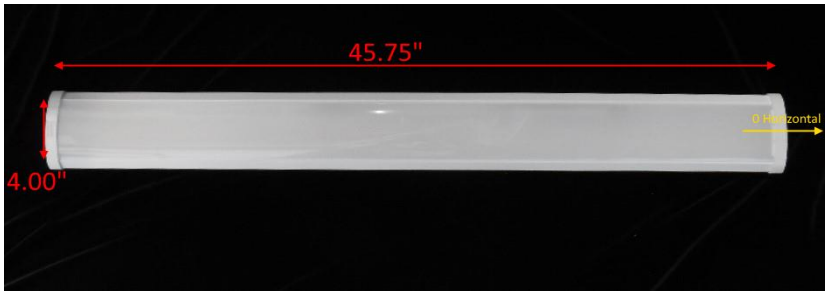
LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

LLIA002196-005

Indoor Distribution Photometry Test Report

Catalog Number: LWRAP4EM-48-CS-D (Emergency Mode)
Surface mounted, formed white painted steel
housing/reflector, diffuse white plastic enclosure.
520 white LEDs on one LED board with clear plastic enclosure.
One BL-A48W-60V-G0760LA LED driver and one Streamer YH35A-09WL-180
Emergency Driver with YHBAL2-3.3 battery
Luminaire was operated using emergency battery power



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

Performance Summary		
Luminous Flux	1012.1	Lumens
Downward Flux	1010.7	Lumens
Downward Flux	99.9	% of Total

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

Test date: 08/21/2023
Report date: 08/29/2023

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2023.08.30 16:33:16 -04'00'

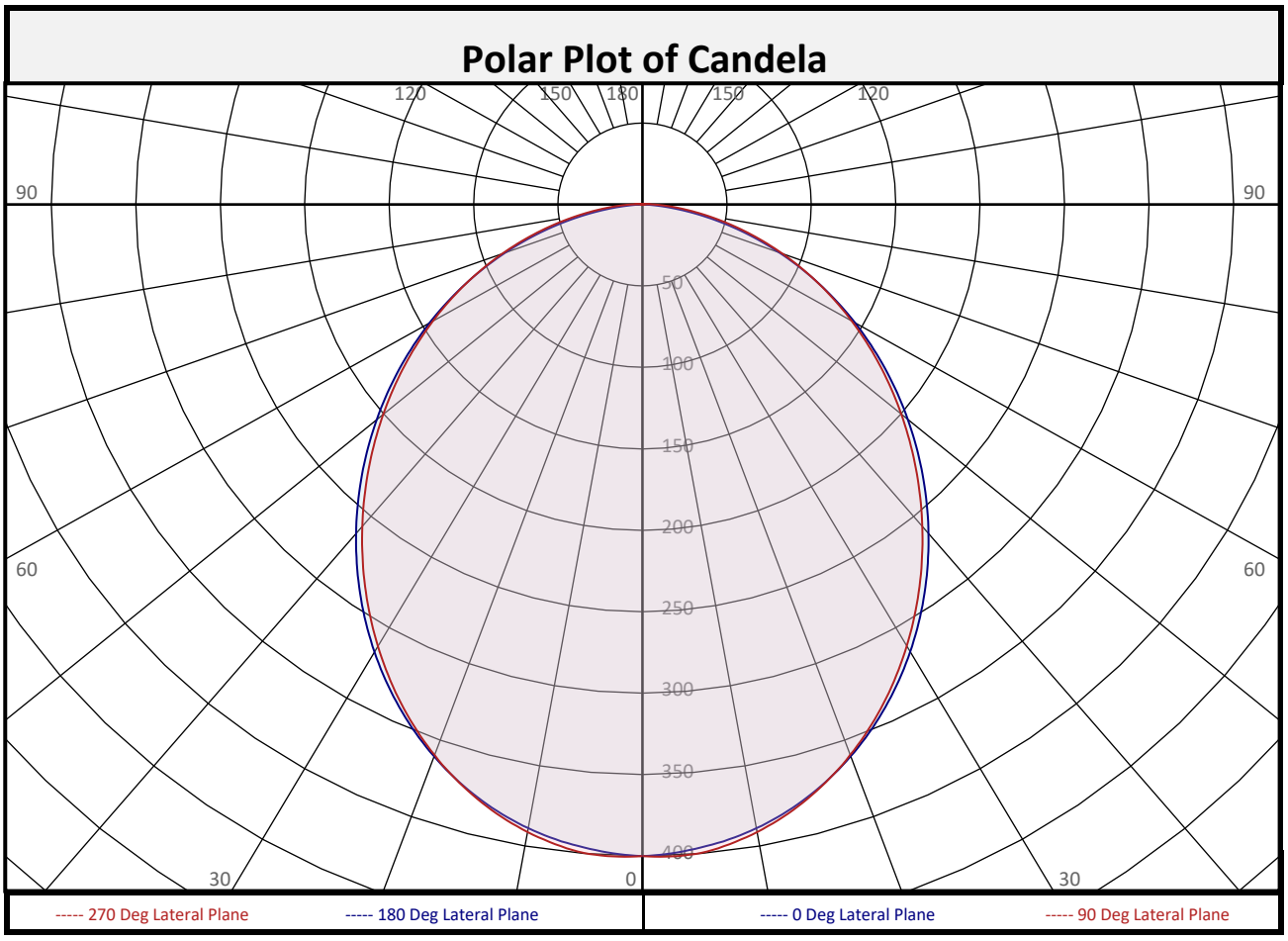
North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

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

LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

LLIA002196-005



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	37.7	3.7%	90-100	1.2	0.1%	0-20	143.9	14.2%
10-20	106.2	10.5%	100-110	0.2	0.0%	0-30	299.9	29.6%
20-30	156.0	15.4%	110-120	0.0	0.0%	0-40	480.3	47.5%
30-40	180.4	17.8%	120-130	0.0	0.0%	0-60	814.5	80.5%
40-50	178.9	17.7%	130-140	0.0	0.0%	0-80	993.1	98.1%
50-60	155.3	15.3%	140-150	0.0	0.0%	10-90	973.0	96.1%
60-70	114.7	11.3%	150-160	0.0	0.0%	20-50	515.4	50.9%
70-80	63.9	6.3%	160-170	0.0	0.0%	40-90	530.4	52.4%
80-90	17.6	1.7%	170-180	0.0	0.0%	60-90	196.2	19.4%
0-90	1011	99.9%	90-180	1.4	0.1%	0-180	1012	100.0%

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

Report of Test

LLIA002196-005

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	400	400	400	400	400	400	400	400	400
2.5	399	399	399	400	401	400	399	399	399
5	396	396	397	398	400	398	397	396	396
7.5	393	393	394	395	396	395	394	393	393
10	389	389	389	390	391	390	389	389	389
12.5	383	383	383	384	385	384	383	383	383
15	377	377	377	377	378	377	377	377	377
17.5	369	369	368	369	369	369	368	369	369
20	361	360	359	360	360	360	359	360	361
22.5	351	350	349	349	349	349	349	350	351
25	341	340	339	338	338	338	339	340	341
27.5	329	328	327	326	326	326	327	328	329
30	317	316	315	314	313	314	315	316	317
32.5	305	303	302	301	300	301	302	303	305
35	291	290	288	287	286	287	288	290	291
37.5	278	277	275	273	272	273	275	277	278
40	264	263	261	259	258	259	261	263	264
42.5	249	248	246	245	244	245	246	248	249
45	235	234	232	230	229	230	232	234	235
47.5	220	219	217	216	215	216	217	219	220
50	205	204	203	201	200	201	203	204	205
52.5	190	190	188	187	186	187	188	190	190
55	175	175	174	172	172	172	174	175	175
57.5	161	160	159	158	157	158	159	160	161
60	146	145	145	144	143	144	145	145	146
62.5	130	131	130	130	129	130	130	131	130
65	116	116	116	116	115	116	116	116	116
67.5	101	101	102	102	102	102	102	101	101
70	86	87	88	88	88	88	88	87	86
72.5	72	73	74	75	75	75	74	73	72
75	58	59	61	62	62	62	61	59	58
77.5	44	45	48	49	50	49	48	45	44
80	31	33	35	38	38	38	35	33	31
82.5	20	21	24	27	28	27	24	21	20
85	10	11	15	18	19	18	15	11	10
87.5	3	5	8	11	12	11	8	5	3
90	0	1	3	6	7	6	3	1	0

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

Report of Test

LLIA002196-005

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	1	3	6	7	6	3	1	0
92.5	0	0	1	3	3	3	1	0	0
95	0	0	1	1	2	1	1	0	0
97.5	0	0	0	1	1	1	0	0	0
100	0	0	0	1	0	1	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.

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

Report of Test

LLIA002196-005

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	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	85	79	97	89	83	78	86	81	76	83	78	74	80	76	73	71
3	91	80	72	66	88	79	71	66	76	70	64	73	68	63	71	66	62	60
4	83	72	63	56	81	70	62	56	68	61	55	65	59	54	63	58	54	51
5	77	64	55	49	75	63	55	48	61	54	48	59	52	47	57	51	47	45
6	71	58	49	43	69	57	49	43	55	48	42	53	47	42	52	46	41	39
7	66	53	44	38	64	52	44	38	50	43	37	49	42	37	47	41	37	35
8	61	48	40	34	60	47	39	34	46	39	34	45	38	33	44	38	33	31
9	57	44	36	31	56	44	36	31	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	53	40	33	28	39	32	28	38	32	28	38	32	27	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	11.1	7.11	7.03
8.0	6.3	9.48	9.37
10.0	4.0	11.85	11.71
12.0	2.8	14.22	14.05
14.0	2.0	16.58	16.40
16.0	1.6	18.95	18.74

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	3389	3389	3389
45	2812	2660	2583
55	2591	2412	2325
65	2318	2123	2041
75	1888	1700	1647
85	936	961	1065

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 101.7°

Field Angle: 156.5°

90-270 Degree Plane

Beam Angle: 100.0°

Field Angle: 159.2°

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

Report of Test

LLIA002196-005

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	15.3	16.8	17.1	15.0	16.6	15.4	16.9	17.2
	3H	16.5	18.0	16.9	18.3	18.6	16.8	18.2	17.1	18.5	18.9
	4H	17.0	18.4	17.4	18.8	19.1	17.4	18.8	17.8	19.1	19.5
	6H	17.4	18.6	17.8	19.0	19.4	17.9	19.2	18.3	19.5	19.9
	8H	17.4	18.6	17.9	19.0	19.4	18.1	19.3	18.5	19.7	20.1
	12H	17.5	18.6	17.9	19.0	19.4	18.2	19.4	18.6	19.7	20.2
4H	2H	15.5	16.9	15.9	17.2	17.6	15.6	16.9	16.0	17.3	17.7
	3H	17.3	18.5	17.7	18.9	19.3	17.5	18.7	17.9	19.1	19.5
	4H	18.0	19.0	18.4	19.4	19.8	18.3	19.3	18.7	19.8	20.2
	6H	18.4	19.3	18.8	19.7	20.2	18.9	19.8	19.4	20.3	20.7
	8H	18.5	19.3	18.9	19.8	20.2	19.1	20.0	19.6	20.4	20.9
	12H	18.5	19.3	19.0	19.8	20.2	19.3	20.1	19.8	20.6	21.0
8H	4H	18.2	19.1	18.7	19.5	20.0	18.6	19.4	19.0	19.8	20.3
	6H	18.8	19.5	19.3	20.0	20.4	19.3	20.0	19.8	20.5	20.9
	8H	18.9	19.5	19.4	20.0	20.5	19.5	20.2	20.1	20.7	21.2
	12H	19.0	19.5	19.5	20.0	20.6	19.8	20.4	20.3	20.9	21.4
12H	4H	18.3	19.0	18.7	19.5	20.0	18.6	19.3	19.0	19.8	20.3
	6H	18.8	19.5	19.3	19.9	20.5	19.3	20.0	19.8	20.4	20.9
	8H	19.0	19.6	19.5	20.0	20.6	19.6	20.2	20.1	20.7	21.2

Maximum UGR = 21.4

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

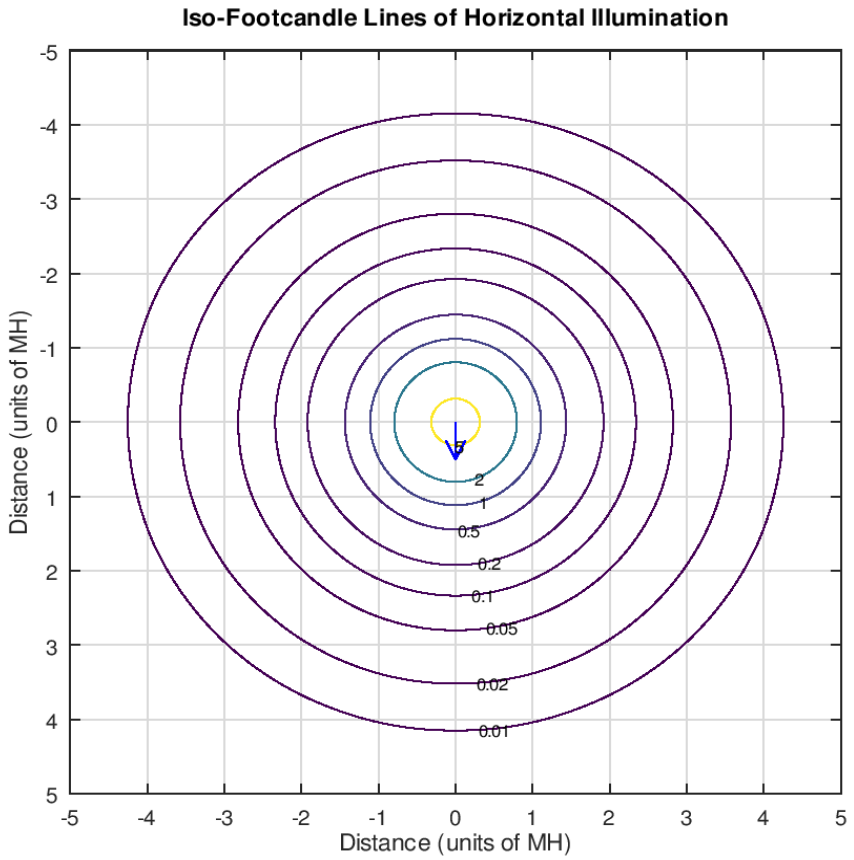
Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

LLIA002196-005

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.

LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

LLIA002196-005

Test Distance	9.5 m
Ambient Temperature	24.8 °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.