



Report of Test

LLIA002241-011

Indoor Distribution Photometry Test Report

Catalog Number: LHB-48L-W-40K-U

Highbay/Pendant mounted, cast white painted aluminum housing,
clear prismatic plastic enclosures below LEDs

864 white LEDs on two LED boards with 432 LEDs each

One Lifud LF-FAA320 LED driver



Prepared For:

Topaz Lighting Corp

925 Waverly Avenue

Holtsville, NY 11742, USA

Performance Summary

Input Voltage	120.0 Vac	Luminous Flux	47814.2 Lumens
Input Current	2.701 A	Total Efficacy	147.8 Lm/W
Input Power	323.4 W	Downward Flux	47814.2 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.998		
Current THD	3.9 %		

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

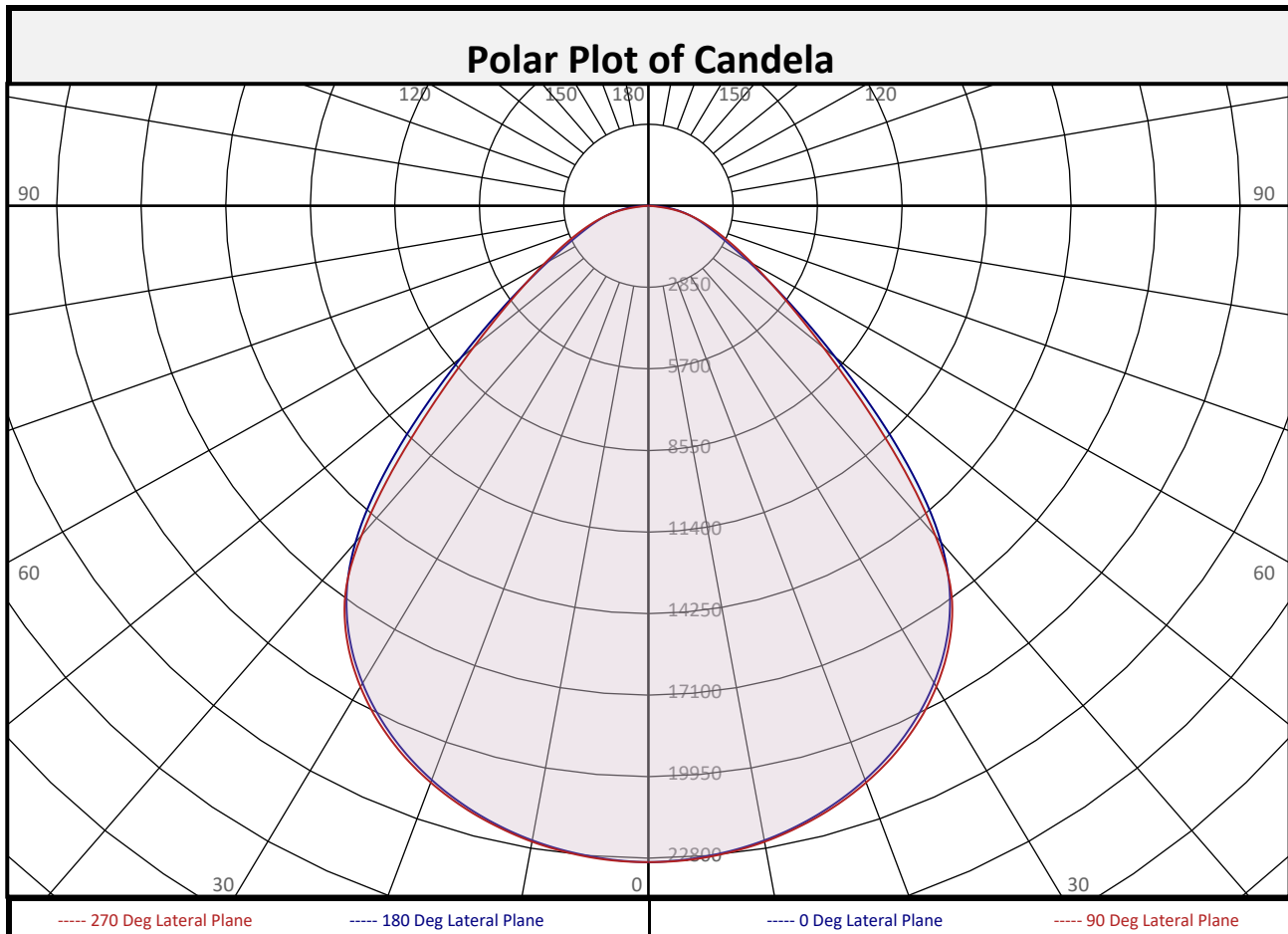
Test date: 12/15/2023

Report date: 12/19/2023

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	2173	4.5%	90-100	0.1	0.0%	0-20	8403	17.6%
10-20	6230	13.0%	100-110	0.0	0.0%	0-30	17842	37.3%
20-30	9440	19.7%	110-120	0.0	0.0%	0-40	28856	60.4%
30-40	11014	23.0%	120-130	0.0	0.0%	0-60	42694	89.3%
40-50	8800	18.4%	130-140	0.0	0.0%	0-80	47348	99.0%
50-60	5038	10.5%	140-150	0.0	0.0%	10-90	45642	95.5%
60-70	2936	6.1%	150-160	0.0	0.0%	20-50	29253	61.2%
70-80	1718	3.6%	160-170	0.0	0.0%	40-90	18958	39.6%
80-90	466.4	1.0%	170-180	0.0	0.0%	60-90	5120	10.7%
0-90	47814	100.0%	90-180	0.1	0.0%	0-180	47814	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	22940	22940	22940	22940	22940	22940	22940	22940	22940
	2.5	22903	22911	22919	22924	22921	22924	22919	22911	22903
	5	22815	22833	22850	22858	22852	22858	22850	22833	22815
	7.5	22691	22711	22725	22736	22731	22736	22725	22711	22691
	10	22521	22542	22556	22571	22569	22571	22556	22542	22521
	12.5	22303	22323	22342	22354	22355	22354	22342	22323	22303
	15	22036	22055	22079	22093	22104	22093	22079	22055	22036
	17.5	21718	21737	21761	21784	21802	21784	21761	21737	21718
	20	21352	21370	21399	21425	21450	21425	21399	21370	21352
	22.5	20929	20947	20982	21012	21047	21012	20982	20947	20929
	25	20444	20463	20503	20543	20576	20543	20503	20463	20444
	27.5	19893	19911	19962	20002	20039	20002	19962	19911	19893
	30	19261	19283	19343	19380	19411	19380	19343	19283	19261
	32.5	18541	18567	18633	18661	18687	18661	18633	18567	18541
	35	17692	17729	17782	17805	17824	17805	17782	17729	17692
	37.5	16665	16703	16725	16712	16710	16712	16725	16703	16665
	40	15351	15363	15269	15104	15038	15104	15269	15363	15351
	42.5	13697	13640	13416	13141	13063	13141	13416	13640	13697
	45	11803	11721	11405	11097	11018	11097	11405	11721	11803
	47.5	9907	9822	9511	9237	9196	9237	9511	9822	9907
50	8215	8175	7900	7661	7690	7661	7900	8175	8215	
52.5	6787	6823	6569	6348	6477	6348	6569	6823	6787	
55	5618	5745	5492	5274	5506	5274	5492	5745	5618	
57.5	4664	4878	4621	4399	4712	4399	4621	4878	4664	
60	3898	4175	3923	3698	4058	3698	3923	4175	3898	
62.5	3288	3600	3363	3140	3503	3140	3363	3600	3288	
65	2808	3126	2916	2703	3029	2703	2916	3126	2808	
67.5	2427	2720	2547	2350	2618	2350	2547	2720	2427	
70	2114	2364	2229	2056	2257	2056	2229	2364	2114	
72.5	1842	2039	1937	1790	1930	1790	1937	2039	1842	
75	1587	1729	1651	1531	1615	1531	1651	1729	1587	
77.5	1333	1427	1362	1267	1305	1267	1362	1427	1333	
80	1072	1127	1070	990	990	990	1070	1127	1072	
82.5	800	829	769	657	607	657	769	829	800	
85	522	537	404	229	184	229	404	537	522	
87.5	207	169	47	32	30	32	47	169	207	
90	0	1	1	2	2	2	1	1	0	

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

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		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	1	1	2	2	2	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	

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	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	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88			
2	102	95	89	85	100	93	88	84	90	86	82	87	83	80	84	81	78	76			
3	95	85	78	73	92	84	77	72	81	76	71	78	74	70	76	72	69	67			
4	88	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59			
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52			
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	47			
7	70	58	50	45	69	57	50	45	56	49	44	55	49	44	53	48	44	42			
8	66	54	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34			
10	58	46	38	34	57	45	38	33	44	38	33	43	37	33	43	37	33	31			

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	637.2	7.46	7.51
8.0	358.4	9.95	10.01
10.0	229.4	12.44	12.52
12.0	159.3	14.93	15.02
14.0	117.0	17.41	17.52
16.0	89.6	19.90	20.03

Spacing Criterion	
0 deg:	1.2
90 deg:	1.3
180 deg:	1.2
270 deg:	1.3

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	126301	126301	126301
45	91902	88803	85788
55	53923	52715	52855
65	36585	37985	39465
75	33763	35111	34348
85	32968	25551	11645

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	90.9°
Field Angle:	137.0°
90-270 Degree Plane	
Beam Angle:	88.9°
Field Angle:	139.5°



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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

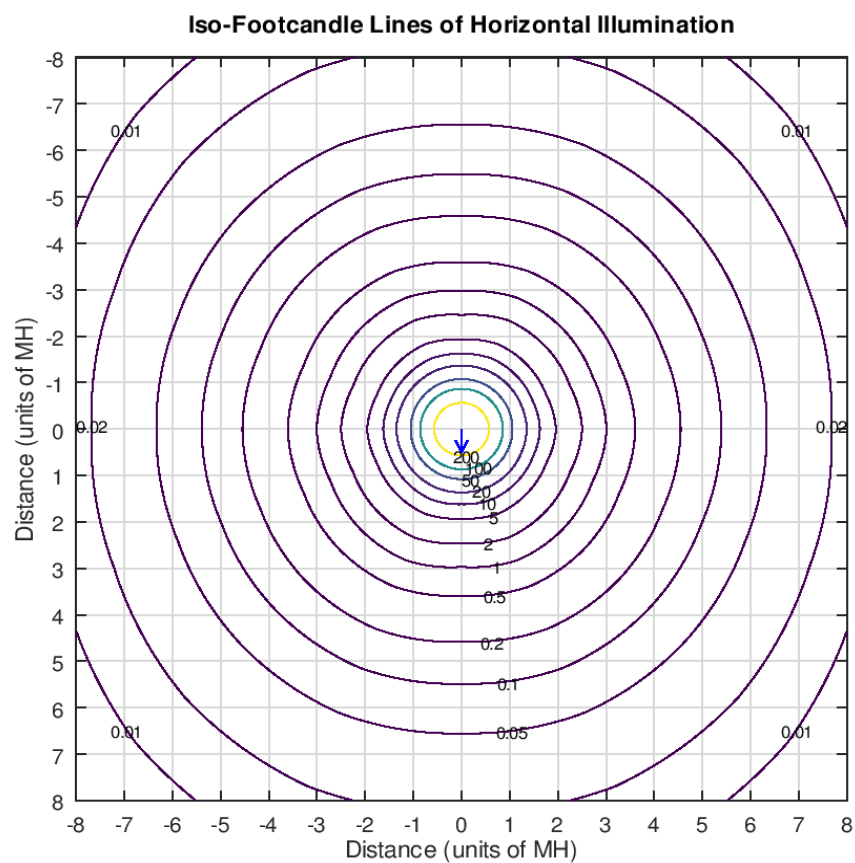
X=2H	Y=2H	24.2	25.6	24.6	25.9	26.3	23.6	25.1	24.0	25.4	25.7
		3H	25.5	26.7	25.9	27.1	27.4	25.0	26.3	25.4	26.6
	4H	26.0	27.2	26.4	27.6	27.9	25.6	26.8	26.0	27.1	27.5
	6H	26.5	27.6	26.9	28.0	28.4	26.1	27.2	26.5	27.5	27.9
	8H	26.7	27.7	27.1	28.1	28.5	26.2	27.2	26.6	27.6	28.0
	12H	26.8	27.8	27.2	28.2	28.6	26.2	27.2	26.7	27.6	28.0
4H	2H	24.6	25.8	25.0	26.1	26.5	24.1	25.3	24.5	25.6	26.0
	3H	26.1	27.1	26.5	27.5	27.9	25.7	26.7	26.1	27.1	27.5
	4H	26.8	27.7	27.3	28.1	28.6	26.4	27.3	26.8	27.7	28.2
	6H	27.5	28.3	28.0	28.7	29.2	27.0	27.8	27.5	28.2	28.7
	8H	27.7	28.4	28.2	28.9	29.4	27.2	27.9	27.7	28.4	28.8
	12H	27.9	28.6	28.4	29.0	29.5	27.2	27.9	27.7	28.4	28.8
8H	4H	27.1	27.8	27.6	28.3	28.7	26.7	27.4	27.2	27.9	28.3
	6H	27.9	28.5	28.4	29.0	29.5	27.5	28.1	28.0	28.6	29.0
	8H	28.2	28.8	28.7	29.3	29.8	27.7	28.2	28.2	28.7	29.2
	12H	28.5	29.0	29.0	29.5	30.0	27.8	28.3	28.3	28.7	29.3
12H	4H	27.1	27.8	27.6	28.2	28.7	26.7	27.4	27.2	27.9	28.3
	6H	28.0	28.5	28.5	28.9	29.5	27.5	28.1	28.1	28.5	29.1
	8H	28.3	28.8	28.8	29.3	29.9	27.8	28.3	28.3	28.8	29.4

Maximum UGR = 30.0



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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 25.7 °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.