

Report of Test

LLIA001750-007

Indoor Distribution Photometry Test Report

Catalog Number: HBC-200W-PCTS-xx - 5000K, 180W setting
Suspended downlight, cast aluminum luminaire and driver
housings, clear plastic enclosure with concentric lenses.

720 white LEDs on white circuit board; 400CW, 320WW. Only 400CW LEDs on for this test.
One LiFud LF-FHB200YAIV LED driver



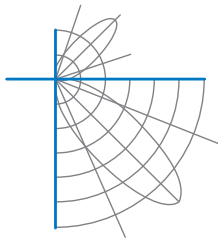
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	28640.4 Lumens
Input Current	1.477 A	Total Efficacy	162.2 Lm/W
Input Power	176.6 W	Downward Flux	28640.4 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.997		
Current THD	2.7 %		

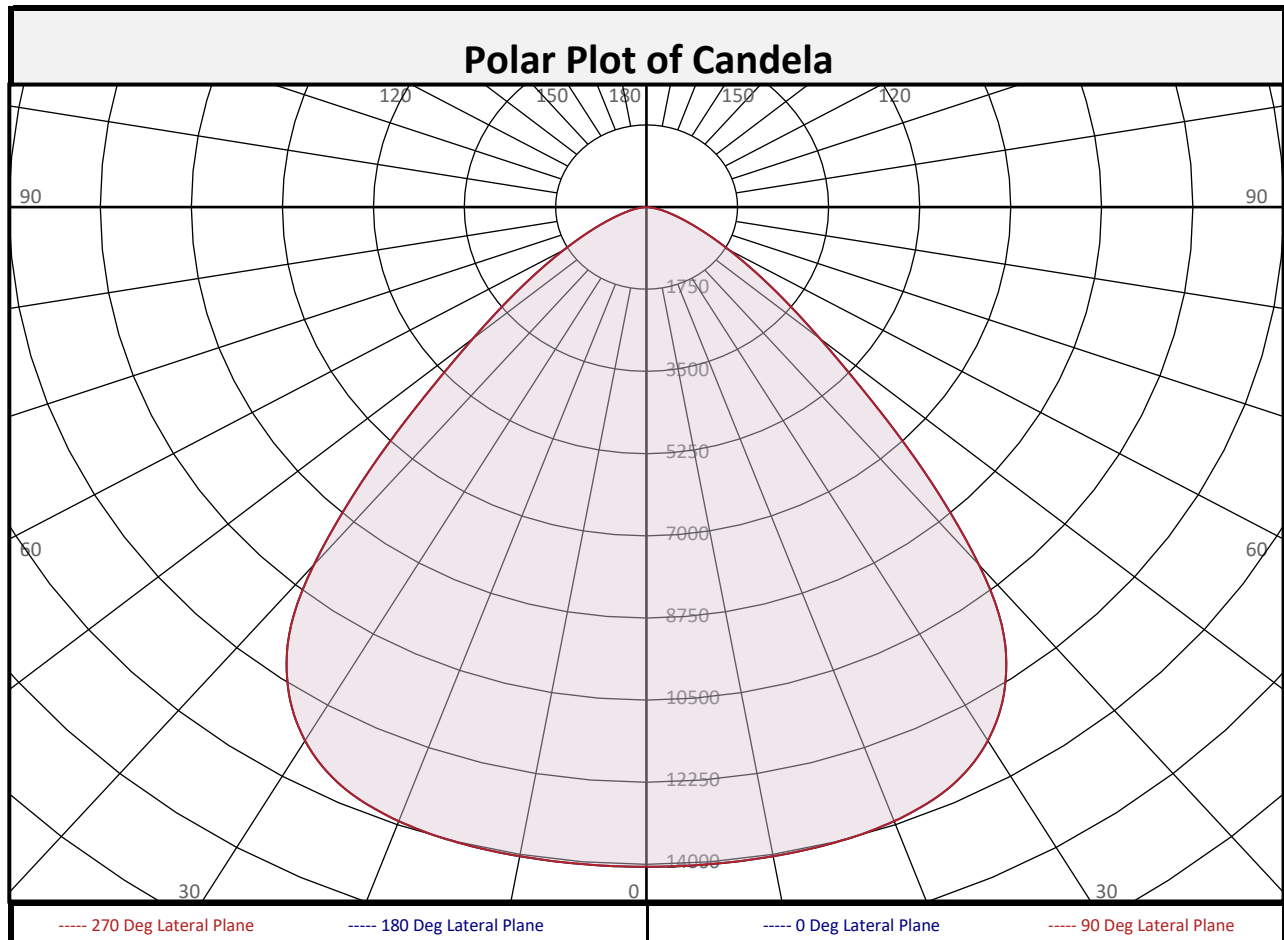
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 05/12/2022
Report date: 05/13/2022

Signed: _____

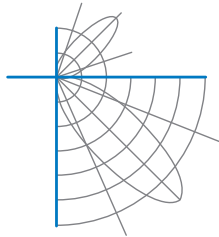


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Zonal Flux Summary

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	1342	4.7%	90-100	0.0	0.0%	0-20	5309	18.5%
10-20	3967	13.9%	100-110	0.0	0.0%	0-30	11606	40.5%
20-30	6297	22.0%	110-120	0.0	0.0%	0-40	19038	66.5%
30-40	7432	25.9%	120-130	0.0	0.0%	0-60	26942	94.1%
40-50	5291	18.5%	130-140	0.0	0.0%	0-80	28561	99.7%
50-60	2613	9.1%	140-150	0.0	0.0%	10-90	27299	95.3%
60-70	1178	4.1%	150-160	0.0	0.0%	20-50	19020	66.4%
70-80	440.4	1.5%	160-170	0.0	0.0%	40-90	9603	33.5%
80-90	79.5	0.3%	170-180	0.0	0.0%	60-90	1698	5.9%
0-90	28640	100.0%	90-180	0.0	0.0%	0-180	28640	100.0%

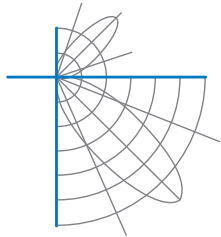


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Luminous Intensity (Candela) Table

		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	14052	14052	14052	14052	14052	14052	14052	14052	14052
	2.5	14054	14054	14054	14054	14054	14054	14054	14054	14054
	5	14048	14048	14048	14048	14048	14048	14048	14048	14048
	7.5	14048	14048	14048	14048	14048	14048	14048	14048	14048
	10	14039	14039	14039	14039	14039	14039	14039	14039	14039
	12.5	14030	14030	14030	14030	14030	14030	14030	14030	14030
	15	14013	14013	14013	14013	14013	14013	14013	14013	14013
	17.5	13980	13980	13980	13980	13980	13980	13980	13980	13980
	20	13920	13920	13920	13920	13920	13920	13920	13920	13920
	22.5	13825	13825	13825	13825	13825	13825	13825	13825	13825
	25	13684	13684	13684	13684	13684	13684	13684	13684	13684
	27.5	13456	13456	13456	13456	13456	13456	13456	13456	13456
	30	13126	13126	13126	13126	13126	13126	13126	13126	13126
	32.5	12671	12671	12671	12671	12671	12671	12671	12671	12671
	35	12058	12058	12058	12058	12058	12058	12058	12058	12058
	37.5	11221	11221	11221	11221	11221	11221	11221	11221	11221
	40	9942	9942	9942	9942	9942	9942	9942	9942	9942
	42.5	8373	8373	8373	8373	8373	8373	8373	8373	8373
	45	6795	6795	6795	6795	6795	6795	6795	6795	6795
	47.5	5402	5402	5402	5402	5402	5402	5402	5402	5402
50	4347	4347	4347	4347	4347	4347	4347	4347	4347	
52.5	3527	3527	3527	3527	3527	3527	3527	3527	3527	
55	2861	2861	2861	2861	2861	2861	2861	2861	2861	
57.5	2308	2308	2308	2308	2308	2308	2308	2308	2308	
60	1848	1848	1848	1848	1848	1848	1848	1848	1848	
62.5	1468	1468	1468	1468	1468	1468	1468	1468	1468	
65	1156	1156	1156	1156	1156	1156	1156	1156	1156	
67.5	901	901	901	901	901	901	901	901	901	
70	695	695	695	695	695	695	695	695	695	
72.5	531	531	531	531	531	531	531	531	531	
75	401	401	401	401	401	401	401	401	401	
77.5	298	298	298	298	298	298	298	298	298	
80	207	207	207	207	207	207	207	207	207	
82.5	128	128	128	128	128	128	128	128	128	
85	59	59	59	59	59	59	59	59	59	
87.5	7	7	7	7	7	7	7	7	7	
90	0	0	0	0	0	0	0	0	0	



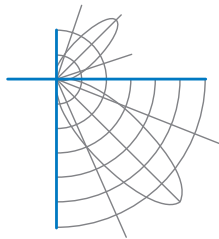
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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
	0	22.5	45	67.5	90	112.5	135	157.5	180	
90	0	0	0	0	0	0	0	0	0	0
92.5	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
102.5	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
107.5	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
112.5	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
117.5	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
122.5	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
127.5	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
132.5	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
137.5	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
147.5	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
152.5	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
162.5	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
167.5	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
177.5	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° 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	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89
2	104	97	92	88	101	96	91	87	92	88	85	89	86	83	86	83	81	79
3	96	88	81	76	94	86	80	76	84	79	74	81	77	73	79	75	72	70
4	90	80	72	67	88	78	72	67	76	70	66	74	69	65	72	68	64	62
5	83	73	65	59	81	71	64	59	69	63	58	68	62	58	66	61	57	56
6	78	66	59	53	76	65	58	53	64	57	52	62	56	52	61	56	52	50
7	73	61	53	48	71	60	53	48	59	52	47	57	51	47	56	51	47	45
8	68	56	48	43	66	55	48	43	54	48	43	53	47	43	52	46	42	41
9	64	52	44	39	62	51	44	39	50	44	39	49	43	39	48	43	39	37
10	60	48	41	36	59	47	41	36	46	40	36	46	40	36	45	39	36	34

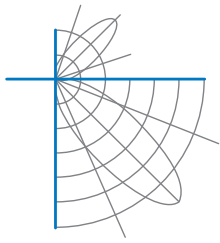
For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are 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	390.3	8.09	8.09	
8.0	219.6	10.79	10.79	
10.0	140.5	13.49	13.49	
12.0	97.6	16.18	16.18	
14.0	71.7	18.88	18.88	
16.0	54.9	21.58	21.58	

Spacing Criterion	
SC:	1.3

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	144049	144049	144049
45	98505	98505	98505
55	51138	51138	51138
65	28042	28042	28042
75	15886	15886	15886
85	6911	6911	6911

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	89.2°
Field Angle:	125.9°
90-270 Degree Plane	
Beam Angle:	89.2°
Field Angle:	125.9°



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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

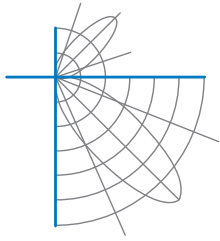
Room Size

UGR Viewed Crosswise

UGR Viewed Endwise

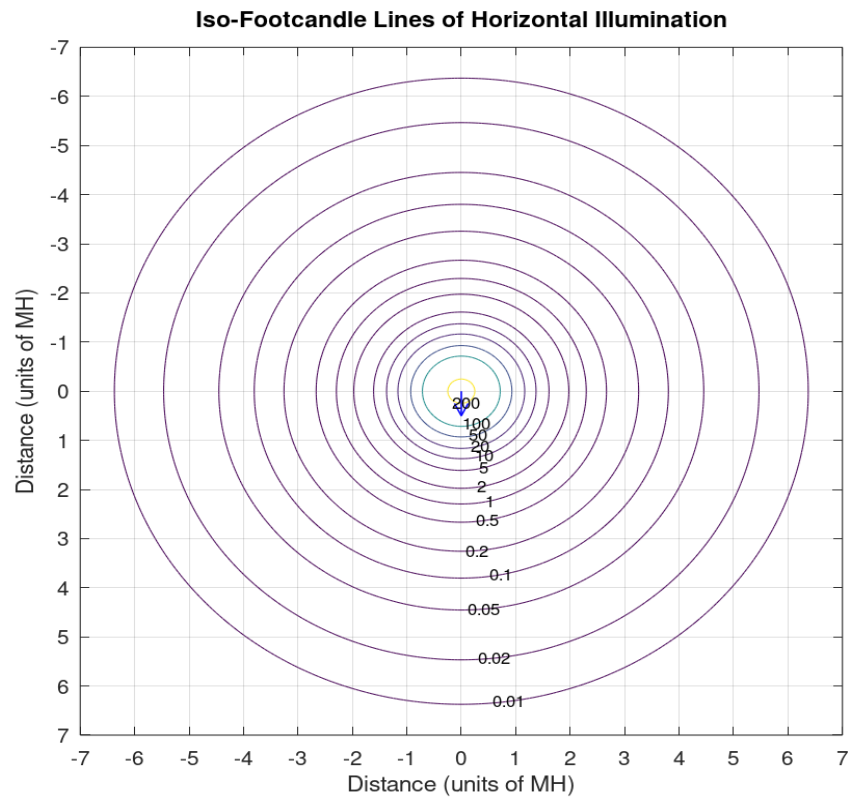
X=2H	Y=2H	22.3	23.7	22.7	24.0	24.3	22.3	23.7	22.7	24.0	24.3
	3H	22.9	24.1	23.3	24.5	24.8	22.9	24.1	23.3	24.5	24.8
	4H	23.1	24.2	23.5	24.6	24.9	23.1	24.2	23.5	24.6	24.9
	6H	23.2	24.2	23.6	24.6	24.9	23.2	24.2	23.6	24.6	24.9
	8H	23.2	24.1	23.6	24.5	24.9	23.2	24.1	23.6	24.5	24.9
	12H	23.2	24.1	23.6	24.5	24.9	23.2	24.1	23.6	24.5	24.9
4H	2H	22.5	23.6	22.9	24.0	24.4	22.5	23.6	22.9	24.0	24.4
	3H	23.3	24.2	23.7	24.6	25.0	23.3	24.2	23.7	24.6	25.0
	4H	23.5	24.3	23.9	24.7	25.2	23.5	24.3	23.9	24.7	25.2
	6H	23.6	24.3	24.1	24.8	25.2	23.6	24.3	24.1	24.8	25.2
	8H	23.7	24.3	24.1	24.7	25.2	23.7	24.3	24.1	24.7	25.2
	12H	23.6	24.2	24.1	24.7	25.2	23.6	24.2	24.1	24.7	25.2
8H	4H	23.5	24.2	24.0	24.6	25.1	23.5	24.2	24.0	24.6	25.1
	6H	23.7	24.2	24.2	24.7	25.2	23.7	24.2	24.2	24.7	25.2
	8H	23.7	24.2	24.2	24.7	25.2	23.7	24.2	24.2	24.7	25.2
	12H	23.7	24.1	24.2	24.6	25.2	23.7	24.1	24.2	24.6	25.2
12H	4H	23.5	24.1	24.0	24.5	25.0	23.5	24.1	24.0	24.5	25.0
	6H	23.7	24.1	24.2	24.6	25.2	23.7	24.1	24.2	24.6	25.2
	8H	23.7	24.1	24.2	24.6	25.2	23.7	24.1	24.2	24.6	25.2

Maximum UGR = 25.2

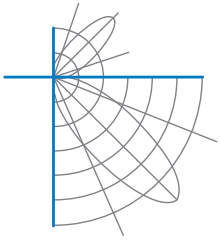


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Iso-Illuminance Plot



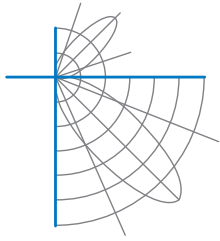
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



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Additional Pictures of Test Subject





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Test Distance 9.5 m
Ambient Temperature 25.3 °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.