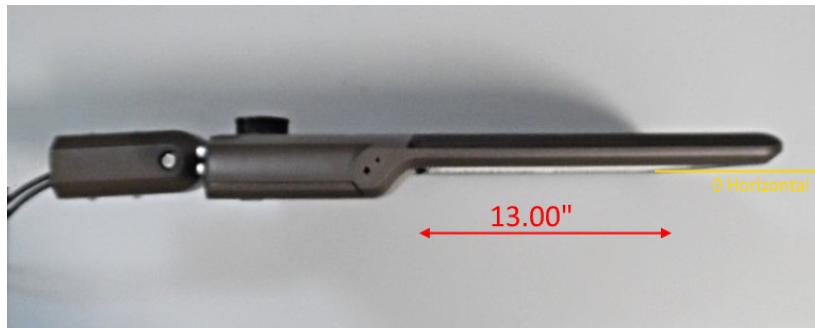


## Report of Test

**LLIA002251-021**

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-480PCS-T3 -480W 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



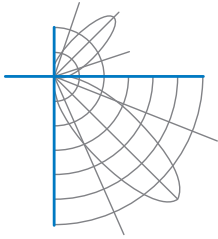
Prepared For:  
Topaz Lighting Corp  
925 Waverly Avenue  
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 Vac	Luminous Flux	70408.4 Lumens
Input Current	3.833 A	Total Efficacy	153.3 Lm/W
Input Power	459.3 W		
Frequency	60.01 Hz	Roadway Throw	Medium
Power Factor	0.999	Roadway Type	Type IV
Current THD	3.7 %		

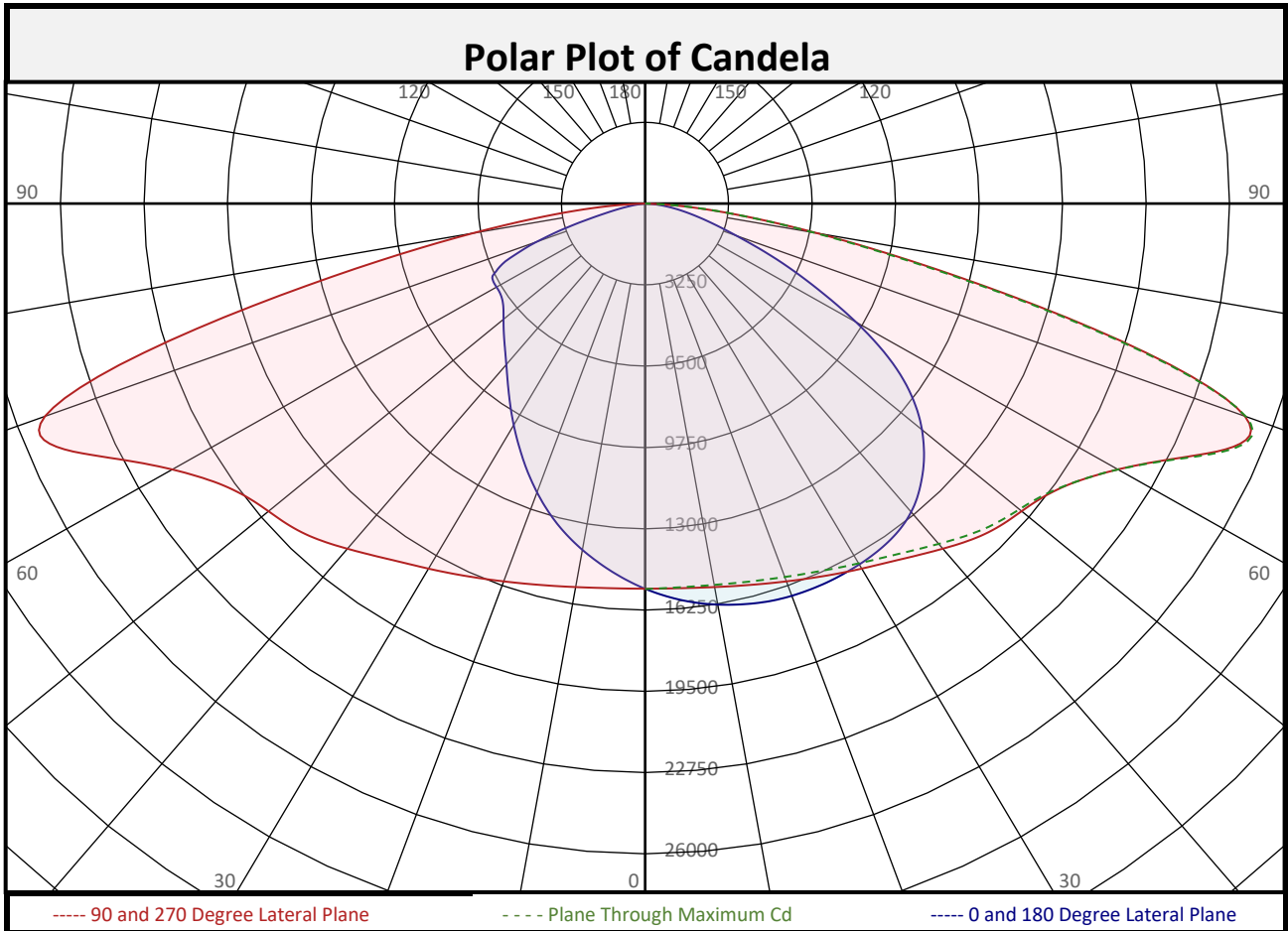
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

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

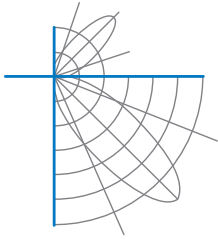
Signed: \_\_\_\_\_



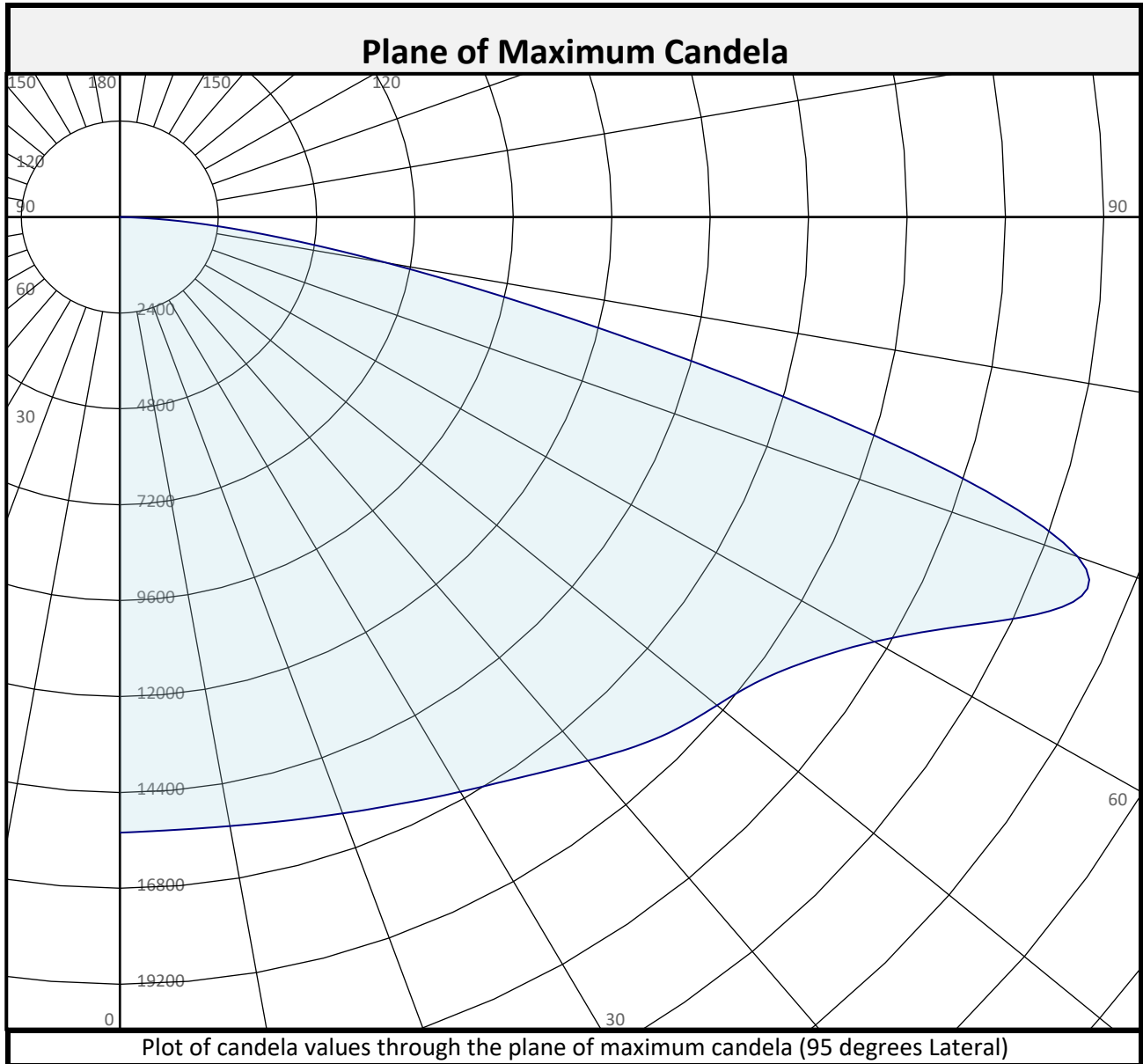
Report of Test  
LLIA002251-021



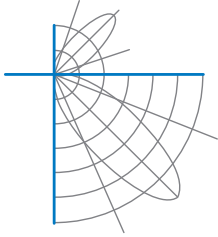
Zonal Flux Summary								
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	1470	2.1%	90-100	0.0	0.0%	0-20	5822	8.3%
10-20	4352	6.2%	100-110	0.0	0.0%	0-30	12890	18.3%
20-30	7068	10.0%	110-120	0.0	0.0%	0-40	22407	31.8%
30-40	9517	13.5%	120-130	0.0	0.0%	0-60	46473	66.0%
40-50	11504	16.3%	130-140	0.0	0.0%	0-80	68465	97.2%
50-60	12563	17.8%	140-150	0.0	0.0%	10-90	68939	97.9%
60-70	12781	18.2%	150-160	0.0	0.0%	20-50	28089	39.9%
70-80	9211	13.1%	160-170	0.0	0.0%	40-90	48002	68.2%
80-90	1944	2.8%	170-180	0.0	0.0%	60-90	23935	34.0%
0-90	70408	100.0%	90-180	0.0	0.0%	0-180	70408	100.0%



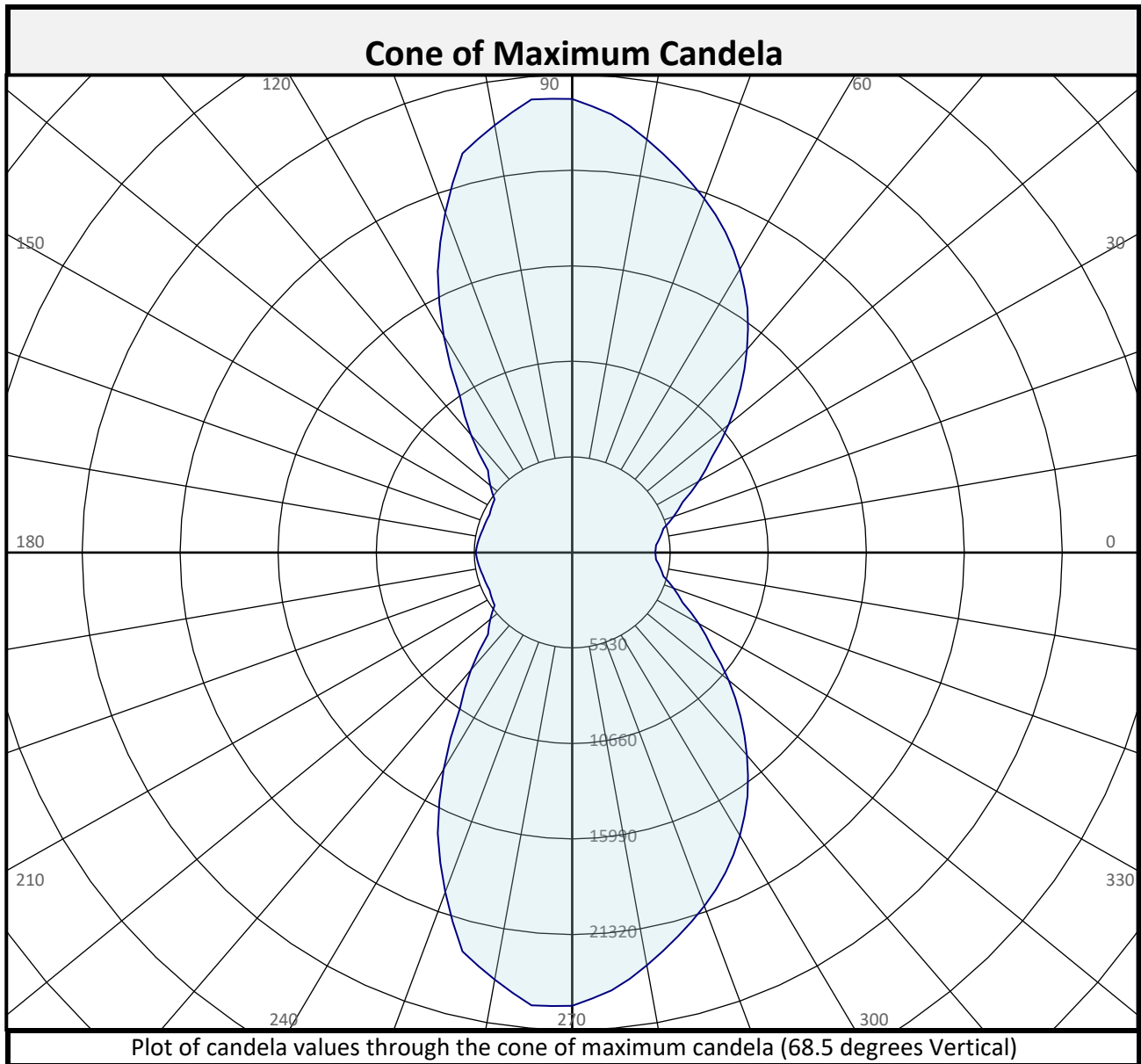
Report of Test  
LLIA002251-021



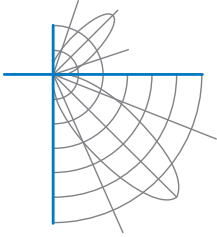
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	40337.0	57.3%	0.0	0.0%	40337.0	57.3%
House Side	30071.4	42.7%	0.0	0.0%	30071.4	42.7%
<b>Total</b>	<b>70408.4</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>70408.4</b>	<b>100.0%</b>



Report of Test  
LLIA002251-021

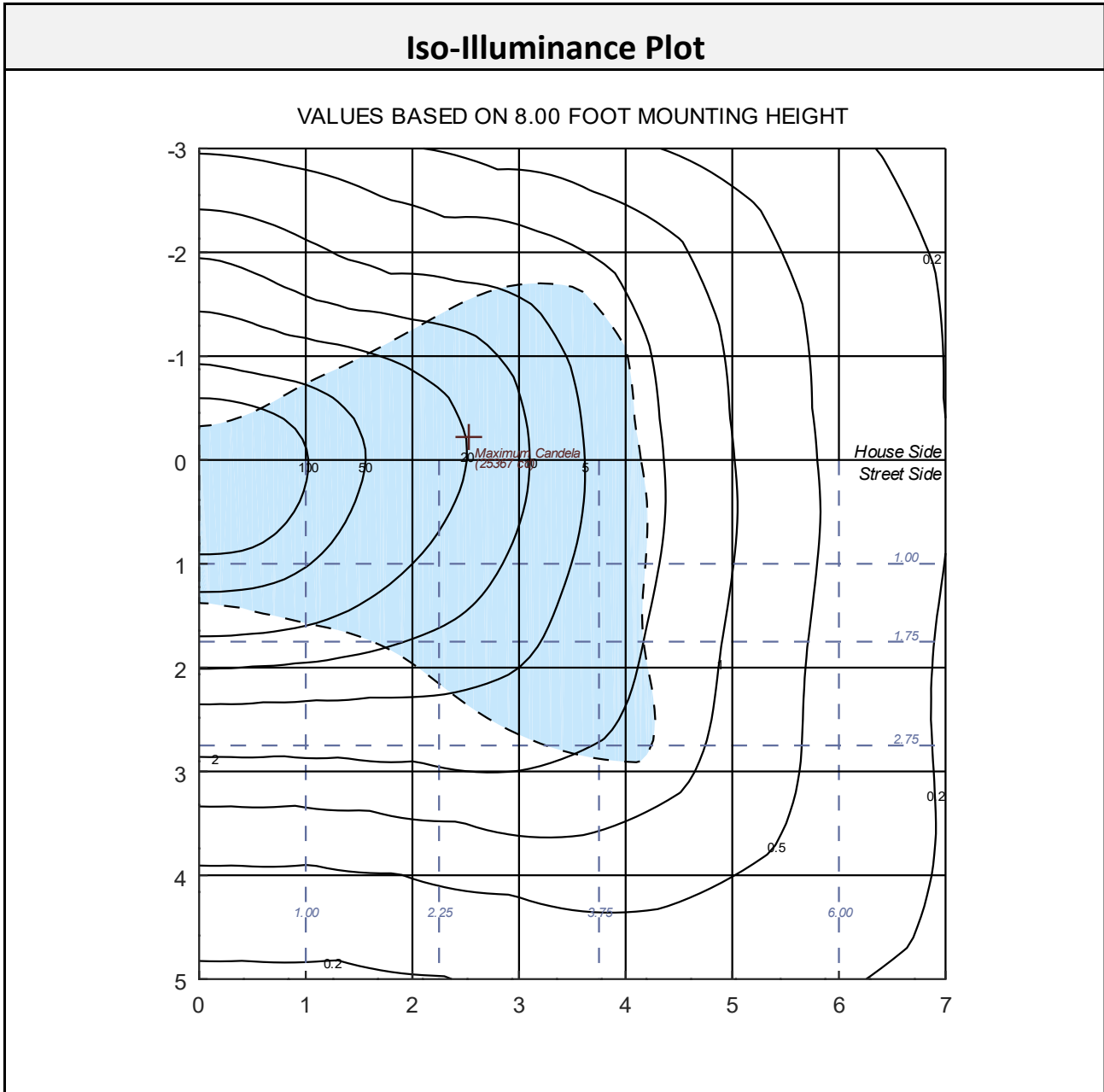


Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	40337.0	57.3%	0.0	0.0%	40337.0	57.3%
House Side	30071.4	42.7%	0.0	0.0%	30071.4	42.7%
<b>Total</b>	<b>70408.4</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>70408.4</b>	<b>100.0%</b>

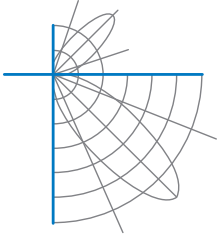


## Report of Test

LLIA002251-021

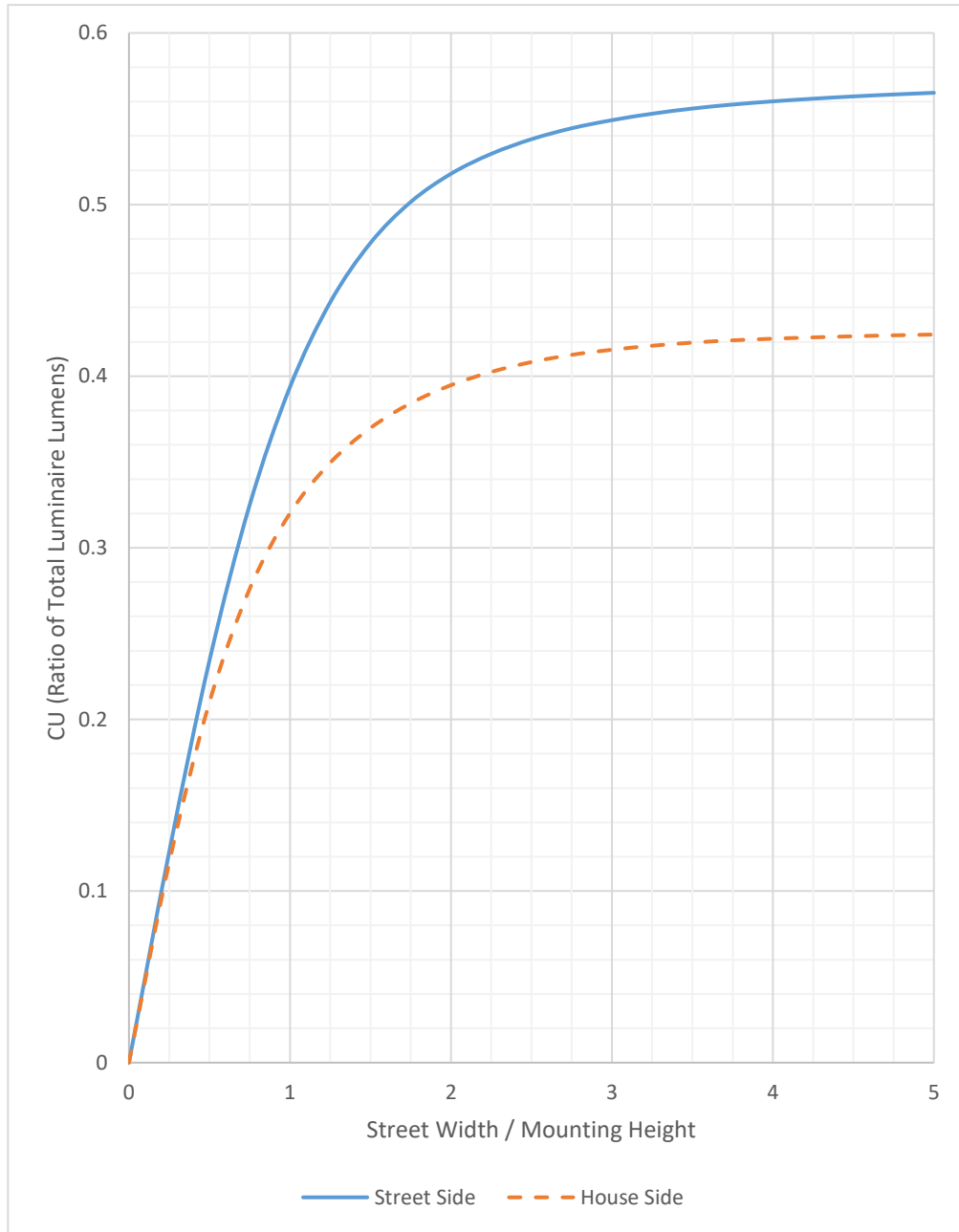


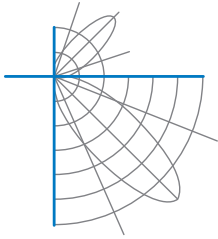
The isofootcandle values shown in the plot above are based on a mounting height of  $h = 8.0$  feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the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



## Report of Test LLIA002251-021

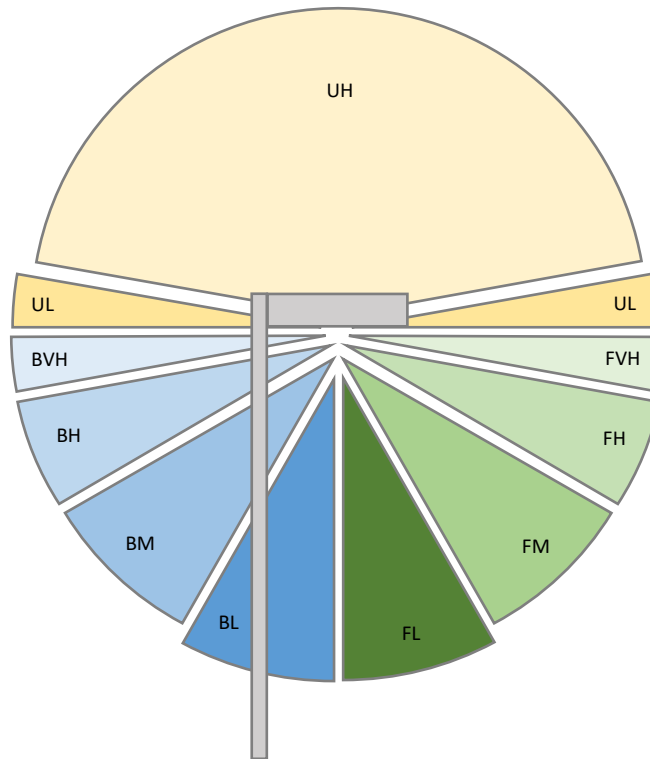
### Coefficients of Utilization Plot





Report of Test  
LLIA002251-021

LCS Tables and Bug Classification



**Back Light**

BL - Back Low (0°-30°)	5859.4 Lm
BM - Back Mid (30°-60°)	13847.8 Lm
BH - Back High (60°-80°)	9671.1 Lm
BVH - Back Very High (80°-90°)	693.1 Lm

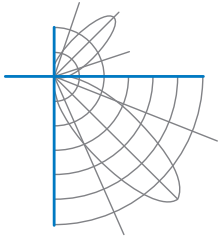
**Forward Light**

FL - Forward Low (0°-30°)	7030.7 Lm
FM - Forward Mid (30°-60°)	19735.3 Lm
FH - Forward High (60°-80°)	12320.3 Lm
FVH - Forward Very High (80°-90°)	1250.6 Lm

**Uplight**

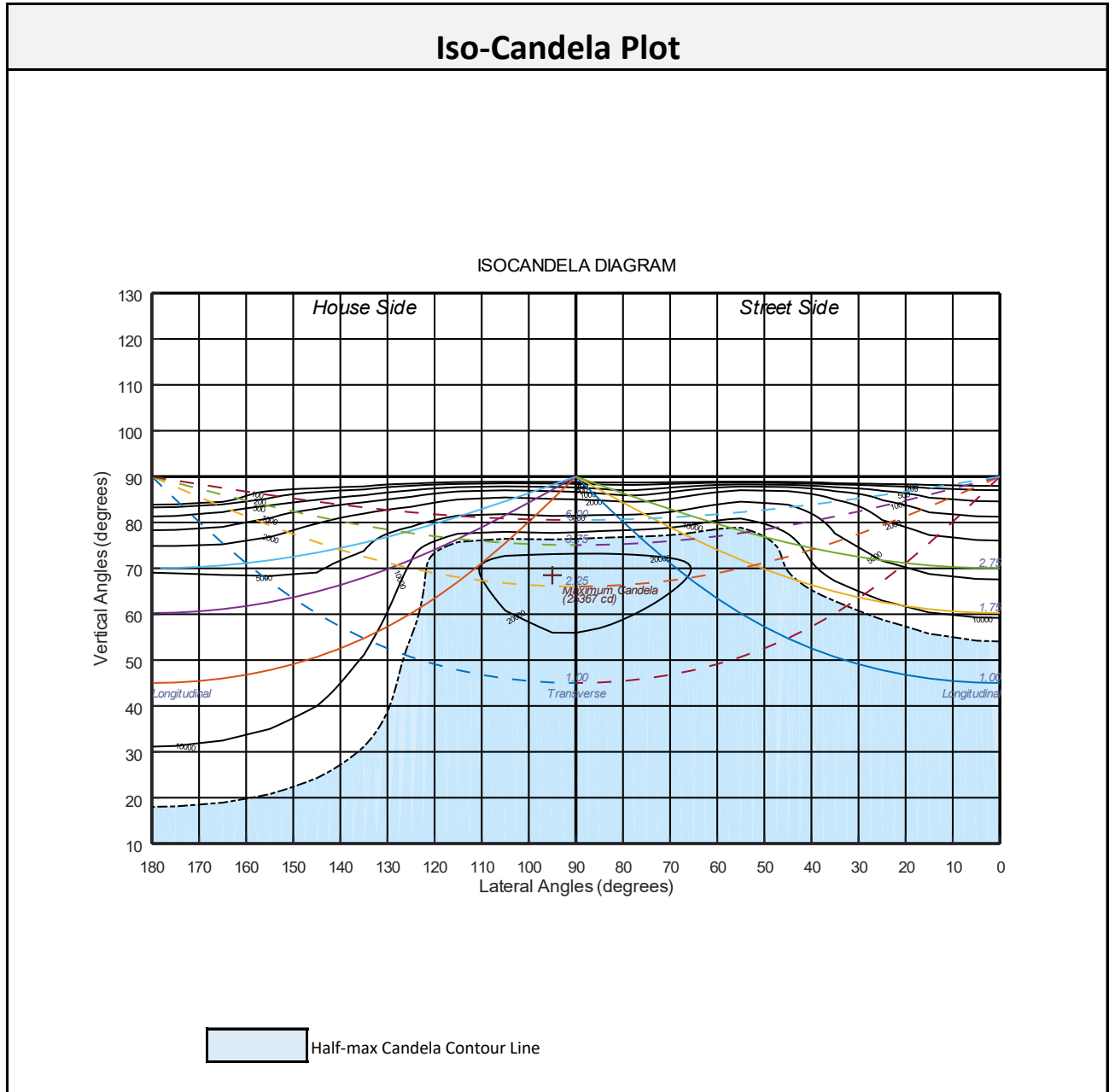
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

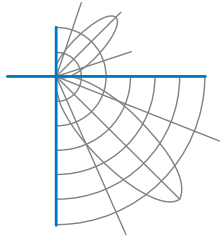


Report of Test  
LLIA002251-021

**Iso-Candela Plot**







## Report of Test

**LLIA002251-021**

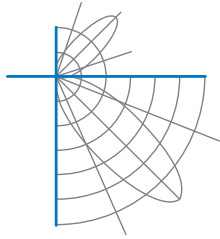
Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles															
	0	5	15	25	35	45	55	57.5	60	62.5	65	67.5	70	72.5	75	
0	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	
2.5	15663	15677	15672	15658	15638	15608	15573	15562	15555	15546	15531	15522	15512	15503	15489	
5	15901	15914	15904	15882	15850	15799	15740	15724	15709	15689	15668	15650	15628	15610	15586	
7.5	16106	16118	16107	16084	16047	15988	15913	15890	15870	15846	15817	15791	15762	15734	15702	
10	16275	16286	16278	16259	16229	16172	16089	16062	16039	16010	15977	15945	15911	15876	15836	
12.5	16417	16427	16426	16415	16399	16352	16272	16242	16218	16186	16151	16115	16073	16033	15987	
15	16537	16548	16556	16561	16563	16533	16461	16431	16406	16373	16334	16295	16250	16202	16151	
17.5	16630	16643	16667	16703	16729	16721	16658	16632	16605	16572	16534	16489	16441	16388	16333	
20	16685	16698	16750	16827	16898	16916	16863	16842	16815	16782	16742	16695	16646	16588	16529	
22.5	16709	16726	16806	16938	17065	17119	17082	17061	17031	16999	16959	16913	16861	16799	16738	
25	16716	16735	16849	17040	17231	17327	17304	17282	17252	17224	17180	17135	17078	17015	16950	
27.5	16696	16728	16884	17143	17392	17526	17522	17501	17469	17438	17392	17346	17290	17223	17158	
30	16661	16698	16907	17250	17556	17726	17733	17712	17681	17643	17600	17552	17495	17432	17369	
32.5	16600	16647	16911	17350	17728	17927	17941	17920	17887	17851	17808	17760	17708	17648	17588	
35	16506	16562	16884	17431	17892	18114	18146	18127	18099	18066	18026	17986	17937	17885	17828	
37.5	16352	16413	16805	17462	18014	18273	18336	18327	18308	18285	18254	18217	18181	18137	18094	
40	16104	16178	16636	17410	18061	18371	18486	18492	18489	18481	18467	18444	18420	18393	18362	
42.5	15744	15823	16353	17256	18013	18389	18566	18593	18610	18623	18628	18627	18623	18616	18603	
45	15280	15361	15955	16993	17867	18321	18572	18621	18658	18690	18720	18740	18753	18769	18780	
47.5	14731	14811	15438	16610	17618	18185	18523	18593	18652	18703	18750	18788	18817	18850	18874	
50	14076	14161	14807	16092	17263	17983	18430	18523	18605	18675	18737	18788	18833	18879	18925	
52.5	13274	13352	14019	15416	16785	17700	18286	18399	18502	18594	18676	18749	18819	18887	18961	
55	12278	12350	13024	14537	16160	17317	18068	18207	18340	18465	18582	18700	18815	18931	19056	
57.5	11019	11088	11772	13404	15336	16808	17790	17975	18158	18340	18523	18708	18888	19077	19274	
60	9496	9563	10249	11979	14255	16155	17482	17746	18003	18268	18539	18815	19095	19387	19677	
62.5	7873	7941	8584	10319	12896	15310	17149	17533	17910	18296	18694	19095	19496	19892	20298	
65	6409	6472	7050	8653	11359	14297	16826	17393	17941	18482	19027	19559	20082	20593	21095	
67.5	5039	5101	5673	7177	9845	13318	16618	17381	18126	18835	19523	20176	20789	21380	21965	
70	3834	3890	4399	5824	8494	12526	16666	17598	18438	19188	19856	20464	21030	21591	22152	
72.5	2942	2985	3388	4614	7210	12074	16687	17595	18326	18850	19213	19500	19785	20073	20378	
75	2251	2284	2592	3634	6025	11448	16251	16808	17061	17030	16836	16635	16482	16395	16363	
77.5	1686	1712	1940	2817	5034	10034	14338	14404	14173	13724	13177	12657	12253	11949	11720	
80	1218	1234	1405	2132	4120	8175	11174	11012	10615	10038	9359	8736	8243	7892	7638	
82.5	805	817	952	1547	3137	6162	7778	7488	7052	6473	5814	5215	4720	4363	4132	
85	446	454	560	974	1984	3874	4454	4089	3727	3318	2867	2468	2117	1840	1652	
87.5	148	153	197	332	601	1239	1417	1266	1100	935	771	642	537	454	396	
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

LLIA002251-021

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	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406	15406
2.5	15479	15466	15451	15438	15402	15390	15337	15286	15240	15199	15161	15130	15110	15099	15095
5	15566	15544	15517	15492	15432	15396	15289	15186	15085	14993	14911	14843	14799	14775	14769
7.5	15674	15641	15604	15569	15487	15425	15263	15101	14939	14786	14652	14544	14468	14428	14420
10	15801	15757	15712	15668	15565	15477	15260	15034	14808	14587	14394	14237	14126	14064	14056
12.5	15942	15890	15839	15784	15663	15549	15280	14989	14691	14399	14136	13917	13762	13678	13664
15	16101	16042	15982	15917	15780	15642	15321	14965	14592	14218	13872	13582	13371	13260	13244
17.5	16277	16211	16144	16071	15916	15751	15380	14957	14502	14034	13589	13215	12941	12798	12781
20	16465	16396	16319	16240	16071	15882	15453	14957	14408	13833	13280	12814	12479	12309	12292
22.5	16668	16595	16513	16429	16242	16033	15545	14966	14307	13606	12941	12389	11998	11801	11779
25	16876	16803	16719	16632	16430	16199	15660	14985	14196	13355	12577	11942	11503	11284	11257
27.5	17085	17010	16928	16840	16633	16397	15796	15014	14078	13094	12192	11478	10999	10766	10737
30	17298	17221	17148	17056	16851	16608	15956	15057	13956	12815	11786	10998	10495	10257	10227
32.5	17518	17450	17376	17288	17085	16841	16145	15115	13836	12529	11368	10507	9991	9760	9731
35	17769	17706	17634	17556	17358	17109	16366	15203	13729	12237	10934	9996	9483	9276	9252
37.5	18047	17992	17928	17852	17671	17417	16621	15326	13636	11936	10477	9471	8984	8823	8807
40	18329	18284	18237	18178	18012	17761	16912	15477	13557	11628	9997	8940	8509	8409	8404
42.5	18590	18566	18543	18501	18365	18122	17218	15644	13488	11308	9507	8434	8080	8054	8057
45	18789	18794	18788	18773	18686	18468	17536	15824	13418	10972	9021	7973	7701	7737	7752
47.5	18907	18931	18958	18968	18932	18758	17837	15995	13333	10606	8545	7563	7366	7444	7468
50	18970	19027	19075	19110	19131	19012	18109	16137	13198	10200	8083	7200	7062	7169	7196
52.5	19047	19129	19216	19289	19387	19313	18391	16229	12982	9744	7627	6869	6785	6920	6951
55	19197	19342	19483	19614	19793	19768	18730	16289	12683	9247	7192	6565	6547	6737	6776
57.5	19488	19712	19932	20129	20409	20408	19177	16338	12329	8731	6788	6285	6363	6636	6690
60	19990	20293	20601	20870	21251	21254	19765	16418	11959	8227	6422	6037	6233	6608	6678
62.5	20707	21115	21505	21855	22364	22398	20567	16552	11594	7732	6080	5815	6133	6590	6675
65	21604	22116	22626	23083	23768	23854	21581	16753	11225	7233	5732	5584	5929	6311	6396
67.5	22555	23155	23752	24288	25078	25168	22721	17094	10827	6699	5340	5171	5377	5634	5697
70	22705	23253	23789	24244	24848	24869	23006	17564	10355	6117	4779	4547	4430	4506	4552
72.5	20678	20942	21176	21346	21450	21290	20381	16868	9683	5406	4130	3709	3255	3163	3183
75	16331	16282	16224	16125	15813	15562	15530	13766	8373	4593	3431	2701	2083	1951	1953
77.5	11545	11387	11238	11075	10633	10356	10760	10085	6277	3807	2678	1784	1317	1195	1183
80	7450	7315	7208	7099	6789	6628	7075	6694	4262	2850	1912	1185	824	692	676
82.5	4013	3988	3998	4026	3980	3950	4330	4001	2539	1755	1114	761	462	344	330
85	1589	1632	1739	1864	2019	2080	2312	2008	1241	769	485	228	56	5	4
87.5	362	351	371	433	556	627	705	598	335	144	97	63	9	1	2
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

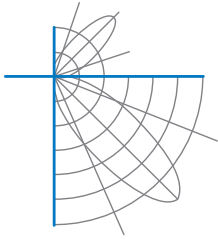
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.

**North America (issuing laboratory)**

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Fx: +61 7 3283 8751  
www.lightlabint.com

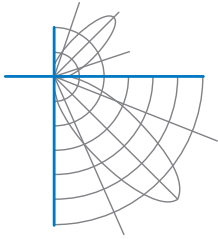


## Report of Test

LLIA002251-021

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	

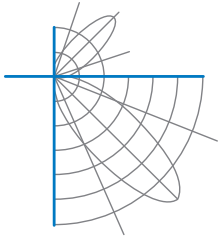


## Report of Test

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Luminous Intensity (Candela) Table

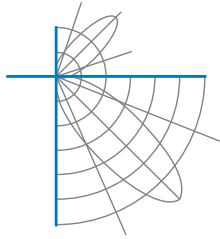
	Lateral (C-Plane) Angles															
	77.5	80	82.5	85	90	95	105	115	125	135	145	155	165	175	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	97.5	0	0	0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



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**Additional Pictures of Test Subject**





## Report of Test

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Test Distance                    9.5 m  
Ambient Temperature        25.3 °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.