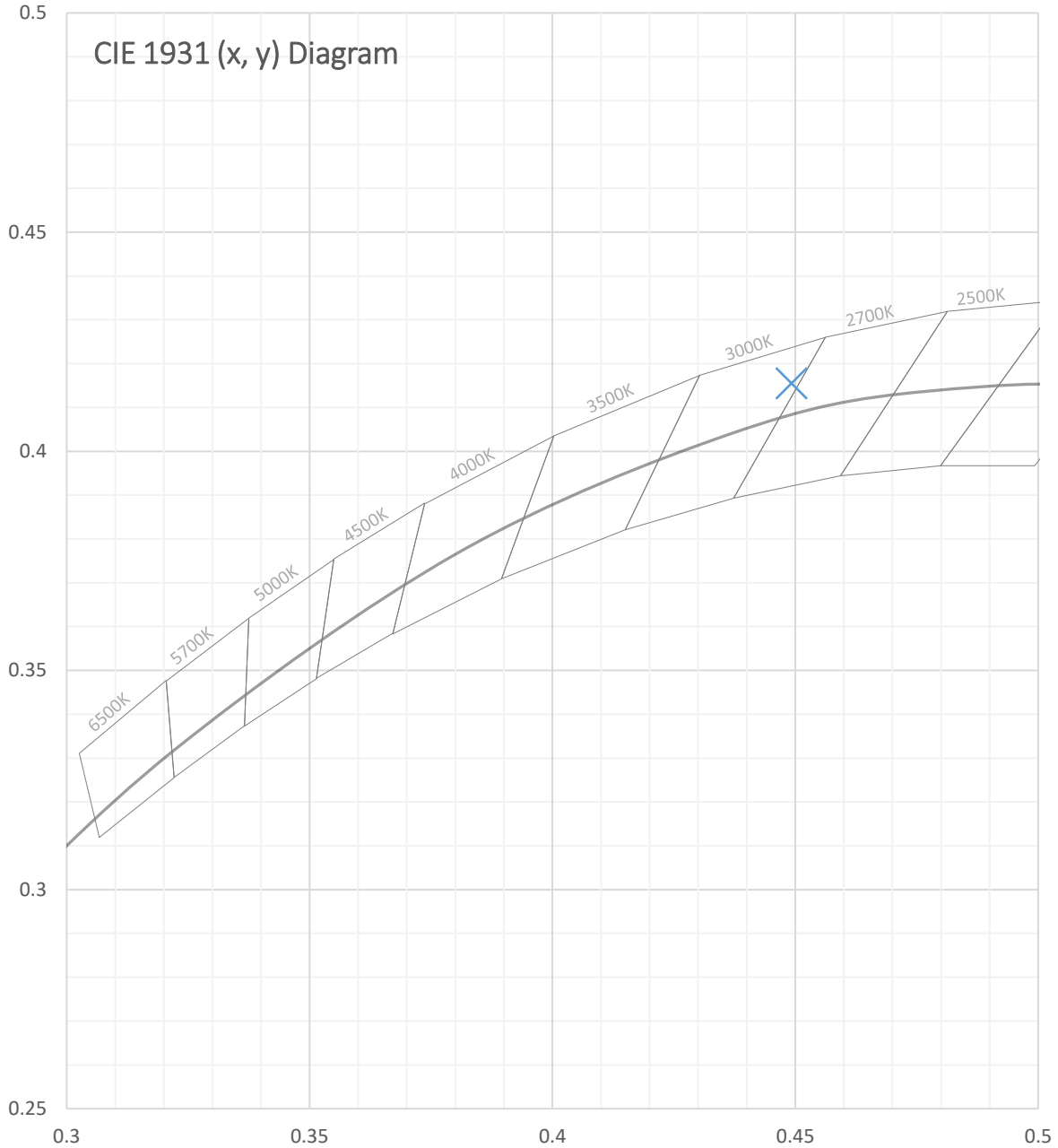


Test Report Number: LLIA001431-002B





Test Report Number: LLIA001431-002B





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Total Radiant Flux	5.318 W
Total Luminous Flux	1725.0 Lm
Chromaticity CIE 1931 (x, y)	(0.4492, 0.4155)
Chromaticity CIE 1976 (u', v')	(0.2536, 0.5276)
Correlated Color Temperature (CCT)	2893 K
Color Rendering Index (Ra)	79
R1	77
R2	85
R3	93
R4	79
R5	76
R6	81
R7	84
R8	59
R9	3
R10	66
R11	77
R12	62
R13	78
R14	96
TM-30: Rf	79
TM-30: Rg	98
TM-30: Rcs,h1	-11
Distance from Planckian Locus (Duv)	0.0029
Scotopic/Photopic Ratio ‡	1.201

**Electrical Data**

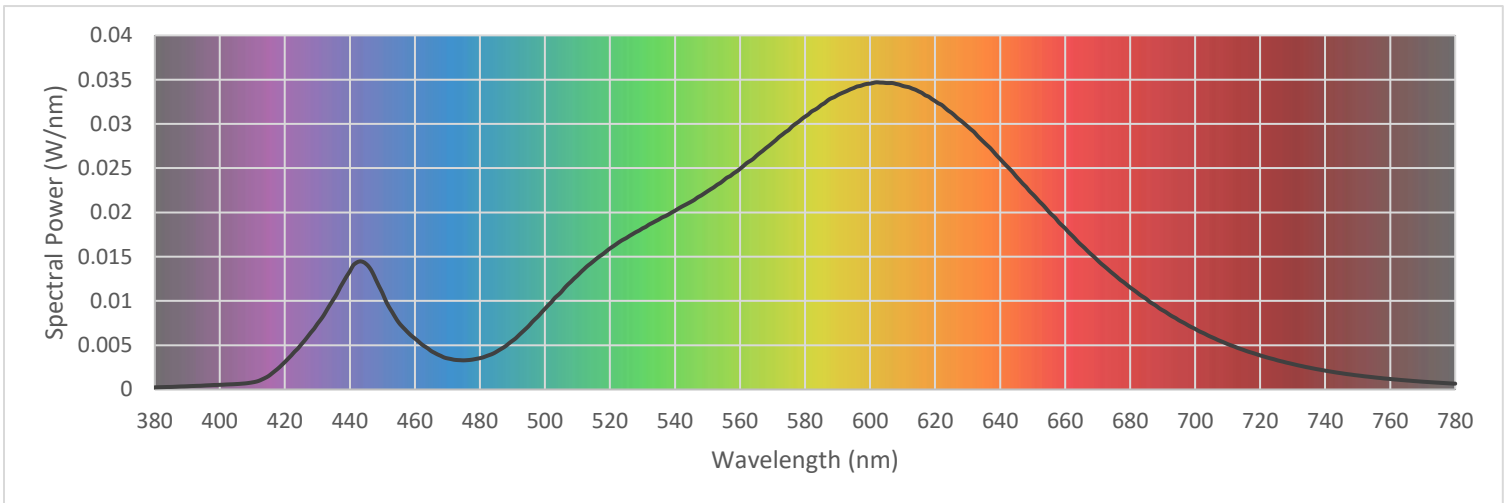
Voltage	120.0 Vac
Current	0.3567 A
Power	42.60 W
Frequency	59.99 Hz
Power Factor	0.996
Current THD	5.7 %

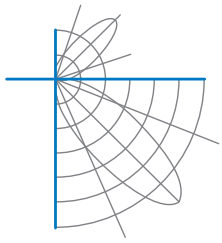


Test Report Number: LLIA001431-002B

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

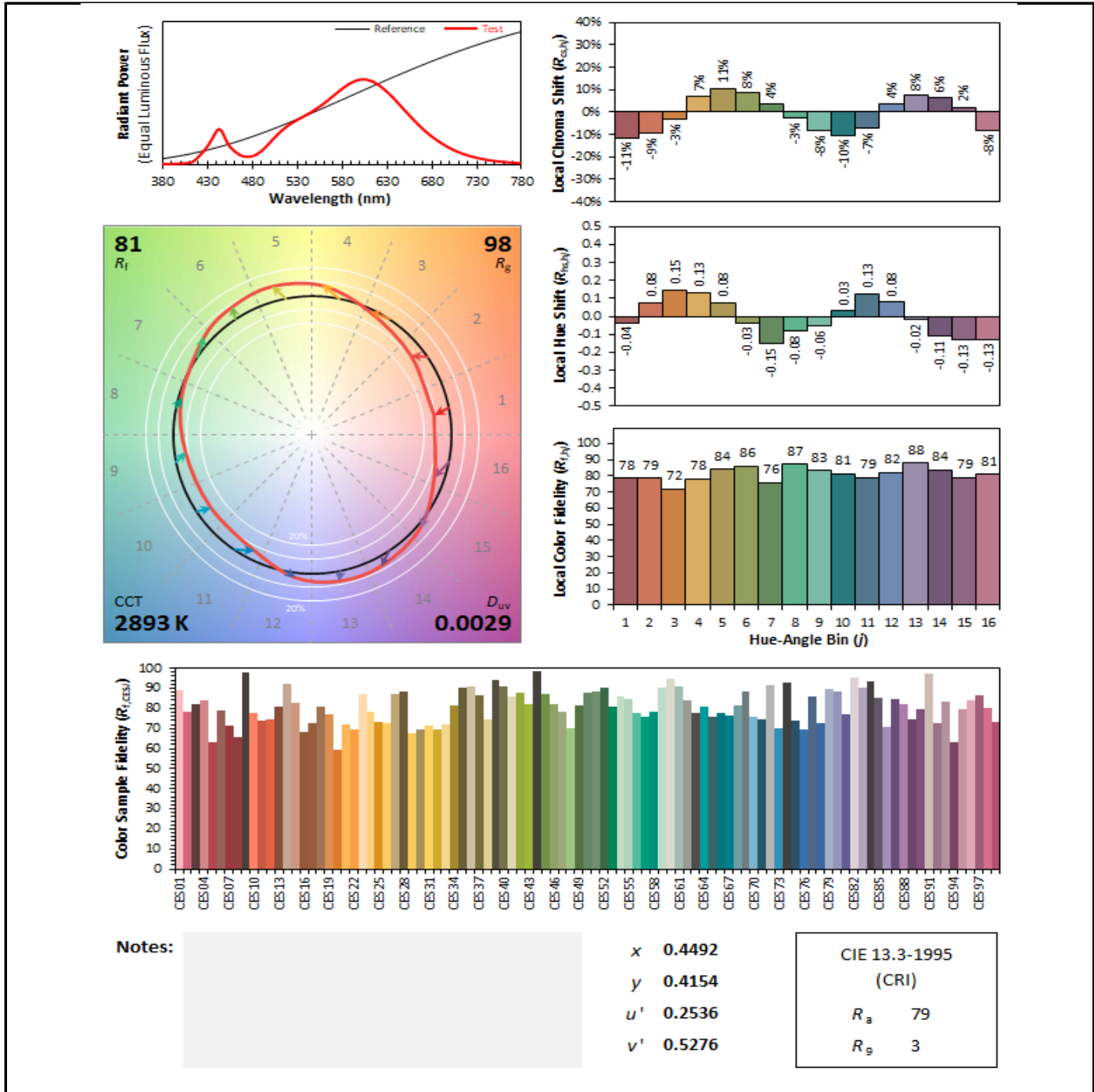
380	0.000244	480	0.003537	580	0.030818	680	0.011525
385	0.000285	485	0.004240	585	0.032131	685	0.010222
390	0.000364	490	0.005502	590	0.033249	690	0.008947
395	0.000442	495	0.007165	595	0.034055	695	0.007813
400	0.000525	500	0.009112	600	0.034547	700	0.006845
405	0.000610	505	0.011001	605	0.034618	705	0.005925
410	0.000799	510	0.012870	610	0.034296	710	0.005123
415	0.001520	515	0.014509	615	0.033665	715	0.004448
420	0.003101	520	0.015930	620	0.032585	720	0.003847
425	0.005068	525	0.017100	625	0.031273	725	0.003325
430	0.007406	530	0.018193	630	0.029712	730	0.002872
435	0.010210	535	0.019193	635	0.027940	735	0.002471
440	0.013344	540	0.020192	640	0.026040	740	0.002126
445	0.014175	545	0.021216	645	0.024043	745	0.001834
450	0.010909	550	0.022385	650	0.022067	750	0.001583
455	0.007572	555	0.023635	655	0.020072	755	0.001370
460	0.005757	560	0.024919	660	0.018212	760	0.001183
465	0.004346	565	0.026375	665	0.016315	765	0.001019
470	0.003515	570	0.027858	670	0.014586	770	0.000879
475	0.003287	575	0.029315	675	0.013003	775	0.000760
						780	0.000654

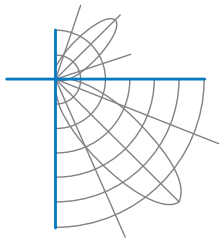




Test Report Number: LLIA001431-002B

IES TM-30 Details





## Test Report Number: LLIA001431-002B

**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:** 24.5 °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.

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.