



Report of Test

LLIA001198-014A

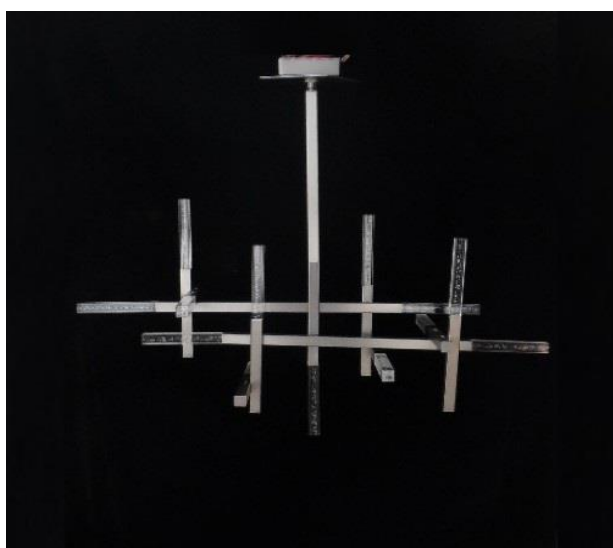
Indoor Distribution Photometry Test Report

Catalog Number: 3-637-24 Atlantis

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

13 white LEDs

One Ever Shining Optotech Co., Ltd. LD030D-CA07242-M28F LED driver



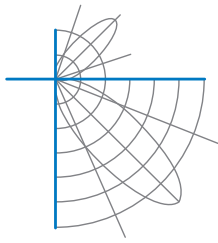
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	1332.2 Lumens
Input Current	0.2836 A	Total Efficacy	39.6 Lm/W
Input Power	33.61 W	Downward Flux	564.6 Lumens
Frequency	60.00 Hz	Downward Flux	42.4 % of Total
Power Factor	0.987		
Current THD	7.1 %		

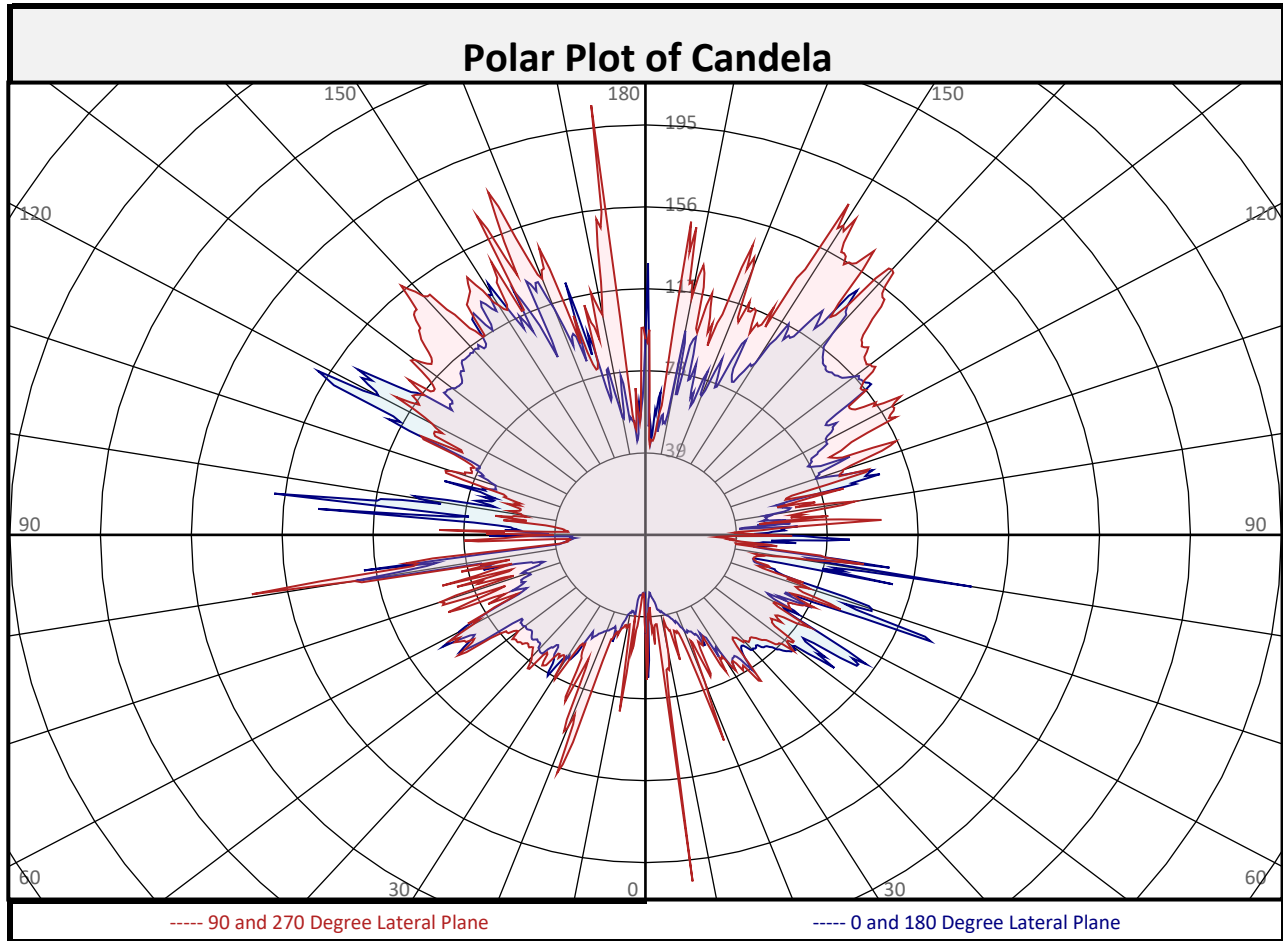
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 12/19/2019
Report date: 12/19/2019

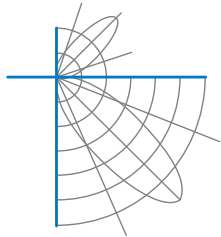
Signed: _____



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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	4.2	0.3%		90-100	102.5	7.7%		0-20	21.3	1.6%	
10-20	17.1	1.3%		100-110	114.6	8.6%		0-30	54.1	4.1%	
20-30	32.8	2.5%		110-120	119.6	9.0%		0-40	105.6	7.9%	
30-40	51.5	3.9%		120-130	121.0	9.1%		0-60	264.5	19.9%	
40-50	69.3	5.2%		130-140	109.5	8.2%		0-80	468.0	35.1%	
50-60	89.6	6.7%		140-150	91.4	6.9%		10-90	560.5	42.1%	
60-70	97.7	7.3%		150-160	66.5	5.0%		20-50	153.6	11.5%	
70-80	105.8	7.9%		160-170	35.4	2.7%		40-90	459.0	34.5%	
80-90	96.7	7.3%		170-180	7.2	0.5%		60-90	300.1	22.5%	
0-90	564.6	42.4%		90-180	767.6	57.6%		0-180	1332	100.0%	

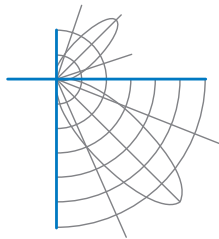


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	47	47	47	47	47	47	47	47	47
	2.5	31	30	30	34	39	38	29	29	28
	5	30	32	34	35	45	53	41	31	29
	7.5	34	35	38	67	77	43	35	35	37
	10	37	51	40	77	56	43	112	43	38
	12.5	39	49	46	76	47	53	59	55	42
	15	41	48	51	77	47	99	58	54	48
	17.5	43	51	56	52	53	80	62	52	47
	20	48	69	60	59	75	104	65	66	49
	22.5	50	71	62	64	73	85	67	65	51
	25	53	67	63	72	58	70	80	74	54
	27.5	55	73	71	67	70	68	72	65	63
	30	66	87	72	101	69	77	72	76	69
	32.5	70	84	70	88	73	80	75	86	78
	35	76	113	72	96	85	81	77	90	65
	37.5	67	88	75	91	62	83	79	81	69
	40	72	91	79	83	66	85	87	82	71
	42.5	71	90	86	81	67	93	89	97	68
	45	76	90	87	85	71	91	94	90	69
	47.5	82	96	95	98	77	95	102	88	67
50	82	94	93	106	79	107	100	92	68	
52.5	93	98	93	97	68	116	104	112	66	
55	102	88	97	100	69	104	102	97	97	
57.5	103	89	106	135	80	107	107	107	89	
60	76	92	108	106	64	105	111	101	92	
62.5	68	81	117	150	70	140	110	122	61	
65	66	77	116	97	73	94	114	99	63	
67.5	133	90	112	103	86	93	107	93	58	
70	103	107	118	93	75	90	105	85	54	
72.5	60	148	121	95	53	162	110	121	48	
75	48	106	113	82	49	116	114	108	51	
77.5	109	95	110	113	48	91	118	105	70	
80	142	88	112	102	60	95	110	148	126	
82.5	54	99	105	108	76	98	102	135	69	
85	45	94	100	87	52	100	98	125	33	
87.5	59	91	104	100	34	75	93	89	32	
90	52	83	95	69	53	78	92	80	53	



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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	52	83	95	69	53	78	92	80	53
	92.5	59	100	101	87	50	88	116	111	55
	95	62	109	105	108	84	88	105	101	141
	97.5	51	84	127	88	63	92	117	127	135
	100	52	90	117	92	91	98	122	120	99
	102.5	60	85	114	149	69	111	127	120	75
	105	93	151	127	102	71	89	121	153	67
	107.5	102	100	128	153	99	97	131	119	73
	110	78	95	135	110	90	103	133	116	68
	112.5	90	104	135	119	116	107	139	148	76
	115	77	87	135	116	87	156	142	128	83
	117.5	83	88	135	139	121	134	137	141	122
	120	90	94	130	135	122	136	144	132	132
	122.5	95	104	134	138	117	139	148	134	146
	125	100	108	138	143	107	148	151	149	115
	127.5	119	120	145	140	117	146	155	151	105
	130	117	127	144	151	126	144	156	135	109
	132.5	112	119	148	155	129	148	160	140	107
	135	110	130	140	163	131	148	154	140	110
	137.5	113	133	135	162	152	165	152	134	114
140	125	129	136	159	165	153	142	130	115	
142.5	143	136	133	153	131	195	154	146	113	
145	127	123	145	155	158	181	163	126	129	
147.5	110	123	158	152	159	193	152	124	131	
150	94	156	134	164	170	191	144	122	132	
152.5	82	175	113	165	111	136	135	142	117	
155	102	165	116	212	106	150	114	119	117	
157.5	81	186	152	208	115	134	119	142	129	
160	70	128	116	246	135	158	139	192	114	
162.5	64	124	105	213	110	187	138	178	99	
165	84	167	141	210	107	149	140	152	89	
167.5	95	123	95	198	100	111	120	105	67	
170	99	85	63	170	114	86	108	58	57	
172.5	58	89	52	70	150	73	80	49	73	
175	65	73	46	48	49	60	105	79	54	
177.5	52	95	47	52	43	50	51	56	63	
180	93	93	93	93	93	93	93	93	93	

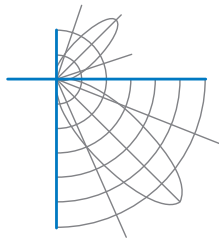


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		180	202.5	225	247.5	270	292.5	315	337.5	0
Vertical (Gamma) Angles	0	47	47	47	47	47	47	47	47	47
	2.5	28	27	28	30	29	27	27	26	31
	5	29	32	40	41	45	31	32	32	30
	7.5	37	81	36	51	85	142	37	35	34
	10	38	47	51	51	45	76	46	42	37
	12.5	42	50	52	51	45	72	53	46	39
	15	48	60	60	57	48	59	57	51	41
	17.5	47	56	62	60	103	61	60	54	43
	20	49	70	64	111	98	69	65	116	48
	22.5	51	66	62	93	64	83	65	84	50
	25	54	71	74	92	65	97	67	71	53
	27.5	63	70	75	79	58	88	78	69	55
	30	69	85	76	82	78	76	77	74	66
	32.5	78	91	78	92	69	77	83	88	70
	35	65	106	79	90	76	83	84	104	76
	37.5	69	83	81	90	72	89	85	104	67
	40	71	86	87	90	76	97	87	92	72
	42.5	68	88	91	100	72	102	101	106	71
	45	69	87	97	101	73	101	101	96	76
	47.5	67	89	102	105	75	104	106	101	82
50	68	91	104	108	71	105	101	113	82	
52.5	66	96	100	98	75	108	102	112	93	
55	97	104	101	100	94	107	106	114	102	
57.5	89	112	106	113	95	102	120	110	103	
60	92	115	119	135	86	119	122	128	76	
62.5	61	124	123	105	64	148	128	129	68	
65	63	99	113	87	66	91	120	90	66	
67.5	58	72	115	87	70	101	113	92	133	
70	54	74	111	89	94	105	113	116	103	
72.5	48	74	111	113	74	89	114	141	60	
75	51	106	114	111	75	111	115	105	48	
77.5	70	110	115	133	81	101	121	95	109	
80	126	157	119	133	127	93	110	131	142	
82.5	69	84	111	150	104	99	103	139	54	
85	33	73	102	84	34	77	106	81	45	
87.5	32	75	90	70	72	68	105	81	59	
90	53	72	105	72	39	79	139	95	52	

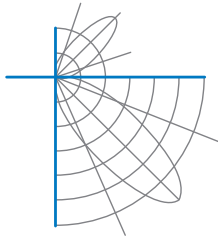


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		180	202.5	225	247.5	270	292.5	315	337.5	0
Vertical (Gamma) Angles	90	53	72	105	72	39	79	139	95	52
	92.5	55	83	102	75	33	82	96	136	59
	95	141	84	105	102	38	123	103	153	62
	97.5	135	103	115	108	51	111	107	93	51
	100	99	130	111	147	54	123	112	128	52
	102.5	75	152	120	123	55	141	115	94	60
	105	67	158	129	107	58	96	121	129	93
	107.5	73	110	135	111	64	112	126	113	102
	110	68	116	132	110	89	104	128	105	78
	112.5	76	126	131	105	81	111	133	102	90
	115	83	151	137	115	91	119	134	160	77
	117.5	122	156	141	159	102	144	147	146	83
	120	132	155	152	163	106	132	145	138	90
	122.5	146	150	146	141	115	140	143	129	95
	125	115	148	142	147	116	152	144	138	100
	127.5	105	143	146	147	114	152	147	146	119
	130	109	137	153	159	130	157	152	133	117
	132.5	107	139	157	162	125	156	160	132	112
	135	110	131	150	174	138	155	155	127	110
	137.5	114	125	142	175	145	179	150	133	113
	140	115	115	138	151	148	177	143	120	125
	142.5	113	115	138	166	124	187	140	130	143
	145	129	128	139	166	134	168	146	159	127
	147.5	131	129	138	164	142	173	168	142	110
150	132	181	131	174	126	181	175	133	94	
152.5	117	175	123	171	138	128	134	116	82	
155	117	187	123	168	161	169	112	104	102	
157.5	129	267	115	182	176	179	107	133	81	
160	114	207	103	185	130	220	89	101	70	
162.5	99	116	105	150	113	143	83	144	64	
165	89	116	120	117	81	119	108	78	84	
167.5	67	90	84	95	101	130	108	75	95	
170	57	63	67	109	106	99	153	65	99	
172.5	73	85	53	61	147	81	58	60	58	
175	54	50	43	54	52	65	80	67	65	
177.5	63	90	66	62	54	45	44	44	52	
180	93	93	93	93	93	93	93	93	93	



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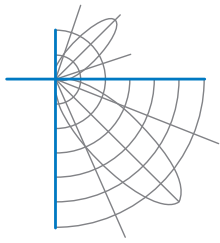
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	105	105	105	105		96	96	96	96		79	79	79		63	63	63		49	49	49	42
1	92	86	81	76		84	78	74	70		64	60	57		50	47	45		37	36	34	28
2	82	73	66	59		74	66	60	54		53	48	44		42	38	35		31	28	26	20
3	74	63	54	47		67	57	49	43		46	40	35		35	31	27		26	23	20	15
4	67	55	46	39		60	50	42	35		40	34	29		31	26	22		22	19	16	12
5	61	48	39	32		55	44	36	30		35	29	24		27	22	19		20	16	13	10
6	56	43	34	27		50	39	31	25		31	25	20		24	19	16		17	14	11	8
7	52	38	30	24		46	35	27	22		28	22	17		22	17	14		16	12	10	7
8	48	34	26	20		43	31	24	19		25	19	15		20	15	12		14	11	8	6
9	44	31	23	18		40	28	21	16		23	17	13		18	13	10		13	10	7	5
10	41	28	21	16		37	26	19	14		21	15	12		16	12	9		12	9	6	4

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	1.3	13.05	13.08	
8.0	0.7	17.41	17.44	
10.0	0.5	21.76	21.80	
12.0	0.3	26.11	26.15	
14.0	0.2	30.46	30.51	
16.0	0.2	34.81	34.87	

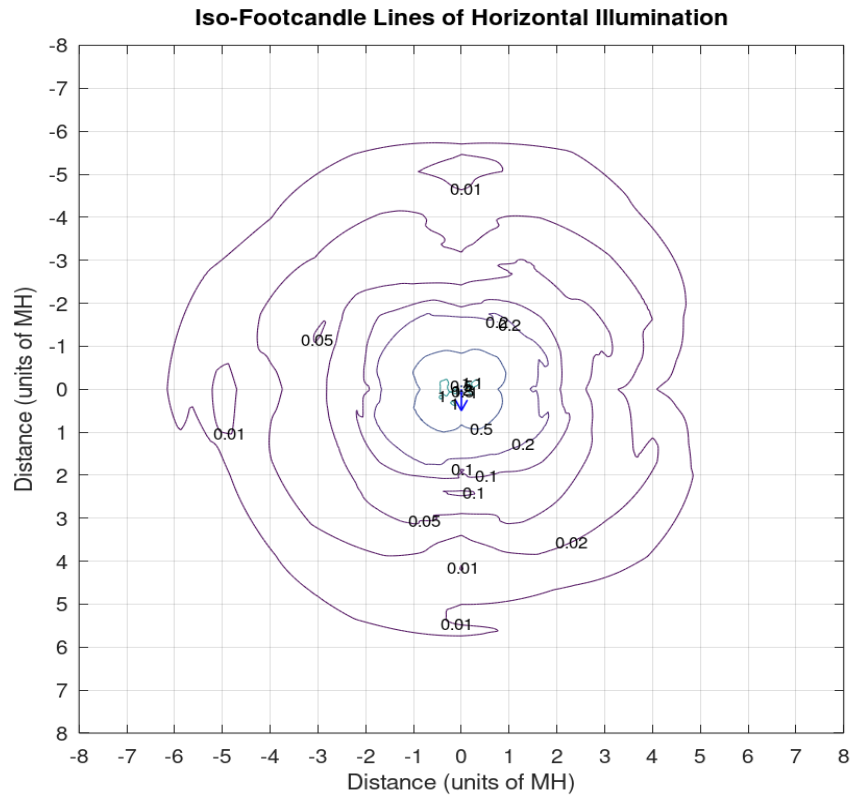
Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	107	107	107
45	160	120	96
55	233	133	93
65	169	162	100
75	144	165	71
85	170	160	82

Spacing Criterion	
0 degree plane:	2.3
90 degree plane:	2.2
180 degree plane:	2.0
270 degree plane:	2.2



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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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Test Distance 9.5 m
Ambient Temperature 24.8 °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.

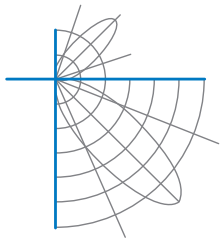
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

LLIA001198-014B

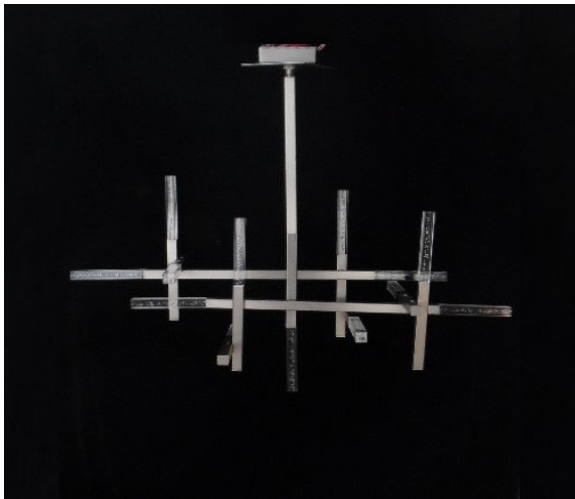
Integrating Sphere Report

Catalog Number: 3-637-24 Atlantis

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

13 white LEDs

One Ever Shining Optotech Co., Ltd. LD030D-CA07242-M28F LED driver



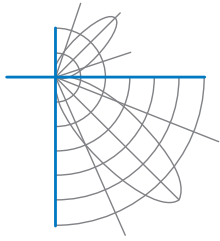
Performance Summary

Voltage	120.0 Vac
Current	0.2839 A
Power	33.66 W
Frequency	59.99 Hz
Power Factor	0.988
Current THD	6.6 %

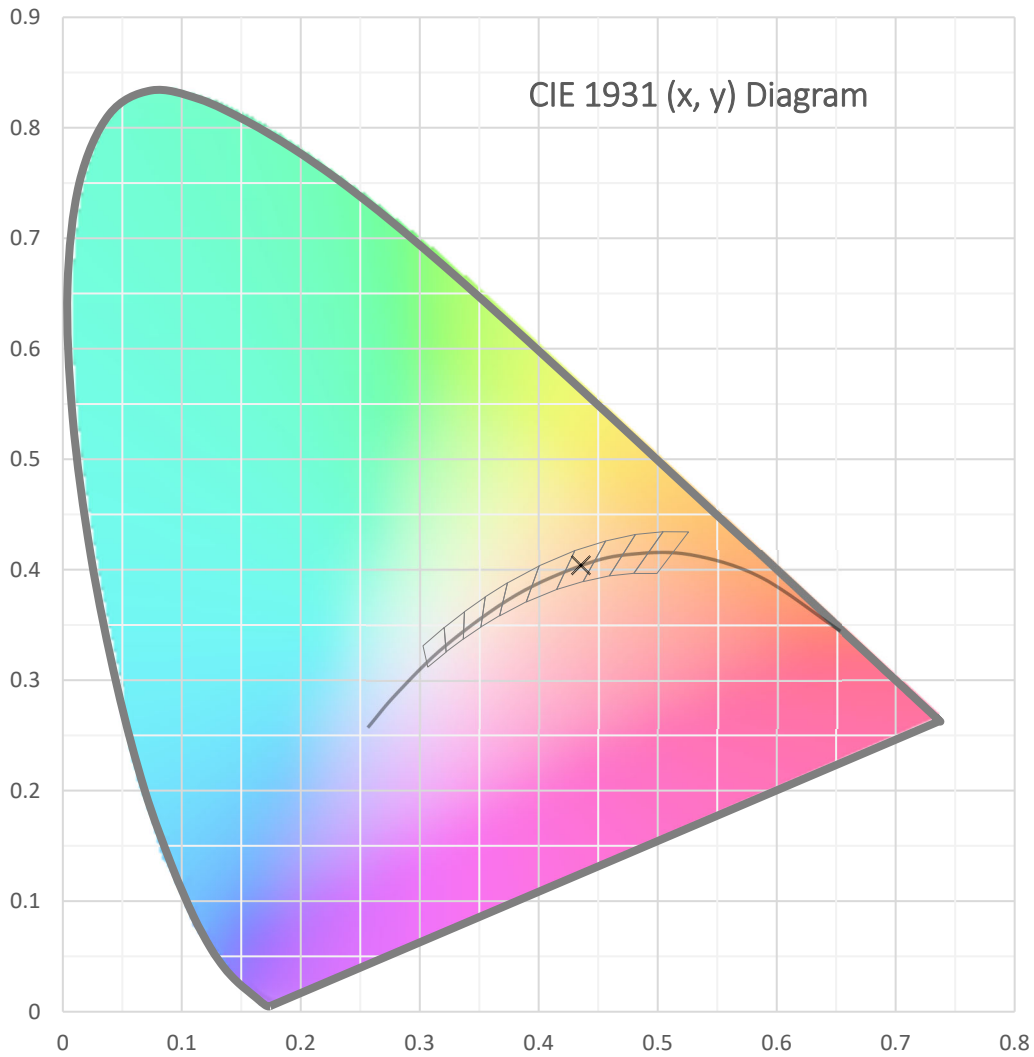
Total Luminous Flux	1363.9 lm
Efficacy	40.5 lm/W
Chromaticity (x,y)	(0.4354, 0.4040)
(u',v')	(0.2496, 0.5212)
Duv	0.0002
CCT	3025 K
CRI (Ra)	92
R9	55
TM-30: Rf	90
TM-30: Rg	98

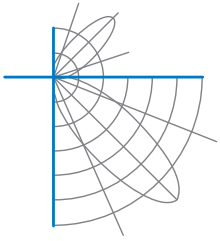
Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 12/19/2019
Report date: 12/19/2019

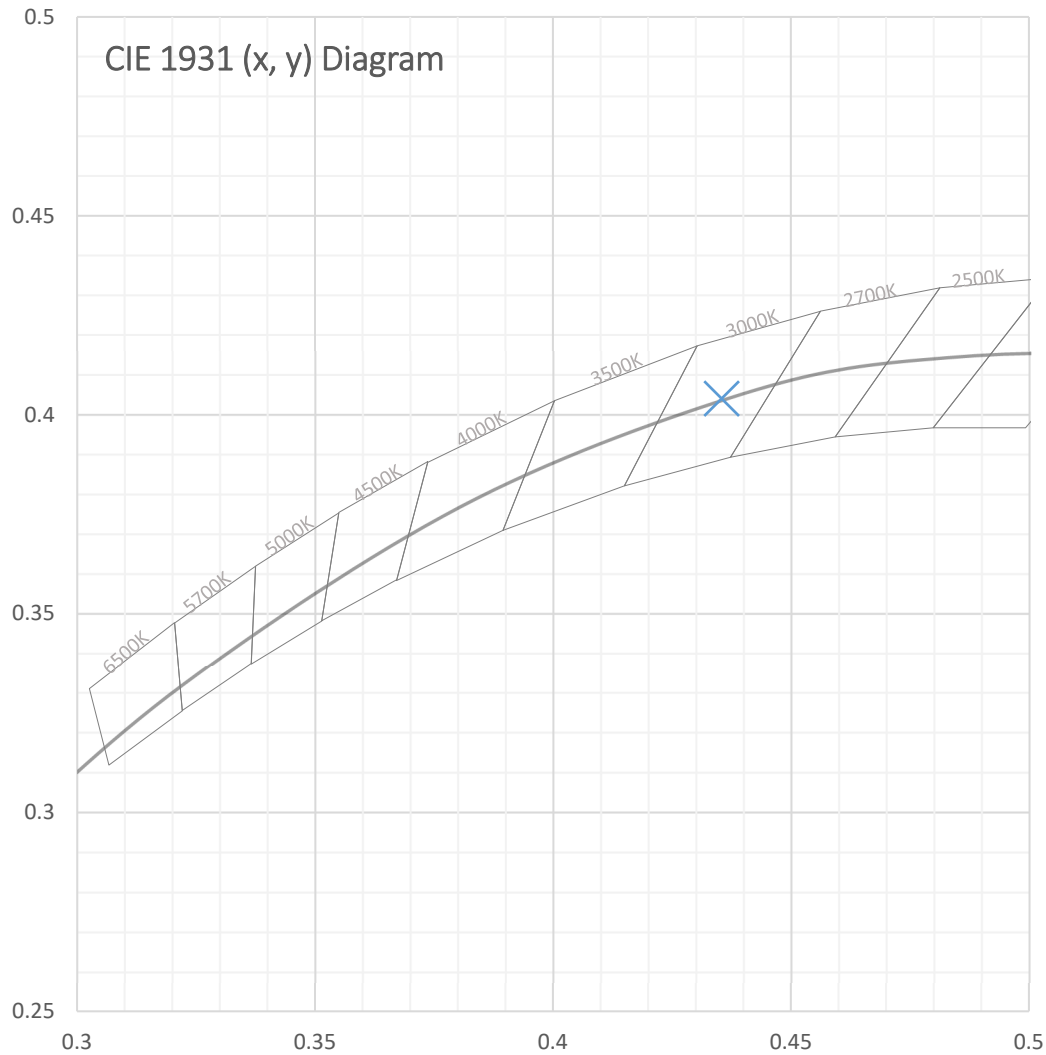


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Catalog Number: 3-637-24 Atlantis
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13 white LEDs
One Ever Shining Optotech Co., Ltd. LD030D-CA07242-M28F LED driver





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13 white LEDs

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Spectral Data

Total Radiant Flux	4.706 W
Total Luminous Flux	1363.9 Lm
Chromaticity CIE 1931 (x, y)	(0.4354, 0.4040)
Chromaticity CIE 1976 (u', v')	(0.2496, 0.5212)
Correlated Color Temperature (CCT)	3025 K
Color Rendering Index (Ra)	92
R1	91
R2	96
R3	98
R4	91
R5	91
R6	94
R7	91
R8	80
R9	55
R10	89
R11	91
R12	81
R13	93
R14	98
TM-30: Rf	90
TM-30: Rg	98
Distance from Planckian Locus (Duv)	0.0002
Scotopic/Photopic Ratio *	1.417

Electrical Data

Voltage	120.0 Vac
Current	0.2839 A
Power	33.66 W
Frequency	59.99 Hz
Power Factor	0.988
Current THD	6.6 %



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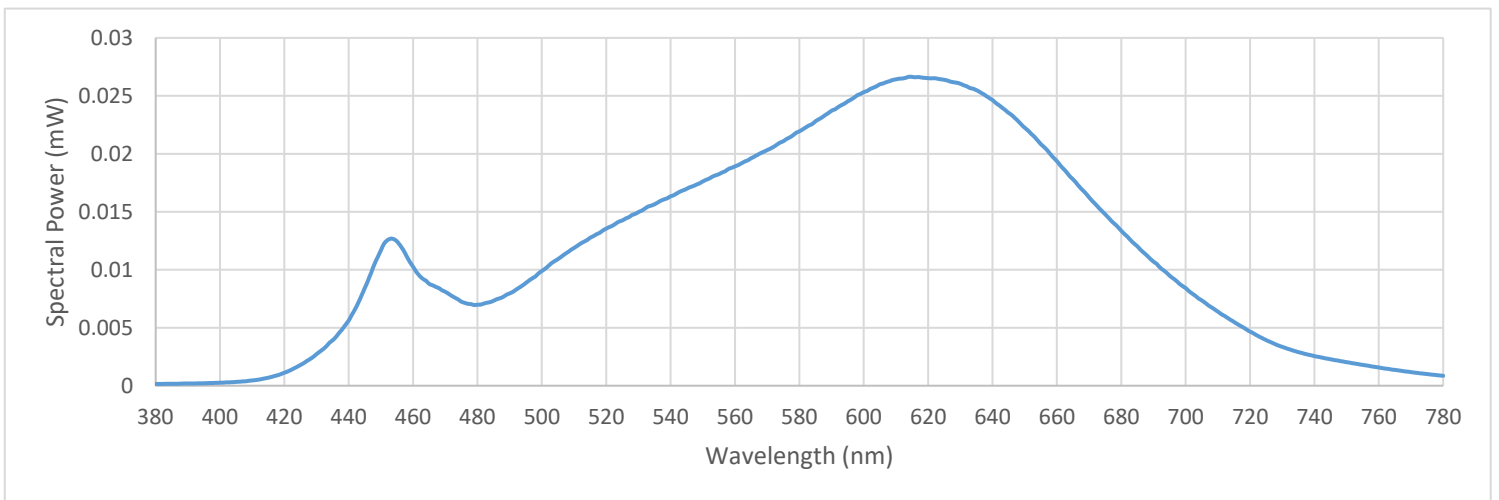
Ceiling mounted, formed steel canopy, tubular aluminum housing with clear plastic enclosures.

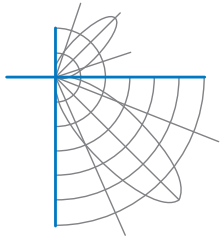
13 white LEDs

One Ever Shining Optotech Co., Ltd. LD030D-CA07242-M28F LED driver

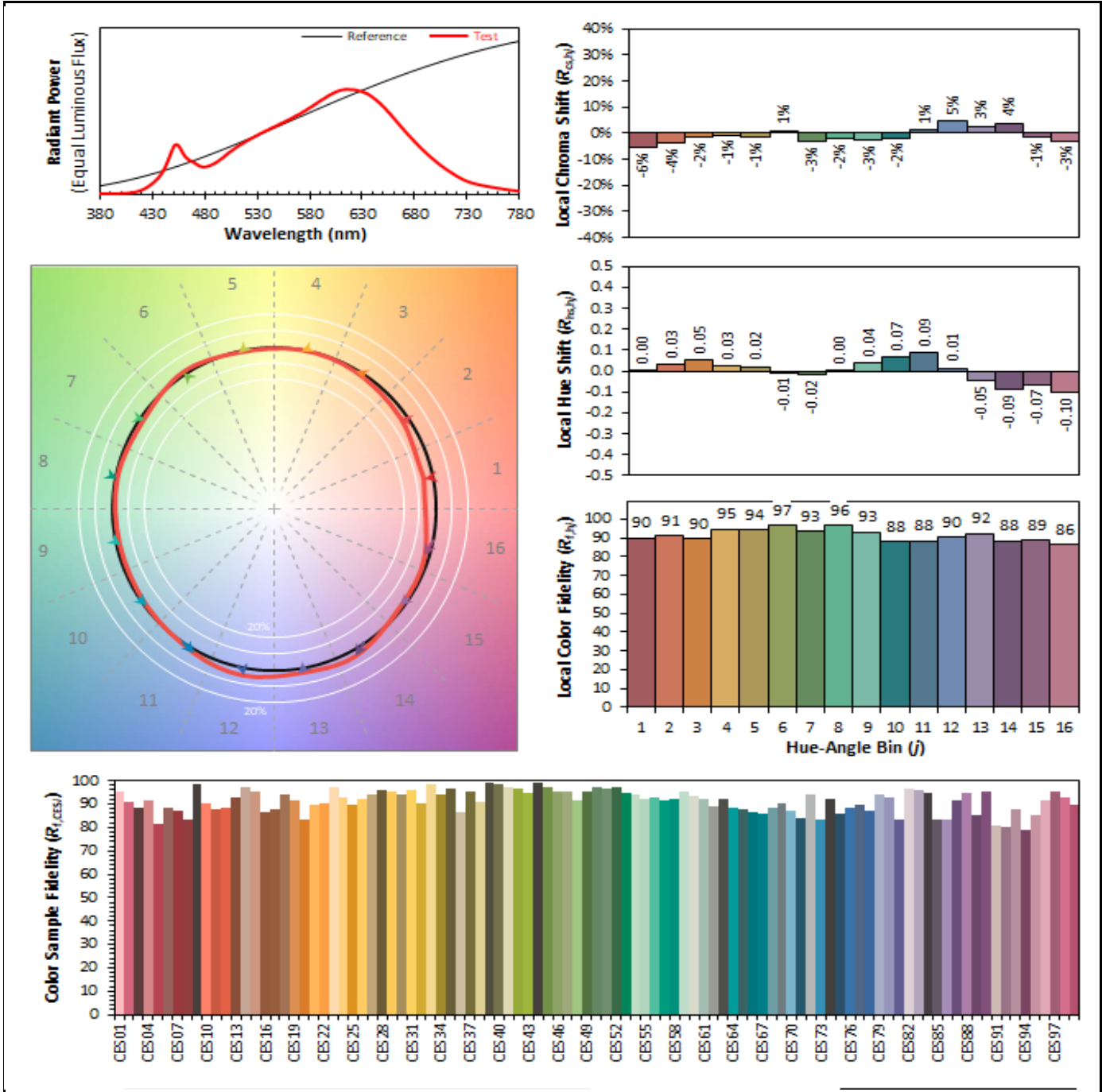
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

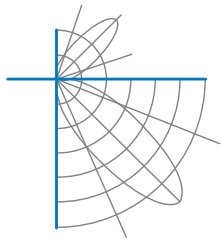
380	0.000155	480	0.006991	580	0.021943	680	0.013360
385	0.000166	485	0.007336	585	0.022817	685	0.012019
390	0.000199	490	0.007969	590	0.023726	690	0.010711
395	0.000219	495	0.008860	595	0.024523	695	0.009495
400	0.000262	500	0.009898	600	0.025322	700	0.008421
405	0.000331	505	0.010930	605	0.025999	705	0.007354
410	0.000459	510	0.011891	610	0.026428	710	0.006389
415	0.000698	515	0.012764	615	0.026631	715	0.005506
420	0.001128	520	0.013560	620	0.026532	720	0.004674
425	0.001795	525	0.014257	625	0.026391	725	0.003937
430	0.002734	530	0.014981	630	0.026045	730	0.003355
435	0.003928	535	0.015660	635	0.025489	735	0.002907
440	0.005641	540	0.016339	640	0.024632	740	0.002555
445	0.008435	545	0.016986	645	0.023530	745	0.002289
450	0.011698	550	0.017624	650	0.022253	750	0.002034
455	0.012440	555	0.018248	655	0.020842	755	0.001795
460	0.010261	560	0.018921	660	0.019369	760	0.001579
465	0.008784	565	0.019623	665	0.017800	765	0.001365
470	0.008099	570	0.020329	670	0.016243	770	0.001174
475	0.007255	575	0.021092	675	0.014788	775	0.001010
						780	0.000861





IES TM-30 Details





Test Report Number: LLIA001198-014B

Catalog Number: 3-637-24 Atlantis

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

13 white LEDs

One Ever Shining Optotech Co., Ltd. LD030D-CA07242-M28F LED driver

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: 25.3 °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.

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.