

Report of Test

LLIA001249-007A

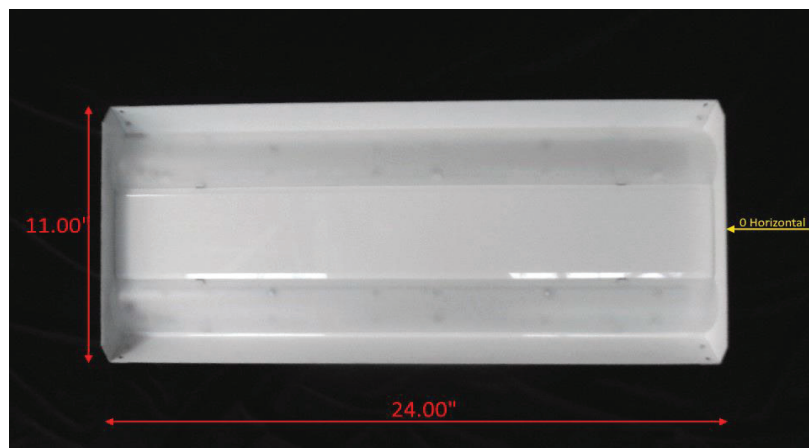
Indoor Distribution Photometry Test Report

Catalog Number: PBL G2 2 MH UV FR 835

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

224 white LEDs, two 20103 3500K 3437A1 LED boards with 112 LEDs each.

One ULT Everline D21CC80UNVPW-C programmed at 1730mA



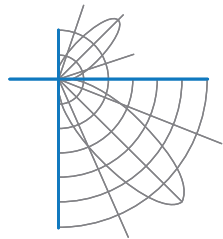
Prepared For:
Lumen Focus, LLC
880 Facet Road
Henderson, NC 27537, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	12788.9 Lumens
Input Current	0.7093 A	Total Efficacy	150.5 Lm/W
Input Power	84.97 W	Downward Flux	12785.1 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.998		
Current THD	4.9 %		

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

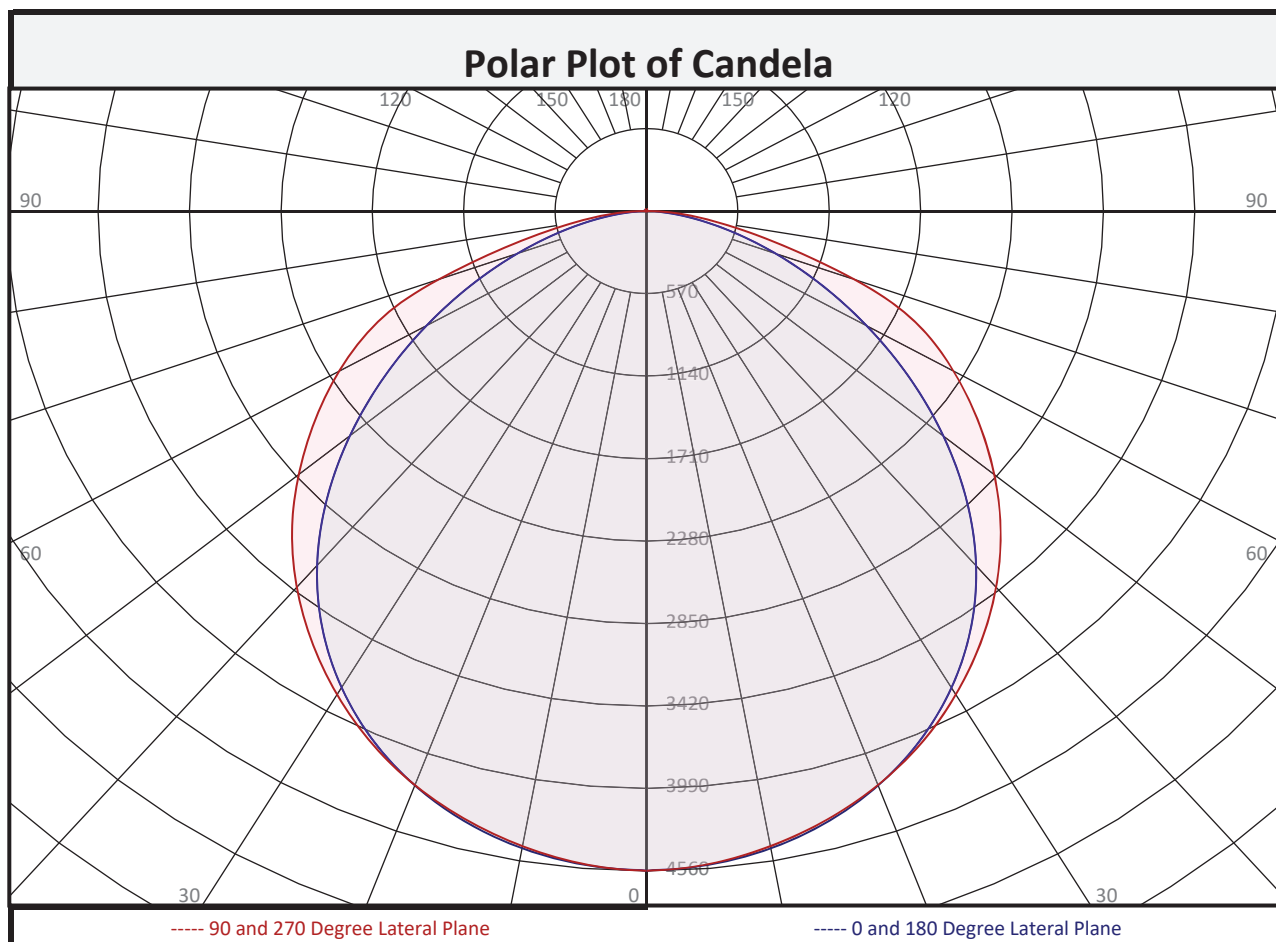
Test date: 03/18/2020
Report date: 03/18/2020

Signed: Michael L. Grathner

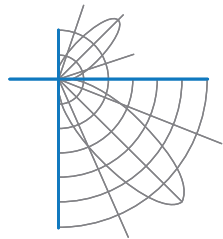


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Zonal Flux Summary											
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total	
0-10	431.0	3.4%		90-100	3.5	0.0%		0-20	1662	13.0%	
10-20	1231	9.6%		100-110	0.3	0.0%		0-30	3524	27.6%	
20-30	1862	14.6%		110-120	0.0	0.0%		0-40	5760	45.0%	
30-40	2236	17.5%		120-130	0.0	0.0%		0-60	10112	79.1%	
40-50	2300	18.0%		130-140	0.0	0.0%		0-80	12549	98.1%	
50-60	2053	16.1%		140-150	0.0	0.0%		10-90	12354	96.6%	
60-70	1573	12.3%		150-160	0.0	0.0%		20-50	6398	50.0%	
70-80	863.2	6.7%		160-170	0.0	0.0%		40-90	7025	54.9%	
80-90	236.0	1.8%		170-180	0.0	0.0%		60-90	2673	20.9%	
0-90	12785	100.0%		90-180	3.9	0.0%		0-180	12789	100.0%	

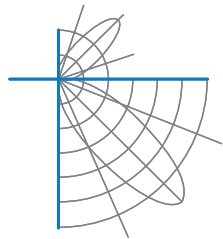


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	4559	4559	4559	4559	4559	4559	4559	4559	4559
	2.5	4550	4553	4553	4558	4550	4558	4553	4553	4550
	5	4534	4537	4536	4538	4530	4538	4536	4537	4534
	7.5	4507	4510	4506	4505	4497	4505	4506	4510	4507
	10	4471	4472	4465	4464	4456	4464	4465	4472	4471
	12.5	4425	4424	4416	4416	4409	4416	4416	4424	4425
	15	4368	4365	4358	4361	4354	4361	4358	4365	4368
	17.5	4302	4295	4291	4297	4292	4297	4291	4295	4302
	20	4224	4215	4217	4225	4222	4225	4217	4215	4224
	22.5	4136	4125	4133	4145	4144	4145	4133	4125	4136
	25	4036	4025	4040	4056	4057	4056	4040	4025	4036
	27.5	3925	3915	3938	3959	3962	3959	3938	3915	3925
	30	3803	3794	3826	3853	3858	3853	3826	3794	3803
	32.5	3669	3664	3706	3741	3751	3741	3706	3664	3669
	35	3524	3523	3578	3622	3636	3622	3578	3523	3524
	37.5	3366	3373	3443	3499	3518	3499	3443	3373	3366
	40	3196	3212	3300	3369	3393	3369	3300	3212	3196
	42.5	3013	3041	3153	3235	3263	3235	3153	3041	3013
	45	2820	2861	3000	3097	3126	3097	3000	2861	2820
	47.5	2620	2673	2843	2958	2982	2958	2843	2673	2620
	50	2414	2480	2682	2804	2832	2804	2682	2480	2414
	52.5	2205	2283	2515	2648	2678	2648	2515	2283	2205
	55	1996	2086	2345	2491	2524	2491	2345	2086	1996
	57.5	1788	1891	2172	2333	2370	2333	2172	1891	1788
	60	1585	1700	1998	2175	2213	2175	1998	1700	1585
	62.5	1387	1513	1826	2013	2052	2013	1826	1513	1387
	65	1200	1335	1657	1847	1876	1847	1657	1335	1200
	67.5	1022	1165	1491	1660	1660	1660	1491	1165	1022
	70	855	1005	1324	1428	1378	1428	1324	1005	855
	72.5	698	851	1147	1149	1079	1149	1147	851	698
	75	554	708	945	883	828	883	945	708	554
	77.5	422	576	731	666	624	666	731	576	422
	80	305	450	536	490	456	490	536	450	305
	82.5	202	327	376	348	326	348	376	327	202
	85	112	206	241	222	209	222	241	206	112
	87.5	41	91	118	113	106	113	118	91	41
90	1	18	20	16	10	16	20	18	1	

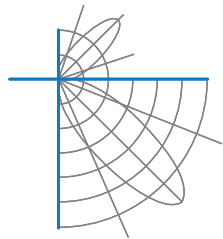


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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	1	18	20	16	10	16	20	18	1
	92.5	0	5	6	4	1	4	6	5	0
	95	0	2	4	3	1	3	4	2	0
	97.5	0	1	3	2	1	2	3	1	0
	100	0	1	2	2	1	2	2	1	0
	102.5	0	0	2	2	0	2	2	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		94	91	88		90	88	86	84
2	99	91	84	78		96	89	82	77		85	80	75		82	77	74		79	75	72	70
3	90	80	71	65		88	78	70	64		75	68	63		72	67	62		70	65	61	59
4	82	70	62	55		80	69	61	55		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.

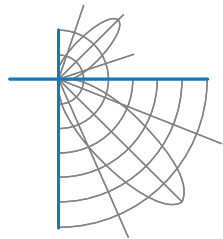
Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	126.6	7.43	7.56
8.0	71.2	9.91	10.08
10.0	45.6	12.39	12.60
12.0	31.7	14.86	15.12
14.0	23.3	17.34	17.64
16.0	17.8	19.82	20.16

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	26769	26769	26769
45	23419	24912	25957
55	20429	24008	25836
65	16673	23024	26068
75	12559	21444	18787
85	7557	16249	14111

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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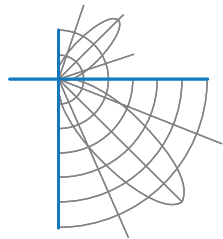
UGR TABLE - CORRECTED

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	22.3	23.9	22.6	24.2	24.5	23.8	25.5	24.2	25.8	26.1
	3H	23.7	25.2	24.1	25.5	25.9	25.9	27.4	26.2	27.7	28.0
	4H	24.2	25.6	24.6	26.0	26.4	26.4	27.8	26.8	28.2	28.5
	6H	24.6	25.9	25.0	26.2	26.6	26.8	28.0	27.2	28.4	28.8
	8H	24.7	25.9	25.1	26.3	26.7	26.8	28.1	27.3	28.5	28.9
	12H	24.7	25.9	25.1	26.3	26.7	26.9	28.1	27.3	28.5	28.9
4H	2H	23.2	24.6	23.6	24.9	25.3	24.4	25.8	24.8	26.1	26.5
	3H	24.9	26.1	25.3	26.5	26.9	26.7	27.8	27.1	28.2	28.6
	4H	25.5	26.6	26.0	27.0	27.5	27.3	28.4	27.8	28.8	29.2
	6H	26.0	26.9	26.5	27.4	27.8	27.8	28.7	28.2	29.2	29.6
	8H	26.1	27.0	26.6	27.4	27.9	27.9	28.8	28.4	29.2	29.7
	12H	26.2	27.0	26.7	27.5	27.9	28.0	28.8	28.5	29.3	29.8
8H	4H	26.1	26.9	26.5	27.4	27.8	27.6	28.5	28.1	28.9	29.4
	6H	26.7	27.4	27.2	27.9	28.4	28.2	28.9	28.7	29.4	29.9
	8H	26.9	27.5	27.4	28.1	28.5	28.4	29.0	28.9	29.5	30.0
	12H	27.0	27.6	27.5	28.1	28.7	28.5	29.1	29.1	29.6	30.2
12H	4H	26.1	26.9	26.6	27.4	27.8	27.6	28.4	28.1	28.9	29.3
	6H	26.8	27.4	27.3	27.9	28.4	28.2	28.9	28.8	29.3	29.9
	8H	27.1	27.6	27.6	28.1	28.7	28.5	29.0	29.0	29.5	30.1

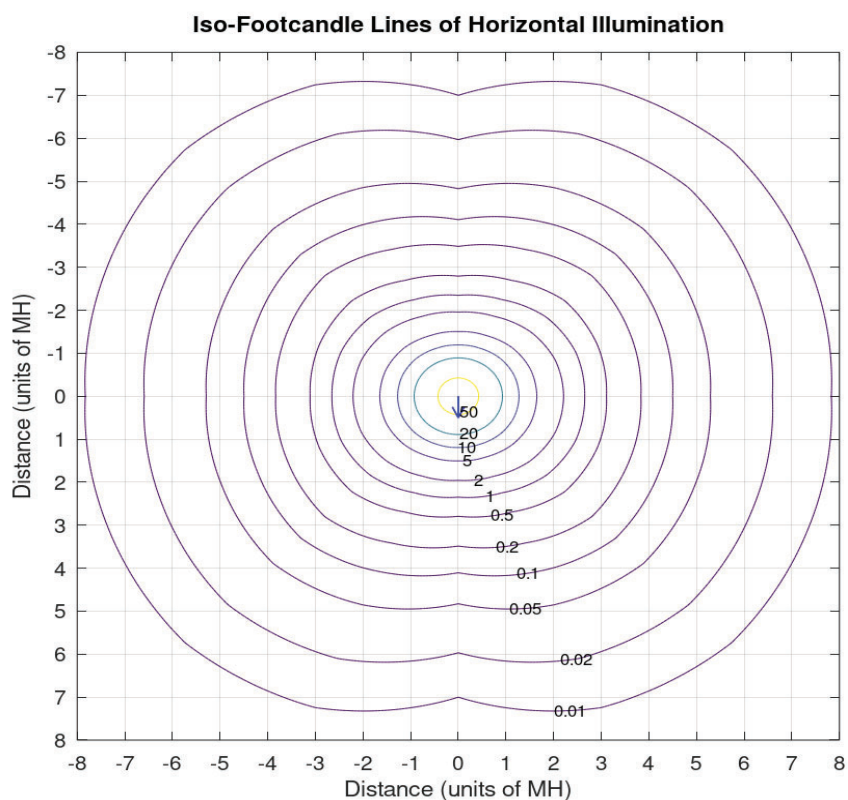
Maximum UGR = 30.2



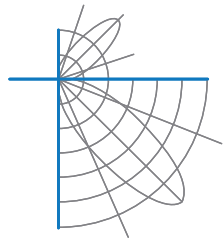
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Iso-Illuminance Plot



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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Additional Pictures of Test Subject



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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 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.