

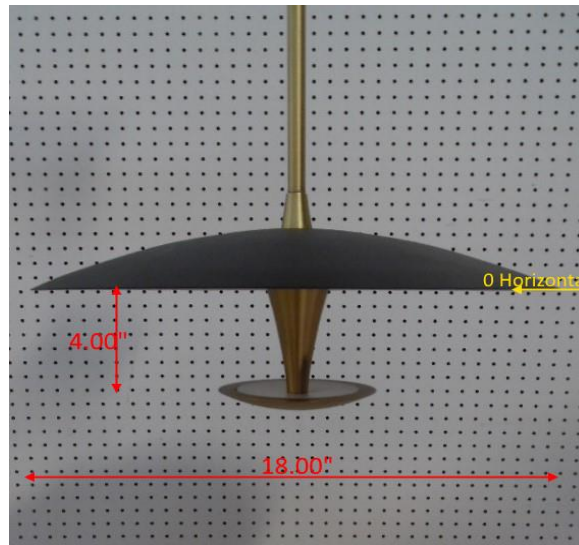


Report of Test

LLIA001389-006A

Indoor Distribution Photometry Test Report

Catalog Number: 3-646-1540 Spacely
Pendant mounted, formed steel canopy, white enamel steel upper reflector,
translucent white plastic enclosure above LEDs.
36 White LEDs, one LED board
One Novbo NE012120030-1G LED driver



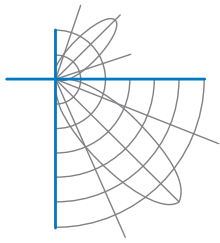
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	669.5 Lumens
Input Current	0.1151 A	Total Efficacy	52.3 Lm/W
Input Power	12.80 W	Downward Flux	528.4 Lumens
Frequency	60.00 Hz	Downward Flux	78.9 % of Total
Power Factor	0.927		
Current THD	21.4 %		

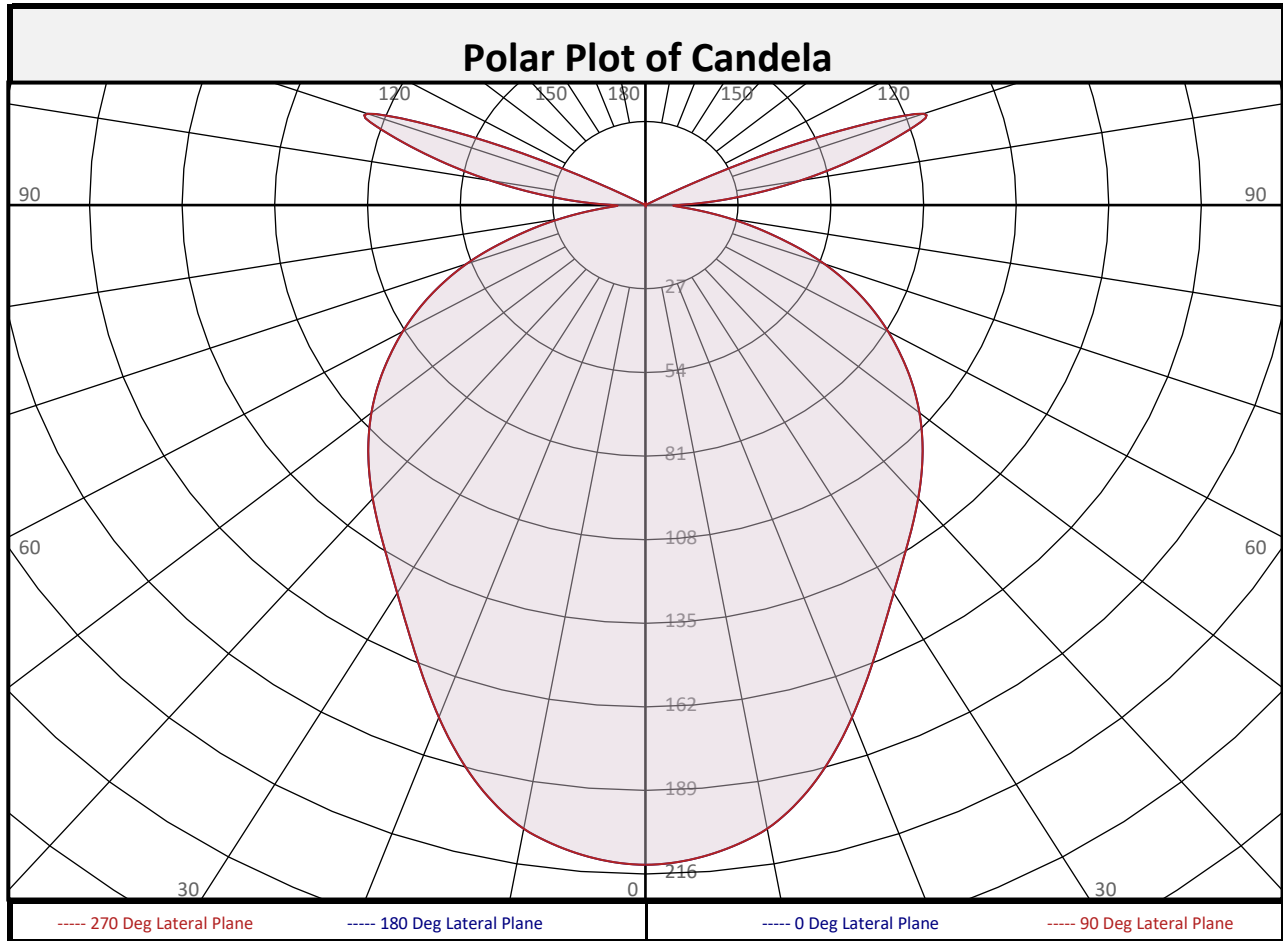
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 01/18/2021
Report date: 01/26/2021

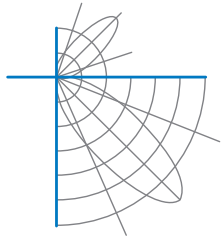
Signed: _____



Report of Test
LLIA001389-006A



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	19.9	3.0%		90-100	28.2	4.2%		0-20	73.8	11.0%
10-20	53.9	8.1%		100-110	72.2	10.8%		0-30	147.2	22.0%
20-30	73.4	11.0%		110-120	40.2	6.0%		0-40	230.8	34.5%
30-40	83.6	12.5%		120-130	0.1	0.0%		0-60	402.3	60.1%
40-50	88.2	13.2%		130-140	0.1	0.0%		0-80	512.9	76.6%
50-60	83.4	12.5%		140-150	0.1	0.0%		10-90	508.4	75.9%
60-70	68.3	10.2%		150-160	0.1	0.0%		20-50	245.2	36.6%
70-80	42.2	6.3%		160-170	0.0	0.0%		40-90	297.6	44.4%
80-90	15.5	2.3%		170-180	0.0	0.0%		60-90	126.0	18.8%
0-90	528.4	78.9%		90-180	141.2	21.1%		0-180	669.5	100.0%

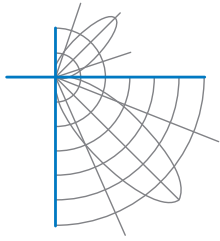


Report of Test

LLIA001389-006A

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	213	213	213	213	213	213	213	213	213
	2.5	212	212	212	212	212	212	212	212	212
	5	211	211	211	211	211	211	211	211	211
	7.5	208	208	208	208	208	208	208	208	208
	10	204	204	204	204	204	204	204	204	204
	12.5	199	199	199	199	199	199	199	199	199
	15	192	192	192	192	192	192	192	192	192
	17.5	184	184	184	184	184	184	184	184	184
	20	176	176	176	176	176	176	176	176	176
	22.5	167	167	167	167	167	167	167	167	167
	25	159	159	159	159	159	159	159	159	159
	27.5	152	152	152	152	152	152	152	152	152
	30	145	145	145	145	145	145	145	145	145
	32.5	139	139	139	139	139	139	139	139	139
	35	133	133	133	133	133	133	133	133	133
	37.5	128	128	128	128	128	128	128	128	128
	40	124	124	124	124	124	124	124	124	124
	42.5	119	119	119	119	119	119	119	119	119
	45	114	114	114	114	114	114	114	114	114
	47.5	109	109	109	109	109	109	109	109	109
50	104	104	104	104	104	104	104	104	104	
52.5	99	99	99	99	99	99	99	99	99	
55	93	93	93	93	93	93	93	93	93	
57.5	88	88	88	88	88	88	88	88	88	
60	82	82	82	82	82	82	82	82	82	
62.5	76	76	76	76	76	76	76	76	76	
65	69	69	69	69	69	69	69	69	69	
67.5	63	63	63	63	63	63	63	63	63	
70	56	56	56	56	56	56	56	56	56	
72.5	48	48	48	48	48	48	48	48	48	
75	40	40	40	40	40	40	40	40	40	
77.5	32	32	32	32	32	32	32	32	32	
80	25	25	25	25	25	25	25	25	25	
82.5	19	19	19	19	19	19	19	19	19	
85	13	13	13	13	13	13	13	13	13	
87.5	9	9	9	9	9	9	9	9	9	
90	9	9	9	9	9	9	9	9	9	



Report of Test

LLIA001389-006A

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	9	9	9	9	9	9	9	9	9
	92.5	16	16	16	16	16	16	16	16	16
	95	25	25	25	25	25	25	25	25	25
	97.5	35	35	35	35	35	35	35	35	35
	100	46	46	46	46	46	46	46	46	46
	102.5	57	57	57	57	57	57	57	57	57
	105	69	69	69	69	69	69	69	69	69
	107.5	80	80	80	80	80	80	80	80	80
	110	86	86	86	86	86	86	86	86	86
	112.5	66	66	66	66	66	66	66	66	66
	115	40	40	40	40	40	40	40	40	40
	117.5	11	11	11	11	11	11	11	11	11
	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	



Report of Test

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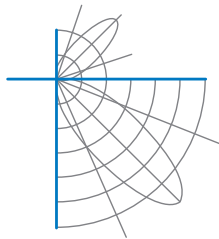
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	114	114	114	114		109	109	109	109		99	99	99		91	91	91		83	83	83	79
1	104	99	94	91		99	94	91	87		86	83	81		79	77	74		72	70	69	65
2	94	86	79	73		89	82	76	71		75	70	66		69	65	61		63	60	57	54
3	86	75	67	61		81	72	65	59		66	60	55		61	56	52		55	52	48	45
4	78	67	58	51		74	64	56	50		59	52	47		54	49	44		49	45	41	39
5	72	59	51	44		68	57	49	43		53	46	41		48	43	38		45	40	36	33
6	66	53	45	38		63	51	43	37		47	41	36		44	38	34		40	36	32	29
7	62	48	40	34		59	47	39	33		43	36	31		40	34	30		37	32	28	26
8	57	44	36	30		55	43	35	30		40	33	28		37	31	27		34	29	25	23
9	53	40	33	27		51	39	32	27		36	30	25		34	28	24		31	27	23	21
10	50	37	30	25		48	36	29	24		34	27	23		31	26	22		29	24	21	19

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	5.9	6.21	6.21	
8.0	3.3	8.27	8.27	
10.0	2.1	10.34	10.34	
12.0	1.5	12.41	12.41	
14.0	1.1	14.48	14.48	
16.0	0.8	16.55	16.55	

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	1297	1297	1297
45	984	984	984
55	991	991	991
65	998	998	998
75	934	934	934
85	906	906	906

Spacing Criterion	
Spacing Criterion:	1.0



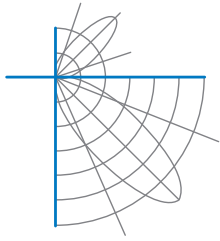
Report of Test

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UGR TABLE - CORRECTED

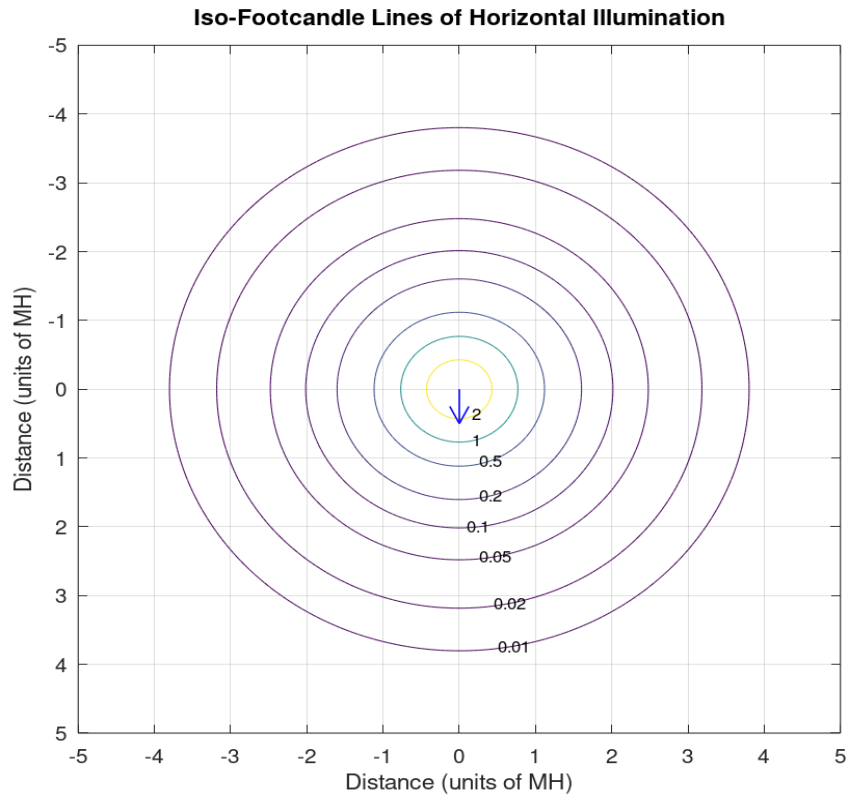
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	8.5	9.7	9.2	10.4	11.2	8.5	9.7	9.2	10.4	11.2
	3H	10.4	11.5	11.0	12.2	13.0	10.4	11.5	11.0	12.2	13.0
	4H	11.0	12.1	11.7	12.8	13.6	11.0	12.1	11.7	12.8	13.6
	6H	11.4	12.4	12.1	13.1	14.0	11.4	12.4	12.1	13.1	14.0
	8H	11.5	12.5	12.2	13.2	14.0	11.5	12.5	12.2	13.2	14.0
	12H	11.6	12.5	12.3	13.2	14.1	11.6	12.5	12.3	13.2	14.1
4H	2H	9.1	10.1	9.8	10.8	11.7	9.1	10.1	9.8	10.8	11.7
	3H	11.1	12.0	11.8	12.8	13.6	11.1	12.0	11.8	12.8	13.6
	4H	11.9	12.7	12.6	13.4	14.3	11.9	12.7	12.6	13.4	14.3
	6H	12.4	13.1	13.1	13.9	14.7	12.4	13.1	13.1	13.9	14.7
	8H	12.5	13.2	13.3	14.0	14.9	12.5	13.2	13.3	14.0	14.9
	12H	12.6	13.2	13.4	14.0	14.9	12.6	13.2	13.4	14.0	14.9
8H	4H	12.1	12.8	12.8	13.5	14.4	12.1	12.8	12.8	13.5	14.4
	6H	12.7	13.3	13.5	14.1	15.0	12.7	13.3	13.5	14.1	15.0
	8H	12.9	13.4	13.7	14.2	15.2	12.9	13.4	13.7	14.2	15.2
	12H	13.1	13.5	13.9	14.3	15.3	13.1	13.5	13.9	14.3	15.3
12H	4H	12.1	12.7	12.9	13.5	14.4	12.1	12.7	12.9	13.5	14.4
	6H	12.8	13.3	13.5	14.0	15.0	12.8	13.3	13.5	14.0	15.0
	8H	13.0	13.4	13.8	14.2	15.2	13.0	13.4	13.8	14.2	15.2

Maximum UGR = 15.3

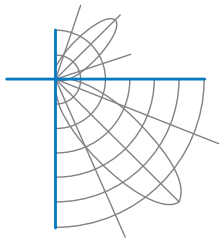


Report of Test
LLIA001389-006A

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

LLIA001389-006A

Test Distance 9.5 m
Ambient Temperature 25.0 °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

LLIA001389-006B

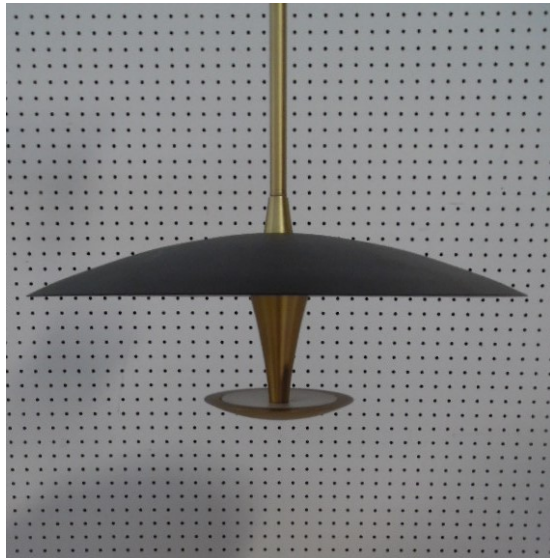
Integrating Sphere Report

Catalog Number: 3-646-1540 Spacely

Pendant mounted, formed steel canopy, white enamel steel upper reflector,
translucent white plastic enclosure above LEDs.

36 White LEDs, one LED board

One Novbo NE012120030-1G LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.1146 A
Power	12.82 W
Frequency	59.99 Hz
Power Factor	0.932
Current THD	21.0 %
Total Luminous Flux	682.9 lm
Efficacy	53.3 lm/W
Chromaticity (x,y)	(0.4460, 0.4097)
(u',v')	(0.2540, 0.5249)
Duv	0.0010
CCT	2897 K
CRI (Ra)	92
R9	54
TM-30: Rf	90
TM-30: Rg	97
TM-30: Rcs,h1	-6

Prepared For:

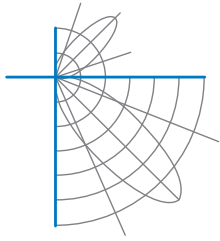
Oxygen Lighting

201 Railhead Road

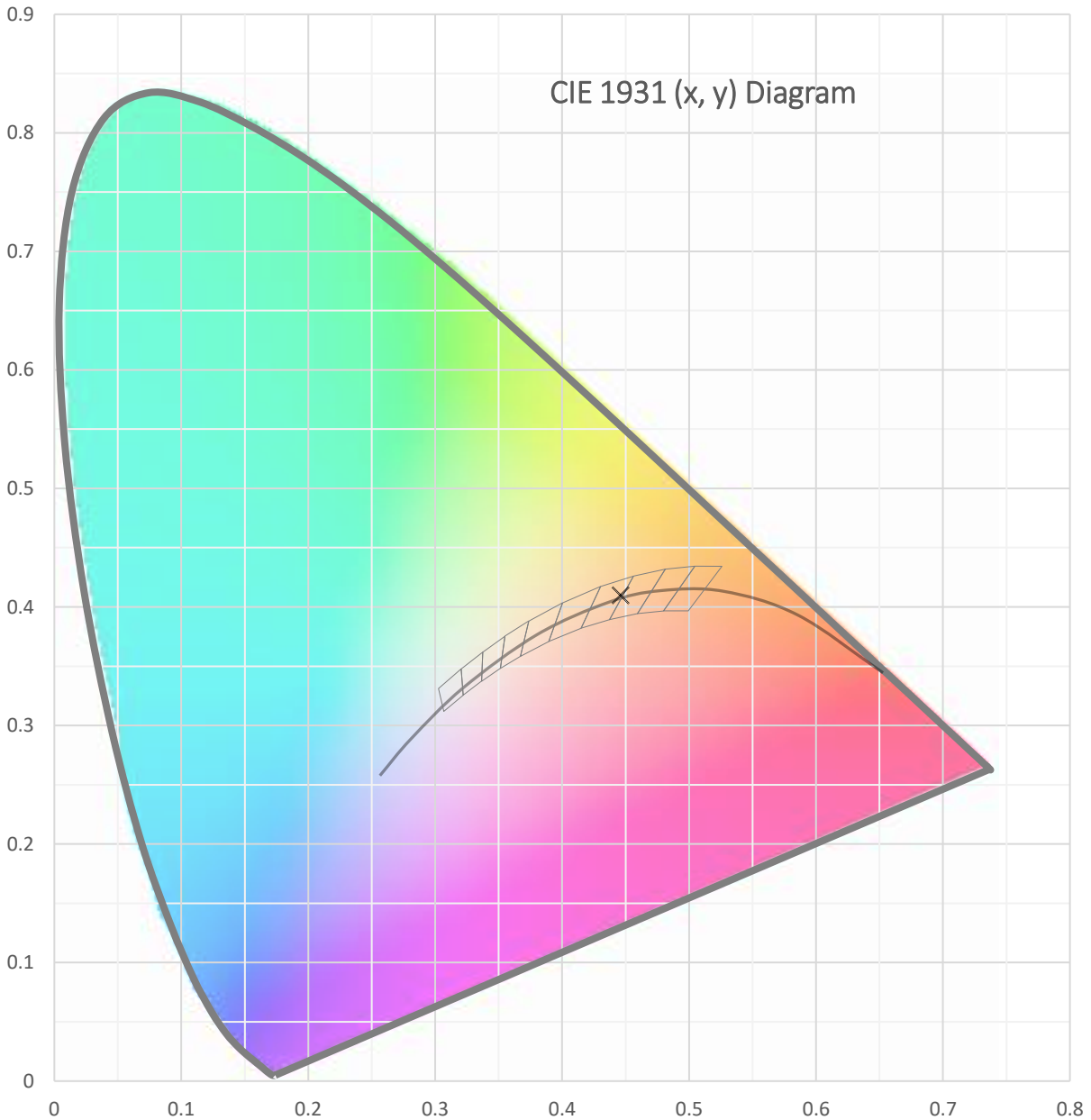
Fort Worth, TX 76106, USA

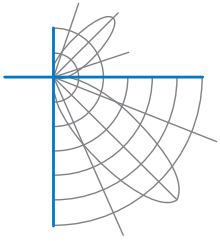
Test date: 01/15/2021

Report date: 01/25/2021

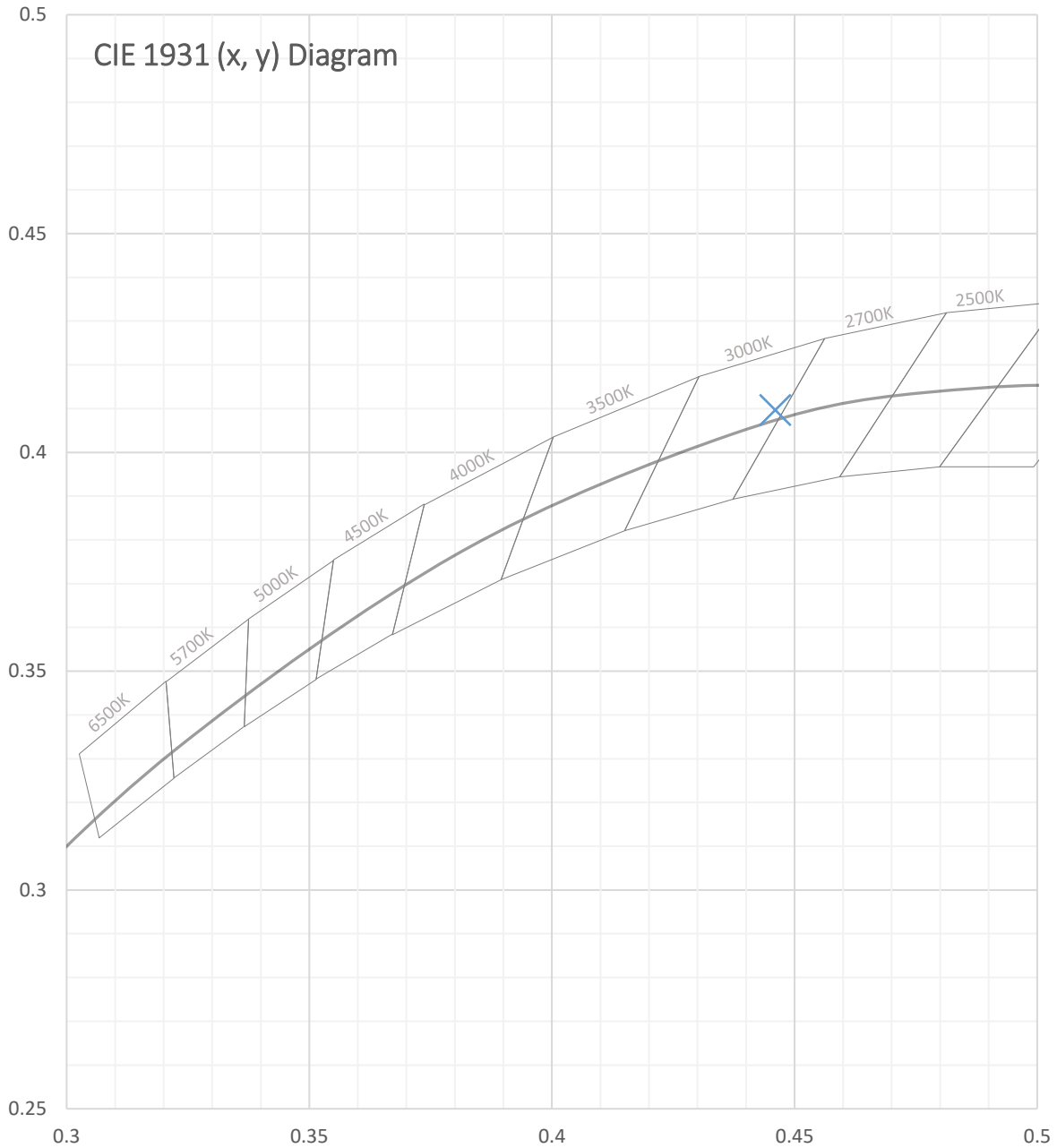


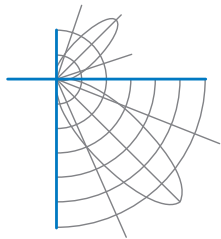
Test Report Number: LLIA001389-006B





Test Report Number: LLIA001389-006B



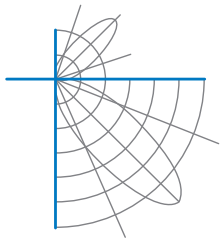


Test Report Number: LLIA001389-006B

Total Radiant Flux	2.354 W
Total Luminous Flux	682.9 Lm
Chromaticity CIE 1931 (x, y)	(0.4460, 0.4097)
Chromaticity CIE 1976 (u', v')	(0.2540, 0.5249)
Correlated Color Temperature (CCT)	2897 K
Color Rendering Index (Ra)	92
R1	92
R2	97
R3	99
R4	91
R5	92
R6	96
R7	91
R8	79
R9	54
R10	92
R11	92
R12	82
R13	93
R14	100
TM-30: Rf	90
TM-30: Rg	97
TM-30: Rcs,h1	-6
Distance from Planckian Locus (Duv)	0.0010
Scotopic/Photopic Ratio ‡	1.376

Electrical Data

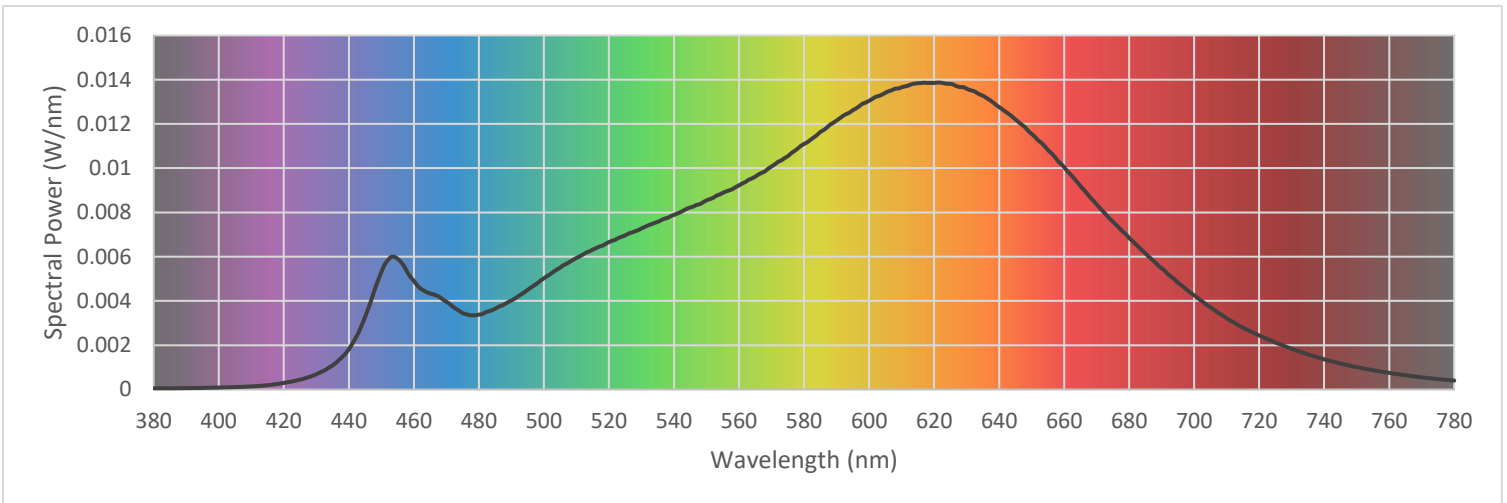
Voltage	120.0 Vac
Current	0.1146 A
Power	12.82 W
Frequency	59.99 Hz
Power Factor	0.932
Current THD	21.0 %

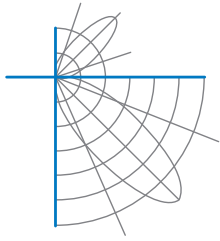


Test Report Number: LLIA001389-006B

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

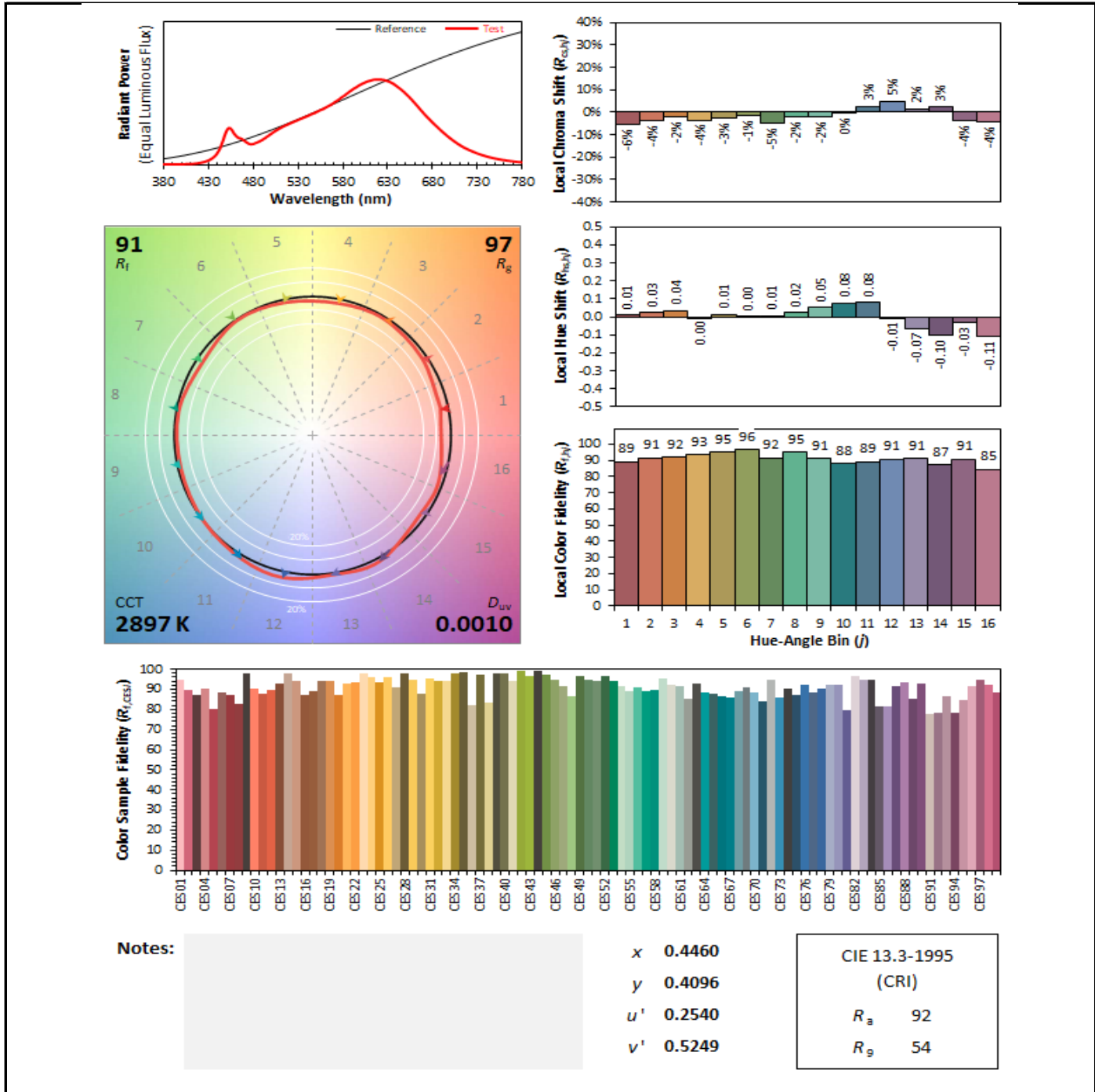
380	0.000054	480	0.003383	580	0.011093	680	0.006847
385	0.000054	485	0.003650	585	0.011634	685	0.006153
390	0.000062	490	0.004021	590	0.012150	690	0.005474
395	0.000071	495	0.004502	595	0.012617	695	0.004825
400	0.000087	500	0.005025	600	0.013043	700	0.004254
405	0.000108	505	0.005509	605	0.013402	705	0.003714
410	0.000138	510	0.005943	610	0.013652	710	0.003219
415	0.000192	515	0.006319	615	0.013838	715	0.002796
420	0.000296	520	0.006662	620	0.013851	720	0.002440
425	0.000441	525	0.006962	625	0.013809	725	0.002121
430	0.000690	530	0.007275	630	0.013594	730	0.001843
435	0.001088	535	0.007574	635	0.013275	735	0.001585
440	0.001821	540	0.007889	640	0.012761	740	0.001363
445	0.003283	545	0.008224	645	0.012207	745	0.001174
450	0.005305	550	0.008543	650	0.011551	750	0.001011
455	0.005904	555	0.008885	655	0.010823	755	0.000869
460	0.004901	560	0.009221	660	0.010050	760	0.000751
465	0.004335	565	0.009616	665	0.009196	765	0.000641
470	0.003965	570	0.010077	670	0.008363	770	0.000548
475	0.003451	575	0.010539	675	0.007582	775	0.000469
						780	0.000400

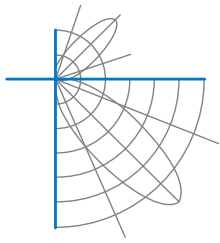




Test Report Number: LLIA001389-006B

IES TM-30 Details





Test Report Number: LLIA001389-006B

Test Equipment Configuration: LightLab International Allentown 2m Integrating Sphere
Measurements acquired using a Labsphere CDS 2600 spectroradiometer
Testing was performed using 4 π geometry

Test Temperature: 25.1 °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.

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