

Report of Test

LLIA002241-001

Indoor Distribution Photometry Test Report

Catalog Number: LHB-15L-W-PSC-U - 60W-4000K Setting
Highbay/Pendant mounted, cast white painted aluminum housing,
clear prismatic plastic enclosures below LEDs
520 white LEDs on two LED boards with 260 LEDs each
One Lifud LF-FAA100 LED driver



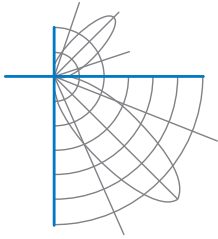
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	9686.5 Lumens
Input Current	0.5243 A	Total Efficacy	156.0 Lm/W
Input Power	62.08 W	Downward Flux	9686.5 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.987		
Current THD	6.5 %		

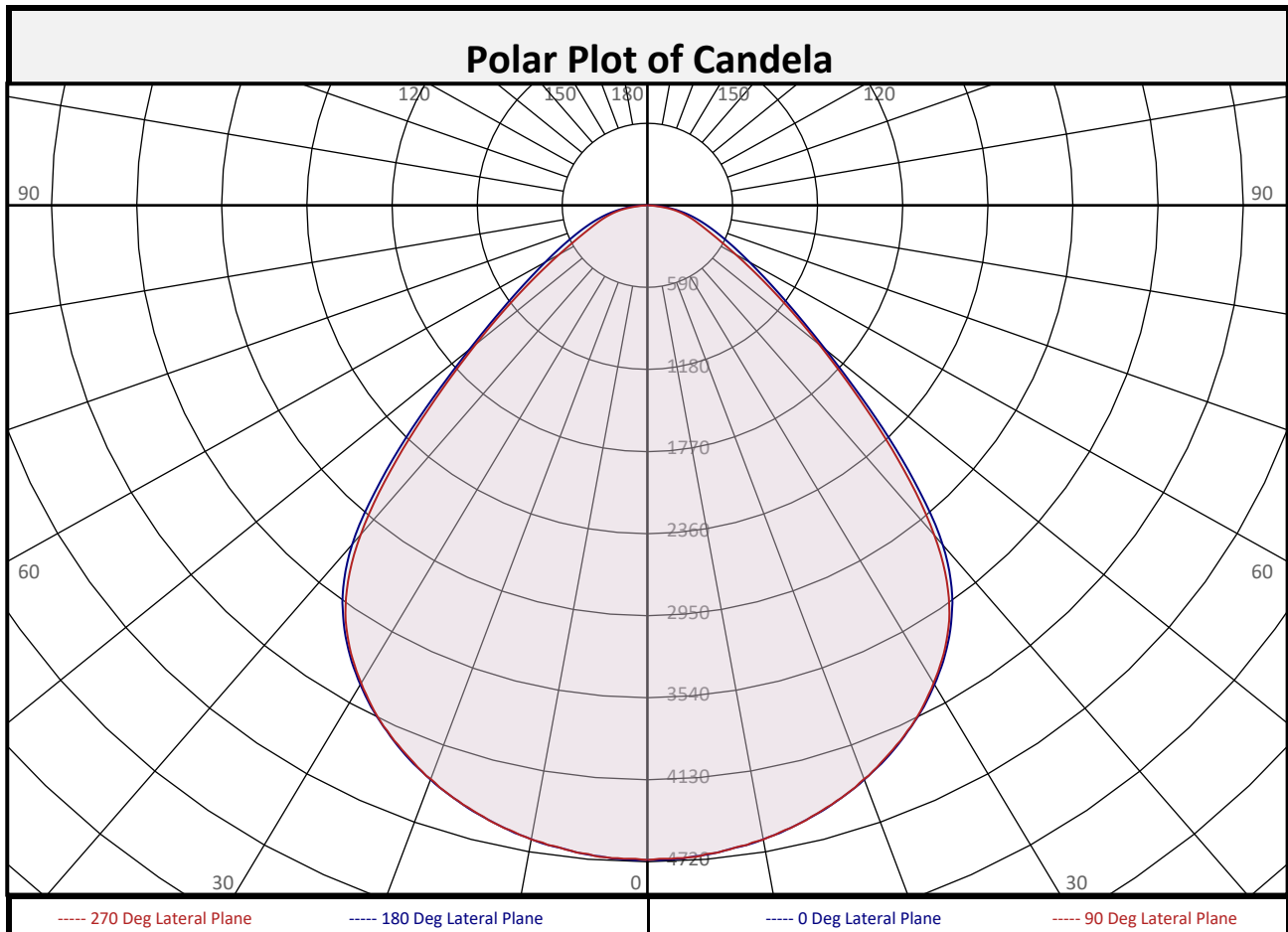
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 10/23/2023
Report date: 10/25/2023

Signed: _____

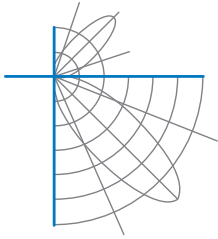


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Zonal Flux Summary

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	445.9	4.6%	90-100	0.1	0.0%	0-20	1725	17.8%
10-20	1279	13.2%	100-110	0.0	0.0%	0-30	3665	37.8%
20-30	1940	20.0%	110-120	0.0	0.0%	0-40	5933	61.3%
30-40	2268	23.4%	120-130	0.0	0.0%	0-60	8710	89.9%
40-50	1792	18.5%	130-140	0.0	0.0%	0-80	9591	99.0%
50-60	984.4	10.2%	140-150	0.0	0.0%	10-90	9241	95.4%
60-70	554.7	5.7%	150-160	0.0	0.0%	20-50	6000	61.9%
70-80	327.1	3.4%	160-170	0.0	0.0%	40-90	3753	38.7%
80-90	95.0	1.0%	170-180	0.0	0.0%	60-90	976.8	10.1%
0-90	9686	100.0%	90-180	0.1	0.0%	0-180	9687	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	4707	4707	4707	4707	4707	4707	4707	4707	4707
	2.5	4704	4701	4706	4704	4698	4704	4706	4701	4704
	5	4687	4687	4694	4689	4682	4689	4694	4687	4687
	7.5	4659	4662	4664	4666	4657	4666	4664	4662	4659
	10	4628	4627	4630	4631	4630	4631	4630	4627	4628
	12.5	4584	4582	4585	4586	4587	4586	4585	4582	4584
	15	4532	4530	4532	4537	4529	4537	4532	4530	4532
	17.5	4468	4465	4468	4472	4468	4472	4468	4465	4468
	20	4394	4393	4395	4400	4389	4400	4395	4393	4394
	22.5	4311	4311	4312	4316	4303	4316	4312	4311	4311
	25	4213	4213	4214	4215	4208	4215	4214	4213	4213
	27.5	4105	4101	4105	4108	4099	4108	4105	4101	4105
	30	3979	3977	3980	3979	3966	3979	3980	3977	3979
	32.5	3837	3832	3832	3829	3821	3829	3832	3832	3837
	35	3670	3667	3661	3655	3645	3655	3661	3667	3670
	37.5	3463	3458	3444	3427	3407	3427	3444	3458	3463
	40	3183	3171	3142	3112	3089	3112	3142	3171	3183
	42.5	2795	2781	2757	2723	2695	2723	2757	2781	2795
	45	2370	2355	2329	2298	2273	2298	2329	2355	2370
	47.5	1954	1940	1918	1898	1881	1898	1918	1940	1954
50	1609	1589	1576	1565	1549	1565	1576	1589	1609	
52.5	1337	1299	1295	1297	1272	1297	1295	1299	1337	
55	1125	1064	1071	1085	1043	1085	1071	1064	1125	
57.5	955	873	891	916	855	916	891	873	955	
60	818	723	748	780	706	780	748	723	818	
62.5	705	605	635	670	587	670	635	605	705	
65	609	515	547	582	497	582	547	515	609	
67.5	527	447	477	507	427	507	477	447	527	
70	456	393	419	441	372	441	419	393	456	
72.5	393	346	367	380	324	380	367	346	393	
75	332	301	315	320	277	320	315	301	332	
77.5	274	255	263	260	230	260	263	255	274	
80	216	206	207	199	181	199	207	206	216	
82.5	160	154	149	133	120	133	149	154	160	
85	105	99	84	64	58	64	84	99	105	
87.5	42	34	23	17	14	17	23	34	42	
90	0	0	1	1	1	1	1	0	0	

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

North America (issuing laboratory)

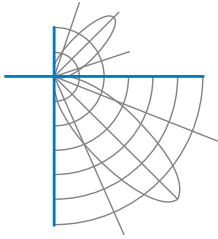
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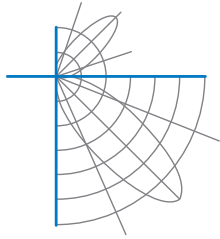
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Luminous Intensity (Candela) Table

		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	1	1	1	1	1	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	70	50	30	10	70	50	30	10	50	30	10	0	
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	106	102	102	102	100	
1	111	107	103	100	108	105	101	98	100	98	95	95	97	94	92	92	93	91	90	88	
2	102	96	90	85	100	94	88	84	90	86	82	82	87	83	80	80	84	81	79	77	
3	95	86	79	73	92	84	78	73	81	76	71	71	79	74	70	70	76	72	69	67	
4	88	77	70	64	86	76	69	64	74	68	63	63	72	66	62	62	69	65	61	59	
5	82	70	62	56	80	69	62	56	67	61	56	56	65	60	55	55	64	59	55	53	
6	76	64	56	50	74	63	56	50	61	55	50	50	60	54	49	49	58	53	49	47	
7	71	59	51	45	69	58	50	45	56	50	45	45	55	49	44	44	54	48	44	42	
8	66	54	46	41	65	53	46	41	52	45	41	41	51	45	40	40	50	44	40	38	
9	62	50	42	37	61	49	42	37	48	42	37	37	47	41	37	37	46	41	37	35	
10	58	46	39	34	57	46	39	34	45	38	34	34	44	38	34	34	43	37	34	32	

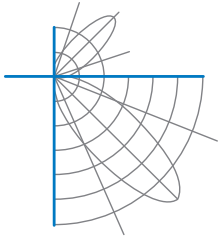
For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are 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	130.7	7.51	7.49
8.0	73.5	10.02	9.98
10.0	47.1	12.52	12.48
12.0	32.7	15.03	14.97
14.0	24.0	17.53	17.47
16.0	18.4	20.04	19.97

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

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	71875	71875	71875
45	51187	50306	49080
55	29964	28526	27762
65	22004	19758	17959
75	19608	18601	16330
85	18326	14732	10120

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	90.2°
Field Angle:	138.9°
90-270 Degree Plane	
Beam Angle:	89.0°
Field Angle:	131.7°



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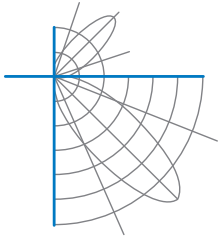
UGR Table - Corrected

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

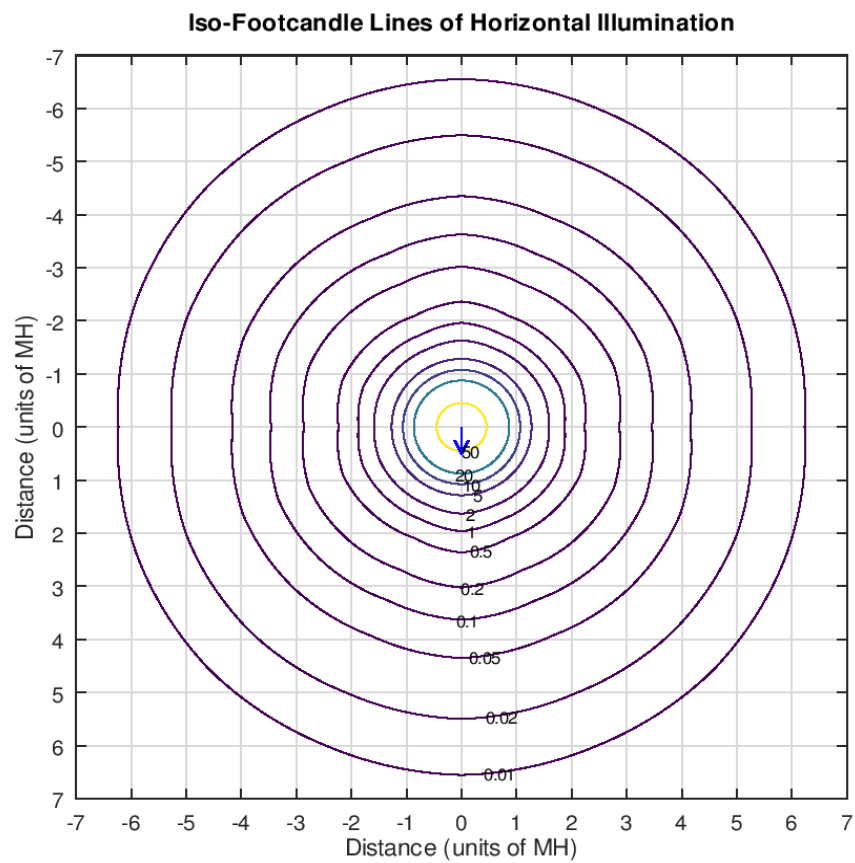
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	20.2	21.6	20.5	21.9	22.2	20.3	21.7	20.7	22.1	22.4
	3H	21.5	22.8	21.9	23.1	23.5	21.5	22.8	21.9	23.1	23.5
	4H	22.1	23.3	22.5	23.7	24.1	22.0	23.2	22.4	23.6	23.9
	6H	22.7	23.8	23.1	24.1	24.5	22.4	23.5	22.9	23.9	24.3
	8H	22.9	23.9	23.3	24.3	24.7	22.6	23.6	23.0	24.0	24.4
	12H	23.0	24.0	23.5	24.4	24.8	22.6	23.6	23.1	24.0	24.4
4H	2H	20.6	21.8	21.0	22.1	22.5	20.7	21.9	21.1	22.2	22.6
	3H	22.2	23.1	22.6	23.5	23.9	22.2	23.2	22.6	23.6	24.0
	4H	22.9	23.8	23.3	24.2	24.6	22.9	23.8	23.3	24.2	24.6
	6H	23.6	24.3	24.0	24.8	25.3	23.5	24.2	23.9	24.7	25.1
	8H	23.9	24.6	24.3	25.0	25.5	23.6	24.4	24.1	24.8	25.3
	12H	24.1	24.7	24.5	25.2	25.6	23.7	24.4	24.2	24.8	25.3
8H	4H	23.2	23.9	23.6	24.3	24.8	23.2	23.9	23.6	24.3	24.8
	6H	24.0	24.6	24.5	25.1	25.6	23.9	24.5	24.4	25.0	25.4
	8H	24.4	24.9	24.9	25.4	25.9	24.1	24.7	24.6	25.2	25.7
	12H	24.7	25.1	25.2	25.6	26.2	24.3	24.7	24.8	25.2	25.8
12H	4H	23.2	23.8	23.7	24.3	24.8	23.2	23.8	23.7	24.3	24.8
	6H	24.1	24.6	24.6	25.1	25.6	24.0	24.5	24.5	25.0	25.5
	8H	24.5	24.9	25.0	25.4	26.0	24.3	24.7	24.8	25.2	25.8

Maximum UGR = 26.2

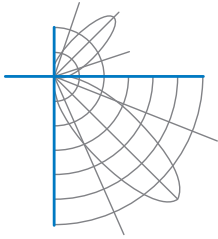


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Iso-Illuminance Plot



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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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.