

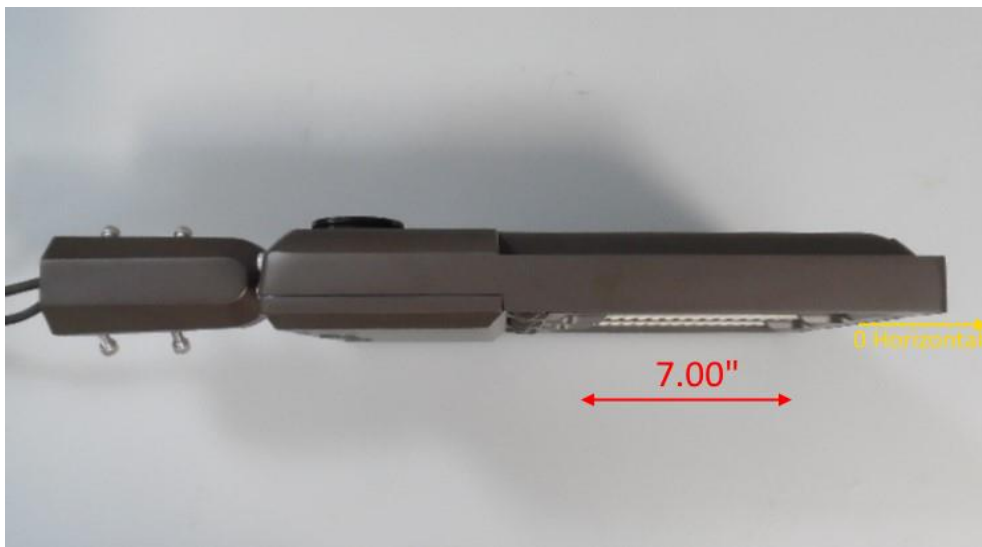


Report of Test

LLIA002251-025

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-SWO - T2 Optics - 70W - 4000K Setting
Pole mounted, cast aluminum housing, white LED board with
frosted plastic enclosure with clear optic sections below each LED.
288 white LEDs, 144 CW LEDs and 144 WW LEDs
One Sosen SS-160NH-E260BH LED driver



Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	11018.3 Lumens
Input Current	0.5735 A	Total Efficacy	160.6 Lm/W
Input Power	68.60 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.997	Roadway Type	Type II
Current THD	4.5 %		

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

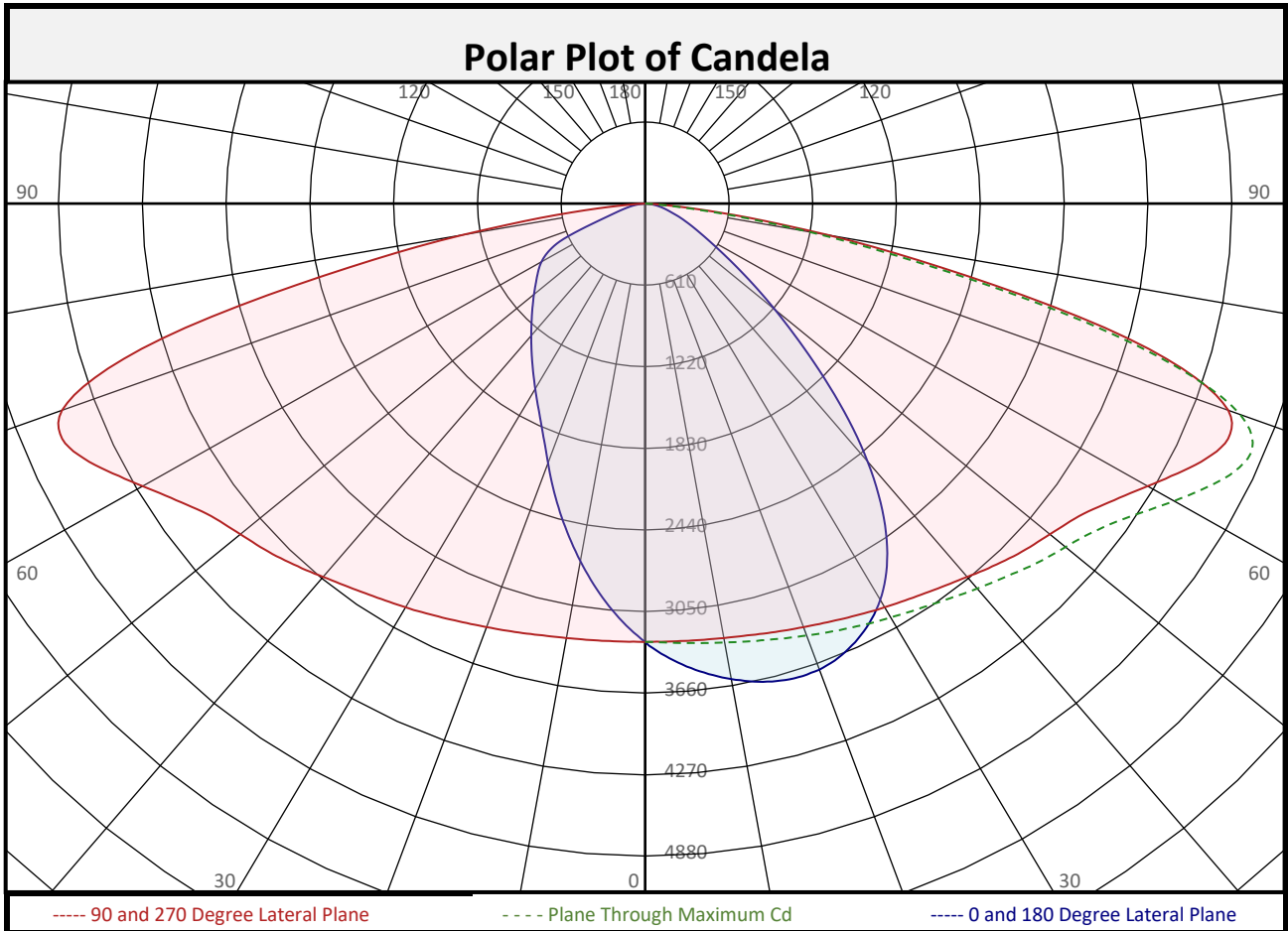
Test date: 10/30/2023
Report date: 11/03/2023

Signed: _____



Report of Test

LLIA002251-025

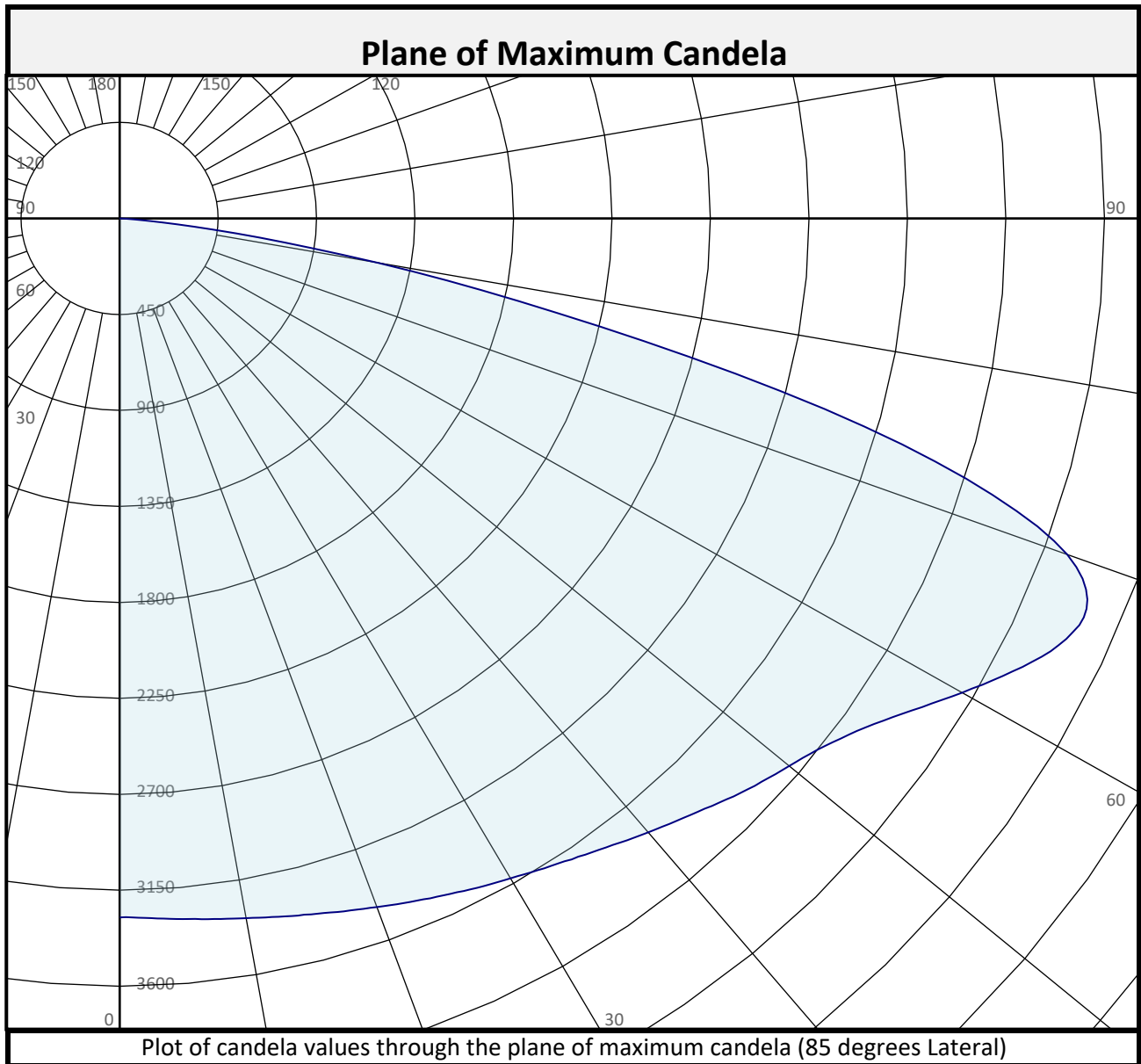


Zonal Flux Summary

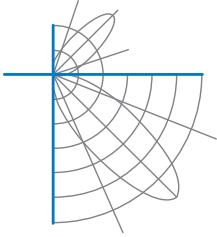
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	310.6	2.8%	90-100	0.0	0.0%	0-20	1210	11.0%
10-20	899.6	8.2%	100-110	0.0	0.0%	0-30	2619	23.8%
20-30	1409	12.8%	110-120	0.0	0.0%	0-40	4409	40.0%
30-40	1790	16.2%	120-130	0.0	0.0%	0-60	8244	74.8%
40-50	1950	17.7%	130-140	0.0	0.0%	0-80	10889	98.8%
50-60	1885	17.1%	140-150	0.0	0.0%	10-90	10708	97.2%
60-70	1682	15.3%	150-160	0.0	0.0%	20-50	5149	46.7%
70-80	962.6	8.7%	160-170	0.0	0.0%	40-90	6609	60.0%
80-90	129.7	1.2%	170-180	0.0	0.0%	60-90	2774	25.2%
0-90	11018	100.0%	90-180	0.0	0.0%	0-180	11018	100.0%



Report of Test
LLIA002251-025

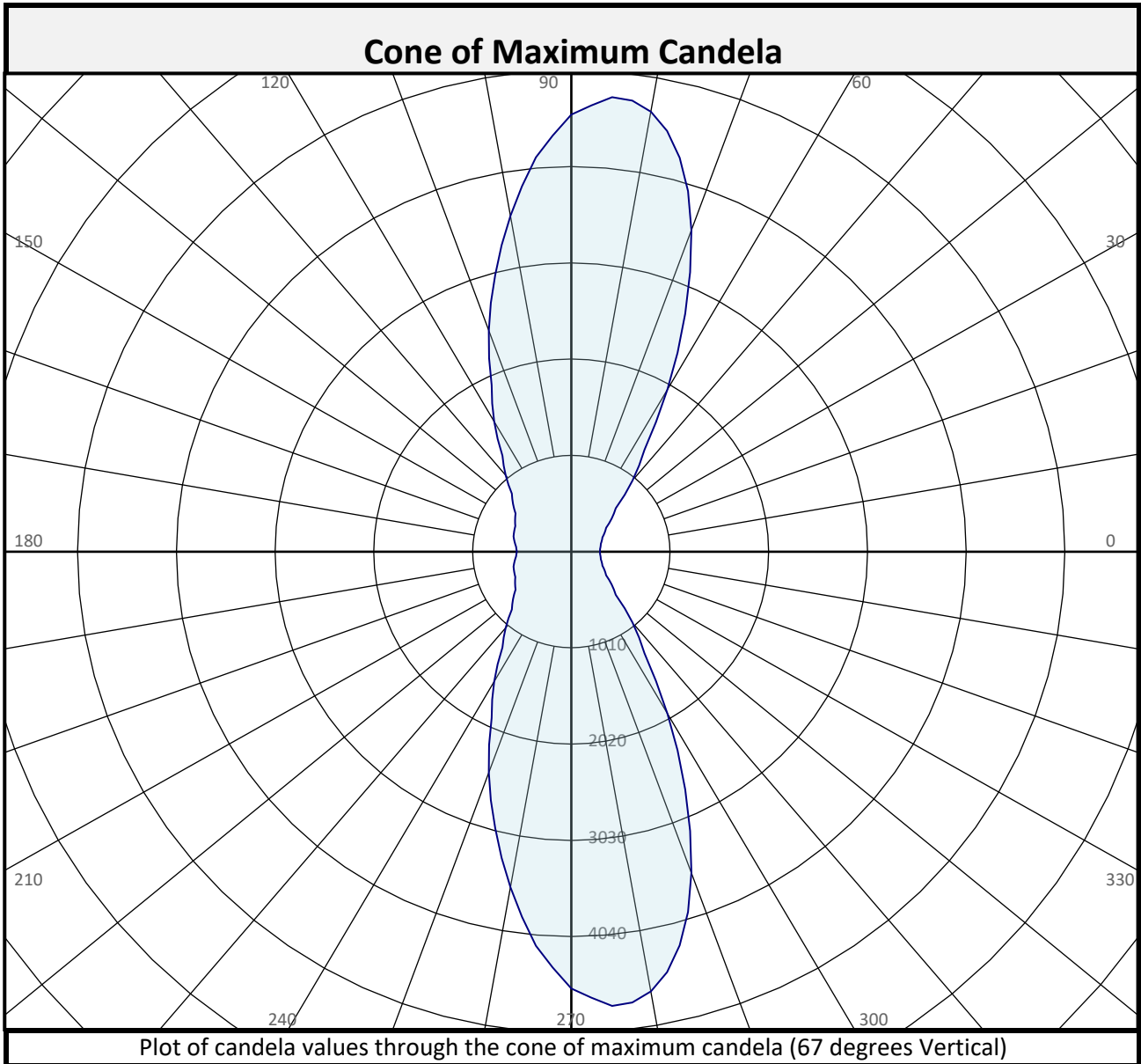


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	6321.7	57.4%	0.0	0.0%	6321.7	57.4%
House Side	4696.6	42.6%	0.0	0.0%	4696.6	42.6%
Total	11018.3	100.0%	0.0	0.0%	11018.3	100.0%

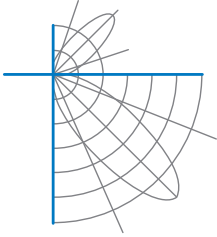


Report of Test

LLIA002251-025

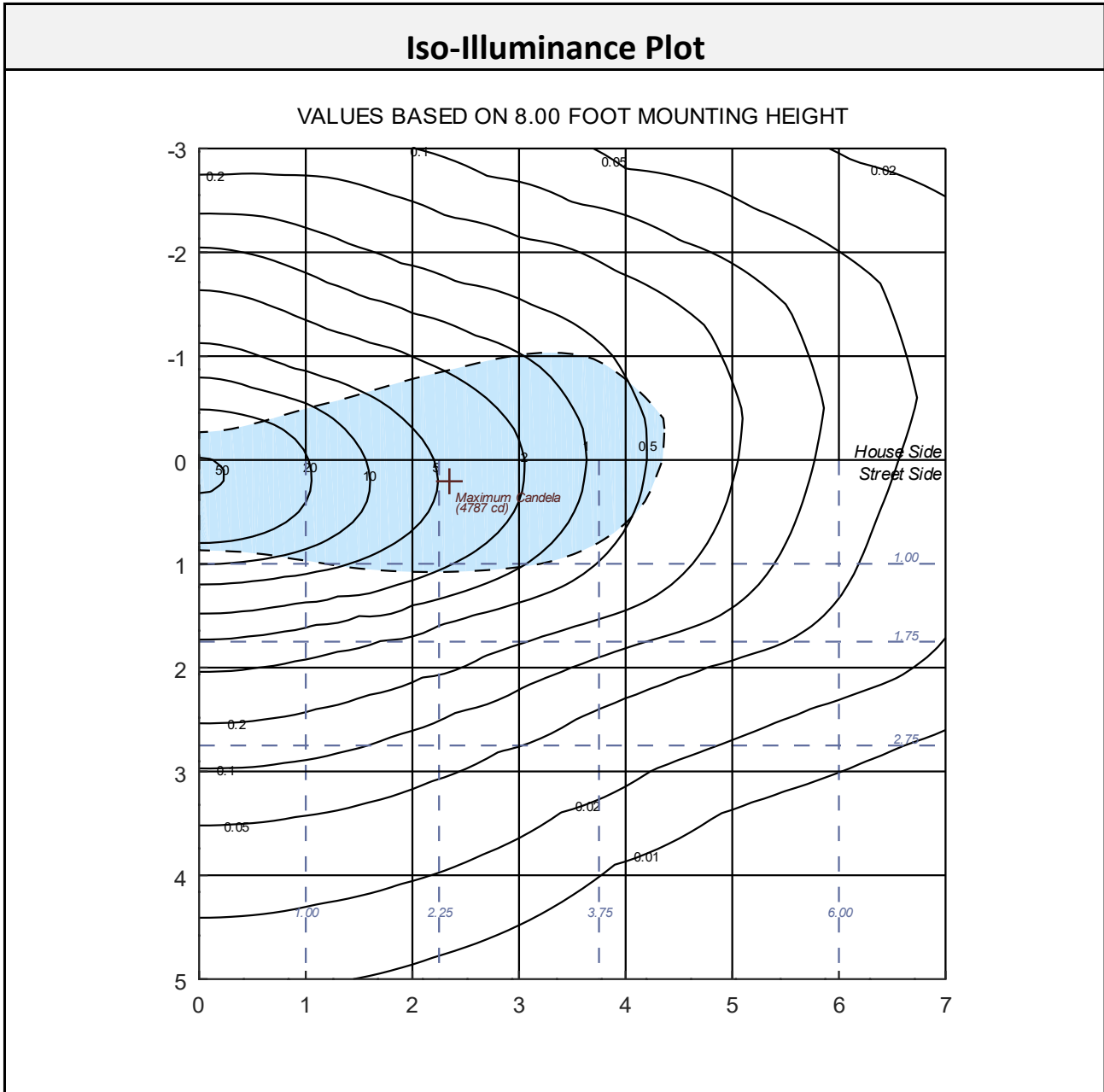


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	6321.7	57.4%	0.0	0.0%	6321.7	57.4%
House Side	4696.6	42.6%	0.0	0.0%	4696.6	42.6%
Total	11018.3	100.0%	0.0	0.0%	11018.3	100.0%



Report of Test

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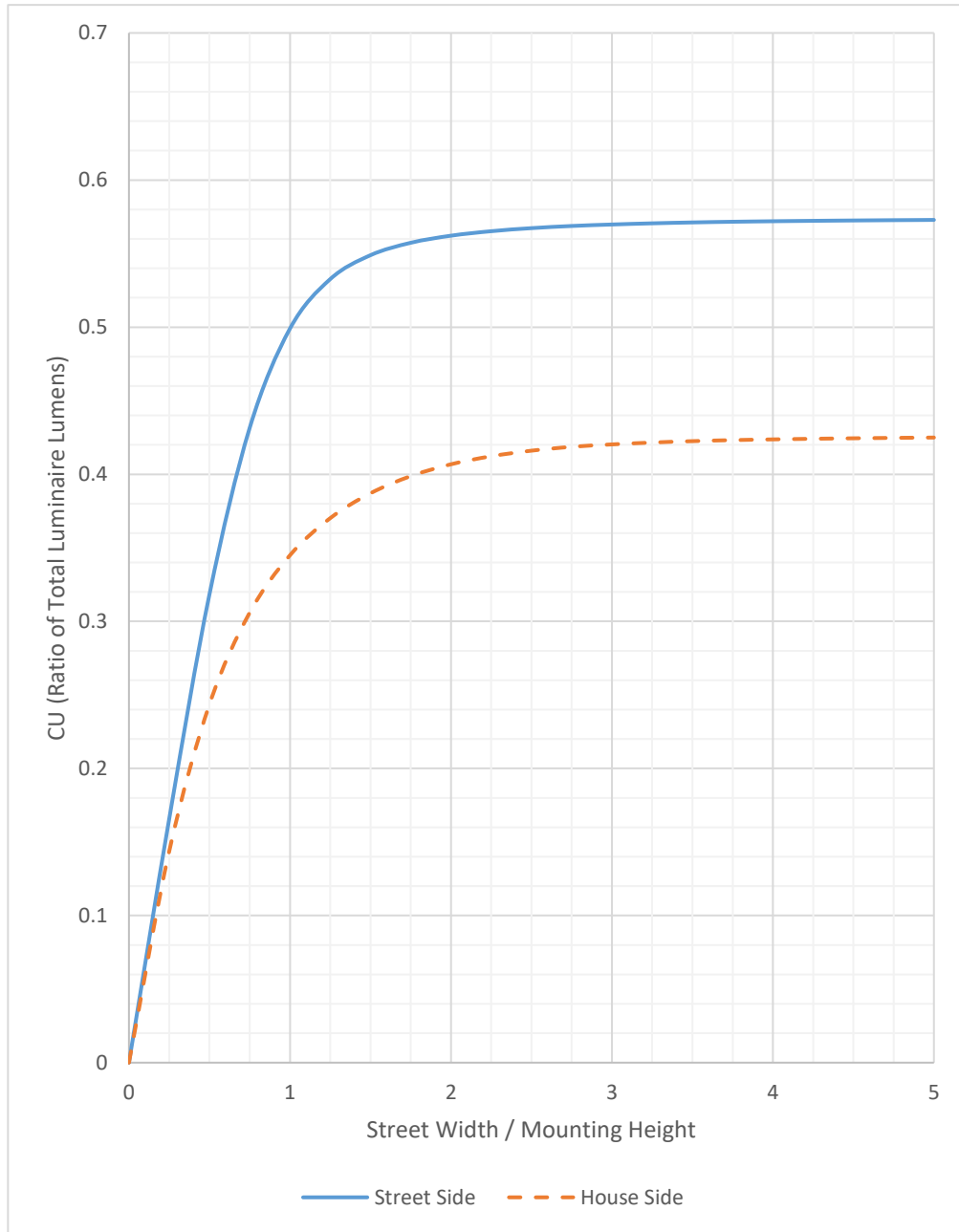


The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



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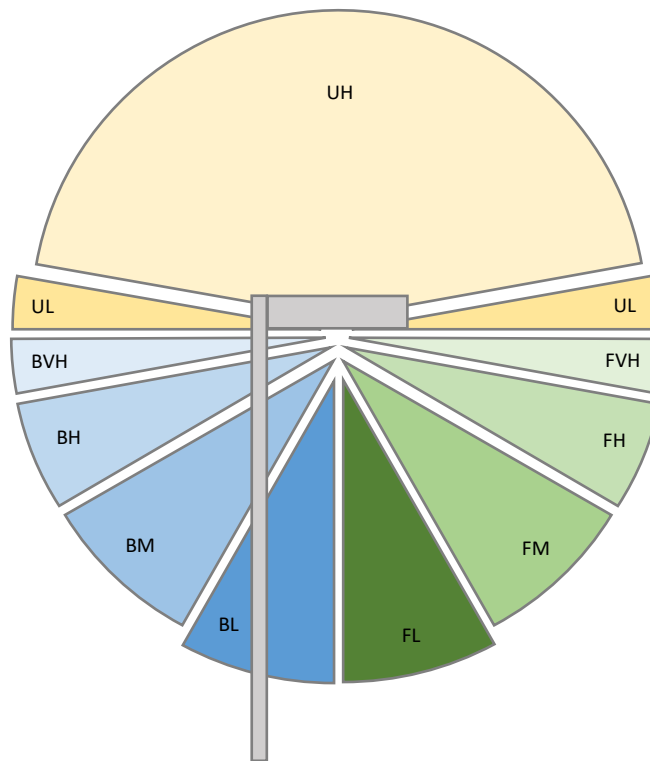
Coefficients of Utilization Plot





Report of Test
LLIA002251-025

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	1095.6 Lm
BM - Back Mid (30°-60°)	2224.9 Lm
BH - Back High (60°-80°)	1299.1 Lm
BVH - Back Very High (80°-90°)	77.0 Lm

Forward Light

FL - Forward Low (0°-30°)	1523.5 Lm
FM - Forward Mid (30°-60°)	3400.5 Lm
FH - Forward High (60°-80°)	1345.1 Lm
FVH - Forward Very High (80°-90°)	52.7 Lm

Uplight

UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

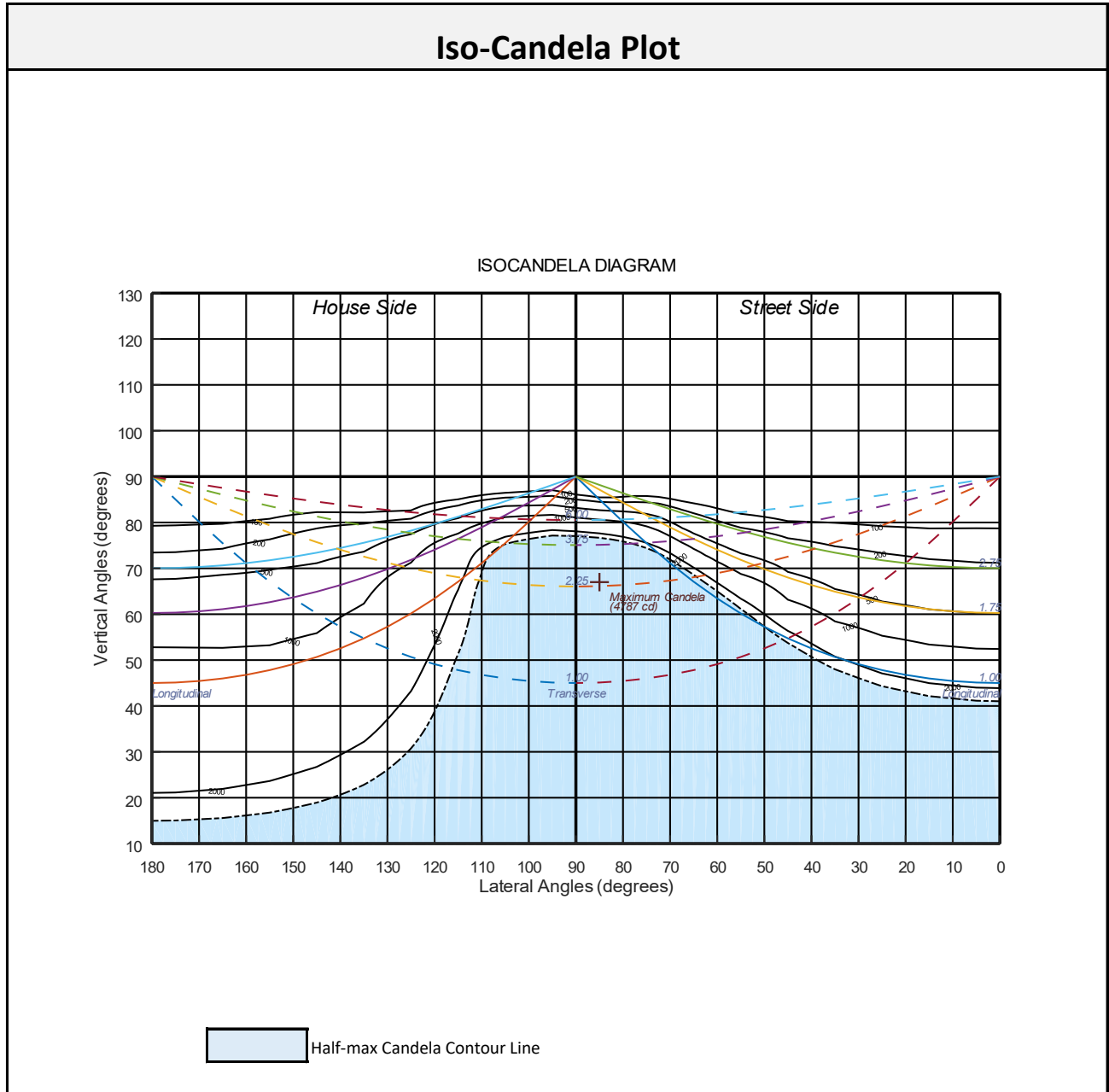
BUG Rating: Asymmetrical Luminaire (Type I, II, III, and IV) B3 - U0 - G3

BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS) B3 - U0 - G1



Report of Test
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Iso-Candela Plot





Report of Test

LLIA002251-025

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	0	5	15	25	35	45	55	57.5	60	62.5	65	67.5	70	72.5	75	
0	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	
2.5	3384	3383	3383	3376	3365	3355	3340	3336	3332	3327	3324	3319	3315	3309	3306	
5	3474	3470	3467	3456	3442	3423	3398	3390	3383	3377	3370	3361	3352	3344	3335	
7.5	3548	3544	3541	3528	3509	3485	3454	3443	3433	3423	3414	3403	3390	3379	3367	
10	3609	3607	3603	3588	3568	3541	3506	3494	3481	3469	3457	3445	3430	3414	3400	
12.5	3660	3656	3654	3642	3621	3593	3553	3541	3528	3514	3500	3486	3471	3452	3434	
15	3695	3693	3693	3685	3666	3641	3600	3588	3574	3560	3545	3528	3511	3490	3471	
17.5	3712	3711	3716	3714	3704	3686	3646	3633	3617	3604	3589	3571	3551	3530	3508	
20	3708	3706	3717	3727	3732	3724	3690	3678	3664	3647	3631	3612	3591	3571	3548	
22.5	3675	3677	3695	3720	3747	3756	3732	3719	3706	3691	3674	3655	3635	3613	3587	
25	3619	3618	3645	3692	3743	3777	3770	3762	3751	3735	3718	3698	3678	3656	3627	
27.5	3536	3540	3578	3641	3722	3788	3806	3799	3790	3778	3761	3744	3721	3698	3669	
30	3423	3428	3481	3570	3680	3784	3834	3833	3828	3819	3805	3788	3766	3741	3712	
32.5	3269	3275	3346	3472	3620	3763	3854	3862	3863	3859	3849	3834	3812	3787	3757	
35	3067	3079	3168	3332	3537	3727	3863	3882	3893	3895	3889	3877	3858	3836	3805	
37.5	2817	2832	2940	3148	3414	3672	3862	3891	3913	3924	3927	3921	3904	3885	3857	
40	2523	2539	2664	2911	3248	3589	3844	3888	3925	3948	3961	3964	3952	3937	3911	
42.5	2194	2210	2344	2627	3033	3470	3808	3871	3924	3964	3991	4002	4002	3991	3968	
45	1845	1859	1995	2299	2770	3312	3754	3839	3912	3972	4017	4043	4052	4051	4030	
47.5	1518	1531	1651	1942	2460	3110	3674	3785	3883	3969	4035	4080	4102	4109	4097	
50	1236	1247	1347	1597	2111	2860	3563	3704	3831	3942	4034	4103	4143	4163	4158	
52.5	993	1001	1083	1291	1745	2559	3400	3578	3738	3883	4011	4111	4177	4217	4222	
55	788	795	861	1028	1398	2210	3186	3406	3610	3799	3967	4103	4204	4269	4298	
57.5	627	632	682	811	1098	1818	2913	3182	3437	3673	3891	4079	4226	4330	4389	
60	505	509	546	641	855	1426	2576	2887	3189	3482	3758	4007	4211	4364	4466	
62.5	415	418	445	512	665	1079	2162	2501	2843	3184	3518	3833	4112	4334	4494	
65	342	345	367	415	523	808	1688	2029	2389	2765	3146	3529	3890	4200	4441	
67.5	281	283	300	336	414	607	1214	1508	1855	2240	2644	3068	3497	3889	4219	
70	222	225	243	271	326	458	825	1022	1296	1648	2041	2467	2917	3356	3752	
72.5	180	181	191	216	255	340	560	668	825	1067	1406	1800	2224	2642	3031	
75	145	146	150	168	195	247	387	450	535	658	849	1145	1512	1868	2184	
77.5	115	115	116	125	143	173	258	297	348	416	509	655	896	1167	1394	
80	85	85	83	88	99	106	156	183	218	261	315	391	513	683	829	
82.5	55	55	53	56	60	62	85	99	118	143	175	215	273	353	413	
85	28	28	26	27	28	27	37	43	50	60	71	86	108	133	149	
87.5	4	4	4	4	5	5	9	10	12	13	15	18	22	25	25	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

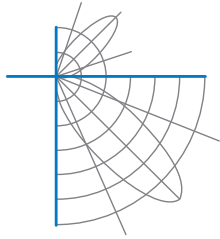
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

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Report of Test

LLIA002251-025

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
0	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	
2.5	3302	3295	3287	3284	3278	3270	3248	3230	3213	3196	3182	3169	3161	3156	3157	
5	3327	3316	3306	3298	3281	3264	3221	3182	3143	3106	3074	3048	3032	3022	3020	
7.5	3355	3340	3326	3313	3289	3260	3197	3134	3071	3012	2959	2916	2888	2873	2871	
10	3385	3367	3350	3331	3298	3260	3176	3090	2999	2914	2839	2778	2738	2715	2713	
12.5	3416	3397	3375	3354	3310	3264	3157	3044	2925	2814	2715	2637	2584	2557	2552	
15	3449	3426	3404	3378	3328	3269	3143	2998	2852	2713	2591	2495	2429	2395	2391	
17.5	3484	3462	3435	3407	3347	3282	3130	2957	2779	2610	2464	2350	2273	2232	2227	
20	3523	3495	3467	3436	3370	3294	3120	2917	2708	2508	2339	2206	2116	2071	2064	
22.5	3559	3532	3501	3469	3393	3313	3112	2878	2636	2406	2211	2062	1967	1923	1918	
25	3599	3569	3537	3502	3423	3330	3107	2842	2564	2303	2085	1930	1840	1801	1796	
27.5	3641	3609	3577	3538	3453	3352	3104	2805	2491	2198	1964	1811	1731	1696	1692	
30	3682	3651	3616	3573	3485	3376	3101	2768	2416	2093	1849	1704	1631	1601	1598	
32.5	3726	3692	3654	3613	3518	3402	3100	2732	2340	1986	1742	1608	1542	1516	1513	
35	3774	3738	3698	3653	3554	3430	3101	2696	2264	1884	1643	1518	1458	1435	1433	
37.5	3825	3787	3748	3702	3596	3461	3104	2660	2186	1786	1550	1434	1380	1360	1358	
40	3878	3844	3804	3758	3644	3499	3111	2622	2106	1691	1462	1355	1307	1289	1288	
42.5	3939	3904	3863	3813	3698	3543	3118	2582	2025	1599	1379	1279	1239	1225	1224	
45	4003	3966	3924	3874	3749	3583	3120	2538	1942	1510	1299	1208	1175	1165	1163	
47.5	4071	4035	3989	3938	3800	3616	3117	2486	1859	1426	1223	1140	1114	1108	1107	
50	4139	4102	4054	3994	3846	3647	3103	2429	1776	1344	1150	1076	1057	1055	1055	
52.5	4210	4177	4128	4063	3901	3681	3084	2361	1691	1267	1083	1017	1003	1005	1005	
55	4299	4273	4224	4161	3982	3736	3074	2291	1603	1195	1020	962	954	959	961	
57.5	4411	4401	4361	4293	4093	3813	3075	2226	1516	1125	963	911	907	916	918	
60	4523	4534	4508	4447	4224	3903	3073	2161	1438	1058	910	859	858	868	870	
62.5	4600	4653	4652	4600	4369	4002	3070	2091	1367	996	849	798	796	803	805	
65	4615	4719	4758	4735	4507	4099	3048	2012	1296	927	772	717	707	709	709	
67.5	4478	4661	4760	4783	4593	4158	2994	1903	1208	840	674	609	581	519	509	
70	4093	4355	4526	4609	4516	4128	2937	1783	1078	723	556	484	389	323	317	
72.5	3390	3692	3914	4054	4098	3858	2813	1651	917	569	436	352	254	226	223	
75	2481	2744	2963	3125	3265	3197	2458	1413	718	425	329	242	182	168	166	
77.5	1597	1771	1922	2047	2208	2269	1854	1013	495	309	237	169	134	126	125	
80	948	1043	1124	1199	1346	1476	1270	648	259	186	164	116	95	91	90	
82.5	456	485	508	538	651	787	715	314	105	90	93	69	57	54	54	
85	150	142	137	143	202	291	257	103	35	30	33	26	22	19	18	
87.5	25	23	20	16	24	50	35	16	7	3	2	1	1	0	0	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

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Report of Test

LLIA002251-025

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	0	5	15	25	35	45	55	57.5	60	62.5	65	67.5	70	72.5	75	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	142.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	147.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	152.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	157.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	162.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	167.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
177.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	142.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	147.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	152.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	157.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	162.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
167.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
172.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
177.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



Report of Test
LLIA002251-025

Additional Pictures of Test Subject





Report of Test

LLIA002251-025

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 publications: IES LM-79-19. Format of reports and angular increments based on IES LM-31-20 and LM-10-20.

The luminous intensity values, and other derived quantities, contained in this report are based on absolute data.

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 IES C-Type spherical coordinate system as defined in IES LM-75-19.

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.

The device under test emits no detectable uplight, as defined by ANSI/IES LM-31-20. For the purpose of this report, certain non-zero uplight readings, attributable to instrument artifacts, have been assigned a zero value.