

## Report of Test

LLIA001198-013A

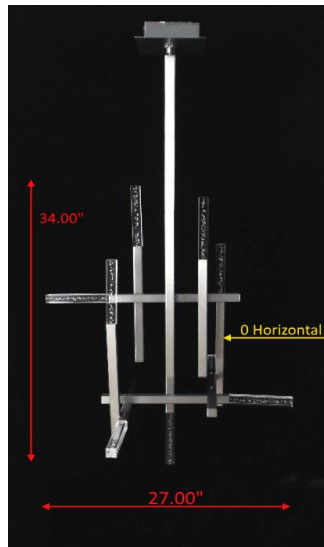
Indoor Distribution Photometry Test Report

Catalog Number: 3-636-24 Atlantis

Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.

9 white LEDs

One Ever Shining Optotech Co., Ltd. LD025D-CA07236-M28F LED driver



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

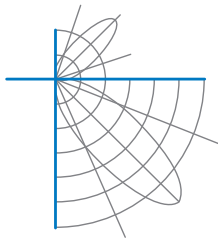
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	947.1 Lumens
Input Current	0.2102 A	Total Efficacy	37.9 Lm/W
Input Power	24.96 W	Downward Flux	373.8 Lumens
Frequency	60.00 Hz	Downward Flux	39.5 % of Total
Power Factor	0.989		
Current THD	6.3 %		

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

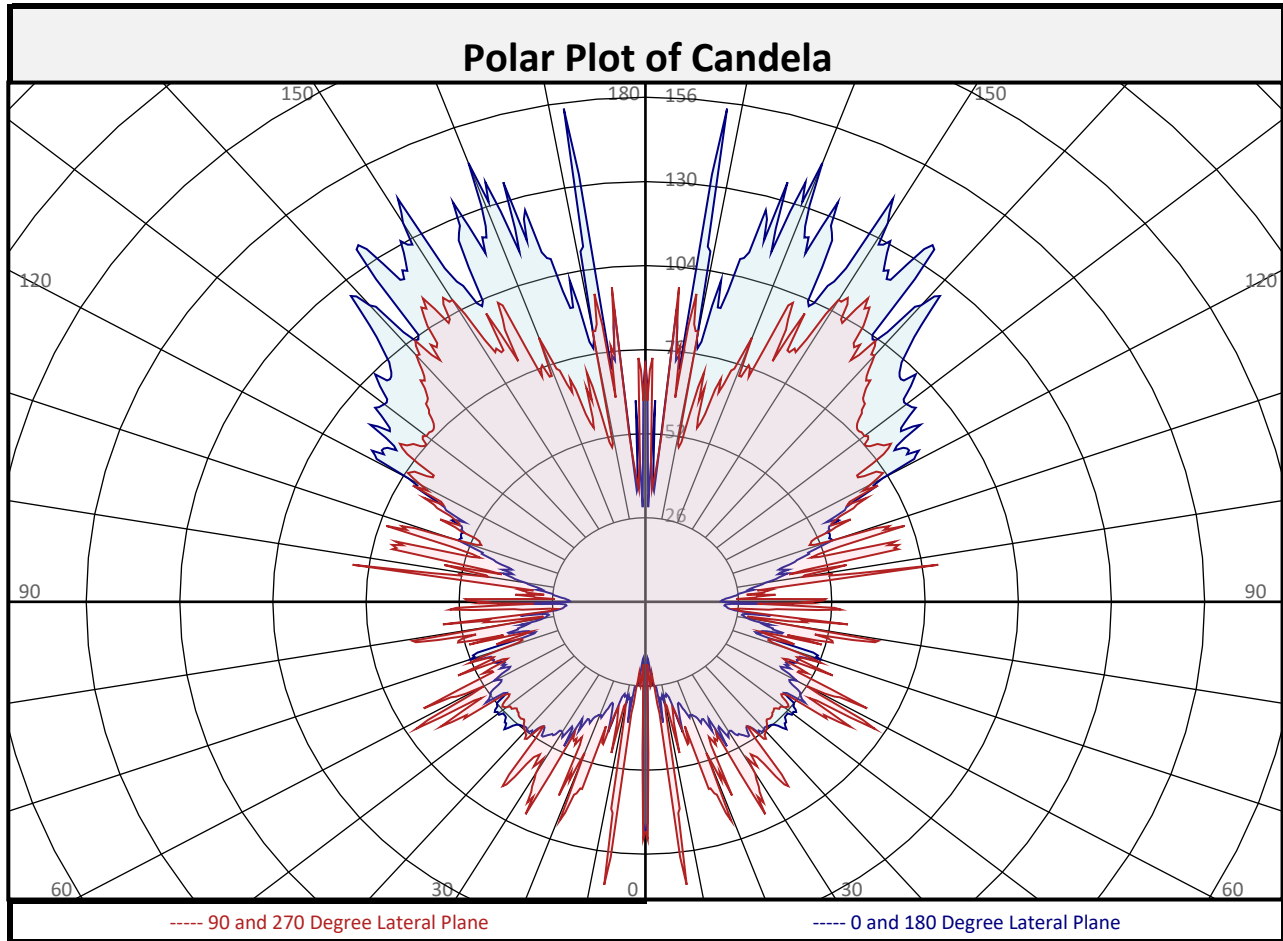
Test date: 12/19/2019

Report date: 12/20/2019

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

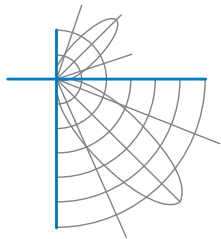


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### Zonal Flux Summary

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	3.4	0.4%	90-100	59.3	6.3%	0-20	17.0	1.8%
10-20	13.7	1.4%	100-110	71.7	7.6%	0-30	42.0	4.4%
20-30	24.9	2.6%	110-120	79.5	8.4%	0-40	80.3	8.5%
30-40	38.3	4.0%	120-130	92.6	9.8%	0-60	191.2	20.2%
40-50	50.6	5.3%	130-140	91.5	9.7%	0-80	317.9	33.6%
50-60	60.3	6.4%	140-150	81.3	8.6%	10-90	370.4	39.1%
60-70	63.3	6.7%	150-160	59.4	6.3%	20-50	113.9	12.0%
70-80	63.4	6.7%	160-170	31.5	3.3%	40-90	293.5	31.0%
80-90	55.9	5.9%	170-180	6.5	0.7%	60-90	182.6	19.3%
0-90	373.8	39.5%	90-180	573.3	60.5%	0-180	947.1	100.0%

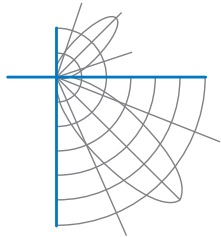


## Report of Test

LLIA001198-013A

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	71	71	71	71	71	71	71	71	71
	2.5	18	19	24	24	23	24	24	19	18
	5	26	22	23	23	25	23	23	22	26
	7.5	38	40	27	41	88	41	27	40	38
	10	29	48	38	57	32	57	38	48	29
	12.5	30	51	40	56	36	56	40	51	30
	15	37	42	42	43	46	43	42	42	37
	17.5	35	47	46	47	60	47	46	47	35
	20	37	59	47	72	50	72	47	59	37
	22.5	41	52	47	59	48	59	47	52	41
	25	44	51	51	55	47	55	51	51	44
	27.5	44	52	52	62	68	62	52	52	44
	30	46	59	55	65	61	65	55	59	46
	32.5	48	64	59	66	56	66	59	64	48
	35	51	63	58	70	69	70	58	63	51
	37.5	49	64	60	65	51	65	60	64	49
	40	52	68	63	65	52	65	63	68	52
	42.5	52	70	67	71	50	71	67	70	52
	45	56	68	70	73	50	73	70	68	56
	47.5	53	69	75	72	49	72	75	69	53
50	54	72	74	69	51	69	74	72	54	
52.5	52	72	71	68	48	68	71	72	52	
55	54	70	71	68	61	68	71	70	54	
57.5	50	71	77	76	57	76	77	71	50	
60	49	68	76	71	52	71	76	68	49	
62.5	44	64	75	79	58	79	75	64	44	
65	44	81	75	67	44	67	75	81	44	
67.5	47	61	75	55	46	55	75	61	47	
70	52	63	73	58	43	58	73	63	52	
72.5	33	63	71	68	44	68	71	63	33	
75	35	68	70	64	51	64	70	68	35	
77.5	35	65	68	59	52	59	68	65	35	
80	29	73	68	55	39	55	68	73	29	
82.5	29	57	66	52	44	52	66	57	29	
85	23	57	64	55	25	55	64	57	23	
87.5	22	50	63	49	55	49	63	50	22	
90	22	49	64	43	45	43	64	49	22	

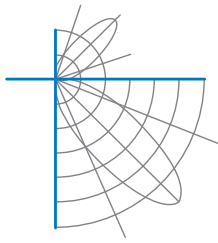


## Report of Test

### LLIA001198-013A

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	22	49	64	43	45	43	64	49	22
	92.5	22	55	60	46	31	46	60	55	22
	95	26	61	63	54	33	54	63	61	26
	97.5	29	71	71	59	53	59	71	71	29
	100	34	71	76	65	45	65	76	71	34
	102.5	41	74	75	73	46	73	75	74	41
	105	39	71	76	69	72	69	76	71	39
	107.5	46	70	82	69	57	69	82	70	46
	110	56	70	88	77	56	77	88	70	56
	112.5	56	71	90	86	51	86	90	71	56
	115	60	83	94	77	57	77	94	83	60
	117.5	63	90	99	89	70	89	99	90	63
	120	77	95	102	93	73	93	102	95	77
	122.5	87	103	105	109	72	109	105	103	87
	125	89	113	110	110	83	110	110	113	89
	127.5	91	119	115	113	79	113	115	119	91
	130	95	120	127	112	80	112	127	120	95
	132.5	101	118	127	119	80	119	127	118	101
	135	100	125	127	129	87	129	127	125	100
	137.5	111	128	126	130	93	130	126	128	111
140	120	131	123	136	99	136	123	131	120	
142.5	104	137	119	140	94	140	119	137	104	
145	128	142	129	145	108	145	129	142	128	
147.5	125	146	123	141	102	141	123	146	125	
150	135	150	130	129	108	129	130	150	135	
152.5	110	144	119	118	87	118	119	144	110	
155	123	172	105	126	93	126	105	172	123	
157.5	117	195	114	130	75	130	114	195	117	
160	144	196	90	104	87	104	90	196	144	
162.5	121	154	106	92	68	92	106	154	121	
165	112	202	91	100	56	100	91	202	112	
167.5	93	146	110	78	68	78	110	146	93	
170	83	118	68	60	85	60	68	118	83	
172.5	73	88	59	56	64	56	59	88	73	
175	57	42	42	38	52	38	42	42	57	
177.5	62	38	42	42	40	42	42	38	62	
180	75	75	75	75	75	75	75	75	75	



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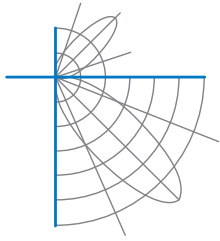
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	105	105	105	105		95	95	95	95		77	77	77		61	61	61		46	46	46	39
1	92	87	82	77		83	79	74	70		63	60	57		49	47	45		36	35	33	27
2	83	74	67	60		74	67	60	55		54	49	45		41	38	35		30	28	25	20
3	75	64	55	49		67	58	50	44		46	41	36		35	31	28		25	23	20	15
4	68	56	47	40		61	50	43	37		40	34	30		31	26	23		22	19	16	12
5	62	49	40	34		55	44	37	31		35	29	25		27	23	19		19	16	14	10
6	57	44	35	29		51	39	32	26		32	26	21		24	20	16		17	14	12	8
7	52	39	30	25		47	35	28	22		28	22	18		22	17	14		16	12	10	7
8	48	35	27	21		43	32	25	19		26	20	16		20	15	12		14	11	9	6
9	45	32	24	19		40	29	22	17		23	18	14		18	14	11		13	10	8	5
10	42	29	21	16		37	26	20	15		21	16	12		16	12	9		12	9	7	5

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	2.0	0.21	0.25	
8.0	1.1	0.29	0.34	
10.0	0.7	0.36	0.42	
12.0	0.5	0.43	0.51	
14.0	0.4	0.50	0.59	
16.0	0.3	0.57	0.68	

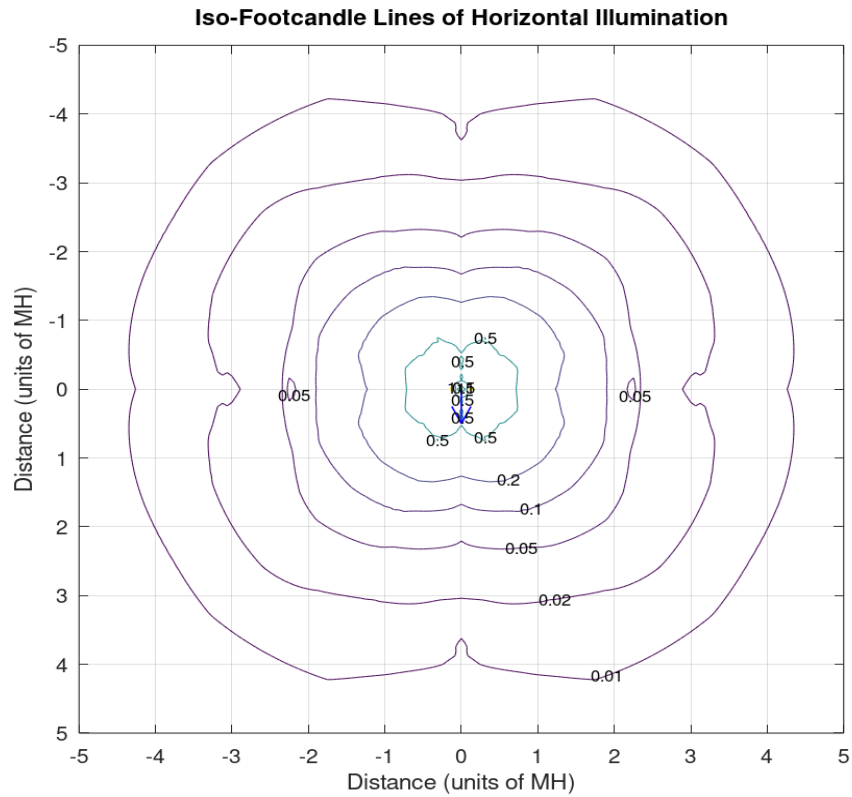
Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	151	151	151
45	74	75	66
55	72	75	81
65	59	78	59
75	51	75	73
85	37	73	40

Spacing Criterion	
0 degree plane:	0.0
90 degree plane:	0.0
180 degree plane:	0.0
270 degree plane:	0.0

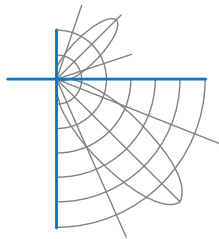


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**Iso-Illuminance Plot**



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.



## Report of Test

### LLIA001198-013A

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 publications: IES LM-79-19 and ANSI C82.77-10:2014. 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.

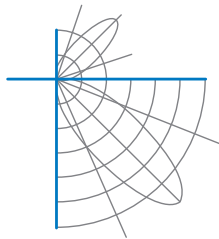
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

**LLIA001198-013B**

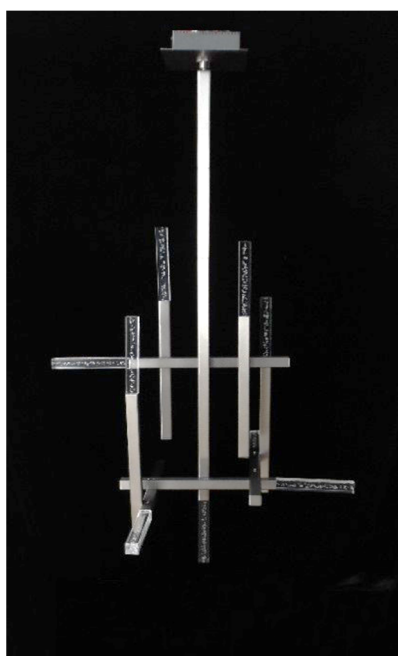
Integrating Sphere Report

Catalog Number: 3-636-24 Atlantis

Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.

9 white LEDs

One Ever Shining Optotech Co., Ltd. LD025D-CA07236-M28F LED driver



### Performance Summary

Voltage	120.0 Vac
Current	0.2098 A
Power	24.85 W
Frequency	59.99 Hz
Power Factor	0.987
Current THD	4.7 %
Total Luminous Flux	986.6 lm
Efficacy	39.7 lm/W
Chromaticity (x,y)	(0.4346, 0.4035)
(u',v')	(0.2493, 0.5208)
Duv	0.0001
CCT	3036 K
CRI (Ra)	91
R9	54
TM-30: Rf	90
TM-30: Rg	98

Prepared For:

Oxygen Lighting

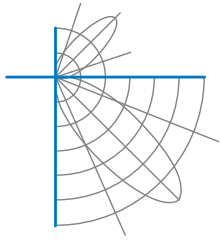
201 Railhead Road

Fort Worth, TX 76106, USA

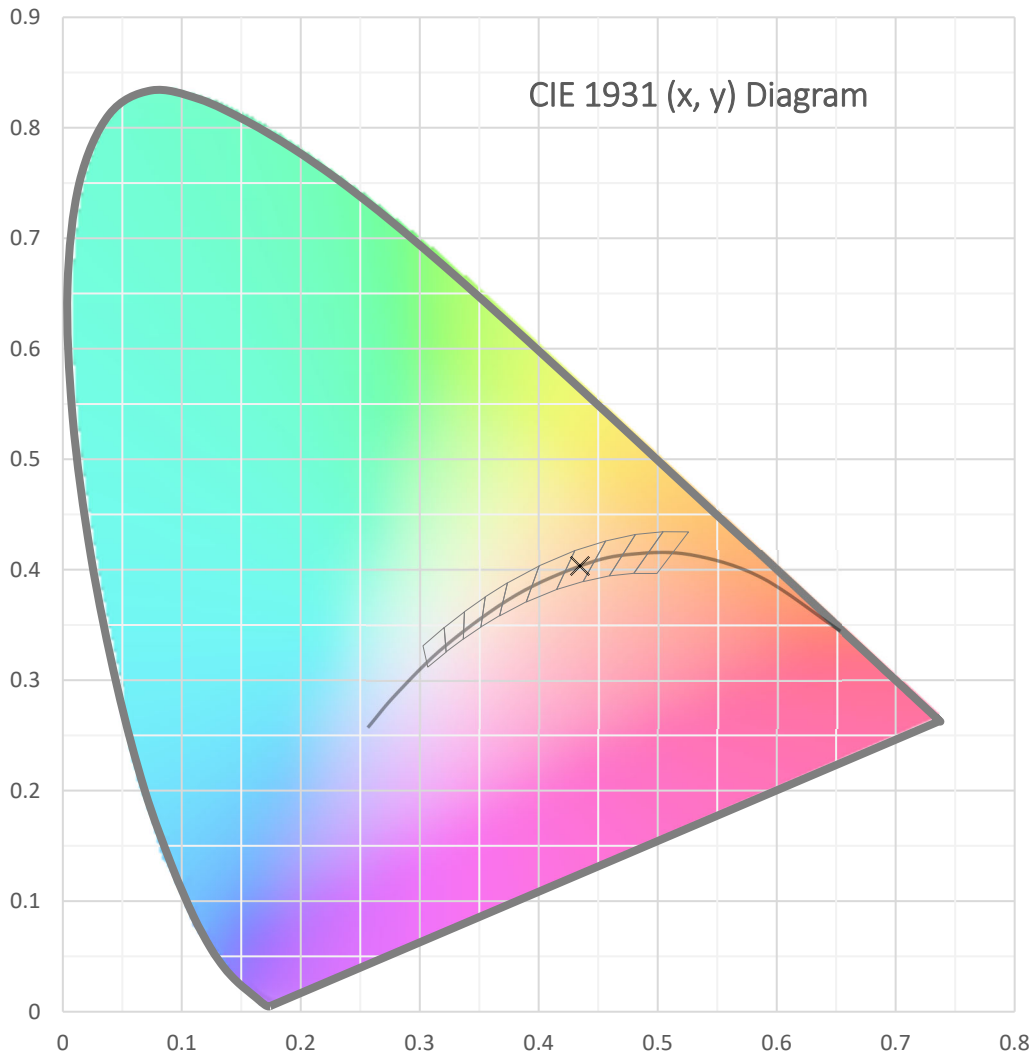
Test date: 12/20/2019

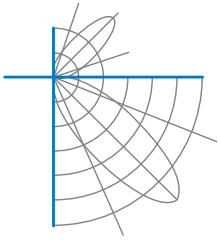
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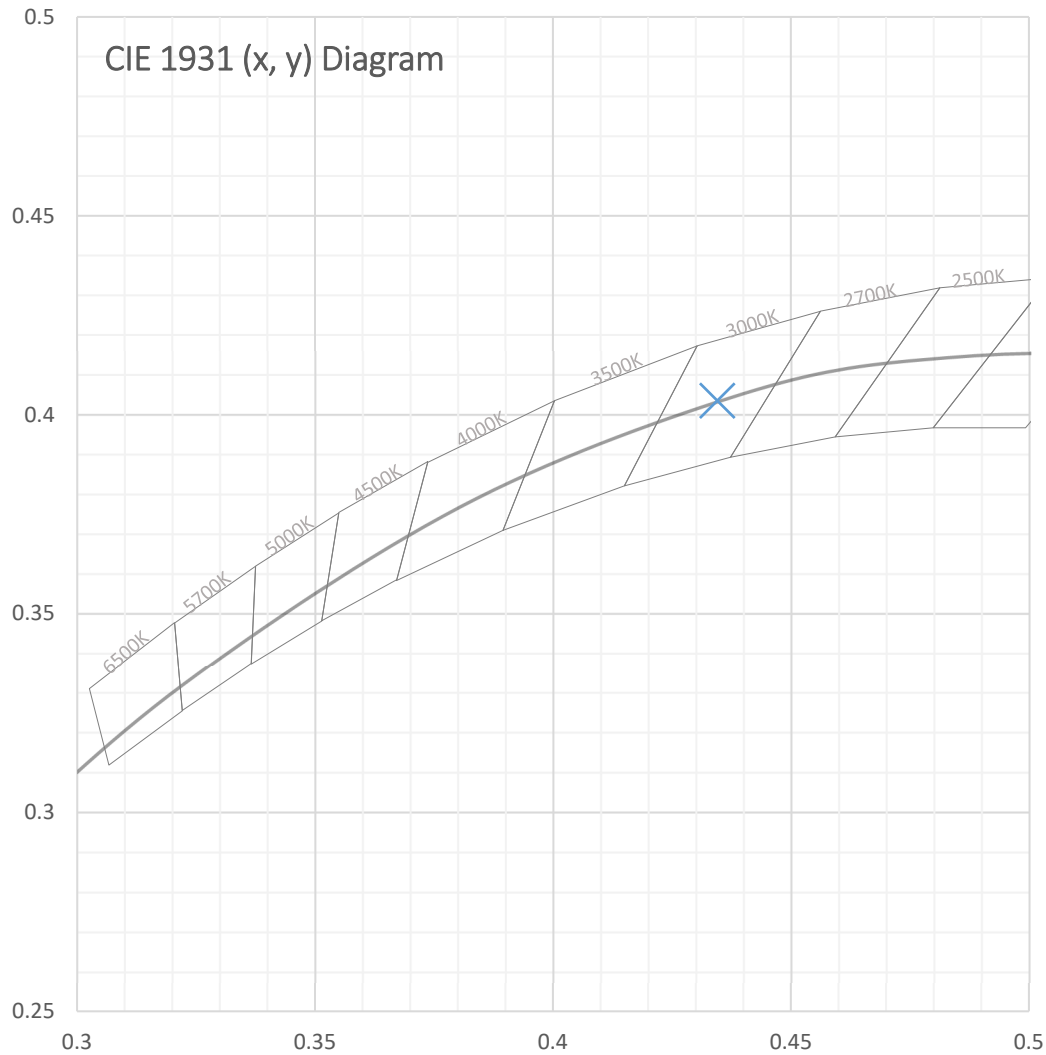


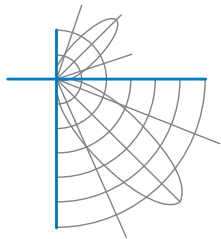
**Test Report Number: LLIA001198-013B**  
Catalog Number: 3-636-24 Atlantis  
Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.  
9 white LEDs  
One Ever Shining Optotech Co., Ltd. LD025D-CA07236-M28F LED driver





**Test Report Number: LLIA001198-013B**  
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Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.

9 white LEDs

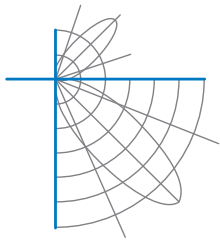
One Ever Shining Optotech Co., Ltd. LD025D-CA07236-M28F LED driver

**Spectral Data**

Total Radiant Flux	3.399 W
Total Luminous Flux	986.6 Lm
Chromaticity CIE 1931 (x, y)	(0.4346, 0.4035)
Chromaticity CIE 1976 (u', v')	(0.2493, 0.5208)
Correlated Color Temperature (CCT)	3036 K
Color Rendering Index (Ra)	91
R1	91
R2	95
R3	98
R4	91
R5	91
R6	94
R7	91
R8	80
R9	54
R10	88
R11	91
R12	81
R13	92
R14	98
TM-30: Rf	90
TM-30: Rg	98
Distance from Planckian Locus (Duv)	0.0001
Scotopic/Photopic Ratio *	1.419

**Electrical Data**

Voltage	120.0 Vac
Current	0.2098 A
Power	24.85 W
Frequency	59.99 Hz
Power Factor	0.987
Current THD	4.7 %



**Test Report Number: LLIA001198-013B**

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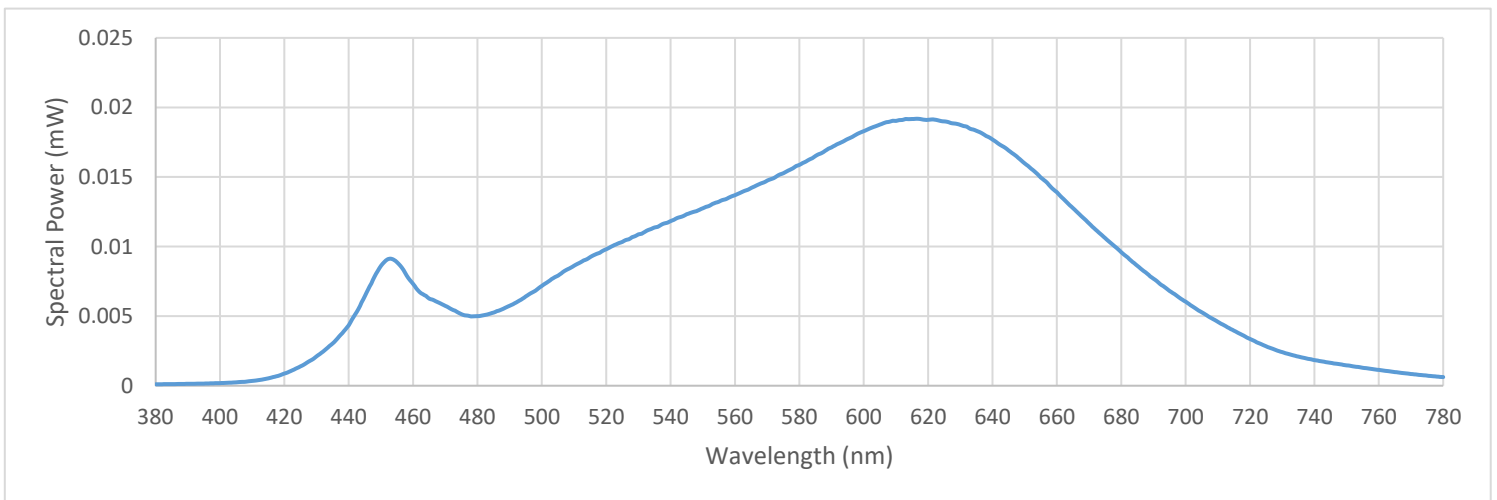
Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.

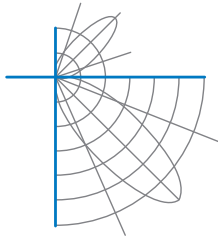
9 white LEDs

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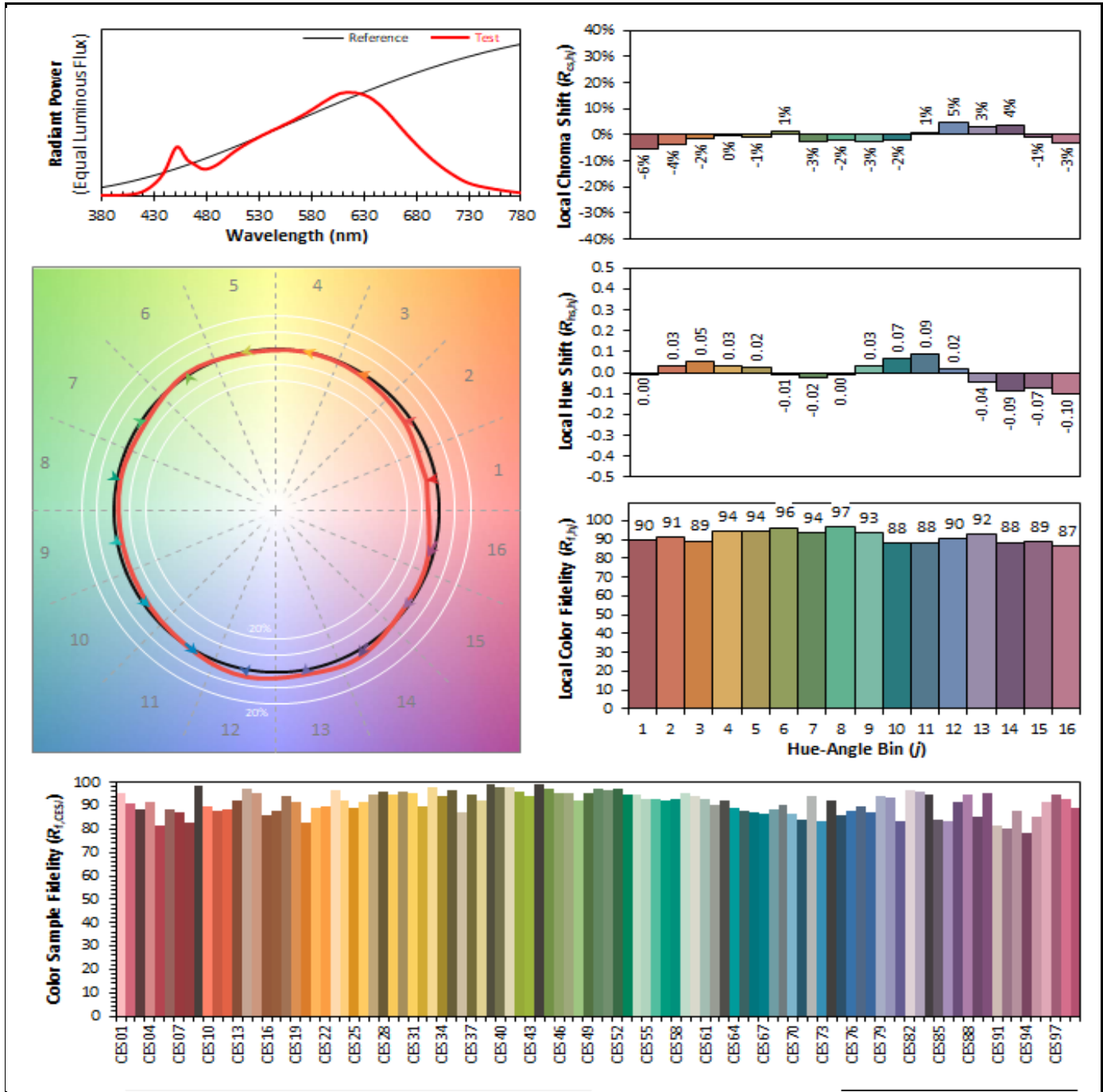
**Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)**

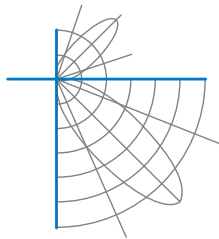
380	0.000109	480	0.005007	580	0.015871	680	0.009590
385	0.000118	485	0.005260	585	0.016516	685	0.008620
390	0.000141	490	0.005756	590	0.017142	690	0.007695
395	0.000159	495	0.006415	595	0.017735	695	0.006817
400	0.000194	500	0.007182	600	0.018297	700	0.006039
405	0.000248	505	0.007918	605	0.018770	705	0.005281
410	0.000350	510	0.008629	610	0.019037	710	0.004591
415	0.000534	515	0.009247	615	0.019174	715	0.003962
420	0.000878	520	0.009817	620	0.019115	720	0.003360
425	0.001393	525	0.010343	625	0.018997	725	0.002830
430	0.002124	530	0.010880	630	0.018747	730	0.002418
435	0.003041	535	0.011376	635	0.018322	735	0.002096
440	0.004355	540	0.011835	640	0.017694	740	0.001845
445	0.006436	545	0.012326	645	0.016911	745	0.001653
450	0.008616	550	0.012762	650	0.015977	750	0.001471
455	0.008875	555	0.013231	655	0.014967	755	0.001296
460	0.007321	560	0.013701	660	0.013902	760	0.001138
465	0.006259	565	0.014214	665	0.012769	765	0.000987
470	0.005744	570	0.014741	670	0.011663	770	0.000849
475	0.005143	575	0.015271	675	0.010609	775	0.000730
						780	0.000622





IES TM-30 Details





**Test Report Number: LLIA001198-013B**

Catalog Number: 3-636-24 Atlantis

Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.

9 white LEDs

One Ever Shining Optotech Co., Ltd. LD025D-CA07236-M28F LED driver

**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:** 25.7 °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,  
ANSI C82-77-10:2014, TM-30-15

**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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