

Report of Test

LLIA001750-003

Indoor Distribution Photometry Test Report

Catalog Number: HBC-150W-PCTS-xx - 5000K, 120W setting
Suspended downlight, cast aluminum luminaire and driver
housings, clear plastic enclosure with concentric lenses.

560 white LEDs on white circuit board; 320CW, 240WW. Only 320CW LEDs on for this test.
One LiFud LF-FHB150YAIV LED driver



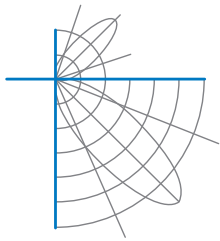
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	20119.6 Lumens
Input Current	1.007 A	Total Efficacy	167.4 Lm/W
Input Power	120.2 W	Downward Flux	20119.6 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.995		
Current THD	4.1 %		

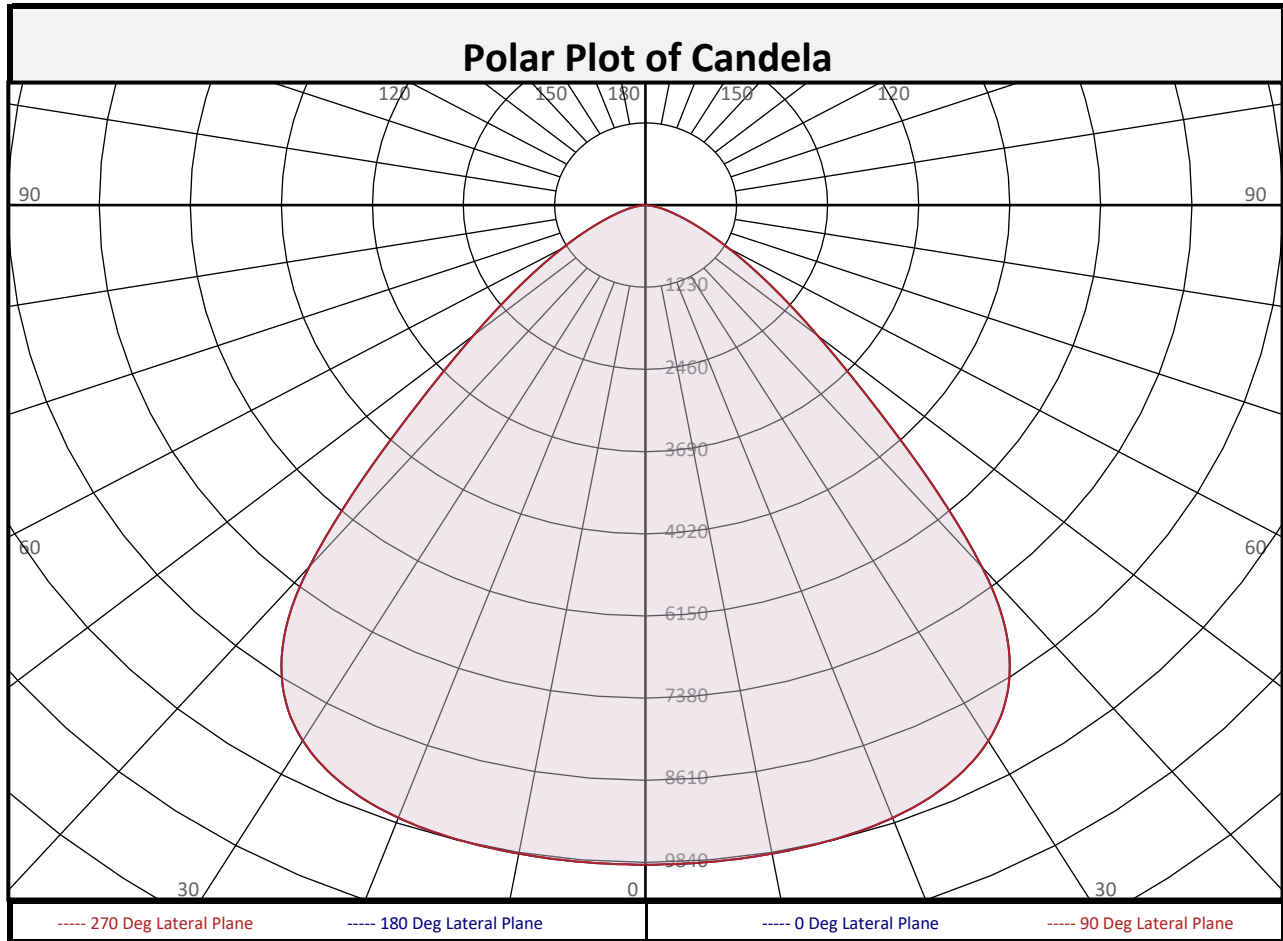
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

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

Signed: _____

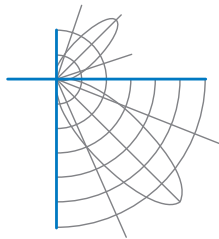


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Zonal Flux Summary

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	942.4	4.7%	90-100	0.0	0.0%	0-20	3726	18.5%
10-20	2783	13.8%	100-110	0.0	0.0%	0-30	8148	40.5%
20-30	4422	22.0%	110-120	0.0	0.0%	0-40	13424	66.7%
30-40	5276	26.2%	120-130	0.0	0.0%	0-60	18934	94.1%
40-50	3678	18.3%	130-140	0.0	0.0%	0-80	20077	99.8%
50-60	1832	9.1%	140-150	0.0	0.0%	10-90	19177	95.3%
60-70	835.2	4.2%	150-160	0.0	0.0%	20-50	13376	66.5%
70-80	307.3	1.5%	160-170	0.0	0.0%	40-90	6696	33.3%
80-90	42.9	0.2%	170-180	0.0	0.0%	60-90	1185	5.9%
0-90	20120	100.0%	90-180	0.0	0.0%	0-180	20120	100.0%

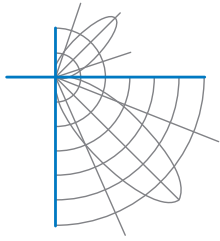


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Luminous Intensity (Candela) Table

		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	9876	9876	9876	9876	9876	9876	9876	9876	9876
	2.5	9874	9874	9874	9874	9874	9874	9874	9874	9874
	5	9871	9871	9871	9871	9871	9871	9871	9871	9871
	7.5	9868	9868	9868	9868	9868	9868	9868	9868	9868
	10	9858	9858	9858	9858	9858	9858	9858	9858	9858
	12.5	9847	9847	9847	9847	9847	9847	9847	9847	9847
	15	9832	9832	9832	9832	9832	9832	9832	9832	9832
	17.5	9803	9803	9803	9803	9803	9803	9803	9803	9803
	20	9761	9761	9761	9761	9761	9761	9761	9761	9761
	22.5	9696	9696	9696	9696	9696	9696	9696	9696	9696
	25	9598	9598	9598	9598	9598	9598	9598	9598	9598
	27.5	9455	9455	9455	9455	9455	9455	9455	9455	9455
	30	9259	9259	9259	9259	9259	9259	9259	9259	9259
	32.5	8980	8980	8980	8980	8980	8980	8980	8980	8980
	35	8572	8572	8572	8572	8572	8572	8572	8572	8572
	37.5	7982	7982	7982	7982	7982	7982	7982	7982	7982
	40	7063	7063	7063	7063	7063	7063	7063	7063	7063
	42.5	5845	5845	5845	5845	5845	5845	5845	5845	5845
	45	4660	4660	4660	4660	4660	4660	4660	4660	4660
	47.5	3731	3731	3731	3731	3731	3731	3731	3731	3731
50	3028	3028	3028	3028	3028	3028	3028	3028	3028	
52.5	2467	2467	2467	2467	2467	2467	2467	2467	2467	
55	2007	2007	2007	2007	2007	2007	2007	2007	2007	
57.5	1625	1625	1625	1625	1625	1625	1625	1625	1625	
60	1306	1306	1306	1306	1306	1306	1306	1306	1306	
62.5	1041	1041	1041	1041	1041	1041	1041	1041	1041	
65	820	820	820	820	820	820	820	820	820	
67.5	639	639	639	639	639	639	639	639	639	
70	494	494	494	494	494	494	494	494	494	
72.5	378	378	378	378	378	378	378	378	378	
75	283	283	283	283	283	283	283	283	283	
77.5	201	201	201	201	201	201	201	201	201	
80	128	128	128	128	128	128	128	128	128	
82.5	67	67	67	67	67	67	67	67	67	
85	29	29	29	29	29	29	29	29	29	
87.5	4	4	4	4	4	4	4	4	4	
90	0	0	0	0	0	0	0	0	0	

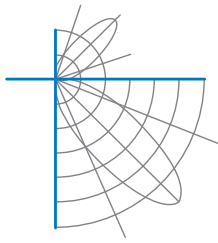


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Luminous Intensity (Candela) Table

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



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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	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	90			
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	73	67	88	79	72	67	76	70	66	74	69	65	72	68	64	62			
5	83	73	65	59	81	72	64	59	70	63	59	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	47	40	36	46	40	36	45	39	36	34			

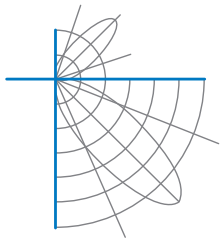
For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are 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	274.3	8.15	8.15	
8.0	154.3	10.87	10.87	
10.0	98.8	13.58	13.58	
12.0	68.6	16.30	16.30	
14.0	50.4	19.02	19.02	
16.0	38.6	21.74	21.74	

Spacing Criterion	
SC:	1.3

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	147371	147371	147371
45	98347	98347	98347
55	52206	52206	52206
65	28968	28968	28968
75	16334	16334	16334
85	4909	4909	4909

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	88.8°
Field Angle:	126.1°
90-270 Degree Plane	
Beam Angle:	88.8°
Field Angle:	126.1°



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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

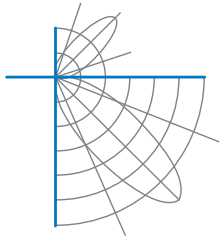
Room Size

UGR Viewed Crosswise

UGR Viewed Endwise

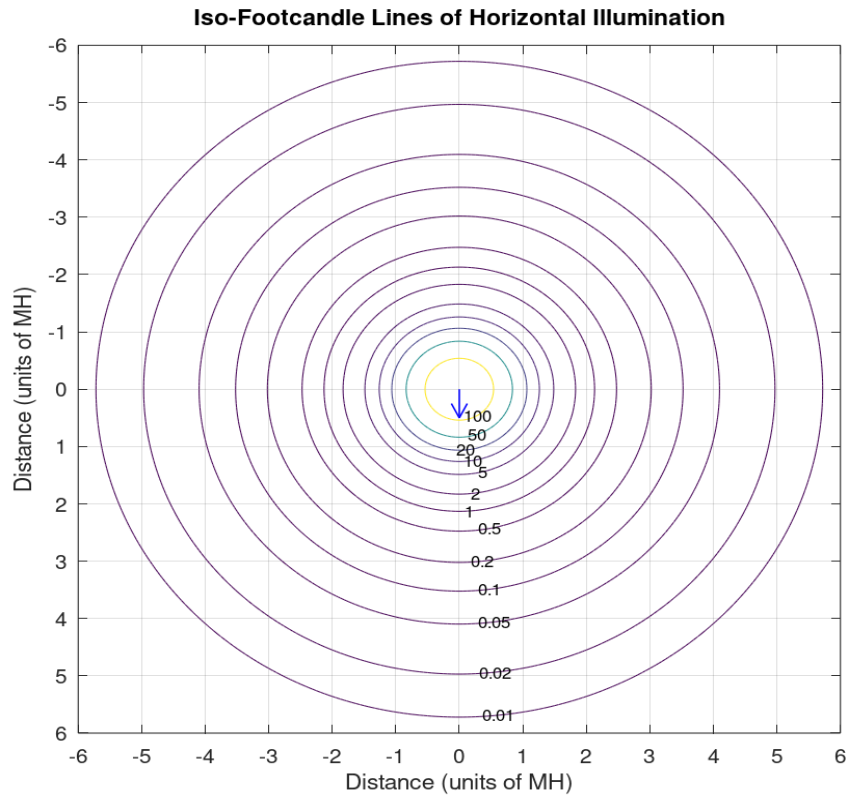
X=2H	Y=2H	22.4	23.7	22.7	24.0	24.3	22.4	23.7	22.7	24.0	24.3
	3H	23.0	24.2	23.4	24.5	24.9	23.0	24.2	23.4	24.5	24.9
	4H	23.1	24.2	23.5	24.6	25.0	23.1	24.2	23.5	24.6	25.0
	6H	23.2	24.2	23.6	24.6	25.0	23.2	24.2	23.6	24.6	25.0
	8H	23.2	24.1	23.6	24.5	24.9	23.2	24.1	23.6	24.5	24.9
	12H	23.1	24.1	23.6	24.4	24.9	23.1	24.1	23.6	24.4	24.9
4H	2H	22.6	23.7	23.0	24.0	24.4	22.6	23.7	23.0	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	24.0	24.8	25.2	23.5	24.3	24.0	24.8	25.2
	6H	23.6	24.3	24.1	24.8	25.2	23.6	24.3	24.1	24.8	25.2
	8H	23.6	24.3	24.1	24.7	25.2	23.6	24.3	24.1	24.7	25.2
	12H	23.6	24.2	24.1	24.7	25.1	23.6	24.2	24.1	24.7	25.1
8H	4H	23.6	24.2	24.0	24.6	25.1	23.6	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	24.1	24.2	24.7	25.2	23.7	24.1	24.2	24.7	25.2
	12H	23.7	24.1	24.2	24.6	25.1	23.7	24.1	24.2	24.6	25.1
12H	4H	23.5	24.1	24.0	24.6	25.0	23.5	24.1	24.0	24.6	25.0
	6H	23.6	24.1	24.2	24.6	25.1	23.6	24.1	24.2	24.6	25.1
	8H	23.7	24.1	24.2	24.6	25.1	23.7	24.1	24.2	24.6	25.1

Maximum UGR = 25.2

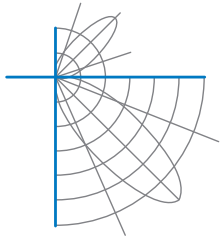


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Iso-Illuminance Plot



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 25.1 °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.