

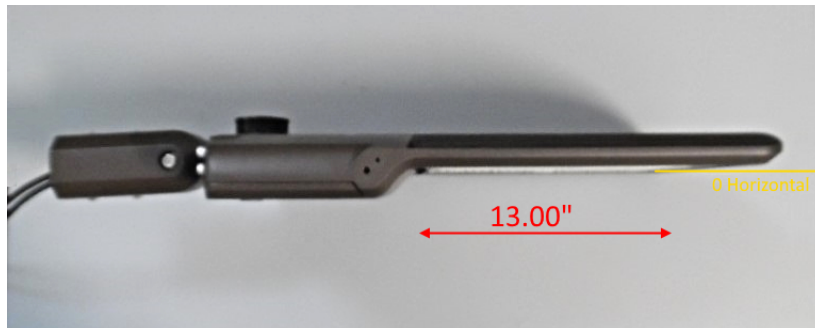


Report of Test

LLIA002251-020

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-480PCS-T3 -400W Setting - 4000K Setting
Pole mounted, cast aluminum housing, white LED board with
frosted plastic enclosure with clear optic sections below LEDs.
1120 white LEDs, 560 CW LEDs and 560 WW LEDs
Two Sosen SS-240NH-E260BH LED driver



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

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	61983.9 Lumens
Input Current	3.274 A	Total Efficacy	157.9 Lm/W
Input Power	392.5 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.999	Roadway Type	Type IV
Current THD	4.0 %		

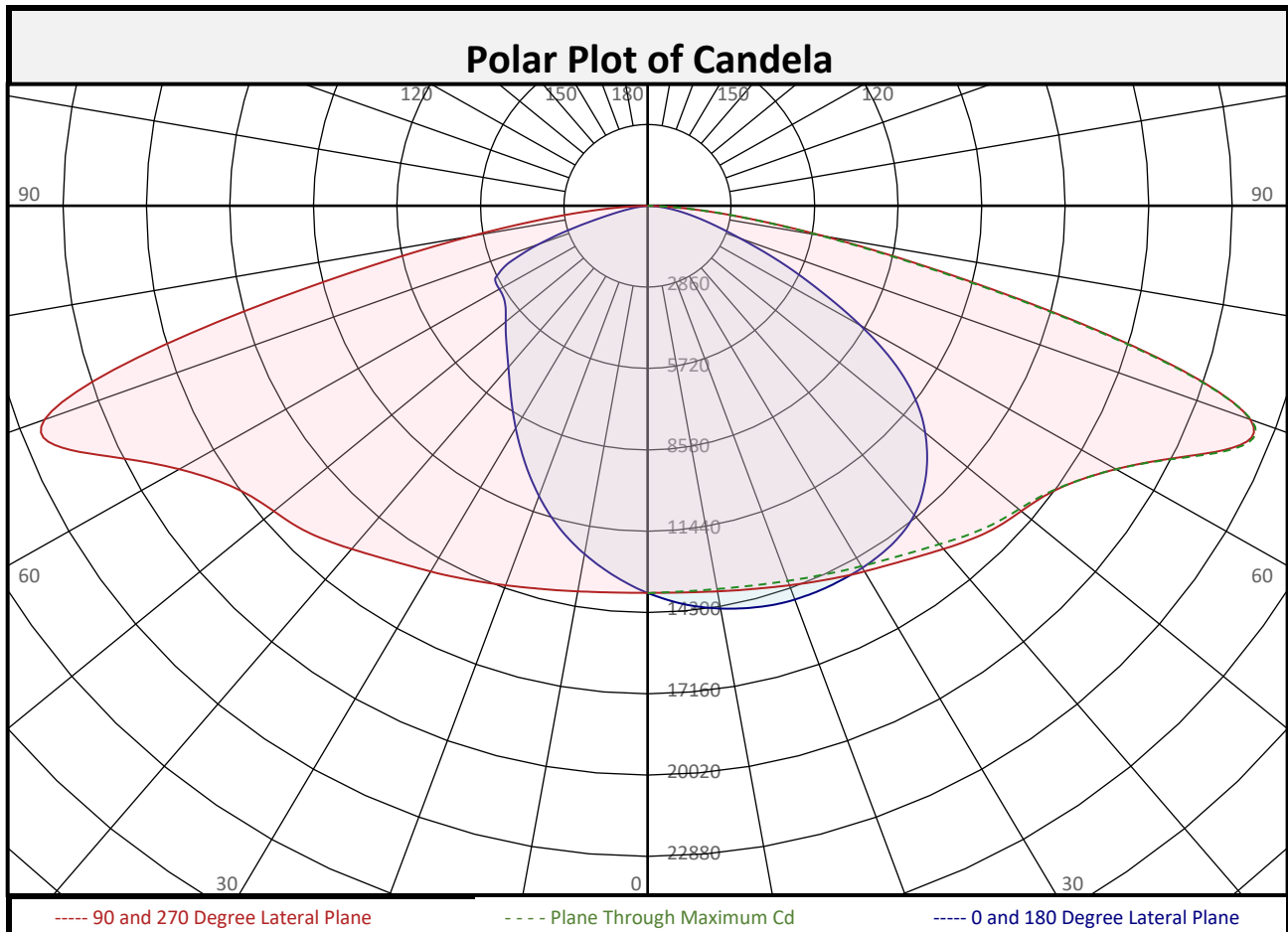
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 11/29/2023
Report date: 12/05/2023

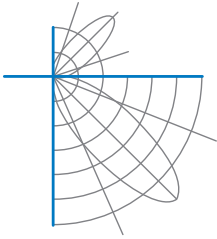
Signed: _____



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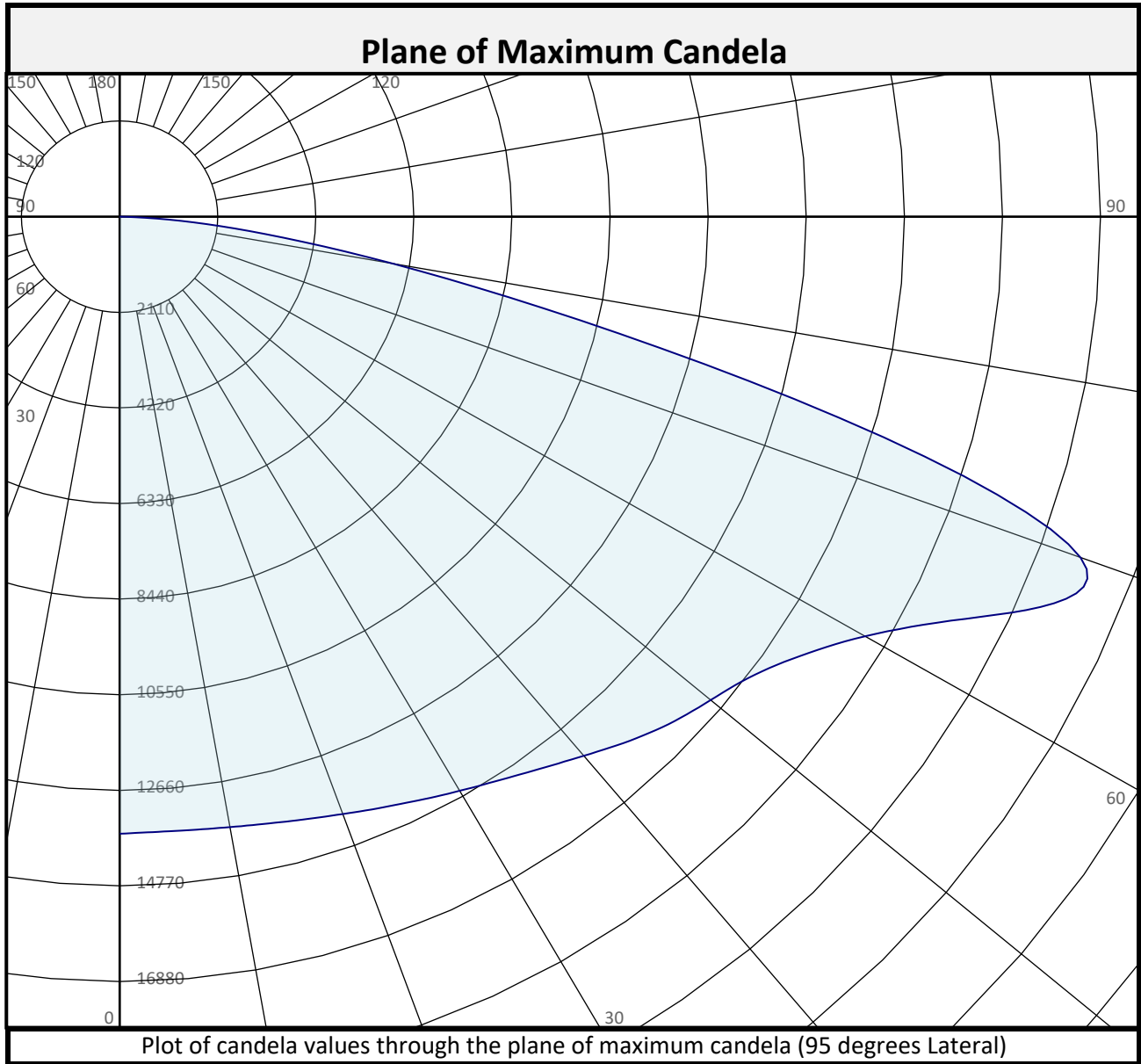


Zonal Flux Summary								
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	1299	2.1%	90-100	0.0	0.0%	0-20	5146	8.3%
10-20	3847	6.2%	100-110	0.0	0.0%	0-30	11386	18.4%
20-30	6240	10.1%	110-120	0.0	0.0%	0-40	19763	31.9%
30-40	8377	13.5%	120-130	0.0	0.0%	0-60	40871	65.9%
40-50	10092	16.3%	130-140	0.0	0.0%	0-80	60244	97.2%
50-60	11016	17.8%	140-150	0.0	0.0%	10-90	60685	97.9%
60-70	11206	18.1%	150-160	0.0	0.0%	20-50	24709	39.9%
70-80	8167	13.2%	160-170	0.0	0.0%	40-90	42221	68.1%
80-90	1740	2.8%	170-180	0.0	0.0%	60-90	21113	34.1%
0-90	61984	100.0%	90-180	0.0	0.0%	0-180	61984	100.0%

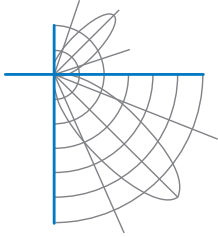


Report of Test

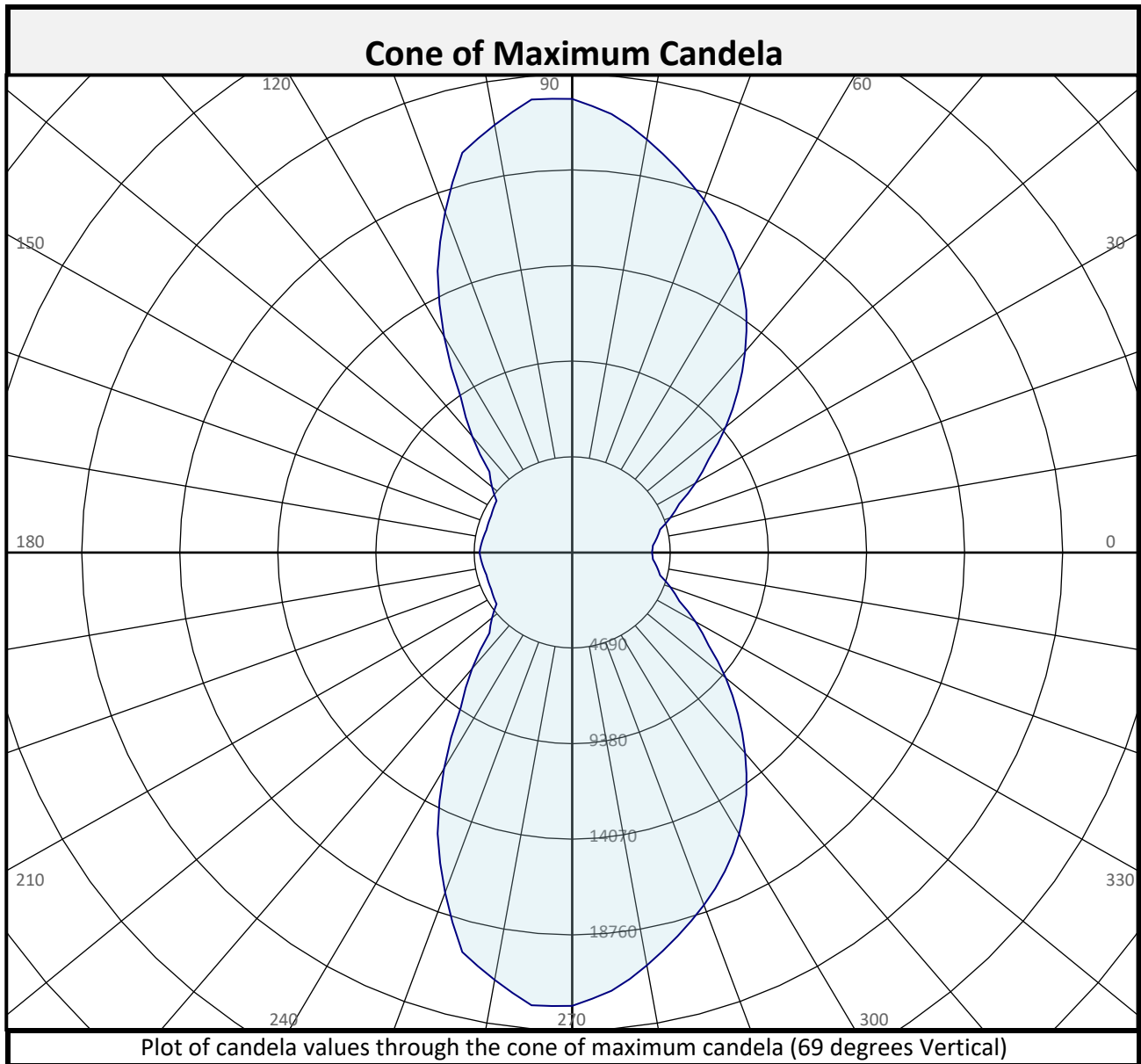
LLIA002251-020



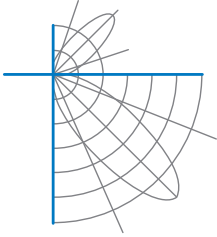
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	35508.4	57.3%	0.0	0.0%	35508.4	57.3%
House Side	26475.5	42.7%	0.0	0.0%	26475.5	42.7%
Total	61983.9	100.0%	0.0	0.0%	61983.9	100.0%



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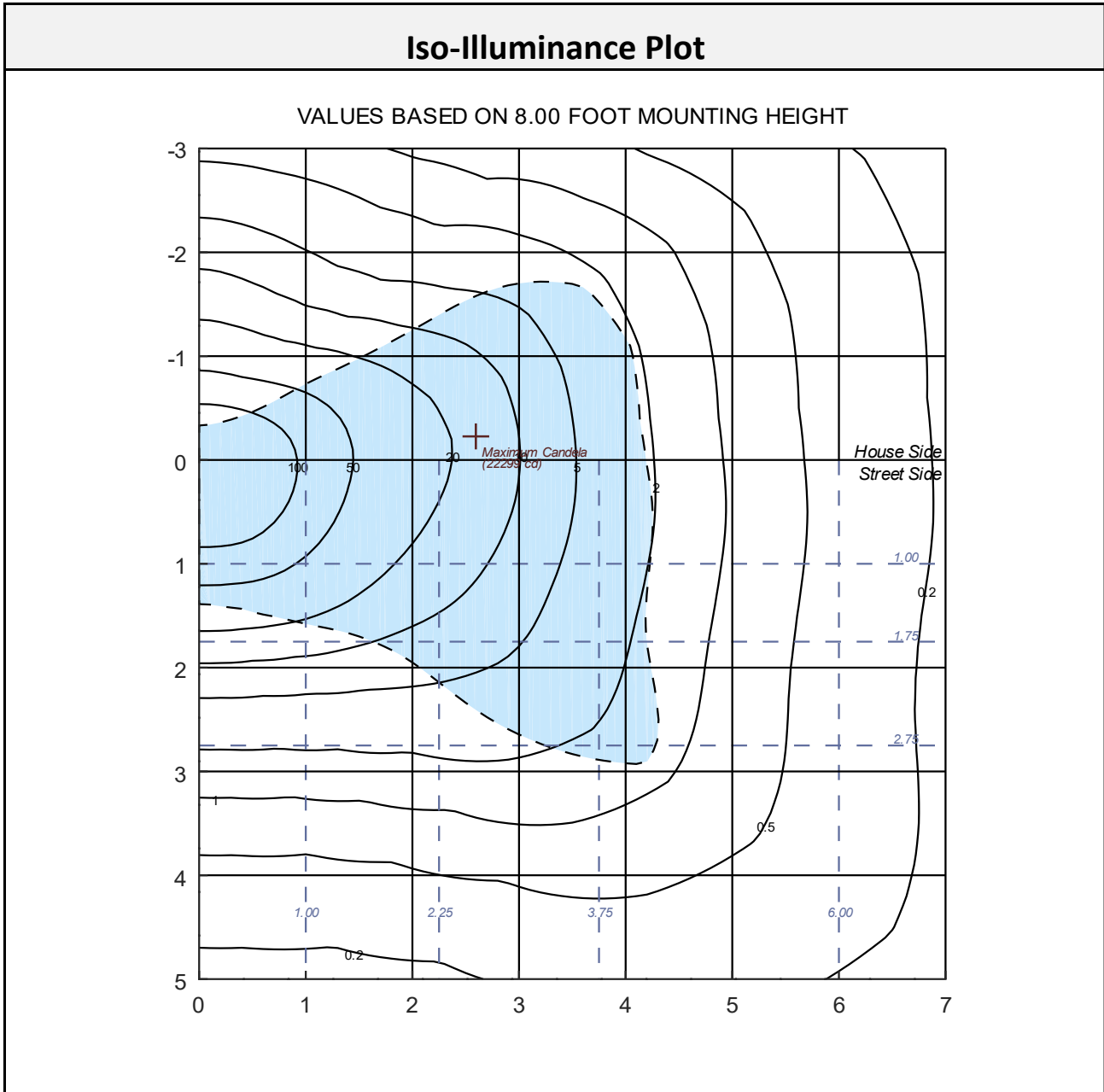


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	35508.4	57.3%	0.0	0.0%	35508.4	57.3%
House Side	26475.5	42.7%	0.0	0.0%	26475.5	42.7%
Total	61983.9	100.0%	0.0	0.0%	61983.9	100.0%



Report of Test

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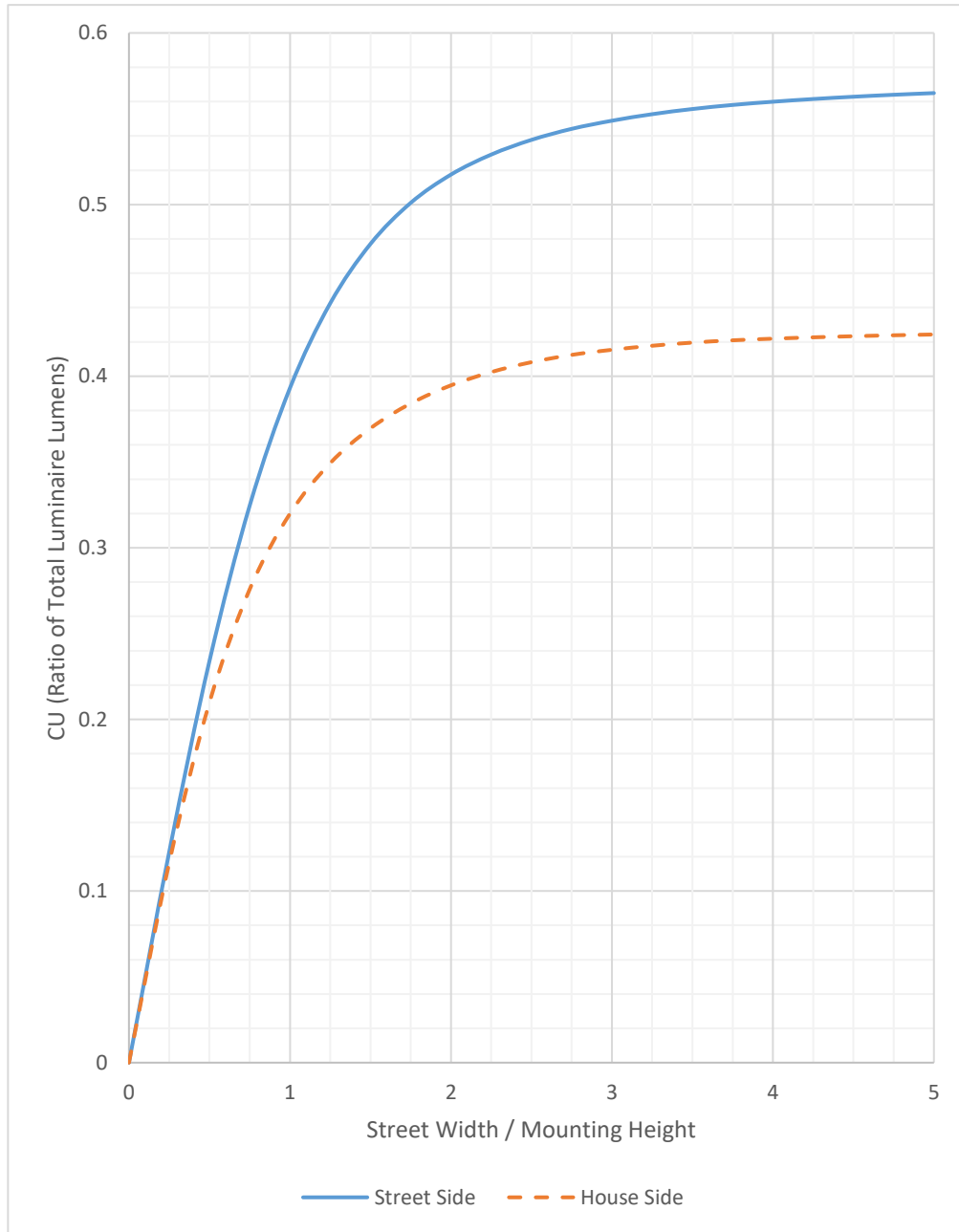


The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-020

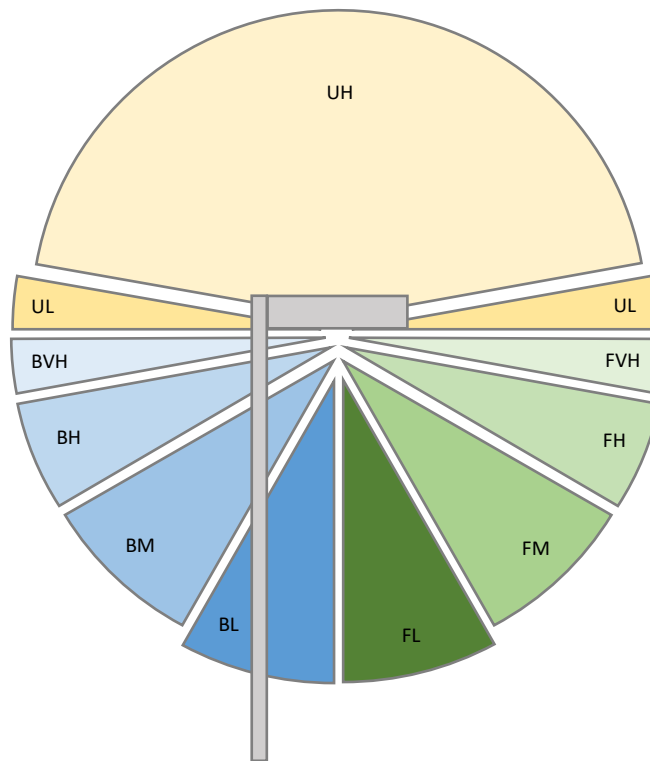
Coefficients of Utilization Plot





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LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	5178.6 Lm
BM - Back Mid (30°-60°)	12153.4 Lm
BH - Back High (60°-80°)	8523.7 Lm
BVH - Back Very High (80°-90°)	619.8 Lm

Forward Light

FL - Forward Low (0°-30°)	6207.7 Lm
FM - Forward Mid (30°-60°)	17331.1 Lm
FH - Forward High (60°-80°)	10849.6 Lm
FVH - Forward Very High (80°-90°)	1120.0 Lm

Uplight

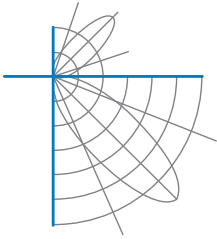
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

B5 - U0 - G5

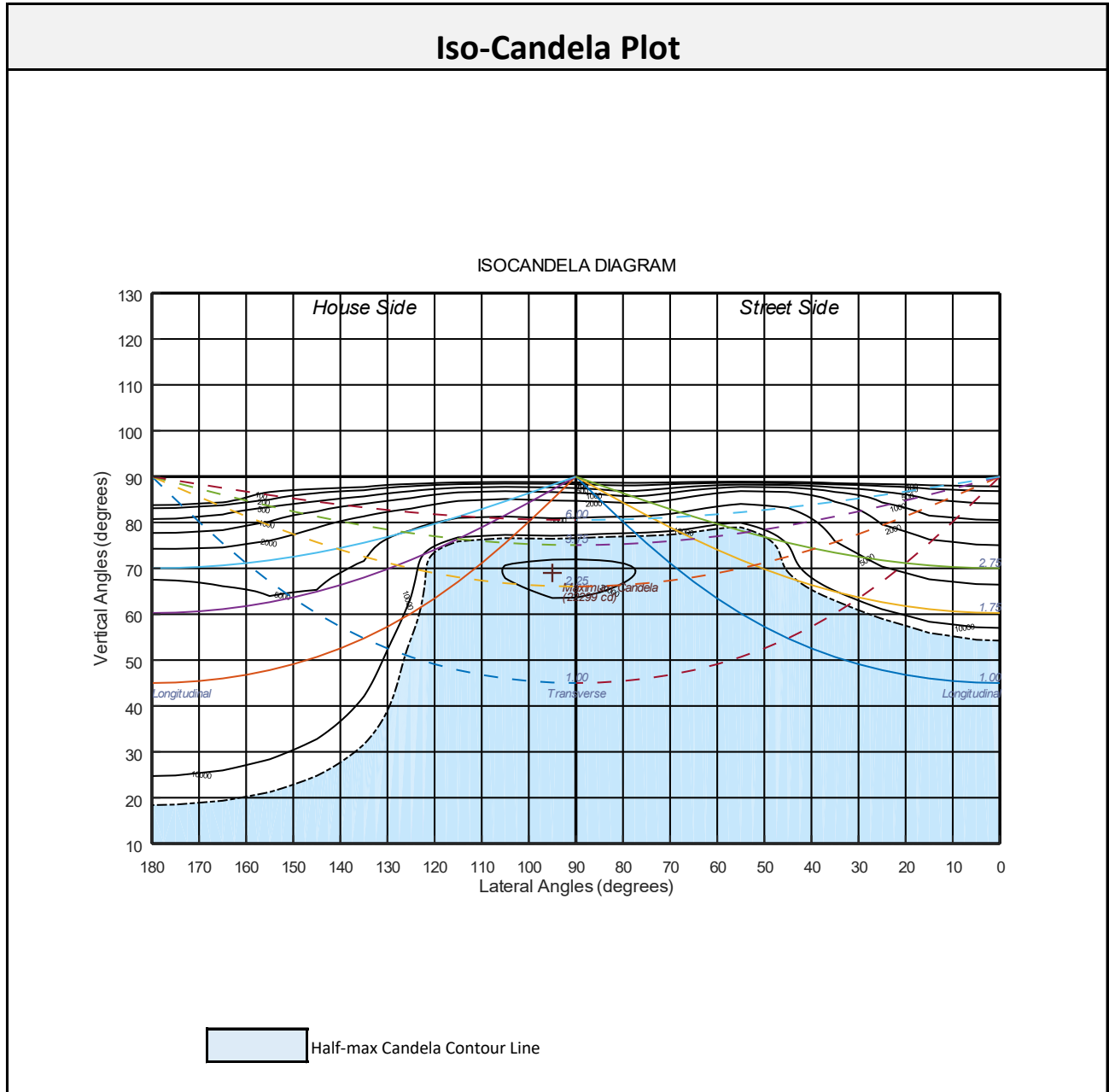
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

B5 - U0 - G5



Report of Test
LLIA002251-020

Iso-Candela Plot





Report of Test

LLIA002251-020

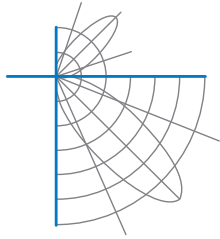
Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	0	5	15	25	35	45	55	57.5	60	62.5	65	67.5	70	72.5	75	
0	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	
2.5	13842	13856	13855	13838	13821	13796	13768	13755	13748	13743	13726	13723	13712	13703	13692	
5	14052	14064	14059	14034	14009	13966	13912	13901	13884	13873	13846	13834	13814	13796	13779	
7.5	14227	14244	14239	14215	14180	14130	14063	14045	14021	14005	13977	13959	13933	13909	13881	
10	14375	14390	14384	14366	14337	14290	14218	14195	14174	14156	14118	14094	14062	14033	13999	
12.5	14497	14514	14512	14502	14488	14447	14376	14355	14330	14304	14270	14242	14207	14173	14131	
15	14601	14617	14625	14632	14628	14606	14545	14518	14494	14465	14432	14400	14359	14319	14272	
17.5	14686	14696	14720	14752	14777	14769	14714	14693	14669	14644	14604	14569	14526	14480	14434	
20	14731	14742	14790	14864	14921	14940	14895	14877	14848	14821	14779	14744	14706	14655	14601	
22.5	14749	14764	14838	14956	15067	15115	15081	15066	15035	15009	14969	14929	14889	14839	14779	
25	14749	14771	14872	15040	15206	15295	15271	15253	15226	15198	15159	15119	15073	15017	14958	
27.5	14731	14760	14897	15129	15347	15462	15455	15433	15409	15384	15336	15298	15245	15192	15131	
30	14699	14731	14914	15215	15484	15629	15629	15609	15580	15550	15507	15462	15410	15365	15301	
32.5	14642	14682	14917	15299	15624	15793	15795	15773	15740	15713	15671	15625	15577	15529	15474	
35	14560	14603	14888	15363	15755	15942	15954	15936	15905	15875	15838	15800	15755	15709	15657	
37.5	14418	14474	14820	15389	15854	16062	16101	16090	16068	16045	16014	15977	15939	15904	15860	
40	14202	14266	14675	15345	15889	16137	16215	16212	16205	16194	16177	16152	16124	16102	16071	
42.5	13885	13956	14423	15209	15844	16148	16269	16285	16297	16298	16299	16287	16284	16275	16256	
45	13477	13548	14075	14973	15713	16077	16264	16296	16327	16351	16369	16379	16385	16401	16402	
47.5	12989	13066	13619	14638	15489	15946	16210	16265	16312	16358	16386	16416	16440	16467	16489	
50	12418	12498	13067	14181	15176	15759	16120	16194	16269	16325	16370	16417	16456	16496	16537	
52.5	11725	11796	12382	13594	14758	15512	15992	16089	16180	16253	16321	16387	16448	16507	16575	
55	10863	10931	11520	12835	14214	15175	15803	15924	16038	16144	16245	16347	16447	16543	16653	
57.5	9767	9837	10436	11856	13506	14739	15565	15723	15881	16033	16189	16347	16502	16664	16834	
60	8435	8503	9102	10615	12577	14182	15295	15519	15740	15966	16192	16430	16671	16922	17174	
62.5	6999	7066	7634	9158	11391	13454	15000	15324	15651	15973	16316	16658	17006	17350	17700	
65	5700	5759	6269	7682	10044	12559	14709	15189	15658	16122	16590	17053	17509	17958	18397	
67.5	4490	4552	5051	6373	8700	11680	14512	15159	15808	16419	17020	17601	18146	18677	19198	
70	3420	3475	3923	5180	7506	10955	14521	15329	16064	16734	17327	17887	18420	18938	19466	
72.5	2623	2665	3023	4106	6377	10554	14538	15338	15998	16491	16845	17147	17434	17750	18050	
75	2008	2041	2312	3234	5332	10044	14222	14739	14981	14995	14869	14725	14613	14589	14585	
77.5	1504	1528	1731	2509	4460	8841	12649	12732	12534	12159	11703	11257	10915	10672	10482	
80	1086	1103	1253	1900	3657	7234	9915	9799	9447	8942	8360	7804	7363	7068	6845	
82.5	717	731	850	1383	2799	5477	6935	6697	6308	5800	5230	4678	4224	3911	3706	
85	399	408	501	874	1787	3467	3986	3679	3345	2980	2595	2223	1906	1657	1488	
87.5	133	139	178	305	559	1132	1283	1154	997	849	709	586	482	408	356	
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

LLIA002251-020

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	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	13619	
2.5	13683	13670	13657	13645	13618	13601	13561	13514	13476	13442	13410	13383	13363	13352	13348	
5	13759	13738	13713	13695	13647	13610	13519	13428	13340	13256	13189	13129	13088	13064	13060	
7.5	13853	13826	13794	13762	13694	13636	13495	13348	13211	13077	12959	12863	12798	12759	12756	
10	13962	13926	13886	13849	13762	13681	13494	13292	13095	12901	12730	12592	12490	12442	12428	
12.5	14091	14043	13999	13950	13849	13742	13513	13254	12990	12735	12504	12305	12172	12100	12086	
15	14227	14179	14125	14067	13947	13824	13546	13231	12903	12574	12270	12012	11825	11729	11712	
17.5	14380	14326	14267	14204	14064	13918	13593	13222	12820	12407	12017	11687	11444	11319	11302	
20	14542	14486	14418	14345	14199	14031	13658	13218	12735	12233	11746	11333	11037	10885	10864	
22.5	14714	14651	14583	14506	14346	14163	13734	13224	12641	12028	11443	10955	10609	10433	10412	
25	14894	14827	14756	14675	14502	14301	13827	13237	12544	11805	11120	10558	10167	9972	9949	
27.5	15068	15000	14934	14849	14673	14463	13938	13255	12432	11569	10776	10147	9717	9511	9485	
30	15237	15169	15107	15023	14845	14630	14069	13281	12316	11319	10415	9719	9269	9058	9031	
32.5	15413	15348	15284	15211	15030	14816	14214	13317	12202	11059	10042	9282	8820	8612	8587	
35	15605	15546	15486	15415	15240	15026	14385	13376	12097	10798	9655	8830	8371	8184	8161	
37.5	15816	15763	15713	15641	15483	15267	14580	13460	11997	10524	9250	8364	7931	7783	7768	
40	16035	15992	15955	15898	15751	15533	14805	13570	11911	10242	8824	7893	7510	7419	7414	
42.5	16241	16214	16195	16157	16034	15827	15044	13690	11830	9950	8388	7446	7129	7106	7108	
45	16408	16410	16400	16384	16303	16112	15308	13830	11753	9644	7955	7035	6795	6826	6837	
47.5	16512	16532	16553	16557	16523	16369	15563	13969	11669	9318	7531	6670	6495	6566	6587	
50	16574	16621	16664	16692	16702	16597	15807	14091	11549	8959	7119	6344	6224	6318	6343	
52.5	16648	16711	16786	16848	16927	16859	16058	14181	11370	8562	6716	6050	5976	6095	6123	
55	16773	16892	17010	17123	17273	17252	16360	14241	11115	8126	6330	5780	5760	5926	5961	
57.5	17017	17208	17392	17564	17800	17799	16751	14286	10809	7675	5973	5532	5594	5831	5879	
60	17440	17696	17958	18191	18519	18521	17250	14355	10485	7231	5647	5310	5476	5803	5862	
62.5	18056	18404	18745	19040	19477	19503	17939	14473	10165	6798	5347	5112	5387	5783	5857	
65	18842	19287	19725	20133	20729	20791	18832	14642	9848	6363	5041	4910	5205	5540	5618	
67.5	19722	20257	20790	21268	21970	22038	19875	14936	9509	5894	4697	4550	4730	4950	5012	
70	19978	20490	20990	21408	21967	21997	20269	15404	9112	5385	4204	4005	3898	3966	4010	
72.5	18350	18627	18873	19034	19149	19035	18153	14928	8558	4758	3634	3269	2863	2788	2812	
75	14587	14582	14554	14473	14216	14014	13920	12292	7440	4043	3017	2379	1830	1719	1725	
77.5	10342	10231	10116	9964	9569	9333	9674	9047	5606	3351	2350	1565	1155	1051	1044	
80	6693	6594	6511	6406	6122	5973	6361	6033	3821	2508	1672	1038	720	606	595	
82.5	3604	3598	3615	3634	3592	3556	3888	3612	2286	1546	974	667	399	299	288	
85	1429	1473	1570	1678	1823	1873	2075	1809	1119	676	419	198	48	4	3	
87.5	323	316	335	387	497	561	627	536	300	124	82	55	8	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)

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www.lightlabint.com



Report of Test

LLIA002251-020

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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LLIA002251-020

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
LLIA002251-020

Additional Pictures of Test Subject





Report of Test

LLIA002251-020

Test Distance 9.5 m
Ambient Temperature 25.6 °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.