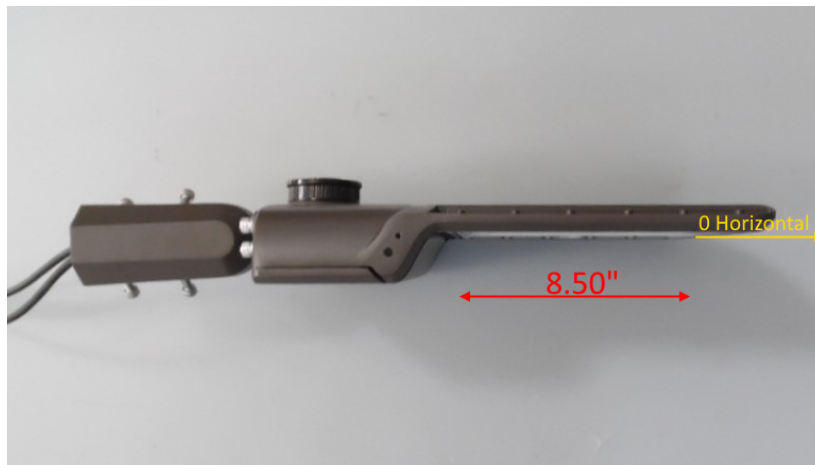


Report of Test

LLIA002251-005

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-T4 - 100W Setting - 4000K Setting
Pole mounted, cast aluminum housing, white LED board with
frosted plastic enclosure with clear optic sections below LEDs.
364 white LEDs, 182 CW LEDs and 182 WW LEDs
One Sosen SS-160NH-E260BH LED driver



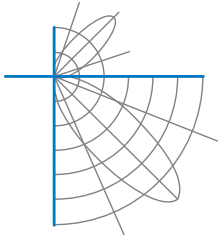
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	15520.1 Lumens
Input Current	0.8078 A	Total Efficacy	160.4 Lm/W
Input Power	96.75 W		
Frequency	60.00 Hz	Roadway Throw	Short
Power Factor	0.998	Roadway Type	Type IV
Current THD	5.0 %		

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

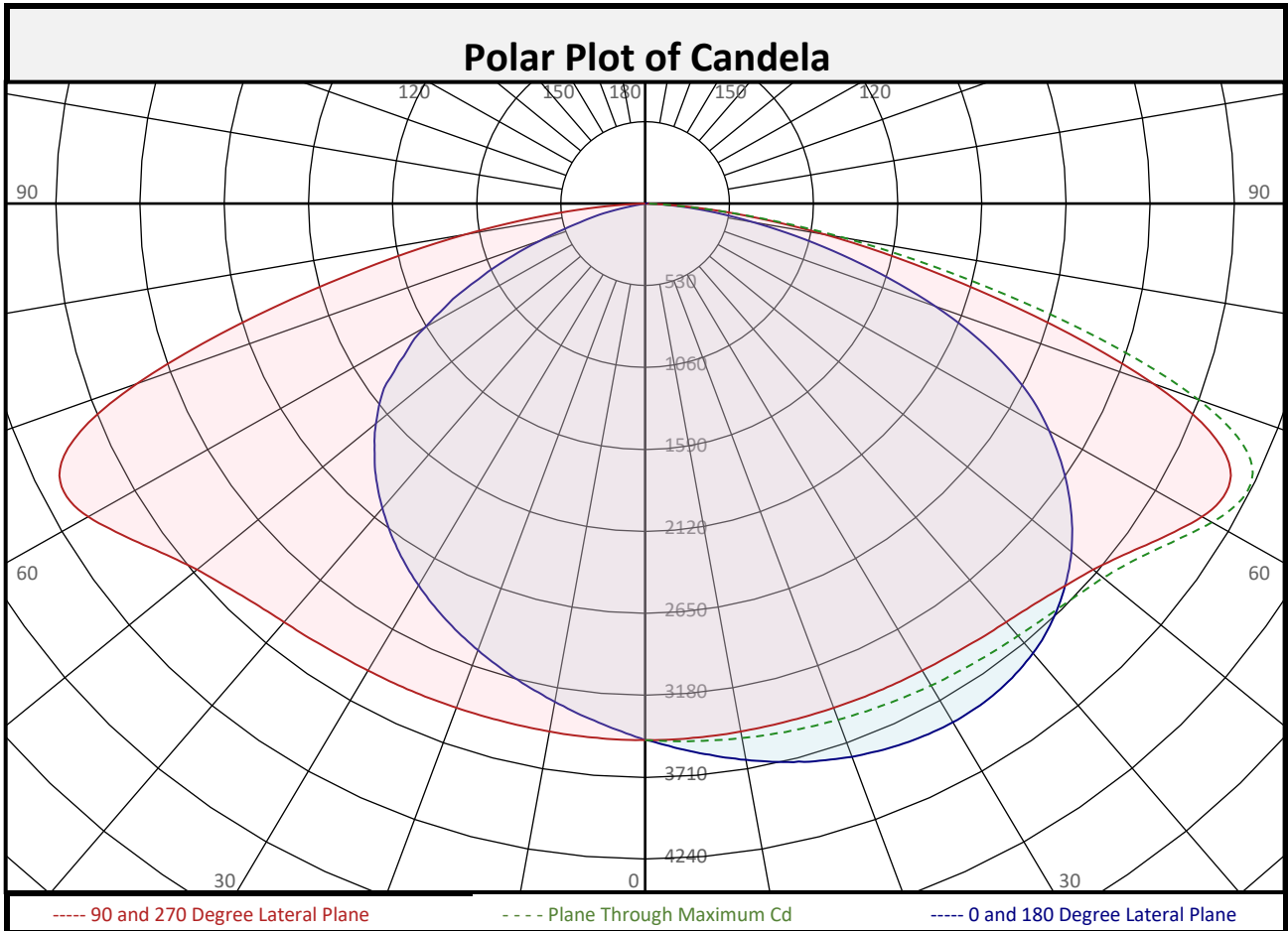
Test date: 11/03/2023
Report date: 11/08/2023

Signed: _____

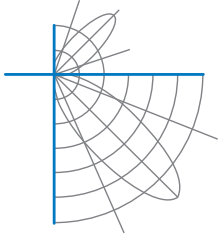


Report of Test

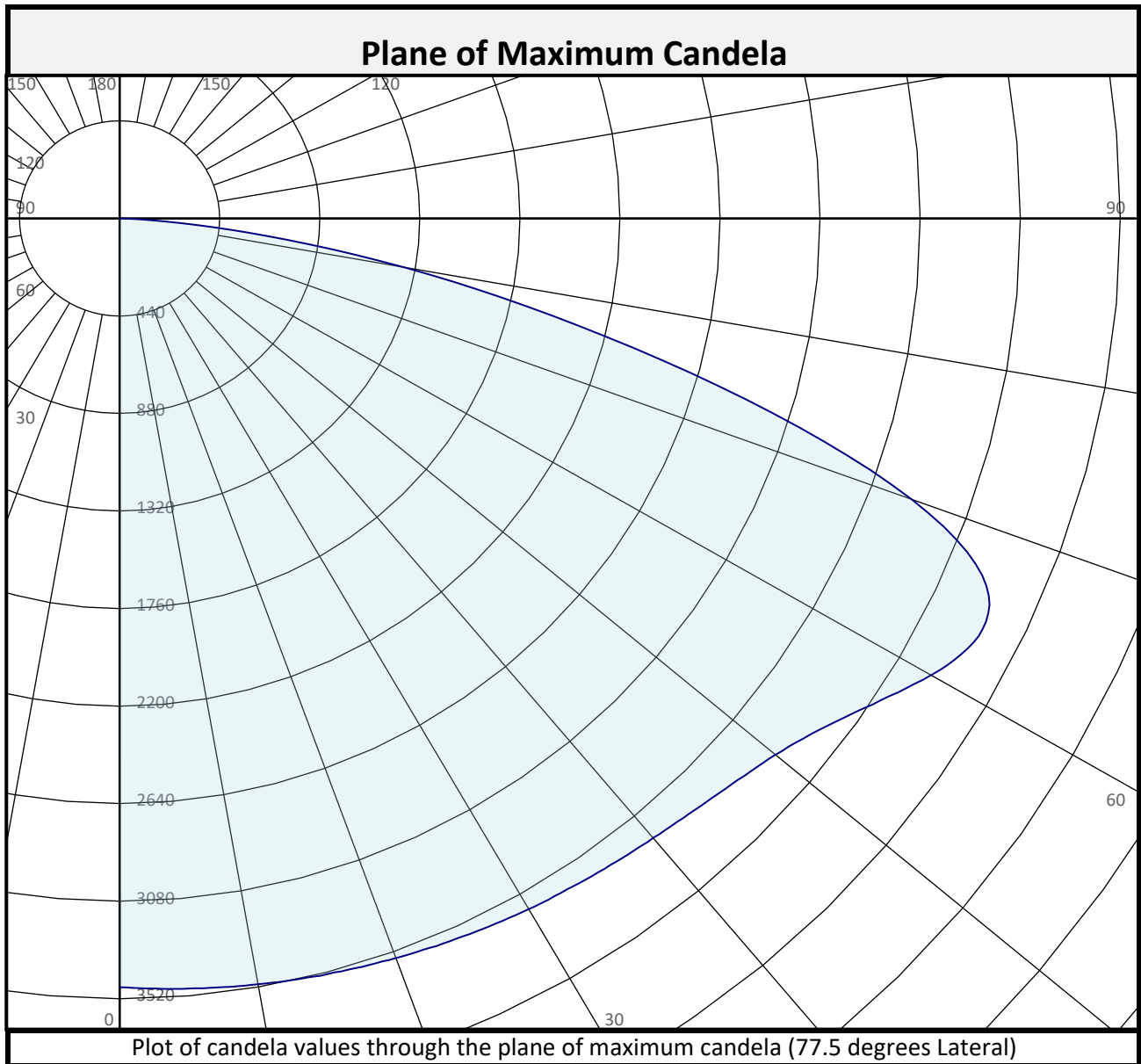
LLIA002251-005



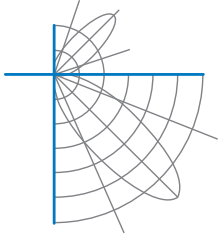
Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	331.2	2.1%		90-100	0.0	0.0%		0-20	1313	8.5%
10-20	981.7	6.3%		100-110	0.0	0.0%		0-30	2908	18.7%
20-30	1595	10.3%		110-120	0.0	0.0%		0-40	5044	32.5%
30-40	2136	13.8%		120-130	0.0	0.0%		0-60	10451	67.3%
40-50	2563	16.5%		130-140	0.0	0.0%		0-80	15119	97.4%
50-60	2844	18.3%		140-150	0.0	0.0%		10-90	15189	97.9%
60-70	2824	18.2%		150-160	0.0	0.0%		20-50	6294	40.6%
70-80	1844	11.9%		160-170	0.0	0.0%		40-90	10476	67.5%
80-90	401.3	2.6%		170-180	0.0	0.0%		60-90	5069	32.7%
0-90	15520	100.0%		90-180	0.0	0.0%		0-180	15520	100.0%



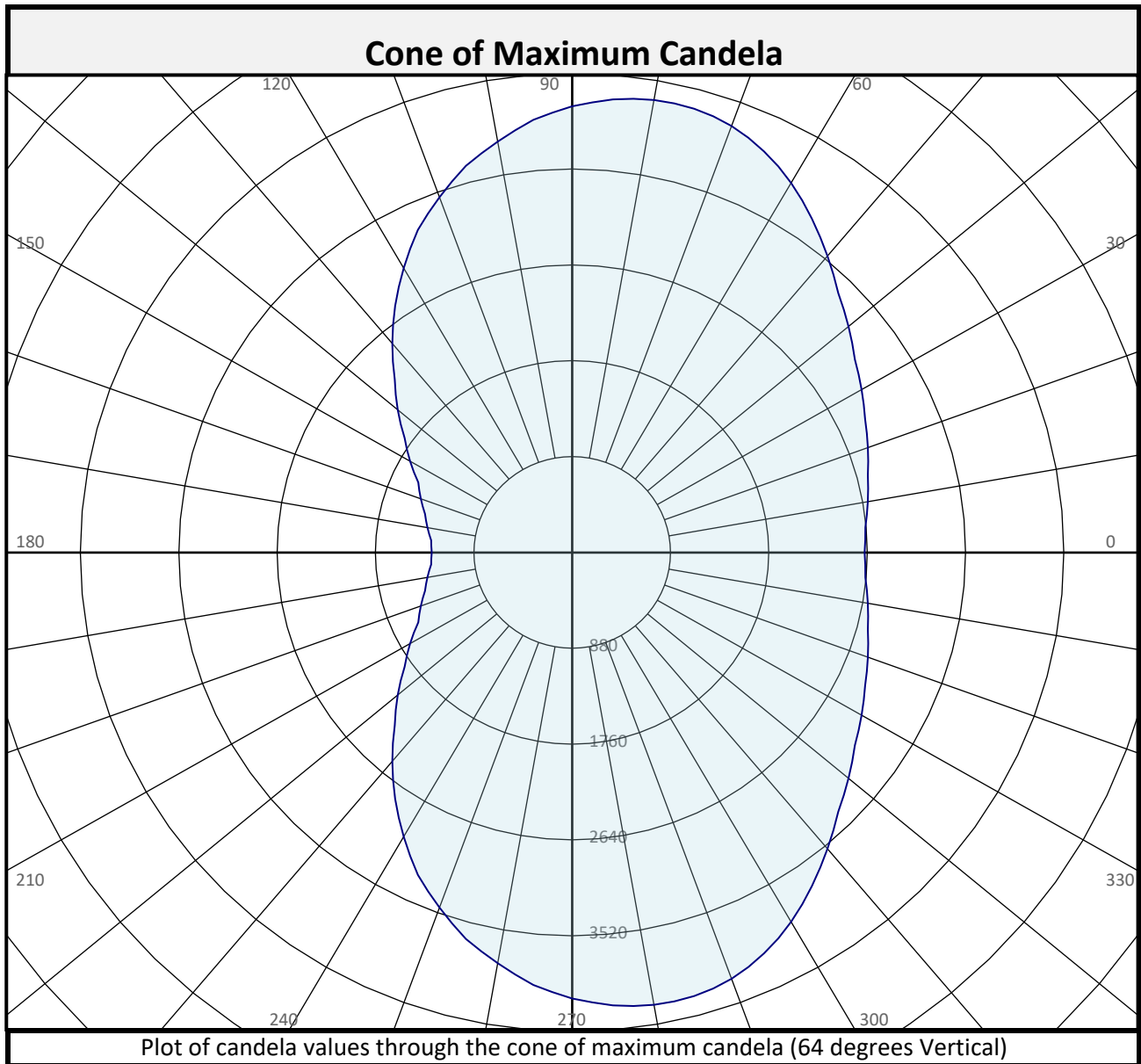
Report of Test
LLIA002251-005



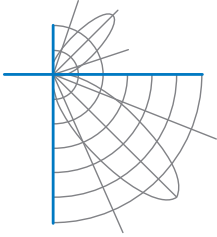
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	8873.1	57.2%	0.0	0.0%	8873.1	57.2%
House Side	6647.0	42.8%	0.0	0.0%	6647.0	42.8%
Total	15520.1	100.0%	0.0	0.0%	15520.1	100.0%



Report of Test
LLIA002251-005

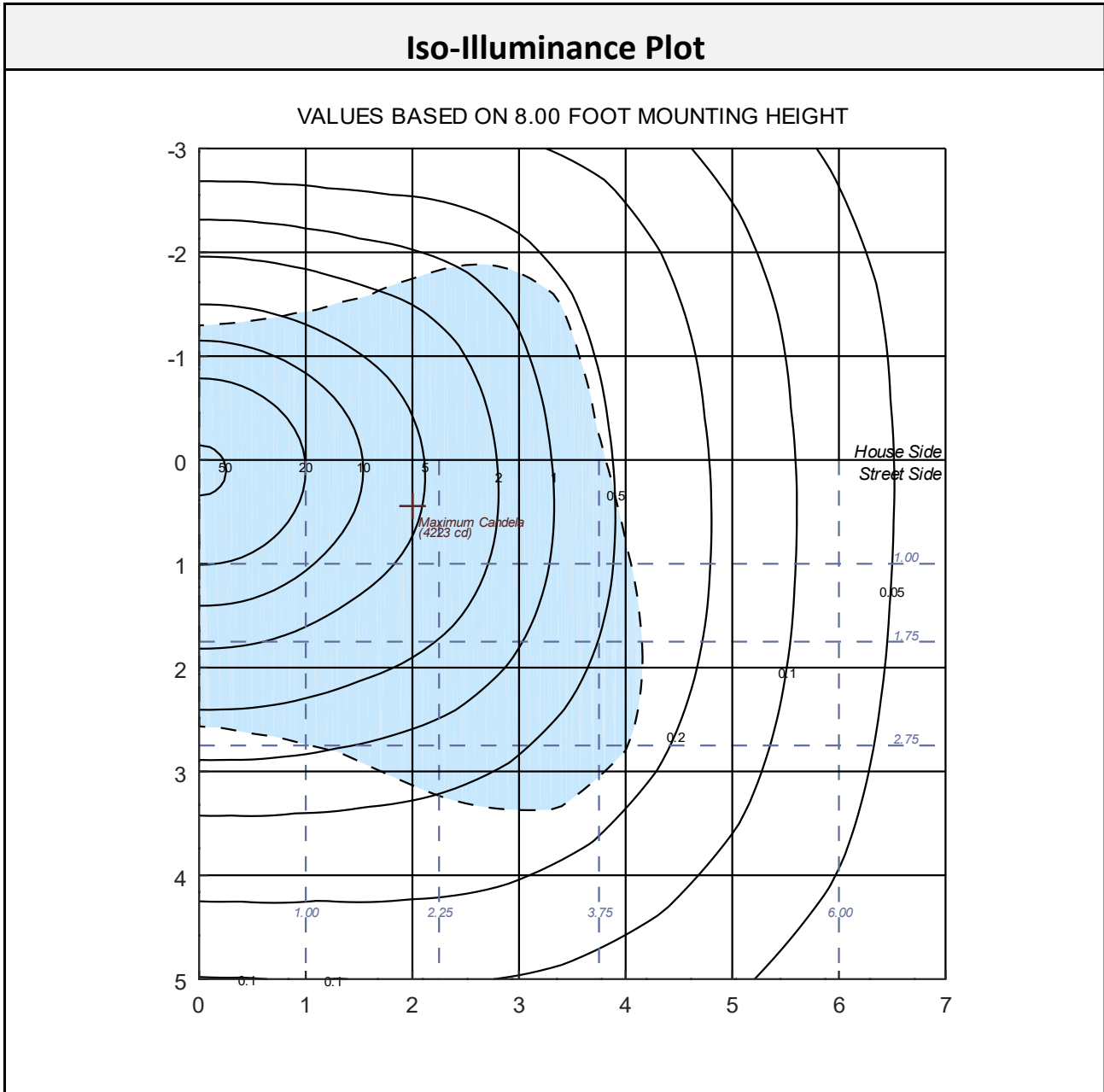


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	8873.1	57.2%	0.0	0.0%	8873.1	57.2%
House Side	6647.0	42.8%	0.0	0.0%	6647.0	42.8%
Total	15520.1	100.0%	0.0	0.0%	15520.1	100.0%

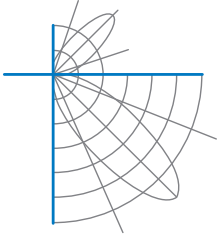


Report of Test

LLIA002251-005

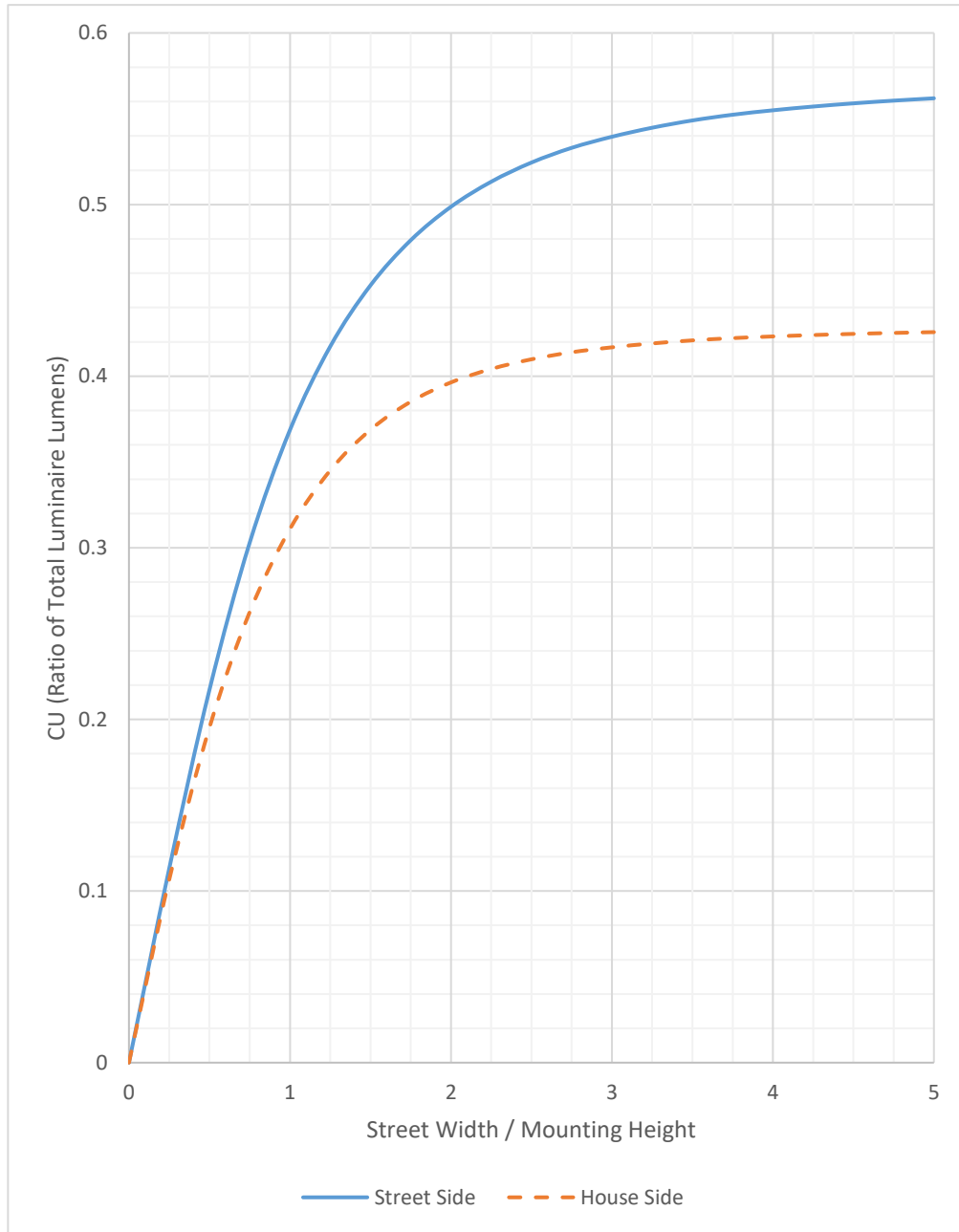


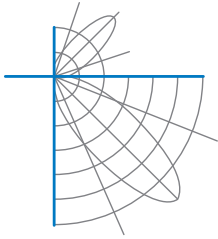
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-005

Coefficients of Utilization Plot

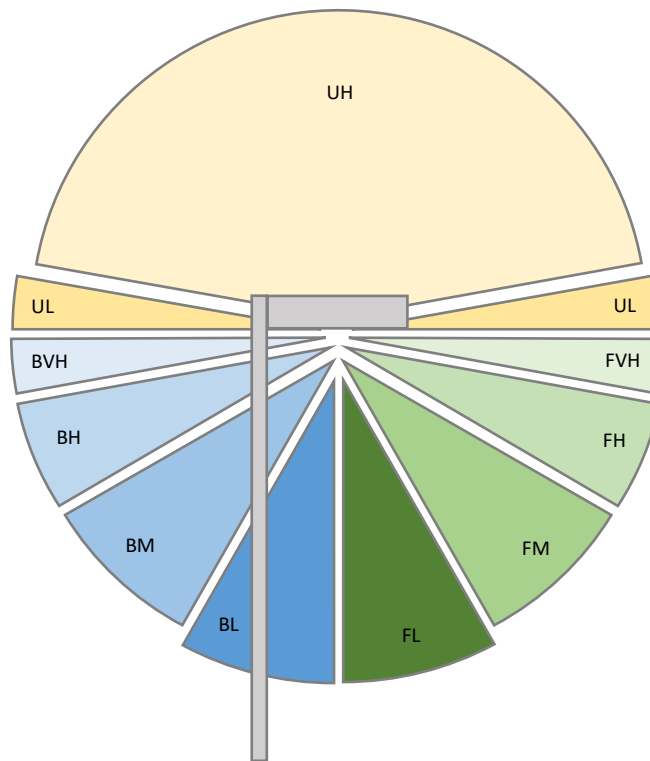




Report of Test

LLIA002251-005

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	1356.7 Lm
BM - Back Mid (30°-60°)	3304.9 Lm
BH - Back High (60°-80°)	1848.8 Lm
BVH - Back Very High (80°-90°)	136.5 Lm

Forward Light

FL - Forward Low (0°-30°)	1551.6 Lm
FM - Forward Mid (30°-60°)	4237.7 Lm
FH - Forward High (60°-80°)	2819.0 Lm
FVH - Forward Very High (80°-90°)	264.7 Lm

Uplight

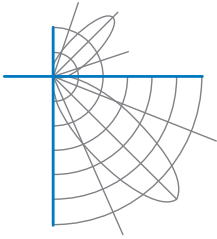
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

B3 - U0 - G3

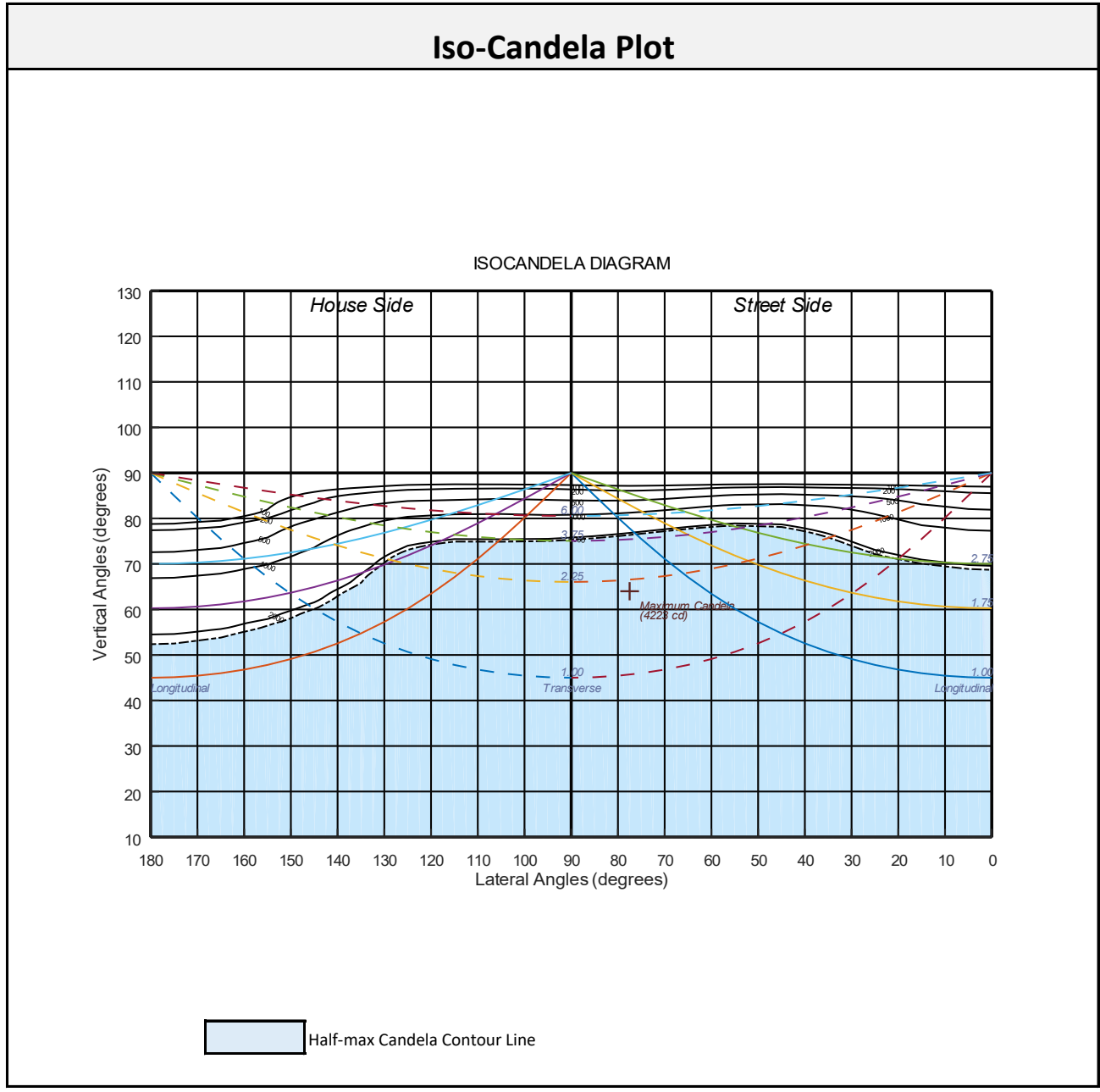
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

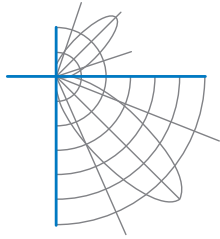
B3 - U0 - G3



Report of Test
LLIA002251-005

Iso-Candela Plot





Report of Test

LLIA002251-005

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	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	
2.5	3510	3514	3516	3514	3511	3504	3498	3494	3493	3493	3489	3488	3485	3485	3481	
5	3560	3563	3562	3556	3549	3538	3524	3521	3517	3514	3508	3505	3503	3499	3494	
7.5	3607	3611	3607	3599	3588	3571	3553	3546	3542	3535	3529	3523	3519	3513	3504	
10	3652	3656	3653	3642	3626	3605	3578	3572	3564	3557	3550	3541	3535	3526	3517	
12.5	3697	3701	3696	3683	3662	3636	3605	3596	3587	3579	3569	3560	3552	3541	3530	
15	3735	3741	3736	3722	3698	3669	3631	3621	3612	3601	3588	3577	3567	3556	3542	
17.5	3774	3777	3773	3756	3731	3699	3656	3645	3634	3621	3609	3596	3583	3570	3555	
20	3807	3809	3805	3789	3763	3727	3680	3669	3655	3642	3626	3614	3599	3584	3567	
22.5	3832	3835	3831	3818	3791	3751	3703	3692	3676	3662	3646	3631	3615	3597	3580	
25	3851	3855	3854	3840	3814	3776	3725	3711	3695	3680	3662	3646	3631	3611	3593	
27.5	3867	3870	3868	3860	3833	3795	3742	3729	3712	3695	3679	3662	3645	3627	3606	
30	3873	3877	3877	3870	3847	3810	3758	3743	3728	3710	3694	3676	3659	3638	3618	
32.5	3870	3873	3877	3875	3854	3816	3768	3754	3740	3722	3707	3688	3671	3650	3631	
35	3857	3861	3868	3869	3854	3820	3778	3765	3748	3732	3716	3699	3682	3662	3643	
37.5	3832	3837	3847	3854	3843	3817	3779	3768	3754	3740	3728	3710	3693	3674	3656	
40	3797	3799	3817	3830	3826	3807	3779	3768	3757	3746	3733	3719	3704	3688	3671	
42.5	3746	3752	3775	3791	3797	3790	3774	3766	3758	3750	3740	3728	3715	3702	3687	
45	3680	3688	3717	3742	3757	3764	3761	3761	3757	3752	3746	3740	3730	3719	3706	
47.5	3600	3608	3642	3680	3708	3731	3749	3751	3753	3755	3754	3753	3748	3740	3733	
50	3504	3510	3553	3603	3646	3691	3733	3743	3752	3758	3767	3771	3774	3774	3771	
52.5	3386	3396	3448	3511	3573	3641	3718	3737	3754	3770	3787	3799	3814	3821	3827	
55	3252	3265	3330	3407	3489	3586	3703	3735	3767	3796	3824	3850	3875	3891	3902	
57.5	3104	3117	3194	3289	3394	3524	3699	3745	3794	3841	3883	3922	3957	3983	4003	
60	2936	2951	3039	3155	3287	3463	3707	3775	3841	3903	3958	4012	4052	4084	4107	
62.5	2751	2762	2858	2998	3166	3402	3730	3812	3893	3967	4032	4090	4136	4171	4194	
65	2520	2538	2650	2817	3033	3346	3745	3837	3926	4005	4072	4130	4171	4200	4215	
67.5	2254	2276	2404	2602	2874	3292	3720	3814	3898	3969	4027	4067	4092	4101	4096	
70	1947	1969	2120	2354	2695	3183	3614	3690	3746	3790	3815	3821	3813	3789	3754	
72.5	1613	1636	1794	2071	2483	2987	3344	3386	3407	3406	3392	3363	3317	3267	3205	
75	1285	1305	1455	1762	2216	2661	2890	2896	2880	2848	2805	2746	2682	2616	2542	
77.5	973	992	1126	1445	1878	2230	2327	2306	2267	2217	2163	2099	2030	1964	1897	
80	688	703	819	1120	1474	1727	1743	1705	1654	1599	1544	1484	1425	1369	1317	
82.5	447	461	558	795	1021	1151	1128	1096	1048	996	943	891	845	808	775	
85	241	251	315	434	516	571	536	511	478	450	427	402	377	359	347	
87.5	60	63	70	81	92	103	97	94	89	85	82	79	77	75	74	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

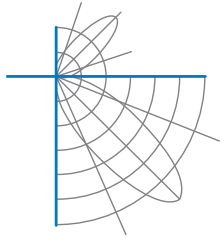
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

North America (issuing laboratory)

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Report of Test

LLIA002251-005

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	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	3469	
2.5	3477	3477	3474	3474	3469	3464	3455	3449	3441	3436	3429	3425	3422	3418	3415	
5	3488	3484	3479	3475	3467	3459	3441	3427	3412	3400	3389	3381	3375	3368	3368	
7.5	3498	3493	3486	3478	3467	3455	3429	3406	3383	3365	3349	3337	3326	3318	3320	
10	3508	3501	3490	3482	3465	3449	3416	3385	3356	3329	3308	3293	3281	3271	3271	
12.5	3519	3508	3497	3486	3464	3444	3404	3365	3329	3296	3269	3248	3233	3224	3223	
15	3530	3516	3504	3490	3465	3441	3393	3346	3302	3263	3230	3204	3188	3176	3175	
17.5	3541	3526	3512	3495	3467	3437	3381	3328	3274	3228	3189	3160	3139	3127	3124	
20	3551	3535	3519	3500	3469	3434	3371	3310	3249	3197	3152	3114	3089	3076	3074	
22.5	3562	3546	3526	3508	3472	3435	3362	3291	3223	3163	3110	3069	3040	3024	3023	
25	3573	3554	3535	3516	3476	3436	3354	3275	3199	3130	3069	3023	2988	2970	2968	
27.5	3585	3565	3544	3523	3482	3437	3349	3261	3173	3097	3027	2974	2935	2913	2912	
30	3598	3575	3554	3532	3487	3439	3344	3247	3151	3062	2985	2923	2878	2854	2851	
32.5	3609	3587	3564	3541	3493	3444	3342	3236	3128	3025	2939	2869	2818	2791	2789	
35	3622	3600	3576	3554	3503	3453	3341	3226	3106	2991	2891	2812	2755	2725	2722	
37.5	3635	3612	3591	3569	3519	3464	3347	3220	3085	2956	2844	2753	2689	2654	2650	
40	3649	3629	3609	3586	3534	3480	3357	3217	3064	2920	2793	2690	2617	2576	2573	
42.5	3669	3649	3627	3606	3556	3501	3371	3216	3046	2880	2738	2622	2541	2497	2493	
45	3692	3674	3655	3631	3586	3528	3390	3221	3029	2842	2680	2552	2460	2412	2407	
47.5	3724	3709	3692	3671	3629	3569	3419	3229	3012	2799	2615	2474	2369	2318	2311	
50	3764	3756	3743	3728	3681	3624	3460	3245	2994	2750	2545	2383	2277	2219	2214	
52.5	3826	3822	3813	3800	3756	3696	3511	3259	2971	2693	2460	2287	2170	2112	2105	
55	3911	3908	3904	3892	3850	3778	3568	3276	2942	2628	2369	2180	2054	1966	1955	
57.5	4012	4014	4008	3998	3951	3872	3630	3290	2906	2547	2263	2033	1871	1789	1782	
60	4120	4122	4118	4103	4048	3959	3683	3299	2860	2453	2119	1845	1705	1611	1600	
62.5	4203	4203	4191	4171	4104	4005	3700	3289	2802	2348	1925	1656	1473	1399	1392	
65	4214	4203	4182	4150	4064	3948	3640	3241	2734	2174	1735	1447	1261	1170	1159	
67.5	4073	4042	4003	3955	3847	3728	3457	3123	2644	2018	1525	1208	1034	952	941	
70	3706	3651	3590	3525	3404	3291	3109	2906	2441	1821	1303	988	804	713	704	
72.5	3131	3062	2990	2921	2804	2714	2622	2570	2192	1613	1097	760	574	513	506	
75	2465	2397	2335	2274	2181	2115	2086	2092	1847	1372	877	543	403	352	347	
77.5	1834	1779	1733	1691	1630	1588	1593	1600	1464	1073	692	405	249	199	194	
80	1269	1232	1203	1178	1148	1129	1161	1154	1056	818	480	205	66	24	23	
82.5	749	732	722	715	713	719	760	737	687	521	249	90	15	0	0	
85	338	338	341	345	361	380	401	374	346	248	134	49	9	0	0	
87.5	73	74	75	77	83	89	97	100	88	55	36	13	2	0	0	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

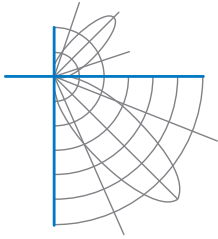
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

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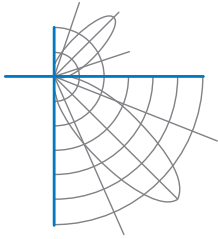


Report of Test

LLIA002251-005

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	

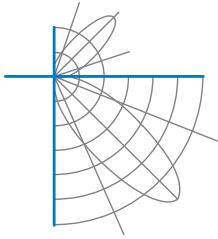


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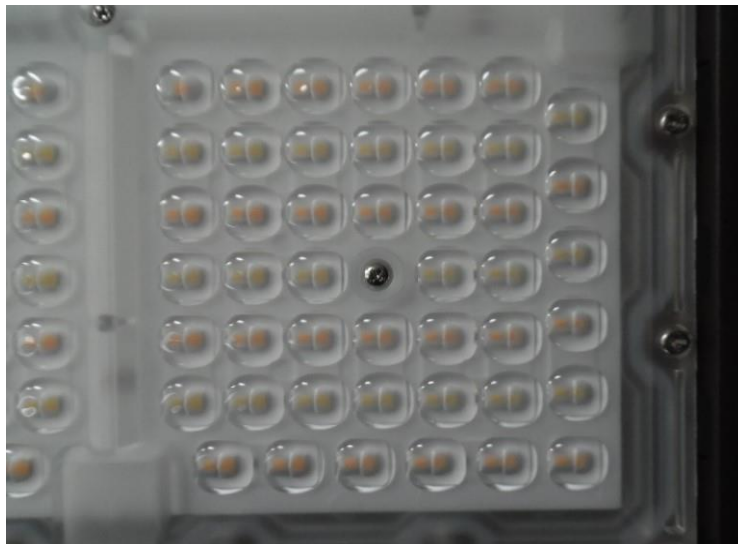
Luminous Intensity (Candela) Table

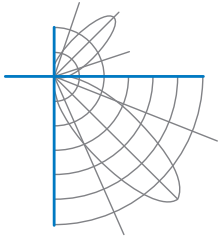
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	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 25.1 °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.