

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO COMMERCIAL

Report Number: P776558

Luminaire Tested: HCDJBS4050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776558  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B034)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS4050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K  
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5726.3 lumens  
Efficiency: N/A  
Efficacy: 119.3 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.22  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

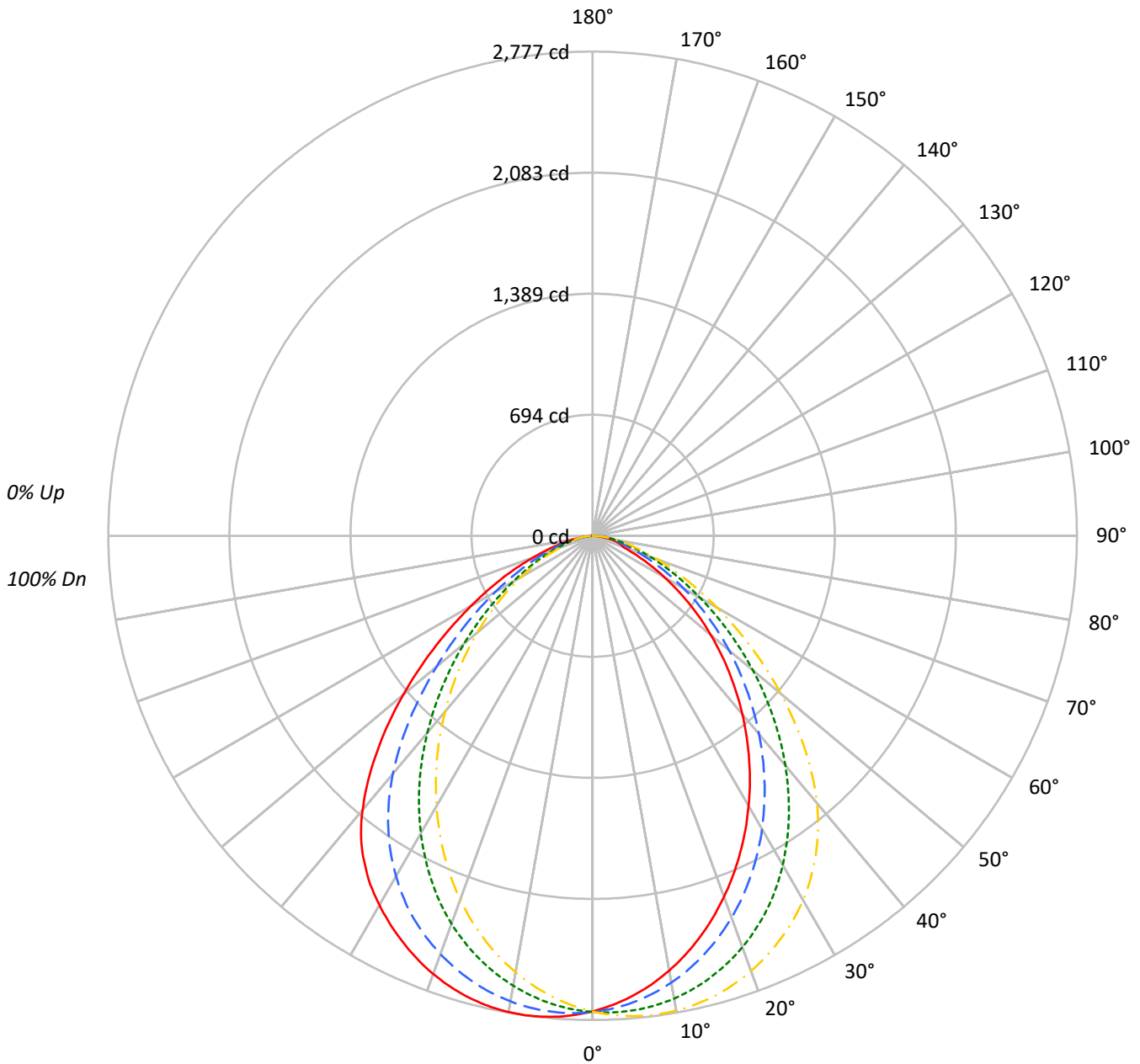
Input Watts (W): 48  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87																			
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75																			
3	94	84	77	71	91	83	76	71	80	74	70	77	72	68	75	71	67	65																			
4	87	76	68	62	84	74	67	61	72	66	61	70	64	60	68	63	59	57																			
5	80	68	60	54	78	67	60	54	65	59	53	63	57	53	62	56	52	50																			
6	74	62	54	48	73	61	53	48	59	53	47	58	52	47	56	51	47	45																			
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40																			
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36																			
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	35	33																			
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	343507	343507	343507	343507
5°	334536	345122	349898	340347
10°	323542	344397	354493	334864
15°	310297	341462	357240	327195
20°	295121	336263	358120	316977
25°	278220	328445	357286	303270
30°	260004	316810	355334	286220
35°	240330	301338	350824	265833
40°	219337	282456	337179	242124
45°	196987	260098	311017	215888
50°	173233	234690	277313	188406
55°	147511	207257	240235	159798
60°	119608	179210	202694	132721
65°	91212	152913	168011	108454
70°	69029	129412	132245	86618
75°	72353	108190	103765	69096
80°	66241	94651	73851	53051
85°	33211	96024	20793	28302

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°

Vertical Angle: 89.5°

Luminance: 351885 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	257.0	4.5
10°-20°	721.9	12.6
20°-30°	1049.7	18.3
30°-40°	1175.8	20.5
40°-50°	1063.7	18.6
50°-60°	772.5	13.5
60°-70°	442.0	7.7
70°-80°	196.2	3.4
80°-90°	47.5	0.8
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	2028.6	35.4
0°-40°	3204.4	56.0
0°-60°	5040.6	88.0
0°-90°	5726.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5726.3	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2730	2730	2730	2730	2730	
5°	2648	2732	2770	2694	2648	249
15°	2382	2621	2742	2511	2382	669
25°	2004	2365	2573	2184	2004	920
35°	1564	1961	2284	1730	1564	976
45°	1107	1461	1748	1213	1107	853
55°	672	945	1095	728	672	602
65°	306	514	564	364	306	309
75°	149	222	213	142	149	153
85°	23	66	14	20	23	36
90°	0	14	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5
0.5°	2721.8	2728.5	2728.5	2728.0	2733.3	2733.3	2733.8	2733.8	2733.8	2737.6	2733.8
1°	2714.6	2723.2	2725.2	2727.1	2734.7	2736.6	2738.6	2739.5	2739.0	2741.4	2736.2
1.5°	2707.9	2718.0	2721.3	2725.6	2735.2	2740.0	2743.3	2744.8	2744.3	2745.3	2738.1
2°	2700.3	2711.8	2717.5	2723.7	2736.2	2742.4	2747.7	2750.0	2749.1	2748.6	2739.5
2.5°	2692.6	2705.5	2713.2	2721.8	2736.2	2744.8	2751.5	2754.4	2753.4	2751.5	2740.5
3°	2684.0	2698.8	2708.4	2719.4	2736.2	2746.7	2754.8	2758.7	2757.7	2753.9	2741.0
3.5°	2675.9	2691.7	2703.2	2716.6	2735.7	2748.6	2758.2	2762.5	2761.1	2756.3	2741.4
4°	2666.8	2684.5	2697.9	2713.2	2734.7	2750.0	2761.1	2765.8	2764.4	2757.7	2741.0
4.5°	2657.7	2676.8	2691.7	2709.9	2733.3	2751.0	2763.4	2769.2	2767.3	2759.1	2740.5
5°	2648.1	2668.2	2685.4	2706.0	2731.9	2751.5	2765.4	2772.1	2769.7	2760.1	2740.0
5.5°	2638.1	2660.1	2678.7	2701.7	2729.9	2751.5	2766.8	2774.0	2771.6	2761.1	2738.6
6°	2627.5	2651.0	2671.6	2696.9	2727.6	2751.0	2768.2	2776.4	2773.5	2761.1	2737.1
6.5°	2617.0	2641.9	2664.4	2691.7	2724.7	2750.5	2769.2	2777.8	2774.9	2761.1	2735.2
7°	2606.0	2632.3	2656.7	2686.4	2721.3	2749.6	2769.7	2778.8	2775.9	2760.6	2732.8
7.5°	2594.5	2622.3	2648.6	2680.7	2718.0	2748.6	2769.7	2779.7	2776.4	2759.6	2730.4
8°	2582.6	2611.8	2640.0	2674.4	2714.2	2746.7	2769.7	2780.2	2776.8	2758.7	2727.1
8.5°	2570.6	2600.7	2630.9	2667.7	2709.9	2744.3	2769.2	2780.2	2776.4	2757.2	2723.7
9°	2558.2	2589.7	2621.8	2661.0	2705.5	2741.9	2767.8	2780.2	2775.9	2754.8	2720.4
9.5°	2544.8	2578.3	2612.2	2653.4	2700.3	2739.0	2766.8	2779.2	2775.4	2752.9	2716.1
10°	2531.8	2566.3	2602.2	2645.7	2695.0	2736.2	2764.9	2778.3	2774.0	2750.0	2711.8
10.5°	2518.0	2553.9	2591.7	2637.6	2688.8	2732.3	2763.0	2776.8	2772.5	2747.2	2707.0
11°	2504.6	2541.9	2581.1	2629.5	2682.6	2728.5	2760.6	2774.9	2770.1	2743.8	2701.7
11.5°	2489.7	2528.5	2570.1	2620.8	2676.4	2724.2	2757.7	2773.0	2768.2	2740.0	2696.5
12°	2475.4	2516.1	2558.6	2611.3	2669.7	2719.4	2754.8	2770.6	2765.4	2736.2	2690.7
12.5°	2460.5	2502.2	2546.7	2602.2	2662.5	2714.6	2751.0	2767.8	2762.5	2731.9	2684.5
13°	2445.2	2488.3	2534.7	2592.1	2654.8	2709.4	2747.2	2764.4	2759.1	2727.1	2678.3
13.5°	2429.9	2473.9	2522.3	2581.6	2647.2	2703.6	2743.3	2760.6	2755.3	2721.8	2671.1
14°	2414.1	2459.6	2509.4	2571.1	2638.6	2697.4	2738.6	2756.7	2751.0	2716.6	2663.9
14.5°	2397.9	2444.8	2496.0	2560.1	2629.9	2690.7	2733.8	2752.4	2746.2	2710.8	2656.3
15°	2381.6	2429.9	2483.0	2549.1	2620.8	2684.0	2728.5	2748.1	2741.9	2704.6	2649.1
15.5°	2364.8	2413.6	2468.7	2537.1	2611.3	2676.8	2722.8	2742.9	2736.6	2697.9	2640.5
16°	2348.1	2398.3	2454.8	2525.1	2601.2	2669.2	2716.6	2737.6	2730.9	2691.2	2631.9
16.5°	2330.4	2382.5	2440.0	2513.2	2591.7	2661.5	2710.3	2731.9	2724.7	2684.0	2623.2
17°	2313.2	2366.3	2425.6	2500.7	2581.1	2653.4	2703.6	2726.1	2718.9	2676.4	2614.1
17.5°	2295.5	2349.5	2410.3	2487.3	2570.1	2644.8	2696.5	2719.4	2712.2	2668.2	2604.6
18°	2277.7	2332.8	2395.0	2473.9	2559.1	2635.7	2689.3	2712.7	2705.1	2660.6	2595.0
18.5°	2259.1	2315.6	2379.2	2460.1	2547.6	2626.6	2681.6	2705.5	2697.9	2652.0	2584.5
19°	2240.4	2297.8	2363.4	2445.7	2535.7	2617.0	2673.5	2698.4	2690.2	2642.9	2574.4
19.5°	2222.2	2280.1	2346.7	2431.4	2523.7	2607.0	2664.9	2690.2	2682.1	2633.8	2563.9
20°	2203.6	2262.4	2330.4	2417.0	2510.8	2596.9	2656.3	2682.1	2674.0	2624.7	2552.9
20.5°	2184.0	2244.3	2313.6	2401.7	2497.9	2586.4	2647.2	2674.0	2665.3	2614.6	2541.4
21°	2164.8	2225.6	2296.4	2386.4	2484.5	2575.4	2637.6	2664.9	2656.3	2604.6	2529.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	2105.5	2169.1	2243.3	2338.0	2442.4	2540.5	2607.4	2636.6	2627.5	2572.5	2493.1
23°	2085.9	2150.0	2225.1	2321.8	2428.0	2528.0	2596.9	2626.6	2617.0	2561.5	2480.2
23.5°	2065.3	2129.9	2206.4	2304.5	2412.7	2515.1	2585.9	2616.5	2607.0	2550.0	2467.2
24°	2044.7	2111.2	2187.8	2286.8	2397.4	2502.7	2574.4	2605.5	2596.0	2538.1	2453.4
24.5°	2024.1	2091.1	2168.6	2269.1	2381.6	2488.8	2562.9	2594.5	2585.0	2526.1	2439.0
25°	2003.6	2070.6	2149.0	2251.4	2365.3	2475.4	2551.0	2583.5	2573.0	2514.1	2424.7
25.5°	1982.5	2050.5	2129.4	2232.8	2348.6	2461.0	2539.0	2571.6	2561.5	2501.7	2409.8
26°	1961.9	2030.4	2108.8	2214.1	2331.8	2446.2	2526.6	2560.1	2550.0	2488.8	2394.5
26.5°	1940.4	2009.8	2089.2	2194.5	2314.1	2431.4	2513.7	2548.1	2537.6	2475.4	2378.7
27°	1919.3	1988.7	2069.1	2175.8	2295.9	2416.5	2500.7	2536.1	2525.1	2462.0	2362.0
27.5°	1897.8	1967.7	2048.5	2156.2	2277.7	2400.2	2487.3	2523.7	2512.7	2448.6	2345.2
28°	1876.3	1946.6	2027.0	2135.6	2259.1	2384.0	2473.5	2510.3	2499.3	2434.7	2328.0
28.5°	1854.7	1925.6	2006.9	2115.1	2239.9	2367.2	2458.6	2497.9	2486.4	2419.4	2309.8
29°	1832.7	1904.0	1985.9	2094.0	2220.3	2350.5	2444.3	2484.5	2473.0	2404.6	2291.6
29.5°	1810.7	1882.5	1964.8	2073.4	2200.2	2332.3	2429.0	2471.1	2459.6	2388.8	2273.4
30°	1789.2	1861.0	1941.8	2052.4	2180.1	2314.1	2413.6	2457.2	2445.2	2373.0	2254.8
30.5°	1766.7	1839.4	1920.8	2030.4	2160.0	2295.0	2397.4	2442.8	2431.4	2356.2	2235.2
31°	1744.2	1816.9	1898.8	2008.8	2139.0	2275.8	2380.6	2428.0	2417.0	2339.0	2215.5
31.5°	1722.2	1795.4	1876.7	1986.8	2117.4	2256.2	2363.9	2413.2	2402.6	2321.8	2195.9
32°	1700.2	1772.9	1853.8	1964.3	2095.9	2237.1	2346.2	2397.9	2387.3	2304.1	2175.3
32.5°	1677.7	1750.4	1831.8	1942.8	2074.4	2216.5	2327.5	2381.6	2372.5	2285.4	2154.8
33°	1655.2	1728.4	1808.8	1919.3	2052.4	2196.4	2308.9	2364.8	2356.2	2266.3	2133.2
33.5°	1632.7	1705.9	1786.8	1896.8	2029.9	2175.3	2289.7	2348.1	2338.5	2246.6	2111.7
34°	1610.2	1683.4	1763.3	1874.4	2007.4	2154.3	2270.6	2330.4	2319.9	2228.0	2089.2
34.5°	1587.2	1660.9	1740.9	1851.4	1983.9	2132.8	2251.0	2312.2	2301.7	2206.9	2066.7
35°	1564.3	1638.0	1717.4	1827.9	1961.4	2110.7	2230.9	2293.1	2283.5	2186.4	2043.8
35.5°	1541.8	1615.5	1694.4	1804.0	1938.0	2088.7	2210.3	2274.4	2265.3	2164.8	2019.3
36°	1518.8	1592.5	1671.0	1780.6	1914.6	2066.2	2189.2	2254.3	2245.7	2142.8	1995.4
36.5°	1496.3	1570.0	1648.5	1757.1	1891.1	2042.8	2167.7	2234.7	2225.1	2118.4	1970.1
37°	1472.9	1547.1	1625.5	1733.7	1867.2	2019.3	2145.7	2213.6	2203.6	2094.5	1944.7
37.5°	1450.4	1523.6	1601.1	1709.7	1842.3	1995.9	2122.7	2192.6	2181.6	2069.6	1918.9
38°	1426.9	1500.6	1578.2	1685.3	1817.9	1971.5	2099.3	2170.1	2157.2	2043.8	1892.5
38.5°	1404.9	1478.1	1554.2	1661.4	1793.5	1946.6	2075.8	2146.6	2132.8	2017.0	1865.7
39°	1382.0	1454.7	1530.8	1636.5	1768.6	1922.7	2051.4	2121.3	2107.4	1989.7	1837.5
39.5°	1358.5	1432.2	1507.3	1613.6	1743.7	1897.3	2027.0	2095.4	2079.6	1961.4	1809.8
40°	1335.1	1409.2	1483.9	1589.2	1719.3	1872.0	2000.7	2068.2	2052.4	1932.7	1781.0
40.5°	1313.1	1386.3	1460.4	1564.3	1693.5	1845.6	1974.4	2041.4	2024.1	1903.1	1751.9
41°	1289.1	1363.3	1436.5	1539.9	1668.1	1819.8	1946.6	2012.6	1995.4	1872.9	1722.7
41.5°	1266.6	1340.3	1413.5	1515.9	1642.8	1793.5	1920.3	1984.9	1965.8	1842.3	1693.5
42°	1243.7	1316.9	1390.1	1491.1	1616.9	1766.2	1891.6	1955.2	1935.6	1811.2	1663.3
42.5°	1221.2	1294.4	1366.2	1466.7	1591.1	1739.4	1863.4	1927.0	1905.5	1780.6	1633.2
43°	1198.2	1271.4	1342.7	1442.7	1565.7	1712.6	1834.2	1896.8	1874.8	1747.5	1602.6
43.5°	1175.7	1248.9	1319.3	1418.3	1539.9	1684.9	1805.5	1866.7	1843.3	1715.5	1571.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1106.8	1180.5	1249.4	1345.1	1461.4	1600.2	1716.0	1773.9	1747.5	1617.9	1478.1
45.5°	1085.3	1157.5	1226.0	1320.2	1435.6	1571.9	1686.3	1742.8	1715.0	1585.3	1447.0
46°	1062.3	1135.0	1203.0	1295.8	1409.2	1542.7	1655.2	1711.2	1682.5	1552.8	1415.0
46.5°	1039.8	1113.0	1180.0	1271.9	1382.4	1514.5	1625.0	1679.1	1649.0	1519.8	1383.9
47°	1017.3	1090.1	1157.1	1247.5	1356.1	1485.3	1594.4	1646.6	1616.0	1486.8	1352.3
47.5°	995.3	1067.6	1134.1	1223.6	1329.8	1456.6	1563.3	1614.0	1582.5	1454.2	1321.7
48°	972.8	1045.1	1111.1	1199.2	1304.0	1427.9	1532.2	1582.0	1549.4	1421.7	1290.6
48.5°	950.8	1023.1	1088.2	1175.2	1277.6	1398.7	1501.6	1549.9	1516.4	1389.6	1259.9
49°	928.8	1001.1	1065.7	1151.3	1251.3	1370.0	1470.5	1516.9	1482.5	1356.6	1229.8
49.5°	907.3	978.6	1043.6	1127.9	1225.0	1341.3	1439.4	1484.4	1449.4	1325.0	1199.6
50°	884.8	957.0	1020.7	1104.4	1198.7	1312.6	1408.3	1451.3	1416.4	1292.5	1169.5
50.5°	863.2	935.0	998.2	1080.0	1172.8	1283.9	1377.7	1418.3	1382.9	1261.4	1139.4
51°	841.7	913.0	976.2	1056.1	1146.5	1254.7	1346.6	1386.3	1350.4	1229.8	1110.6
51.5°	820.2	891.0	954.2	1033.1	1120.7	1226.9	1315.9	1353.7	1316.9	1198.2	1081.5
52°	799.1	869.5	932.6	1010.2	1095.3	1198.2	1285.8	1321.2	1284.3	1167.6	1052.7
52.5°	778.1	847.9	910.6	987.2	1070.0	1170.0	1254.7	1288.2	1251.8	1137.0	1024.5
53°	756.5	826.9	888.6	963.3	1044.6	1141.7	1224.1	1256.1	1220.2	1106.8	996.3
53.5°	734.5	804.9	867.1	940.8	1018.8	1114.5	1193.9	1224.1	1188.2	1076.2	968.5
54°	713.9	784.3	846.0	917.8	993.9	1086.2	1163.8	1192.5	1155.6	1047.0	941.2
54.5°	692.9	762.8	824.5	894.8	969.5	1059.4	1134.6	1159.9	1125.0	1017.8	914.4
55°	672.3	742.7	803.4	872.8	944.6	1032.6	1105.4	1130.3	1094.9	989.1	888.1
55.5°	651.7	721.6	782.4	850.3	920.2	1005.8	1075.7	1098.2	1063.3	960.4	860.9
56°	631.2	701.5	761.8	827.8	895.3	978.6	1046.0	1067.6	1033.1	931.7	835.5
56.5°	610.6	680.9	741.2	805.8	871.9	952.3	1017.3	1036.9	1003.0	903.9	810.6
57°	590.5	660.8	720.6	784.3	848.4	926.4	989.1	1006.8	973.3	876.6	785.2
57.5°	570.9	640.7	700.1	762.3	825.0	901.1	961.3	977.1	944.1	849.8	760.8
58°	550.8	621.1	680.0	740.7	801.5	875.2	933.1	947.9	915.9	823.5	736.9
58.5°	531.6	601.5	660.4	719.7	779.0	850.3	905.8	919.2	887.2	796.7	713.0
59°	512.5	582.8	640.7	699.1	756.1	825.4	878.6	891.0	858.9	771.4	690.0
59.5°	493.4	563.2	620.2	678.5	734.0	801.0	851.8	863.2	831.7	746.0	667.1
60°	475.2	544.6	601.0	658.4	712.0	776.6	825.4	836.0	805.3	721.6	644.6
60.5°	456.5	525.4	581.4	637.9	690.5	753.2	799.1	808.7	778.1	697.2	622.1
61°	438.3	507.2	562.7	618.2	669.4	729.7	773.8	782.4	752.7	673.3	601.0
61.5°	420.6	489.0	543.6	598.6	649.3	706.8	748.9	756.5	726.9	649.8	580.0
62°	403.4	471.3	525.9	580.0	628.3	684.3	724.0	731.2	702.9	627.8	559.4
62.5°	385.7	453.6	507.7	560.8	608.7	661.8	699.6	705.8	678.1	604.8	538.8
63°	369.4	436.4	490.0	542.6	588.6	639.8	675.7	681.4	653.7	582.8	519.2
63.5°	353.1	419.2	472.3	524.9	569.4	618.2	652.2	657.5	630.7	561.3	499.6
64°	337.4	402.0	456.0	507.2	550.3	597.2	629.3	634.5	607.7	541.7	480.9
64.5°	321.1	385.2	438.8	489.5	532.1	576.6	606.8	611.5	585.2	520.6	462.7
65°	306.3	369.4	422.5	472.8	513.5	556.5	585.2	589.1	564.2	501.0	445.0
65.5°	290.9	353.6	406.3	456.5	495.7	536.4	563.7	567.5	542.2	480.9	427.3
66°	276.1	337.8	390.9	440.2	478.5	516.8	542.6	546.0	519.7	462.2	410.6





TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	235.9	292.9	345.0	392.4	428.8	461.3	483.3	485.2	456.0	408.7	361.3
68°	223.9	279.0	331.1	377.6	413.4	443.1	463.7	465.1	435.9	390.9	346.4
68.5°	212.9	265.1	316.8	362.7	398.1	425.9	445.5	446.0	416.8	373.2	331.6
69°	202.4	251.7	302.9	348.4	382.3	409.6	427.8	427.8	397.6	355.5	317.3
69.5°	193.3	238.8	289.5	334.0	367.0	393.3	411.0	410.1	378.5	338.8	303.4
70°	187.6	226.3	276.1	320.1	351.7	377.6	394.3	392.4	359.4	323.0	289.5
70.5°	184.2	214.4	263.7	306.3	336.9	361.3	377.6	375.2	343.1	307.2	276.6
71°	180.9	203.8	251.2	293.3	323.0	346.0	360.8	357.5	326.8	292.4	263.7
71.5°	177.5	193.8	239.7	279.9	309.1	331.1	345.5	340.7	310.1	278.0	251.2
72°	174.2	185.7	228.3	267.5	295.7	317.3	330.2	324.9	294.8	264.1	239.3
72.5°	169.9	179.9	217.2	255.5	282.8	302.9	315.3	309.6	279.9	250.7	227.3
73°	165.6	175.6	207.2	243.6	269.9	289.5	301.9	294.8	265.6	237.3	215.8
73.5°	161.7	171.8	197.1	232.1	257.4	276.1	287.6	280.4	251.7	224.4	204.8
74°	157.4	168.0	188.1	221.1	245.5	264.1	274.2	266.5	238.8	212.0	193.8
74.5°	153.6	164.6	179.0	210.5	234.0	251.7	261.3	253.1	225.9	200.0	183.3
75°	148.8	160.8	170.8	200.5	222.5	239.7	249.3	240.2	213.4	188.5	173.2
75.5°	144.0	157.0	165.1	190.5	211.5	227.8	236.4	227.8	201.5	177.1	163.2
76°	138.8	152.6	159.3	181.4	201.5	216.8	224.9	215.3	189.5	166.0	153.1
76.5°	133.0	147.9	153.6	172.3	190.9	206.2	213.4	203.4	178.5	155.0	143.6
77°	127.8	143.1	147.4	164.6	181.4	195.7	202.4	191.4	167.0	144.5	134.5
77.5°	122.0	138.3	143.1	157.4	172.3	185.7	191.4	180.4	156.0	134.0	125.4
78°	116.3	133.0	139.2	150.3	163.2	175.6	180.9	169.4	145.0	123.9	115.8
78.5°	110.1	128.2	135.4	143.1	154.6	166.5	170.8	158.9	134.0	113.9	107.2
79°	103.8	122.5	131.1	135.9	146.4	157.4	160.8	148.3	123.0	103.8	98.6
79.5°	97.6	117.2	126.8	129.7	138.3	148.8	151.2	137.8	112.5	94.3	90.0
80°	91.4	111.5	122.0	123.5	130.6	140.2	142.1	127.8	101.9	85.2	81.8
80.5°	84.7	105.8	117.2	118.2	123.5	132.1	133.0	118.7	91.4	75.6	74.2
81°	78.0	99.5	112.5	112.9	116.3	123.9	123.9	108.6	80.9	67.0	66.5
81.5°	71.3	93.8	107.2	107.7	109.6	116.3	115.3	99.5	70.3	58.4	58.9
82°	64.6	87.1	101.9	102.4	102.9	108.6	106.2	90.4	59.8	51.2	51.7
82.5°	57.9	80.9	96.7	97.6	96.7	101.4	97.6	81.8	51.7	44.5	45.5
83°	50.2	74.2	91.4	92.4	90.4	93.8	89.5	73.2	43.1	37.8	39.2
83.5°	43.1	67.5	85.7	88.0	84.2	86.6	81.3	65.6	34.5	31.1	33.0
84°	35.9	60.8	80.4	83.3	78.0	79.4	73.7	57.4	26.3	24.4	26.8
84.5°	29.2	54.1	74.6	78.5	72.3	72.7	66.5	50.7	17.7	19.6	21.1
85°	23.0	47.4	69.4	73.7	66.5	66.0	59.3	44.0	14.4	15.3	15.3
85.5°	18.7	41.2	64.1	68.9	61.3	59.8	52.6	37.8	11.5	11.0	11.0
86°	16.3	35.9	58.9	63.6	56.0	53.6	46.9	31.1	9.6	7.2	6.7
86.5°	13.4	31.6	53.6	58.4	50.7	47.9	40.7	24.4	7.7	3.8	3.8
87°	11.0	27.8	48.3	52.6	45.9	42.1	34.5	19.1	5.7	1.9	1.4
87.5°	8.6	23.9	42.6	47.4	40.7	36.4	28.2	13.9	4.8	1.0	0.0
88°	6.2	20.1	37.3	41.6	35.4	30.6	22.0	9.6	2.9	0.5	0.0
88.5°	3.8	16.3	31.6	36.4	30.6	24.9	16.7	5.7	1.4	0.0	0.0



TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	5.3	15.8	18.2	14.4	10.5	3.8	0.5	0.0	0.0	0.0



TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2729.5	2729.5	2729.5	2729.5	2729.5	2729.5
0.5°	2728.5	2729.5	2725.2	2722.3	2721.3	2721.8
1°	2728.5	2727.1	2720.9	2716.1	2714.2	2714.6
1.5°	2728.0	2724.2	2715.6	2709.4	2707.0	2707.9
2°	2727.1	2720.9	2710.3	2702.7	2699.3	2700.3
2.5°	2725.6	2717.5	2704.6	2696.0	2691.7	2692.6
3°	2724.2	2713.7	2698.4	2687.8	2683.5	2684.0
3.5°	2721.8	2709.4	2692.1	2680.2	2674.9	2675.9
4°	2719.9	2704.6	2685.4	2671.6	2665.3	2666.8
4.5°	2717.0	2699.8	2677.8	2663.0	2655.8	2657.7
5°	2713.7	2694.1	2670.6	2653.9	2646.2	2648.1
5.5°	2710.3	2688.3	2662.5	2644.3	2636.2	2638.1
6°	2706.5	2682.6	2653.9	2634.2	2625.6	2627.5
6.5°	2702.2	2675.9	2645.7	2624.2	2614.6	2617.0
7°	2697.4	2669.2	2636.6	2613.7	2603.1	2606.0
7.5°	2692.6	2662.0	2627.1	2602.7	2591.7	2594.5
8°	2687.4	2654.3	2617.5	2591.2	2579.2	2582.6
8.5°	2681.6	2646.7	2607.0	2579.7	2566.8	2570.6
9°	2675.9	2638.1	2596.9	2567.7	2554.3	2558.2
9.5°	2669.2	2629.5	2585.4	2555.3	2540.9	2544.8
10°	2662.5	2620.4	2574.4	2542.4	2527.5	2531.8
10.5°	2655.8	2611.3	2562.9	2529.4	2514.1	2518.0
11°	2648.1	2601.2	2551.0	2516.1	2499.8	2504.6
11.5°	2640.5	2591.7	2539.0	2502.7	2485.4	2489.7
12°	2632.3	2580.7	2526.1	2488.3	2470.6	2475.4
12.5°	2624.2	2570.1	2513.2	2473.5	2455.8	2460.5
13°	2615.1	2559.1	2499.8	2459.1	2440.4	2445.2
13.5°	2606.0	2547.6	2486.4	2443.8	2424.2	2429.9
14°	2596.4	2535.7	2472.0	2428.5	2408.9	2414.1
14.5°	2586.9	2523.7	2458.2	2412.7	2392.6	2397.9
15°	2576.8	2511.3	2443.3	2396.9	2375.8	2381.6
15.5°	2566.3	2497.9	2428.0	2380.2	2359.1	2364.8
16°	2555.3	2484.9	2412.7	2363.9	2341.9	2348.1
16.5°	2544.3	2472.0	2397.4	2347.1	2324.6	2330.4
17°	2532.8	2457.7	2381.6	2329.9	2306.5	2313.2
17.5°	2521.3	2443.3	2364.8	2312.2	2288.3	2295.5
18°	2508.9	2429.0	2348.6	2294.5	2270.6	2277.7
18.5°	2496.9	2414.1	2331.3	2276.3	2251.9	2259.1
19°	2484.0	2398.8	2314.1	2258.1	2233.2	2240.4
19.5°	2471.1	2383.5	2296.4	2239.0	2214.1	2222.2
20°	2457.7	2366.8	2278.2	2220.3	2195.4	2203.6
20.5°	2443.8	2350.5	2260.0	2201.2	2176.3	2184.0
21°	2429.0	2333.3	2241.4	2181.6	2156.7	2164.8

TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2384.5	2281.1	2183.0	2121.3	2096.4	2105.5
23°	2368.2	2262.0	2162.9	2100.7	2076.3	2085.9
23.5°	2351.9	2243.8	2142.3	2079.6	2055.7	2065.3
24°	2334.7	2224.2	2121.8	2058.6	2034.7	2044.7
24.5°	2317.9	2204.5	2100.7	2037.1	2013.6	2024.1
25°	2299.8	2184.0	2079.2	2015.5	1992.1	2003.6
25.5°	2282.1	2164.3	2058.1	1994.0	1971.0	1982.5
26°	2262.9	2144.2	2035.6	1972.0	1949.5	1961.9
26.5°	2244.3	2123.7	2014.6	1949.5	1927.5	1940.4
27°	2225.1	2101.7	1991.6	1927.5	1905.9	1919.3
27.5°	2205.5	2080.6	1969.6	1905.0	1883.9	1897.8
28°	2185.4	2058.6	1946.1	1882.0	1861.4	1876.3
28.5°	2165.8	2037.1	1924.1	1859.5	1838.9	1854.7
29°	2144.7	2015.0	1900.7	1836.6	1816.9	1832.7
29.5°	2123.7	1992.6	1878.2	1813.6	1794.4	1810.7
30°	2103.1	1969.6	1854.3	1790.6	1772.0	1789.2
30.5°	2082.0	1946.6	1830.8	1767.2	1749.0	1766.7
31°	2060.0	1923.6	1806.9	1743.7	1726.5	1744.2
31.5°	2037.5	1900.2	1783.4	1720.3	1703.5	1722.2
32°	2015.0	1876.3	1759.5	1696.3	1680.6	1700.2
32.5°	1992.1	1852.8	1735.1	1673.9	1657.1	1677.7
33°	1969.1	1828.9	1711.2	1649.5	1634.6	1655.2
33.5°	1945.2	1805.0	1687.3	1626.0	1611.2	1632.7
34°	1921.3	1780.1	1663.3	1601.6	1588.2	1610.2
34.5°	1897.3	1755.2	1638.9	1577.7	1565.2	1587.2
35°	1872.9	1730.3	1613.6	1554.2	1541.8	1564.3
35.5°	1847.6	1705.9	1589.2	1530.3	1518.8	1541.8
36°	1822.2	1681.0	1565.2	1506.4	1495.4	1518.8
36.5°	1796.8	1655.2	1540.8	1482.9	1472.4	1496.3
37°	1770.5	1629.4	1515.9	1458.5	1449.4	1472.9
37.5°	1744.2	1604.0	1491.1	1434.6	1426.0	1450.4
38°	1716.9	1578.2	1466.2	1410.7	1402.5	1426.9
38.5°	1691.6	1552.3	1441.8	1387.2	1379.6	1404.9
39°	1663.8	1526.5	1417.4	1363.3	1356.6	1382.0
39.5°	1636.1	1500.2	1392.5	1340.3	1333.6	1358.5
40°	1608.8	1473.8	1367.6	1315.9	1309.7	1335.1
40.5°	1581.0	1447.5	1342.7	1292.5	1287.2	1313.1
41°	1553.3	1421.7	1318.3	1268.6	1264.2	1289.1
41.5°	1525.5	1395.4	1293.4	1245.6	1241.3	1266.6
42°	1497.8	1369.5	1269.0	1222.6	1217.8	1243.7
42.5°	1470.0	1343.7	1244.6	1198.7	1195.8	1221.2
43°	1440.8	1317.4	1220.7	1175.7	1173.3	1198.2
43.5°	1412.6	1291.0	1195.8	1152.3	1149.9	1175.7

TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1327.4	1213.0	1124.0	1083.8	1082.4	1106.8
45.5°	1299.7	1188.2	1100.6	1060.9	1059.9	1085.3
46°	1270.5	1162.8	1077.1	1038.9	1037.9	1062.3
46.5°	1242.7	1137.0	1053.7	1016.4	1015.4	1039.8
47°	1214.0	1111.6	1029.8	994.4	993.9	1017.3
47.5°	1185.8	1086.2	1006.3	971.9	971.9	995.3
48°	1157.5	1061.4	983.4	949.4	949.9	972.8
48.5°	1129.8	1036.0	959.9	927.8	927.8	950.8
49°	1102.5	1011.6	937.9	906.3	906.3	928.8
49.5°	1074.8	987.2	914.9	883.8	885.3	907.3
50°	1046.5	962.3	892.0	862.3	864.2	884.8
50.5°	1019.2	937.9	869.5	841.2	842.2	863.2
51°	993.4	913.5	847.9	820.2	821.1	841.7
51.5°	966.1	889.6	826.4	798.2	800.6	820.2
52°	939.8	866.1	804.4	778.5	780.0	799.1
52.5°	913.5	842.7	782.9	757.5	759.4	778.1
53°	888.1	818.7	762.3	736.9	738.8	756.5
53.5°	862.3	796.3	741.2	716.3	718.3	734.5
54°	838.4	772.8	720.6	696.7	698.2	713.9
54.5°	813.5	750.8	700.6	677.1	678.5	692.9
55°	789.1	728.3	680.5	657.5	658.9	672.3
55.5°	764.7	707.3	660.8	638.3	639.3	651.7
56°	741.7	685.2	641.2	619.7	619.7	631.2
56.5°	718.7	665.1	622.6	601.0	600.5	610.6
57°	696.2	643.6	603.4	582.4	581.4	590.5
57.5°	674.2	623.5	584.7	564.2	562.3	570.9
58°	652.2	603.4	566.6	546.5	544.6	550.8
58.5°	630.7	584.3	548.4	528.8	525.4	531.6
59°	609.6	564.7	531.2	512.0	507.7	512.5
59.5°	589.1	546.5	513.5	494.8	489.5	493.4
60°	569.0	527.3	496.2	478.5	472.3	475.2
60.5°	548.9	509.6	479.5	461.3	454.6	456.5
61°	530.2	491.9	462.7	445.5	437.8	438.3
61.5°	511.1	474.7	446.9	429.7	421.1	420.6
62°	492.9	457.9	430.7	414.4	405.3	403.4
62.5°	474.7	441.2	414.4	398.6	389.0	385.7
63°	457.0	424.9	399.1	383.3	373.7	369.4
63.5°	440.2	409.6	383.8	368.5	358.4	353.1
64°	423.5	393.3	368.9	353.6	343.6	337.4
64.5°	407.7	379.0	354.1	339.3	329.2	321.1
65°	392.4	364.2	340.2	324.9	315.3	306.3
65.5°	376.6	349.8	325.9	311.0	301.5	290.9
66°	360.8	335.4	312.0	297.2	288.1	276.1



TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	318.2	295.7	273.2	258.4	248.4	235.9
68°	304.3	282.8	261.3	246.4	235.4	223.9
68.5°	291.4	270.4	249.3	235.0	223.0	212.9
69°	278.5	258.4	237.8	223.9	211.0	202.4
69.5°	266.1	246.4	226.8	212.9	199.5	193.3
70°	254.1	235.4	216.3	202.9	189.0	187.6
70.5°	242.6	224.4	205.8	193.8	179.9	184.2
71°	230.6	213.9	195.7	184.7	172.7	180.9
71.5°	219.6	203.4	186.6	176.1	169.4	177.5
72°	209.1	193.3	177.5	169.4	165.6	174.2
72.5°	199.1	183.8	171.8	162.7	162.2	169.9
73°	188.5	174.7	163.7	156.0	158.4	165.6
73.5°	179.0	166.5	155.5	149.8	154.6	161.7
74°	169.9	158.4	147.4	143.1	149.8	157.4
74.5°	160.8	150.3	139.2	138.3	145.5	153.6
75°	151.7	142.1	132.5	133.5	140.7	148.8
75.5°	143.6	133.5	126.3	129.2	135.4	144.0
76°	134.9	126.3	120.1	124.9	130.2	138.8
76.5°	126.8	119.2	113.9	120.6	124.9	133.0
77°	119.2	112.0	108.6	115.8	119.2	127.8
77.5°	111.5	105.3	102.9	110.5	113.9	122.0
78°	103.8	98.6	97.6	105.8	108.1	116.3
78.5°	96.2	91.9	91.9	100.5	101.9	110.1
79°	89.0	85.7	86.6	95.2	95.7	103.8
79.5°	81.8	79.0	81.8	90.0	89.5	97.6
80°	75.1	73.2	77.0	84.2	82.8	91.4
80.5°	68.4	67.5	72.3	79.0	76.6	84.7
81°	61.7	61.7	67.5	73.2	70.3	78.0
81.5°	55.5	56.5	62.7	67.5	63.6	71.3
82°	49.8	50.7	57.4	62.2	57.4	64.6
82.5°	44.0	45.5	52.2	56.5	51.2	57.9
83°	37.8	40.7	46.4	51.2	45.0	50.2
83.5°	32.1	35.4	41.2	45.9	39.2	43.1
84°	26.3	30.1	35.4	40.7	34.0	35.9
84.5°	20.6	24.9	29.7	35.4	29.2	29.2
85°	15.3	19.6	23.9	29.7	25.4	23.0
85.5°	10.5	14.8	17.7	23.9	21.5	18.7
86°	6.2	10.0	13.4	18.2	17.7	16.3
86.5°	2.4	5.3	9.1	13.9	14.4	13.4
87°	0.0	1.0	4.8	9.6	11.0	11.0
87.5°	0.0	0.0	0.5	4.8	7.2	8.6
88°	0.0	0.0	0.0	0.5	3.8	6.2
88.5°	0.0	0.0	0.0	0.5	1.0	3.8



TEST NUMBER: P776558

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.5	0.5	0.0



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Scaled Data Report





— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - 135°-315°

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Scaled Data Report



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Scaled Data Report





21.5°	2145.2	2206.9	2278.7	2370.6	2471.1	2563.9	2628.0	2655.8	2647.2	2594.0	2518.0
22°	2125.6	2188.3	2261.5	2354.8	2456.7	2552.4	2618.0	2646.7	2637.6	2583.5	2505.5



44°	1152.3	1226.0	1295.8	1393.4	1513.1	1656.6	1775.8	1835.6	1811.7	1682.9	1539.9
44.5°	1130.3	1203.0	1272.4	1369.0	1487.2	1628.4	1746.1	1805.0	1780.1	1651.4	1509.2



66.5°	262.2	322.0	375.2	424.0	461.3	497.7	522.1	525.4	497.7	444.1	394.3
67°	248.8	307.2	359.8	408.7	444.5	479.5	502.4	505.3	477.1	426.4	378.0



89°	1.4	12.4	25.4	30.1	25.4	20.1	11.5	2.9	0.5	0.0	0.0
89.5°	0.5	9.1	19.6	24.4	19.6	14.8	7.2	1.4	0.0	0.0	0.0



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21.5°	2414.1	2316.5	2222.2	2161.9	2136.6	2145.2
22°	2399.8	2298.8	2202.1	2141.8	2117.0	2125.6



44°	1383.9	1265.2	1172.4	1129.8	1127.4	1152.3
44.5°	1356.6	1239.4	1148.0	1106.3	1104.9	1130.3



66.5°	346.4	321.6	299.1	284.2	274.2	262.2
67°	332.1	308.2	285.7	271.3	261.3	248.8

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89°	0.0	0.0	0.0	0.5	0.5	1.4
89.5°	0.0	0.0	0.0	0.5	0.5	0.5

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Scaled Data Report



(END OF REPORT)