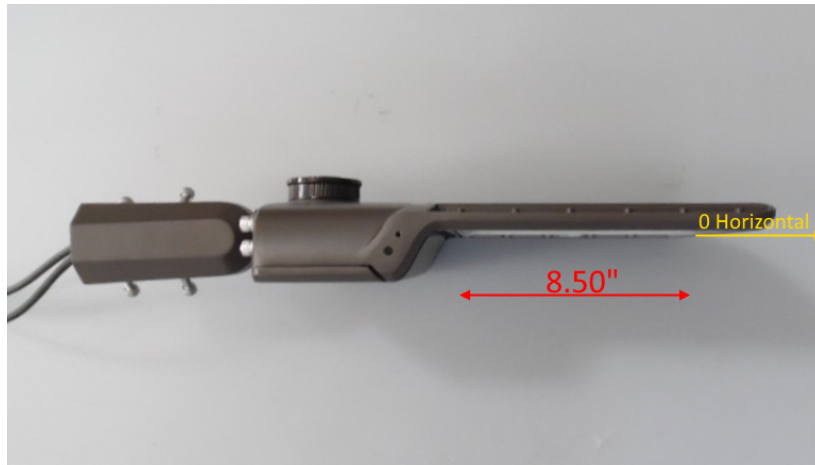


Report of Test

LLIA002251-003

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-T3 - 150W 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



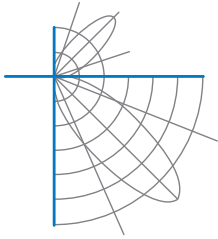
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	22179.7 Lumens
Input Current	1.210 A	Total Efficacy	153.0 Lm/W
Input Power	145.0 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.998	Roadway Type	Type III
Current THD	4.6 %		

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

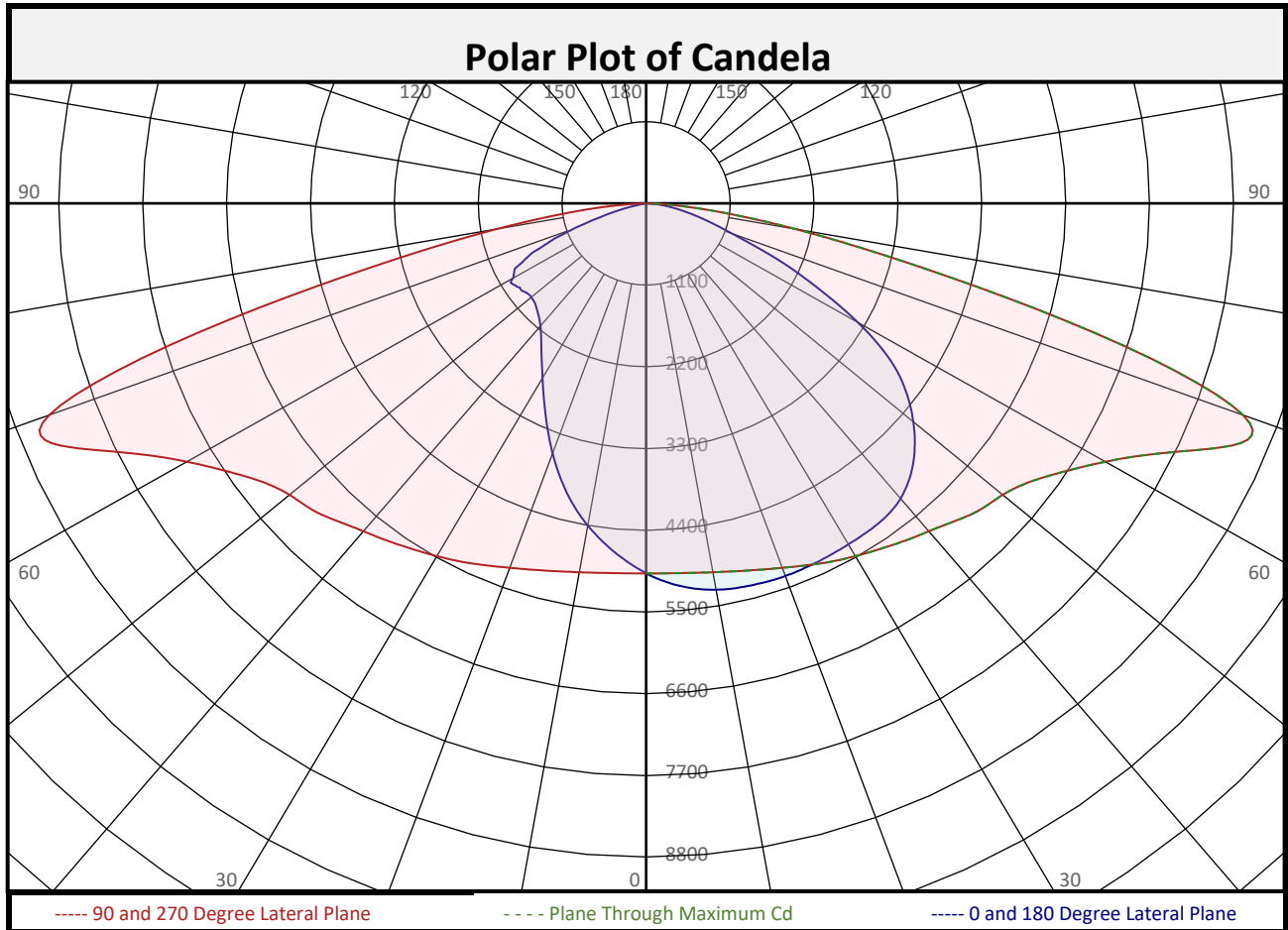
Test date: 10/02/2023
Report date: 11/08/2023

Signed: _____



Report of Test

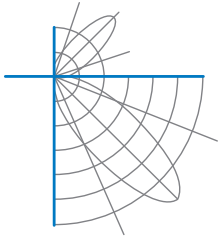
LLIA002251-003



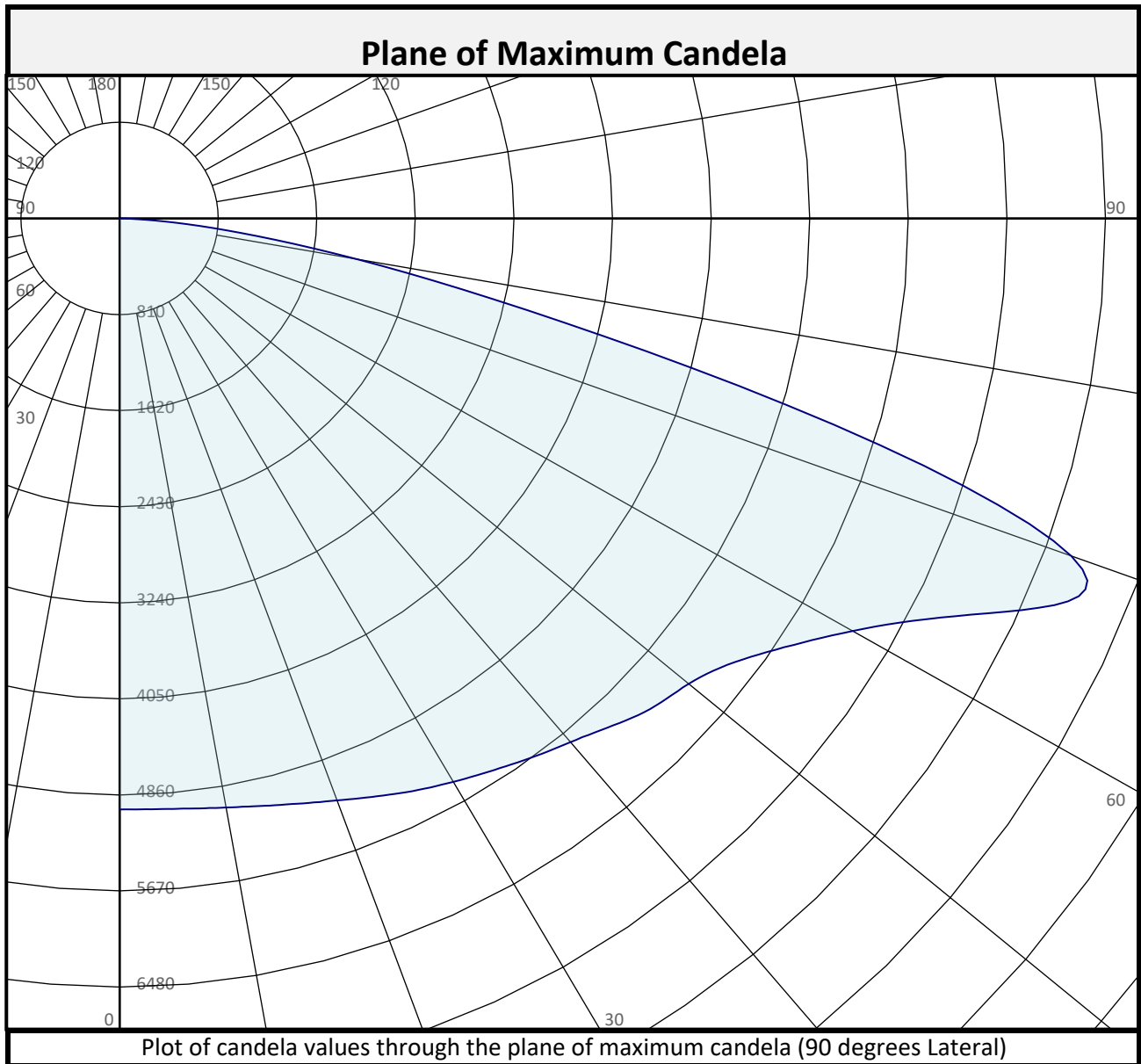
Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	474.0	2.1%		90-100	0.0	0.0%		0-20	1862	8.4%
10-20	1388	6.3%		100-110	0.0	0.0%		0-30	4085	18.4%
20-30	2223	10.0%		110-120	0.0	0.0%		0-40	7055	31.8%
30-40	2970	13.4%		120-130	0.0	0.0%		0-60	14668	66.1%
40-50	3598	16.2%		130-140	0.0	0.0%		0-80	21629	97.5%
50-60	4015	18.1%		140-150	0.0	0.0%		10-90	21706	97.9%
60-70	4139	18.7%		150-160	0.0	0.0%		20-50	8790	39.6%
70-80	2822	12.7%		160-170	0.0	0.0%		40-90	15125	68.2%
80-90	551.1	2.5%		170-180	0.0	0.0%		60-90	7512	33.9%
0-90	22180	100.0%		90-180	0.0	0.0%		0-180	22180	100.0%

North America (issuing laboratory)

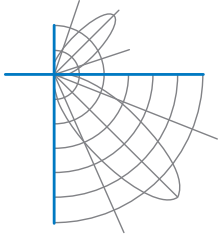
Australasia & S.E. Asia



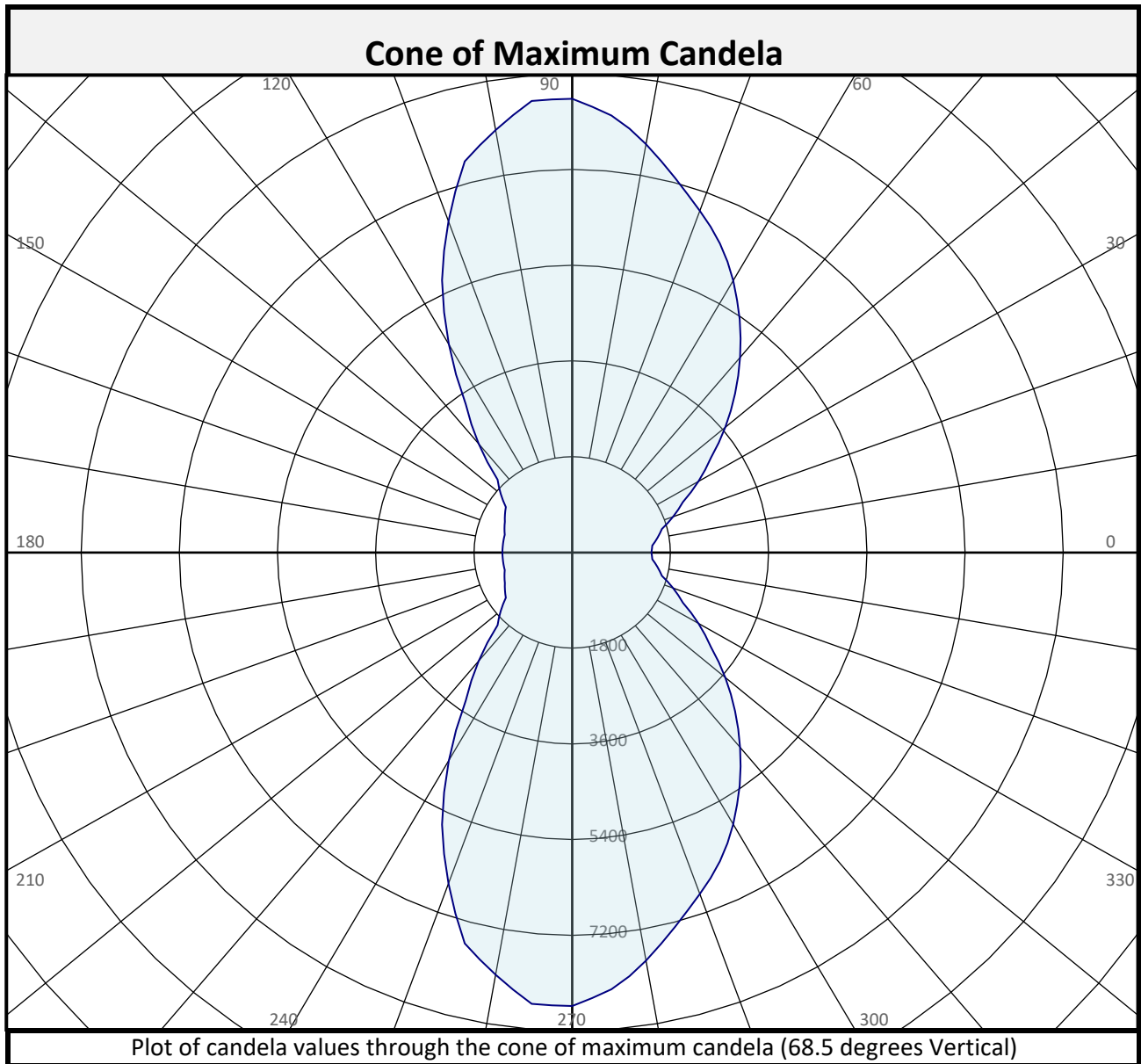
Report of Test
LLIA002251-003



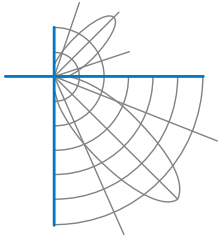
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	12964.5	58.5%	0.0	0.0%	12964.5	58.5%
House Side	9215.3	41.5%	0.0	0.0%	9215.3	41.5%
Total	22179.7	100.0%	0.0	0.0%	22179.7	100.0%



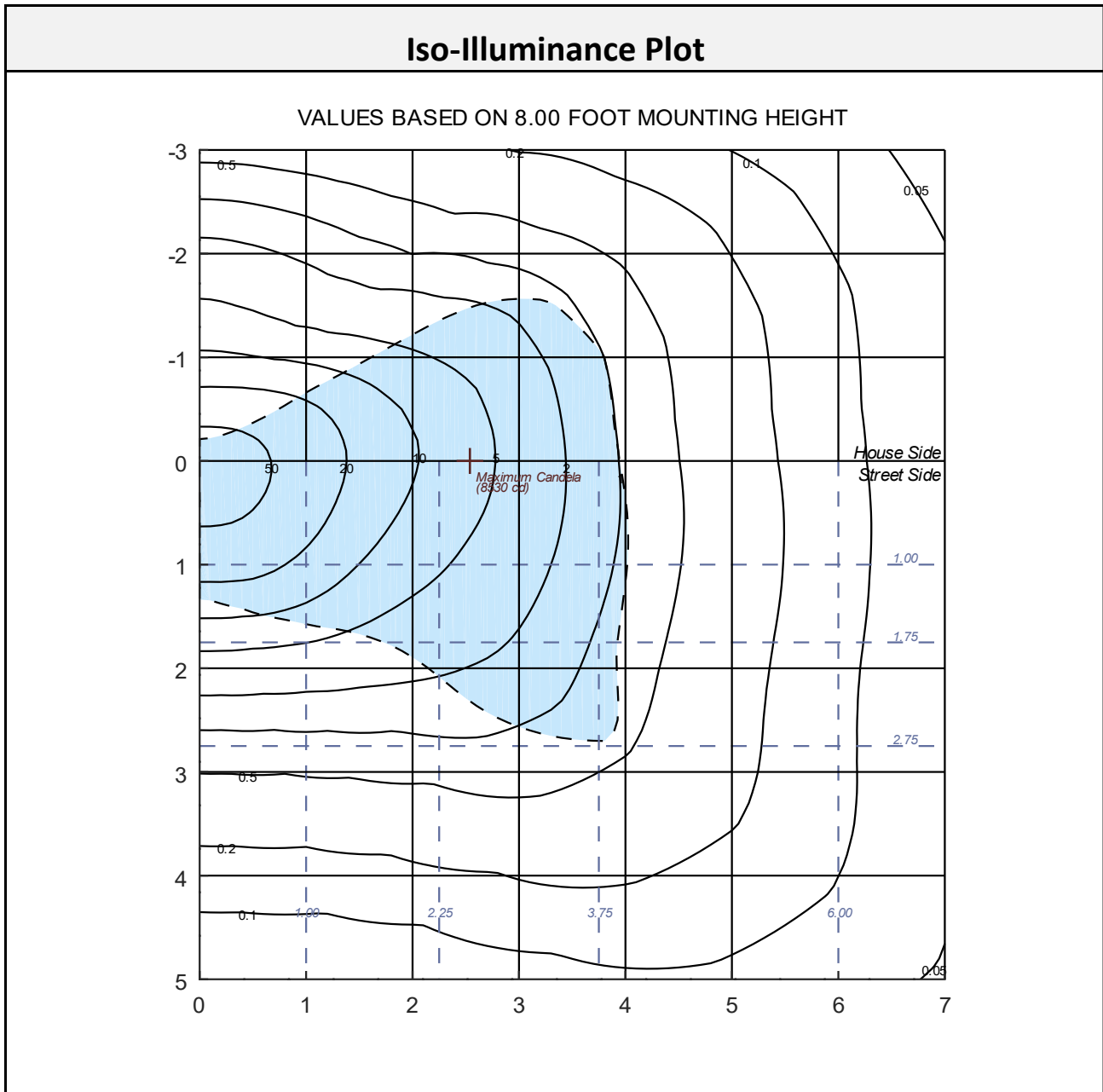
Report of Test
LLIA002251-003



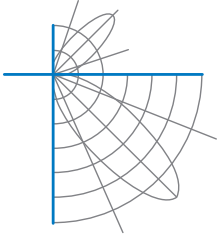
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	12964.5	58.5%	0.0	0.0%	12964.5	58.5%
House Side	9215.3	41.5%	0.0	0.0%	9215.3	41.5%
Total	22179.7	100.0%	0.0	0.0%	22179.7	100.0%



Report of Test
LLIA002251-003

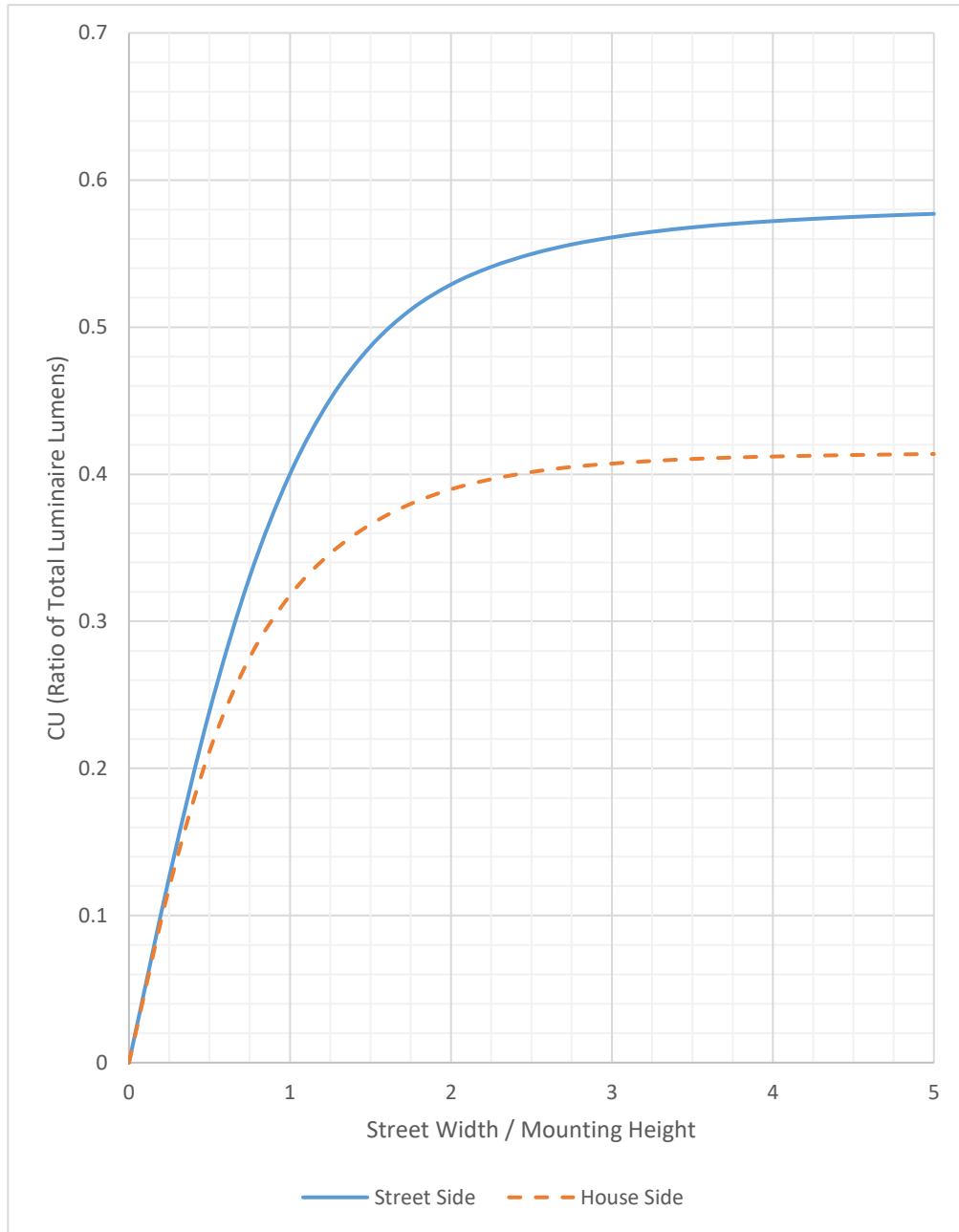


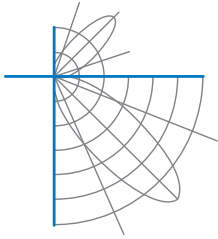
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-003

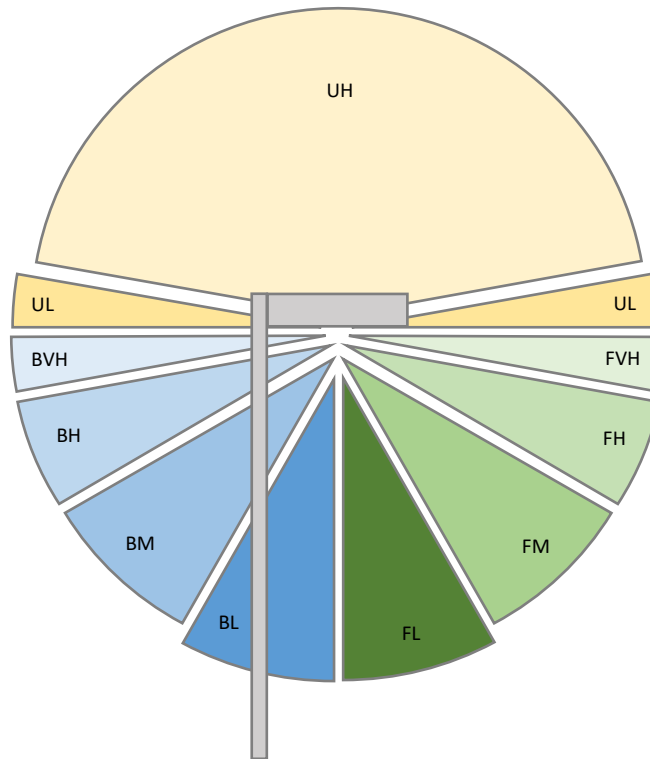
Coefficients of Utilization Plot





Report of Test
LLIA002251-003

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	1820.8 Lm
BM - Back Mid (30°-60°)	4260.0 Lm
BH - Back High (60°-80°)	2959.2 Lm
BVH - Back Very High (80°-90°)	175.3 Lm

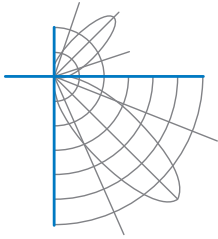
Forward Light

FL - Forward Low (0°-30°)	2264.2 Lm
FM - Forward Mid (30°-60°)	6322.9 Lm
FH - Forward High (60°-80°)	4001.6 Lm
FVH - Forward Very High (80°-90°)	375.8 Lm

Uplight

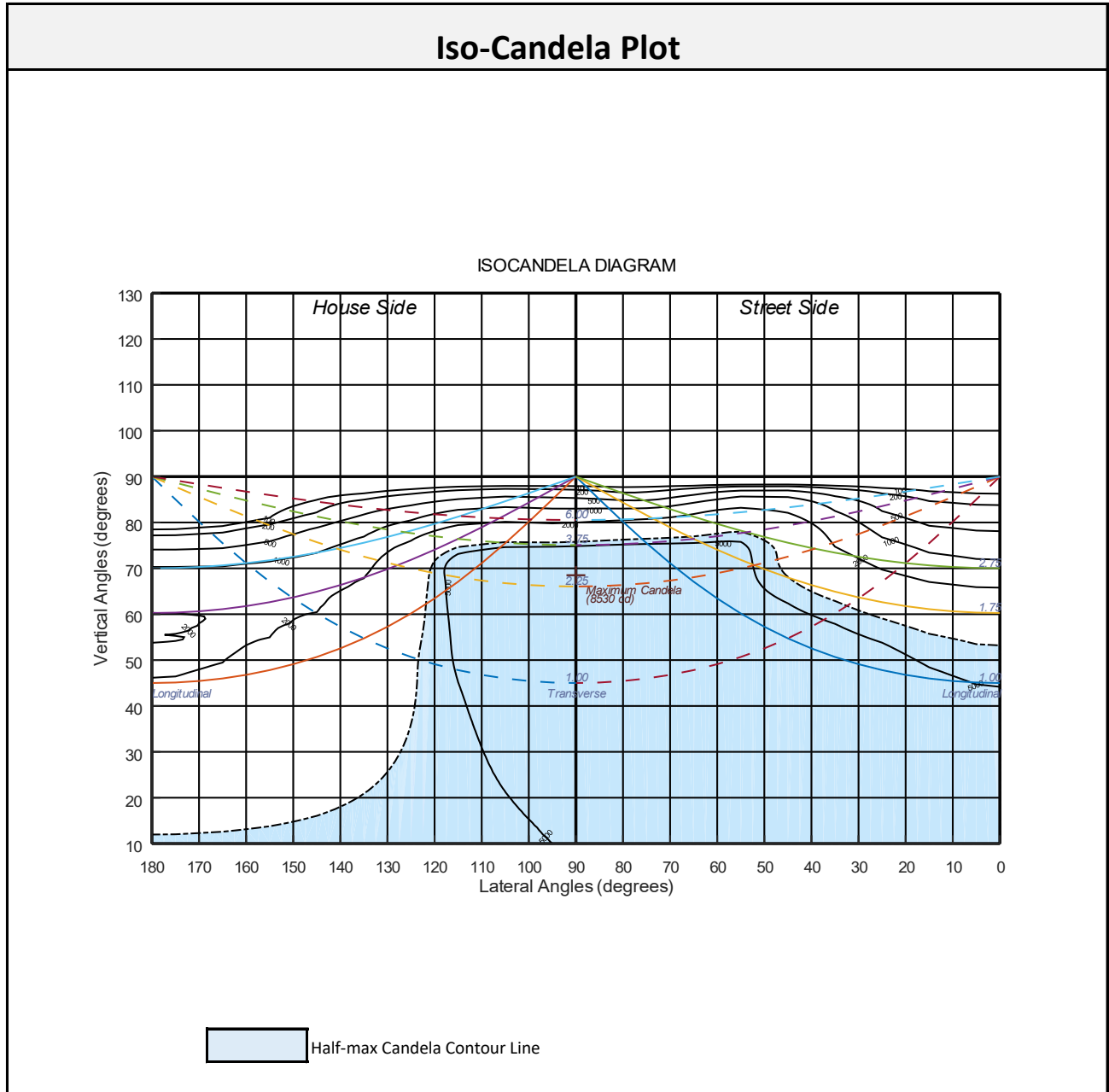
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

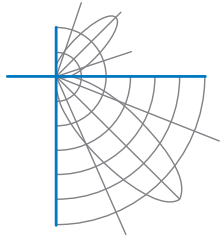
BUG Rating: Asymmetrical Luminaire (Type I, II, III, and IV) B4 - U0 - G4
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS) B4 - U0 - G3



Report of Test
LLIA002251-003

Iso-Candela Plot





Report of Test

LLIA002251-003

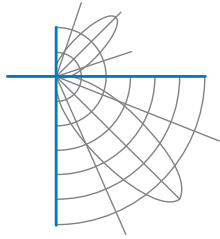
Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	0	5	15	25	35	45	55	57.5	60	62.5	65	67.5	70	72.5	75	
0	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	
2.5	5085	5087	5085	5081	5072	5062	5049	5045	5043	5039	5033	5028	5026	5017	5013	
5	5169	5173	5170	5163	5147	5133	5111	5106	5099	5093	5083	5076	5069	5059	5050	
7.5	5233	5237	5235	5230	5214	5197	5172	5165	5156	5148	5138	5129	5119	5107	5093	
10	5280	5282	5283	5278	5268	5253	5228	5222	5214	5205	5193	5182	5171	5157	5139	
12.5	5308	5309	5312	5316	5311	5303	5282	5276	5270	5259	5249	5238	5224	5212	5193	
15	5323	5327	5334	5341	5347	5349	5336	5330	5325	5314	5303	5294	5282	5266	5249	
17.5	5334	5337	5349	5364	5379	5391	5386	5384	5380	5371	5362	5353	5341	5327	5309	
20	5337	5341	5361	5389	5413	5433	5439	5440	5437	5432	5423	5415	5405	5391	5374	
22.5	5333	5337	5368	5409	5448	5480	5493	5496	5497	5492	5487	5480	5471	5456	5440	
25	5323	5330	5369	5431	5487	5528	5549	5553	5553	5551	5547	5544	5532	5523	5507	
27.5	5311	5321	5372	5456	5530	5578	5602	5606	5606	5605	5602	5600	5592	5583	5571	
30	5300	5313	5380	5485	5576	5629	5650	5653	5653	5653	5651	5647	5645	5635	5625	
32.5	5289	5305	5390	5524	5627	5678	5696	5694	5697	5695	5694	5693	5689	5683	5675	
35	5277	5293	5402	5571	5682	5727	5736	5736	5736	5734	5735	5735	5730	5729	5726	
37.5	5247	5264	5401	5606	5729	5765	5776	5775	5774	5774	5776	5776	5774	5774	5778	
40	5188	5209	5369	5617	5750	5788	5804	5808	5809	5812	5816	5818	5819	5825	5828	
42.5	5087	5116	5308	5595	5743	5784	5817	5825	5832	5837	5846	5855	5866	5876	5884	
45	4952	4983	5207	5540	5705	5759	5808	5820	5830	5842	5856	5872	5892	5910	5929	
47.5	4780	4811	5065	5448	5642	5717	5786	5804	5818	5836	5855	5879	5901	5924	5953	
50	4573	4609	4879	5314	5548	5665	5766	5788	5809	5834	5858	5884	5910	5939	5972	
52.5	4337	4369	4646	5123	5422	5598	5734	5766	5795	5821	5849	5881	5919	5964	6007	
55	4061	4089	4362	4867	5259	5504	5678	5720	5759	5801	5843	5891	5946	6007	6076	
57.5	3689	3717	3987	4534	5042	5374	5605	5664	5725	5790	5858	5930	6009	6096	6191	
60	3208	3230	3490	4081	4753	5206	5533	5622	5714	5808	5905	6007	6119	6236	6362	
62.5	2661	2683	2925	3520	4340	4987	5467	5593	5728	5864	6001	6136	6282	6430	6583	
65	2154	2174	2390	2936	3830	4685	5405	5591	5779	5968	6151	6324	6492	6665	6850	
67.5	1644	1668	1906	2428	3301	4351	5356	5611	5869	6109	6337	6550	6753	6964	7192	
70	1221	1239	1432	1946	2832	4068	5348	5647	5938	6207	6451	6666	6869	7080	7302	
72.5	941	956	1098	1519	2370	3955	5305	5594	5846	6040	6194	6327	6446	6554	6666	
75	722	734	846	1194	1960	3801	5148	5258	5295	5282	5253	5244	5236	5221	5204	
77.5	538	548	631	922	1644	3291	4463	4417	4299	4147	3995	3884	3794	3712	3645	
80	386	392	451	688	1330	2602	3447	3377	3220	3014	2799	2631	2507	2417	2350	
82.5	258	263	308	499	1002	1895	2331	2247	2108	1919	1714	1538	1395	1290	1234	
85	148	151	183	305	625	1187	1234	1128	1012	894	775	675	585	508	461	
87.5	57	58	68	102	179	319	310	281	250	219	190	169	149	131	121	
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

LLIA002251-003

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	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	4982	
2.5	5009	5004	4999	4996	4985	4974	4954	4936	4915	4898	4883	4870	4860	4854	4853	
5	5043	5034	5024	5017	4997	4972	4933	4891	4850	4813	4778	4750	4730	4716	4716	
7.5	5082	5069	5057	5045	5016	4982	4922	4856	4788	4725	4668	4621	4588	4567	4565	
10	5128	5111	5095	5080	5042	5000	4917	4826	4731	4638	4555	4487	4437	4407	4404	
12.5	5177	5158	5140	5120	5076	5025	4923	4804	4680	4556	4440	4343	4271	4229	4225	
15	5231	5210	5190	5167	5118	5057	4936	4791	4635	4474	4318	4185	4088	4032	4026	
17.5	5290	5270	5244	5221	5166	5100	4957	4784	4593	4388	4188	4013	3887	3816	3808	
20	5355	5334	5307	5282	5220	5149	4984	4783	4551	4298	4049	3836	3677	3590	3580	
22.5	5422	5402	5375	5349	5284	5205	5019	4786	4506	4203	3906	3651	3462	3361	3348	
25	5489	5469	5445	5419	5352	5268	5062	4789	4461	4106	3760	3465	3250	3135	3122	
27.5	5556	5532	5508	5482	5419	5334	5112	4797	4415	4007	3613	3282	3047	2924	2908	
30	5611	5595	5570	5547	5484	5400	5164	4808	4368	3906	3468	3106	2858	2728	2713	
32.5	5666	5650	5631	5606	5548	5466	5219	4827	4323	3807	3326	2941	2685	2557	2542	
35	5720	5706	5693	5673	5617	5537	5279	4851	4282	3706	3187	2785	2529	2406	2393	
37.5	5770	5765	5753	5741	5691	5613	5341	4879	4244	3606	3053	2638	2388	2273	2260	
40	5828	5823	5820	5809	5763	5695	5411	4910	4210	3507	2921	2497	2261	2164	2153	
42.5	5889	5896	5895	5887	5851	5783	5486	4949	4182	3414	2792	2369	2163	2085	2077	
45	5948	5961	5969	5968	5953	5886	5579	4996	4158	3320	2665	2262	2089	2029	2023	
47.5	5981	6003	6016	6028	6036	5983	5681	5057	4138	3226	2544	2177	2030	1984	1979	
50	6003	6033	6063	6085	6104	6071	5778	5114	4109	3124	2427	2104	1994	1965	1965	
52.5	6051	6097	6141	6178	6222	6204	5885	5160	4058	3005	2312	2048	1970	1974	1978	
55	6145	6209	6274	6335	6410	6396	6033	5201	3983	2872	2213	1999	1975	2006	2010	
57.5	6289	6382	6474	6553	6654	6643	6219	5255	3899	2730	2123	1952	1963	2032	2047	
60	6488	6612	6725	6821	6955	6956	6456	5322	3816	2593	2032	1888	1971	2008	2012	
62.5	6738	6888	7033	7163	7346	7368	6756	5398	3732	2456	1901	1808	1857	1931	1944	
65	7048	7251	7444	7621	7875	7892	7081	5473	3633	2262	1758	1698	1677	1707	1714	
67.5	7434	7685	7926	8139	8434	8443	7490	5572	3497	2039	1582	1473	1404	1389	1389	
70	7534	7760	7966	8128	8323	8272	7522	5714	3208	1762	1351	1200	1066	1033	1035	
72.5	6764	6845	6907	6937	6927	6813	6426	5252	2854	1488	1092	870	719	667	665	
75	5174	5130	5078	5010	4860	4762	4742	4055	2257	1223	827	574	442	406	406	
77.5	3579	3502	3426	3335	3144	3049	3195	2806	1637	931	610	377	225	176	172	
80	2291	2227	2172	2113	1984	1924	2055	1801	1086	684	383	164	46	9	8	
82.5	1204	1181	1171	1167	1140	1136	1235	1069	673	432	187	72	13	1	1	
85	452	465	492	523	561	582	629	514	340	198	98	37	8	1	1	
87.5	116	113	118	129	147	159	172	136	79	40	24	8	1	1	1	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

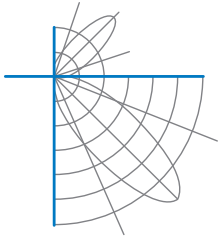
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

North America (issuing laboratory)

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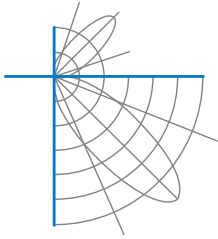


Report of Test

LLIA002251-003

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	

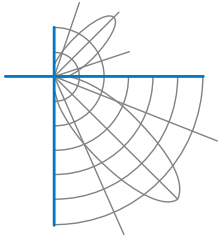


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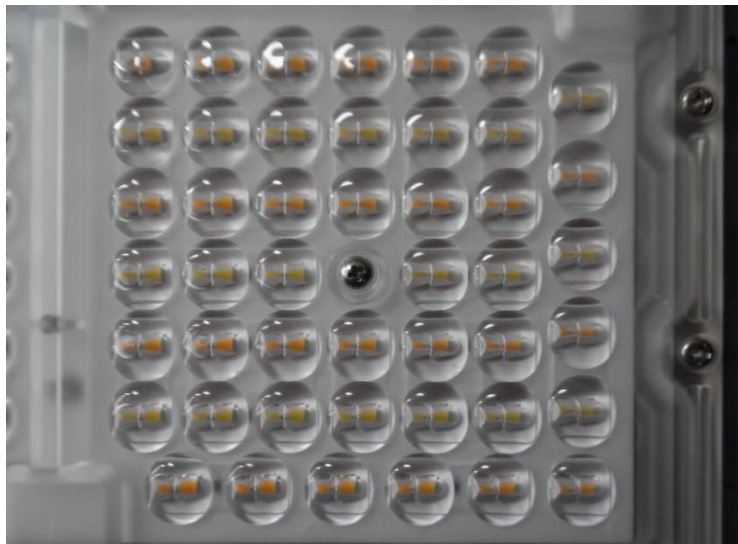
Luminous Intensity (Candela) Table

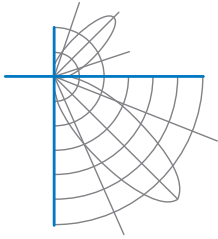
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0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