LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-014

Indoor Distribution Photometry Test Report

Catalog Number: LSA4P-50PCS-WH 40W Setting 4000K - 90/10%
Pendant mounted, extruded aluminum housing, formed white reflectors, translucent white plastic enclosure.
360 white LEDs, 180 CW LEDs and 180 WW LEDs in direct section, 40 white LEDs, 20CW and 20WW and 110 unenergized LEDsin indirect section. One FS-TMG050B1050TC-12V LED driver

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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	5392.3	Lumens
Input Current	0.3128	A	Total Efficacy	144.6	Lm/W
Input Power	37.29	W	Downward Flux	4663.1	Lumens
Frequency	60.00	Hz	Downward Flux	86.5	% of Total
Power Factor	0.994				
Current THD	6.3	%			

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

Test date: 09/11/2024
Report date: 09/18/2024

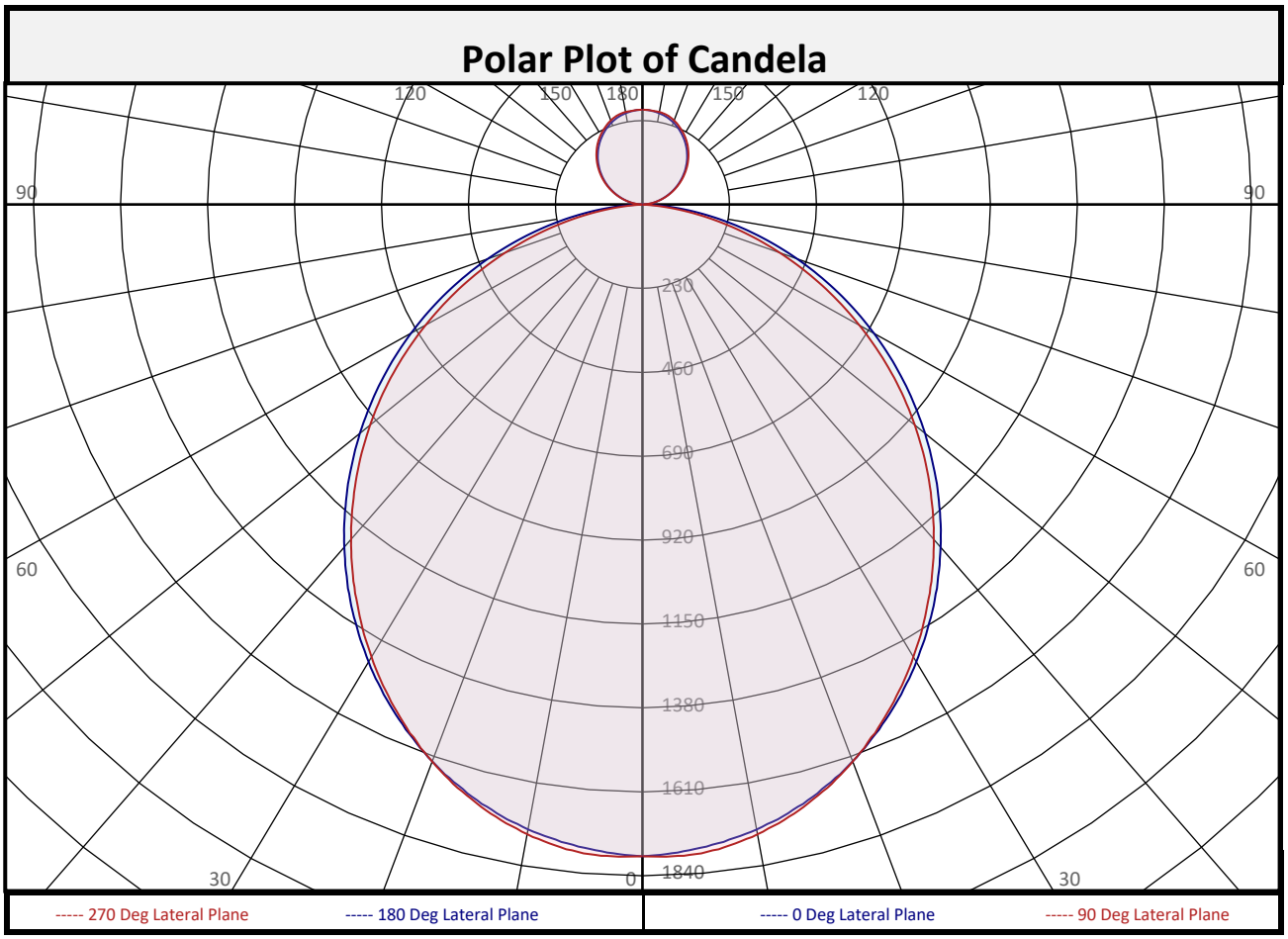
Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.18 16:19:39 -04'00'

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

Report of Test

LLIA002469-014



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	168.6	3.1%	90-100	12.2	0.2%	0-20	645.7	12.0%
10-20	477.0	8.8%	100-110	51.4	1.0%	0-30	1353	25.1%
20-30	707.6	13.1%	110-120	88.6	1.6%	0-40	2184	40.5%
30-40	830.4	15.4%	120-130	116.7	2.2%	0-60	3756	69.7%
40-50	837.2	15.5%	130-140	130.7	2.4%	0-80	4597	85.2%
50-60	735.2	13.6%	140-150	127.5	2.4%	10-90	4494	83.3%
60-70	542.9	10.1%	150-160	106.8	2.0%	20-50	2375	44.0%
70-80	297.7	5.5%	160-170	70.8	1.3%	40-90	2479	46.0%
80-90	66.4	1.2%	170-180	24.6	0.5%	60-90	907.0	16.8%
0-90	4663	86.5%	90-180	729.2	13.5%	0-180	5392	100.0%

Report of Test

LLIA002469-014

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
	0	22.5	45	67.5	90	112.5	135	157.5	180
0	1787	1787	1787	1787	1787	1787	1787	1787	1787
2.5	1780	1781	1783	1787	1789	1787	1783	1781	1780
5	1770	1769	1775	1781	1786	1781	1775	1769	1770
7.5	1756	1757	1762	1767	1772	1767	1762	1757	1756
10	1740	1740	1744	1748	1753	1748	1744	1740	1740
12.5	1718	1717	1720	1724	1729	1724	1720	1717	1718
15	1691	1690	1692	1695	1698	1695	1692	1690	1691
17.5	1660	1659	1658	1659	1665	1659	1658	1659	1660
20	1625	1622	1622	1620	1625	1620	1622	1622	1625
22.5	1585	1583	1581	1578	1581	1578	1581	1583	1585
25	1543	1540	1536	1532	1535	1532	1536	1540	1543
27.5	1497	1493	1488	1484	1486	1484	1488	1493	1497
30	1448	1443	1436	1430	1433	1430	1436	1443	1448
32.5	1397	1392	1383	1376	1378	1376	1383	1392	1397
35	1343	1337	1328	1318	1319	1318	1328	1337	1343
37.5	1285	1279	1269	1259	1260	1259	1269	1279	1285
40	1227	1220	1209	1198	1199	1198	1209	1220	1227
42.5	1166	1160	1148	1136	1136	1136	1148	1160	1166
45	1104	1098	1085	1072	1072	1072	1085	1098	1104
47.5	1039	1034	1021	1007	1007	1007	1021	1034	1039
50	976	970	956	941	940	941	956	970	976
52.5	909	904	890	874	873	874	890	904	909
55	843	838	823	807	803	807	823	838	843
57.5	776	771	756	739	733	739	756	771	776
60	708	704	688	669	663	669	688	704	708
62.5	639	635	619	599	594	599	619	635	639
65	571	568	550	530	524	530	550	568	571
67.5	503	500	480	461	455	461	480	500	503
70	436	432	412	394	388	394	412	432	436
72.5	369	365	345	327	322	327	345	365	369
75	305	300	280	263	257	263	280	300	305
77.5	242	236	217	201	196	201	217	236	242
80	182	175	157	143	138	143	157	175	182
82.5	127	118	101	89	84	89	101	118	127
85	75	65	50	41	38	41	50	65	75
87.5	29	19	9	5	4	5	9	19	29
90	0	0	0	0	0	0	0	0	0

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

Report of Test

LLIA002469-014

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	0	0	0	0	0	0	0	0	0
	92.5	5	3	2	2	3	2	2	3	5
	95	12	13	7	4	4	4	7	13	12
	97.5	20	21	21	17	14	17	21	21	20
	100	29	30	30	29	29	29	30	30	29
	102.5	38	39	39	39	39	39	39	39	38
	105	47	49	49	49	49	49	49	49	47
	107.5	57	59	59	59	59	59	59	59	57
	110	67	69	69	69	69	69	69	69	67
	112.5	77	79	80	80	80	80	80	79	77
	115	87	89	90	90	90	90	90	89	87
	117.5	97	100	100	100	101	100	100	100	97
	120	108	110	111	111	111	111	111	110	108
	122.5	118	120	121	121	121	121	121	120	118
	125	128	130	131	131	131	131	131	130	128
	127.5	137	140	141	142	141	142	141	140	137
	130	147	150	151	152	152	152	151	150	147
	132.5	156	159	161	161	161	161	161	159	156
	135	166	169	170	171	171	171	170	169	166
	137.5	175	178	179	180	180	180	179	178	175
	140	183	186	188	189	189	189	188	186	183
	142.5	192	195	197	198	198	198	197	195	192
	145	200	203	205	206	206	206	205	203	200
	147.5	208	210	212	213	214	213	212	210	208
	150	215	217	220	221	221	221	220	217	215
	152.5	222	223	227	227	227	227	227	223	222
	155	228	229	233	234	234	234	233	229	228
	157.5	234	235	239	240	240	240	239	235	234
	160	239	240	244	245	245	245	244	240	239
	162.5	244	244	248	250	250	250	248	244	244
	165	248	248	252	254	254	254	252	248	248
	167.5	252	251	254	256	256	256	254	251	252
	170	254	254	256	258	258	258	256	254	254
	172.5	257	256	258	259	258	259	258	256	257
	175	258	258	259	260	259	260	259	258	258
	177.5	260	259	260	260	260	260	260	259	260
	180	260	260	260	260	260	260	260	260	260

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

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-014

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	116	116	116	116		112	112	112	112		104	104	104		96	96	96		90	90	90	86
1	106	102	97	94		102	98	94	91		91	88	86		85	83	81		79	78	76	73
2	97	89	82	77		93	86	80	75		80	75	71		75	71	67		70	67	64	61
3	88	78	70	64		85	75	68	63		71	65	60		66	61	57		62	58	54	52
4	81	69	61	54		77	67	59	53		63	56	51		59	53	49		55	51	47	44
5	74	62	53	47		71	60	52	46		56	50	44		53	47	43		50	45	41	38
6	69	56	47	41		66	54	46	40		51	44	39		48	42	37		45	40	36	34
7	64	51	42	36		61	49	41	36		46	39	34		44	38	33		41	36	32	30
8	59	46	38	32		57	45	37	32		42	36	31		40	34	30		38	33	29	27
9	55	42	34	29		53	41	34	29		39	32	28		37	31	27		35	30	26	24
10	52	39	31	26		50	38	31	26		36	30	25		34	29	24		33	27	24	22

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	49.6	7.25	7.18
8.0	27.9	9.66	9.57
10.0	17.9	12.08	11.96
12.0	12.4	14.49	14.35
14.0	9.1	16.91	16.74
16.0	7.0	19.32	19.13

Spacing Criterion

0 deg:	1.2
90 deg:	1.2
180 deg:	1.2
270 deg:	1.2

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	33147	33147	33147
45	28959	28469	28126
55	27249	26625	25974
65	25077	24120	23002
75	21831	20048	18420
85	15976	10694	8023

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 106.1°

Field Angle: 160.3°

90-270 Degree Plane

Beam Angle: 103.4°

Field Angle: 156.4°

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

Report of Test

LLIA002469-014

UGR Table - Corrected

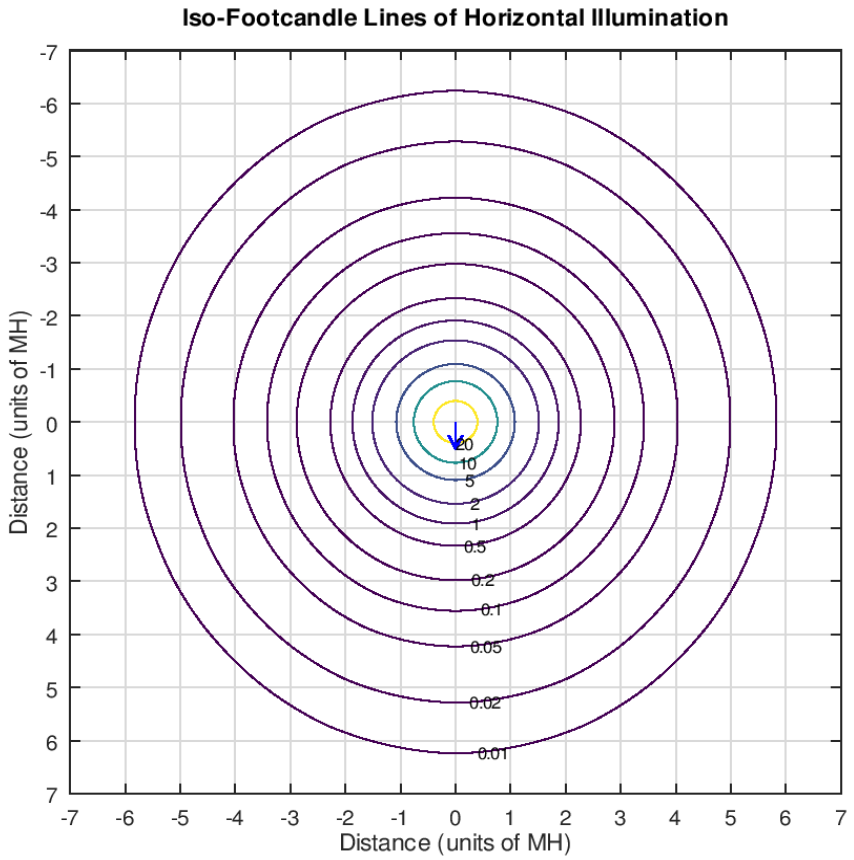
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	22.7	24.0	23.3	24.6	25.2	22.4	23.7	22.9	24.3	24.9
	3H	24.4	25.6	25.0	26.2	26.9	24.0	25.2	24.6	25.8	26.4
	4H	25.1	26.2	25.7	26.8	27.5	24.5	25.7	25.1	26.3	26.9
	6H	25.6	26.6	26.2	27.2	27.9	24.9	25.9	25.5	26.5	27.2
	8H	25.7	26.7	26.3	27.3	28.0	24.9	25.9	25.6	26.6	27.3
	12H	25.8	26.7	26.4	27.4	28.1	25.0	25.9	25.6	26.5	27.3
4H	2H	23.2	24.3	23.8	24.9	25.6	23.0	24.1	23.6	24.7	25.4
	3H	25.2	26.1	25.8	26.8	27.5	24.8	25.7	25.4	26.4	27.1
	4H	26.0	26.8	26.6	27.5	28.2	25.5	26.3	26.1	27.0	27.7
	6H	26.6	27.3	27.2	28.0	28.7	25.9	26.6	26.6	27.3	28.1
	8H	26.8	27.4	27.4	28.1	28.9	26.0	26.7	26.7	27.4	28.1
	12H	26.9	27.5	27.6	28.2	29.0	26.1	26.7	26.7	27.4	28.1
8H	4H	26.2	26.9	26.9	27.6	28.3	25.7	26.4	26.4	27.1	27.9
	6H	26.9	27.5	27.6	28.2	29.0	26.3	26.9	27.0	27.6	28.3
	8H	27.2	27.7	27.9	28.4	29.2	26.4	27.0	27.2	27.7	28.5
	12H	27.4	27.8	28.1	28.5	29.4	26.5	27.0	27.2	27.7	28.5
12H	4H	26.2	26.8	26.9	27.5	28.3	25.8	26.4	26.5	27.1	27.9
	6H	26.9	27.4	27.7	28.1	29.0	26.3	26.9	27.1	27.5	28.4
	8H	27.2	27.7	28.0	28.4	29.2	26.5	27.0	27.3	27.7	28.5

Maximum UGR = 29.4

Report of Test

LLIA002469-014

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.

Report of Test

LLIA002469-014

Test Distance	9.5 m
Ambient Temperature	25.0 °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.