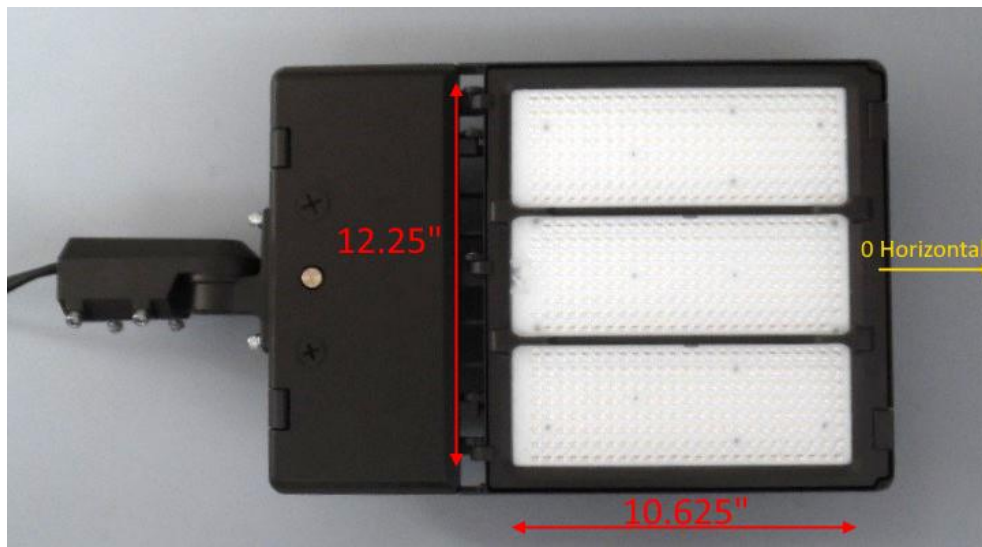


## Report of Test

LLIA002251-042

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-300PCS-SWO - T3 Optics - 250W - 4000K Setting  
Pole mounted, cast aluminum housing, white LED board with  
frosted plastic enclosure with clear optic sections below each LED.  
576 white LEDs, 288 CW LEDs and 288 WW LEDs  
One Sosen SS-320NH-E260BH LED driver



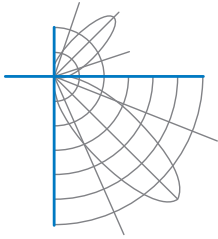
Prepared For:  
Topaz Lighting Corp  
925 Waverly Avenue  
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	37033.8 Lumens
Input Current	2.031 A	Total Efficacy	153.0 Lm/W
Input Power	242.1 W		
Frequency	60.00 Hz	Roadway Throw	Medium
Power Factor	0.993	Roadway Type	Type IV
Current THD	9.5 %		

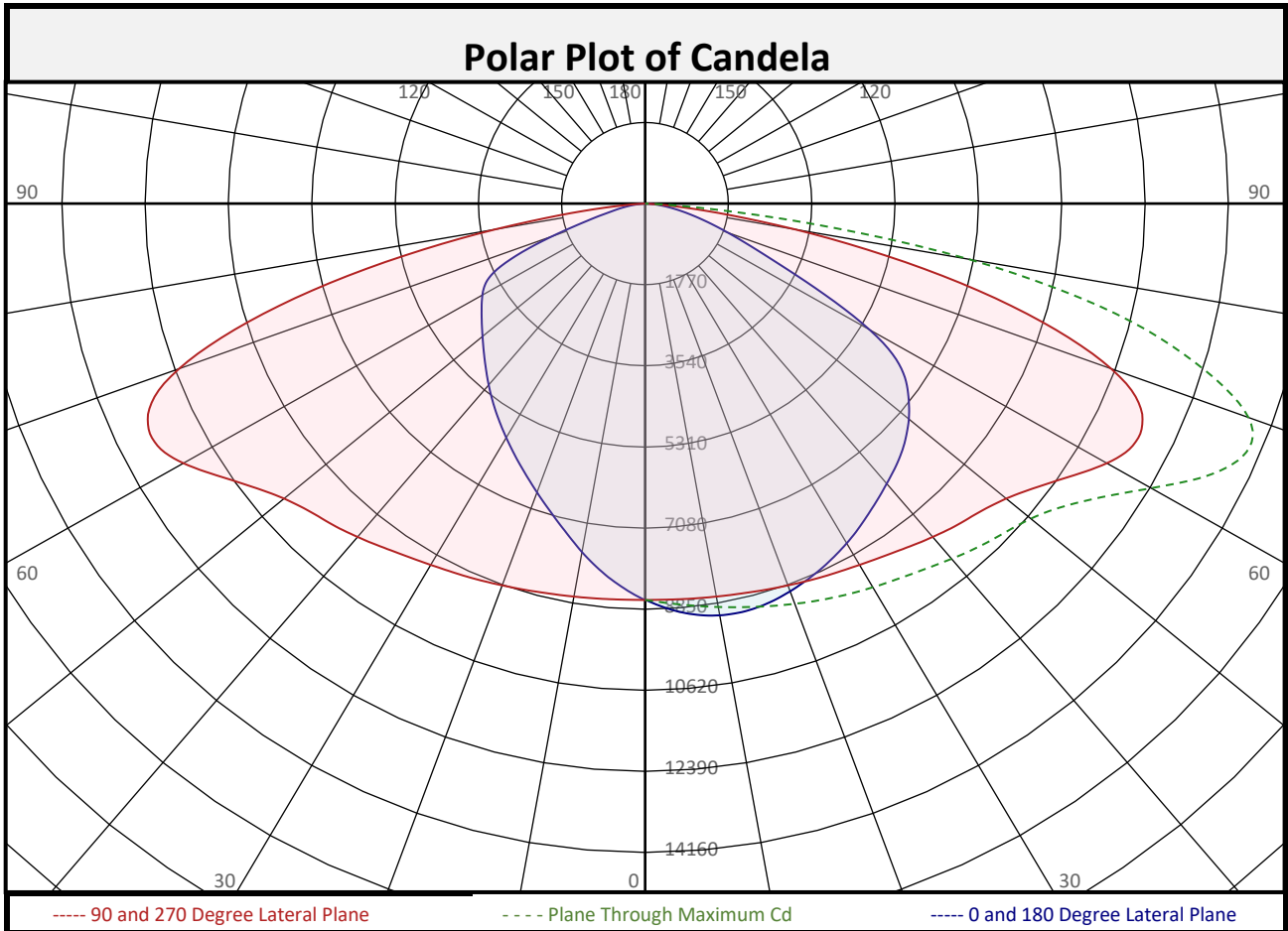
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 10/27/2023  
Report date: 10/31/2023

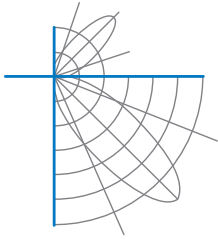
Signed: \_\_\_\_\_



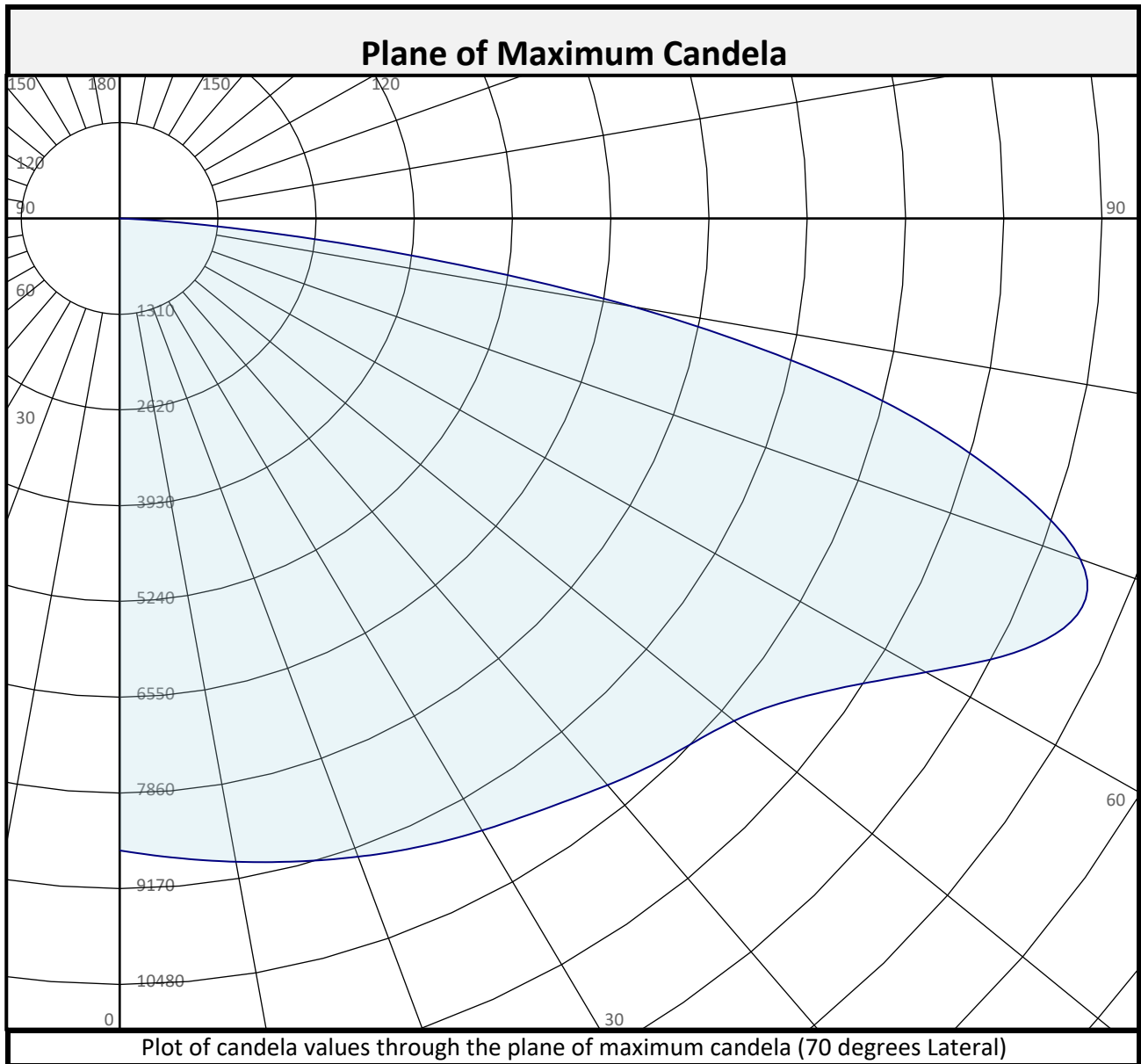
Report of Test  
LLIA002251-042



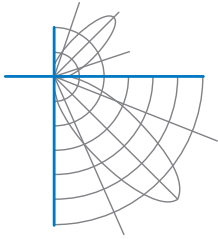
Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	822.1	2.2%		90-100	0.0	0.0%		0-20	3217	8.7%
10-20	2395	6.5%		100-110	0.0	0.0%		0-30	7018	18.9%
20-30	3800	10.3%		110-120	0.0	0.0%		0-40	12030	32.5%
30-40	5013	13.5%		120-130	0.0	0.0%		0-60	24936	67.3%
40-50	6031	16.3%		130-140	0.0	0.0%		0-80	36328	98.1%
50-60	6874	18.6%		140-150	0.0	0.0%		10-90	36212	97.8%
60-70	7005	18.9%		150-160	0.0	0.0%		20-50	14844	40.1%
70-80	4387	11.8%		160-170	0.0	0.0%		40-90	25003	67.5%
80-90	705.6	1.9%		170-180	0.0	0.0%		60-90	12098	32.7%
0-90	37034	100.0%		90-180	0.0	0.0%		0-180	37034	100.0%



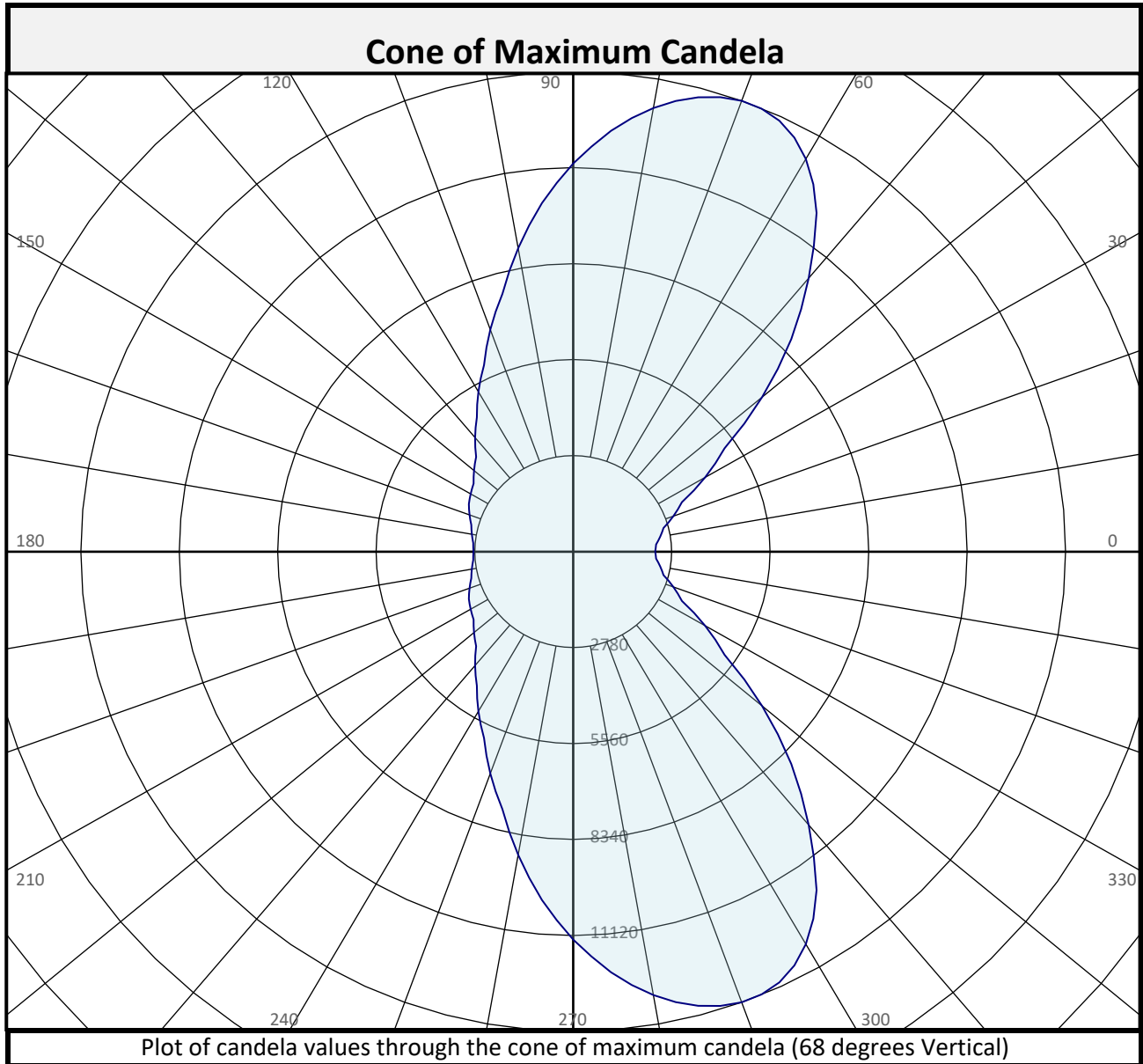
Report of Test  
LLIA002251-042



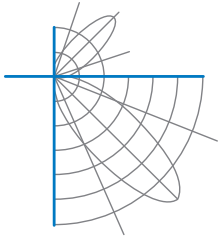
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	22127.0	59.7%	0.0	0.0%	22127.0	59.7%
House Side	14906.8	40.3%	0.0	0.0%	14906.8	40.3%
<b>Total</b>	<b>37033.8</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>37033.8</b>	<b>100.0%</b>



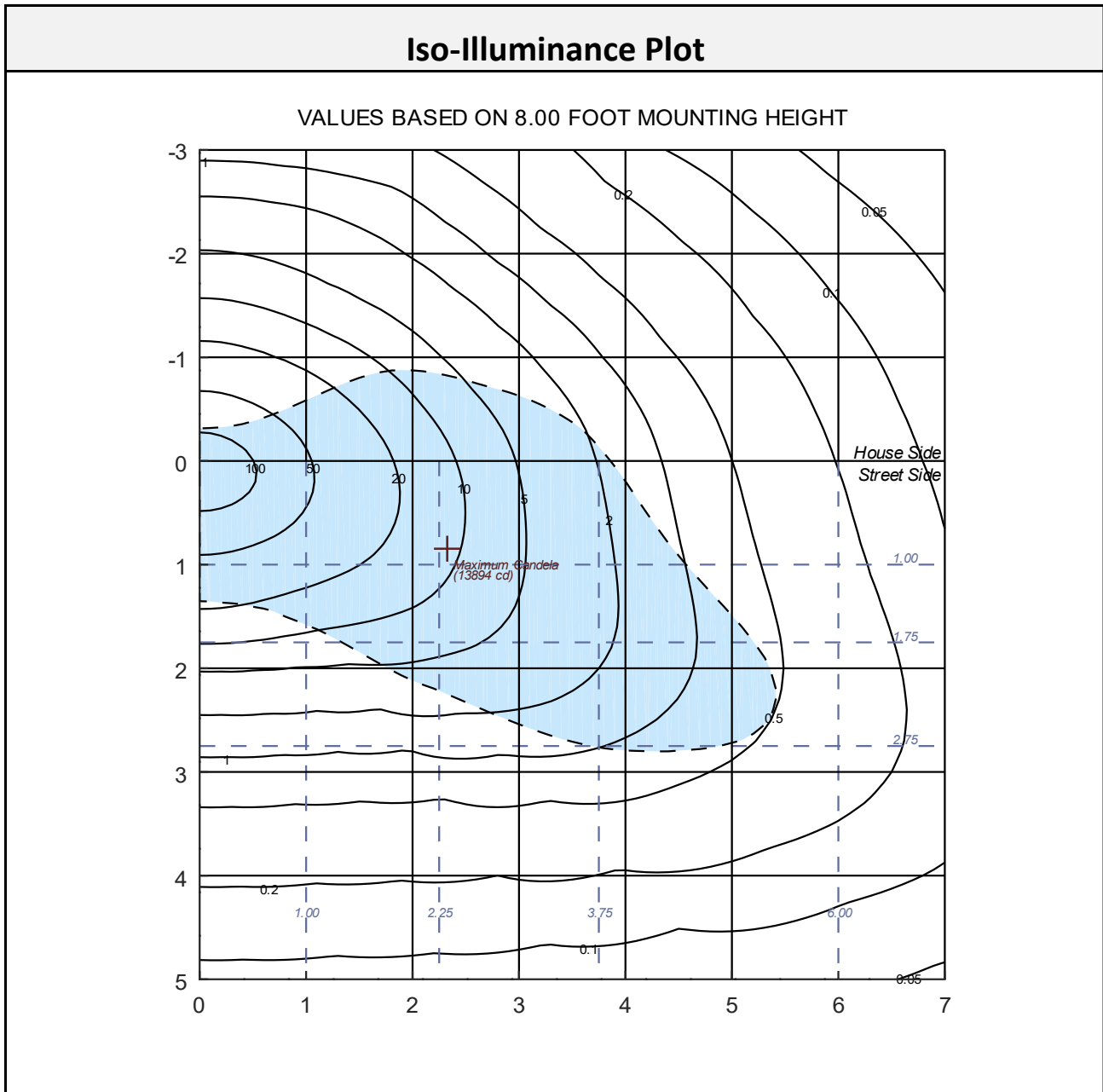
Report of Test  
LLIA002251-042



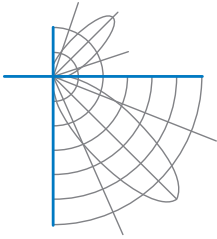
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	22127.0	59.7%	0.0	0.0%	22127.0	59.7%
House Side	14906.8	40.3%	0.0	0.0%	14906.8	40.3%
<b>Total</b>	<b>37033.8</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>37033.8</b>	<b>100.0%</b>



Report of Test  
LLIA002251-042

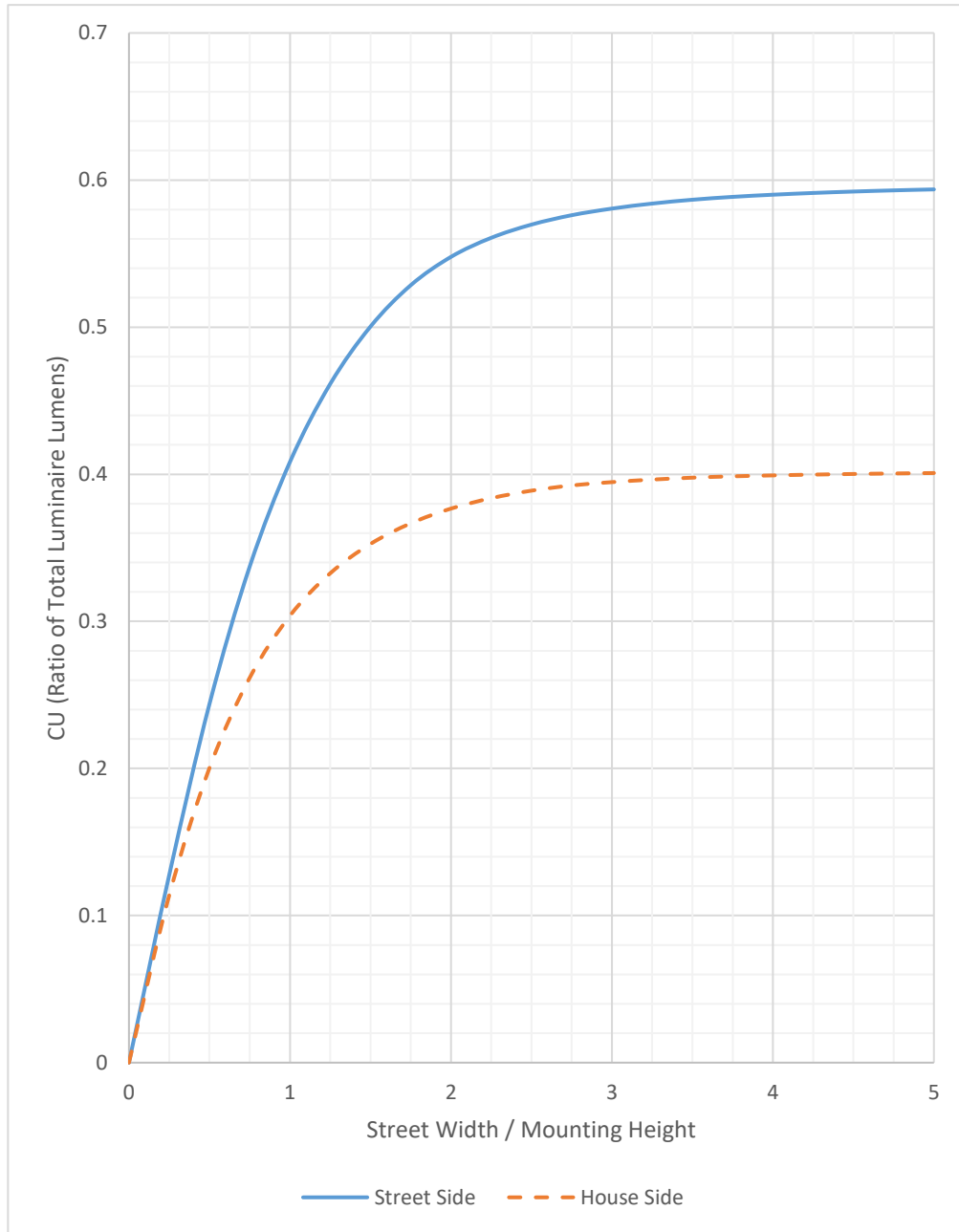


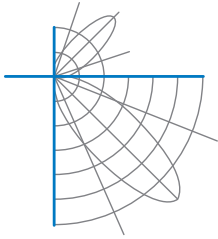
The isofootcandle values shown in the plot above are based on a mounting height of  $h = 8.0$  feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the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



## Report of Test LLIA002251-042

### Coefficients of Utilization Plot

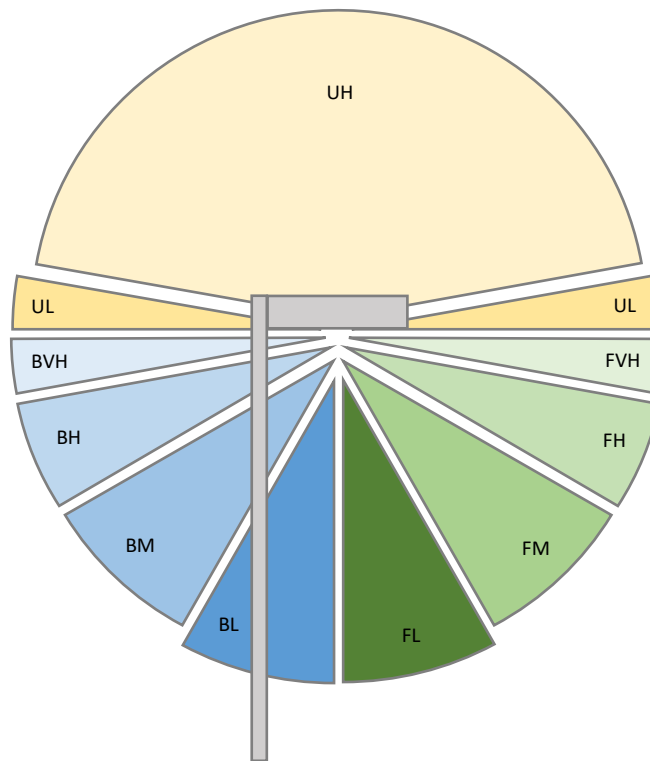




## Report of Test

### LLIA002251-042

#### LCS Tables and Bug Classification



#### Back Light

BL - Back Low (0°-30°)	3170.4 Lm
BM - Back Mid (30°-60°)	7421.2 Lm
BH - Back High (60°-80°)	4137.5 Lm
BVH - Back Very High (80°-90°)	177.7 Lm

#### Forward Light

FL - Forward Low (0°-30°)	3847.3 Lm
FM - Forward Mid (30°-60°)	10496.7 Lm
FH - Forward High (60°-80°)	7255.0 Lm
FVH - Forward Very High (80°-90°)	527.9 Lm

#### Uplight

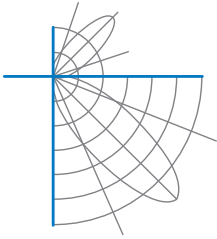
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

B4 - U0 - G4

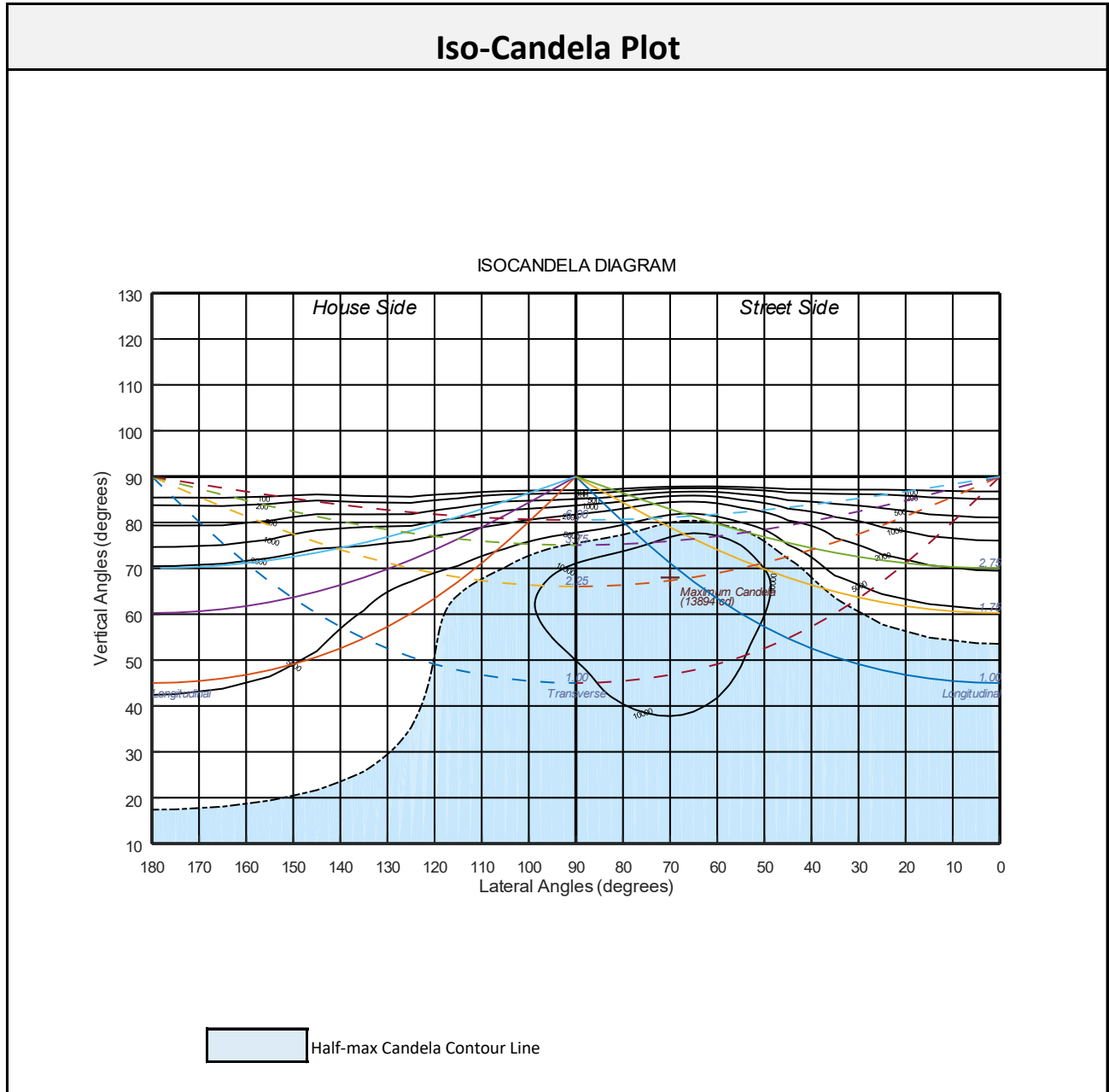
BUG Rating: Quadrilateral Symmetrical Luminaire (Type V, Type VS)

B4 - U0 - G4

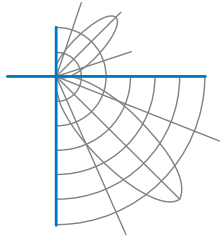


Report of Test  
LLIA002251-042

**Iso-Candela Plot**







## Report of Test

LLIA002251-042

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	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	
2.5	8813	8817	8815	8809	8792	8775	8751	8743	8738	8729	8725	8719	8711	8705	8698	
5	8955	8959	8953	8943	8920	8893	8851	8838	8831	8817	8805	8796	8781	8769	8753	
7.5	9060	9065	9061	9050	9030	8999	8951	8934	8924	8908	8891	8877	8857	8837	8817	
10	9125	9129	9131	9130	9116	9092	9046	9028	9016	8997	8978	8960	8936	8912	8887	
12.5	9148	9153	9163	9178	9180	9173	9134	9120	9106	9086	9069	9046	9019	8992	8964	
15	9132	9141	9158	9195	9222	9238	9217	9208	9196	9176	9157	9134	9106	9074	9043	
17.5	9083	9093	9123	9179	9237	9288	9295	9290	9281	9266	9249	9226	9198	9166	9128	
20	9007	9017	9059	9137	9231	9321	9367	9366	9364	9351	9339	9319	9291	9257	9217	
22.5	8913	8926	8977	9076	9205	9338	9428	9437	9442	9439	9427	9413	9388	9351	9312	
25	8811	8820	8883	9004	9164	9342	9479	9500	9516	9520	9517	9504	9480	9449	9406	
27.5	8692	8705	8780	8920	9114	9335	9522	9554	9582	9592	9601	9594	9575	9542	9502	
30	8563	8579	8665	8830	9058	9323	9560	9603	9640	9665	9681	9679	9667	9639	9600	
32.5	8422	8441	8539	8734	8998	9311	9595	9649	9697	9734	9762	9767	9761	9740	9704	
35	8272	8287	8399	8624	8933	9296	9630	9699	9763	9809	9846	9863	9866	9850	9819	
37.5	8126	8139	8252	8499	8859	9286	9679	9762	9835	9896	9944	9975	9986	9976	9948	
40	7983	8000	8110	8364	8774	9281	9744	9839	9928	9998	10057	10097	10119	10118	10095	
42.5	7849	7864	7973	8230	8677	9275	9819	9927	10028	10110	10180	10228	10257	10264	10246	
45	7700	7715	7829	8094	8572	9261	9893	10017	10129	10222	10300	10356	10391	10400	10384	
47.5	7522	7541	7663	7945	8460	9237	9965	10108	10234	10335	10416	10481	10521	10537	10529	
50	7316	7332	7464	7772	8337	9207	10052	10212	10354	10472	10567	10643	10694	10724	10721	
52.5	7062	7079	7222	7555	8192	9182	10165	10359	10528	10671	10790	10888	10957	10999	11012	
55	6769	6784	6934	7295	8014	9159	10331	10574	10787	10968	11121	11242	11334	11389	11407	
57.5	6325	6354	6563	6985	7800	9133	10584	10891	11157	11383	11565	11714	11819	11887	11909	
60	5511	5559	5927	6568	7536	9112	10919	11299	11630	11903	12123	12294	12414	12486	12498	
62.5	4302	4365	4858	5822	7172	9096	11296	11772	12178	12508	12770	12957	13076	13129	13112	
65	3180	3235	3677	4703	6528	9040	11667	12242	12720	13098	13372	13543	13627	13631	13555	
67.5	2433	2468	2778	3573	5459	8795	11953	12583	13094	13481	13738	13867	13893	13823	13666	
70	1899	1925	2143	2735	4223	8084	11869	12554	13102	13489	13706	13743	13635	13411	13117	
72.5	1478	1496	1657	2110	3208	6719	11284	12088	12668	13001	13094	12975	12687	12277	11823	
75	1127	1141	1262	1609	2431	5090	10033	10965	11623	11959	11978	11734	11304	10737	10140	
77.5	839	850	940	1203	1792	3579	7923	8863	9605	10060	10167	9934	9418	8742	8044	
80	594	600	667	864	1237	2226	5035	5875	6663	7228	7445	7348	6963	6365	5706	
82.5	387	389	436	567	754	1169	2546	3067	3600	4020	4257	4260	4019	3610	3170	
85	208	208	236	305	359	467	965	1167	1381	1534	1594	1582	1502	1351	1162	
87.5	59	58	66	70	71	75	139	160	182	191	186	181	167	143	120	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

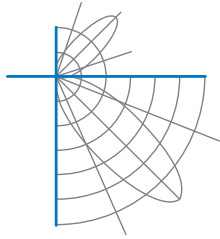
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

**North America (issuing laboratory)**

LightLab International Allentown, LLC  
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50 Redcliffe Gardens Drive  
Clontarf - Queensland, 4019, Australia  
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www.lightlabint.com



## Report of Test

LLIA002251-042

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	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	8646	
2.5	8688	8680	8673	8667	8648	8629	8599	8565	8537	8508	8485	8470	8456	8449	8452	
5	8740	8723	8707	8695	8661	8627	8559	8488	8427	8365	8314	8273	8244	8227	8229	
7.5	8796	8773	8750	8728	8679	8628	8522	8411	8309	8212	8125	8059	8009	7985	7985	
10	8859	8829	8798	8770	8703	8634	8489	8332	8188	8049	7924	7828	7755	7721	7720	
12.5	8929	8891	8853	8818	8732	8645	8456	8251	8057	7875	7707	7580	7486	7444	7441	
15	9004	8961	8915	8871	8769	8662	8425	8172	7921	7687	7485	7337	7233	7184	7181	
17.5	9085	9037	8985	8931	8814	8685	8396	8086	7779	7500	7270	7109	6996	6943	6937	
20	9171	9118	9063	8995	8861	8712	8370	8000	7637	7320	7072	6896	6775	6718	6709	
22.5	9260	9204	9141	9069	8916	8742	8343	7912	7500	7150	6885	6692	6564	6502	6492	
25	9354	9291	9220	9144	8974	8769	8318	7827	7370	6992	6704	6497	6362	6297	6289	
27.5	9447	9383	9305	9226	9032	8808	8298	7750	7251	6842	6533	6310	6168	6100	6092	
30	9544	9478	9397	9314	9102	8853	8286	7686	7143	6701	6365	6126	5977	5908	5901	
32.5	9647	9581	9501	9402	9180	8908	8289	7634	7045	6569	6203	5950	5795	5725	5716	
35	9766	9699	9615	9511	9271	8981	8305	7592	6958	6440	6047	5779	5619	5542	5535	
37.5	9899	9830	9743	9636	9380	9065	8332	7557	6873	6315	5889	5607	5441	5362	5354	
40	10047	9977	9883	9771	9494	9154	8360	7520	6788	6186	5731	5435	5262	5184	5172	
42.5	10201	10127	10031	9910	9611	9240	8384	7490	6710	6058	5574	5264	5088	5005	4994	
45	10341	10267	10162	10032	9713	9323	8409	7465	6638	5938	5419	5095	4916	4835	4824	
47.5	10485	10410	10304	10174	9834	9420	8441	7444	6571	5819	5266	4928	4751	4674	4664	
50	10683	10613	10509	10372	10010	9560	8496	7429	6500	5701	5118	4768	4594	4523	4513	
52.5	10980	10910	10803	10656	10264	9769	8588	7422	6417	5574	4966	4612	4447	4382	4375	
55	11380	11312	11193	11033	10582	10016	8695	7413	6327	5428	4812	4462	4307	4250	4245	
57.5	11876	11793	11660	11468	10950	10307	8789	7383	6223	5266	4644	4311	4171	4126	4122	
60	12453	12347	12177	11950	11326	10565	8844	7312	6077	5075	4448	4147	4031	3999	3996	
62.5	13020	12865	12642	12350	11601	10715	8781	7154	5847	4821	4208	3953	3867	3841	3839	
65	13402	13184	12890	12530	11640	10625	8467	6793	5481	4469	3907	3709	3616	3557	3549	
67.5	13431	13127	12759	12338	11351	10248	7873	6128	4890	3987	3521	3349	3117	2982	2966	
70	12764	12362	11942	11499	10544	9477	7035	5218	4060	3383	3055	2734	2340	2174	2153	
72.5	11352	10878	10427	10001	9148	8222	5943	4203	3139	2673	2486	1921	1546	1420	1408	
75	9554	9012	8533	8107	7327	6558	4587	3140	2300	1969	1795	1244	1013	946	940	
77.5	7387	6800	6313	5899	5230	4582	3107	2126	1526	1351	1162	812	670	650	650	
80	5087	4542	4117	3771	3222	2739	1868	1280	824	787	730	538	447	448	450	
82.5	2737	2358	2082	1891	1582	1335	1024	647	394	407	419	312	266	276	279	
85	973	815	692	617	530	468	407	229	138	153	182	138	120	125	124	
87.5	100	79	64	56	55	53	42	28	20	19	19	13	7	2	2	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

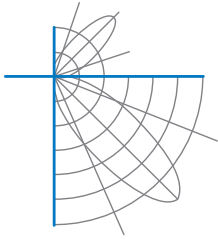
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

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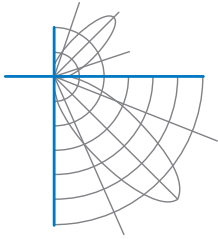


## Report of Test

LLIA002251-042

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	

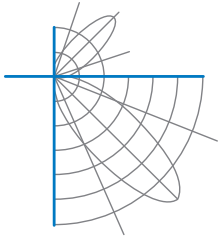


## Report of Test

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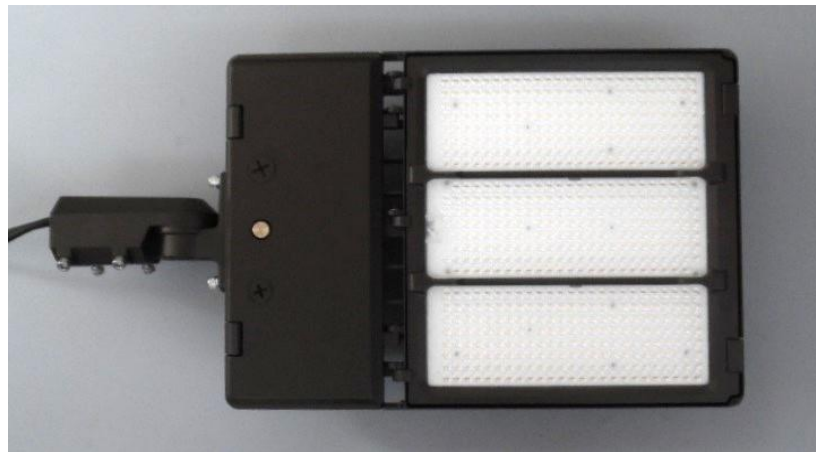
Luminous Intensity (Candela) Table

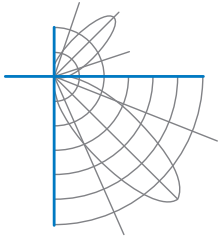
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0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



Report of Test  
LLIA002251-042

**Additional Pictures of Test Subject**





## Report of Test

### LLIA002251-042

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.