

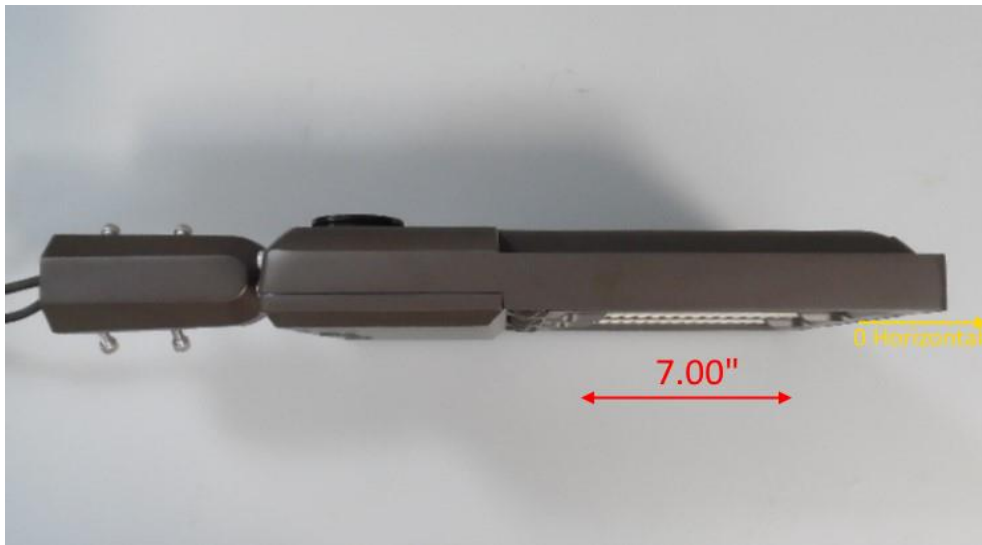


Report of Test

LLIA002251-027

Roadway/Area Light Distribution Photometry Test Report

Catalog Number: ARL-150PCS-SWO - T4 Optics - 70W - 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	10826.5 Lumens
Input Current	0.5720 A	Total Efficacy	158.1 Lm/W
Input Power	68.46 W		
Frequency	60.00 Hz	Roadway Throw	Short
Power Factor	0.997	Roadway Type	Type IV
Current THD	4.6 %		

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

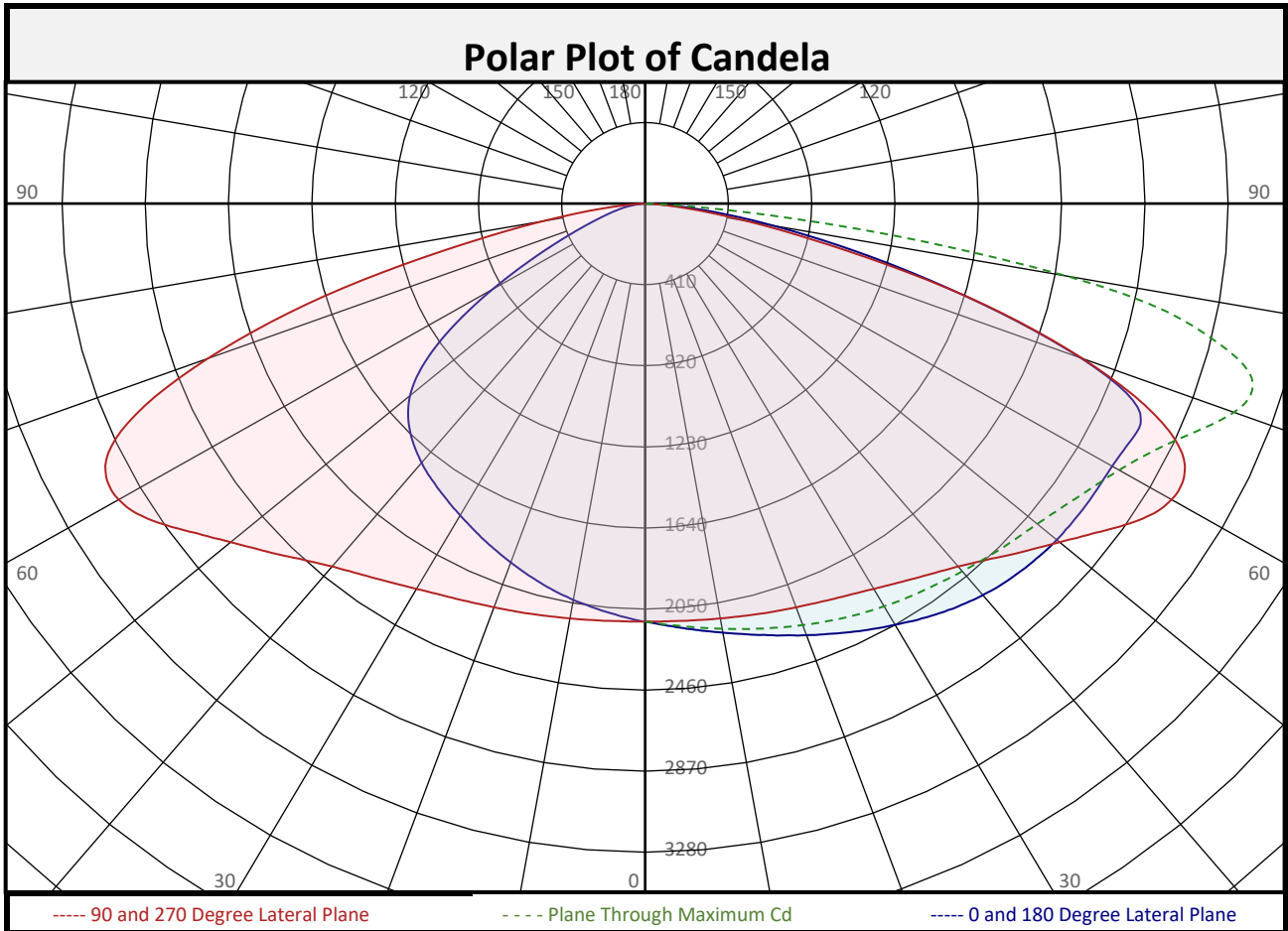
Test date: 10/31/2023
Report date: 11/06/2023

Signed: _____



Report of Test

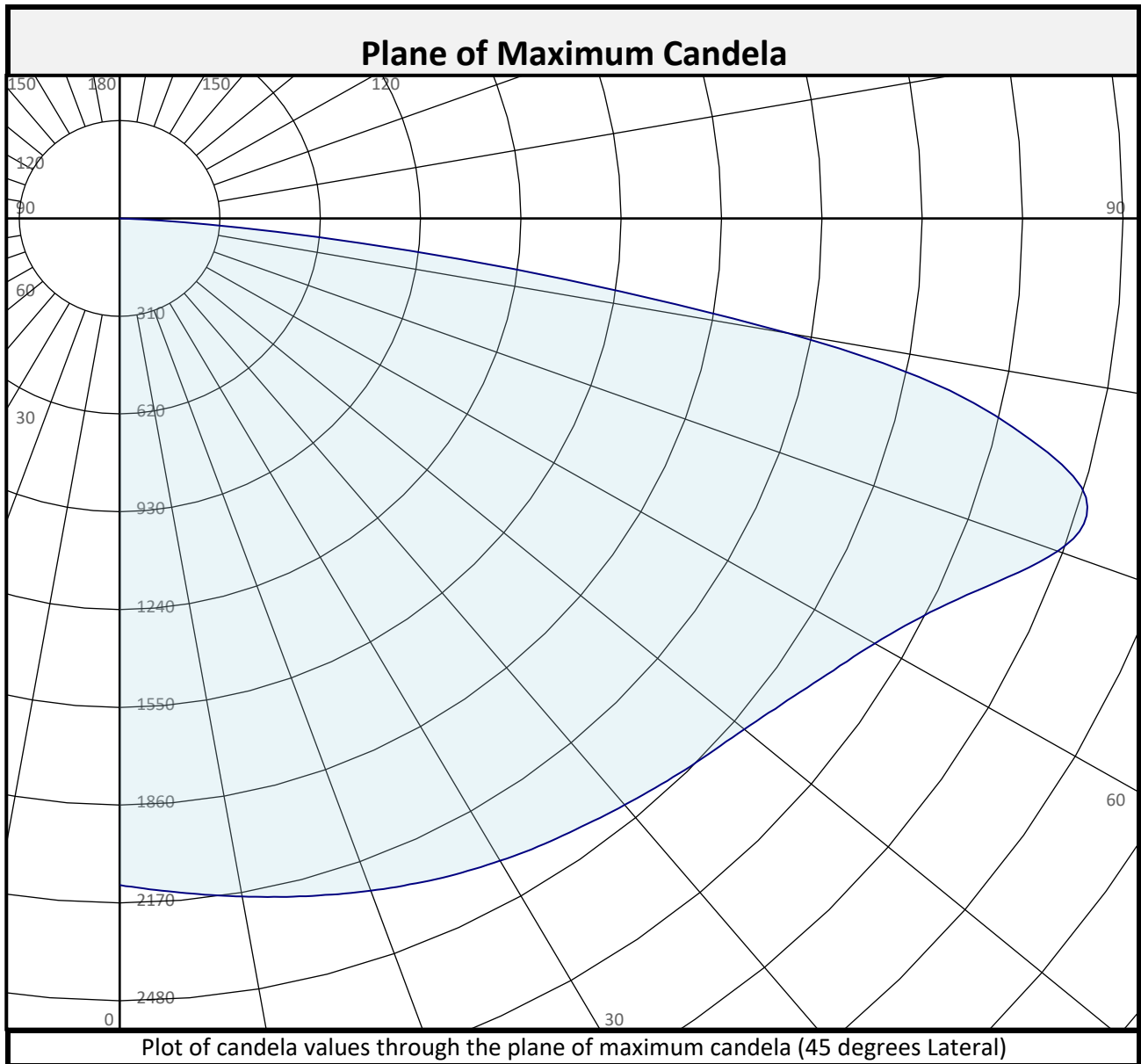
LLIA002251-027



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	202.4	1.9%	90-100	0.0	0.0%	0-20	808.2	7.5%
10-20	605.9	5.6%	100-110	0.0	0.0%	0-30	1811	16.7%
20-30	1003	9.3%	110-120	0.0	0.0%	0-40	3203	29.6%
30-40	1391	12.9%	120-130	0.0	0.0%	0-60	7078	65.4%
40-50	1772	16.4%	130-140	0.0	0.0%	0-80	10586	97.8%
50-60	2104	19.4%	140-150	0.0	0.0%	10-90	10624	98.1%
60-70	2153	19.9%	150-160	0.0	0.0%	20-50	4166	38.5%
70-80	1355	12.5%	160-170	0.0	0.0%	40-90	7624	70.4%
80-90	240.5	2.2%	170-180	0.0	0.0%	60-90	3748	34.6%
0-90	10826	100.0%	90-180	0.0	0.0%	0-180	10826	100.0%



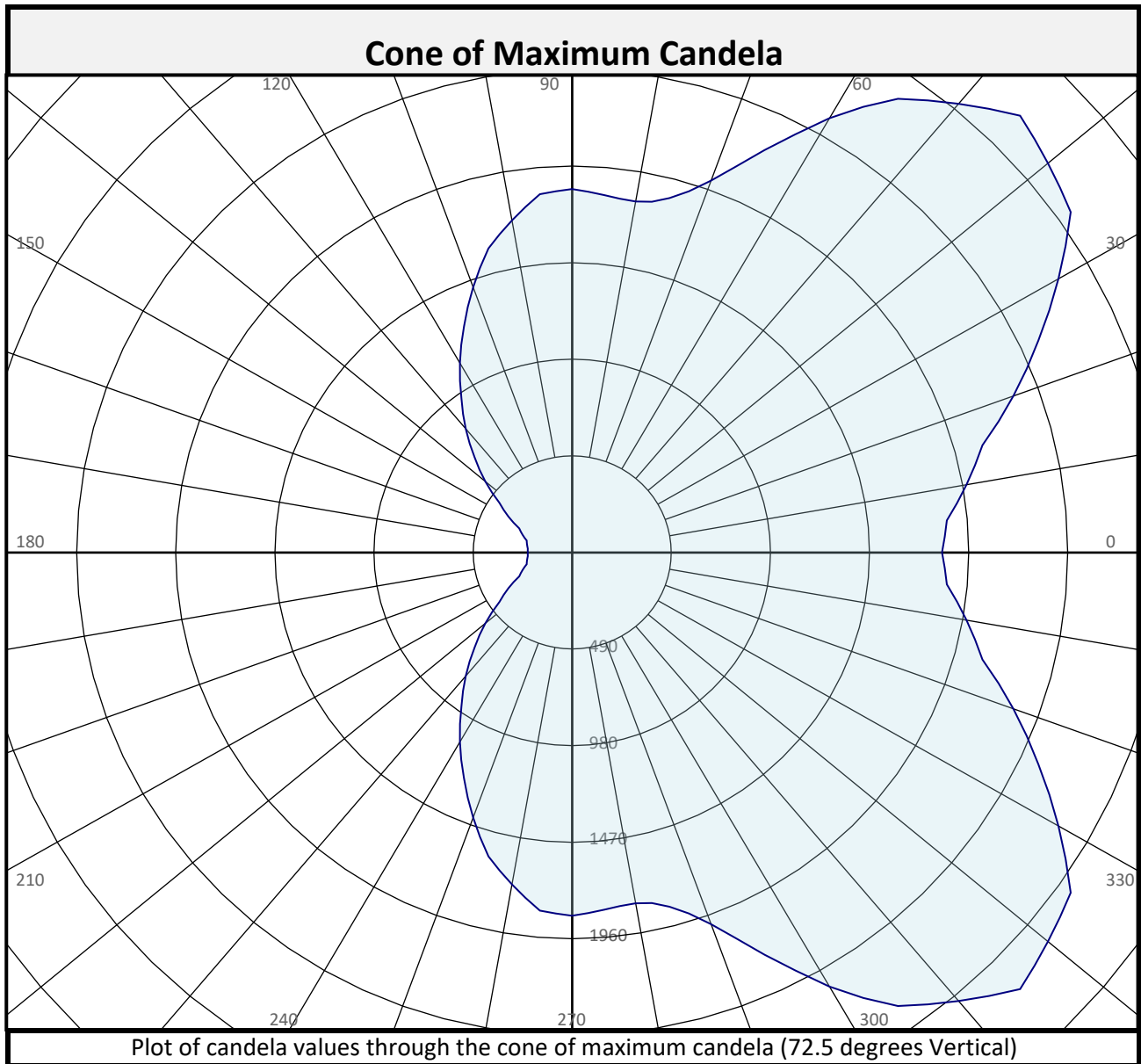
Report of Test
LLIA002251-027



Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	6537.8	60.4%	0.0	0.0%	6537.8	60.4%
House Side	4288.7	39.6%	0.0	0.0%	4288.7	39.6%
Total	10826.5	100.0%	0.0	0.0%	10826.5	100.0%



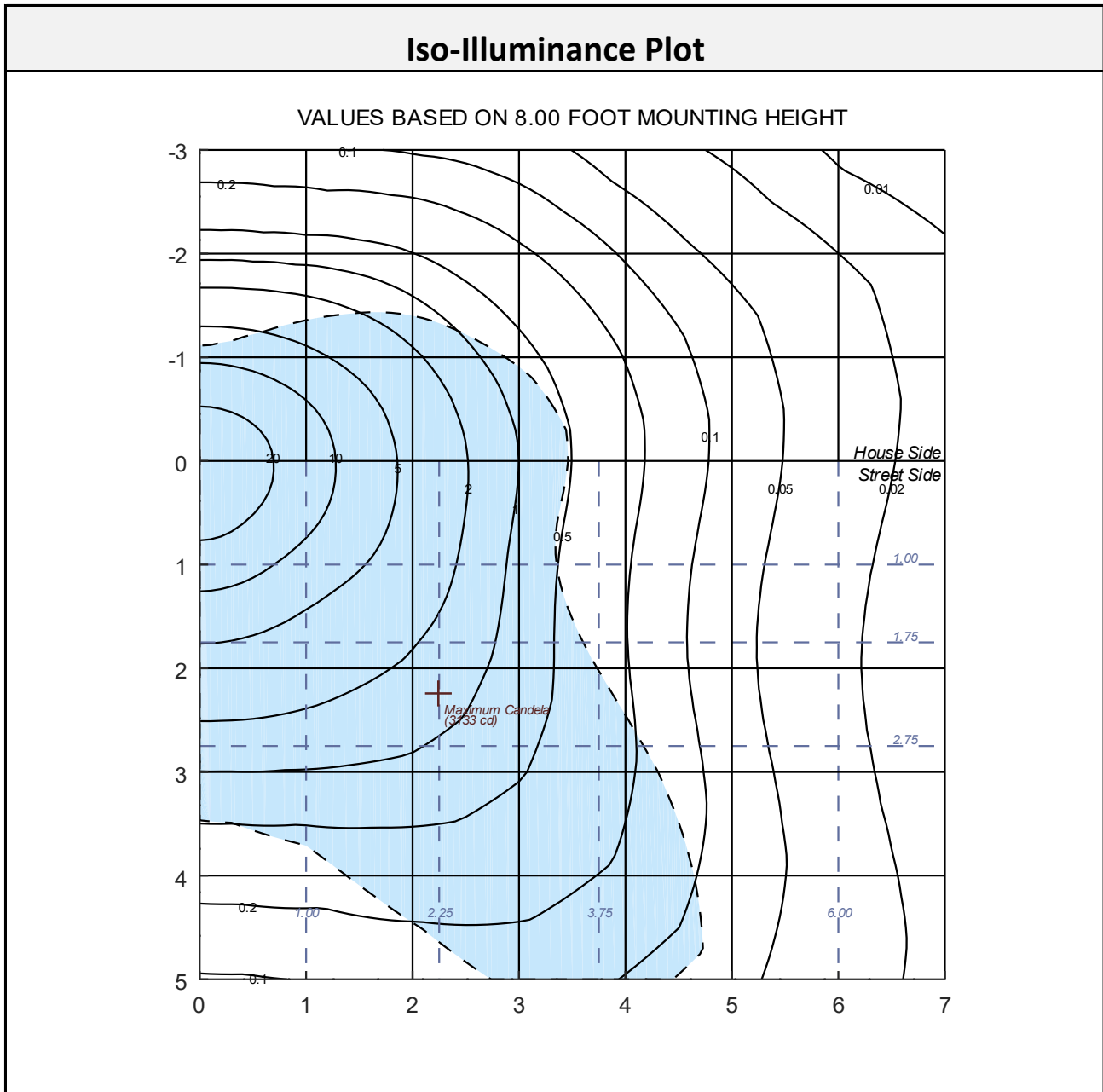
Report of Test
LLIA002251-027



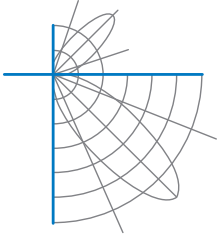
Street and House Side Flux Summary						
	Downward		Upward		Total	
	Lumens	% of Total	Lumens	% of Total	Lumens	% of Total
Street Side	6537.8	60.4%	0.0	0.0%	6537.8	60.4%
House Side	4288.7	39.6%	0.0	0.0%	4288.7	39.6%
Total	10826.5	100.0%	0.0	0.0%	10826.5	100.0%



Report of Test
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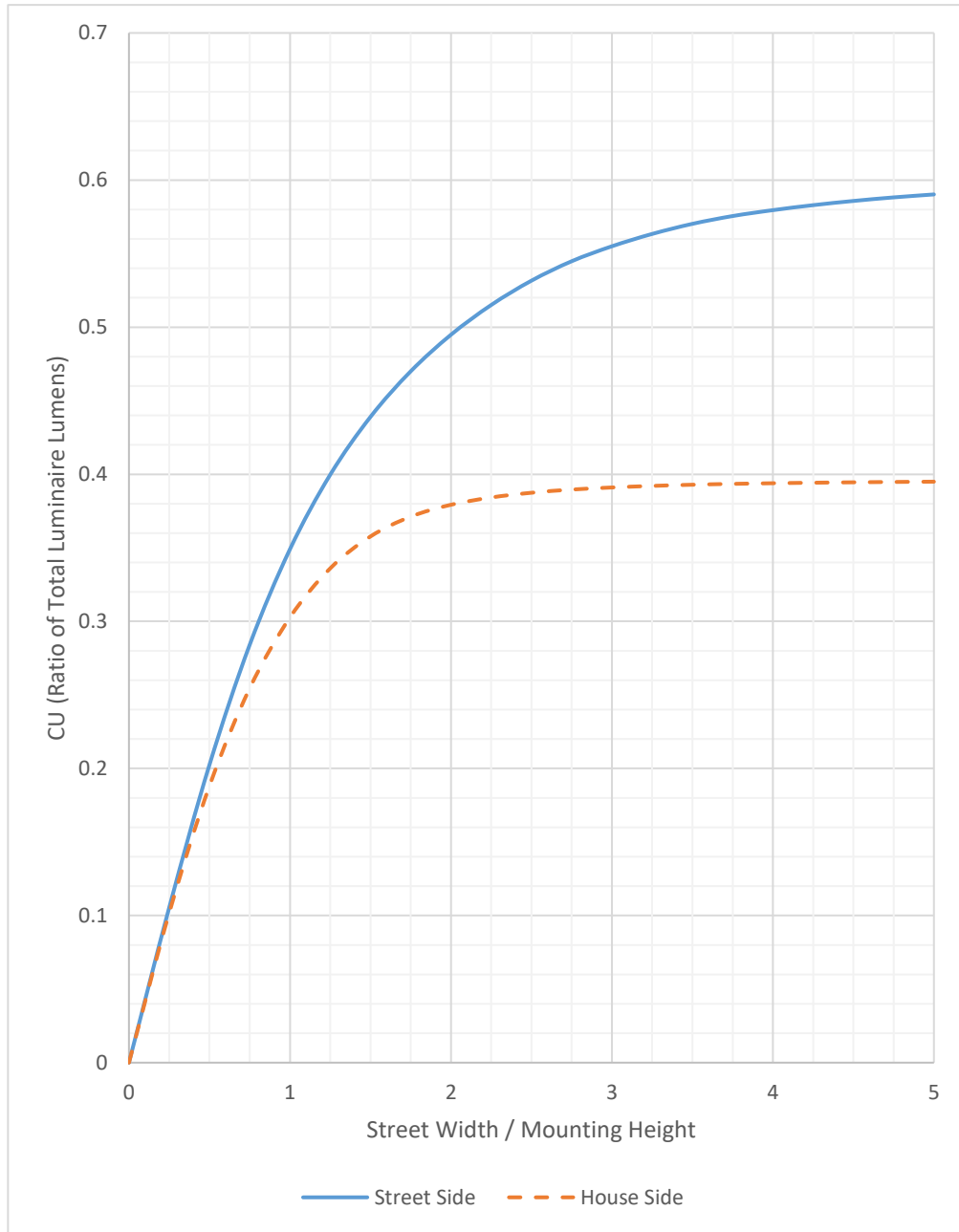


The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



Report of Test LLIA002251-027

Coefficients of Utilization Plot

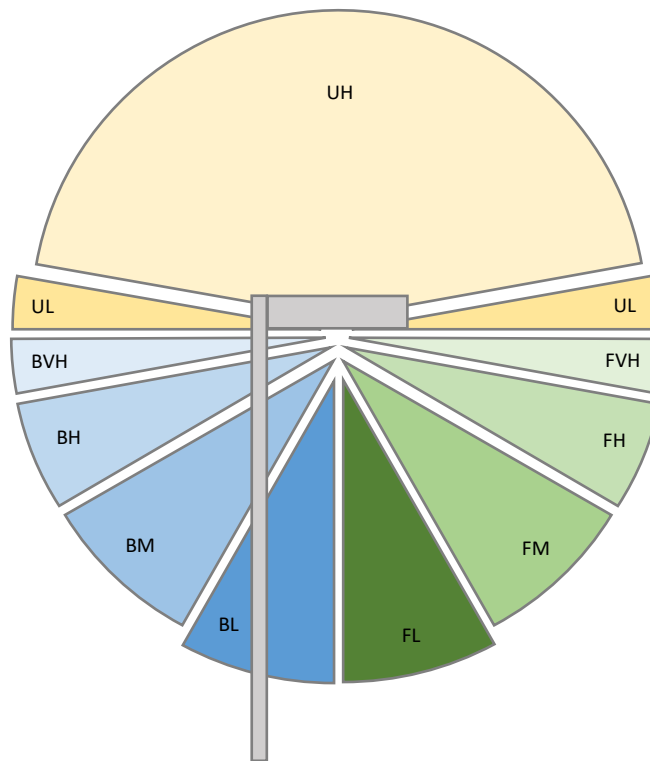




Report of Test

LLIA002251-027

LCS Tables and Bug Classification



Back Light

BL - Back Low (0°-30°)	858.4 Lm
BM - Back Mid (30°-60°)	2314.8 Lm
BH - Back High (60°-80°)	1076.9 Lm
BVH - Back Very High (80°-90°)	38.7 Lm

Forward Light

FL - Forward Low (0°-30°)	953.1 Lm
FM - Forward Mid (30°-60°)	2952.0 Lm
FH - Forward High (60°-80°)	2430.8 Lm
FVH - Forward Very High (80°-90°)	201.9 Lm

Uplight

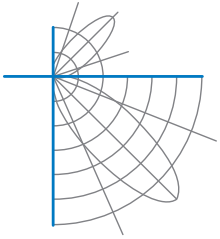
UL - Upward Low (90°-100°)	0.0 Lm
UH - Upward High (100°-180°)	0.0 Lm

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

B3 - U0 - G3

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

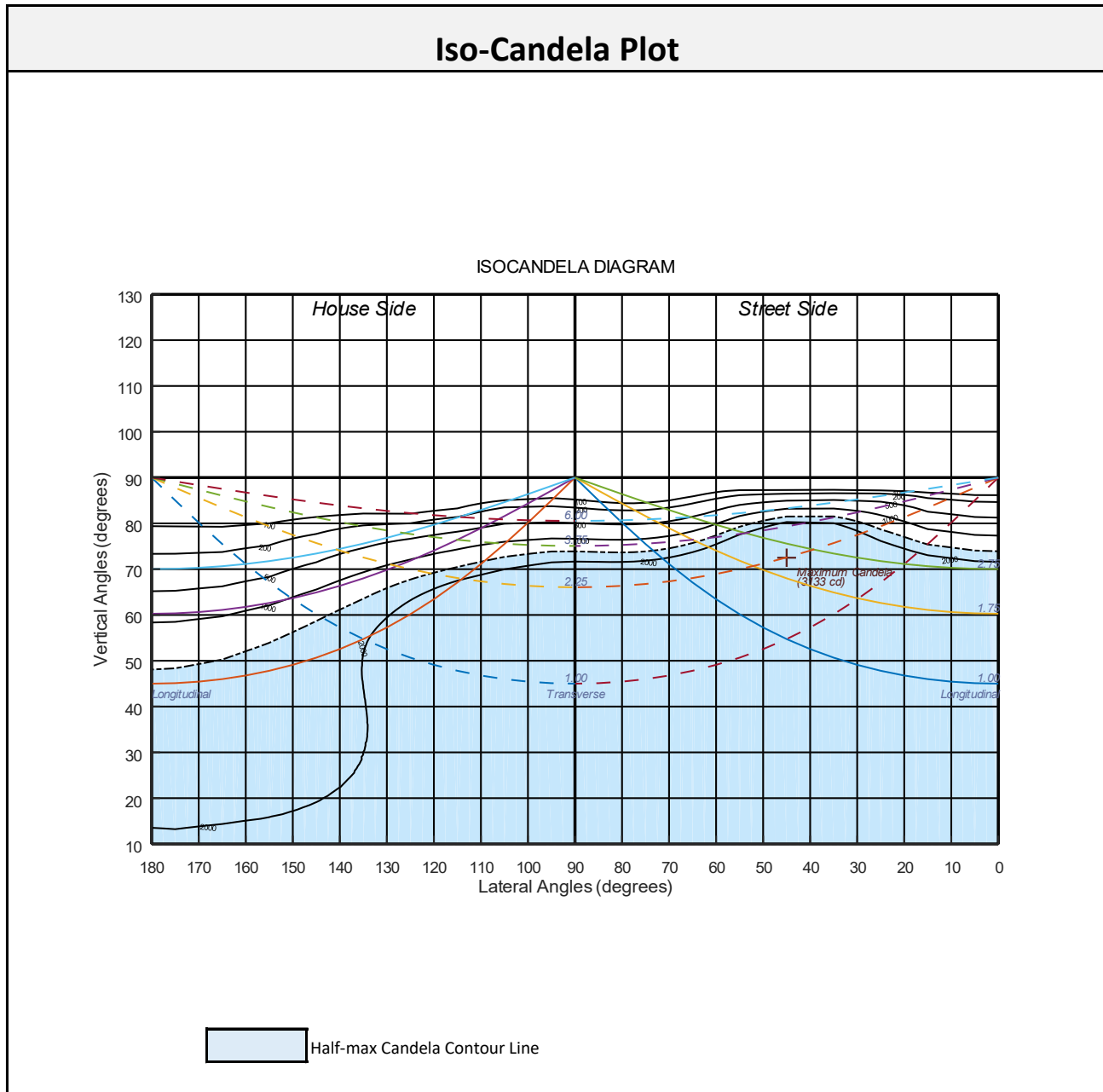
B3 - U0 - G2



Report of Test

LLIA002251-027

Iso-Candela Plot





Report of Test

LLIA002251-027

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	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	
2.5	2133	2134	2133	2132	2129	2129	2125	2124	2123	2123	2122	2121	2121	2120	2120	
5	2155	2155	2155	2152	2147	2145	2139	2137	2136	2135	2133	2132	2130	2129	2128	
7.5	2179	2178	2178	2174	2168	2163	2156	2153	2152	2150	2146	2145	2143	2140	2137	
10	2203	2203	2201	2196	2189	2182	2173	2170	2167	2164	2162	2159	2156	2153	2150	
12.5	2230	2229	2226	2220	2211	2202	2191	2187	2184	2180	2177	2173	2170	2166	2163	
15	2258	2257	2254	2246	2233	2224	2209	2204	2203	2198	2194	2190	2186	2182	2177	
17.5	2289	2287	2284	2274	2259	2246	2229	2224	2220	2215	2212	2207	2202	2197	2192	
20	2323	2321	2315	2302	2283	2268	2248	2244	2239	2234	2229	2225	2219	2214	2209	
22.5	2355	2355	2347	2330	2308	2290	2268	2263	2258	2253	2248	2243	2238	2233	2226	
25	2391	2390	2378	2358	2334	2311	2288	2283	2278	2272	2267	2262	2257	2251	2245	
27.5	2425	2424	2410	2384	2357	2331	2310	2304	2299	2294	2289	2283	2279	2273	2266	
30	2460	2459	2441	2410	2378	2351	2331	2326	2319	2317	2312	2308	2303	2296	2291	
32.5	2496	2492	2473	2435	2397	2371	2354	2349	2346	2343	2340	2336	2331	2327	2320	
35	2528	2526	2500	2458	2412	2388	2378	2376	2372	2373	2371	2367	2364	2360	2355	
37.5	2558	2556	2527	2478	2429	2406	2406	2406	2407	2407	2404	2404	2401	2399	2393	
40	2585	2581	2550	2496	2445	2427	2436	2440	2443	2445	2445	2445	2444	2441	2438	
42.5	2607	2603	2569	2512	2461	2449	2469	2473	2481	2486	2489	2492	2492	2491	2488	
45	2623	2620	2584	2527	2475	2471	2504	2511	2525	2533	2538	2545	2548	2549	2549	
47.5	2636	2633	2595	2538	2492	2494	2543	2557	2576	2589	2600	2609	2615	2618	2618	
50	2645	2639	2602	2548	2504	2519	2592	2615	2637	2652	2668	2678	2686	2691	2695	
52.5	2650	2644	2611	2556	2520	2554	2649	2674	2705	2722	2743	2757	2767	2774	2778	
55	2652	2647	2618	2570	2541	2594	2712	2743	2780	2803	2827	2845	2857	2867	2872	
57.5	2653	2651	2627	2589	2565	2639	2784	2823	2866	2894	2923	2943	2957	2965	2971	
60	2655	2654	2639	2615	2602	2695	2872	2916	2962	2991	3019	3035	3046	3050	3051	
62.5	2668	2668	2662	2651	2650	2765	2967	3006	3053	3073	3091	3095	3095	3090	3082	
65	2684	2686	2698	2702	2722	2857	3044	3072	3101	3107	3108	3097	3081	3063	3042	
67.5	2599	2612	2691	2766	2818	2970	3074	3079	3078	3053	3020	2976	2926	2879	2835	
70	2283	2311	2496	2748	2940	3084	3014	2966	2905	2819	2727	2627	2534	2455	2394	
72.5	1829	1860	2101	2544	3010	3133	2809	2680	2543	2391	2252	2119	2007	1921	1861	
75	1374	1402	1635	2186	2868	3014	2479	2285	2087	1888	1721	1579	1469	1388	1333	
77.5	973	996	1200	1776	2523	2703	2014	1772	1537	1326	1163	1036	947	885	843	
80	637	654	812	1323	2010	2102	1375	1162	977	820	702	616	556	514	491	
82.5	376	387	505	879	1232	1230	797	660	542	443	371	318	278	249	232	
85	175	180	246	452	525	487	342	286	237	189	151	122	100	85	75	
87.5	24	24	38	59	80	77	77	65	53	41	32	24	19	15	12	
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

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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	
0	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	2113	
2.5	2117	2116	2114	2115	2113	2112	2108	2105	2104	2100	2097	2094	2095	2093	2094	
5	2125	2122	2120	2120	2117	2114	2106	2100	2094	2088	2082	2078	2076	2074	2074	
7.5	2134	2131	2129	2127	2122	2117	2106	2097	2087	2077	2069	2061	2058	2055	2055	
10	2146	2142	2139	2135	2128	2122	2108	2095	2081	2068	2055	2044	2039	2032	2034	
12.5	2158	2153	2150	2146	2137	2127	2110	2096	2078	2059	2041	2027	2018	2009	2011	
15	2171	2167	2161	2157	2147	2137	2117	2096	2073	2050	2026	2008	1994	1983	1985	
17.5	2186	2181	2175	2171	2159	2147	2126	2099	2070	2040	2011	1984	1970	1959	1958	
20	2202	2196	2191	2184	2172	2158	2135	2103	2069	2030	1995	1963	1944	1931	1930	
22.5	2218	2209	2206	2201	2186	2172	2144	2108	2067	2021	1978	1942	1919	1903	1902	
25	2238	2231	2224	2219	2203	2187	2158	2117	2067	2012	1962	1920	1892	1877	1875	
27.5	2259	2253	2246	2240	2223	2208	2175	2128	2068	2005	1947	1897	1866	1849	1847	
30	2284	2278	2270	2264	2249	2231	2196	2141	2073	2000	1933	1876	1841	1822	1820	
32.5	2313	2307	2300	2293	2279	2264	2220	2157	2078	1994	1919	1857	1815	1795	1793	
35	2347	2340	2334	2329	2313	2298	2251	2178	2088	1991	1907	1838	1791	1769	1767	
37.5	2386	2381	2373	2368	2351	2331	2285	2203	2099	1991	1896	1821	1767	1742	1740	
40	2432	2424	2420	2414	2394	2379	2327	2233	2115	1994	1887	1801	1743	1713	1710	
42.5	2484	2479	2473	2467	2451	2435	2376	2271	2136	1997	1877	1779	1713	1679	1675	
45	2544	2541	2537	2531	2516	2500	2435	2315	2160	2001	1864	1756	1680	1639	1634	
47.5	2616	2613	2608	2604	2586	2570	2500	2364	2188	2005	1848	1724	1634	1587	1581	
50	2694	2691	2685	2681	2663	2646	2567	2415	2214	2004	1824	1679	1575	1517	1510	
52.5	2778	2778	2774	2769	2750	2729	2639	2461	2232	1994	1786	1617	1486	1411	1402	
55	2873	2871	2868	2865	2848	2820	2710	2502	2234	1965	1724	1518	1354	1264	1254	
57.5	2971	2970	2966	2961	2938	2901	2775	2530	2210	1906	1627	1373	1178	1080	1069	
60	3046	3034	3032	3024	2992	2946	2797	2521	2153	1801	1482	1183	975	878	867	
62.5	3071	3059	3045	3029	2991	2930	2742	2442	2044	1645	1286	964	765	682	673	
65	3019	2997	2974	2954	2898	2828	2612	2272	1858	1440	1053	746	579	516	510	
67.5	2798	2758	2743	2720	2664	2588	2349	1998	1594	1192	818	553	429	387	383	
70	2352	2327	2316	2311	2294	2242	1995	1639	1272	930	607	402	315	290	287	
72.5	1822	1808	1810	1820	1843	1824	1597	1264	954	681	438	288	232	220	219	
75	1298	1287	1290	1301	1328	1331	1169	911	678	472	307	206	172	167	167	
77.5	815	806	809	820	848	864	774	583	409	309	206	146	127	126	127	
80	477	473	476	485	509	528	492	313	201	179	133	100	89	90	90	
82.5	226	227	232	242	269	290	273	134	85	90	76	59	52	53	54	
85	70	71	78	87	110	126	103	43	27	33	30	23	20	20	20	
87.5	11	10	10	12	22	29	17	9	6	4	3	2	2	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.

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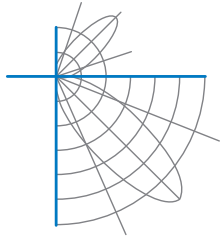


Report of Test

LLIA002251-027

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	

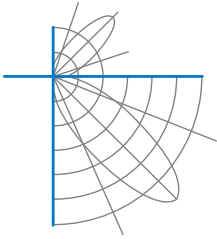


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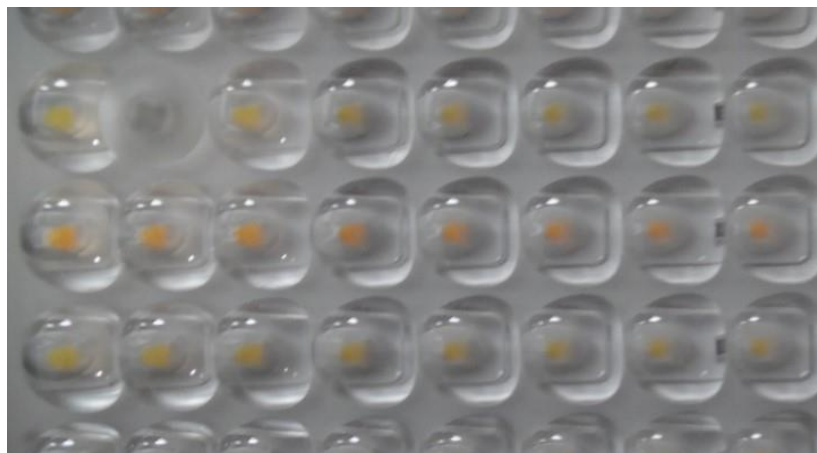
Luminous Intensity (Candela) Table

	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	



Report of Test
LLIA002251-027

Additional Pictures of Test Subject





Report of Test

LLIA002251-027

Test Distance 9.5 m
Ambient Temperature 24.7 °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.