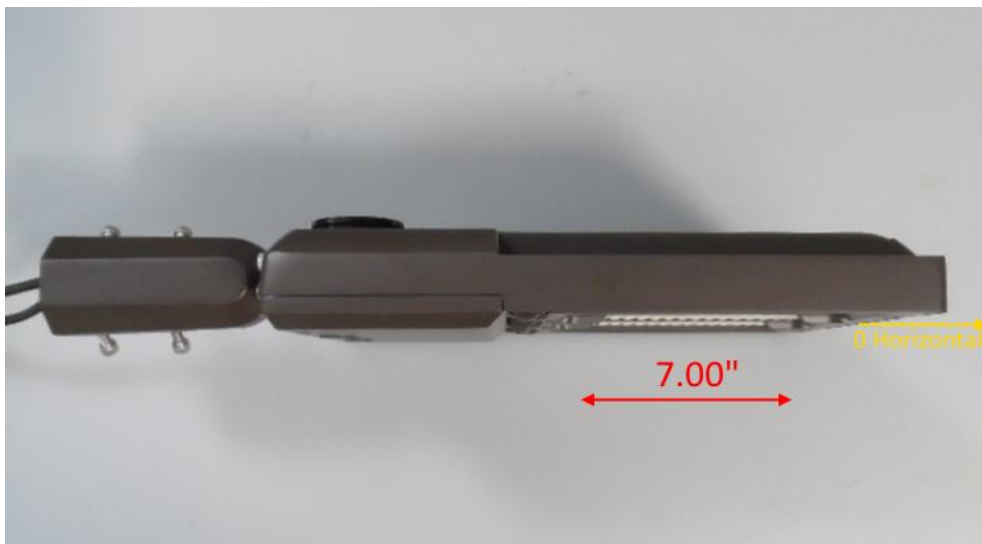


Report of Test

LLIA002251-030

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-SWO - T3 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



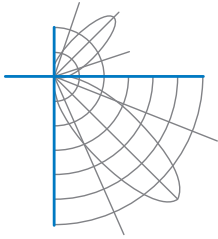
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	14913.5 Lumens
Input Current	0.8093 A	Total Efficacy	153.9 lm/W
Input Power	96.89 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.998	Roadway Type	Type III
Current THD	4.3 %		

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

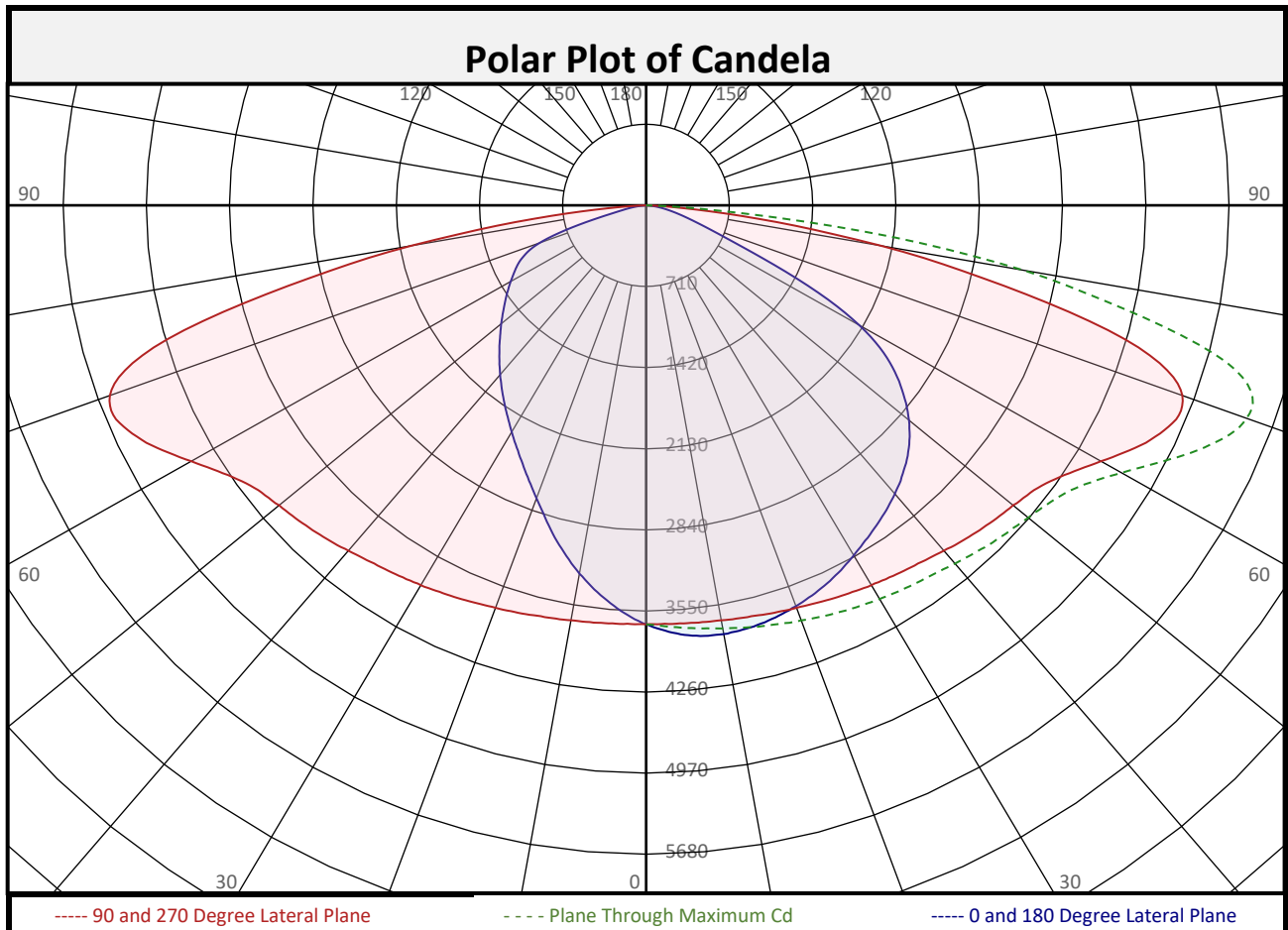
Test date: 11/01/2023
Report date: 11/06/2023

Signed: _____



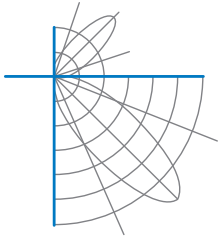
Report of Test

LLIA002251-030

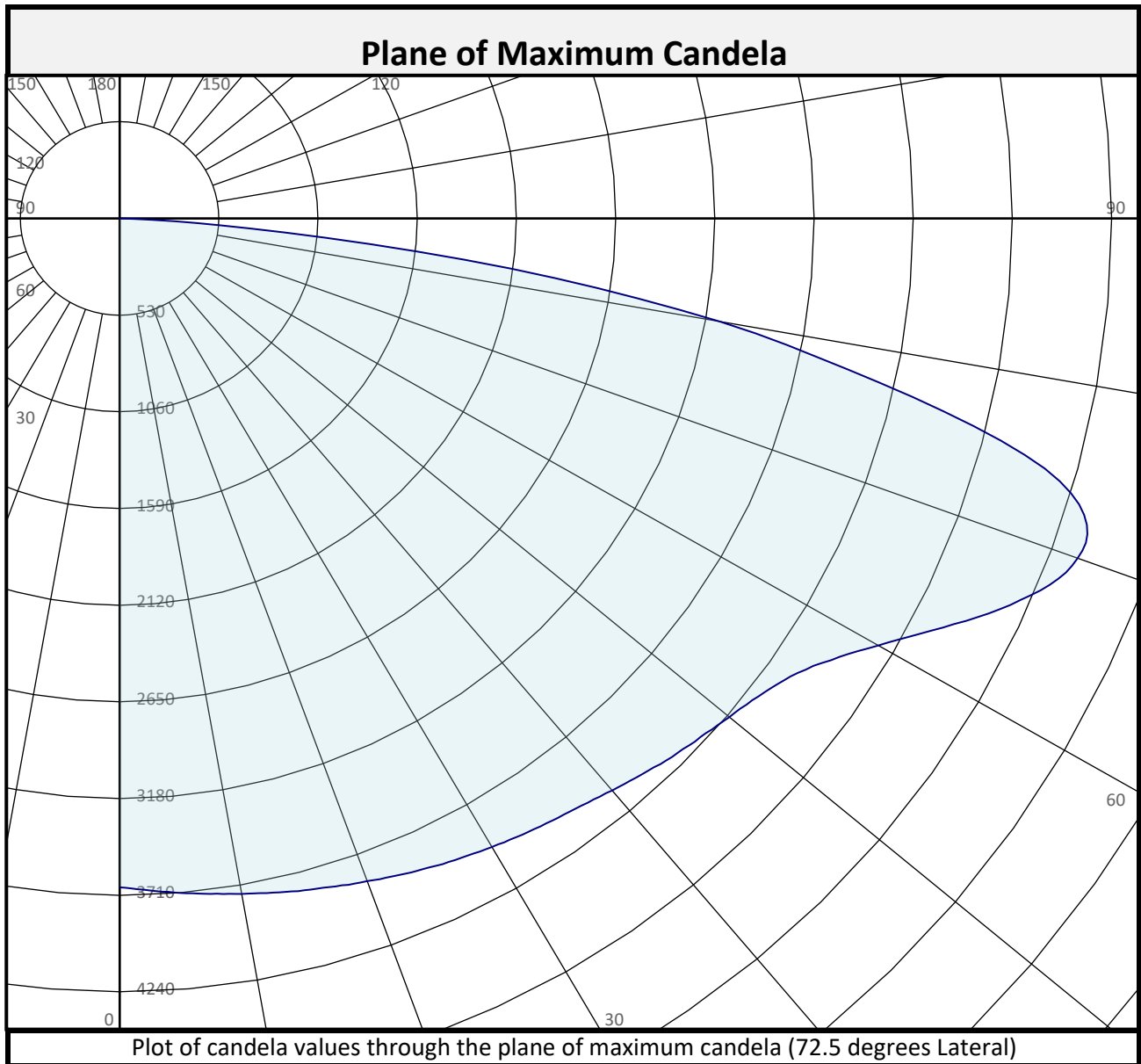


Zonal Flux Summary

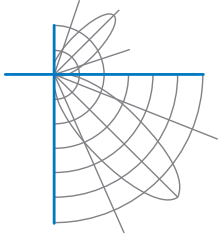
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	347.6	2.3%	90-100	0.0	0.0%	0-20	1351	9.1%
10-20	1004	6.7%	100-110	0.0	0.0%	0-30	2919	19.6%
20-30	1567	10.5%	110-120	0.0	0.0%	0-40	4948	33.2%
30-40	2029	13.6%	120-130	0.0	0.0%	0-60	9971	66.9%
40-50	2391	16.0%	130-140	0.0	0.0%	0-80	14583	97.8%
50-60	2633	17.7%	140-150	0.0	0.0%	10-90	14566	97.7%
60-70	2692	18.1%	150-160	0.0	0.0%	20-50	5987	40.1%
70-80	1920	12.9%	160-170	0.0	0.0%	40-90	9966	66.8%
80-90	330.8	2.2%	170-180	0.0	0.0%	60-90	4943	33.1%
0-90	14914	100.0%	90-180	0.0	0.0%	0-180	14914	100.0%



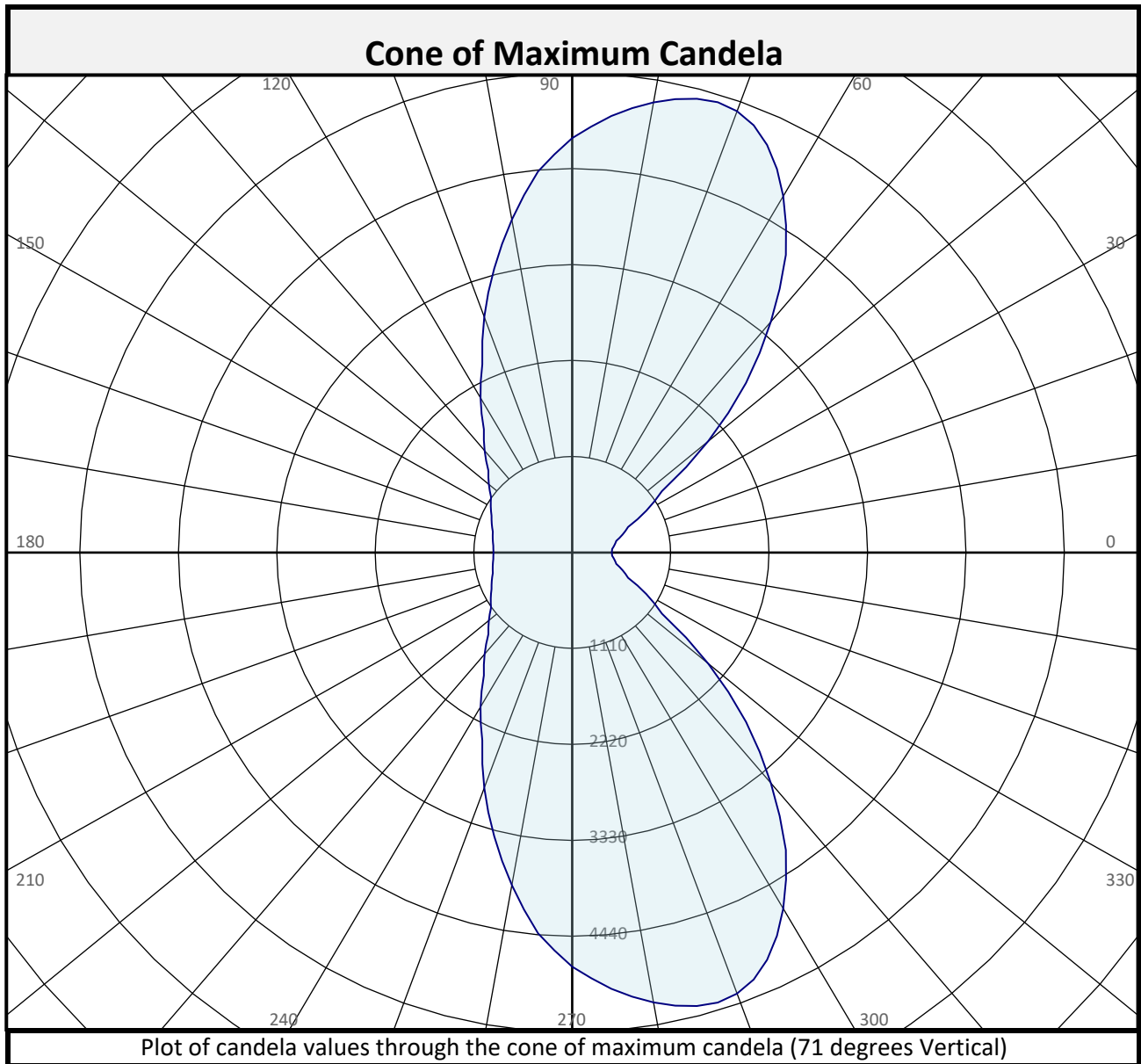
Report of Test
LLIA002251-030



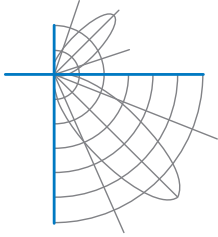
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	8814.6	59.1%	0.0	0.0%	8814.6	59.1%
House Side	6098.9	40.9%	0.0	0.0%	6098.9	40.9%
Total	14913.5	100.0%	0.0	0.0%	14913.5	100.0%



Report of Test
LLIA002251-030

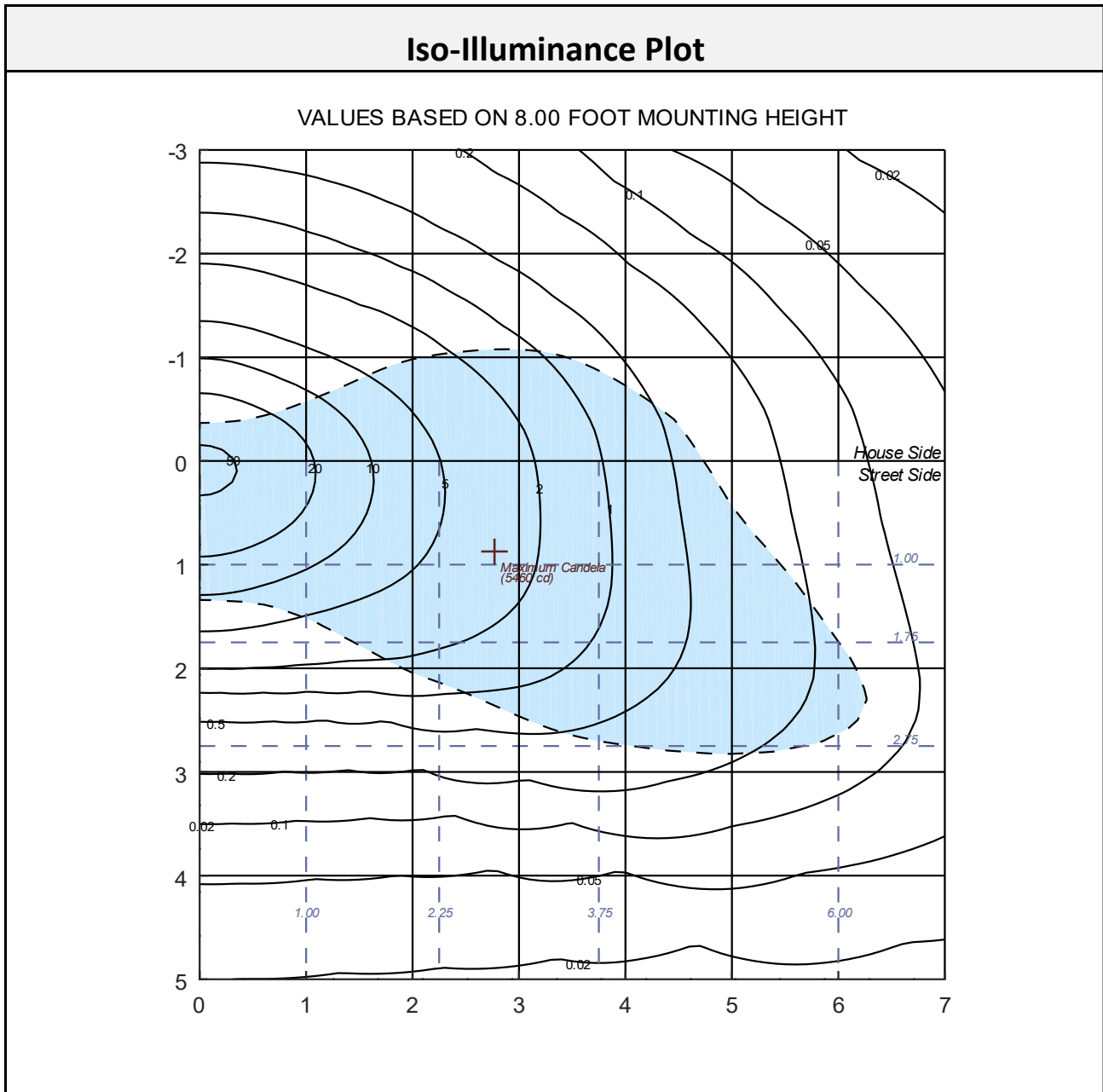


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	8814.6	59.1%	0.0	0.0%	8814.6	59.1%
House Side	6098.9	40.9%	0.0	0.0%	6098.9	40.9%
Total	14913.5	100.0%	0.0	0.0%	14913.5	100.0%

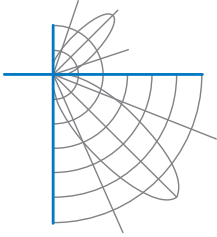


Report of Test

LLIA002251-030

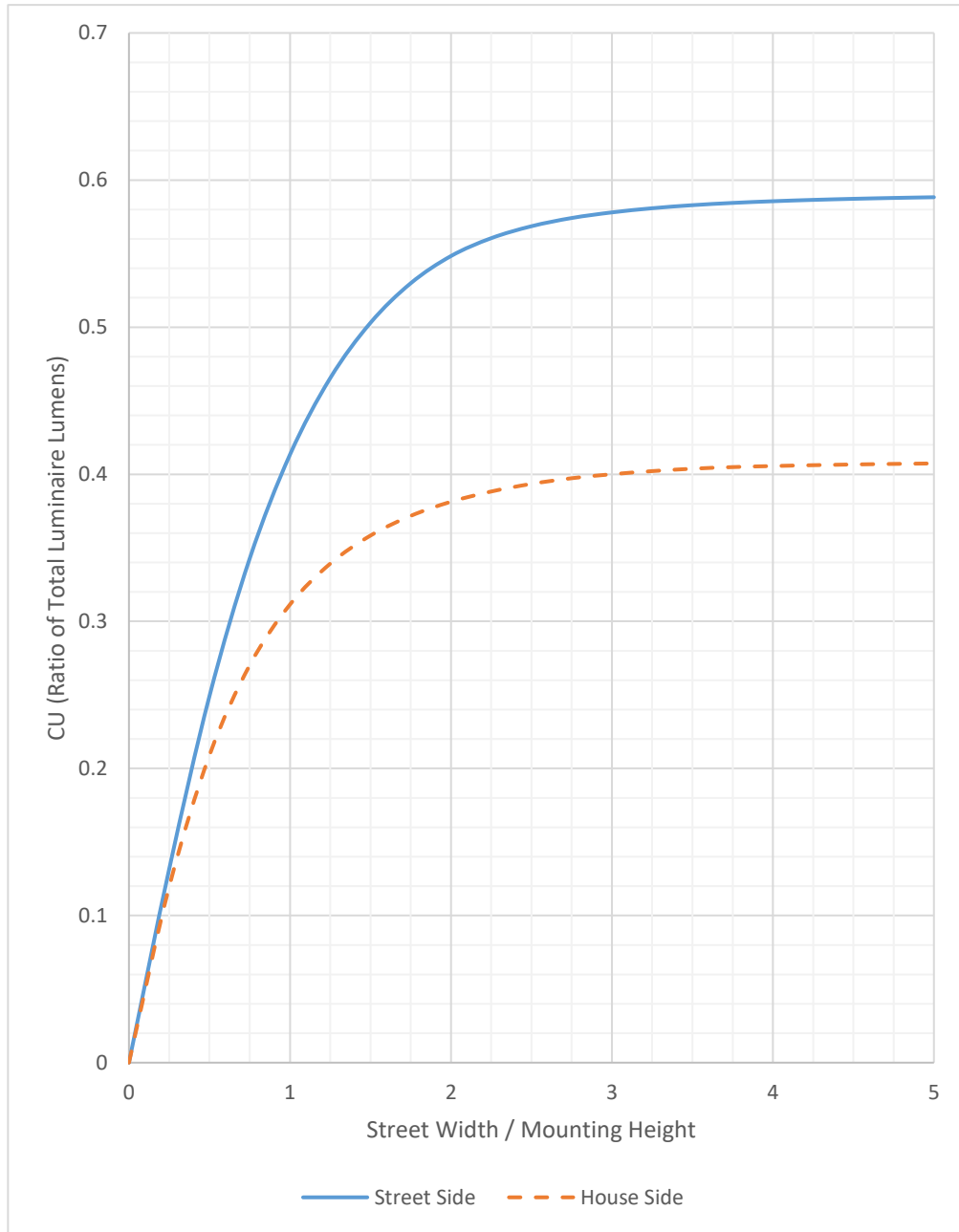


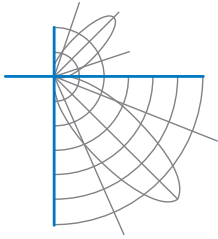
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-030

Coefficients of Utilization Plot

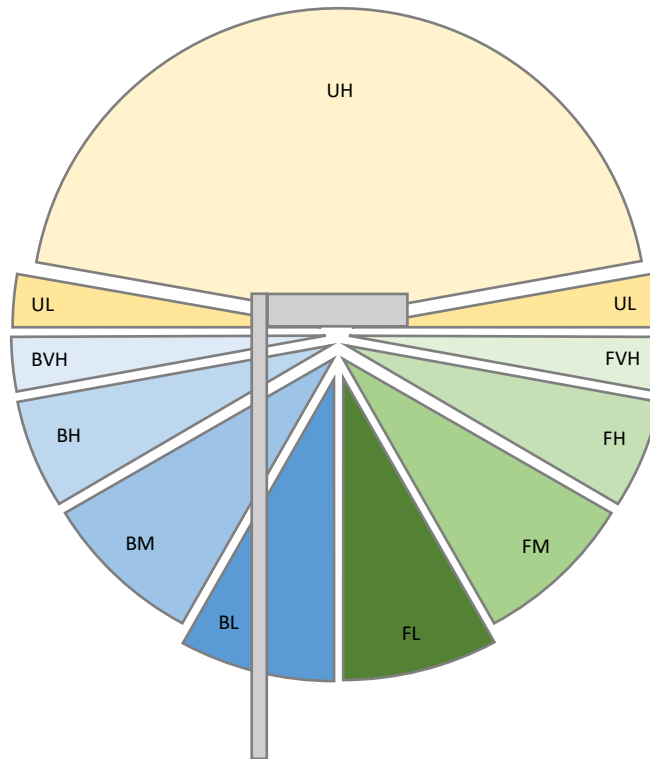




Report of Test

LLIA002251-030

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	1321.8 Lm
BM - Back Mid (30°-60°)	2872.5 Lm
BH - Back High (60°-80°)	1808.3 Lm
BVH - Back Very High (80°-90°)	96.3 Lm

Forward Light

FL - Forward Low (0°-30°)	1596.8 Lm
FM - Forward Mid (30°-60°)	4179.7 Lm
FH - Forward High (60°-80°)	2803.6 Lm
FVH - Forward Very High (80°-90°)	234.5 Lm

Uplight

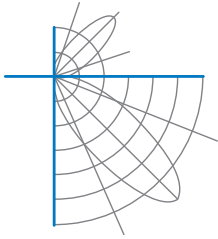
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

B3 - U0 - G3

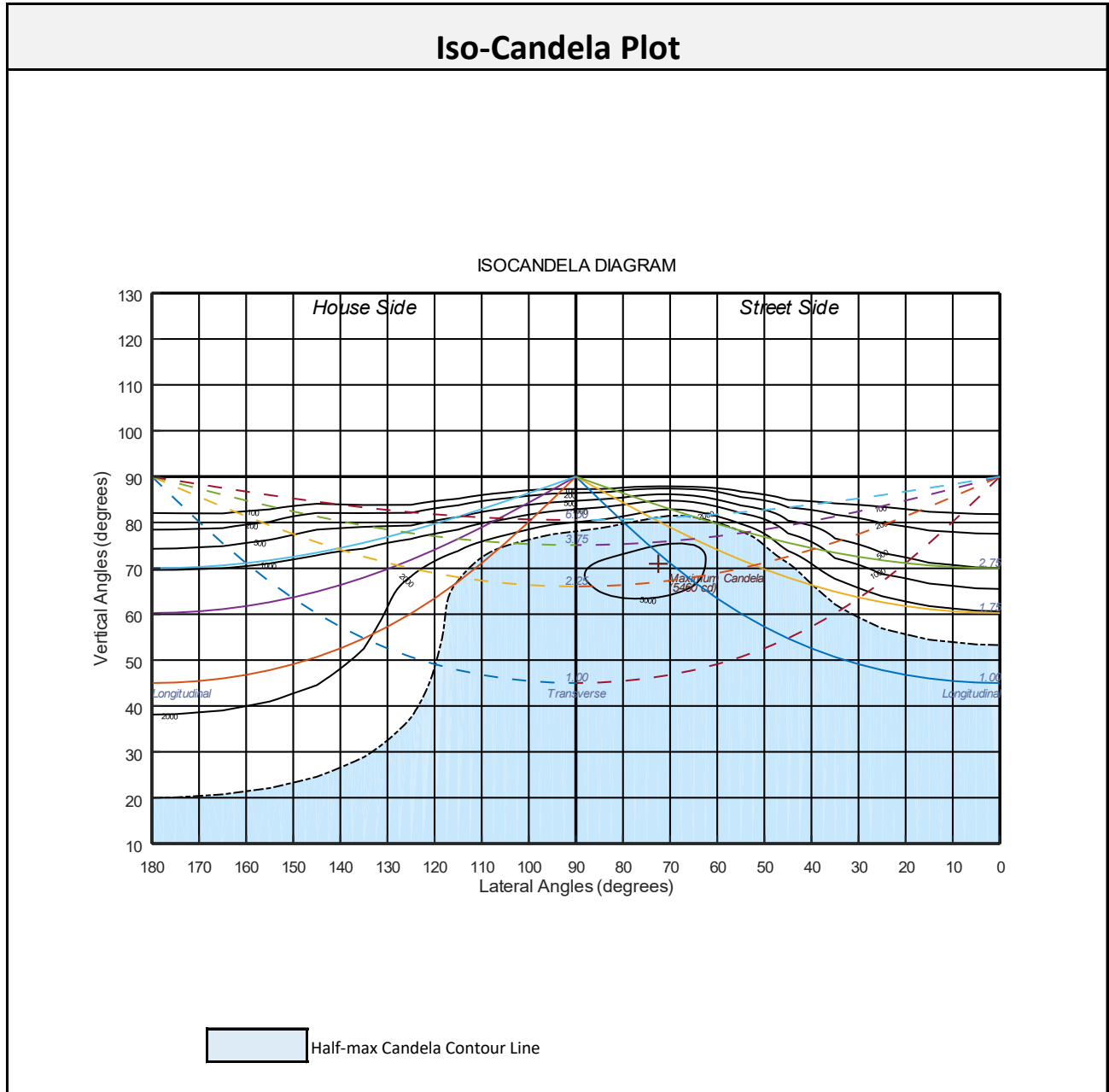
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

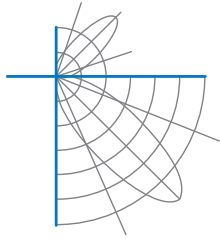
B3 - U0 - G3



Report of Test
LLIA002251-030

Iso-Candela Plot





Report of Test

LLIA002251-030

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	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	
2.5	3726	3728	3728	3725	3717	3713	3703	3702	3699	3697	3695	3692	3690	3687	3684	
5	3774	3772	3772	3768	3761	3751	3742	3737	3732	3729	3725	3720	3715	3711	3707	
7.5	3801	3799	3799	3797	3791	3786	3771	3768	3765	3760	3752	3747	3741	3734	3727	
10	3811	3810	3812	3814	3813	3808	3798	3797	3791	3785	3779	3773	3770	3759	3751	
12.5	3804	3806	3810	3816	3822	3824	3821	3821	3818	3810	3806	3800	3793	3785	3777	
15	3790	3789	3798	3810	3820	3835	3839	3841	3839	3836	3831	3827	3823	3812	3804	
17.5	3765	3765	3780	3794	3812	3838	3854	3857	3858	3859	3856	3852	3847	3839	3829	
20	3735	3737	3747	3769	3800	3833	3864	3869	3873	3878	3878	3878	3873	3865	3860	
22.5	3697	3697	3711	3740	3779	3827	3874	3884	3892	3895	3899	3901	3898	3896	3889	
25	3651	3656	3671	3707	3755	3816	3880	3892	3905	3914	3918	3926	3927	3923	3917	
27.5	3600	3604	3624	3666	3729	3804	3883	3901	3914	3929	3939	3948	3953	3951	3948	
30	3539	3544	3569	3621	3699	3790	3885	3906	3926	3943	3956	3968	3978	3978	3974	
32.5	3478	3485	3510	3570	3663	3775	3887	3912	3936	3955	3974	3990	4001	4005	4000	
35	3423	3429	3453	3516	3625	3759	3886	3920	3945	3969	3992	4008	4021	4029	4031	
37.5	3364	3369	3395	3462	3580	3739	3893	3929	3960	3986	4009	4033	4046	4056	4060	
40	3299	3307	3335	3408	3534	3720	3900	3941	3975	4010	4036	4061	4078	4093	4099	
42.5	3225	3231	3267	3349	3488	3696	3912	3959	4000	4035	4068	4097	4118	4132	4141	
45	3145	3149	3190	3281	3436	3671	3920	3976	4024	4065	4102	4133	4156	4174	4181	
47.5	3045	3051	3100	3202	3380	3641	3929	3991	4045	4091	4132	4164	4191	4208	4223	
50	2927	2934	2988	3108	3313	3613	3937	4009	4071	4124	4166	4203	4232	4252	4262	
52.5	2779	2788	2853	2992	3234	3581	3953	4035	4106	4160	4211	4253	4283	4303	4313	
55	2611	2622	2693	2852	3134	3544	3969	4065	4145	4217	4276	4320	4354	4376	4392	
57.5	2401	2412	2503	2689	3011	3502	3996	4111	4213	4300	4371	4429	4474	4507	4524	
60	2100	2117	2251	2492	2871	3446	4047	4192	4320	4426	4517	4590	4643	4681	4702	
62.5	1654	1678	1873	2218	2704	3375	4126	4299	4456	4591	4698	4788	4850	4891	4918	
65	1099	1125	1347	1795	2453	3306	4209	4419	4611	4773	4904	5003	5075	5123	5147	
67.5	712	727	865	1242	2044	3201	4280	4519	4734	4924	5078	5197	5279	5326	5345	
70	505	513	590	810	1463	2955	4243	4509	4762	4987	5180	5321	5411	5447	5438	
72.5	373	377	422	562	952	2388	4123	4450	4746	5005	5207	5348	5413	5403	5336	
75	277	280	308	400	635	1649	3819	4248	4588	4849	5020	5098	5095	5006	4860	
77.5	201	203	222	284	427	1026	3009	3469	3847	4130	4292	4339	4289	4158	3962	
80	139	141	153	194	284	560	1860	2301	2719	3084	3341	3454	3414	3259	3047	
82.5	87	88	97	122	164	268	837	1114	1419	1727	1994	2169	2214	2112	1916	
85	43	43	46	60	71	96	267	366	492	640	762	854	901	888	822	
87.5	6	6	6	8	11	16	50	71	96	124	146	162	175	175	159	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

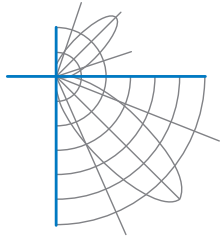
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

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

LLIA002251-030

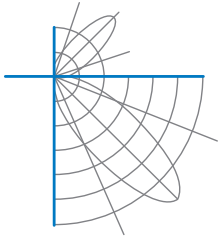
Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
0	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	
2.5	3685	3679	3674	3673	3664	3660	3647	3637	3623	3613	3602	3595	3589	3589	3588	
5	3701	3694	3689	3681	3672	3658	3630	3604	3577	3552	3530	3513	3502	3495	3494	
7.5	3723	3714	3704	3695	3677	3659	3616	3573	3526	3486	3449	3420	3399	3388	3389	
10	3745	3734	3723	3709	3686	3661	3602	3543	3475	3415	3360	3317	3289	3274	3272	
12.5	3766	3756	3743	3729	3699	3666	3590	3508	3419	3339	3267	3207	3167	3147	3142	
15	3793	3781	3764	3749	3712	3670	3577	3472	3361	3256	3164	3090	3038	3012	3009	
17.5	3821	3805	3791	3771	3730	3680	3565	3435	3298	3168	3052	2963	2901	2869	2865	
20	3847	3832	3815	3796	3747	3690	3553	3395	3232	3075	2938	2834	2766	2734	2730	
22.5	3876	3863	3846	3826	3768	3703	3540	3354	3160	2975	2821	2711	2643	2611	2609	
25	3907	3894	3876	3851	3792	3713	3529	3312	3084	2878	2712	2599	2530	2499	2493	
27.5	3938	3925	3908	3880	3812	3727	3516	3266	3008	2780	2609	2493	2424	2392	2390	
30	3966	3954	3936	3907	3838	3743	3505	3221	2933	2688	2512	2394	2326	2295	2291	
32.5	3996	3982	3964	3934	3858	3756	3492	3177	2861	2600	2417	2298	2230	2203	2196	
35	4024	4013	3993	3961	3884	3773	3483	3139	2794	2517	2326	2206	2139	2111	2108	
37.5	4058	4045	4026	3996	3912	3792	3481	3104	2730	2438	2240	2119	2052	2025	2022	
40	4093	4083	4066	4037	3945	3819	3482	3070	2668	2359	2154	2031	1966	1939	1936	
42.5	4138	4128	4110	4077	3984	3848	3481	3039	2609	2282	2070	1946	1882	1855	1852	
45	4180	4170	4151	4118	4020	3875	3482	3008	2554	2208	1984	1861	1798	1772	1770	
47.5	4224	4213	4192	4157	4053	3897	3485	2984	2503	2136	1903	1777	1715	1692	1689	
50	4264	4254	4233	4193	4083	3928	3489	2962	2457	2068	1822	1694	1635	1615	1614	
52.5	4317	4305	4281	4243	4129	3962	3496	2935	2413	2000	1743	1613	1558	1540	1538	
55	4393	4386	4364	4326	4208	4027	3524	2915	2364	1935	1667	1537	1484	1470	1468	
57.5	4527	4523	4499	4459	4328	4127	3570	2908	2314	1870	1594	1464	1415	1400	1400	
60	4709	4703	4676	4633	4477	4248	3625	2902	2270	1799	1526	1395	1346	1334	1334	
62.5	4921	4909	4878	4824	4643	4375	3670	2885	2226	1731	1458	1326	1279	1268	1268	
65	5145	5123	5078	5004	4788	4481	3681	2834	2163	1659	1380	1255	1210	1202	1202	
67.5	5337	5299	5237	5150	4891	4529	3622	2718	2045	1561	1292	1170	1126	1113	1112	
70	5402	5335	5248	5140	4864	4489	3483	2508	1846	1415	1174	1060	1001	978	975	
72.5	5232	5113	4984	4854	4590	4252	3222	2206	1559	1192	1023	899	784	729	721	
75	4685	4505	4333	4181	3910	3618	2687	1766	1211	926	836	644	479	423	415	
77.5	3749	3532	3338	3181	2937	2705	1916	1194	823	674	596	367	259	237	235	
80	2827	2610	2415	2257	2028	1824	1192	716	408	381	354	206	156	152	153	
82.5	1712	1541	1394	1277	1125	984	609	323	171	171	173	110	88	89	90	
85	726	624	557	508	436	373	227	110	56	58	64	43	33	29	29	
87.5	141	111	87	74	75	79	43	21	10	7	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.

North America (issuing laboratory)

Australasia & S.E. Asia

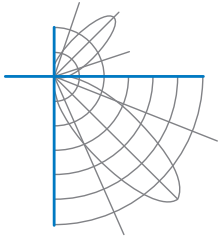


Report of Test

LLIA002251-030

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	

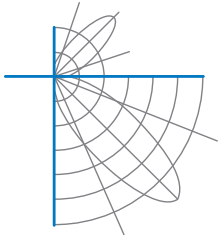


Report of Test

LLIA002251-030

Luminous Intensity (Candela) Table

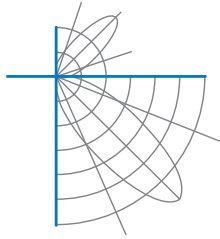
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	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
LLIA002251-030

Additional Pictures of Test Subject





Report of Test

LLIA002251-030

Test Distance 9.5 m
Ambient Temperature 24.5 °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.