

Report of Test

LLIA001254-002

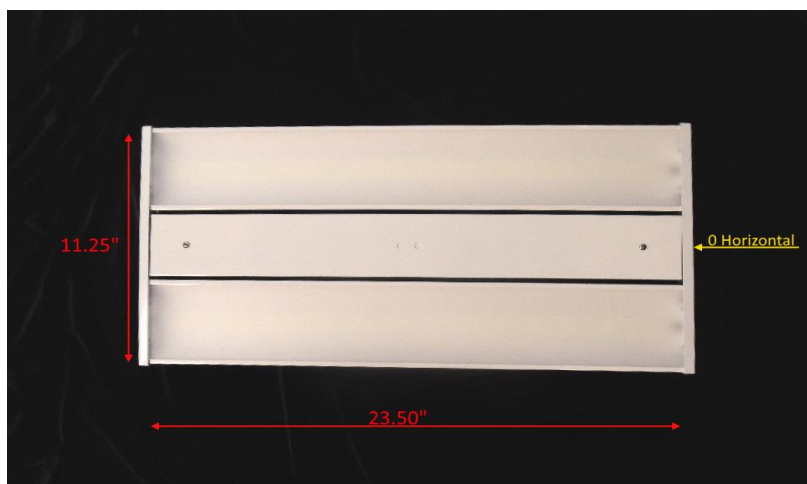
Indoor Distribution Photometry Test Report

Catalog Number: F-LHB110W/50K/F-96

Pendant mounted, formed white enamel steel housing and LED
trays, clear patterned plastic enclosures below each LED tray.

330 white LEDs, two 110W-2835-15C11B-A1 LED boards with 165 LEDs each.

One Sosen SS-100L-44B LED driver



Prepared For:

Topaz Lighting Corp

925 Waverly Avenue

Holtsville, NY 11742, USA

Performance Summary

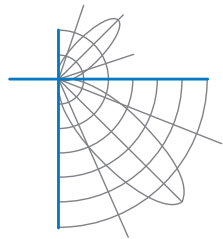
Input Voltage	120.0 V	Luminous Flux	15476.9 Lumens
Input Current	0.8830 A	Total Efficacy	147.1 Lm/W
Input Power	105.2 W	Downward Flux	15476.9 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.993		
Current THD	6.8 %		

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

Test date: 04/14/2020

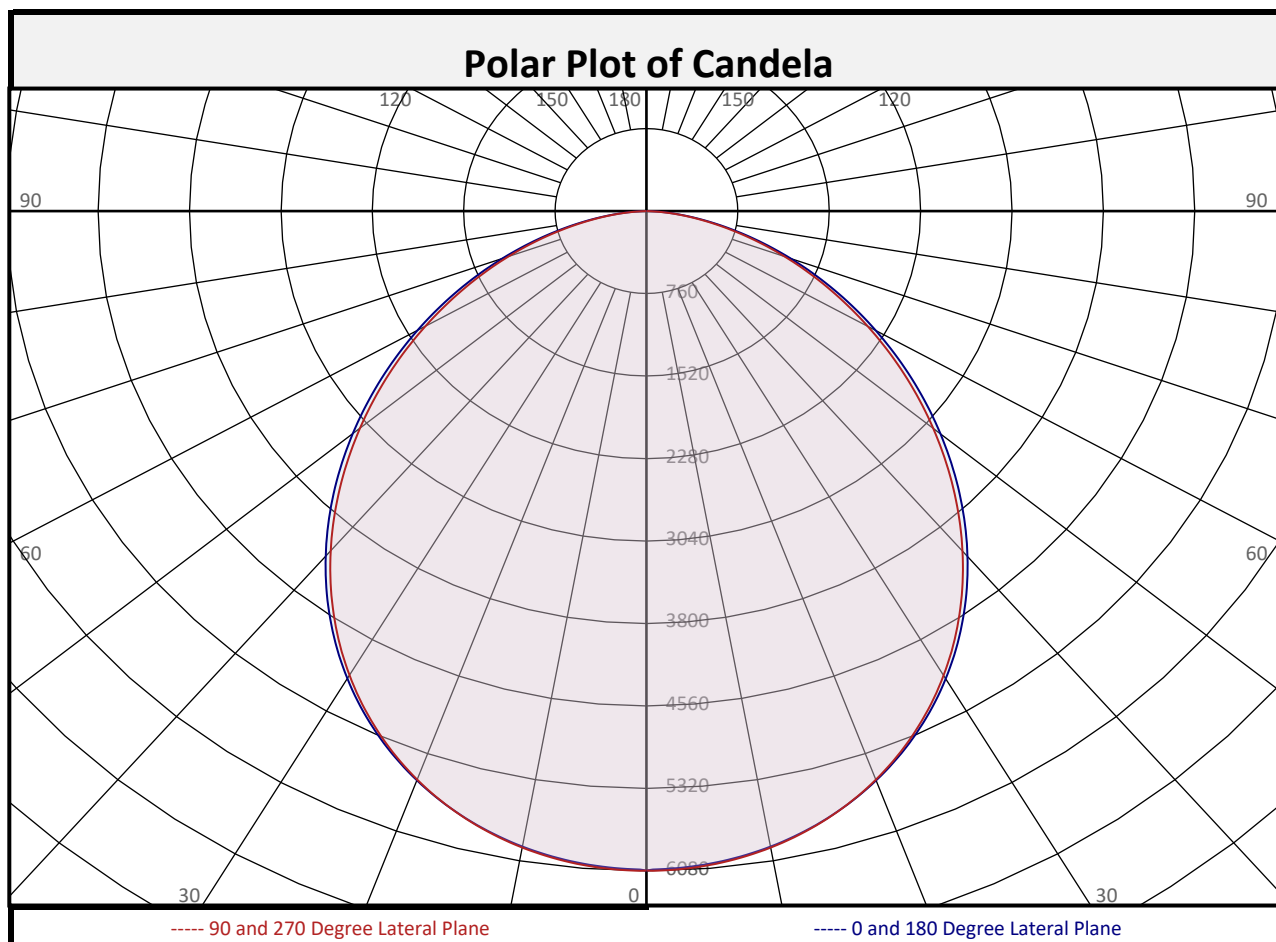
Report date: 04/15/2020

Signed: _____

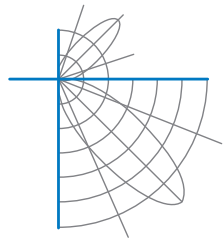


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Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	574.6	3.7%		90-100	0.0	0.0%		0-20	2210	14.3%
10-20	1635	10.6%		100-110	0.0	0.0%		0-30	4651	30.1%
20-30	2441	15.8%		110-120	0.0	0.0%		0-40	7503	48.5%
30-40	2853	18.4%		120-130	0.0	0.0%		0-60	12689	82.0%
40-50	2812	18.2%		130-140	0.0	0.0%		0-80	15262	98.6%
50-60	2374	15.3%		140-150	0.0	0.0%		10-90	14902	96.3%
60-70	1680	10.9%		150-160	0.0	0.0%		20-50	8105	52.4%
70-80	892.2	5.8%		160-170	0.0	0.0%		40-90	7973	51.5%
80-90	215.1	1.4%		170-180	0.0	0.0%		60-90	2788	18.0%
0-90	15477	100.0%		90-180	0.0	0.0%		0-180	15477	100.0%

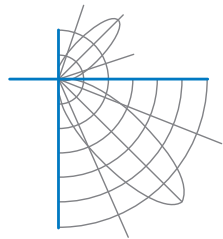


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	6077	6077	6077	6077	6077	6077	6077	6077	6077
	2.5	6061	6066	6070	6075	6073	6075	6070	6066	6061
	5	6037	6044	6047	6052	6049	6052	6047	6044	6037
	7.5	6000	6005	6008	6012	6010	6012	6008	6005	6000
	10	5947	5952	5955	5958	5956	5958	5955	5952	5947
	12.5	5878	5883	5885	5887	5885	5887	5885	5883	5878
	15	5796	5800	5801	5801	5799	5801	5801	5800	5796
	17.5	5697	5701	5699	5698	5695	5698	5699	5701	5697
	20	5583	5586	5584	5580	5576	5580	5584	5586	5583
	22.5	5454	5455	5452	5446	5441	5446	5452	5455	5454
	25	5310	5310	5305	5297	5289	5297	5305	5310	5310
	27.5	5150	5150	5143	5133	5123	5133	5143	5150	5150
	30	4975	4974	4964	4952	4940	4952	4964	4974	4975
	32.5	4788	4785	4774	4759	4746	4759	4774	4785	4788
	35	4587	4583	4569	4551	4537	4551	4569	4583	4587
	37.5	4375	4370	4354	4333	4318	4333	4354	4370	4375
	40	4151	4146	4126	4104	4087	4104	4126	4146	4151
	42.5	3919	3913	3892	3867	3850	3867	3892	3913	3919
	45	3680	3673	3651	3623	3607	3623	3651	3673	3680
	47.5	3436	3430	3405	3376	3360	3376	3405	3430	3436
	50	3189	3182	3157	3126	3112	3126	3157	3182	3189
	52.5	2940	2932	2907	2874	2862	2874	2907	2932	2940
	55	2692	2684	2658	2625	2614	2625	2658	2684	2692
	57.5	2445	2438	2412	2379	2368	2379	2412	2438	2445
	60	2201	2194	2169	2136	2126	2136	2169	2194	2201
	62.5	1960	1955	1930	1898	1888	1898	1930	1955	1960
	65	1726	1720	1697	1668	1658	1668	1697	1720	1726
	67.5	1496	1492	1471	1445	1436	1445	1471	1492	1496
	70	1274	1271	1252	1229	1221	1229	1252	1271	1274
	72.5	1060	1058	1042	1021	1012	1021	1042	1058	1060
	75	855	854	841	823	814	823	841	854	855
	77.5	664	663	653	637	629	637	653	663	664
	80	486	486	479	466	459	466	479	486	486
	82.5	327	329	322	312	306	312	322	329	327
	85	187	188	184	176	171	176	184	188	187
	87.5	71	72	66	53	49	53	66	72	71
90	1	2	2	1	0	1	2	2	1	

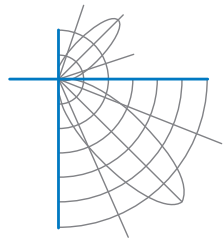


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	1	2	2	1	0	1	2	2	1
	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	0
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	109	105	101	97		107	103	99	95		98	95	92		94	92	90		91	89	87	85
2	100	92	85	80		97	90	84	79		87	81	77		83	79	75		80	77	74	72
3	91	81	73	67		89	80	72	66		77	70	65		74	69	64		71	67	63	61
4	84	72	64	57		82	71	63	57		68	61	56		66	60	55		64	59	54	52
5	77	65	56	49		75	64	55	49		61	54	49		60	53	48		58	52	48	46
6	71	58	50	43		70	57	49	43		56	48	43		54	47	42		52	47	42	40
7	66	53	44	38		65	52	44	38		51	43	38		49	43	38		48	42	38	36
8	62	49	40	34		60	48	40	34		47	39	34		45	39	34		44	38	34	32
9	58	45	37	31		56	44	36	31		43	36	31		42	35	31		41	35	31	29
10	54	41	33	28		53	41	33	28		40	33	28		39	32	28		38	32	28	26

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.

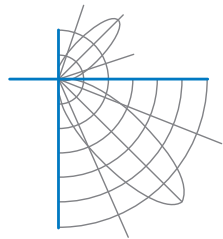
Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	168.8	7.31	7.26
8.0	95.0	9.74	9.68
10.0	60.8	12.18	12.10
12.0	42.2	14.61	14.52
14.0	31.0	17.05	16.94
16.0	23.7	19.48	19.36

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	35631	35631	35631
45	30515	30269	29908
55	27516	27173	26718
65	23939	23549	23003
75	19370	19044	18431
85	12575	12379	11490

Spacing Criterion

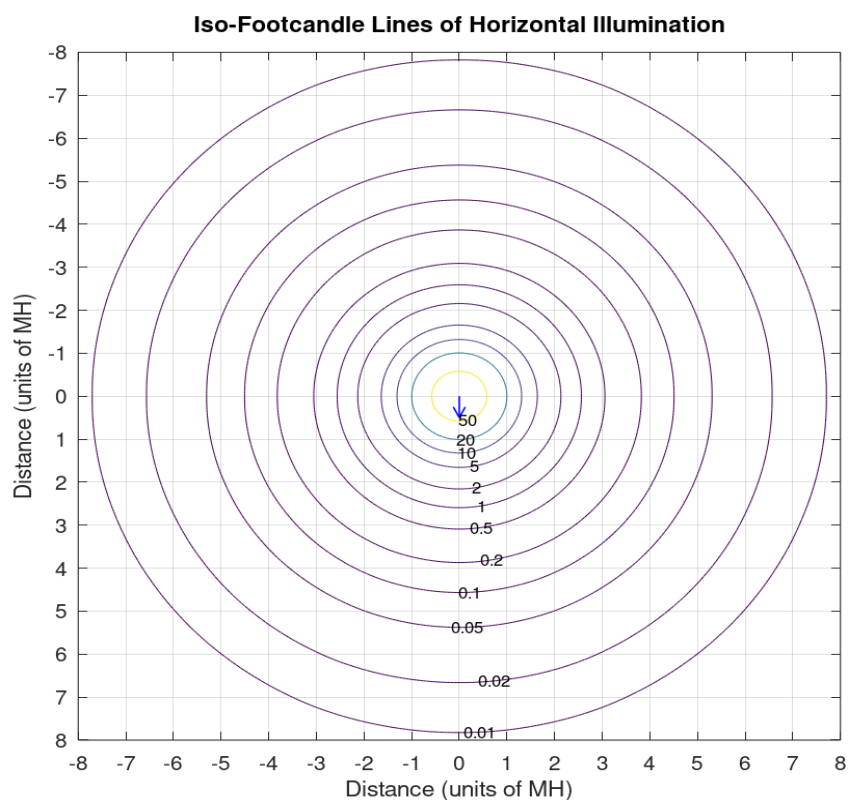
0 degree plane:	1.2
90 degree plane:	1.2
180 degree plane:	1.2
270 degree plane:	1.2



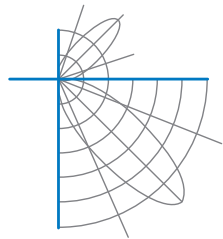
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Iso-Illuminance Plot



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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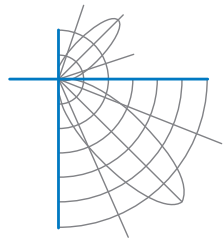
UGR TABLE - CORRECTED

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	23.4	25.0	23.8	25.3	25.6	23.2	24.8	23.6	25.1	25.5
	3H	25.0	26.5	25.4	26.8	27.2	24.8	26.3	25.2	26.6	26.9
	4H	25.6	26.9	26.0	27.3	27.7	25.4	26.7	25.8	27.1	27.4
	6H	26.0	27.2	26.4	27.6	28.0	25.7	27.0	26.1	27.3	27.7
	8H	26.1	27.3	26.5	27.7	28.1	25.8	27.0	26.3	27.4	27.8
	12H	26.2	27.3	26.6	27.7	28.1	25.9	27.0	26.3	27.4	27.8
4H	2H	24.0	25.3	24.4	25.7	26.0	23.8	25.2	24.2	25.5	25.9
	3H	25.8	26.9	26.2	27.3	27.7	25.6	26.7	26.0	27.1	27.5
	4H	26.5	27.5	26.9	27.9	28.3	26.3	27.3	26.7	27.7	28.1
	6H	27.0	27.9	27.4	28.3	28.8	26.8	27.6	27.2	28.1	28.5
	8H	27.1	28.0	27.6	28.4	28.9	26.9	27.7	27.4	28.2	28.6
	12H	27.2	28.0	27.7	28.4	28.9	27.0	27.7	27.5	28.2	28.7
8H	4H	26.7	27.5	27.2	28.0	28.5	26.5	27.4	27.0	27.8	28.3
	6H	27.3	28.0	27.8	28.5	29.0	27.1	27.8	27.6	28.3	28.8
	8H	27.5	28.1	28.0	28.7	29.1	27.3	27.9	27.8	28.4	28.9
	12H	27.7	28.2	28.2	28.7	29.3	27.5	28.0	28.0	28.5	29.1
12H	4H	26.7	27.5	27.2	28.0	28.4	26.6	27.3	27.0	27.8	28.2
	6H	27.4	28.0	27.9	28.4	29.0	27.2	27.8	27.7	28.3	28.8
	8H	27.6	28.2	28.1	28.6	29.2	27.4	27.9	27.9	28.4	29.0

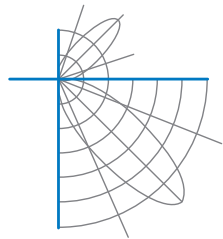
Maximum UGR = 29.3



Report of Test LLIA001254-002

Additional Pictures of Test Subject





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Test Distance 9.5 m
Ambient Temperature 24.9 °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 publications: IES LM-79-19 and ANSI C82.77-10:2014. Format of reports and angular increments based on IES LM-41-14 and LM-46-04.

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.