LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

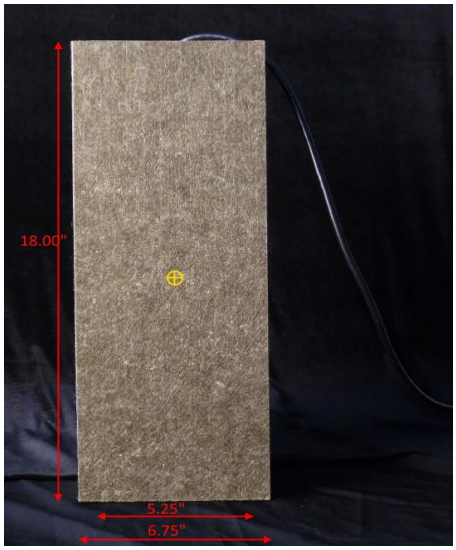
Report of Test

LLIA001208-002

Indoor Distribution Photometry Test Report

Catalog Number: P21618A

Pendant mounted, formed steel and aluminum housing, solid fabric outer enclosures with white plastic inner lining, translucent white plastic top and bottom enclosures.
One white LED module with clear patterned hemispherical lens below.
One ERP ESS030W-0620-42 LED driver.



Prepared For:
Lumetta, Inc
33 Minnesota Avenue
Warwick, RI 02888, USA

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	224.7	Lumens
Input Current	0.2062	A	Total Efficacy	9.2	Lm/W
Input Power	24.35	W	Downward Flux	122.8	Lumens
Frequency	60.00	Hz	Downward Flux	54.7	% of Total
Power Factor	0.984				
Current THD	11.4	%			

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

Test date: 01/09/2020
Report date: 01/09/2020

Signed: Michael L. Grather

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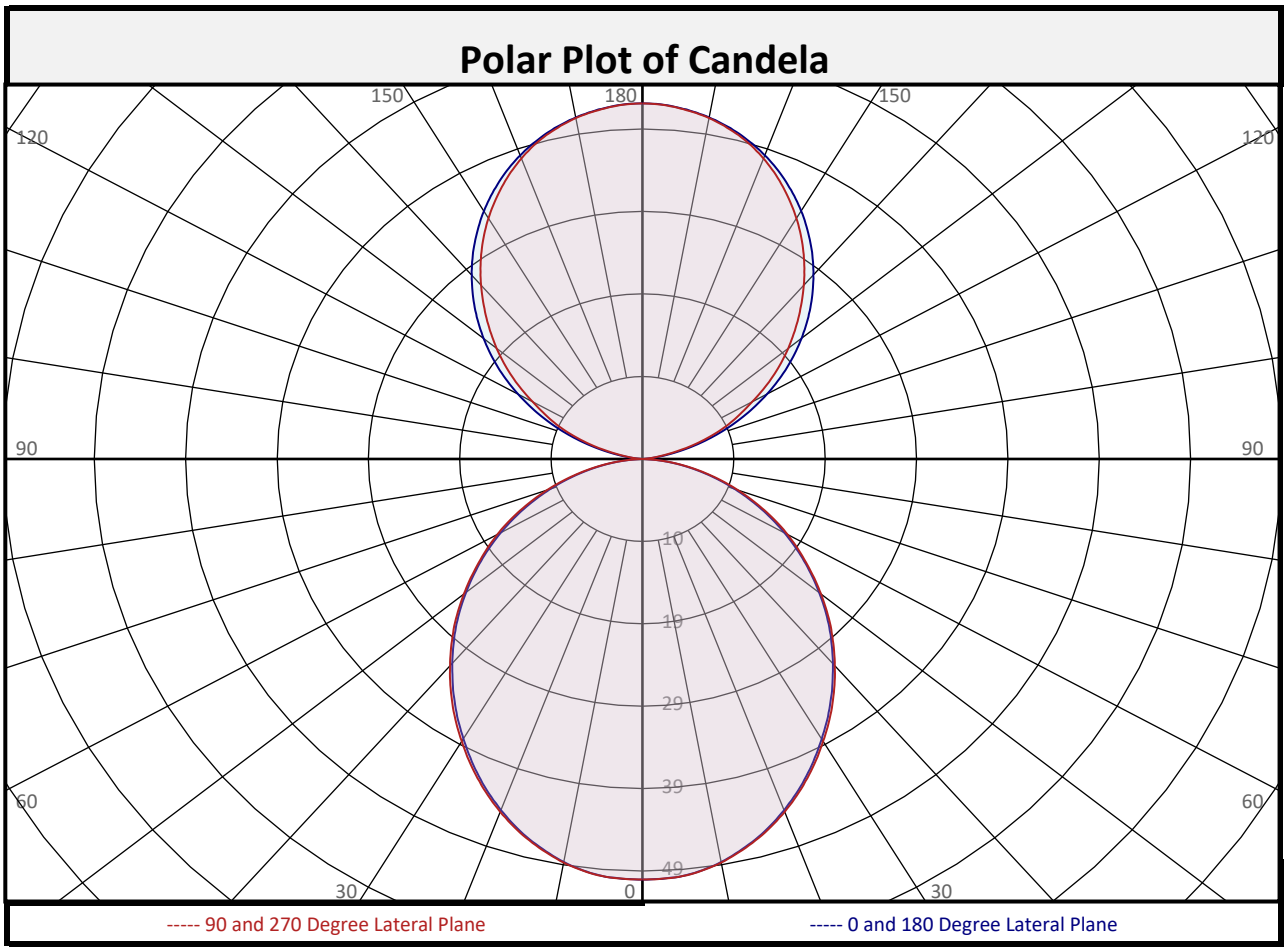
Report of Test

LLIA001208-002



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	4.7	2.1%	90-100	0.7	0.3%	0-20	17.7	7.9%
10-20	13.1	5.8%	100-110	5.0	2.2%	0-30	36.7	16.3%
20-30	19.0	8.5%	110-120	10.9	4.8%	0-40	58.6	26.1%
30-40	21.9	9.7%	120-130	15.9	7.1%	0-60	99.1	44.1%
40-50	21.7	9.7%	130-140	18.8	8.4%	0-80	120.9	53.8%
50-60	18.8	8.4%	140-150	19.1	8.5%	10-90	118.1	52.5%
60-70	13.9	6.2%	150-160	16.4	7.3%	20-50	62.6	27.9%
70-80	7.8	3.5%	160-170	11.1	4.9%	40-90	64.2	28.6%
80-90	1.9	0.8%	170-180	3.9	1.7%	60-90	23.7	10.5%
0-90	122.8	54.6%	90-180	101.9	45.3%	0-180	224.7	100.0%

Report of Test

LLIA001208-002

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	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
	2.5	49.4	49.4	49.4	49.4	49.4	49.4	49.4	49.4	49.4
	5	49.2	49.2	49.2	49.3	49.2	49.3	49.2	49.2	49.2
	7.5	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8
	10	48.1	48.2	48.2	48.2	48.2	48.2	48.2	48.2	48.1
	12.5	47.3	47.3	47.3	47.4	47.4	47.4	47.3	47.3	47.3
	15	46.3	46.3	46.4	46.4	46.4	46.4	46.4	46.3	46.3
	17.5	45.2	45.2	45.3	45.3	45.4	45.3	45.3	45.2	45.2
	20	44.0	44.0	44.0	44.1	44.2	44.1	44.0	44.0	44.0
	22.5	42.6	42.6	42.7	42.8	42.9	42.8	42.7	42.6	42.6
	25	41.2	41.2	41.3	41.4	41.4	41.4	41.3	41.2	41.2
	27.5	39.6	39.7	39.7	39.9	39.9	39.9	39.7	39.7	39.6
	30	38.0	38.1	38.2	38.3	38.4	38.3	38.2	38.1	38.0
	32.5	36.5	36.5	36.6	36.7	36.8	36.7	36.6	36.5	36.5
	35	34.8	34.8	34.9	35.1	35.2	35.1	34.9	34.8	34.8
	37.5	33.1	33.2	33.3	33.4	33.5	33.4	33.3	33.2	33.1
	40	31.4	31.5	31.6	31.7	31.8	31.7	31.6	31.5	31.4
	42.5	29.7	29.8	29.8	30.0	30.1	30.0	29.8	29.8	29.7
	45	28.0	28.0	28.1	28.3	28.4	28.3	28.1	28.0	28.0
	47.5	26.3	26.3	26.3	26.5	26.6	26.5	26.3	26.3	26.3
	50	24.5	24.5	24.6	24.7	24.8	24.7	24.6	24.5	24.5
	52.5	22.7	22.7	22.8	22.9	23.0	22.9	22.8	22.7	22.7
	55	20.9	21.0	21.0	21.1	21.2	21.1	21.0	21.0	20.9
	57.5	19.2	19.2	19.2	19.4	19.5	19.4	19.2	19.2	19.2
	60	17.4	17.4	17.5	17.7	17.8	17.7	17.5	17.4	17.4
	62.5	15.6	15.7	15.7	15.9	16.1	15.9	15.7	15.7	15.6
	65	13.9	13.9	14.0	14.2	14.3	14.2	14.0	13.9	13.9
	67.5	12.2	12.2	12.3	12.5	12.6	12.5	12.3	12.2	12.2
	70	10.5	10.5	10.6	10.8	10.9	10.8	10.6	10.5	10.5
	72.5	8.9	8.9	9.0	9.1	9.2	9.1	9.0	8.9	8.9
	75	7.3	7.3	7.4	7.5	7.6	7.5	7.4	7.3	7.3
	77.5	5.7	5.7	5.8	5.9	6.0	5.9	5.8	5.7	5.7
	80	4.3	4.3	4.4	4.4	4.5	4.4	4.4	4.3	4.3
	82.5	2.9	2.9	2.9	3.0	3.1	3.0	2.9	2.9	2.9
	85	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6
	87.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4
	90	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Report of Test

LLIA001208-002

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	92.5	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
	95	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4
	97.5	1.3	1.1	0.9	1.0	1.1	1.0	0.9	1.1	1.3
	100	2.4	2.1	1.8	1.8	1.8	1.8	1.8	2.1	2.4
	102.5	3.7	3.5	3.1	3.1	3.0	3.1	3.1	3.5	3.7
	105	5.1	5.0	4.5	4.5	4.4	4.5	4.5	5.0	5.1
	107.5	6.7	6.4	6.0	6.0	6.0	6.0	6.0	6.4	6.7
	110	8.4	8.1	7.6	7.6	7.5	7.6	7.6	8.1	8.4
	112.5	10.1	9.8	9.2	9.1	9.1	9.1	9.2	9.8	10.1
	115	11.8	11.6	10.9	10.6	10.5	10.6	10.9	11.6	11.8
	117.5	13.5	13.3	12.7	12.1	11.9	12.1	12.7	13.3	13.5
	120	15.3	15.1	14.4	13.8	13.5	13.8	14.4	15.1	15.3
	122.5	17.0	16.9	16.1	15.5	15.2	15.5	16.1	16.9	17.0
	125	18.7	18.6	17.8	17.2	16.9	17.2	17.8	18.6	18.7
	127.5	20.4	20.2	19.5	18.8	18.6	18.8	19.5	20.2	20.4
	130	22.0	21.9	21.2	20.5	20.2	20.5	21.2	21.9	22.0
	132.5	23.6	23.5	22.8	22.1	21.8	22.1	22.8	23.5	23.6
	135	25.2	25.1	24.5	23.7	23.4	23.7	24.5	25.1	25.2
	137.5	26.7	26.6	26.1	25.3	25.0	25.3	26.1	26.6	26.7
	140	28.2	28.1	27.6	26.9	26.7	26.9	27.6	28.1	28.2
	142.5	29.7	29.6	29.1	28.6	28.3	28.6	29.1	29.6	29.7
	145	31.1	31.0	30.6	30.1	29.8	30.1	30.6	31.0	31.1
	147.5	32.4	32.3	32.0	31.5	31.3	31.5	32.0	32.3	32.4
	150	33.7	33.6	33.3	32.9	32.7	32.9	33.3	33.6	33.7
	152.5	34.9	34.8	34.6	34.2	34.0	34.2	34.6	34.8	34.9
	155	36.0	36.0	35.7	35.5	35.3	35.5	35.7	36.0	36.0
	157.5	37.1	37.0	36.9	36.6	36.5	36.6	36.9	37.0	37.1
	160	38.0	38.0	37.8	37.7	37.6	37.7	37.8	38.0	38.0
	162.5	38.9	38.8	38.7	38.6	38.6	38.6	38.7	38.8	38.9
	165	39.6	39.6	39.5	39.5	39.5	39.5	39.5	39.6	39.6
	167.5	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2
	170	40.8	40.8	40.8	40.8	40.7	40.8	40.8	40.8	40.8
	172.5	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2
	175	41.5	41.5	41.6	41.5	41.5	41.5	41.6	41.5	41.5
	177.5	41.8	41.7	41.8	41.7	41.8	41.7	41.8	41.7	41.8
	180	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8

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LLIA001208-002

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	108	108	108	108		100	100	100	100		86	86	86		73	73	73		60	60	60	55
1	99	95	91	87		92	88	85	82		75	73	71		64	62	61		53	52	51	46
2	90	83	76	71		83	77	72	67		66	62	59		56	53	51		47	45	43	39
3	82	73	65	59		76	68	61	56		58	53	49		50	46	43		42	39	37	33
4	75	64	56	50		70	60	53	48		52	46	42		44	40	37		37	34	32	28
5	69	57	49	43		64	54	46	41		47	41	36		40	35	32		34	30	28	25
6	64	52	43	38		59	48	41	36		42	36	32		36	32	28		31	27	24	22
7	59	47	39	33		55	44	36	31		38	32	28		33	28	25		28	24	22	19
8	55	42	35	29		51	40	33	28		35	29	25		30	26	22		26	22	20	17
9	51	39	31	26		47	36	30	25		32	26	22		28	23	20		24	20	18	16
10	48	36	28	23		44	33	27	22		29	24	20		26	21	18		22	19	16	14

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	1.4	6.92	6.97
8.0	0.8	9.23	9.30
10.0	0.5	11.53	11.62
12.0	0.3	13.84	13.95
14.0	0.3	16.15	16.27
16.0	0.2	18.45	18.59

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	2782	2782	2782
45	2230	2233	2257
55	2051	2059	2080
65	1849	1864	1907
75	1583	1600	1645
85	1024	1039	1103

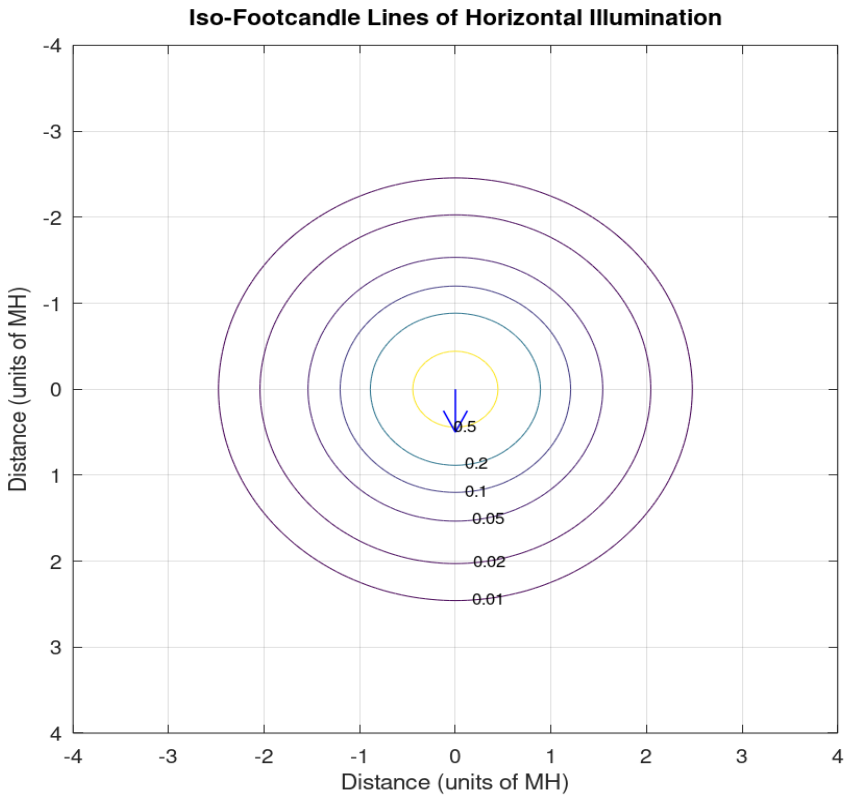
Spacing Criterion

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

Report of Test

LLIA001208-002

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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LLIA001208-002

Additional Pictures of Test Subject

Report of Test

LLIA001208-002

Test Distance	9.5 m
Ambient Temperature	24.6 °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 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.