

Report of Test

LLIA001254-001

Indoor Distribution Photometry Test Report

Catalog Number: F-LHB90W/50K/F-96

Pendant mounted, formed white enamel steel housing and LED
trays, clear patterned plastic enclosures below each LED tray.

312 white LEDs, two 90W-2835-13C12B-A0 LED boards with 156 LEDs each.

One Sosen SS-100L-44B LED driver



Prepared For:

Topaz Lighting Corp

925 Waverly Avenue

Holtsville, NY 11742, USA

Performance Summary

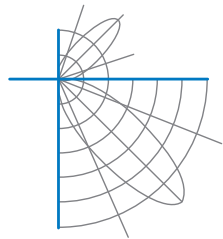
Input Voltage	120.0 V	Luminous Flux	13436.1 Lumens
Input Current	0.7654 A	Total Efficacy	147.6 Lm/W
Input Power	91.06 W	Downward Flux	13436.0 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.992		
Current THD	7.1 %		

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

Test date: 04/14/2020

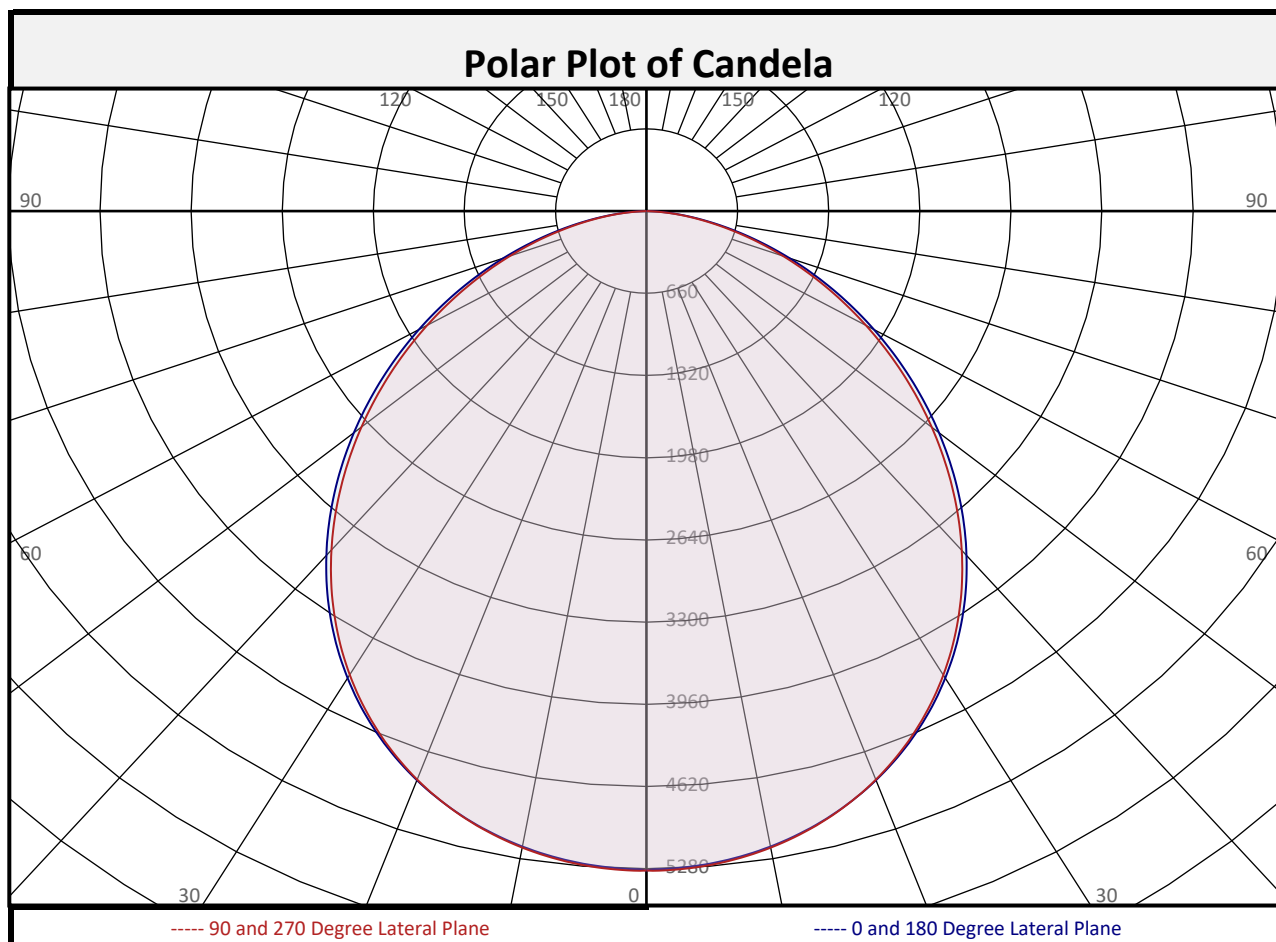
Report date: 04/15/2020

Signed: _____

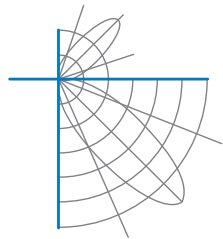


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Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	500.6	3.7%		90-100	0.0	0.0%		0-20	1925	14.3%
10-20	1424	10.6%		100-110	0.0	0.0%		0-30	4050	30.1%
20-30	2125	15.8%		110-120	0.0	0.0%		0-40	6532	48.6%
30-40	2481	18.5%		120-130	0.0	0.0%		0-60	11029	82.1%
40-50	2441	18.2%		130-140	0.0	0.0%		0-80	13251	98.6%
50-60	2056	15.3%		140-150	0.0	0.0%		10-90	12935	96.3%
60-70	1452	10.8%		150-160	0.0	0.0%		20-50	7048	52.5%
70-80	769.7	5.7%		160-170	0.0	0.0%		40-90	6904	51.4%
80-90	185.3	1.4%		170-180	0.0	0.0%		60-90	2407	17.9%
0-90	13436	100.0%		90-180	0.0	0.0%		0-180	13436	100.0%

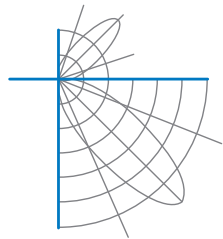


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	5295	5295	5295	5295	5295	5295	5295	5295	5295
	2.5	5280	5286	5289	5293	5291	5293	5289	5286	5280
	5	5260	5265	5268	5271	5271	5271	5268	5265	5260
	7.5	5227	5231	5234	5238	5237	5238	5234	5231	5227
	10	5181	5186	5188	5190	5189	5190	5188	5186	5181
	12.5	5121	5126	5127	5129	5128	5129	5127	5126	5121
	15	5049	5052	5053	5053	5052	5053	5053	5052	5049
	17.5	4962	4965	4965	4963	4962	4963	4965	4965	4962
	20	4863	4865	4864	4860	4858	4860	4864	4865	4863
	22.5	4750	4751	4748	4743	4739	4743	4748	4751	4750
	25	4623	4623	4619	4612	4606	4612	4619	4623	4623
	27.5	4484	4483	4477	4468	4460	4468	4477	4483	4484
	30	4330	4328	4321	4310	4301	4310	4321	4328	4330
	32.5	4166	4164	4155	4141	4129	4141	4155	4164	4166
	35	3990	3986	3975	3959	3947	3959	3975	3986	3990
	37.5	3804	3800	3786	3768	3754	3768	3786	3800	3804
	40	3607	3603	3587	3567	3552	3567	3587	3603	3607
	42.5	3405	3400	3382	3359	3345	3359	3382	3400	3405
	45	3196	3190	3171	3145	3131	3145	3171	3190	3196
	47.5	2982	2977	2956	2929	2915	2929	2956	2977	2982
	50	2767	2760	2739	2710	2697	2710	2739	2760	2767
	52.5	2549	2542	2520	2490	2478	2490	2520	2542	2549
	55	2332	2326	2303	2272	2261	2272	2303	2326	2332
	57.5	2117	2111	2088	2058	2048	2058	2088	2111	2117
	60	1905	1899	1877	1847	1837	1847	1877	1899	1905
	62.5	1696	1690	1669	1639	1630	1639	1669	1690	1696
	65	1492	1487	1467	1440	1430	1440	1467	1487	1492
	67.5	1293	1289	1270	1246	1237	1246	1270	1289	1293
	70	1101	1098	1081	1059	1051	1059	1081	1098	1101
	72.5	915	913	899	880	872	880	899	913	915
	75	739	737	725	709	701	709	725	737	739
	77.5	574	573	564	549	542	549	564	573	574
	80	421	420	413	402	396	402	413	420	421
	82.5	284	286	279	270	265	270	279	286	284
	85	163	164	159	150	144	150	159	164	163
	87.5	63	63	54	43	39	43	54	63	63
90	0	1	1	1	1	1	1	1	0	

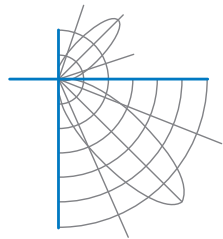


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	0	1	1	1	1	1	1	1	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	109	105	101	97		107	103	99	96		98	95	92		94	92	90		91	89	87	85
2	100	92	85	80		97	90	84	79		87	81	77		83	79	75		80	77	74	72
3	91	81	73	67		89	80	72	66		77	70	65		74	69	64		71	67	63	61
4	84	72	64	57		82	71	63	57		68	61	56		66	60	55		64	59	55	52
5	77	65	56	50		75	64	55	49		62	54	49		60	53	48		58	52	48	46
6	71	58	50	43		70	58	49	43		56	48	43		54	48	43		53	47	42	40
7	66	53	45	39		65	52	44	38		51	43	38		49	43	38		48	42	38	36
8	62	49	40	35		60	48	40	34		47	39	34		45	39	34		44	38	34	32
9	58	45	37	31		56	44	36	31		43	36	31		42	35	31		41	35	31	29
10	54	41	33	28		53	41	33	28		40	33	28		39	32	28		38	32	28	26

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.

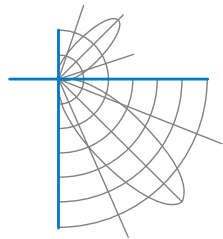
Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	147.1	7.30	7.25
8.0	82.7	9.73	9.67
10.0	52.9	12.17	12.09
12.0	36.8	14.60	14.51
14.0	27.0	17.03	16.92
16.0	20.7	19.47	19.34

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	31043	31043	31043
45	26498	26289	25959
55	23839	23543	23115
65	20696	20347	19836
75	16732	16428	15884
85	10964	10724	9668

Spacing Criterion

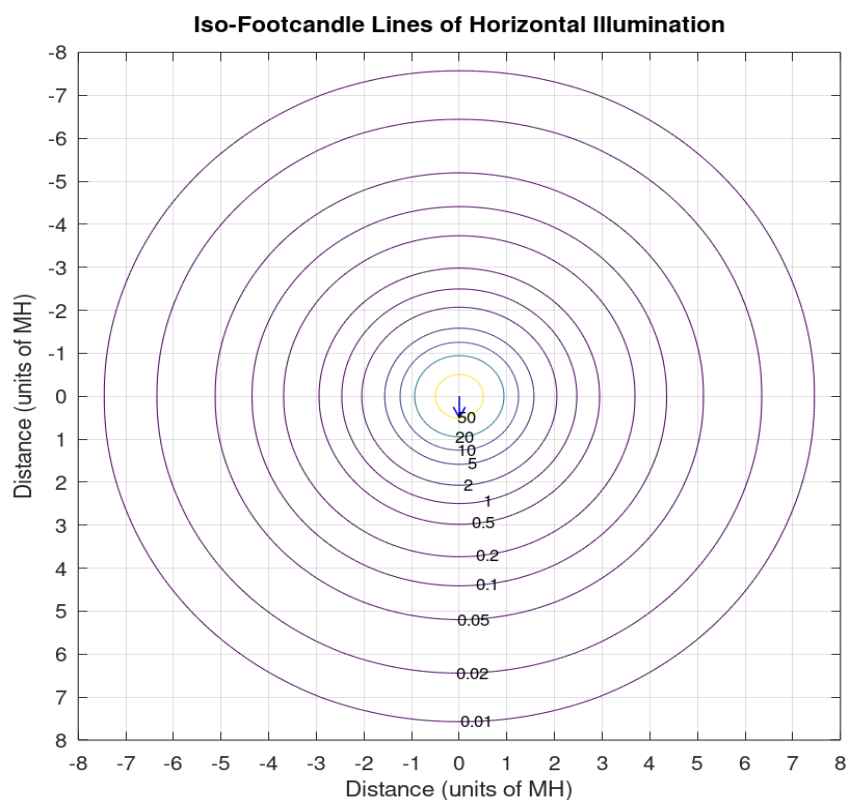
0 degree plane:	1.2
90 degree plane:	1.2
180 degree plane:	1.2
270 degree plane:	1.2



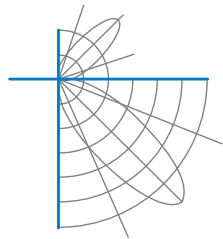
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Iso-Illuminance Plot



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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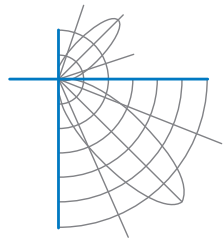
UGR TABLE - CORRECTED

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	22.9	24.5	23.3	24.8	25.1	22.7	24.3	23.1	24.6	24.9
	3H	24.5	25.9	24.9	26.3	26.6	24.3	25.7	24.7	26.0	26.4
	4H	25.1	26.4	25.5	26.8	27.1	24.8	26.2	25.2	26.5	26.9
	6H	25.4	26.7	25.9	27.1	27.5	25.2	26.4	25.6	26.8	27.2
	8H	25.6	26.7	26.0	27.1	27.5	25.3	26.5	25.7	26.9	27.3
	12H	25.6	26.8	26.1	27.1	27.6	25.4	26.5	25.8	26.9	27.3
4H	2H	23.4	24.8	23.8	25.1	25.5	23.3	24.6	23.7	25.0	25.4
	3H	25.3	26.4	25.7	26.8	27.2	25.1	26.2	25.5	26.6	27.0
	4H	25.9	27.0	26.4	27.4	27.8	25.7	26.7	26.2	27.2	27.6
	6H	26.4	27.3	26.9	27.8	28.2	26.2	27.1	26.7	27.5	28.0
	8H	26.6	27.4	27.1	27.9	28.3	26.3	27.2	26.8	27.6	28.1
	12H	26.7	27.4	27.2	27.9	28.4	26.4	27.2	26.9	27.7	28.1
8H	4H	26.2	27.0	26.6	27.5	27.9	26.0	26.8	26.5	27.3	27.7
	6H	26.8	27.5	27.3	28.0	28.4	26.6	27.3	27.1	27.8	28.2
	8H	27.0	27.6	27.5	28.1	28.6	26.8	27.4	27.3	27.9	28.4
	12H	27.2	27.7	27.7	28.2	28.8	26.9	27.5	27.4	28.0	28.5
12H	4H	26.2	26.9	26.7	27.4	27.9	26.0	26.8	26.5	27.2	27.7
	6H	26.8	27.5	27.4	27.9	28.5	26.6	27.3	27.1	27.7	28.2
	8H	27.1	27.6	27.6	28.1	28.7	26.9	27.4	27.4	27.9	28.5

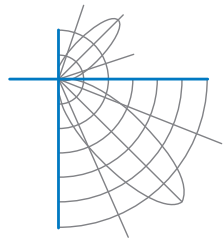
Maximum UGR = 28.8



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Additional Pictures of Test Subject





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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.