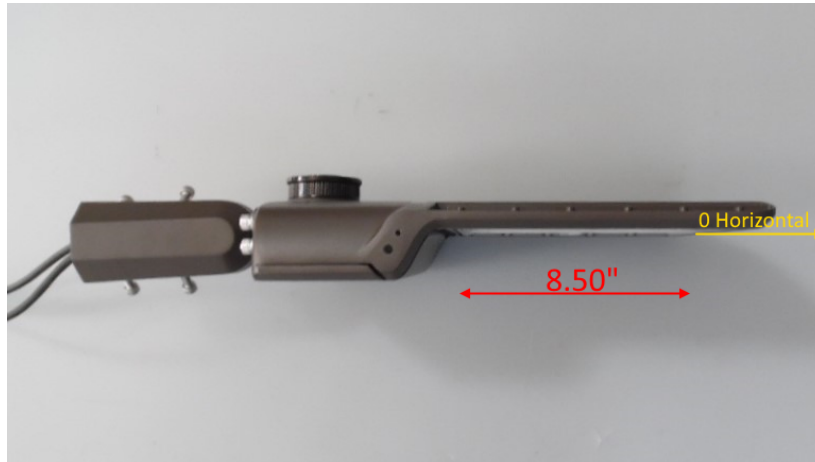


Report of Test

LLIA002251-006

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-T4 - 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



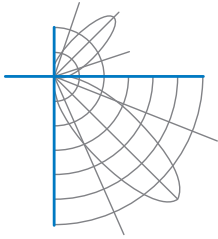
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	119.7 Vac	Luminous Flux	21824.4 Lumens
Input Current	1.211 A	Total Efficacy	150.9 lm/W
Input Power	144.6 W		
Frequency	60.00 Hz	Roadway Throw	Short
Power Factor	0.998	Roadway Type	Type IV
Current THD	4.6 %		

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

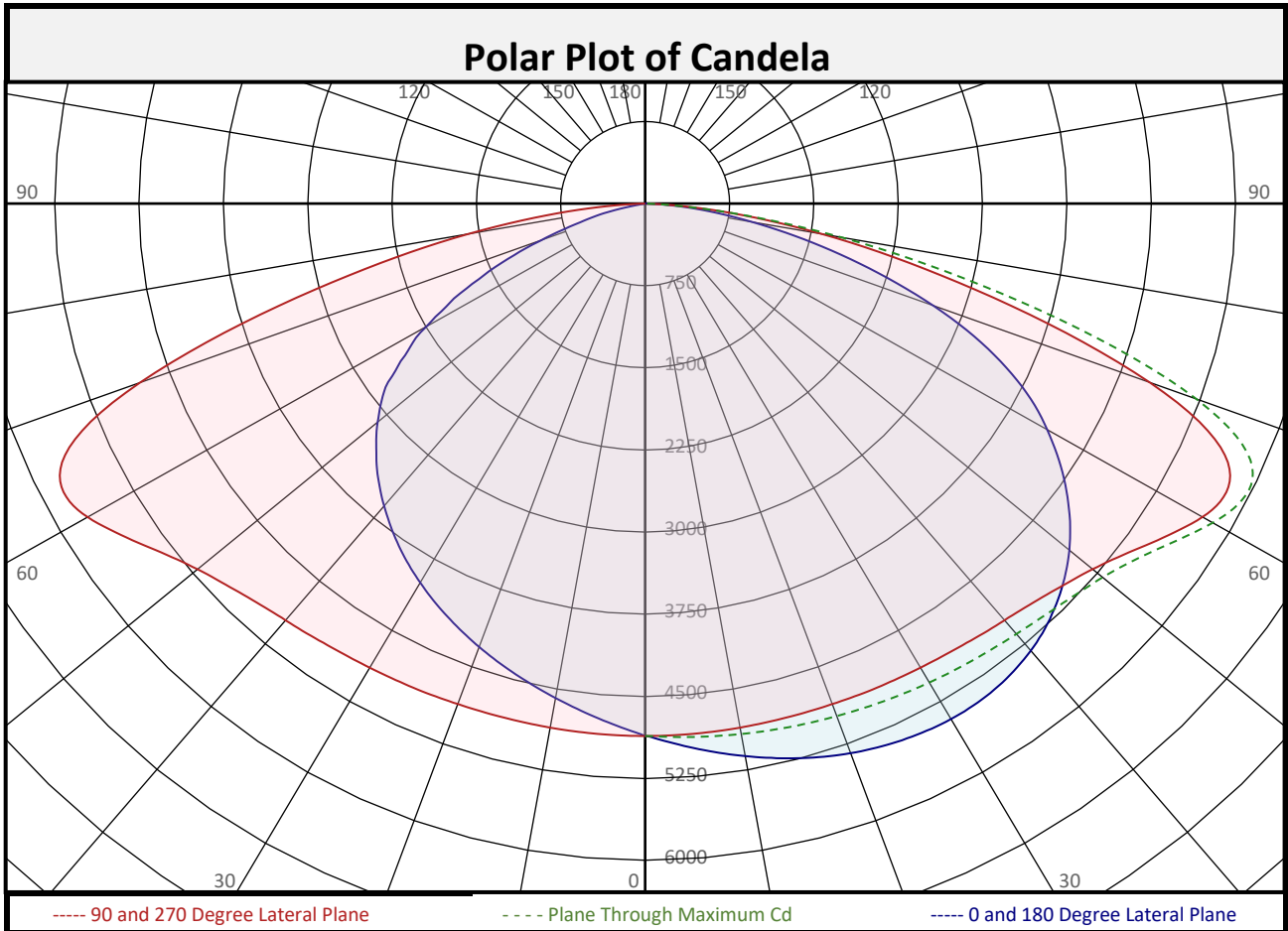
Test date: 11/03/2023
Report date: 11/08/2023

Signed: _____

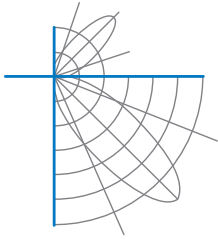


Report of Test

LLIA002251-006

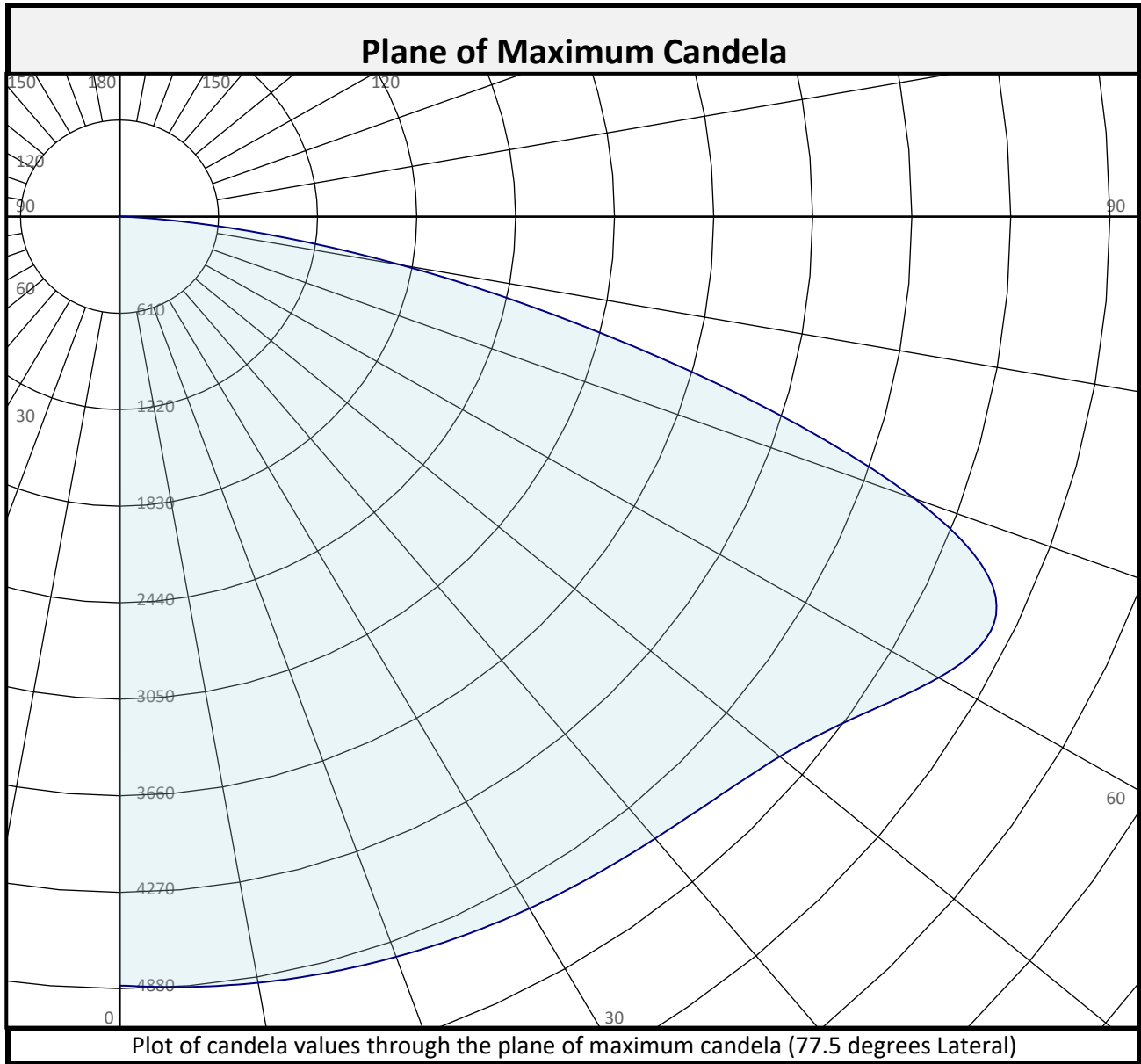


Zonal Flux Summary								
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	464.2	2.1%	90-100	0.0	0.0%	0-20	1840	8.4%
10-20	1376	6.3%	100-110	0.0	0.0%	0-30	4078	18.7%
20-30	2238	10.3%	110-120	0.0	0.0%	0-40	7077	32.4%
30-40	2999	13.7%	120-130	0.0	0.0%	0-60	14689	67.3%
40-50	3604	16.5%	130-140	0.0	0.0%	0-80	21262	97.4%
50-60	4007	18.4%	140-150	0.0	0.0%	10-90	21360	97.9%
60-70	3983	18.2%	150-160	0.0	0.0%	20-50	8841	40.5%
70-80	2590	11.9%	160-170	0.0	0.0%	40-90	14747	67.6%
80-90	562.8	2.6%	170-180	0.0	0.0%	60-90	7136	32.7%
0-90	21824	100.0%	90-180	0.0	0.0%	0-180	21824	100.0%

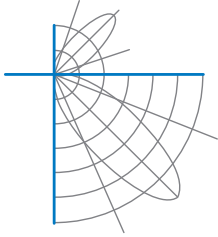


Report of Test

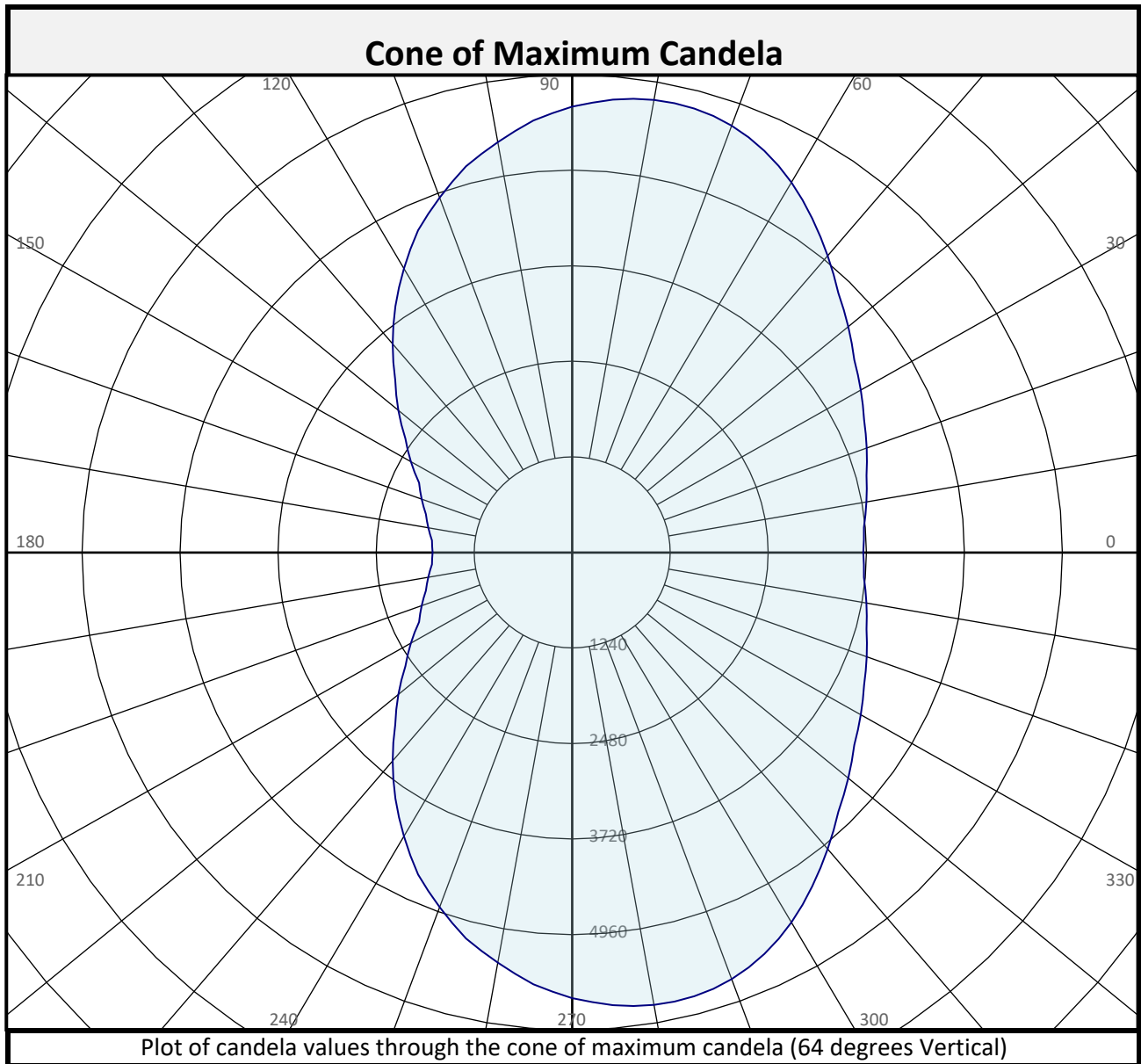
LLIA002251-006



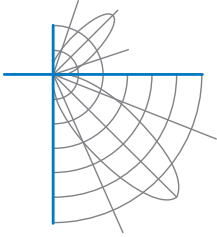
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	12482.1	57.2%	0.0	0.0%	12482.1	57.2%
House Side	9342.3	42.8%	0.0	0.0%	9342.3	42.8%
Total	21824.4	100.0%	0.0	0.0%	21824.4	100.0%



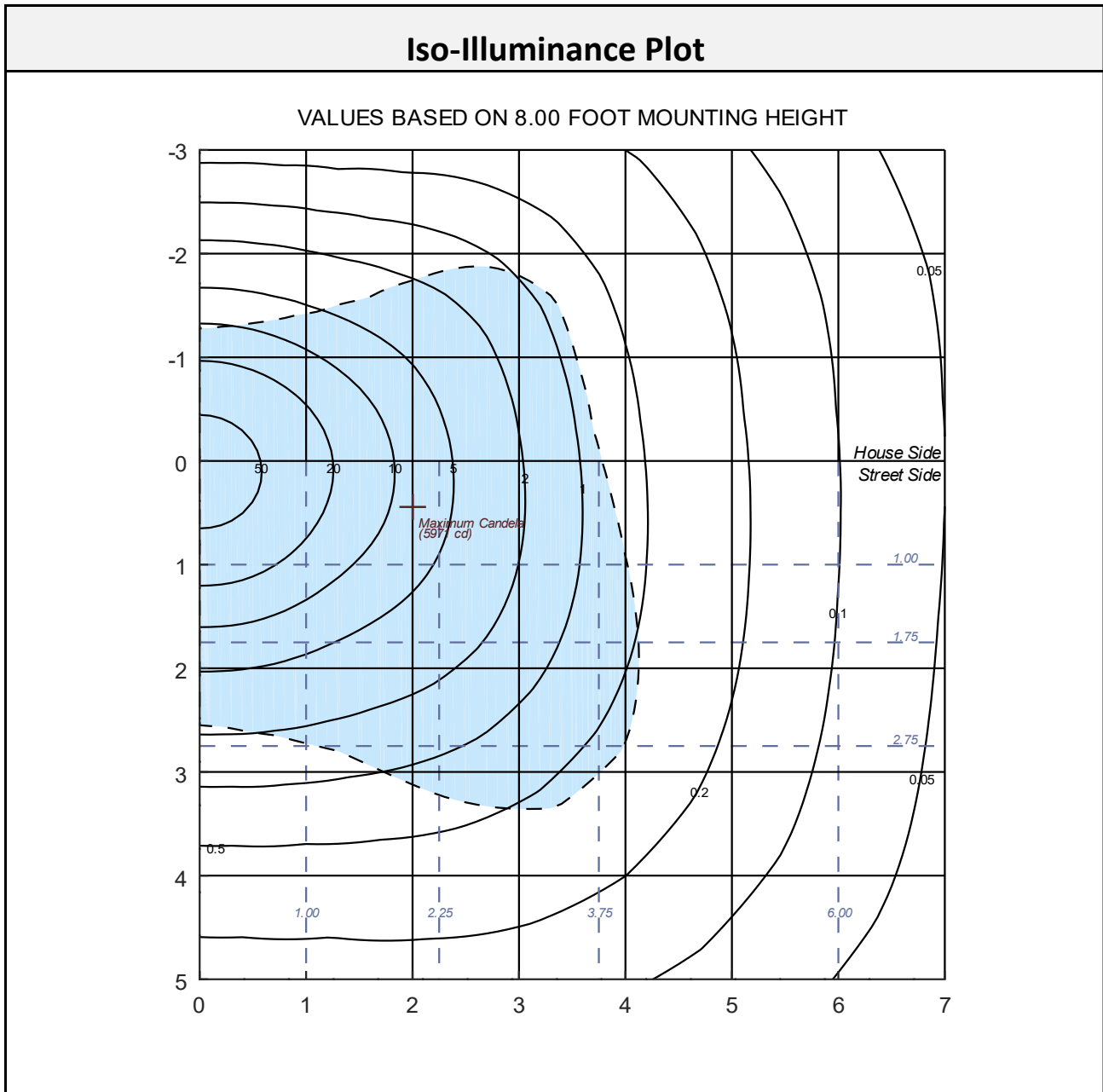
Report of Test
LLIA002251-006



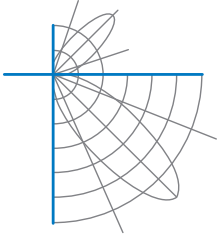
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	12482.1	57.2%	0.0	0.0%	12482.1	57.2%
House Side	9342.3	42.8%	0.0	0.0%	9342.3	42.8%
Total	21824.4	100.0%	0.0	0.0%	21824.4	100.0%



Report of Test
LLIA002251-006

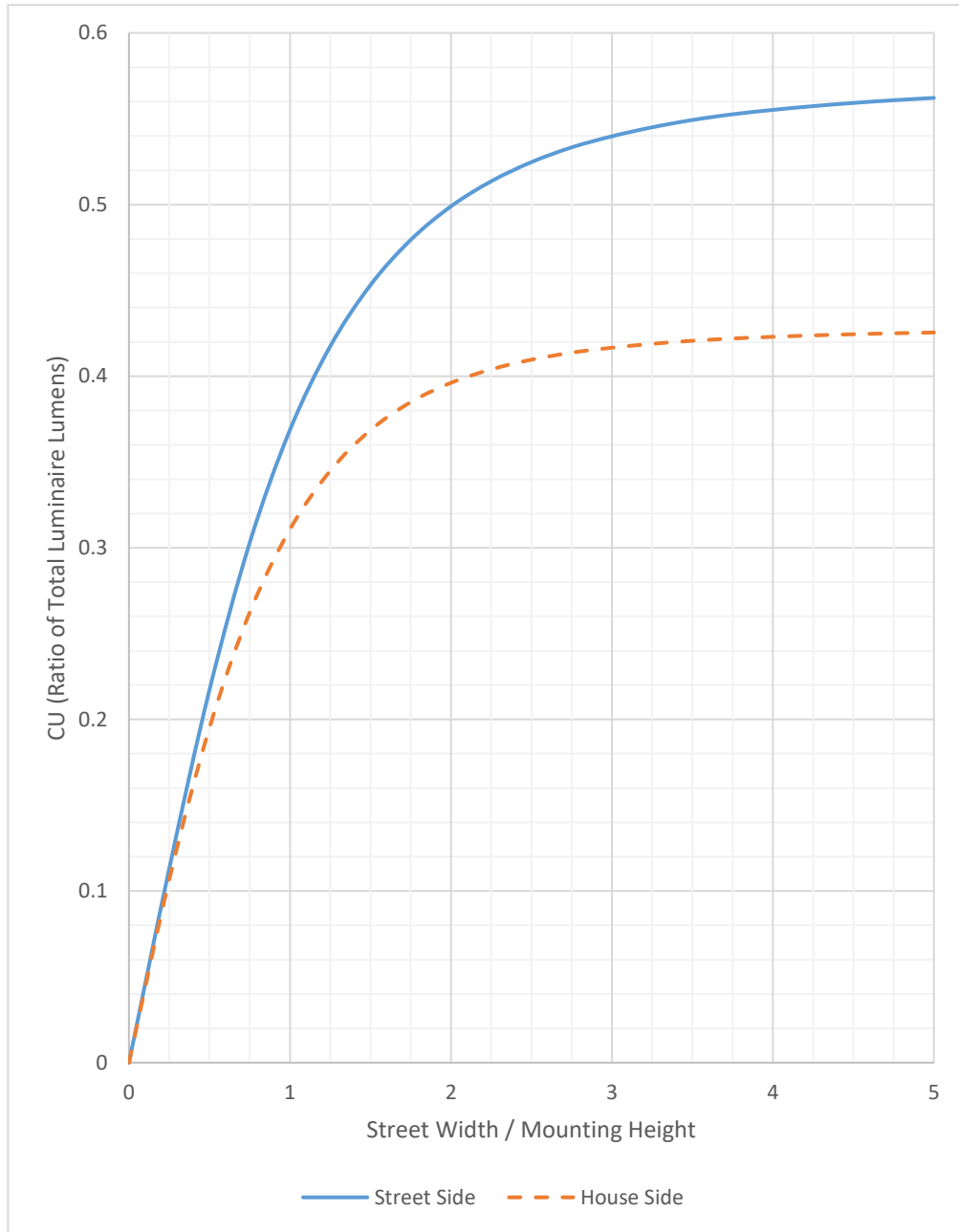


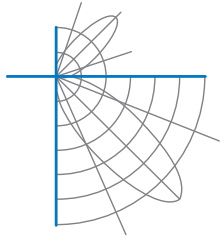
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-006

Coefficients of Utilization Plot

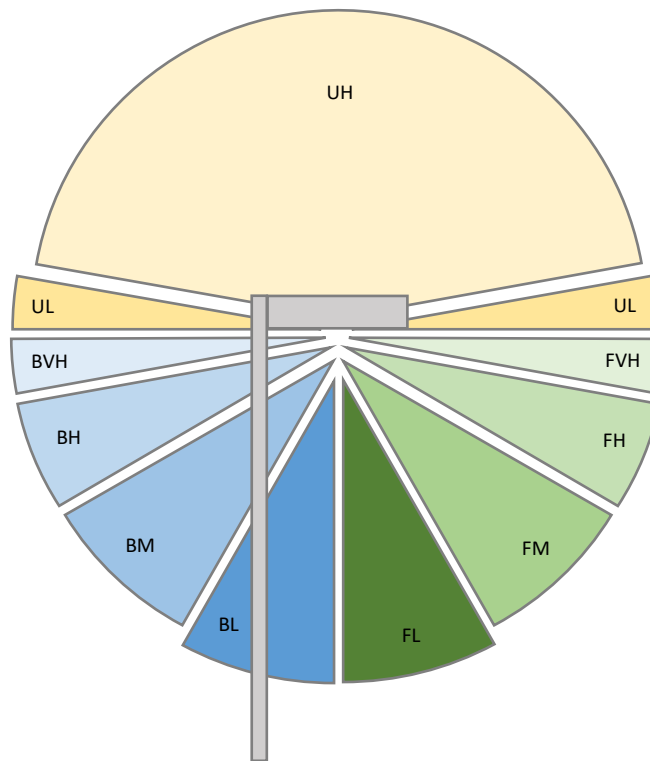




Report of Test

LLIA002251-006

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	1902.0 Lm
BM - Back Mid (30°-60°)	4646.6 Lm
BH - Back High (60°-80°)	2602.2 Lm
BVH - Back Very High (80°-90°)	191.5 Lm

Forward Light

FL - Forward Low (0°-30°)	2176.3 Lm
FM - Forward Mid (30°-60°)	5963.8 Lm
FH - Forward High (60°-80°)	3970.7 Lm
FVH - Forward Very High (80°-90°)	371.3 Lm

Uplight

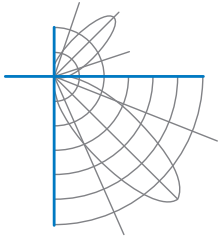
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

B4 - U0 - G4

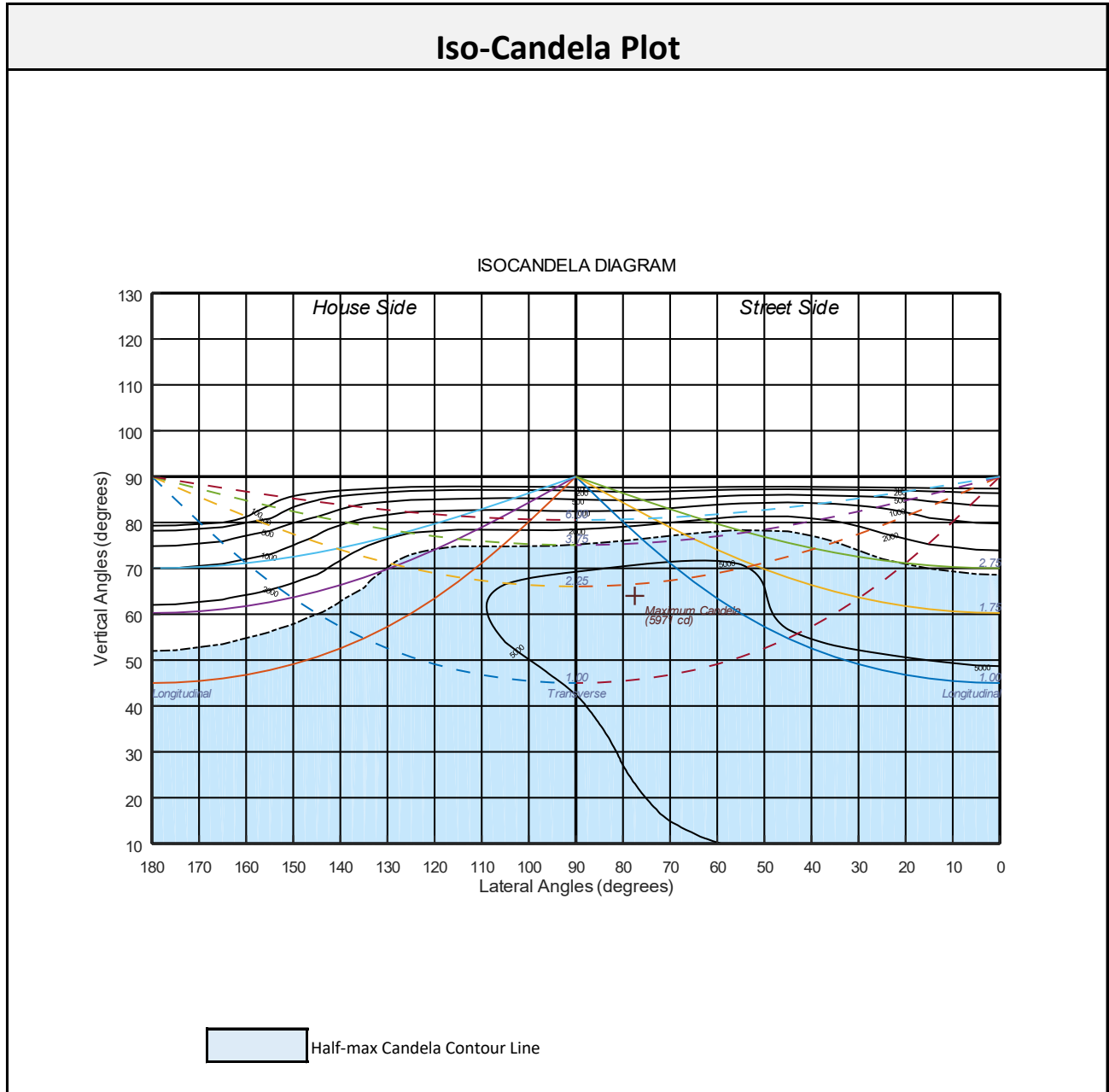
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

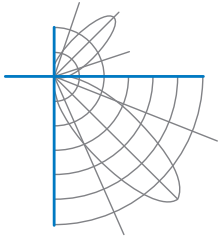
B4 - U0 - G3



Report of Test
LLIA002251-006

Iso-Candela Plot





Report of Test

LLIA002251-006

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	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	
2.5	4922	4924	4928	4923	4918	4910	4900	4900	4897	4895	4891	4888	4886	4882	4877	
5	4991	4992	4993	4984	4973	4959	4939	4936	4930	4926	4919	4913	4909	4903	4895	
7.5	5058	5059	5059	5046	5028	5006	4978	4972	4964	4956	4947	4939	4932	4922	4911	
10	5122	5125	5121	5105	5081	5051	5016	5007	4996	4987	4975	4964	4955	4942	4929	
12.5	5183	5186	5181	5163	5134	5098	5054	5043	5030	5018	5003	4990	4977	4963	4947	
15	5243	5244	5239	5217	5184	5143	5092	5078	5065	5047	5031	5016	5001	4983	4965	
17.5	5296	5298	5290	5268	5233	5186	5127	5113	5097	5079	5060	5043	5025	5003	4983	
20	5340	5343	5337	5316	5277	5225	5162	5146	5128	5108	5087	5067	5047	5024	5002	
22.5	5377	5381	5376	5357	5316	5263	5194	5178	5157	5137	5114	5092	5070	5046	5021	
25	5407	5411	5407	5390	5351	5298	5226	5206	5185	5163	5140	5116	5093	5065	5040	
27.5	5425	5431	5429	5416	5380	5325	5252	5231	5210	5187	5163	5139	5115	5088	5059	
30	5436	5440	5442	5433	5400	5346	5274	5256	5232	5210	5186	5160	5135	5108	5078	
32.5	5433	5438	5443	5439	5411	5360	5292	5272	5251	5229	5206	5180	5154	5125	5098	
35	5416	5420	5431	5433	5411	5367	5305	5287	5267	5244	5222	5198	5172	5144	5117	
37.5	5383	5388	5405	5414	5399	5364	5311	5295	5278	5258	5238	5215	5190	5164	5138	
40	5333	5337	5363	5380	5374	5350	5311	5298	5283	5269	5251	5230	5208	5186	5161	
42.5	5264	5269	5302	5328	5335	5329	5306	5297	5287	5277	5261	5245	5227	5209	5185	
45	5172	5182	5223	5260	5282	5295	5294	5292	5287	5282	5272	5263	5251	5236	5217	
47.5	5061	5071	5121	5172	5214	5251	5279	5284	5287	5289	5288	5286	5280	5271	5260	
50	4926	4935	4996	5065	5129	5196	5261	5275	5288	5301	5311	5317	5321	5322	5318	
52.5	4764	4775	4850	4940	5028	5130	5241	5269	5295	5321	5345	5364	5382	5396	5403	
55	4575	4593	4686	4796	4913	5056	5227	5273	5318	5362	5403	5440	5474	5497	5515	
57.5	4366	4385	4494	4631	4781	4972	5225	5293	5363	5429	5491	5547	5595	5632	5660	
60	4130	4151	4276	4442	4632	4888	5243	5338	5432	5522	5602	5675	5733	5778	5809	
62.5	3869	3884	4022	4221	4465	4807	5276	5395	5509	5616	5708	5788	5852	5900	5931	
65	3545	3567	3729	3968	4276	4730	5297	5432	5556	5667	5762	5840	5898	5938	5957	
67.5	3168	3195	3380	3666	4056	4654	5261	5394	5512	5613	5693	5748	5780	5790	5778	
70	2732	2762	2977	3312	3802	4498	5107	5211	5291	5350	5383	5391	5372	5336	5284	
72.5	2262	2293	2519	2914	3501	4217	4714	4774	4798	4798	4774	4729	4663	4584	4492	
75	1801	1829	2042	2477	3121	3752	4066	4069	4046	3999	3934	3851	3759	3659	3553	
77.5	1365	1389	1581	2033	2642	3138	3266	3232	3175	3106	3026	2937	2838	2741	2646	
80	966	987	1152	1578	2073	2426	2440	2382	2310	2233	2154	2070	1985	1906	1833	
82.5	630	648	786	1121	1436	1613	1579	1527	1461	1389	1314	1243	1179	1125	1080	
85	341	354	446	614	727	801	749	712	668	627	596	559	525	500	483	
87.5	88	90	100	116	131	147	138	134	127	121	117	113	109	107	104	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

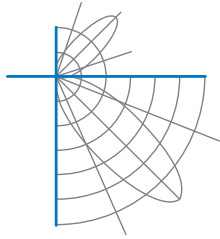
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

North America (issuing laboratory)

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Report of Test

LLIA002251-006

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	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	4861	
2.5	4873	4870	4869	4866	4860	4855	4842	4834	4822	4814	4805	4799	4795	4789	4788	
5	4888	4883	4877	4869	4860	4848	4823	4805	4782	4765	4748	4736	4728	4720	4719	
7.5	4902	4894	4884	4874	4859	4841	4805	4775	4741	4716	4692	4674	4662	4653	4651	
10	4917	4906	4892	4878	4858	4834	4787	4746	4703	4667	4636	4613	4596	4586	4584	
12.5	4932	4918	4901	4884	4857	4828	4770	4717	4664	4620	4580	4552	4532	4518	4516	
15	4948	4930	4911	4890	4857	4824	4755	4690	4626	4572	4525	4490	4466	4450	4449	
17.5	4963	4944	4922	4899	4859	4819	4740	4664	4590	4525	4471	4428	4399	4381	4381	
20	4979	4958	4934	4910	4862	4817	4727	4638	4555	4480	4416	4365	4330	4311	4309	
22.5	4996	4972	4946	4919	4869	4816	4716	4615	4519	4435	4359	4302	4261	4238	4236	
25	5014	4988	4959	4931	4876	4819	4705	4594	4485	4389	4302	4237	4190	4163	4160	
27.5	5031	5003	4971	4943	4883	4822	4698	4575	4451	4342	4244	4169	4114	4085	4082	
30	5049	5017	4986	4956	4893	4826	4692	4556	4420	4295	4184	4098	4034	4002	3997	
32.5	5067	5037	5003	4970	4905	4835	4690	4541	4389	4247	4121	4023	3952	3915	3910	
35	5087	5055	5024	4990	4922	4849	4692	4530	4359	4198	4056	3945	3863	3821	3817	
37.5	5107	5077	5047	5013	4944	4868	4702	4522	4332	4148	3989	3862	3771	3720	3715	
40	5131	5102	5074	5042	4969	4894	4717	4520	4306	4099	3918	3774	3671	3615	3608	
42.5	5160	5133	5105	5074	5001	4925	4739	4522	4282	4048	3843	3681	3565	3503	3496	
45	5197	5175	5146	5114	5050	4967	4771	4531	4259	3993	3761	3580	3453	3384	3376	
47.5	5245	5225	5200	5174	5114	5028	4816	4547	4236	3934	3672	3472	3326	3253	3243	
50	5309	5297	5279	5258	5194	5113	4877	4569	4213	3867	3575	3346	3195	3115	3105	
52.5	5402	5395	5383	5366	5303	5216	4952	4594	4183	3790	3457	3211	3046	2963	2953	
55	5524	5524	5515	5500	5438	5337	5037	4620	4146	3698	3329	3061	2883	2762	2745	
57.5	5673	5675	5668	5652	5584	5473	5128	4644	4096	3586	3181	2856	2629	2513	2500	
60	5827	5833	5823	5801	5723	5598	5204	4658	4034	3456	2981	2591	2394	2264	2247	
62.5	5944	5943	5927	5897	5800	5658	5227	4645	3953	3308	2706	2328	2070	1966	1954	
65	5958	5941	5908	5861	5735	5571	5134	4574	3858	3066	2442	2032	1772	1645	1629	
67.5	5746	5702	5643	5572	5416	5249	4869	4403	3731	2848	2147	1698	1454	1338	1323	
70	5214	5136	5048	4952	4779	4619	4368	4091	3442	2570	1835	1389	1130	1004	989	
72.5	4391	4290	4192	4094	3926	3796	3675	3613	3090	2276	1548	1070	808	722	711	
75	3450	3353	3261	3176	3044	2952	2918	2935	2603	1937	1238	765	567	495	487	
77.5	2557	2482	2416	2357	2270	2213	2224	2241	2059	1515	975	573	352	281	274	
80	1765	1716	1673	1638	1595	1571	1618	1612	1481	1155	680	291	97	36	33	
82.5	1044	1021	1006	996	992	1001	1060	1031	963	735	352	127	22	0	0	
85	472	472	476	482	504	529	560	524	485	352	190	70	12	0	0	
87.5	105	105	107	109	117	127	138	143	126	79	52	18	3	0	0	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

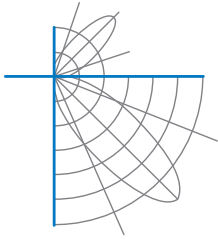
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

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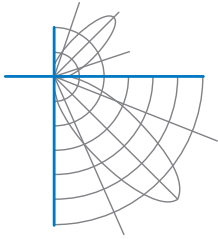


Report of Test

LLIA002251-006

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	

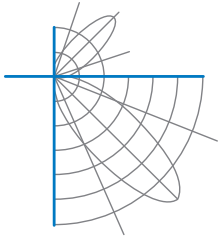


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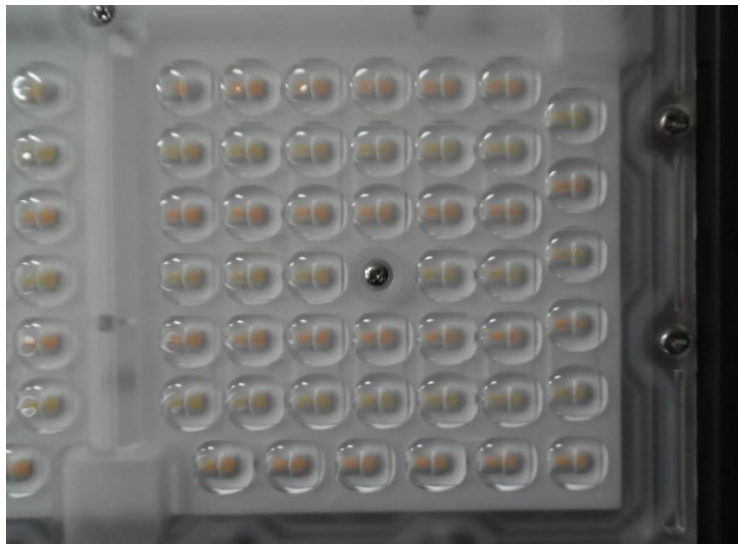
Luminous Intensity (Candela) Table

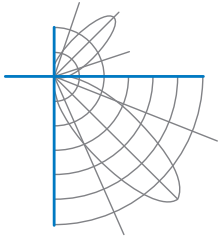
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0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