

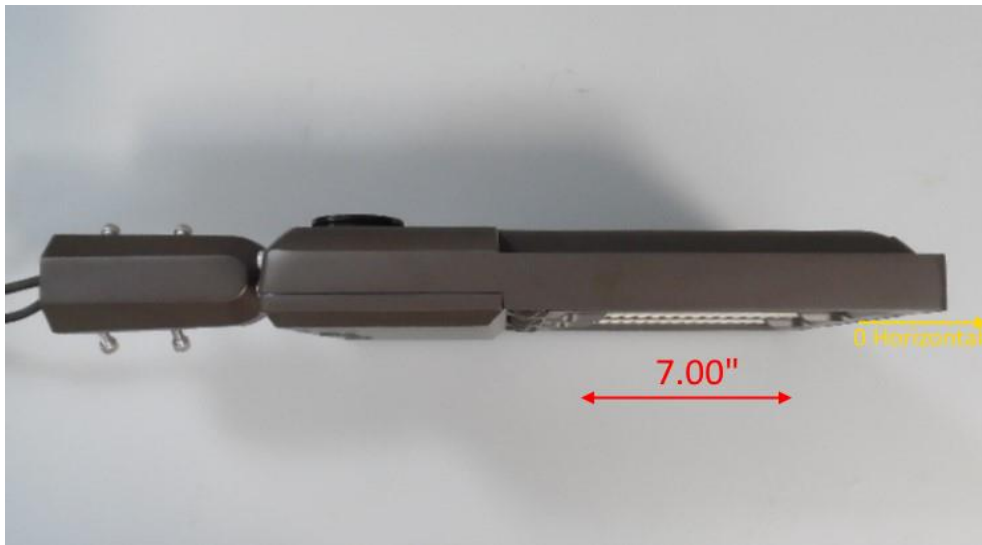


## Report of Test

LLIA002251-034

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-SWO - T3 Optics - 150W - 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	20933.7 Lumens
Input Current	1.209 A	Total Efficacy	144.7 Lm/W
Input Power	144.7 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.998	Roadway Type	Type III
Current THD	4.0 %		

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

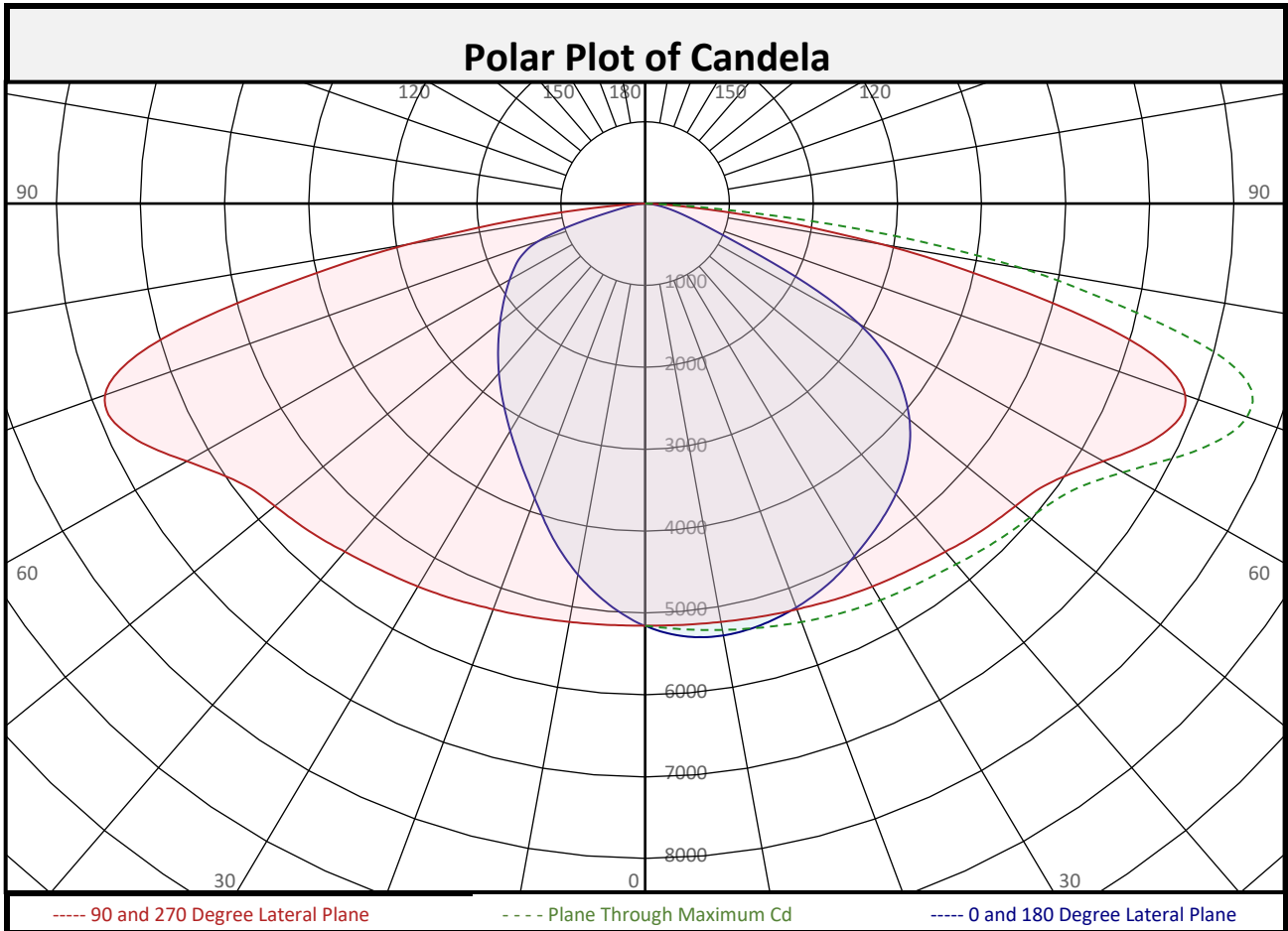
Test date: 11/01/2023  
Report date: 11/06/2023

Signed: \_\_\_\_\_

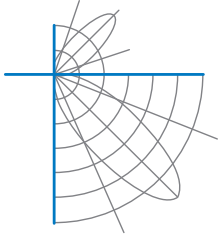


# Report of Test

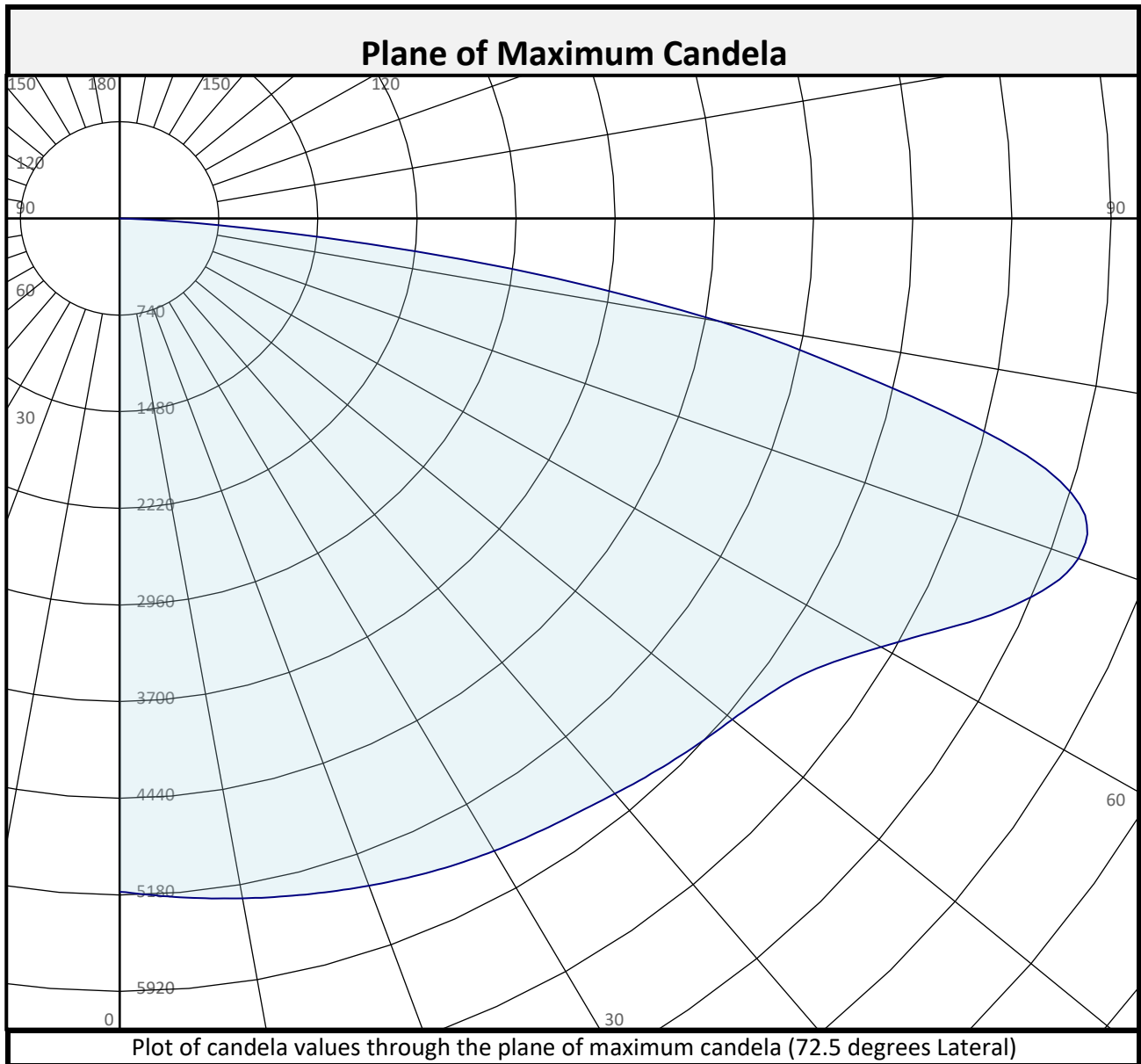
LLIA002251-034



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	488.9	2.3%	90-100	0.0	0.0%	0-20	1901	9.1%
10-20	1412	6.7%	100-110	0.0	0.0%	0-30	4105	19.6%
20-30	2204	10.5%	110-120	0.0	0.0%	0-40	6956	33.2%
30-40	2852	13.6%	120-130	0.0	0.0%	0-60	14010	66.9%
40-50	3358	16.0%	130-140	0.0	0.0%	0-80	20474	97.8%
50-60	3696	17.7%	140-150	0.0	0.0%	10-90	20445	97.7%
60-70	3775	18.0%	150-160	0.0	0.0%	20-50	8414	40.2%
70-80	2689	12.8%	160-170	0.0	0.0%	40-90	13977	66.8%
80-90	460.0	2.2%	170-180	0.0	0.0%	60-90	6923	33.1%
0-90	20934	100.0%	90-180	0.0	0.0%	0-180	20934	100.0%



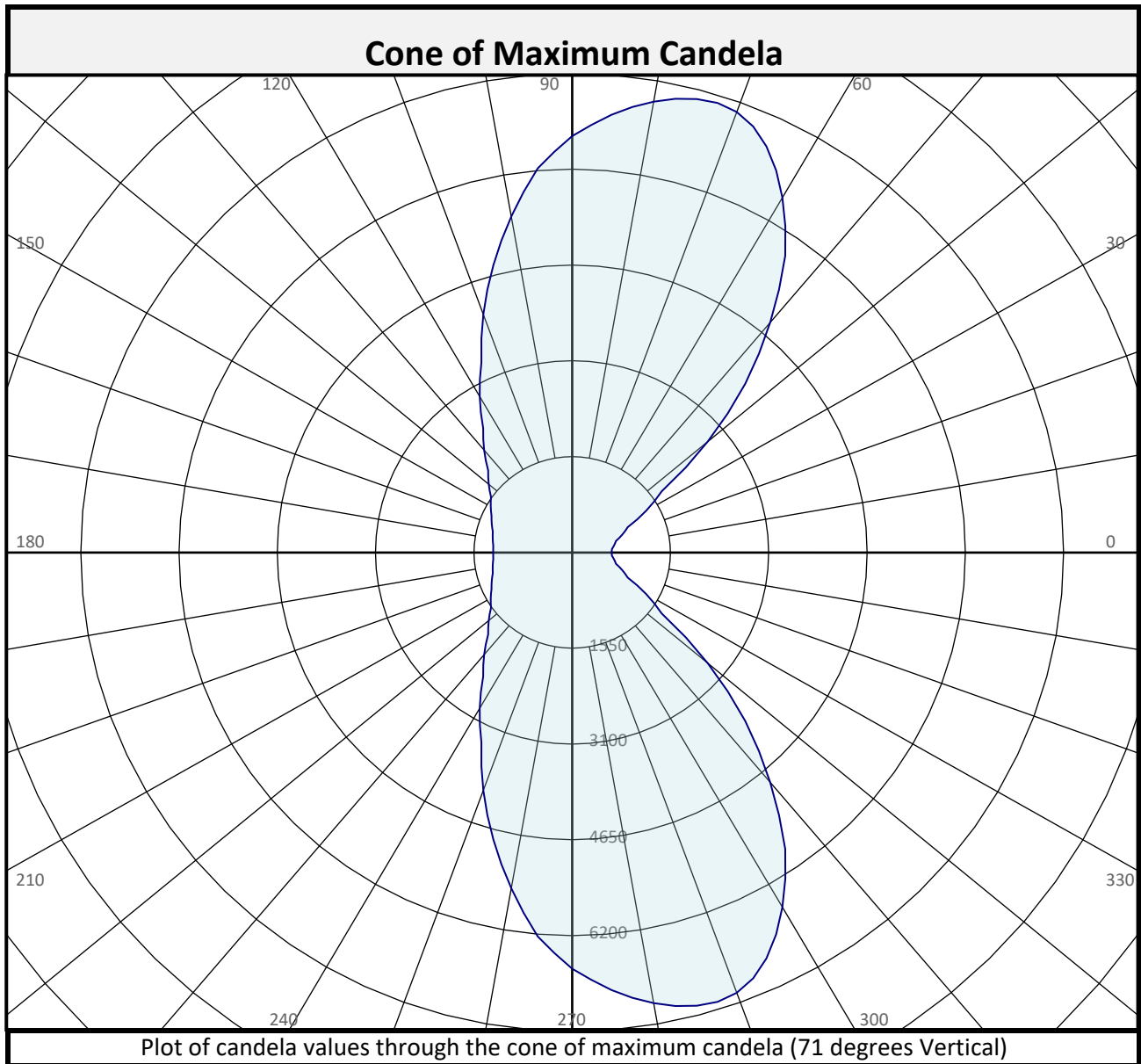
Report of Test  
LLIA002251-034



Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	12359.3	59.0%	0.0	0.0%	12359.3	59.0%
House Side	8574.4	41.0%	0.0	0.0%	8574.4	41.0%
<b>Total</b>	<b>20933.7</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>20933.7</b>	<b>100.0%</b>



Report of Test  
LLIA002251-034

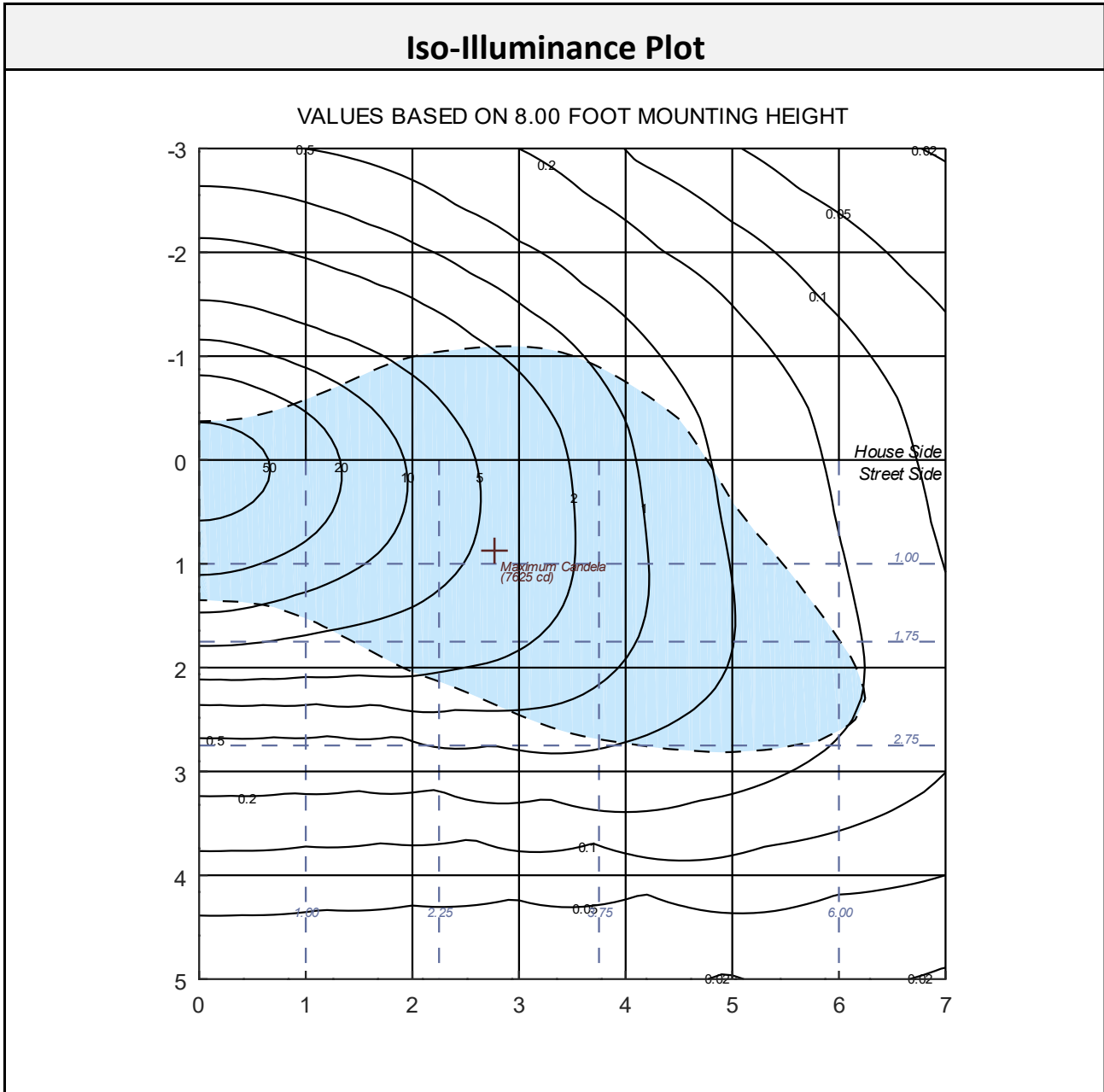


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	12359.3	59.0%	0.0	0.0%	12359.3	59.0%
House Side	8574.4	41.0%	0.0	0.0%	8574.4	41.0%
<b>Total</b>	<b>20933.7</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>20933.7</b>	<b>100.0%</b>

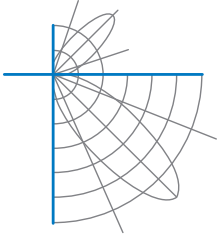


## Report of Test

LLIA002251-034

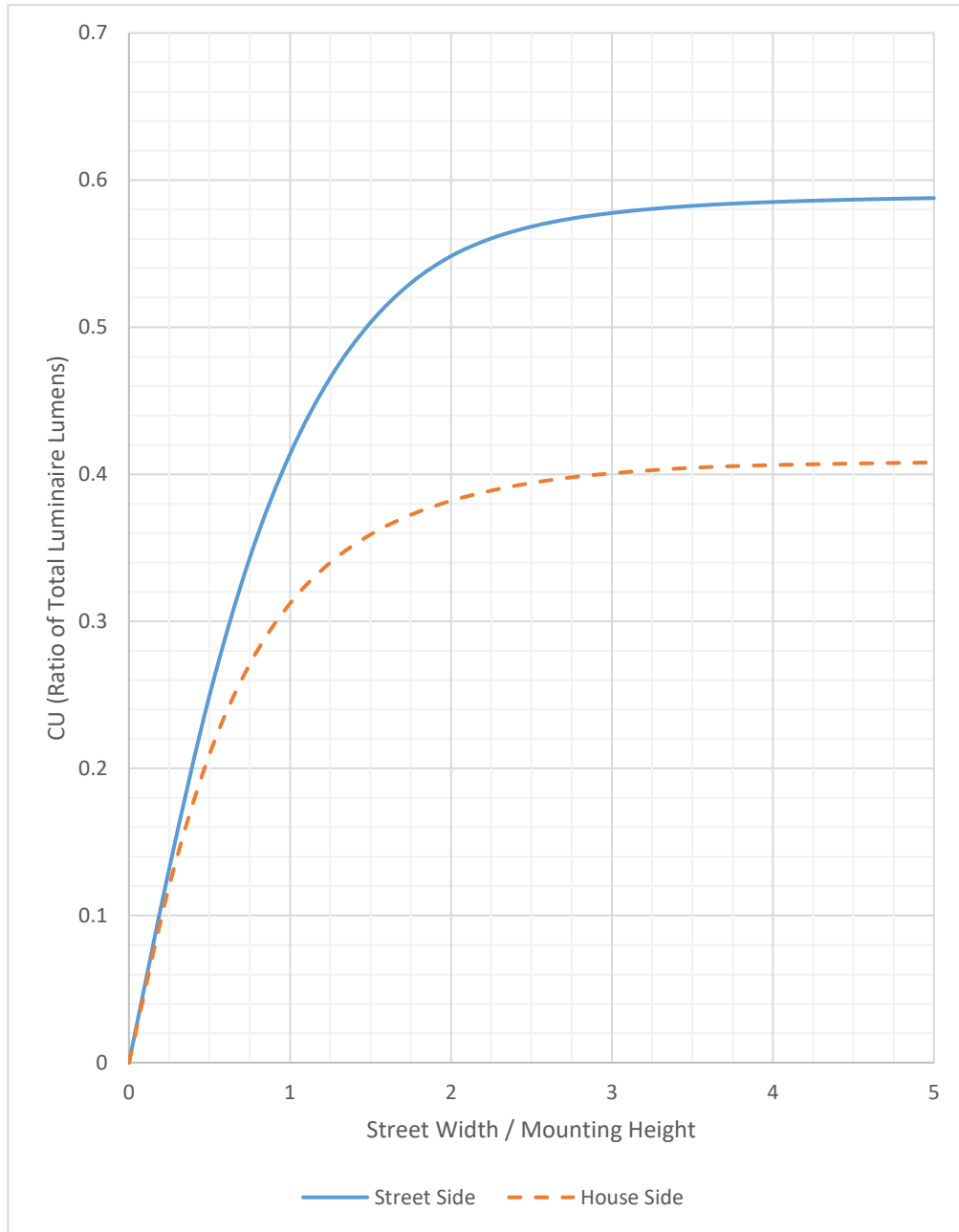


The isofootcandle values shown in the plot above are based on a mounting height of  $h = 8.0$  feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the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



## Report of Test LLIA002251-034

### Coefficients of Utilization Plot

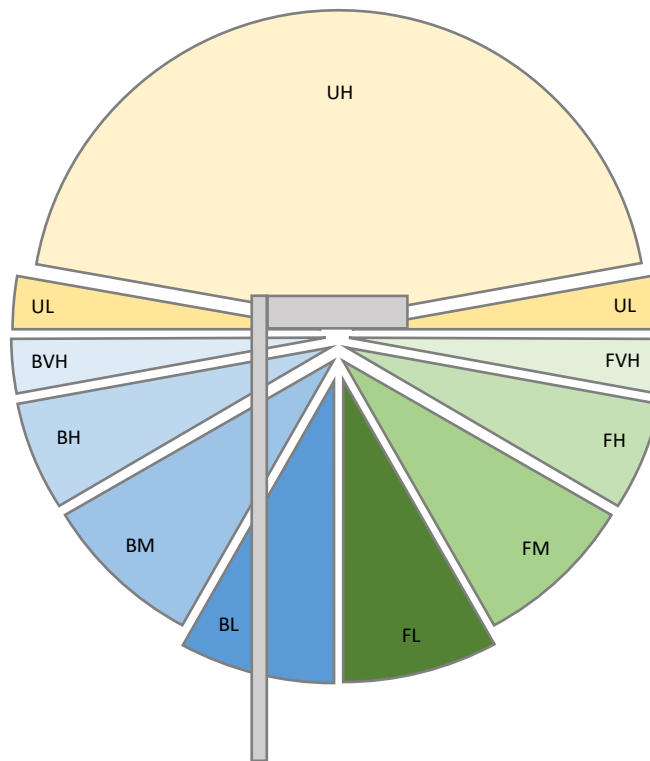




## Report of Test

LLIA002251-034

### LCS Tables and Bug Classification



#### Back Light

BL - Back Low (0°-30°)	1859.5 Lm
BM - Back Mid (30°-60°)	4034.5 Lm
BH - Back High (60°-80°)	2544.9 Lm
BVH - Back Very High (80°-90°)	135.5 Lm

#### Forward Light

FL - Forward Low (0°-30°)	2245.1 Lm
FM - Forward Mid (30°-60°)	5871.3 Lm
FH - Forward High (60°-80°)	3918.4 Lm
FVH - Forward Very High (80°-90°)	324.5 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)

B4 - U0 - G4

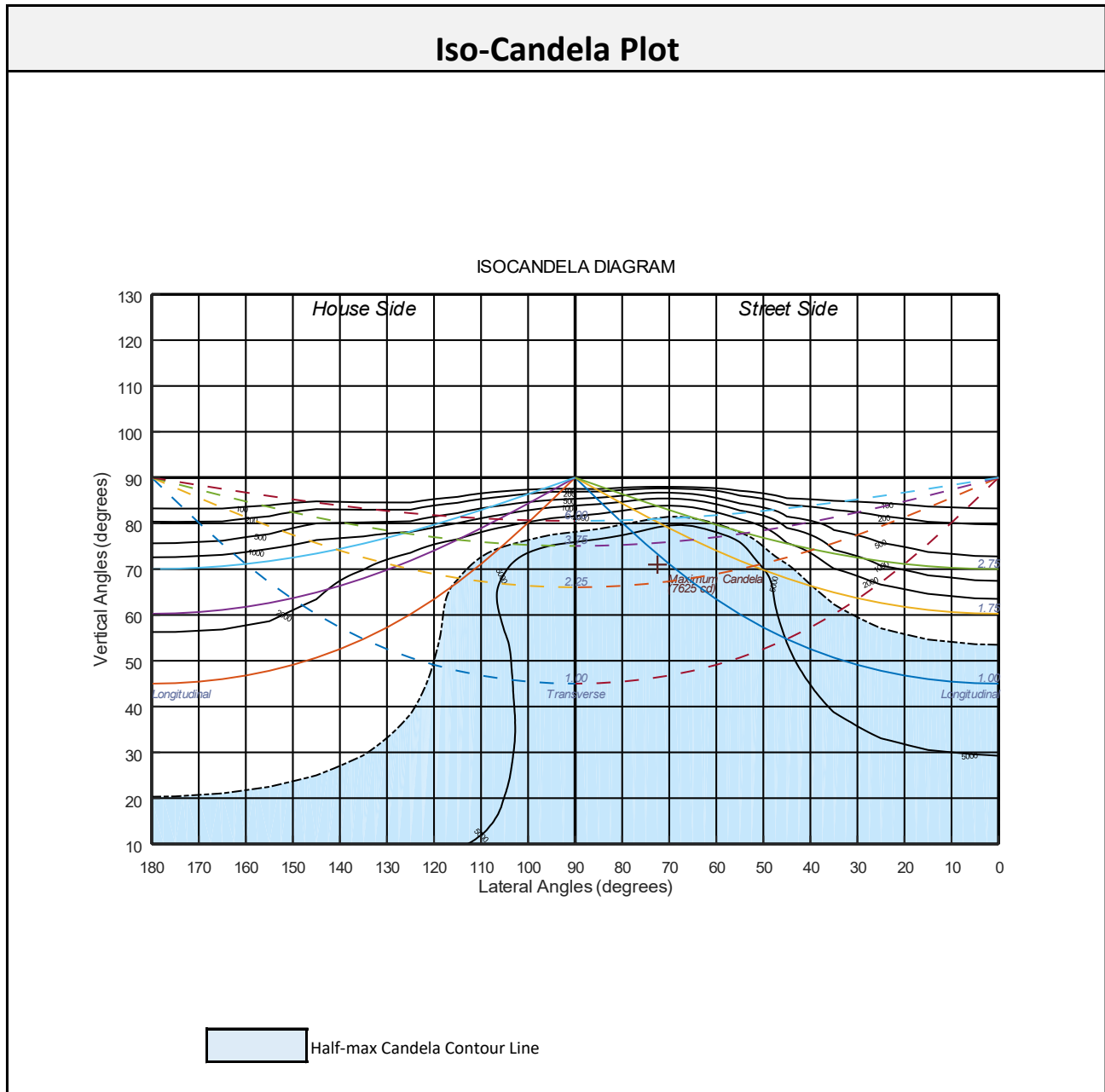
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

B4 - U0 - G3



Report of Test  
LLIA002251-034

**Iso-Candela Plot**







## Report of Test

LLIA002251-034

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	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	
2.5	5244	5243	5242	5238	5231	5222	5212	5207	5204	5201	5196	5192	5190	5184	5183	
5	5305	5304	5304	5297	5288	5277	5260	5255	5250	5245	5237	5232	5224	5218	5212	
7.5	5343	5341	5341	5337	5330	5321	5303	5300	5292	5286	5277	5269	5261	5253	5243	
10	5357	5356	5359	5358	5359	5355	5342	5337	5331	5323	5317	5307	5297	5287	5277	
12.5	5351	5350	5357	5361	5371	5377	5373	5371	5365	5360	5352	5344	5335	5323	5312	
15	5330	5329	5340	5353	5370	5391	5399	5397	5396	5392	5387	5381	5372	5361	5348	
17.5	5295	5294	5311	5332	5359	5393	5419	5422	5423	5424	5421	5417	5409	5398	5387	
20	5252	5253	5271	5300	5340	5390	5434	5442	5446	5451	5452	5450	5444	5438	5426	
22.5	5198	5201	5220	5258	5313	5380	5444	5458	5467	5478	5482	5482	5483	5477	5467	
25	5136	5139	5162	5208	5281	5367	5451	5471	5486	5501	5510	5516	5518	5518	5509	
27.5	5063	5067	5096	5155	5244	5349	5458	5481	5505	5523	5537	5547	5555	5556	5550	
30	4976	4984	5017	5088	5201	5329	5462	5490	5516	5543	5562	5581	5589	5592	5590	
32.5	4895	4901	4936	5019	5149	5308	5465	5498	5533	5561	5586	5608	5619	5628	5625	
35	4814	4820	4854	4942	5095	5283	5467	5509	5544	5579	5610	5633	5651	5662	5665	
37.5	4731	4737	4774	4867	5034	5256	5474	5521	5564	5603	5636	5664	5685	5701	5706	
40	4637	4644	4688	4789	4969	5227	5484	5539	5590	5635	5672	5703	5731	5750	5758	
42.5	4534	4540	4592	4705	4903	5193	5498	5563	5619	5674	5714	5755	5784	5806	5817	
45	4416	4422	4481	4610	4832	5158	5509	5583	5651	5712	5762	5803	5836	5858	5871	
47.5	4276	4286	4351	4498	4751	5119	5517	5604	5679	5747	5805	5848	5888	5914	5928	
50	4106	4114	4194	4363	4657	5075	5531	5629	5714	5790	5853	5906	5944	5969	5986	
52.5	3901	3913	4002	4198	4543	5029	5549	5663	5760	5844	5914	5972	6015	6043	6056	
55	3665	3677	3778	4002	4402	4978	5571	5701	5816	5918	6000	6065	6115	6147	6169	
57.5	3367	3382	3509	3772	4229	4916	5609	5765	5908	6032	6136	6216	6280	6320	6346	
60	2938	2965	3152	3494	4031	4833	5679	5875	6053	6206	6334	6434	6512	6563	6594	
62.5	2310	2346	2619	3103	3793	4735	5779	6020	6241	6430	6584	6706	6795	6856	6895	
65	1533	1570	1877	2506	3437	4634	5890	6179	6443	6675	6861	7007	7112	7181	7215	
67.5	990	1011	1204	1729	2859	4478	5978	6310	6614	6878	7097	7267	7382	7454	7484	
70	702	714	820	1126	2042	4121	5921	6289	6635	6954	7224	7430	7559	7615	7608	
72.5	517	523	586	779	1324	3320	5734	6190	6600	6965	7256	7460	7555	7556	7466	
75	384	388	427	554	881	2282	5300	5895	6371	6737	6990	7110	7110	7007	6809	
77.5	278	282	307	393	592	1414	4159	4810	5341	5728	5965	6041	5978	5811	5550	
80	192	195	212	268	393	767	2557	3185	3771	4269	4638	4801	4753	4559	4272	
82.5	120	122	133	168	225	365	1135	1528	1951	2369	2751	3001	3068	2944	2681	
85	58	59	64	82	97	130	355	495	667	865	1042	1170	1236	1228	1146	
87.5	7	7	8	9	14	21	64	93	127	159	194	216	230	235	218	
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

LLIA002251-034

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	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	5157	
2.5	5179	5172	5168	5165	5156	5148	5128	5115	5099	5083	5068	5058	5053	5050	5046	
5	5206	5196	5186	5179	5164	5147	5106	5071	5034	5000	4967	4942	4925	4918	4916	
7.5	5234	5222	5209	5198	5172	5148	5086	5026	4965	4908	4852	4811	4783	4769	4766	
10	5265	5249	5234	5219	5186	5151	5067	4982	4891	4808	4730	4669	4627	4605	4602	
12.5	5297	5282	5263	5244	5204	5156	5050	4935	4814	4701	4596	4515	4456	4427	4422	
15	5333	5315	5296	5273	5224	5168	5034	4885	4731	4584	4453	4349	4273	4237	4233	
17.5	5371	5354	5332	5305	5248	5179	5018	4832	4642	4460	4297	4171	4080	4035	4027	
20	5409	5391	5369	5340	5273	5193	5003	4779	4549	4328	4134	3987	3889	3841	3835	
22.5	5453	5433	5408	5380	5300	5210	4986	4723	4450	4189	3969	3811	3713	3664	3659	
25	5495	5475	5451	5418	5336	5229	4969	4664	4344	4048	3812	3649	3551	3502	3500	
27.5	5537	5521	5493	5459	5366	5248	4954	4602	4239	3911	3664	3499	3401	3355	3346	
30	5578	5561	5534	5495	5400	5270	4936	4539	4129	3779	3524	3357	3258	3212	3209	
32.5	5618	5599	5572	5533	5433	5293	4919	4477	4029	3655	3391	3222	3124	3080	3075	
35	5659	5640	5612	5574	5466	5315	4908	4423	3933	3535	3264	3092	2995	2953	2949	
37.5	5703	5687	5659	5619	5507	5340	4903	4373	3843	3421	3140	2967	2871	2830	2827	
40	5755	5741	5717	5676	5551	5375	4903	4327	3756	3310	3017	2843	2749	2709	2707	
42.5	5815	5802	5773	5731	5604	5417	4903	4283	3673	3202	2898	2723	2630	2591	2588	
45	5872	5859	5833	5787	5654	5453	4904	4240	3593	3097	2779	2604	2513	2476	2472	
47.5	5930	5919	5888	5845	5698	5490	4910	4202	3521	2997	2663	2485	2397	2363	2360	
50	5987	5976	5945	5895	5747	5530	4915	4172	3455	2899	2549	2369	2283	2254	2252	
52.5	6057	6048	6016	5964	5808	5574	4929	4135	3393	2805	2437	2254	2175	2149	2147	
55	6172	6160	6127	6078	5918	5672	4965	4107	3325	2714	2330	2147	2072	2050	2048	
57.5	6356	6347	6317	6264	6086	5805	5030	4096	3255	2621	2229	2045	1974	1955	1954	
60	6605	6596	6562	6501	6292	5980	5104	4089	3191	2524	2134	1947	1879	1862	1861	
62.5	6908	6890	6847	6771	6529	6157	5172	4063	3131	2427	2037	1852	1783	1769	1769	
65	7218	7185	7124	7030	6735	6311	5195	3994	3042	2326	1930	1753	1687	1676	1676	
67.5	7472	7429	7344	7223	6871	6378	5112	3832	2881	2189	1808	1634	1570	1551	1551	
70	7557	7470	7352	7207	6835	6325	4922	3541	2602	1985	1643	1482	1399	1367	1365	
72.5	7327	7160	6986	6811	6451	5998	4562	3119	2199	1674	1434	1261	1101	1024	1016	
75	6560	6314	6075	5862	5496	5105	3806	2500	1709	1301	1174	909	676	596	589	
77.5	5245	4950	4687	4463	4133	3823	2717	1691	1165	947	838	520	365	333	331	
80	3959	3664	3394	3168	2855	2584	1687	1012	577	534	500	291	218	213	215	
82.5	2388	2157	1955	1787	1580	1391	856	456	241	240	243	155	123	124	126	
85	1007	871	780	708	610	527	317	153	79	80	89	60	46	41	41	
87.5	185	153	119	99	103	110	58	29	14	9	5	4	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

LLIA002251-034

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

LLIA002251-034

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  
LLIA002251-034

**Additional Pictures of Test Subject**





## Report of Test

### LLIA002251-034

Test Distance                    9.5 m  
Ambient Temperature        25.0 °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.