

Report of Test

LLIA002240-008

Indoor Distribution Photometry Test Report

Catalog Number: HBC-40L-50K-PS - 200W Setting
Suspended downlight, cast aluminum luminaire and driver
 housings, clear plastic enclosure with concentric lenses.
468 white LEDs on white circuit board
One Sosen SS-200CNL-E260BHB LED driver



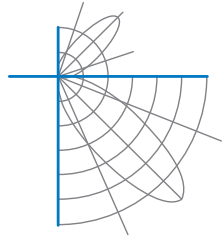
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	34103.1 Lumens
Input Current	1.629 A	Total Efficacy	174.8 Lm/W
Input Power	195.1 W	Downward Flux	34103.1 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.998		
Current THD	2.5 %		

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

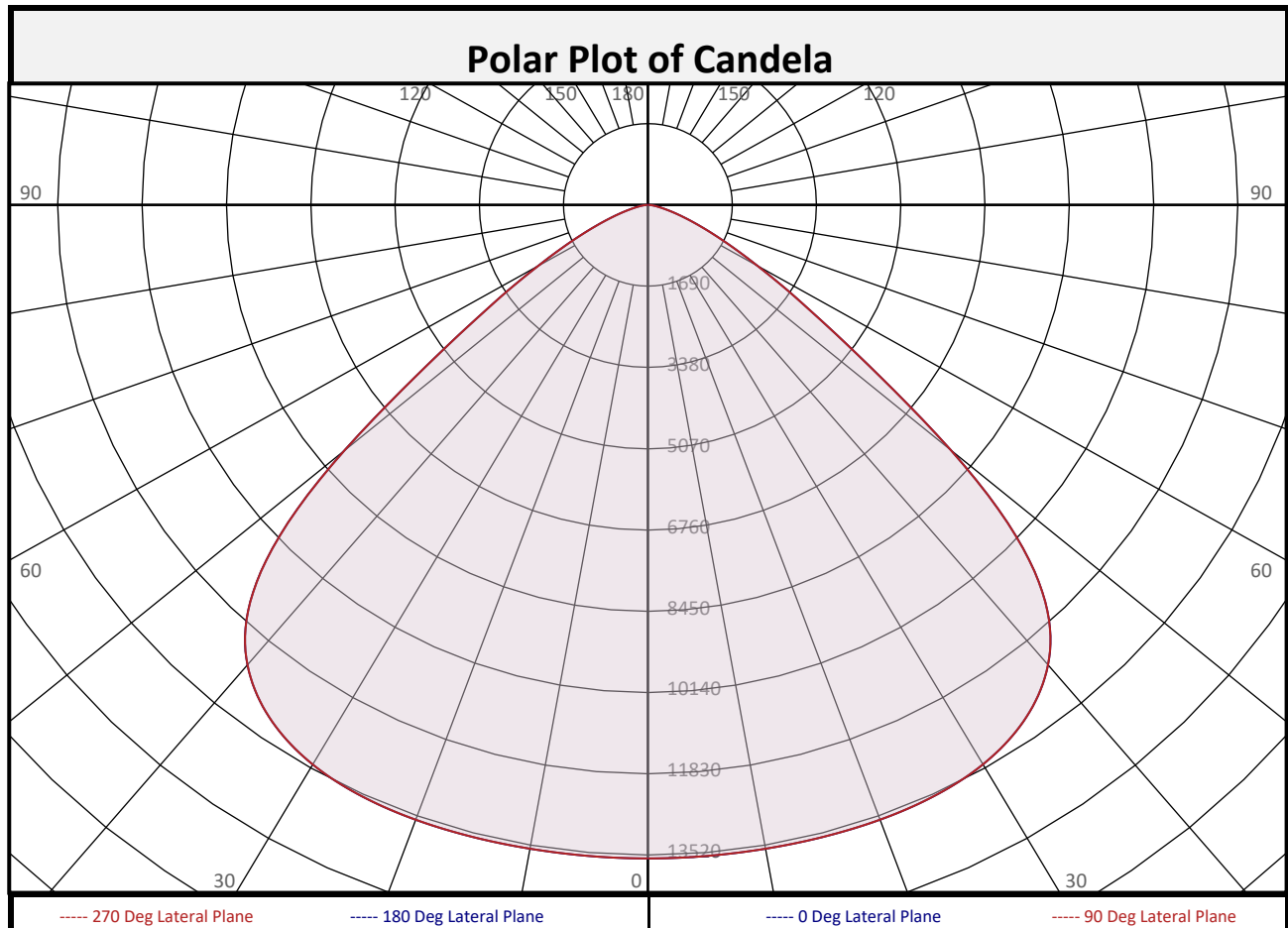
Test date: 10/17/2023
Report date: 10/18/2023

Signed: _____

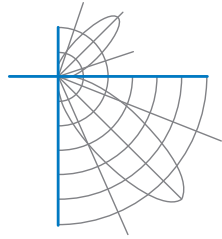


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Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	1298	3.8%		90-100	0.0	0.0%		0-20	5155	15.1%
10-20	3857	11.3%		100-110	0.0	0.0%		0-30	11427	33.5%
20-30	6271	18.4%		110-120	0.0	0.0%		0-40	19625	57.5%
30-40	8199	24.0%		120-130	0.0	0.0%		0-60	32082	94.1%
40-50	8303	24.3%		130-140	0.0	0.0%		0-80	34035	99.8%
50-60	4153	12.2%		140-150	0.0	0.0%		10-90	32805	96.2%
60-70	1507	4.4%		150-160	0.0	0.0%		20-50	22774	66.8%
70-80	445.3	1.3%		160-170	0.0	0.0%		40-90	14478	42.5%
80-90	68.1	0.2%		170-180	0.0	0.0%		60-90	2021	5.9%
0-90	34103	100.0%		90-180	0.0	0.0%		0-180	34103	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 - Data was acquired in 0.5° increments, 2.5° increments shown.	0	13592	13592	13592	13592	13592	13592	13592	13592	13592
	2.5	13592	13592	13592	13592	13592	13592	13592	13592	13592
	5	13593	13593	13593	13593	13593	13593	13593	13593	13593
	7.5	13593	13593	13593	13593	13593	13593	13593	13593	13593
	10	13597	13597	13597	13597	13597	13597	13597	13597	13597
	12.5	13602	13602	13602	13602	13602	13602	13602	13602	13602
	15	13606	13606	13606	13606	13606	13606	13606	13606	13606
	17.5	13609	13609	13609	13609	13609	13609	13609	13609	13609
	20	13608	13608	13608	13608	13608	13608	13608	13608	13608
	22.5	13596	13596	13596	13596	13596	13596	13596	13596	13596
	25	13569	13569	13569	13569	13569	13569	13569	13569	13569
	27.5	13521	13521	13521	13521	13521	13521	13521	13521	13521
	30	13437	13437	13437	13437	13437	13437	13437	13437	13437
	32.5	13310	13310	13310	13310	13310	13310	13310	13310	13310
	35	13125	13125	13125	13125	13125	13125	13125	13125	13125
	37.5	12860	12860	12860	12860	12860	12860	12860	12860	12860
	40	12485	12485	12485	12485	12485	12485	12485	12485	12485
	42.5	11937	11937	11937	11937	11937	11937	11937	11937	11937
	45	11087	11087	11087	11087	11087	11087	11087	11087	11087
	47.5	9786	9786	9786	9786	9786	9786	9786	9786	9786
	50	7926	7926	7926	7926	7926	7926	7926	7926	7926
	52.5	5880	5880	5880	5880	5880	5880	5880	5880	5880
	55	4385	4385	4385	4385	4385	4385	4385	4385	4385
	57.5	3354	3354	3354	3354	3354	3354	3354	3354	3354
	60	2542	2542	2542	2542	2542	2542	2542	2542	2542
	62.5	1936	1936	1936	1936	1936	1936	1936	1936	1936
	65	1462	1462	1462	1462	1462	1462	1462	1462	1462
	67.5	1088	1088	1088	1088	1088	1088	1088	1088	1088
	70	795	795	795	795	795	795	795	795	795
	72.5	566	566	566	566	566	566	566	566	566
	75	390	390	390	390	390	390	390	390	390
	77.5	265	265	265	265	265	265	265	265	265
	80	178	178	178	178	178	178	178	178	178
	82.5	109	109	109	109	109	109	109	109	109
	85	51	51	51	51	51	51	51	51	51
	87.5	7	7	7	7	7	7	7	7	7
	90	0	0	0	0	0	0	0	0	0

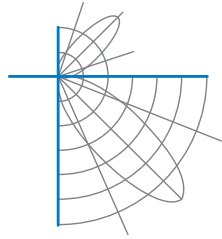
16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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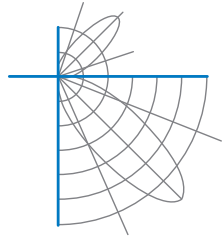
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Luminous Intensity (Candela) Table

Lateral (C-Plane) Angles										
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.		0	22.5	45	67.5	90	112.5	135	157.5	180
	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

16 lateral half-planes of data were acquired, 22.5 degree increments shown.



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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	100		101	99	96			97	95	93			94	92	91			89
2	103	96	91	86		101	94	89	85		91	87	83			88	84	81			85	82	80			78
3	95	86	79	74		93	85	78	73		82	77	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	61	56		67	60	55			65	59	55			63	58	54			52
6	75	63	55	50		74	62	55	49		61	54	49			59	53	49			58	52	48			46
7	70	58	50	44		68	57	49	44		55	49	44			54	48	43			53	47	43			41
8	65	53	45	39		64	52	45	39		51	44	39			50	43	39			48	43	39			37
9	61	48	41	36		60	48	40	35		47	40	35			46	40	35			45	39	35			33
10	57	45	37	32		56	44	37	32		43	37	32			42	36	32			41	36	32			30

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	377.6	8.82	8.82
8.0	212.4	11.76	11.76
10.0	135.9	14.71	14.71
12.0	94.4	17.65	17.65
14.0	69.3	20.59	20.59
16.0	53.1	23.53	23.53

Spacing Criterion

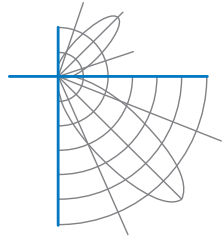
SC: 1.5

Average Luminance (cd/m²)

	0 deg Plane	45 deg Plane	90 deg Plane
0	398777	398777	398777
45	460006	460006	460006
55	224309	224309	224309
65	101482	101482	101482
75	44245	44245	44245
85	17100	17100	17100

Beam and Field Angle

0-180 Degree Plane	
Beam Angle:	102.6°
Field Angle:	131.2°
90-270 Degree Plane	
Beam Angle:	102.6°
Field Angle:	131.2°



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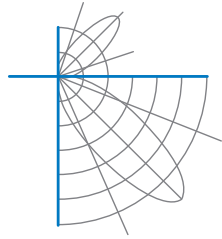
UGR Table - Corrected

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

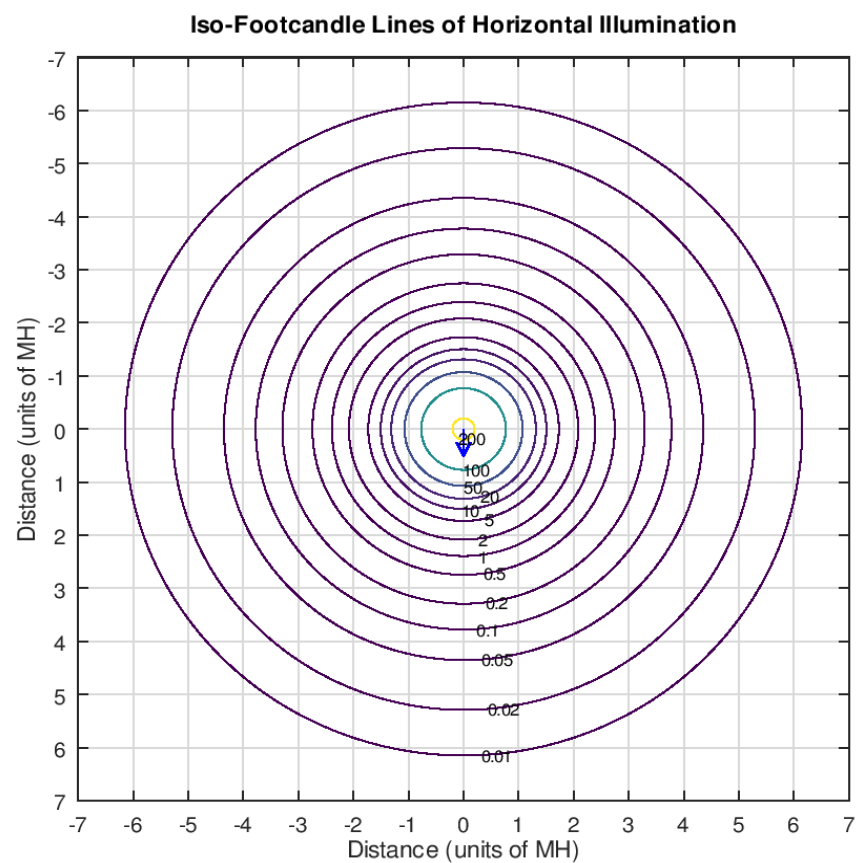
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	27.1	28.5	27.4	28.8	29.1	27.1	28.5	27.4	28.8	29.1
	3H	27.5	28.8	27.9	29.1	29.4	27.5	28.8	27.9	29.1	29.4
	4H	27.5	28.7	27.9	29.1	29.4	27.5	28.7	27.9	29.1	29.4
	6H	27.5	28.6	27.9	29.0	29.4	27.5	28.6	27.9	29.0	29.4
	8H	27.5	28.5	27.9	28.9	29.3	27.5	28.5	27.9	28.9	29.3
	12H	27.5	28.5	27.9	28.8	29.3	27.5	28.5	27.9	28.8	29.3
4H	2H	27.2	28.4	27.6	28.7	29.1	27.2	28.4	27.6	28.7	29.1
	3H	27.7	28.7	28.1	29.1	29.5	27.7	28.7	28.1	29.1	29.5
	4H	27.8	28.7	28.2	29.1	29.5	27.8	28.7	28.2	29.1	29.5
	6H	27.8	28.6	28.3	29.0	29.5	27.8	28.6	28.3	29.0	29.5
	8H	27.8	28.5	28.2	28.9	29.4	27.8	28.5	28.2	28.9	29.4
	12H	27.8	28.4	28.2	28.9	29.3	27.8	28.4	28.2	28.9	29.3
8H	4H	27.7	28.4	28.2	28.9	29.4	27.7	28.4	28.2	28.9	29.4
	6H	27.8	28.3	28.3	28.8	29.3	27.8	28.3	28.3	28.8	29.3
	8H	27.7	28.3	28.3	28.8	29.3	27.7	28.3	28.3	28.8	29.3
	12H	27.7	28.2	28.2	28.7	29.3	27.7	28.2	28.2	28.7	29.3
12H	4H	27.7	28.3	28.2	28.8	29.3	27.7	28.3	28.2	28.8	29.3
	6H	27.7	28.3	28.2	28.7	29.3	27.7	28.3	28.2	28.7	29.3
	8H	27.7	28.2	28.2	28.7	29.2	27.7	28.2	28.2	28.7	29.2

Maximum UGR = 29.5

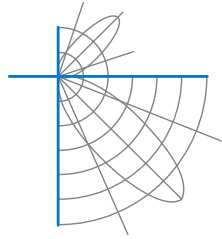


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Iso-Illuminance Plot

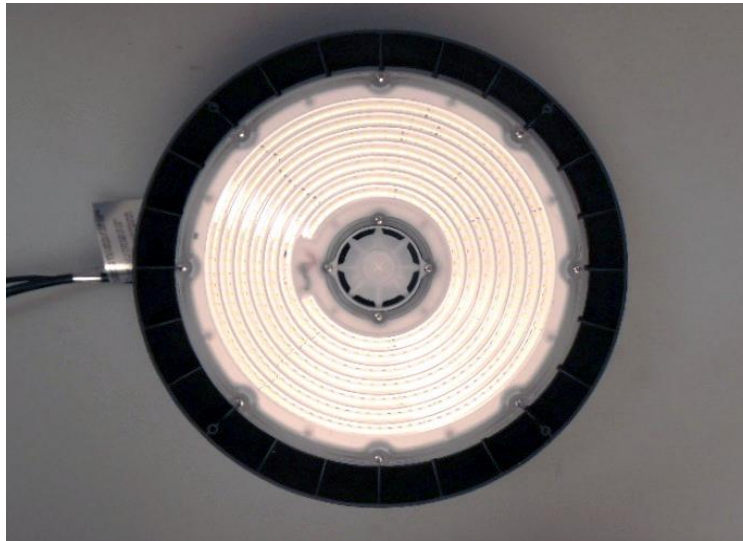


The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.



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Additional Pictures of Test Subject



North America (issuing laboratory)

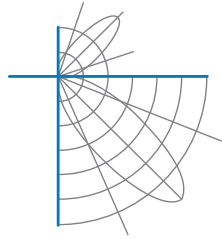
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Test Distance 9.5 m
Ambient Temperature 25.0 °C

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-41-20 and LM-46-20.

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.

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