

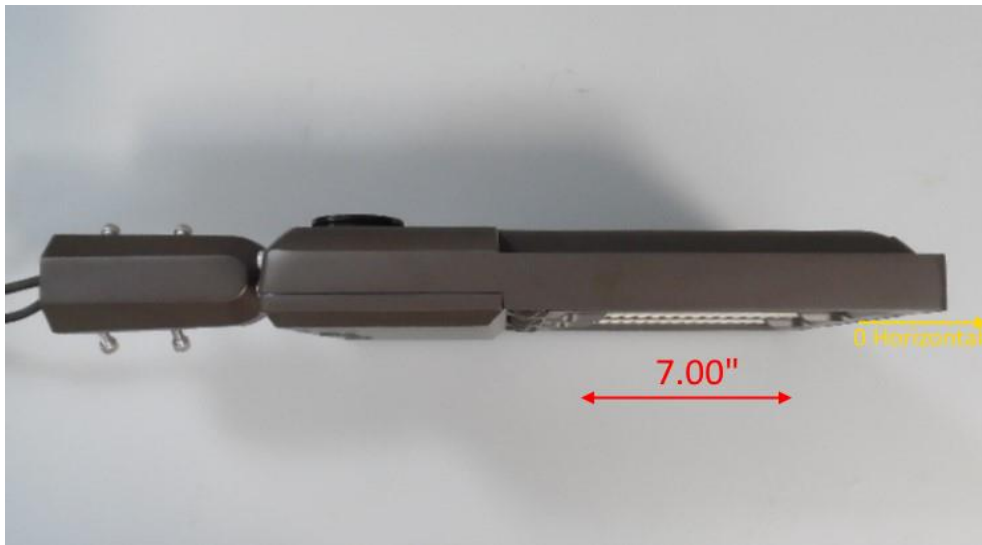


Report of Test

LLIA002251-031

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-SWO - T4 Optics - 100W - 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	14855.4 Lumens
Input Current	0.8105 A	Total Efficacy	153.1 Lm/W
Input Power	97.04 W		
Frequency	60.00 Hz	Roadway Throw	Short
Power Factor	0.998	Roadway Type	Type IV
Current THD	4.2 %		

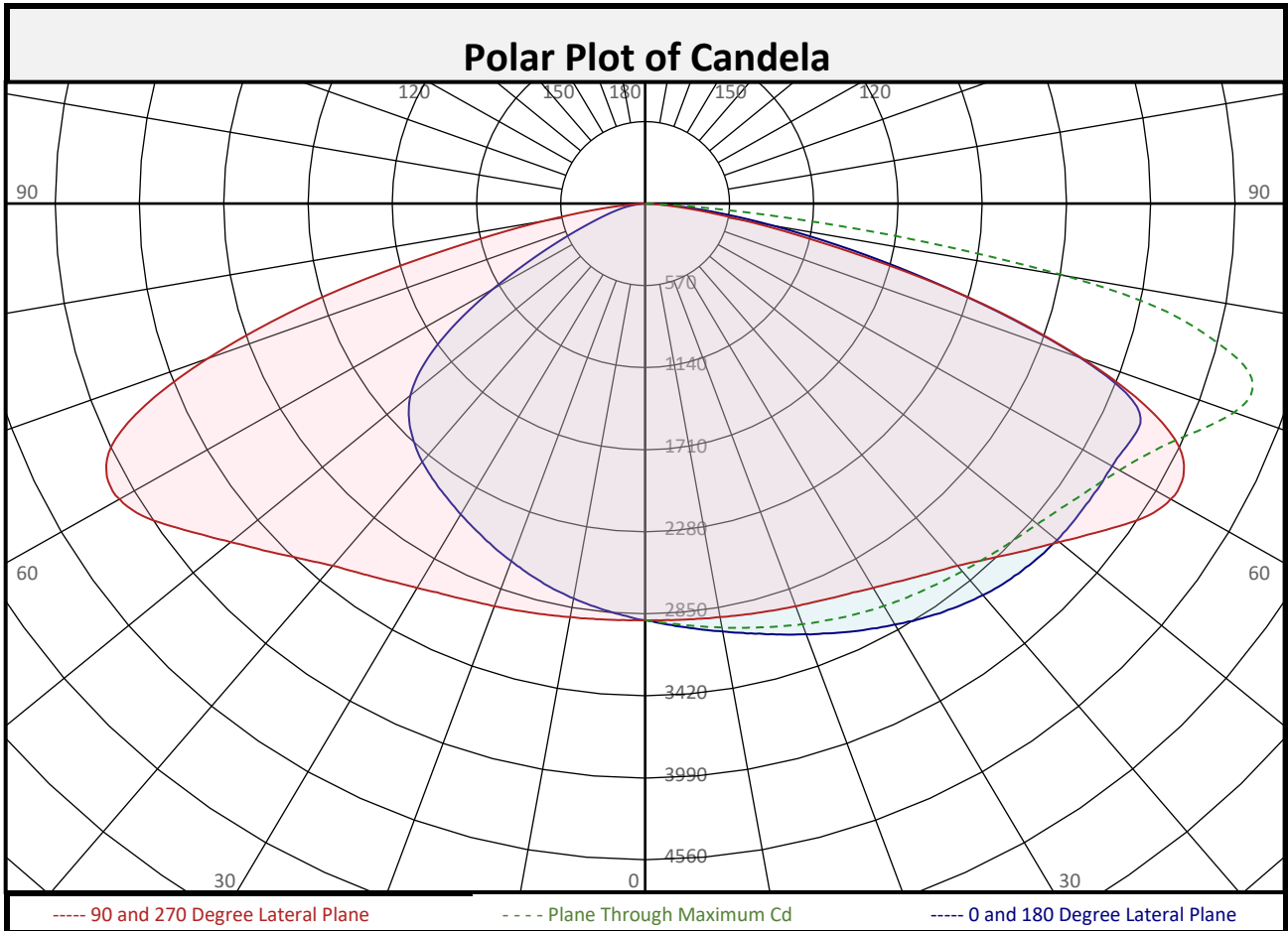
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 10/31/2023
Report date: 11/06/2023

Signed: _____



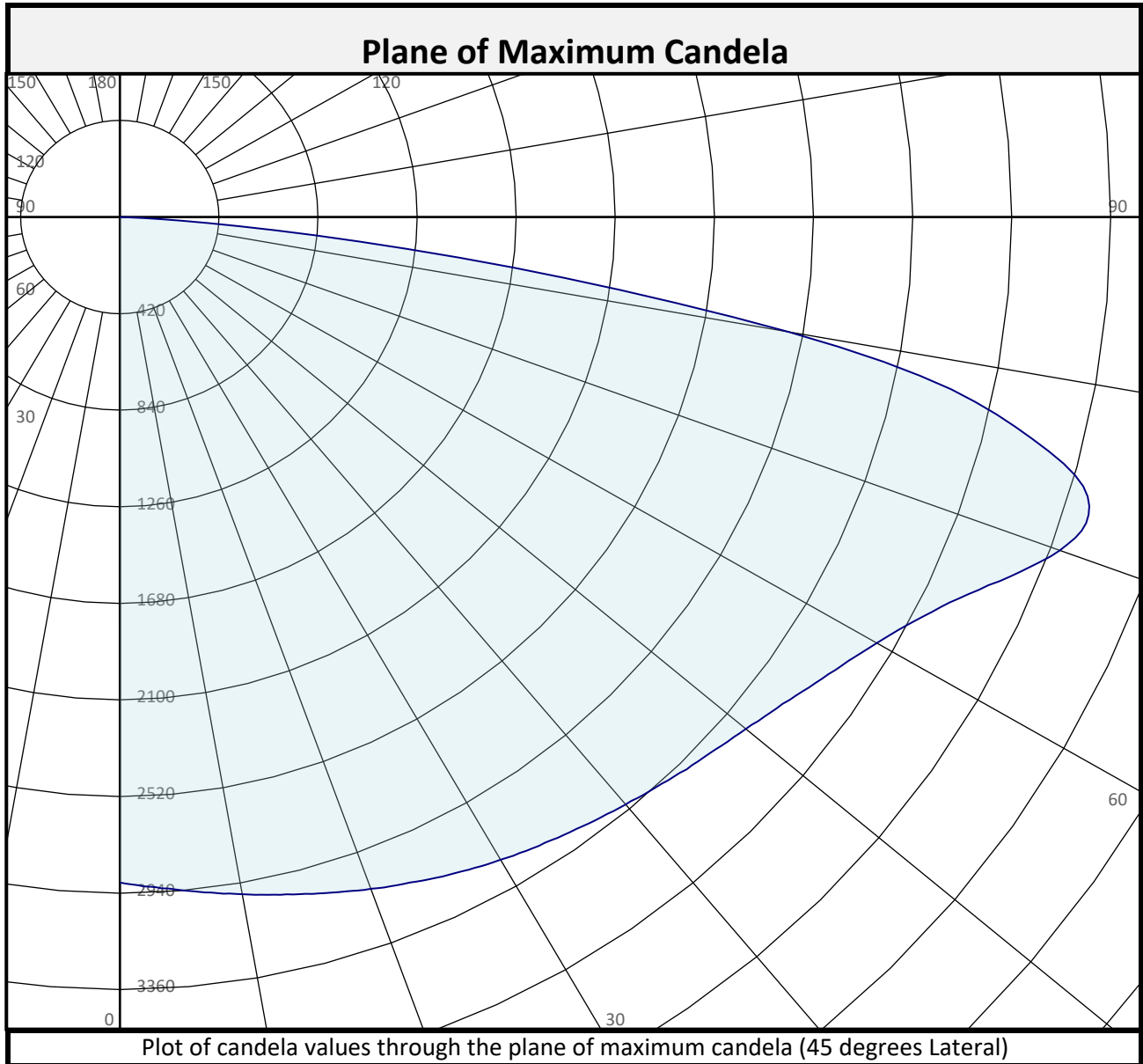
Report of Test
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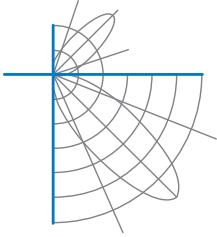
Zonal Flux Summary								
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	277.2	1.9%	90-100	0.0	0.0%	0-20	1107	7.5%
10-20	829.9	5.6%	100-110	0.0	0.0%	0-30	2482	16.7%
20-30	1375	9.3%	110-120	0.0	0.0%	0-40	4390	29.5%
30-40	1908	12.8%	120-130	0.0	0.0%	0-60	9709	65.4%
40-50	2431	16.4%	130-140	0.0	0.0%	0-80	14526	97.8%
50-60	2889	19.4%	140-150	0.0	0.0%	10-90	14578	98.1%
60-70	2957	19.9%	150-160	0.0	0.0%	20-50	5713	38.5%
70-80	1860	12.5%	160-170	0.0	0.0%	40-90	10466	70.5%
80-90	329.1	2.2%	170-180	0.0	0.0%	60-90	5146	34.6%
0-90	14855	100.0%	90-180	0.0	0.0%	0-180	14855	100.0%



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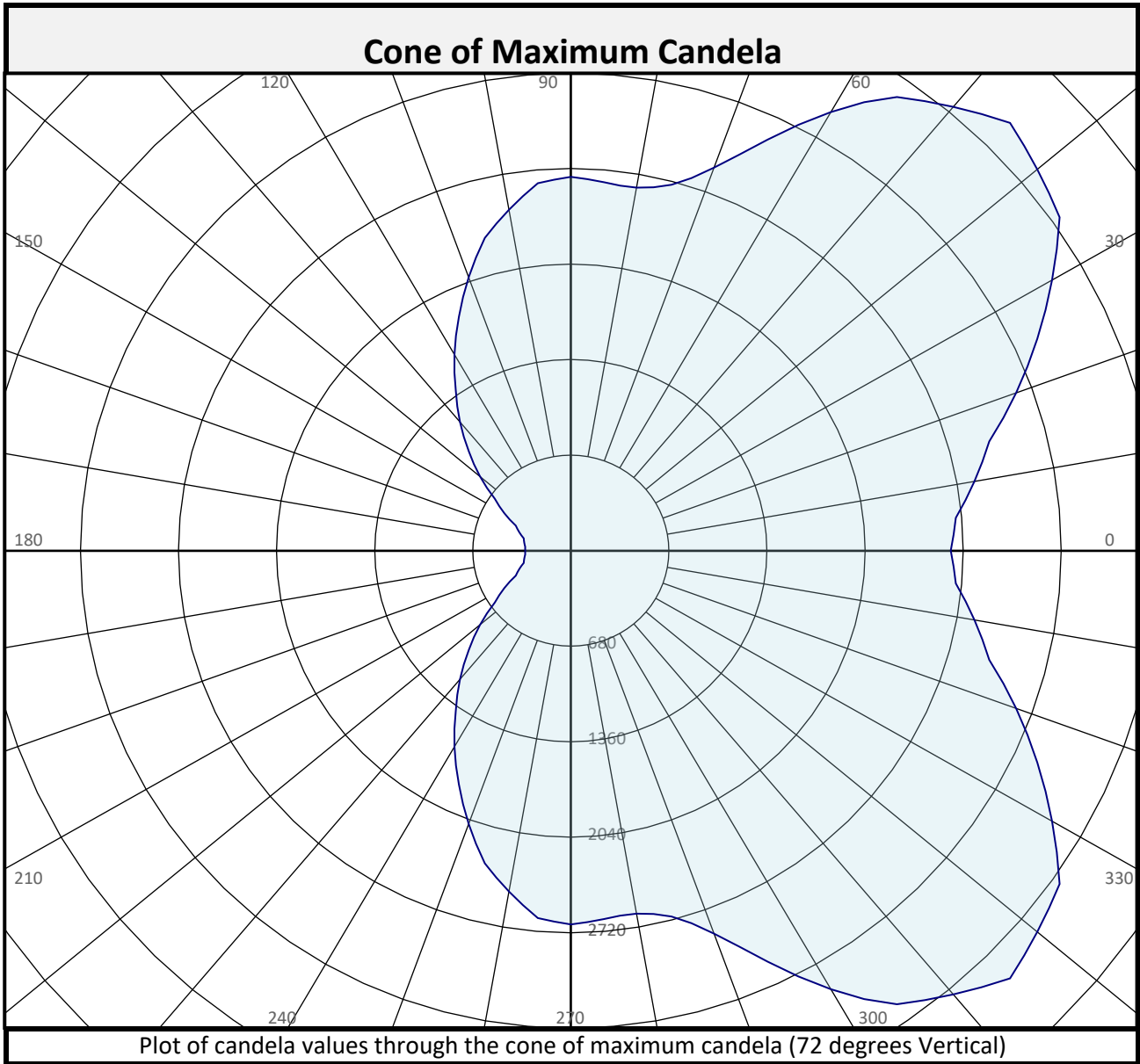


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	8976.9	60.4%	0.0	0.0%	8976.9	60.4%
House Side	5878.4	39.6%	0.0	0.0%	5878.4	39.6%
Total	14855.4	100.0%	0.0	0.0%	14855.4	100.0%

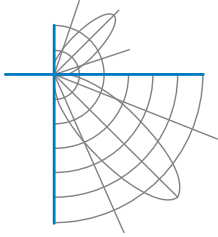


Report of Test

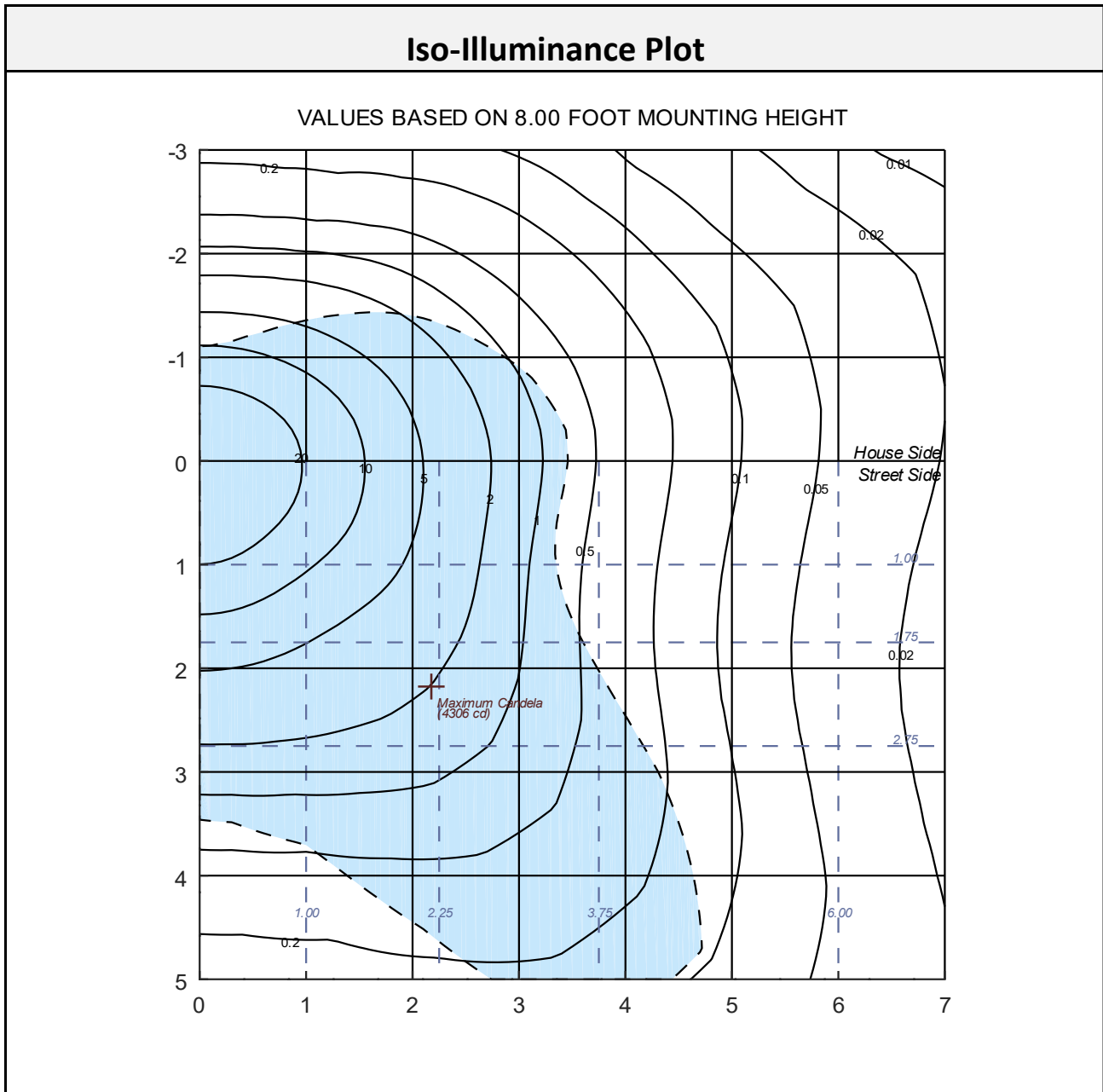
LLIA002251-031



Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	8976.9	60.4%	0.0	0.0%	8976.9	60.4%
House Side	5878.4	39.6%	0.0	0.0%	5878.4	39.6%
Total	14855.4	100.0%	0.0	0.0%	14855.4	100.0%



Report of Test
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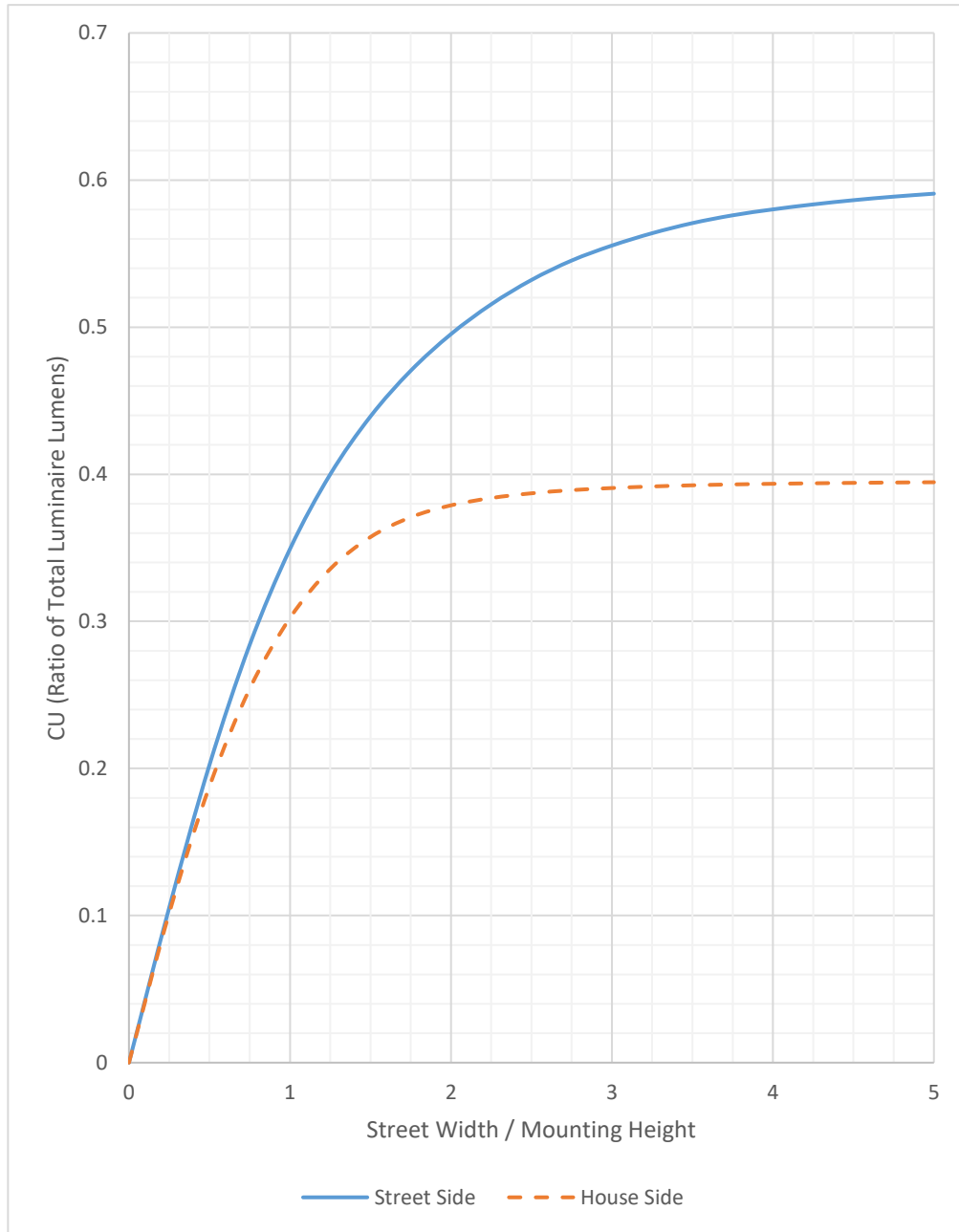


The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



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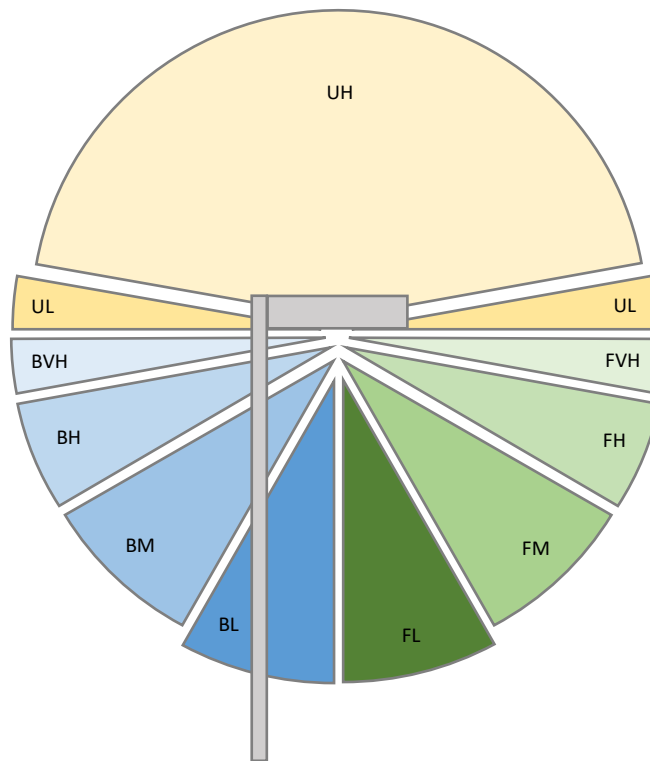
Coefficients of Utilization Plot





Report of Test
LLIA002251-031

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	1175.0 Lm
BM - Back Mid (30°-60°)	3172.0 Lm
BH - Back High (60°-80°)	1478.6 Lm
BVH - Back Very High (80°-90°)	52.8 Lm

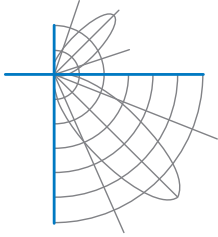
Forward Light

FL - Forward Low (0°-30°)	1306.8 Lm
FM - Forward Mid (30°-60°)	4055.2 Lm
FH - Forward High (60°-80°)	3338.7 Lm
FVH - Forward Very High (80°-90°)	276.3 Lm

Uplight

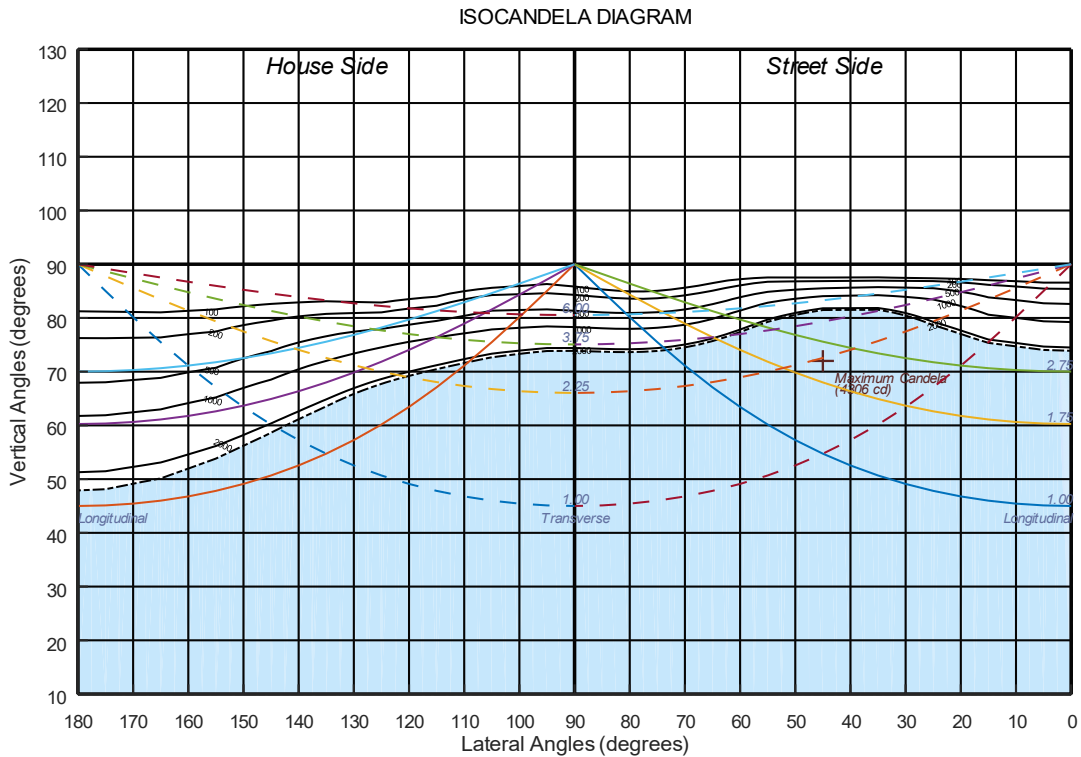
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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



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Iso-Candela Plot



Half-max Candela Contour Line



Report of Test

LLIA002251-031

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	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	
2.5	2923	2921	2922	2920	2916	2915	2912	2910	2910	2908	2907	2904	2903	2903	2902	
5	2953	2951	2951	2948	2945	2938	2929	2928	2927	2925	2924	2920	2919	2915	2915	
7.5	2986	2985	2982	2977	2971	2963	2954	2951	2948	2944	2942	2939	2934	2931	2929	
10	3019	3020	3015	3009	2999	2990	2977	2974	2968	2965	2961	2957	2953	2949	2944	
12.5	3055	3055	3052	3042	3032	3018	3002	2999	2991	2988	2982	2977	2972	2967	2964	
15	3096	3095	3090	3078	3063	3046	3029	3020	3018	3011	3006	2999	2992	2988	2983	
17.5	3140	3138	3133	3118	3096	3078	3054	3048	3043	3036	3031	3023	3017	3010	3005	
20	3184	3183	3176	3157	3131	3108	3079	3076	3069	3062	3055	3047	3041	3033	3026	
22.5	3232	3232	3220	3194	3168	3139	3110	3103	3096	3087	3079	3072	3065	3058	3049	
25	3282	3279	3262	3237	3204	3170	3139	3132	3124	3116	3108	3098	3092	3086	3076	
27.5	3328	3327	3309	3272	3236	3200	3167	3160	3154	3146	3138	3131	3123	3114	3106	
30	3377	3376	3352	3310	3266	3227	3199	3191	3184	3179	3171	3165	3158	3148	3140	
32.5	3427	3424	3395	3345	3291	3255	3229	3223	3220	3216	3209	3203	3195	3187	3180	
35	3475	3470	3436	3377	3318	3280	3262	3262	3259	3255	3252	3248	3241	3235	3229	
37.5	3515	3511	3472	3405	3340	3307	3303	3303	3302	3302	3300	3297	3293	3287	3283	
40	3552	3547	3506	3432	3364	3335	3345	3348	3352	3355	3355	3355	3352	3349	3344	
42.5	3584	3575	3532	3455	3384	3363	3390	3397	3405	3411	3417	3418	3418	3417	3413	
45	3607	3601	3552	3475	3410	3397	3439	3454	3466	3477	3487	3494	3496	3498	3497	
47.5	3625	3618	3569	3489	3429	3425	3495	3516	3537	3555	3570	3578	3588	3591	3592	
50	3638	3628	3581	3504	3448	3463	3564	3594	3621	3642	3662	3678	3685	3691	3695	
52.5	3642	3633	3590	3518	3471	3509	3640	3681	3712	3741	3764	3783	3797	3808	3810	
55	3642	3638	3598	3534	3498	3566	3728	3775	3817	3852	3881	3906	3920	3932	3941	
57.5	3648	3640	3610	3560	3532	3629	3830	3886	3933	3978	4012	4039	4054	4069	4074	
60	3648	3646	3627	3593	3581	3704	3948	4011	4068	4112	4144	4167	4181	4184	4185	
62.5	3666	3662	3657	3642	3653	3801	4078	4141	4191	4225	4241	4249	4247	4240	4228	
65	3684	3689	3705	3712	3749	3924	4182	4229	4260	4272	4266	4253	4227	4202	4175	
67.5	3566	3586	3697	3797	3876	4084	4230	4237	4226	4197	4146	4085	4016	3951	3891	
70	3132	3170	3426	3771	4045	4239	4150	4080	3988	3878	3745	3606	3476	3365	3283	
72.5	2507	2549	2882	3492	4137	4305	3869	3690	3490	3290	3091	2908	2754	2634	2550	
75	1882	1920	2241	3001	3945	4141	3414	3139	2864	2600	2363	2164	2016	1902	1825	
77.5	1331	1363	1642	2436	3474	3713	2771	2432	2108	1827	1595	1419	1297	1211	1151	
80	870	893	1110	1813	2768	2881	1892	1597	1339	1129	964	844	760	702	670	
82.5	512	528	689	1203	1696	1679	1097	908	740	608	509	435	379	340	316	
85	237	245	334	617	724	662	469	394	322	260	206	166	136	115	102	
87.5	32	31	51	78	107	103	105	89	72	56	43	33	25	20	17	
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

LLIA002251-031

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	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	2894	
2.5	2901	2899	2897	2897	2895	2893	2886	2882	2879	2875	2871	2870	2869	2869	2867	
5	2912	2909	2905	2903	2900	2895	2882	2873	2868	2860	2852	2845	2843	2843	2840	
7.5	2925	2921	2917	2913	2907	2900	2883	2869	2857	2844	2832	2824	2819	2815	2814	
10	2939	2935	2931	2926	2915	2908	2887	2867	2849	2832	2813	2800	2792	2785	2783	
12.5	2958	2952	2946	2939	2928	2916	2892	2867	2842	2819	2795	2776	2762	2754	2753	
15	2977	2970	2963	2956	2942	2928	2900	2868	2838	2805	2772	2749	2731	2721	2717	
17.5	2997	2991	2982	2973	2958	2942	2909	2871	2834	2792	2753	2721	2696	2683	2681	
20	3018	3010	3002	2994	2976	2957	2920	2877	2831	2778	2729	2690	2661	2645	2642	
22.5	3042	3033	3026	3016	2994	2976	2934	2883	2828	2766	2707	2660	2625	2607	2607	
25	3069	3059	3050	3039	3019	2995	2952	2896	2828	2754	2683	2630	2590	2567	2568	
27.5	3098	3089	3079	3068	3043	3024	2976	2909	2829	2743	2664	2599	2555	2532	2529	
30	3132	3124	3115	3101	3082	3059	3006	2929	2834	2736	2643	2571	2520	2494	2493	
32.5	3172	3162	3155	3142	3121	3101	3039	2950	2843	2729	2624	2543	2488	2459	2454	
35	3221	3211	3201	3190	3170	3146	3081	2979	2855	2725	2610	2516	2455	2421	2420	
37.5	3274	3264	3255	3244	3222	3198	3127	3014	2874	2726	2594	2492	2421	2385	2381	
40	3335	3327	3317	3308	3283	3260	3185	3057	2895	2729	2582	2467	2387	2345	2343	
42.5	3408	3401	3392	3381	3363	3338	3252	3108	2924	2733	2569	2439	2349	2300	2295	
45	3492	3487	3479	3468	3452	3428	3336	3169	2959	2740	2551	2405	2301	2244	2237	
47.5	3591	3586	3578	3568	3548	3523	3424	3239	2998	2746	2531	2362	2241	2175	2168	
50	3695	3691	3685	3674	3657	3631	3517	3306	3033	2746	2500	2303	2159	2078	2071	
52.5	3814	3809	3805	3794	3776	3747	3613	3372	3061	2734	2449	2218	2037	1936	1923	
55	3940	3942	3937	3929	3907	3870	3714	3430	3064	2697	2365	2084	1858	1734	1719	
57.5	4079	4076	4068	4058	4033	3987	3805	3468	3034	2616	2234	1886	1619	1482	1467	
60	4182	4174	4162	4148	4104	4047	3836	3457	2955	2473	2036	1624	1340	1205	1190	
62.5	4215	4197	4178	4156	4105	4026	3771	3351	2804	2261	1766	1323	1051	937	924	
65	4146	4111	4084	4051	3982	3885	3584	3118	2553	1980	1447	1024	796	709	700	
67.5	3842	3799	3765	3729	3659	3553	3224	2743	2190	1638	1124	759	590	531	525	
70	3231	3195	3176	3168	3153	3078	2739	2250	1749	1278	834	551	432	397	394	
72.5	2502	2482	2481	2496	2531	2505	2193	1737	1310	936	602	394	318	301	300	
75	1782	1762	1764	1781	1823	1826	1606	1251	931	649	421	282	236	229	229	
77.5	1117	1102	1104	1121	1162	1185	1062	800	562	425	283	199	174	173	174	
80	652	645	649	661	696	721	673	429	275	245	182	137	122	123	124	
82.5	308	309	315	329	366	396	372	184	117	123	103	81	71	73	74	
85	96	96	105	118	149	171	139	59	37	45	41	32	27	27	28	
87.5	14	13	13	15	29	39	22	12	8	6	4	3	2	1	1	
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

LLIA002251-031

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	



Report of Test

LLIA002251-031

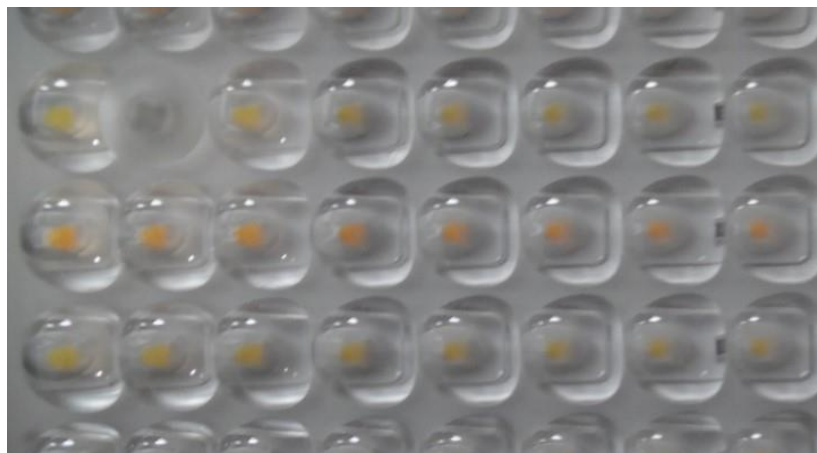
Luminous Intensity (Candela) Table

	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
LLIA002251-031

Additional Pictures of Test Subject





Report of Test

LLIA002251-031

Test Distance 9.5 m
Ambient Temperature 24.9 °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.