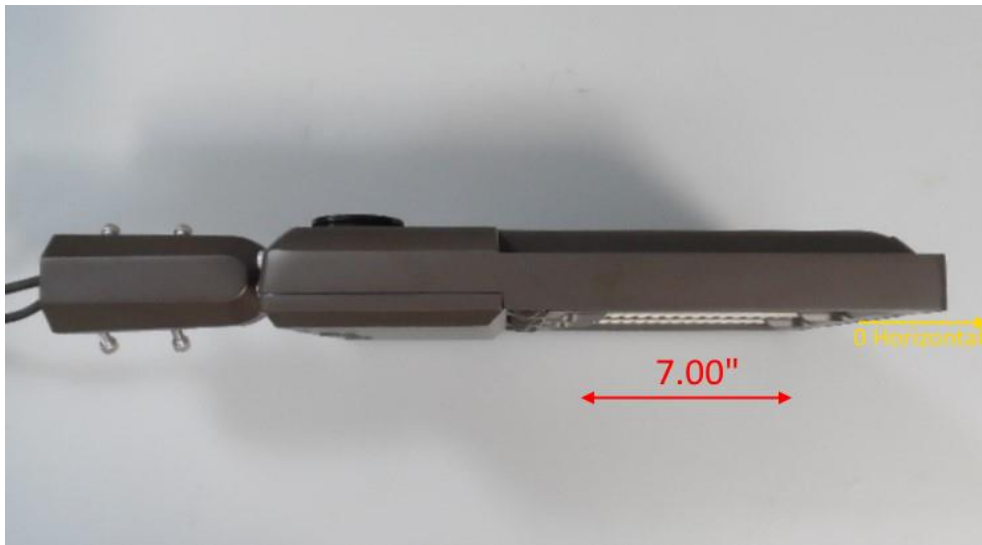


Report of Test

LLIA002251-026

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-SWO - T3 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



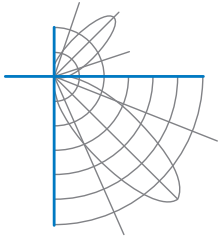
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	10847.9 Lumens
Input Current	0.5714 A	Total Efficacy	158.6 Lm/W
Input Power	68.40 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.997	Roadway Type	Type III
Current THD	4.6 %		

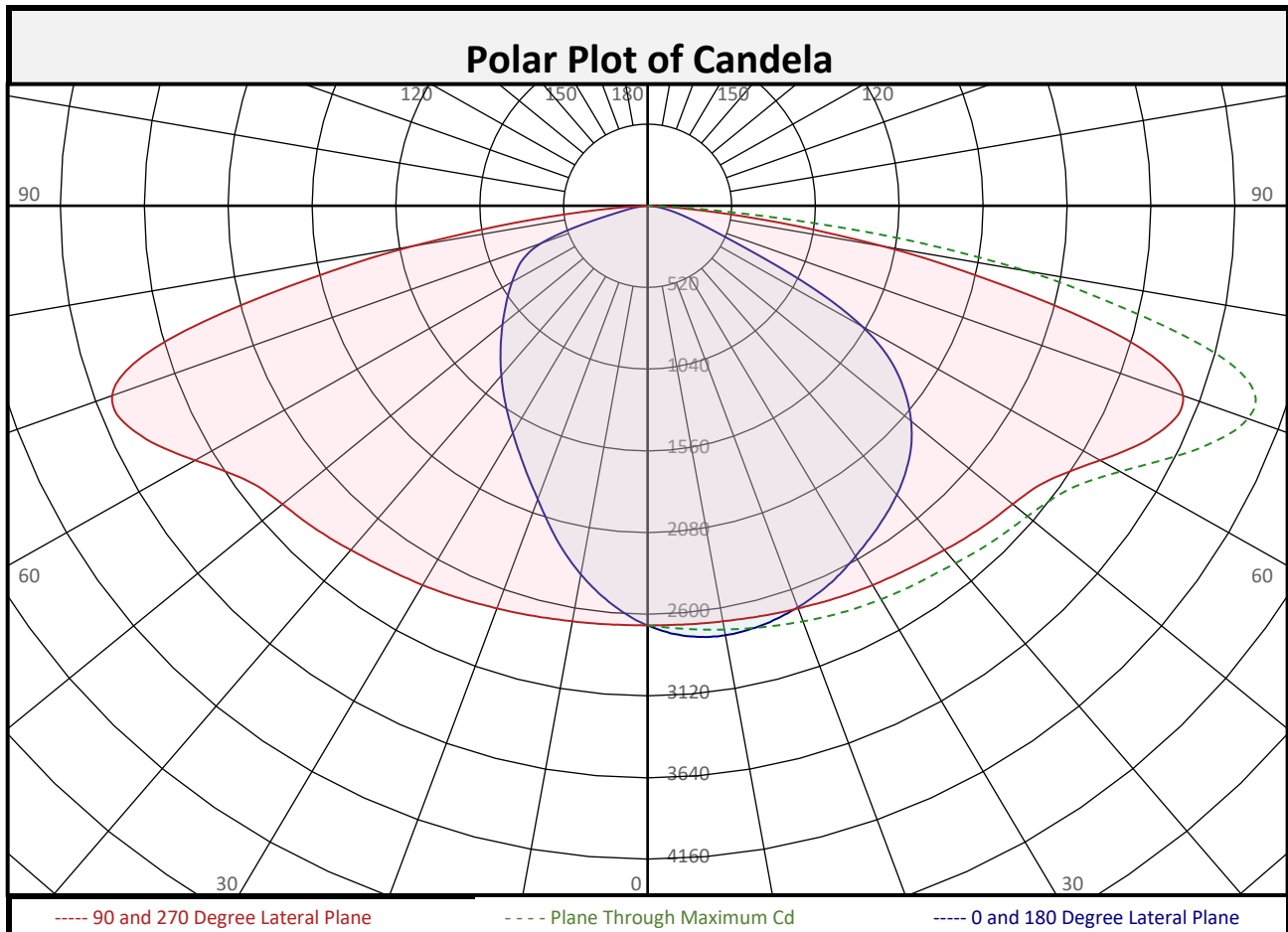
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

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

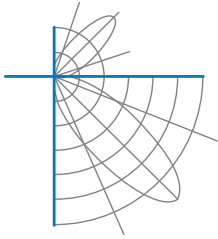
Signed: _____



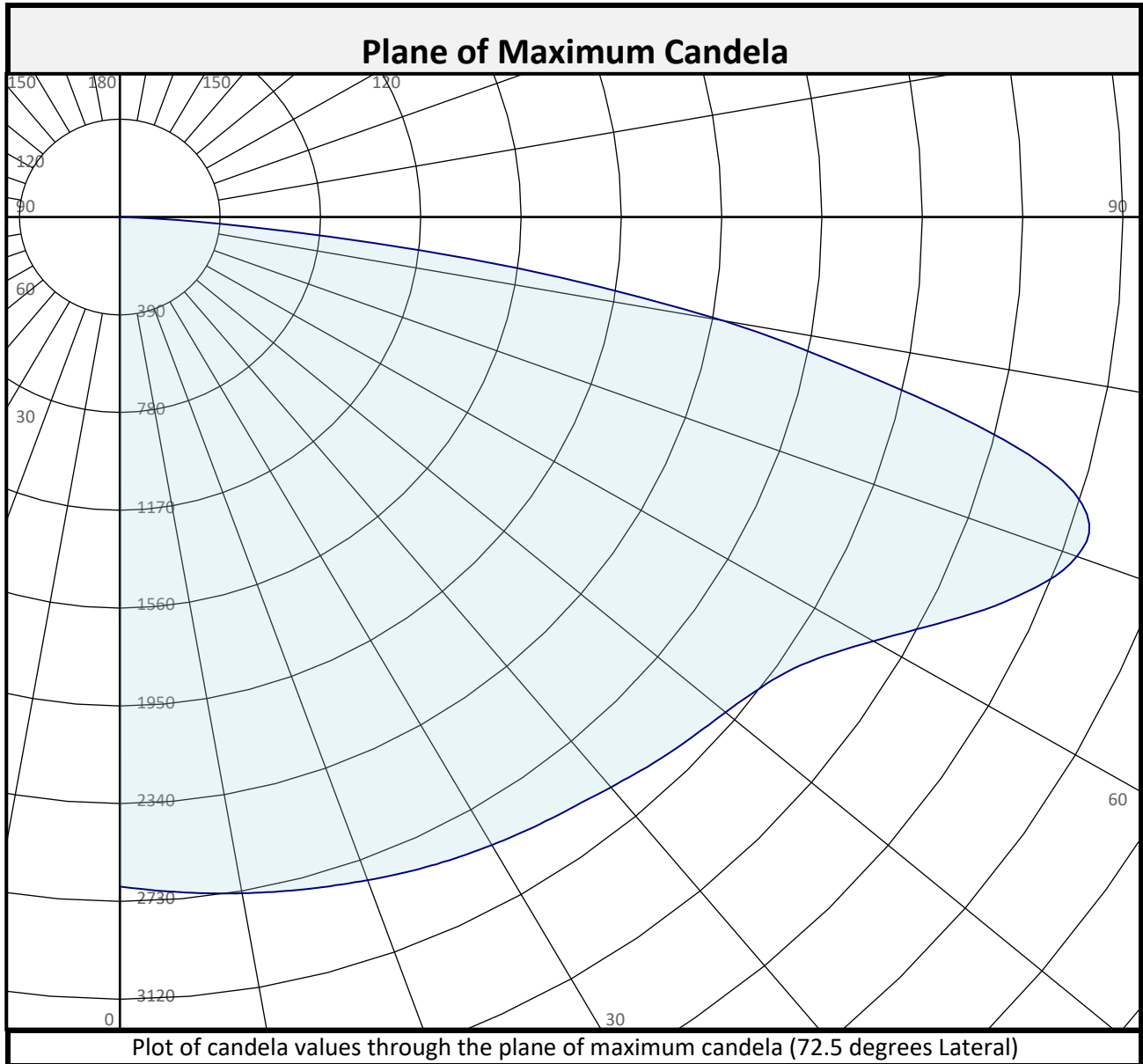
Report of Test
LLIA002251-026



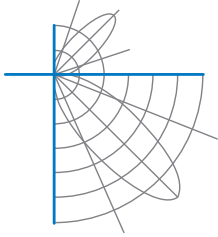
Zonal Flux Summary								
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	253.2	2.3%	90-100	0.0	0.0%	0-20	984.0	9.1%
10-20	730.9	6.7%	100-110	0.0	0.0%	0-30	2125	19.6%
20-30	1141	10.5%	110-120	0.0	0.0%	0-40	3600	33.2%
30-40	1475	13.6%	120-130	0.0	0.0%	0-60	7244	66.8%
40-50	1735	16.0%	130-140	0.0	0.0%	0-80	10604	97.7%
50-60	1909	17.6%	140-150	0.0	0.0%	10-90	10595	97.7%
60-70	1955	18.0%	150-160	0.0	0.0%	20-50	4351	40.1%
70-80	1404	12.9%	160-170	0.0	0.0%	40-90	7248	66.8%
80-90	244.3	2.3%	170-180	0.0	0.0%	60-90	3603	33.2%
0-90	10848	100.0%	90-180	0.0	0.0%	0-180	10848	100.0%



Report of Test
LLIA002251-026

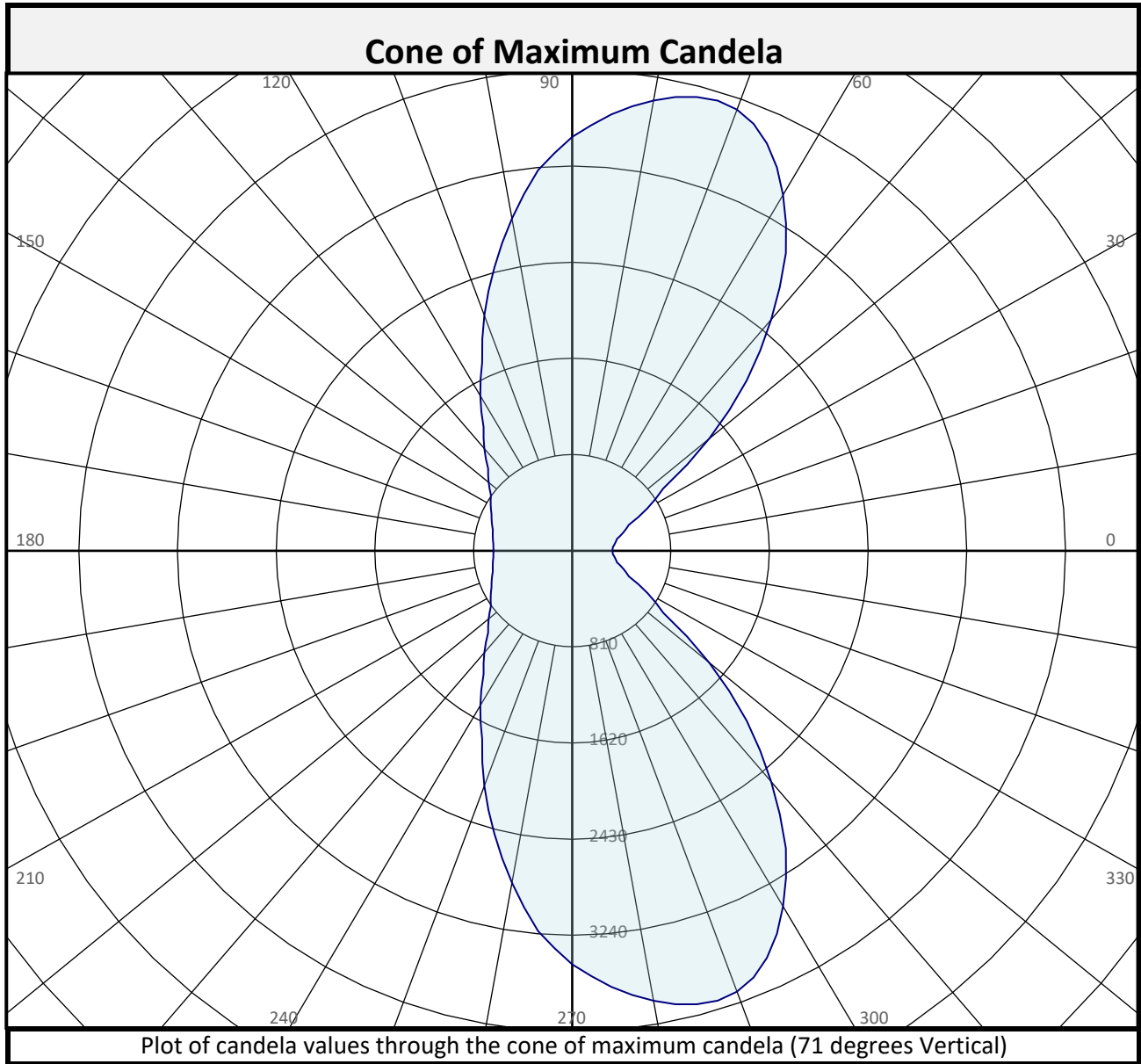


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	6414.2	59.1%	0.0	0.0%	6414.2	59.1%
House Side	4433.6	40.9%	0.0	0.0%	4433.6	40.9%
Total	10847.9	100.0%	0.0	0.0%	10847.9	100.0%

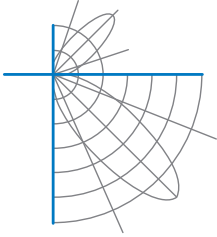


Report of Test

LLIA002251-026

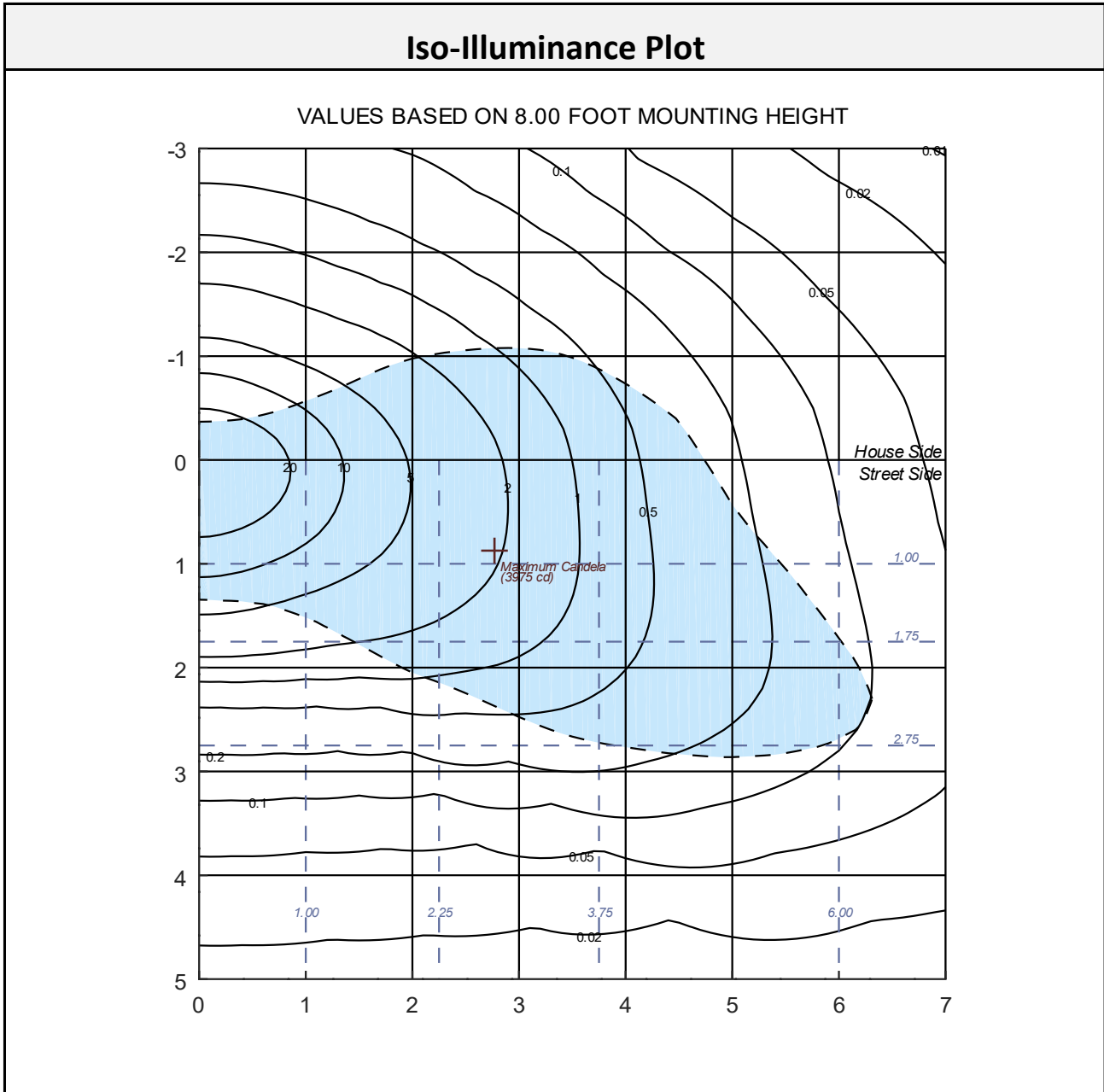


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	6414.2	59.1%	0.0	0.0%	6414.2	59.1%
House Side	4433.6	40.9%	0.0	0.0%	4433.6	40.9%
Total	10847.9	100.0%	0.0	0.0%	10847.9	100.0%

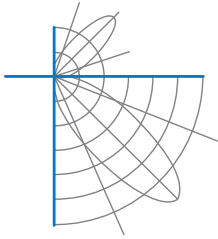


Report of Test

LLIA002251-026

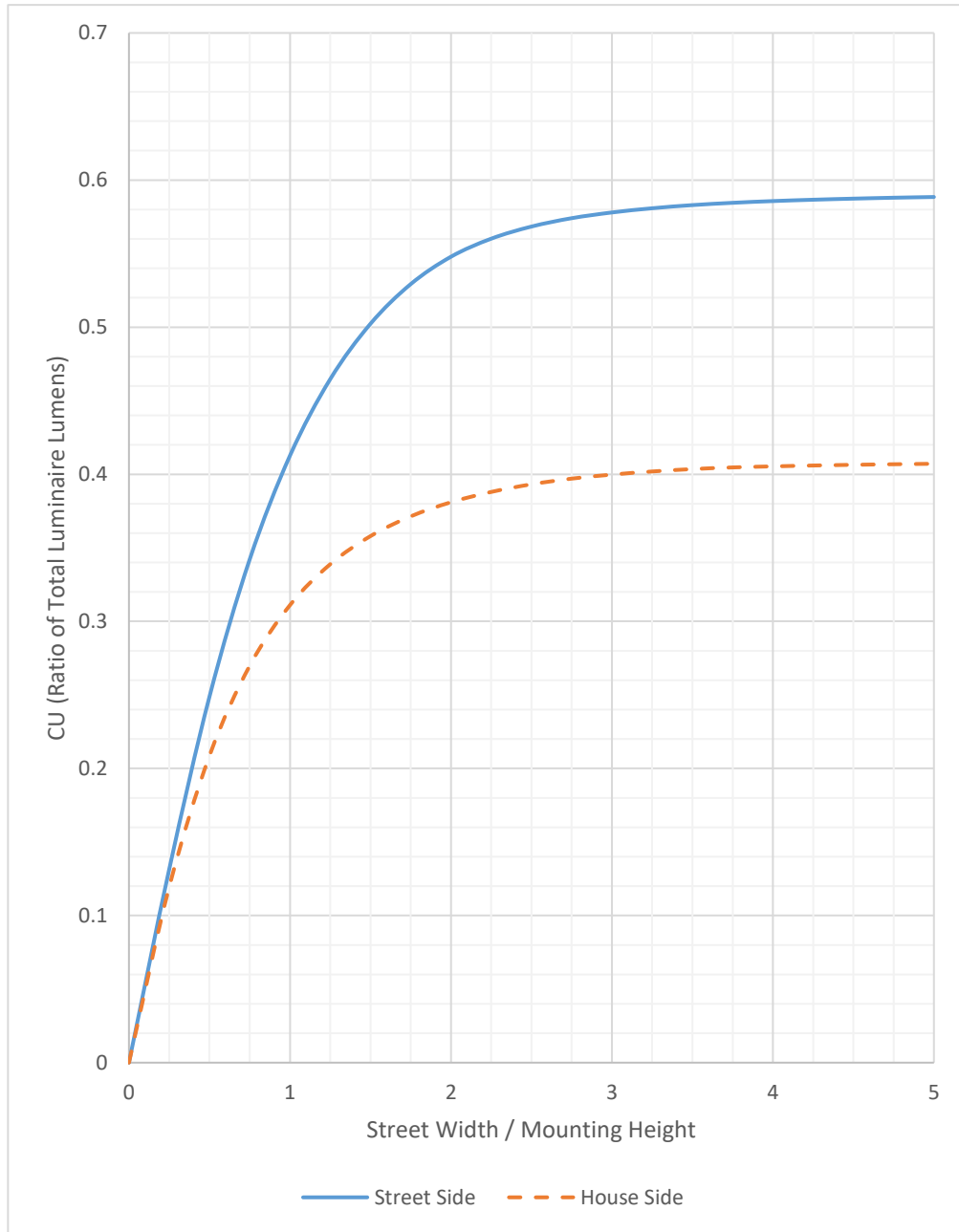


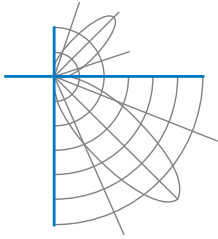
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-026

Coefficients of Utilization Plot

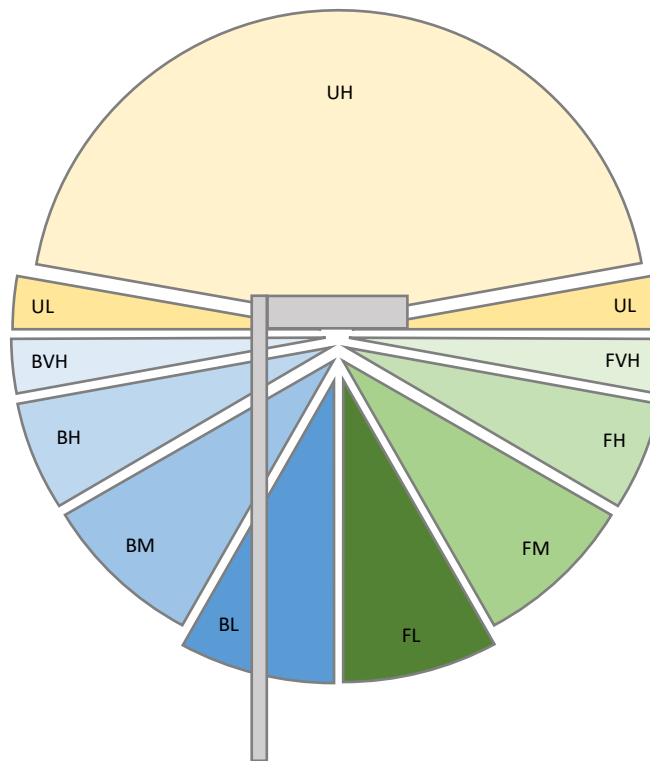




Report of Test

LLIA002251-026

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	962.4 Lm
BM - Back Mid (30°-60°)	2085.1 Lm
BH - Back High (60°-80°)	1315.3 Lm
BVH - Back Very High (80°-90°)	70.8 Lm

Forward Light

FL - Forward Low (0°-30°)	1162.4 Lm
FM - Forward Mid (30°-60°)	3034.6 Lm
FH - Forward High (60°-80°)	2043.7 Lm
FVH - Forward Very High (80°-90°)	173.5 Lm

Uplight

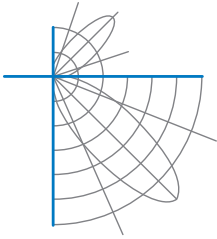
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

BUG Rating: Asymmetrical Luminaire (Type I, II, III, and IV)

B3 - U0 - G3

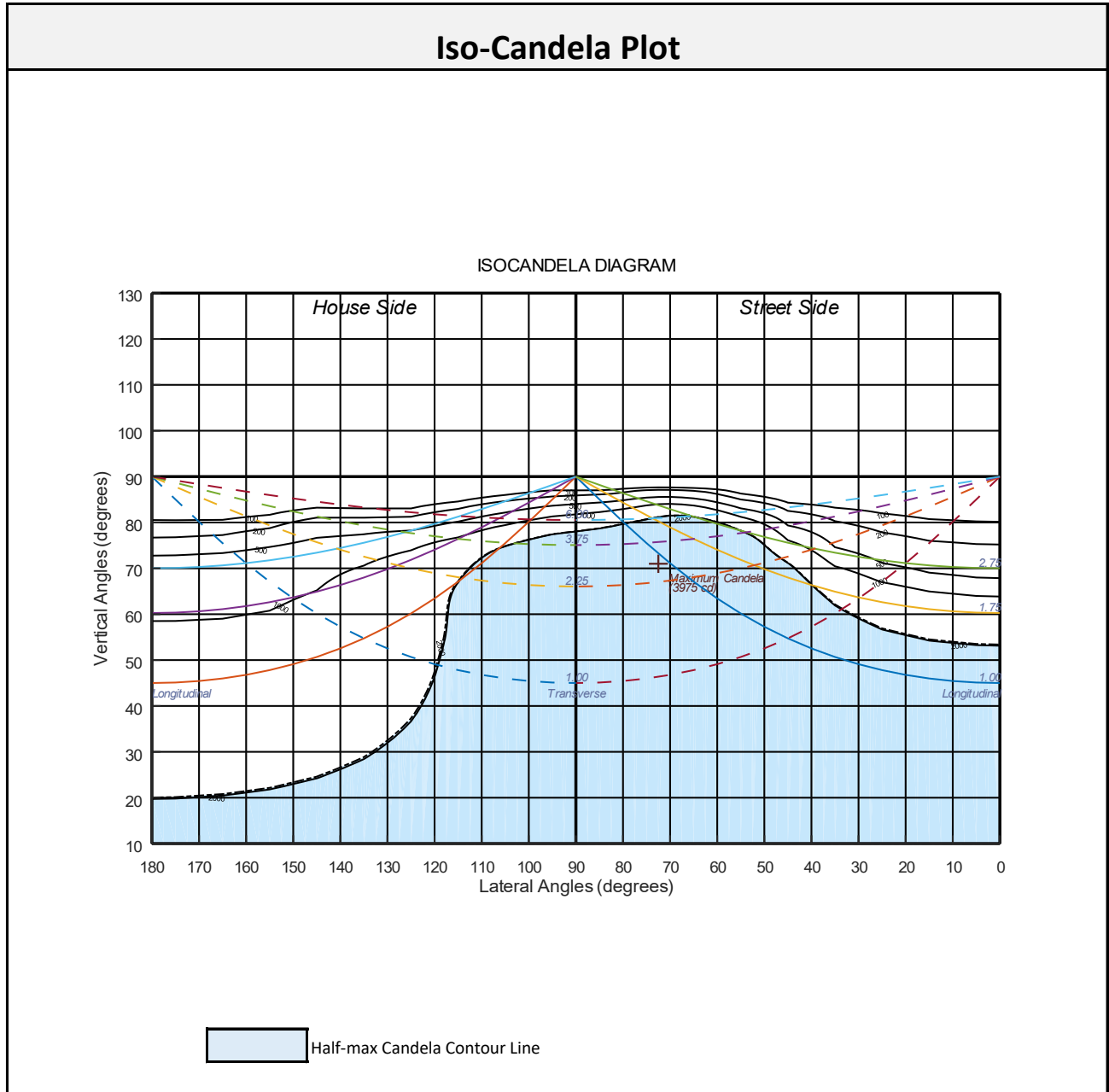
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

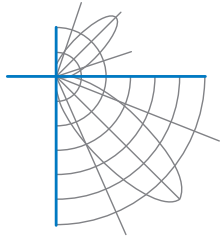
B3 - U0 - G2



Report of Test
LLIA002251-026

Iso-Candela Plot





Report of Test

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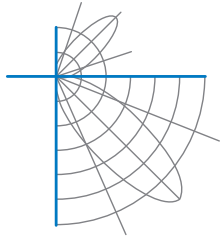
Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	0	5	15	25	35	45	55	57.5	60	62.5	65	67.5	70	72.5	75	
0	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670
2.5	2715	2715	2715	2711	2706	2705	2699	2698	2695	2693	2692	2689	2688	2686	2686	2686
5	2750	2748	2746	2743	2737	2734	2726	2723	2718	2716	2713	2709	2707	2703	2700	2700
7.5	2769	2768	2766	2764	2761	2757	2750	2745	2741	2737	2735	2729	2725	2721	2716	2716
10	2775	2775	2776	2776	2774	2774	2769	2766	2760	2757	2753	2750	2744	2738	2734	2734
12.5	2773	2772	2775	2778	2781	2786	2786	2783	2779	2776	2773	2768	2764	2757	2751	2751
15	2762	2760	2766	2773	2780	2793	2799	2797	2795	2793	2790	2787	2783	2776	2769	2769
17.5	2745	2742	2751	2762	2775	2795	2808	2809	2809	2808	2808	2805	2801	2794	2788	2788
20	2720	2720	2729	2744	2764	2794	2814	2820	2820	2823	2823	2823	2818	2815	2810	2810
22.5	2692	2694	2703	2722	2750	2786	2821	2827	2831	2836	2839	2838	2837	2835	2828	2828
25	2660	2661	2673	2697	2733	2779	2824	2834	2841	2847	2853	2856	2856	2854	2851	2851
27.5	2622	2624	2638	2668	2714	2770	2826	2838	2848	2858	2867	2872	2875	2874	2871	2871
30	2578	2581	2597	2635	2691	2758	2827	2842	2854	2868	2879	2888	2891	2892	2890	2890
32.5	2534	2538	2555	2598	2663	2746	2827	2845	2861	2877	2890	2900	2907	2909	2910	2910
35	2494	2496	2512	2557	2636	2732	2829	2850	2869	2885	2902	2913	2923	2928	2928	2928
37.5	2450	2453	2471	2518	2603	2718	2831	2854	2876	2896	2914	2928	2939	2945	2948	2948
40	2404	2407	2427	2478	2569	2703	2834	2862	2886	2910	2931	2947	2960	2969	2972	2972
42.5	2351	2354	2379	2436	2535	2685	2841	2874	2901	2928	2952	2971	2985	2995	3001	3001
45	2291	2294	2322	2386	2499	2665	2846	2883	2916	2947	2973	2993	3011	3022	3028	3028
47.5	2221	2224	2256	2328	2456	2644	2850	2891	2930	2965	2993	3015	3034	3046	3055	3055
50	2134	2139	2177	2261	2408	2622	2856	2904	2948	2986	3018	3043	3061	3074	3082	3082
52.5	2029	2035	2079	2178	2350	2598	2864	2921	2968	3012	3047	3074	3097	3111	3118	3118
55	1907	1913	1964	2077	2279	2571	2875	2941	2998	3049	3090	3124	3147	3165	3175	3175
57.5	1754	1763	1826	1959	2190	2539	2894	2974	3045	3108	3160	3202	3233	3254	3269	3269
60	1538	1551	1645	1816	2089	2498	2932	3033	3122	3201	3265	3316	3354	3383	3399	3399
62.5	1216	1235	1374	1619	1967	2447	2989	3113	3224	3322	3399	3461	3507	3538	3556	3556
65	814	835	994	1316	1789	2398	3052	3201	3336	3456	3549	3621	3671	3707	3724	3724
67.5	527	539	641	916	1499	2325	3106	3277	3433	3570	3680	3765	3821	3857	3869	3869
70	374	380	436	598	1079	2154	3086	3279	3460	3626	3763	3866	3930	3959	3956	3956
72.5	275	279	312	414	703	1756	3008	3246	3460	3654	3802	3905	3949	3943	3890	3890
75	205	207	227	295	469	1223	2808	3121	3369	3559	3680	3732	3722	3656	3548	3548
77.5	148	150	164	210	316	767	2233	2573	2847	3047	3156	3179	3136	3037	2897	2897
80	102	104	113	143	210	420	1396	1723	2028	2287	2469	2542	2502	2385	2226	2226
82.5	64	65	72	90	122	202	633	842	1066	1284	1478	1603	1630	1555	1412	1412
85	32	32	34	45	53	72	201	278	371	477	563	630	665	658	614	614
87.5	4	4	5	5	8	12	37	53	70	87	103	114	122	123	116	116
90	0	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.

North America (issuing laboratory)

Australasia & S.E. Asia



Report of Test

LLIA002251-026

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	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	2670	
2.5	2683	2680	2677	2674	2671	2668	2654	2648	2640	2632	2624	2619	2615	2614	2613	
5	2696	2691	2686	2682	2674	2666	2642	2625	2606	2588	2570	2557	2550	2546	2544	
7.5	2711	2704	2697	2692	2679	2666	2631	2602	2570	2541	2512	2490	2476	2468	2466	
10	2727	2719	2710	2702	2684	2668	2622	2578	2532	2489	2448	2417	2395	2384	2382	
12.5	2744	2735	2725	2715	2693	2669	2611	2553	2492	2434	2379	2337	2307	2292	2290	
15	2762	2753	2742	2729	2702	2673	2603	2526	2447	2373	2304	2251	2214	2195	2192	
17.5	2780	2772	2758	2746	2715	2679	2594	2498	2402	2308	2224	2159	2114	2091	2088	
20	2800	2790	2777	2762	2727	2685	2585	2469	2352	2238	2141	2066	2017	1993	1989	
22.5	2821	2810	2796	2782	2741	2693	2574	2439	2300	2167	2055	1975	1927	1903	1902	
25	2843	2832	2817	2799	2755	2700	2565	2408	2245	2095	1976	1894	1845	1822	1819	
27.5	2864	2854	2839	2820	2771	2709	2556	2375	2190	2025	1901	1817	1768	1746	1743	
30	2885	2875	2860	2838	2788	2720	2544	2341	2133	1958	1829	1744	1694	1673	1671	
32.5	2903	2894	2877	2857	2803	2729	2535	2309	2082	1894	1761	1675	1626	1605	1602	
35	2923	2914	2897	2877	2819	2740	2527	2279	2031	1832	1695	1608	1559	1538	1537	
37.5	2946	2936	2919	2899	2839	2751	2523	2252	1984	1773	1631	1544	1495	1475	1474	
40	2970	2963	2948	2926	2860	2767	2521	2226	1938	1716	1568	1481	1432	1412	1411	
42.5	3000	2992	2976	2951	2885	2787	2520	2203	1895	1659	1506	1418	1371	1352	1350	
45	3027	3019	3003	2980	2909	2803	2519	2179	1853	1605	1445	1355	1310	1291	1290	
47.5	3056	3047	3031	3007	2931	2819	2521	2160	1816	1553	1385	1295	1249	1232	1231	
50	3084	3076	3058	3031	2954	2839	2523	2143	1782	1501	1326	1234	1191	1177	1175	
52.5	3118	3111	3094	3066	2985	2863	2527	2124	1749	1453	1268	1175	1134	1122	1120	
55	3178	3170	3152	3127	3041	2912	2547	2108	1713	1405	1212	1119	1081	1070	1069	
57.5	3273	3269	3250	3223	3129	2983	2581	2102	1676	1357	1159	1066	1030	1020	1020	
60	3404	3400	3381	3350	3239	3073	2621	2099	1644	1306	1110	1015	981	972	971	
62.5	3561	3554	3528	3488	3358	3165	2657	2089	1614	1257	1060	965	931	923	923	
65	3723	3705	3669	3620	3462	3242	2665	2054	1570	1206	1005	914	880	875	875	
67.5	3862	3837	3792	3726	3538	3280	2624	1974	1490	1138	941	852	819	809	809	
70	3929	3882	3816	3737	3532	3258	2530	1827	1348	1033	856	772	728	711	709	
72.5	3815	3725	3630	3537	3341	3097	2345	1610	1139	872	747	656	572	531	524	
75	3416	3283	3158	3048	2849	2639	1961	1292	886	678	612	471	349	308	302	
77.5	2735	2575	2436	2320	2142	1978	1404	876	603	494	437	269	189	173	171	
80	2060	1901	1758	1646	1480	1340	879	527	298	278	260	151	113	110	111	
82.5	1259	1132	1021	939	830	732	451	238	124	124	127	80	64	64	64	
85	541	463	412	377	323	280	167	80	41	42	46	31	24	21	20	
87.5	99	80	62	52	53	57	30	15	7	5	3	2	1	0	0	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

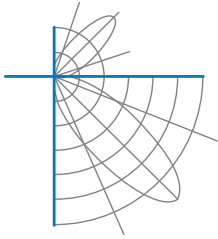
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

North America (issuing laboratory)

LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia

LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

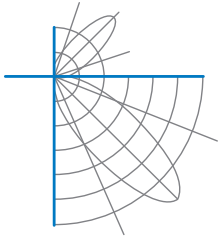


Report of Test

LLIA002251-026

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	

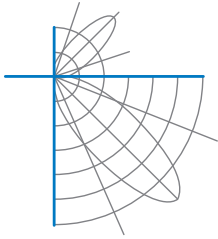


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Luminous Intensity (Candela) Table

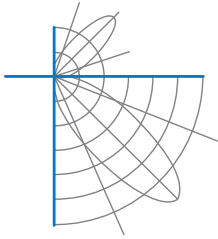
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	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	



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Additional Pictures of Test Subject





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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. 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.