

Report of Test

LLIA001254-004

Indoor Distribution Photometry Test Report

Catalog Number: F-LHB220W/50K/F-96

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

660 white LEDs, two 220W-2835-15C22B-A2 LED boards with 330 LEDs each.

Two Sosen SS-100L-44B LED drivers



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

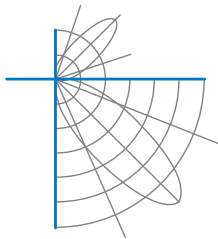
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	30771.7 Lumens
Input Current	1.772 A	Total Efficacy	145.1 Lm/W
Input Power	212.0 W	Downward Flux	30771.7 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.996		
Current THD	6.0 %		

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

Test date: 07/06/2020

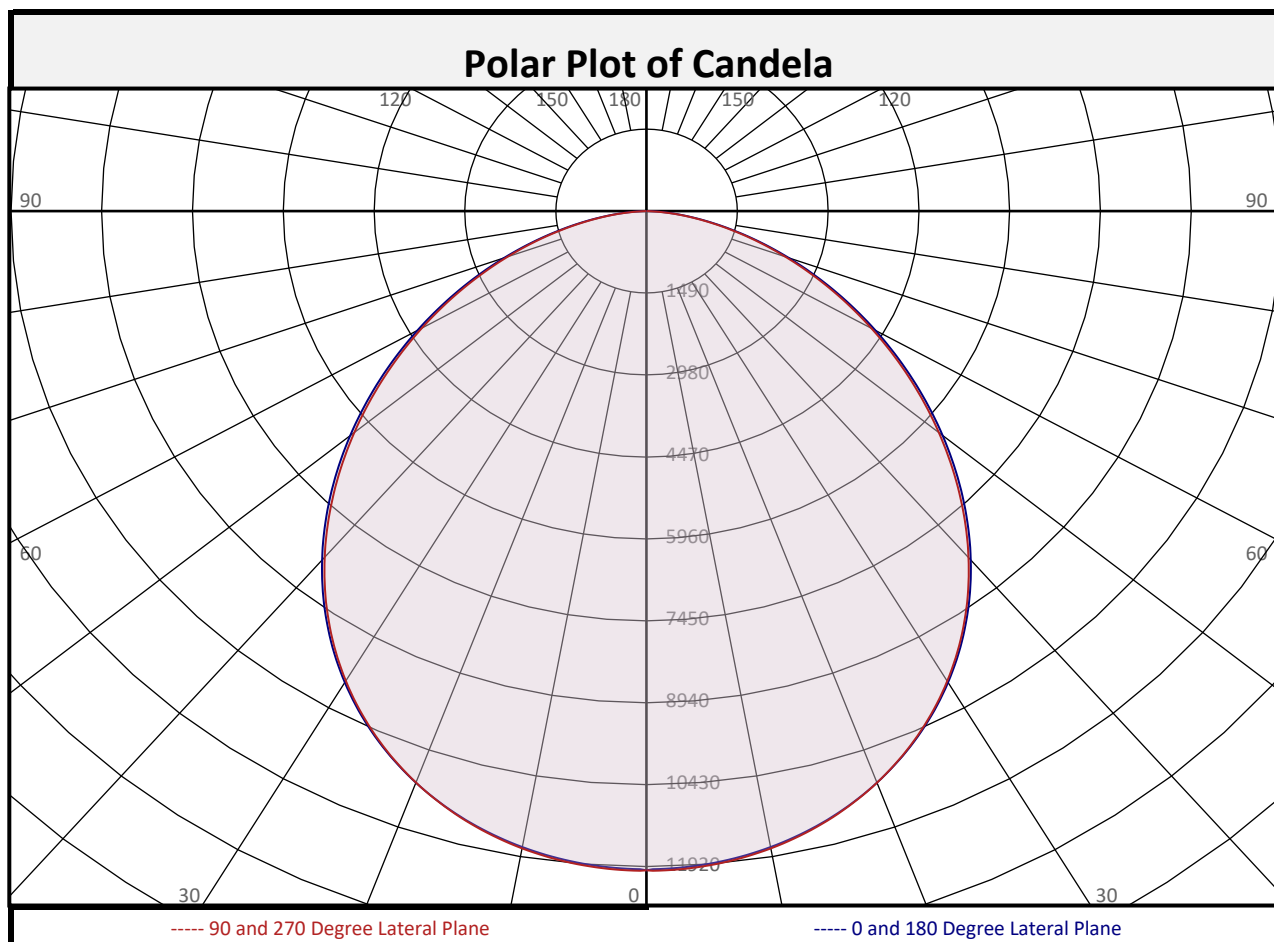
Report date: 07/10/2020

Signed: _____



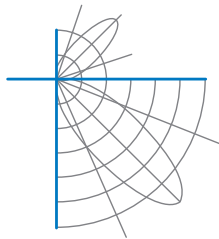
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Zonal Flux Summary

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	1134	3.7%	90-100	0.0	0.0%	0-20	4370	14.2%
10-20	3236	10.5%	100-110	0.0	0.0%	0-30	9222	30.0%
20-30	4852	15.8%	110-120	0.0	0.0%	0-40	14921	48.5%
30-40	5700	18.5%	120-130	0.0	0.0%	0-60	25289	82.2%
40-50	5630	18.3%	130-140	0.0	0.0%	0-80	30358	98.7%
50-60	4737	15.4%	140-150	0.0	0.0%	10-90	29637	96.3%
60-70	3323	10.8%	150-160	0.0	0.0%	20-50	16182	52.6%
70-80	1746	5.7%	160-170	0.0	0.0%	40-90	15850	51.5%
80-90	413.6	1.3%	170-180	0.0	0.0%	60-90	5483	17.8%
0-90	30772	100.0%	90-180	0.0	0.0%	0-180	30772	100.0%

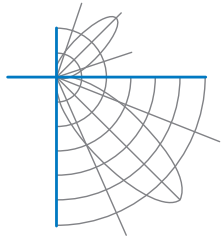


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	11989	11989	11989	11989	11989	11989	11989	11989	11989
	2.5	11956	11970	11976	11982	11984	11982	11976	11970	11956
	5	11914	11927	11933	11938	11942	11938	11933	11927	11914
	7.5	11843	11857	11862	11866	11870	11866	11862	11857	11843
	10	11744	11758	11762	11766	11768	11766	11762	11758	11744
	12.5	11618	11630	11634	11636	11636	11636	11634	11630	11618
	15	11463	11474	11476	11476	11476	11476	11476	11474	11463
	17.5	11277	11286	11288	11285	11283	11285	11288	11286	11277
	20	11063	11070	11070	11065	11061	11065	11070	11070	11063
	22.5	10817	10824	10821	10813	10808	10813	10821	10824	10817
	25	10543	10547	10542	10532	10526	10532	10542	10547	10543
	27.5	10238	10240	10233	10222	10213	10222	10233	10240	10238
	30	9901	9901	9892	9878	9869	9878	9892	9901	9901
	32.5	9538	9536	9524	9507	9498	9507	9524	9536	9538
	35	9144	9141	9127	9107	9096	9107	9127	9141	9144
	37.5	8728	8723	8706	8683	8671	8683	8706	8723	8728
	40	8283	8278	8258	8234	8219	8234	8258	8278	8283
	42.5	7821	7814	7792	7766	7749	7766	7792	7814	7821
	45	7341	7334	7310	7282	7262	7282	7310	7334	7341
	47.5	6849	6841	6816	6786	6765	6786	6816	6841	6849
	50	6347	6341	6314	6282	6261	6282	6314	6341	6347
	52.5	5841	5833	5806	5772	5754	5772	5806	5833	5841
	55	5338	5329	5301	5266	5250	5266	5301	5329	5338
	57.5	4837	4829	4802	4766	4752	4766	4802	4829	4837
	60	4343	4336	4309	4273	4261	4273	4309	4336	4343
	62.5	3857	3849	3823	3788	3779	3788	3823	3849	3857
	65	3385	3379	3354	3321	3312	3321	3354	3379	3385
	67.5	2925	2922	2898	2868	2858	2868	2898	2922	2925
	70	2484	2482	2459	2433	2423	2433	2459	2482	2484
	72.5	2059	2060	2040	2016	2007	2016	2040	2060	2059
75	1657	1658	1641	1621	1611	1621	1641	1658	1657	
77.5	1283	1283	1270	1251	1241	1251	1270	1283	1283	
80	938	940	929	913	902	913	929	940	938	
82.5	630	633	624	609	598	609	624	633	630	
85	360	364	354	333	318	333	354	364	360	
87.5	142	142	114	91	83	91	114	142	142	
90	1	2	2	2	1	2	2	2	1	

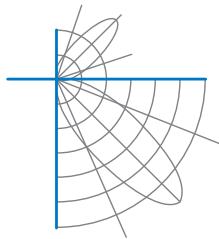


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	1	2	2	2	1	2	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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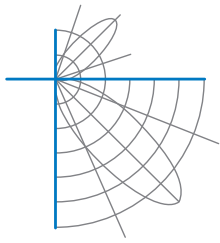
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	109	105	101	97		107	103	99	96		98	95	93		94	92	90		91	89	87	85
2	100	92	85	80		97	90	84	79		87	82	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	55	52
5	77	65	56	50		75	64	55	49		62	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	
10.0	119.9	12.27	12.23	
14.0	61.2	17.18	17.13	
18.0	37.0	22.09	22.02	
22.0	24.8	27.00	26.91	
26.0	17.7	31.91	31.81	
30.0	13.3	36.82	36.70	

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	58576	58576	58576
45	50720	50511	50177
55	45469	45158	44723
65	39135	38773	38288
75	31289	30985	30405
85	20204	19852	17850

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



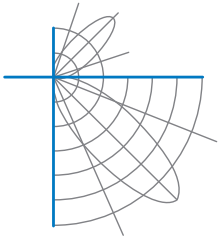
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UGR TABLE - CORRECTED

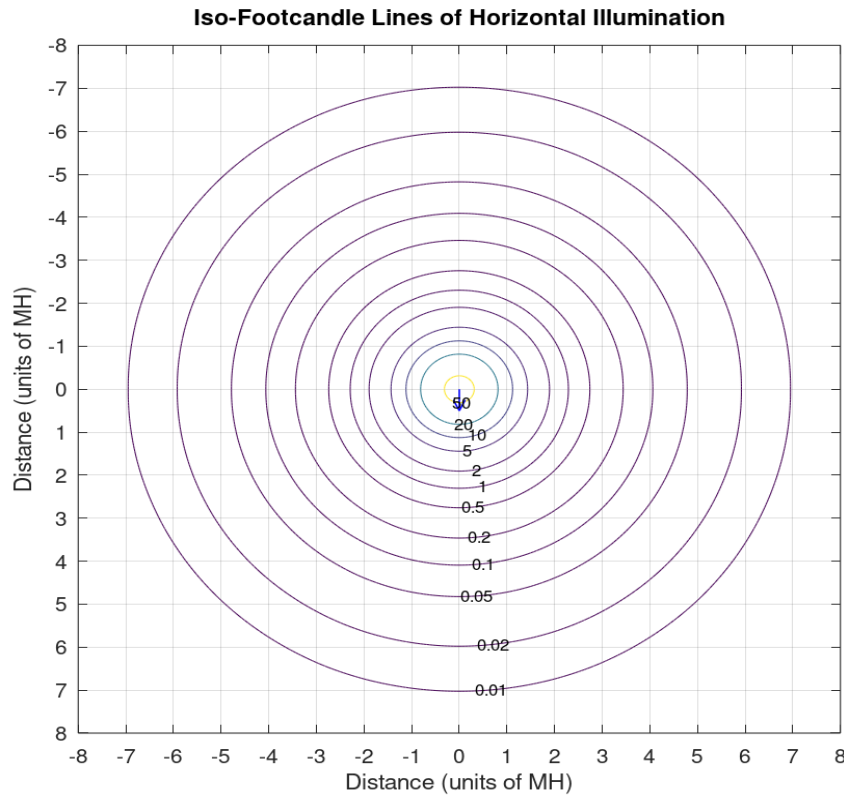
Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size	UGR Viewed Crosswise					UGR Viewed Endwise					
X=2H	Y=2H	25.2	26.8	25.5	27.1	27.4	25.1	26.7	25.4	27.0	27.3
	3H	26.7	28.2	27.1	28.5	28.9	26.6	28.1	27.0	28.4	28.7
	4H	27.3	28.6	27.7	29.0	29.3	27.1	28.5	27.5	28.8	29.2
	6H	27.6	28.9	28.1	29.3	29.7	27.5	28.8	27.9	29.1	29.5
	8H	27.8	28.9	28.2	29.3	29.7	27.6	28.8	28.0	29.2	29.6
	12H	27.8	29.0	28.3	29.3	29.8	27.7	28.8	28.1	29.2	29.6
4H	2H	25.7	27.1	26.1	27.4	27.8	25.6	27.0	26.0	27.3	27.7
	3H	27.5	28.6	27.9	29.0	29.4	27.4	28.5	27.8	28.9	29.3
	4H	28.2	29.2	28.6	29.6	30.0	28.0	29.1	28.5	29.5	29.9
	6H	28.6	29.5	29.1	30.0	30.4	28.5	29.4	29.0	29.8	30.3
	8H	28.8	29.6	29.2	30.1	30.5	28.6	29.5	29.1	29.9	30.4
	12H	28.9	29.6	29.4	30.1	30.6	28.7	29.5	29.2	29.9	30.4
8H	4H	28.4	29.2	28.9	29.7	30.1	28.3	29.1	28.7	29.6	30.0
	6H	29.0	29.7	29.5	30.2	30.6	28.9	29.6	29.4	30.0	30.5
	8H	29.2	29.8	29.7	30.3	30.8	29.0	29.7	29.6	30.2	30.7
	12H	29.3	29.9	29.8	30.4	30.9	29.2	29.7	29.7	30.2	30.8
12H	4H	28.4	29.2	28.9	29.6	30.1	28.3	29.1	28.8	29.5	30.0
	6H	29.0	29.6	29.5	30.1	30.6	28.9	29.5	29.4	30.0	30.5
	8H	29.3	29.8	29.8	30.3	30.9	29.1	29.7	29.7	30.2	30.7

Maximum UGR = 30.9

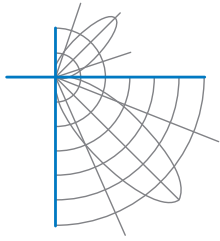


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Iso-Illuminance Plot

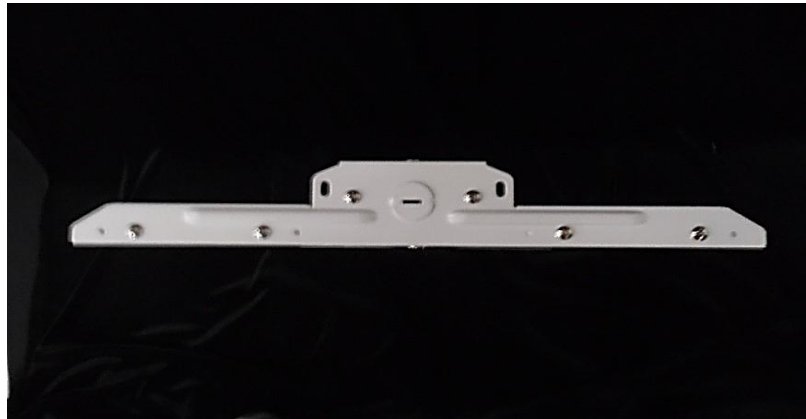


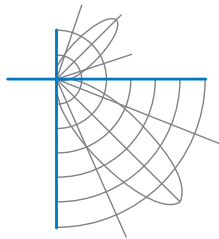
The isofootcandle values shown in the plot above are based on a mounting height of $h = 14.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.



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Additional Pictures of Test Subject





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Test Distance 9.5 m
Ambient Temperature 25.6 °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-41-14 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.