

## Report of Test

LLIA001928-004

Indoor Distribution Photometry Test Report

Catalog Number: PL24-40WPCTS-D - 30W/4000K setting  
Recessed mounted, formed white painted steel housing/reflector,  
white painted aluminum frame, diffuse white plastic enclosure.  
180 white LEDs on six white circuit boards with optic below each LED  
One Fosen FS-TMG017-V01 LED driver, set for 30W and 4000K



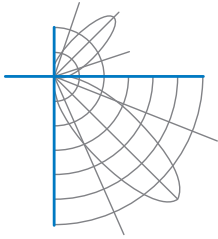
Prepared For:  
Topaz Lighting, A Southwire Company  
925 Waverly Avenue  
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	4315.2 Lumens
Input Current	0.2395 A	Total Efficacy	151.5 Lm/W
Input Power	28.48 W	Downward Flux	4315.2 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.991		
Current THD	8.3 %		

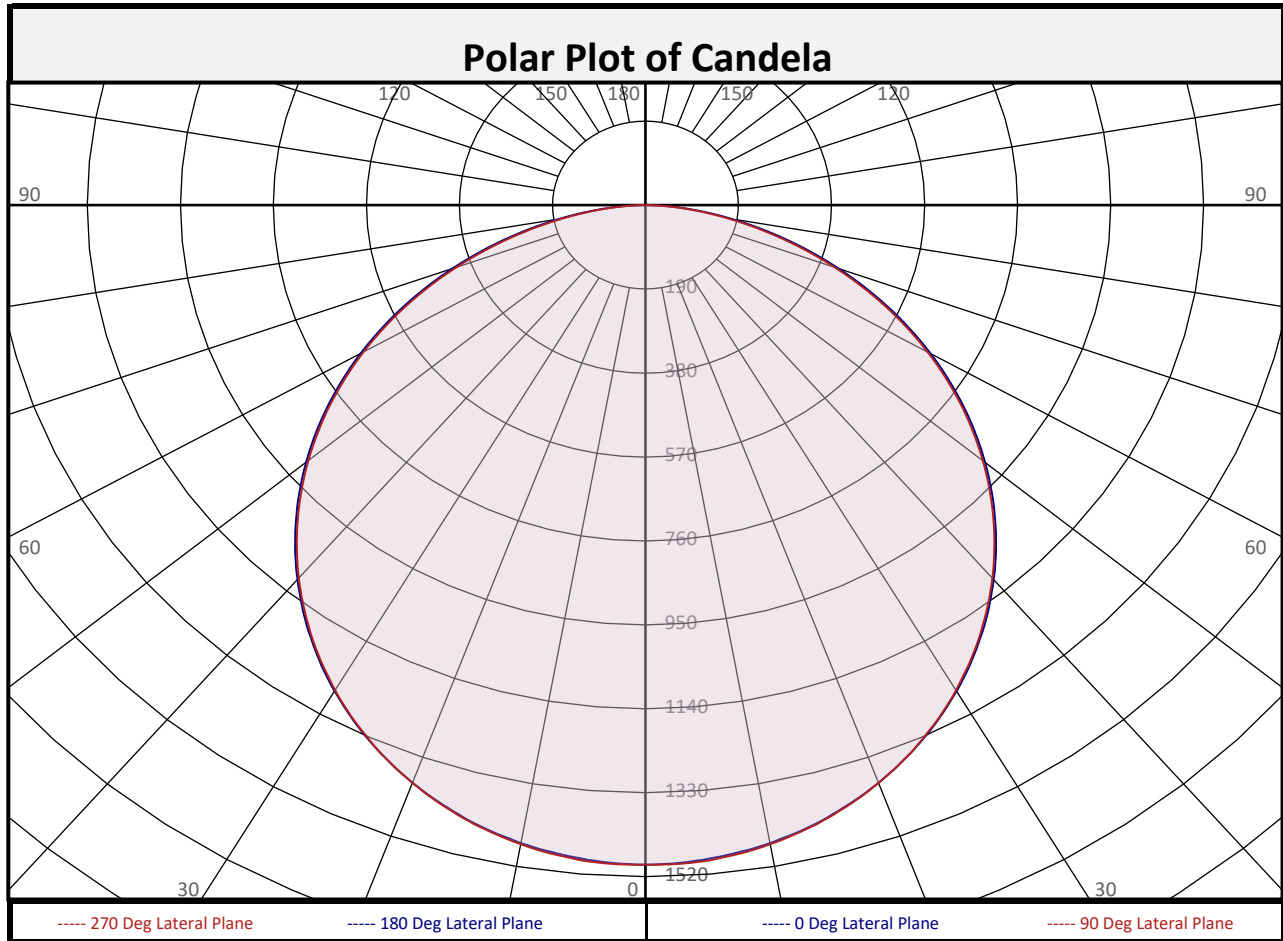
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 11/23/2022  
Report date: 11/28/2022

Signed: \_\_\_\_\_

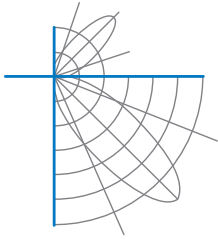


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### Zonal Flux Summary

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	141.3	3.3%	90-100	0.0	0.0%	0-20	546.4	12.7%
10-20	405.1	9.4%	100-110	0.0	0.0%	0-30	1162	26.9%
20-30	615.5	14.3%	110-120	0.0	0.0%	0-40	1907	44.2%
30-40	745.1	17.3%	120-130	0.0	0.0%	0-60	3388	78.5%
40-50	776.7	18.0%	130-140	0.0	0.0%	0-80	4232	98.1%
50-60	704.5	16.3%	140-150	0.0	0.0%	10-90	4174	96.7%
60-70	537.0	12.4%	150-160	0.0	0.0%	20-50	2137	49.5%
70-80	306.5	7.1%	160-170	0.0	0.0%	40-90	2408	55.8%
80-90	83.3	1.9%	170-180	0.0	0.0%	60-90	926.9	21.5%
0-90	4315	100.0%	90-180	0.0	0.0%	0-180	4315	100.0%



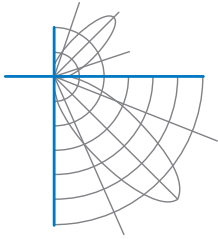
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Luminous Intensity (Candela) Table

		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	1493	1493	1493	1493	1493	1493	1493	1493	1493
	2.5	1491	1491	1491	1492	1493	1492	1491	1491	1491
	5	1485	1485	1486	1488	1489	1488	1486	1485	1485
	7.5	1476	1477	1478	1480	1480	1480	1478	1477	1476
	10	1466	1466	1467	1468	1468	1468	1467	1466	1466
	12.5	1452	1452	1452	1454	1454	1454	1452	1452	1452
	15	1435	1434	1435	1436	1437	1436	1435	1434	1435
	17.5	1414	1414	1414	1415	1416	1415	1414	1414	1414
	20	1391	1391	1391	1391	1392	1391	1391	1391	1391
	22.5	1365	1365	1365	1365	1365	1365	1365	1365	1365
	25	1337	1336	1335	1335	1335	1335	1335	1336	1337
	27.5	1305	1304	1303	1303	1303	1303	1303	1304	1305
	30	1270	1269	1268	1268	1268	1268	1268	1269	1270
	32.5	1234	1232	1231	1230	1230	1230	1231	1232	1234
	35	1193	1193	1191	1190	1190	1190	1191	1193	1193
	37.5	1151	1150	1149	1147	1147	1147	1149	1150	1151
	40	1106	1106	1104	1102	1102	1102	1104	1106	1106
	42.5	1060	1058	1057	1055	1054	1055	1057	1058	1060
	45	1010	1010	1008	1005	1004	1005	1008	1010	1010
	47.5	959	958	956	954	953	954	956	958	959
50	905	905	902	900	899	900	902	905	905	
52.5	850	848	846	844	843	844	846	848	850	
55	792	791	789	786	786	786	789	791	792	
57.5	733	732	729	727	726	727	729	732	733	
60	673	672	669	666	665	666	669	672	673	
62.5	610	609	606	604	602	604	606	609	610	
65	547	546	543	540	539	540	543	546	547	
67.5	484	482	479	476	475	476	479	482	484	
70	420	419	415	412	411	412	415	419	420	
72.5	356	355	351	348	347	348	351	355	356	
75	294	293	289	286	284	286	289	293	294	
77.5	234	233	229	226	224	226	229	233	234	
80	177	176	173	169	167	169	173	176	177	
82.5	124	123	120	117	115	117	120	123	124	
85	75	74	72	70	69	70	72	74	75	
87.5	31	31	30	30	29	30	30	31	31	
90	0	0	0	0	0	0	0	0	0	

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



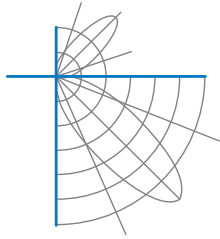
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Luminous Intensity (Candela) Table

		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 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	

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	0
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	109	104	99	96		106	102	98	94		97	94	91		93	91	88		90	88	86	83
2	99	90	83	78		96	88	82	77		85	79	75		82	77	73		79	75	72	69
3	90	79	71	64		87	78	70	64		75	68	63		72	66	62		69	65	60	58
4	82	70	61	54		80	69	60	54		66	59	53		64	58	53		62	56	52	50
5	76	63	53	47		73	61	53	46		59	52	46		57	51	45		55	50	45	43
6	70	56	47	41		68	55	47	41		53	46	40		52	45	40		50	44	39	37
7	65	51	42	36		63	50	42	36		49	41	36		47	40	35		46	40	35	33
8	60	46	38	32		59	46	38	32		44	37	32		43	36	31		42	36	31	29
9	56	43	34	29		55	42	34	29		41	34	29		40	33	28		39	33	28	26
10	53	39	31	26		51	39	31	26		38	31	26		37	30	26		36	30	26	24

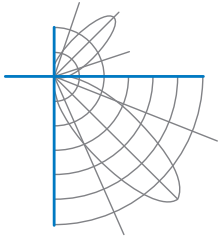
For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are 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	41.5	7.59	7.57	
8.0	23.3	10.12	10.10	
10.0	14.9	12.65	12.62	
12.0	10.4	15.18	15.14	
14.0	7.6	17.71	17.67	
16.0	5.8	20.24	20.19	

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

Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	2325	2325	2325
45	2225	2220	2213
55	2152	2142	2134
65	2018	2002	1988
75	1770	1740	1708
85	1332	1293	1235

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	113.9°
Field Angle:	162.6°
90-270 Degree Plane	
Beam Angle:	113.3°
Field Angle:	161.7°



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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

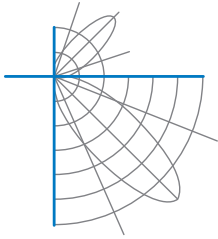
##### Room Size

##### UGR Viewed Crosswise

##### UGR Viewed Endwise

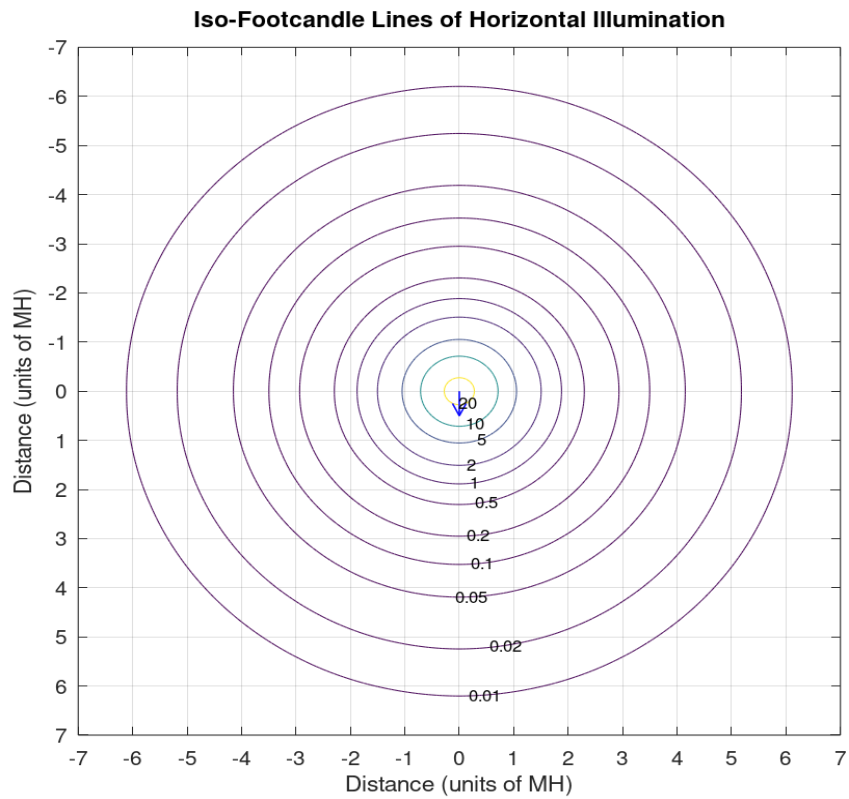
X=2H	Y=2H	14.9	16.5	15.2	16.8	17.2	14.8	16.5	15.2	16.8	17.1
	3H	16.7	18.2	17.1	18.5	18.9	16.6	18.1	17.0	18.4	18.8
	4H	17.4	18.8	17.8	19.1	19.5	17.3	18.7	17.7	19.0	19.4
	6H	17.9	19.2	18.3	19.6	19.9	17.7	19.1	18.2	19.4	19.8
	8H	18.0	19.3	18.5	19.7	20.1	17.9	19.1	18.3	19.5	19.9
	12H	18.2	19.3	18.6	19.7	20.2	18.0	19.2	18.4	19.6	20.0
4H	2H	15.5	16.9	15.9	17.3	17.6	15.5	16.9	15.9	17.2	17.6
	3H	17.6	18.7	18.0	19.1	19.5	17.5	18.7	17.9	19.1	19.5
	4H	18.4	19.4	18.8	19.8	20.3	18.3	19.3	18.7	19.8	20.2
	6H	19.0	19.9	19.5	20.4	20.8	18.9	19.8	19.3	20.2	20.7
	8H	19.2	20.1	19.7	20.5	21.0	19.1	19.9	19.5	20.4	20.8
	12H	19.4	20.1	19.8	20.6	21.1	19.2	20.0	19.7	20.5	20.9
8H	4H	18.7	19.5	19.1	20.0	20.5	18.6	19.5	19.0	19.9	20.4
	6H	19.4	20.2	19.9	20.6	21.1	19.3	20.0	19.8	20.5	21.0
	8H	19.7	20.4	20.2	20.9	21.3	19.5	20.2	20.1	20.7	21.2
	12H	19.9	20.5	20.4	21.0	21.6	19.8	20.3	20.3	20.8	21.4
12H	4H	18.7	19.5	19.2	20.0	20.4	18.6	19.4	19.1	19.9	20.4
	6H	19.5	20.1	20.0	20.6	21.1	19.4	20.0	19.9	20.5	21.0
	8H	19.8	20.4	20.3	20.9	21.4	19.7	20.3	20.2	20.7	21.3

Maximum UGR = 21.6

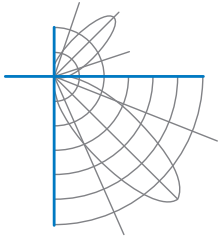


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**Iso-Illuminance Plot**



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.