

Report of Test

LLIA001249-002A

Indoor Distribution Photometry Test Report

Catalog Number: PBL G2 2W SH UV FR 835

Surface/pendant mounted, formed white enamel aluminum
housing/reflectors, frosted plastic enclosures below LEDs

448 white LEDs, four 20103 3500K 3437A1 LED boards with 112 LEDs each.

Two ULT Everline D21CC80UNVPW-C LED drivers each programmed at 1460mA



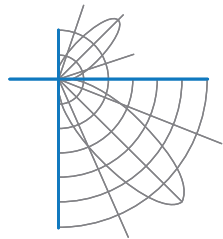
Prepared For:
Lumen Focus, LLC
880 Facet Road
Henderson, NC 27537, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	22042.1 Lumens
Input Current	1.189 A	Total Efficacy	154.9 Lm/W
Input Power	142.3 W	Downward Flux	22026.7 Lumens
Frequency	60.00 Hz	Downward Flux	99.9 % of Total
Power Factor	0.997		
Current THD	5.9 %		

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

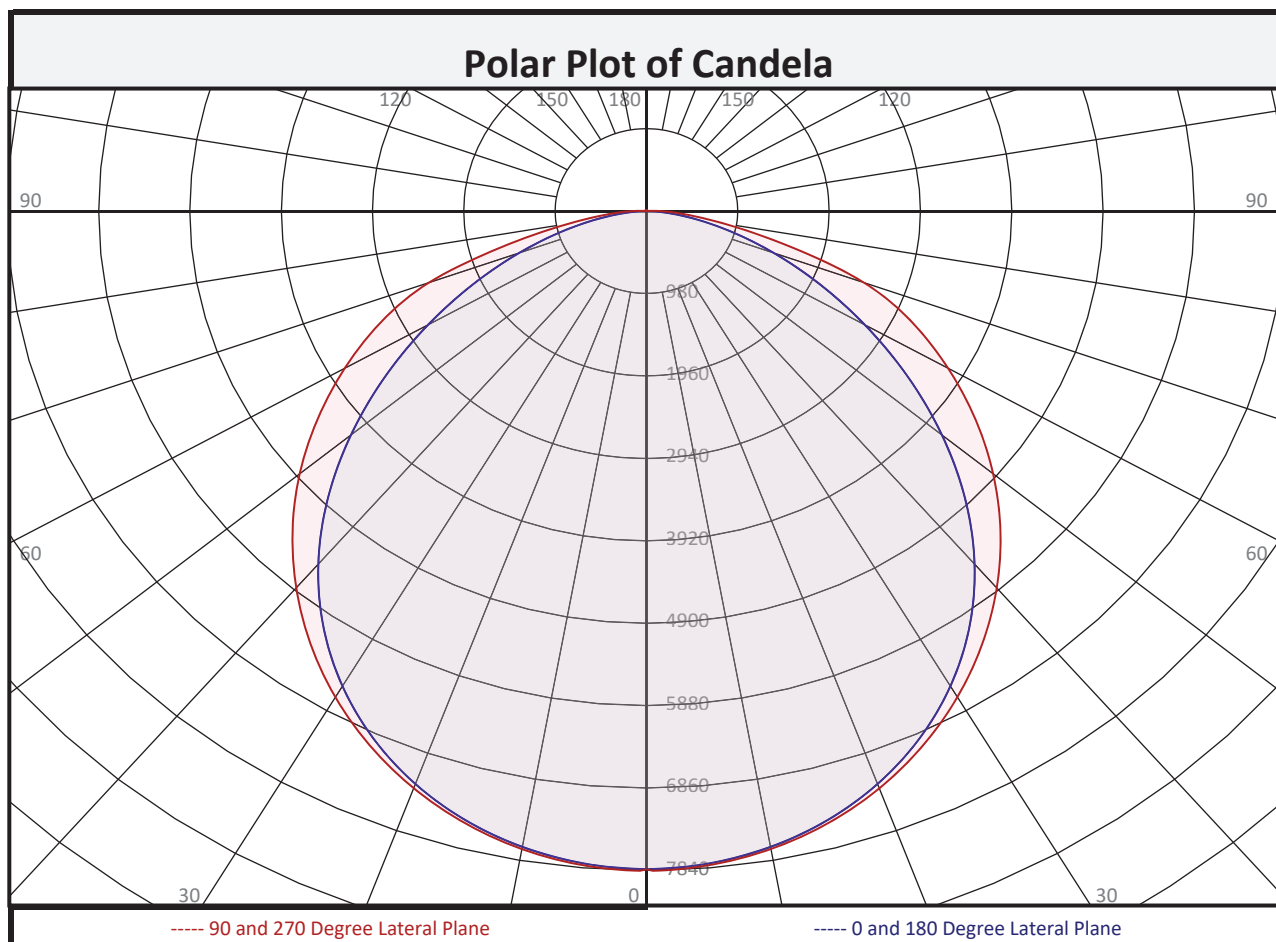
Test date: 03/17/2020
Report date: 03/18/2020

Signed: Michael L. Grather

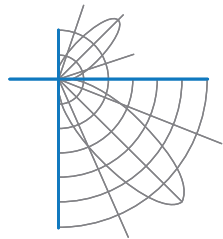


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Zonal Flux Summary											
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total	
0-10	740.8	3.4%		90-100	15.4	0.1%		0-20	2861	13.0%	
10-20	2121	9.6%		100-110	0.0	0.0%		0-30	6073	27.6%	
20-30	3211	14.6%		110-120	0.0	0.0%		0-40	9929	45.0%	
30-40	3856	17.5%		120-130	0.0	0.0%		0-60	17404	79.0%	
40-50	3959	18.0%		130-140	0.0	0.0%		0-80	21600	98.0%	
50-60	3516	16.0%		140-150	0.0	0.0%		10-90	21286	96.6%	
60-70	2675	12.1%		150-160	0.0	0.0%		20-50	11026	50.0%	
70-80	1520	6.9%		160-170	0.0	0.0%		40-90	12098	54.9%	
80-90	426.6	1.9%		170-180	0.0	0.0%		60-90	4622	21.0%	
0-90	22027	99.9%		90-180	15.4	0.1%		0-180	22042	100.0%	

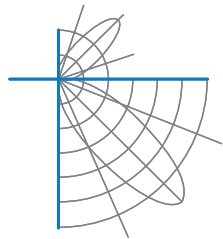


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	7828	7828	7828	7828	7828	7828	7828	7828	7828
	2.5	7814	7813	7814	7822	7835	7822	7814	7813	7814
	5	7786	7788	7787	7794	7806	7794	7787	7788	7786
	7.5	7738	7741	7743	7750	7762	7750	7743	7741	7738
	10	7676	7679	7683	7692	7702	7692	7683	7679	7676
	12.5	7597	7600	7607	7617	7627	7617	7607	7600	7597
	15	7499	7503	7514	7527	7535	7527	7514	7503	7499
	17.5	7383	7387	7403	7419	7428	7419	7403	7387	7383
	20	7249	7255	7276	7296	7306	7296	7276	7255	7249
	22.5	7096	7105	7131	7157	7167	7157	7131	7105	7096
	25	6925	6936	6971	7003	7016	7003	6971	6936	6925
	27.5	6733	6749	6796	6835	6852	6835	6796	6749	6733
	30	6522	6544	6602	6653	6674	6653	6602	6544	6522
	32.5	6292	6321	6395	6460	6485	6460	6395	6321	6292
	35	6040	6080	6173	6253	6284	6253	6173	6080	6040
	37.5	5769	5823	5940	6037	6072	6037	5940	5823	5769
	40	5475	5546	5693	5809	5850	5809	5693	5546	5475
	42.5	5164	5254	5435	5573	5616	5573	5435	5254	5164
	45	4834	4944	5168	5326	5373	5326	5168	4944	4834
	47.5	4490	4621	4891	5070	5119	5070	4891	4621	4490
	50	4136	4289	4606	4807	4857	4807	4606	4289	4136
	52.5	3775	3950	4312	4529	4586	4529	4312	3950	3775
	55	3415	3610	4013	4251	4308	4251	4013	3610	3415
	57.5	3057	3271	3709	3967	4025	3967	3709	3271	3057
	60	2706	2938	3405	3679	3739	3679	3405	2938	2706
	62.5	2365	2611	3101	3391	3449	3391	3101	2611	2365
	65	2043	2300	2804	3103	3157	3103	2804	2300	2043
	67.5	1736	2002	2513	2806	2847	2806	2513	2002	1736
	70	1450	1719	2228	2485	2480	2485	2228	1719	1450
	72.5	1183	1454	1943	2092	2013	2092	1943	1454	1183
	75	937	1208	1645	1635	1539	1635	1645	1208	937
	77.5	714	980	1310	1220	1148	1220	1310	980	714
	80	515	767	959	879	828	879	959	767	515
	82.5	341	562	649	606	579	606	649	562	341
	85	195	350	402	402	394	402	402	350	195
	87.5	77	155	220	254	260	254	220	155	77
90	0	32	102	137	143	137	102	32	0	

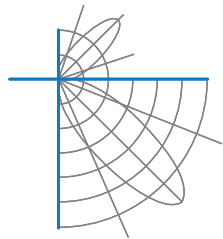


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	0	32	102	137	143	137	102	32	0
	92.5	0	4	12	33	39	33	12	4	0
	95	0	2	3	3	1	3	3	2	0
	97.5	0	1	2	2	0	2	2	1	0
	100	0	0	0	2	0	2	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	104	100	96		106	102	98	94		97	94	91		93	91	88		90	88	86	84
2	99	91	84	78		96	89	82	77		85	80	75		82	77	73		79	75	72	70
3	90	79	71	65		88	78	70	64		75	68	63		72	67	62		70	65	61	59
4	82	70	62	55		80	69	61	54		67	59	54		64	58	53		62	57	52	50
5	76	63	54	47		74	62	53	47		60	52	46		58	51	46		56	50	45	43
6	70	57	48	41		68	56	47	41		54	46	41		52	45	40		51	45	40	38
7	65	51	43	36		63	51	42	36		49	41	36		48	41	36		46	40	35	33
8	60	47	38	32		59	46	38	32		45	37	32		44	37	32		42	36	32	30
9	56	43	35	29		55	42	35	29		41	34	29		40	34	29		39	33	29	27
10	53	40	32	26		52	39	32	26		38	31	26		37	31	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.

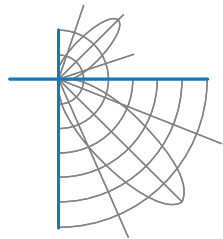
Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	217.4	7.42	7.61
8.0	122.3	9.90	10.14
10.0	78.3	12.37	12.68
12.0	54.4	14.85	15.21
14.0	39.9	17.32	17.75
16.0	30.6	19.80	20.28

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	33703	33703	33703
45	29435	31466	32718
55	25637	30120	32338
65	20818	28566	32166
75	15585	27360	25597
85	9626	19842	19473

Spacing Criterion

0 degree plane:	1.2
90 degree plane:	1.3
180 degree plane:	1.2
270 degree plane:	1.3



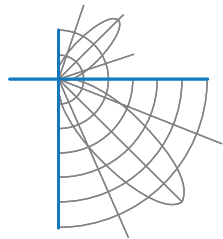
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UGR TABLE - CORRECTED

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	23.1	24.7	23.5	25.0	25.4	24.6	26.2	24.9	26.5	26.8
	3H	24.5	26.0	24.9	26.3	26.7	26.6	28.1	27.0	28.4	28.8
	4H	25.0	26.4	25.4	26.8	27.1	27.3	28.7	27.7	29.0	29.4
	6H	25.4	26.7	25.8	27.0	27.4	27.7	29.0	28.1	29.3	29.7
	8H	25.4	26.7	25.9	27.1	27.5	27.8	29.0	28.2	29.4	29.8
	12H	25.5	26.7	25.9	27.1	27.5	27.8	29.0	28.3	29.4	29.8
4H	2H	24.0	25.4	24.4	25.7	26.1	25.1	26.5	25.5	26.9	27.2
	3H	25.7	26.9	26.1	27.3	27.7	27.5	28.6	27.9	29.0	29.4
	4H	26.3	27.4	26.7	27.8	28.2	28.2	29.3	28.7	29.7	30.1
	6H	26.8	27.7	27.2	28.1	28.6	28.7	29.7	29.2	30.1	30.5
	8H	26.9	27.8	27.4	28.2	28.7	28.9	29.7	29.3	30.2	30.6
	12H	27.0	27.8	27.5	28.2	28.7	29.0	29.8	29.5	30.2	30.7
8H	4H	26.9	27.7	27.3	28.2	28.6	28.5	29.4	29.0	29.8	30.3
	6H	27.5	28.2	28.0	28.7	29.2	29.1	29.8	29.6	30.3	30.8
	8H	27.7	28.3	28.2	28.8	29.3	29.3	30.0	29.8	30.5	31.0
	12H	27.8	28.4	28.3	28.9	29.5	29.5	30.1	30.0	30.6	31.1
12H	4H	26.9	27.7	27.4	28.2	28.6	28.5	29.3	29.0	29.8	30.2
	6H	27.6	28.2	28.1	28.7	29.2	29.2	29.8	29.7	30.3	30.8
	8H	27.9	28.4	28.4	28.9	29.5	29.4	30.0	29.9	30.5	31.0

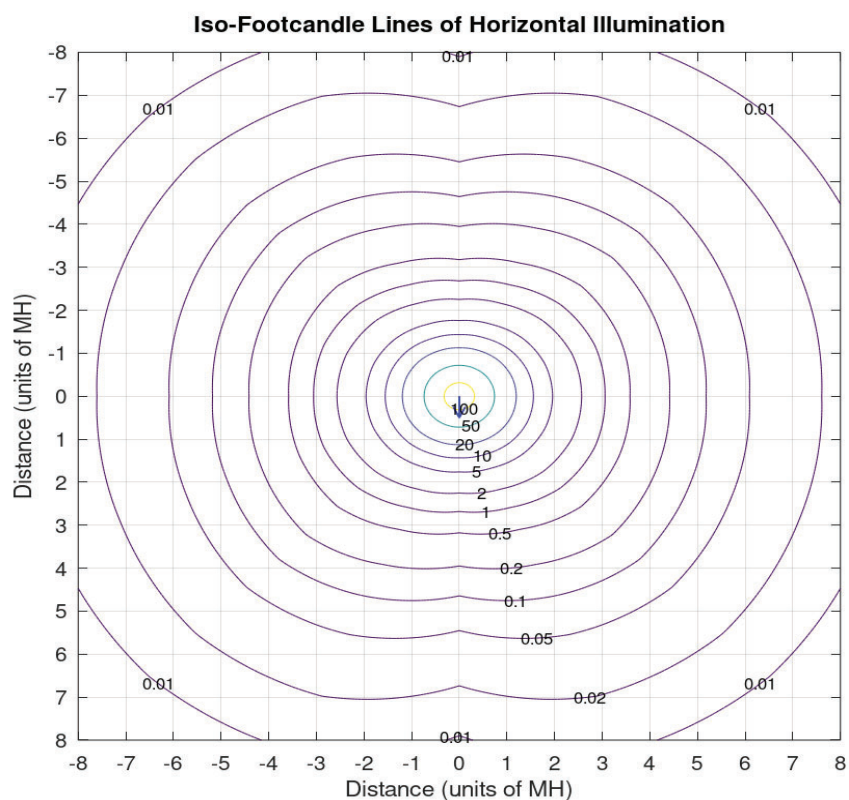
Maximum UGR = 31.1



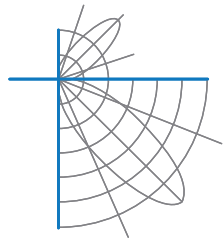
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Iso-Illuminance Plot



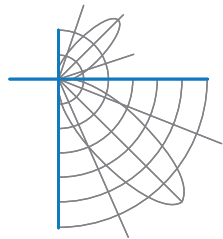
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.



Report of Test LLIA001249-002A

Additional Pictures of Test Subject





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Test Distance 9.5 m
Ambient Temperature 25.2 °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.