

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: P776559

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

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776559  
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-5000K  
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5811.1 lumens  
Efficiency: N/A  
Efficacy: 121.1 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

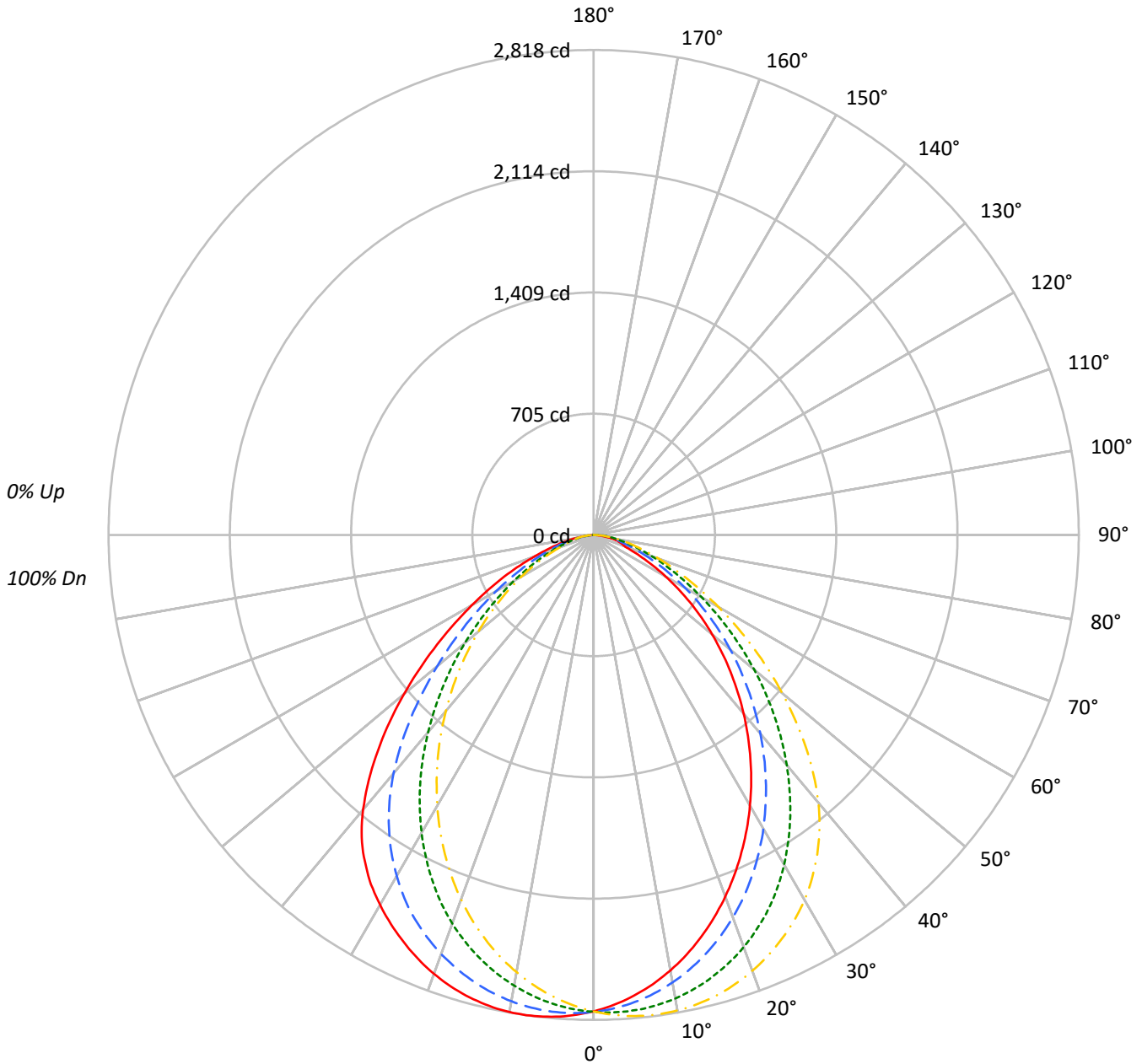
Input Watts (W): 48  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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

RF	20					20					20					20					20					
RC	80					70					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°	348591	348591	348591	348591
5°	339488	350226	355077	345388
10°	328334	349496	359732	339822
15°	314896	346530	362530	332042
20°	299487	341245	363423	321665
25°	282330	333305	362577	307755
30°	263855	321503	360594	290449
35°	243879	305809	356017	269766
40°	222574	286645	342173	245721
45°	199905	263942	315627	219092
50°	175798	238156	281425	191206
55°	149705	210329	243789	162168
60°	121370	181878	205714	134684
65°	92552	155176	170482	110032
70°	70060	131325	134195	87906
75°	73423	109794	105321	70117
80°	67256	96101	74938	53848
85°	33644	97468	21082	28735

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 89.5°  
 Luminance: 357653 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	260.8	4.5
10°-20°	732.6	12.6
20°-30°	1065.3	18.3
30°-40°	1193.2	20.5
40°-50°	1079.5	18.6
50°-60°	784.0	13.5
60°-70°	448.5	7.7
70°-80°	199.1	3.4
80°-90°	48.2	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°	2058.6	35.4
0°-40°	3251.8	56.0
0°-60°	5115.3	88.0
0°-90°	5811.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5811.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2770	2770	2770	2770	2770	
5°	2687	2772	2811	2734	2687	253
15°	2417	2660	2782	2548	2417	679
25°	2033	2400	2611	2216	2033	934
35°	1587	1990	2317	1756	1587	991
45°	1123	1483	1773	1231	1123	866
55°	682	959	1111	739	682	611
65°	311	521	572	370	311	314
75°	151	226	217	144	151	156
85°	23	68	15	20	23	37
90°	0	15	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°	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9
0.5°	2762.1	2768.9	2768.9	2768.4	2773.8	2773.8	2774.3	2774.3	2774.3	2778.1	2774.3
1°	2754.8	2763.6	2765.5	2767.5	2775.2	2777.2	2779.1	2780.1	2779.6	2782.0	2776.7
1.5°	2748.0	2758.2	2761.6	2766.0	2775.7	2780.6	2784.0	2785.4	2784.9	2785.9	2778.6
2°	2740.3	2751.9	2757.7	2764.1	2776.7	2783.0	2788.3	2790.8	2789.8	2789.3	2780.1
2.5°	2732.5	2745.6	2753.4	2762.1	2776.7	2785.4	2792.2	2795.1	2794.2	2792.2	2781.1
3°	2723.8	2738.8	2748.5	2759.7	2776.7	2787.4	2795.6	2799.5	2798.5	2794.7	2781.5
3.5°	2715.5	2731.5	2743.2	2756.8	2776.2	2789.3	2799.0	2803.4	2801.9	2797.1	2782.0
4°	2706.3	2724.2	2737.8	2753.4	2775.2	2790.8	2801.9	2806.8	2805.3	2798.5	2781.5
4.5°	2697.0	2716.5	2731.5	2750.0	2773.8	2791.7	2804.4	2810.2	2808.2	2800.0	2781.1
5°	2687.3	2707.7	2725.2	2746.1	2772.3	2792.2	2806.3	2813.1	2810.7	2801.0	2780.6
5.5°	2677.1	2699.5	2718.4	2741.7	2770.4	2792.2	2807.8	2815.0	2812.6	2801.9	2779.1
6°	2666.5	2690.2	2711.1	2736.9	2767.9	2791.7	2809.2	2817.5	2814.6	2801.9	2777.7
6.5°	2655.8	2681.0	2703.8	2731.5	2765.0	2791.3	2810.2	2818.9	2816.0	2801.9	2775.7
7°	2644.6	2671.3	2696.1	2726.2	2761.6	2790.3	2810.7	2819.9	2817.0	2801.5	2773.3
7.5°	2632.9	2661.1	2687.8	2720.4	2758.2	2789.3	2810.7	2820.9	2817.5	2800.5	2770.9
8°	2620.8	2650.4	2679.1	2714.0	2754.3	2787.4	2810.7	2821.4	2818.0	2799.5	2767.5
8.5°	2608.7	2639.3	2669.9	2707.2	2750.0	2784.9	2810.2	2821.4	2817.5	2798.1	2764.1
9°	2596.0	2628.1	2660.6	2700.4	2745.6	2782.5	2808.7	2821.4	2817.0	2795.6	2760.7
9.5°	2582.4	2616.4	2650.9	2692.7	2740.3	2779.6	2807.8	2820.4	2816.5	2793.7	2756.3
10°	2569.3	2604.3	2640.7	2684.9	2734.9	2776.7	2805.8	2819.4	2815.0	2790.8	2751.9
10.5°	2555.2	2591.7	2630.0	2676.7	2728.6	2772.8	2803.9	2818.0	2813.6	2787.9	2747.1
11°	2541.7	2579.5	2619.3	2668.4	2722.3	2768.9	2801.5	2816.0	2811.2	2784.5	2741.7
11.5°	2526.6	2565.9	2608.2	2659.7	2716.0	2764.5	2798.5	2814.1	2809.2	2780.6	2736.4
12°	2512.0	2553.3	2596.5	2649.9	2709.2	2759.7	2795.6	2811.6	2806.3	2776.7	2730.6
12.5°	2497.0	2539.2	2584.4	2640.7	2701.9	2754.8	2791.7	2808.7	2803.4	2772.3	2724.2
13°	2481.4	2525.1	2572.2	2630.5	2694.1	2749.5	2787.9	2805.3	2800.0	2767.5	2717.9
13.5°	2465.9	2510.6	2559.6	2619.8	2686.4	2743.7	2784.0	2801.5	2796.1	2762.1	2710.6
14°	2449.9	2496.0	2546.5	2609.2	2677.6	2737.4	2779.1	2797.6	2791.7	2756.8	2703.4
14.5°	2433.4	2481.0	2532.9	2598.0	2668.9	2730.6	2774.3	2793.2	2786.9	2750.9	2695.6
15°	2416.9	2465.9	2519.8	2586.8	2659.7	2723.8	2768.9	2788.8	2782.5	2744.6	2688.3
15.5°	2399.9	2449.4	2505.2	2574.7	2649.9	2716.5	2763.1	2783.5	2777.2	2737.8	2679.6
16°	2382.9	2433.8	2491.1	2562.5	2639.7	2708.7	2756.8	2778.1	2771.3	2731.0	2670.8
16.5°	2364.9	2417.8	2476.1	2550.4	2630.0	2700.9	2750.5	2772.3	2765.0	2723.8	2662.1
17°	2347.4	2401.3	2461.5	2537.8	2619.3	2692.7	2743.7	2766.5	2759.2	2716.0	2652.9
17.5°	2329.4	2384.3	2446.0	2524.2	2608.2	2683.9	2736.4	2759.7	2752.4	2707.7	2643.1
18°	2311.5	2367.3	2430.4	2510.6	2597.0	2674.7	2729.1	2752.9	2745.1	2700.0	2633.4
18.5°	2292.5	2349.8	2414.4	2496.5	2585.4	2665.5	2721.3	2745.6	2737.8	2691.2	2622.7
19°	2273.6	2331.9	2398.4	2481.9	2573.2	2655.8	2713.1	2738.3	2730.1	2682.0	2612.6
19.5°	2255.1	2313.9	2381.4	2467.4	2561.1	2645.6	2704.3	2730.1	2721.8	2672.8	2601.9
20°	2236.2	2295.9	2364.9	2452.8	2548.0	2635.4	2695.6	2721.8	2713.6	2663.5	2590.7
20.5°	2216.3	2277.5	2347.9	2437.2	2534.9	2624.7	2686.4	2713.6	2704.8	2653.3	2579.0
21°	2196.9	2258.5	2330.4	2421.7	2521.3	2613.5	2676.7	2704.3	2695.6	2643.1	2567.4

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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°	2136.7	2201.2	2276.5	2372.7	2478.5	2578.1	2646.1	2675.7	2666.5	2610.6	2530.0
23°	2116.7	2181.8	2258.1	2356.2	2464.0	2565.4	2635.4	2665.5	2655.8	2599.4	2516.9
23.5°	2095.9	2161.4	2239.1	2338.7	2448.4	2552.3	2624.2	2655.3	2645.6	2587.8	2503.8
24°	2075.0	2142.5	2220.2	2320.7	2432.9	2539.7	2612.6	2644.1	2634.4	2575.6	2489.7
24.5°	2054.1	2122.1	2200.8	2302.7	2416.9	2525.6	2600.9	2632.9	2623.2	2563.5	2475.1
25°	2033.2	2101.2	2180.8	2284.8	2400.3	2512.0	2588.8	2621.8	2611.1	2551.4	2460.6
25.5°	2011.9	2080.8	2160.9	2265.8	2383.3	2497.5	2576.6	2609.6	2599.4	2538.7	2445.5
26°	1991.0	2060.4	2140.1	2246.9	2366.3	2482.4	2564.0	2598.0	2587.8	2525.6	2430.0
26.5°	1969.1	2039.5	2120.1	2227.0	2348.4	2467.4	2550.9	2585.8	2575.2	2512.0	2413.9
27°	1947.8	2018.2	2099.8	2208.0	2329.9	2452.3	2537.8	2573.7	2562.5	2498.4	2396.9
27.5°	1925.9	1996.8	2078.9	2188.1	2311.5	2435.8	2524.2	2561.1	2549.9	2484.8	2379.9
28°	1904.1	1975.4	2057.0	2167.3	2292.5	2419.3	2510.1	2547.5	2536.3	2470.8	2362.5
28.5°	1882.2	1954.1	2036.6	2146.4	2273.1	2402.3	2495.0	2534.9	2523.2	2455.2	2344.0
29°	1859.9	1932.2	2015.3	2125.0	2253.2	2385.3	2480.5	2521.3	2509.6	2440.2	2325.6
29.5°	1837.5	1910.4	1993.9	2104.1	2232.8	2366.8	2464.9	2507.7	2496.0	2424.1	2307.1
30°	1815.7	1888.5	1970.6	2082.8	2212.4	2348.4	2449.4	2493.6	2481.4	2408.1	2288.2
30.5°	1792.9	1866.7	1949.2	2060.4	2192.0	2329.0	2432.9	2479.0	2467.4	2391.1	2268.3
31°	1770.0	1843.8	1926.9	2038.6	2170.7	2309.5	2415.9	2464.0	2452.8	2373.6	2248.3
31.5°	1747.7	1822.0	1904.5	2016.2	2148.8	2289.6	2398.9	2448.9	2438.2	2356.2	2228.4
32°	1725.4	1799.2	1881.2	1993.4	2126.9	2270.2	2380.9	2433.4	2422.7	2338.2	2207.6
32.5°	1702.5	1776.3	1858.9	1971.6	2105.1	2249.3	2362.0	2416.9	2407.6	2319.2	2186.7
33°	1679.7	1754.0	1835.6	1947.8	2082.8	2228.9	2343.0	2399.9	2391.1	2299.8	2164.8
33.5°	1656.9	1731.2	1813.2	1924.9	2059.9	2207.6	2323.6	2382.9	2373.1	2279.9	2143.0
34°	1634.1	1708.4	1789.5	1902.1	2037.1	2186.2	2304.2	2364.9	2354.2	2261.0	2120.1
34.5°	1610.7	1685.5	1766.6	1878.8	2013.3	2164.3	2284.3	2346.4	2335.8	2239.6	2097.3
35°	1587.4	1662.2	1742.8	1855.0	1990.5	2142.0	2263.9	2327.0	2317.3	2218.7	2074.0
35.5°	1564.6	1639.4	1719.5	1830.7	1966.7	2119.7	2243.0	2308.1	2298.9	2196.9	2049.3
36°	1541.3	1616.1	1695.7	1806.9	1942.9	2096.8	2221.6	2287.7	2278.9	2174.5	2025.0
36.5°	1518.5	1593.3	1672.9	1783.1	1919.1	2073.0	2199.8	2267.8	2258.1	2149.8	1999.2
37°	1494.7	1570.0	1649.6	1759.3	1894.8	2049.3	2177.4	2246.4	2236.2	2125.5	1973.5
37.5°	1471.9	1546.2	1624.8	1735.1	1869.6	2025.5	2154.1	2225.0	2213.9	2100.2	1947.3
38°	1448.1	1522.9	1601.5	1710.3	1844.8	2000.7	2130.3	2202.2	2189.1	2074.0	1920.6
38.5°	1425.7	1500.0	1577.2	1686.0	1820.0	1975.4	2106.6	2178.4	2164.3	2046.8	1893.4
39°	1402.4	1476.2	1553.4	1660.8	1794.8	1951.2	2081.8	2152.7	2138.6	2019.1	1864.7
39.5°	1378.6	1453.4	1529.7	1637.5	1769.5	1925.4	2057.0	2126.5	2110.4	1990.5	1836.6
40°	1354.8	1430.1	1505.9	1612.7	1744.8	1899.7	2030.3	2098.8	2082.8	1961.4	1807.4
40.5°	1332.5	1406.8	1482.1	1587.4	1718.6	1873.0	2003.6	2071.6	2054.1	1931.2	1777.8
41°	1308.2	1383.5	1457.8	1562.7	1692.8	1846.8	1975.4	2042.5	2025.0	1900.7	1748.2
41.5°	1285.4	1360.2	1434.5	1538.4	1667.1	1820.0	1948.7	2014.3	1994.9	1869.6	1718.6
42°	1262.1	1336.4	1410.7	1513.1	1640.9	1792.4	1919.6	1984.2	1964.3	1838.0	1688.0
42.5°	1239.3	1313.6	1386.4	1488.4	1614.6	1765.2	1890.9	1955.5	1933.7	1806.9	1657.4
43°	1216.0	1290.3	1362.6	1464.1	1588.9	1738.0	1861.3	1924.9	1902.6	1773.4	1626.3
43.5°	1193.1	1267.4	1338.8	1439.3	1562.7	1709.8	1832.2	1894.3	1870.5	1740.9	1595.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1123.2	1198.0	1267.9	1365.0	1483.0	1623.9	1741.4	1800.1	1773.4	1641.8	1500.0
45.5°	1101.4	1174.7	1244.1	1339.8	1456.8	1595.2	1711.3	1768.6	1740.4	1608.8	1468.5
46°	1078.0	1151.9	1220.8	1315.0	1430.1	1565.6	1679.7	1736.5	1707.4	1575.8	1435.9
46.5°	1055.2	1129.5	1197.5	1290.7	1402.9	1536.9	1649.1	1704.0	1673.4	1542.3	1404.4
47°	1032.4	1106.2	1174.2	1266.0	1376.2	1507.3	1618.0	1671.0	1639.9	1508.8	1372.3
47.5°	1010.1	1083.4	1150.9	1241.7	1349.5	1478.2	1586.5	1637.9	1605.9	1475.8	1341.2
48°	987.2	1060.6	1127.6	1216.9	1323.3	1449.0	1554.9	1605.4	1572.4	1442.7	1309.7
48.5°	964.9	1038.2	1104.3	1192.6	1296.6	1419.4	1523.8	1572.9	1538.9	1410.2	1278.6
49°	942.6	1015.9	1081.4	1168.4	1269.9	1390.3	1492.3	1539.4	1504.4	1376.7	1248.0
49.5°	920.7	993.1	1059.1	1144.6	1243.1	1361.1	1460.7	1506.3	1470.9	1344.6	1217.4
50°	897.9	971.2	1035.8	1120.8	1216.4	1332.0	1429.1	1472.8	1437.4	1311.6	1186.8
50.5°	876.0	948.9	1013.0	1096.0	1190.2	1302.9	1398.1	1439.3	1403.4	1280.1	1156.2
51°	854.2	926.5	990.6	1071.7	1163.5	1273.3	1366.5	1406.8	1370.4	1248.0	1127.1
51.5°	832.3	904.2	968.3	1048.4	1137.3	1245.1	1335.4	1373.8	1336.4	1216.0	1097.5
52°	811.0	882.3	946.4	1025.1	1111.5	1216.0	1304.8	1340.8	1303.4	1184.9	1068.3
52.5°	789.6	860.5	924.1	1001.8	1085.8	1187.3	1273.3	1307.2	1270.3	1153.8	1039.7
53°	767.7	839.1	901.8	977.5	1060.1	1158.7	1242.2	1274.7	1238.3	1123.2	1011.0
53.5°	745.4	816.8	879.9	954.7	1033.9	1131.0	1211.6	1242.2	1205.8	1092.1	982.9
54°	724.5	795.9	858.5	931.4	1008.6	1102.3	1181.0	1210.1	1172.7	1062.5	955.2
54.5°	703.2	774.1	836.7	908.1	983.8	1075.1	1151.4	1177.1	1141.7	1032.9	928.0
55°	682.3	753.7	815.3	885.7	958.6	1047.9	1121.7	1147.0	1111.1	1003.7	901.3
55.5°	661.4	732.3	794.0	862.9	933.8	1020.7	1091.6	1114.5	1079.0	974.6	873.6
56°	640.5	711.9	773.1	840.1	908.6	993.1	1061.5	1083.4	1048.4	945.5	847.9
56.5°	619.6	691.0	752.2	817.8	884.8	966.4	1032.4	1052.3	1017.8	917.3	822.6
57°	599.2	670.6	731.3	795.9	861.0	940.1	1003.7	1021.7	987.7	889.6	796.9
57.5°	579.3	650.2	710.4	773.6	837.2	914.4	975.6	991.6	958.1	862.4	772.1
58°	558.9	630.3	690.0	751.7	813.4	888.2	946.9	962.0	929.4	835.7	747.8
58.5°	539.5	610.4	670.1	730.3	790.6	862.9	919.2	932.8	900.3	808.5	723.6
59°	520.1	591.5	650.2	709.5	767.3	837.7	891.6	904.2	871.7	782.8	700.2
59.5°	500.7	571.6	629.3	688.6	744.9	812.9	864.4	876.0	844.0	757.1	676.9
60°	482.2	552.6	609.9	668.2	722.6	788.1	837.7	848.4	817.3	732.3	654.1
60.5°	463.3	533.2	590.0	647.3	700.7	764.3	811.0	820.7	789.6	707.5	631.3
61°	444.8	514.7	571.1	627.4	679.4	740.5	785.2	794.0	763.9	683.2	609.9
61.5°	426.8	496.3	551.6	607.5	659.0	717.2	760.0	767.7	737.6	659.5	588.6
62°	409.4	478.3	533.7	588.6	637.6	694.4	734.7	742.0	713.4	637.1	567.7
62.5°	391.4	460.4	515.2	569.1	617.7	671.6	710.0	716.3	688.1	613.8	546.8
63°	374.9	442.9	497.3	550.7	597.3	649.3	685.7	691.5	663.3	591.5	526.9
63.5°	358.4	425.4	479.3	532.7	577.9	627.4	661.9	667.2	640.0	569.6	507.0
64°	342.4	407.9	462.8	514.7	558.4	606.0	638.6	643.9	616.7	549.7	488.0
64.5°	325.8	390.9	445.3	496.8	540.0	585.2	615.7	620.6	593.9	528.3	469.6
65°	310.8	374.9	428.8	479.8	521.1	564.8	593.9	597.8	572.5	508.4	451.6
65.5°	295.2	358.9	412.3	463.3	503.1	544.4	572.0	575.9	550.2	488.0	433.6
66°	280.2	342.8	396.7	446.8	485.6	524.5	550.7	554.1	527.4	469.1	416.6





TEST NUMBER: P776559

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

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	239.4	297.2	350.1	398.2	435.1	468.1	490.5	492.4	462.8	414.7	366.6
68°	227.3	283.1	336.0	383.1	419.6	449.7	470.6	472.0	442.4	396.7	351.6
68.5°	216.1	269.0	321.5	368.1	404.0	432.2	452.1	452.6	423.0	378.8	336.5
69°	205.4	255.4	307.4	353.5	388.0	415.7	434.1	434.1	403.5	360.8	322.0
69.5°	196.2	242.3	293.8	339.0	372.5	399.2	417.1	416.2	384.1	343.8	307.9
70°	190.4	229.7	280.2	324.9	356.9	383.1	400.1	398.2	364.7	327.8	293.8
70.5°	187.0	217.6	267.6	310.8	341.9	366.6	383.1	380.7	348.2	311.8	280.7
71°	183.6	206.9	254.9	297.7	327.8	351.1	366.1	362.7	331.7	296.7	267.6
71.5°	180.2	196.7	243.3	284.1	313.7	336.0	350.6	345.8	314.7	282.1	254.9
72°	176.8	188.4	231.6	271.5	300.1	322.0	335.1	329.7	299.1	268.1	242.8
72.5°	172.4	182.6	220.5	259.3	287.0	307.4	320.0	314.2	284.1	254.5	230.7
73°	168.0	178.2	210.3	247.2	273.9	293.8	306.4	299.1	269.5	240.9	219.0
73.5°	164.1	174.3	200.1	235.5	261.3	280.2	291.8	284.6	255.4	227.7	207.8
74°	159.8	170.4	190.8	224.3	249.1	268.1	278.3	270.5	242.3	215.1	196.7
74.5°	155.9	167.0	181.6	213.7	237.5	255.4	265.1	256.9	229.2	203.0	186.0
75°	151.0	163.2	173.4	203.5	225.8	243.3	253.0	243.8	216.6	191.3	175.8
75.5°	146.2	159.3	167.5	193.3	214.6	231.1	239.9	231.1	204.4	179.7	165.6
76°	140.8	154.9	161.7	184.0	204.4	220.0	228.2	218.5	192.3	168.5	155.4
76.5°	135.0	150.1	155.9	174.8	193.8	209.3	216.6	206.4	181.1	157.3	145.7
77°	129.7	145.2	149.6	167.0	184.0	198.6	205.4	194.2	169.5	146.7	136.5
77.5°	123.8	140.3	145.2	159.8	174.8	188.4	194.2	183.1	158.3	136.0	127.2
78°	118.0	135.0	141.3	152.5	165.6	178.2	183.6	171.9	147.1	125.8	117.5
78.5°	111.7	130.1	137.4	145.2	156.9	169.0	173.4	161.2	136.0	115.6	108.8
79°	105.4	124.3	133.1	137.9	148.6	159.8	163.2	150.5	124.8	105.4	100.0
79.5°	99.1	119.0	128.7	131.6	140.3	151.0	153.5	139.9	114.1	95.7	91.3
80°	92.8	113.1	123.8	125.3	132.6	142.3	144.2	129.7	103.4	86.4	83.0
80.5°	86.0	107.3	119.0	119.9	125.3	134.0	135.0	120.4	92.8	76.7	75.3
81°	79.2	101.0	114.1	114.6	118.0	125.8	125.8	110.2	82.1	68.0	67.5
81.5°	72.4	95.2	108.8	109.3	111.2	118.0	117.0	101.0	71.4	59.2	59.7
82°	65.6	88.4	103.4	103.9	104.4	110.2	107.8	91.8	60.7	52.0	52.4
82.5°	58.8	82.1	98.1	99.1	98.1	102.9	99.1	83.0	52.4	45.2	46.1
83°	51.0	75.3	92.8	93.7	91.8	95.2	90.8	74.3	43.7	38.4	39.8
83.5°	43.7	68.5	86.9	89.4	85.5	87.9	82.6	66.5	35.0	31.6	33.5
84°	36.4	61.7	81.6	84.5	79.2	80.6	74.8	58.3	26.7	24.8	27.2
84.5°	29.6	54.9	75.8	79.6	73.3	73.8	67.5	51.5	18.0	19.9	21.4
85°	23.3	48.1	70.4	74.8	67.5	67.0	60.2	44.7	14.6	15.5	15.5
85.5°	18.9	41.8	65.1	69.9	62.2	60.7	53.4	38.4	11.7	11.2	11.2
86°	16.5	36.4	59.7	64.6	56.8	54.4	47.6	31.6	9.7	7.3	6.8
86.5°	13.6	32.0	54.4	59.2	51.5	48.6	41.3	24.8	7.8	3.9	3.9
87°	11.2	28.2	49.0	53.4	46.6	42.7	35.0	19.4	5.8	1.9	1.5
87.5°	8.7	24.3	43.2	48.1	41.3	36.9	28.7	14.1	4.9	1.0	0.0
88°	6.3	20.4	37.9	42.2	35.9	31.1	22.3	9.7	2.9	0.5	0.0
88.5°	3.9	16.5	32.0	36.9	31.1	25.3	17.0	5.8	1.5	0.0	0.0



TEST NUMBER: P776559

CATALOG NUMBER: HCDJBS4050CSD-HCD41TRH-HCD41TRLWW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	5.3	16.0	18.5	14.6	10.7	3.9	0.5	0.0	0.0	0.0



TEST NUMBER: P776559

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2769.9	2769.9	2769.9	2769.9	2769.9	2769.9
0.5°	2768.9	2769.9	2765.5	2762.6	2761.6	2762.1
1°	2768.9	2767.5	2761.1	2756.3	2754.3	2754.8
1.5°	2768.4	2764.5	2755.8	2749.5	2747.1	2748.0
2°	2767.5	2761.1	2750.5	2742.7	2739.3	2740.3
2.5°	2766.0	2757.7	2744.6	2735.9	2731.5	2732.5
3°	2764.5	2753.9	2738.3	2727.6	2723.3	2723.8
3.5°	2762.1	2749.5	2732.0	2719.9	2714.5	2715.5
4°	2760.2	2744.6	2725.2	2711.1	2704.8	2706.3
4.5°	2757.3	2739.8	2717.4	2702.4	2695.1	2697.0
5°	2753.9	2734.0	2710.2	2693.2	2685.4	2687.3
5.5°	2750.5	2728.1	2701.9	2683.4	2675.2	2677.1
6°	2746.6	2722.3	2693.2	2673.3	2664.5	2666.5
6.5°	2742.2	2715.5	2684.9	2663.1	2653.3	2655.8
7°	2737.4	2708.7	2675.7	2652.4	2641.7	2644.6
7.5°	2732.5	2701.4	2666.0	2641.2	2630.0	2632.9
8°	2727.2	2693.6	2656.3	2629.5	2617.4	2620.8
8.5°	2721.3	2685.9	2645.6	2617.9	2604.8	2608.7
9°	2715.5	2677.1	2635.4	2605.8	2592.2	2596.0
9.5°	2708.7	2668.4	2623.7	2593.1	2578.6	2582.4
10°	2701.9	2659.2	2612.6	2580.0	2565.0	2569.3
10.5°	2695.1	2649.9	2600.9	2566.9	2551.4	2555.2
11°	2687.3	2639.7	2588.8	2553.3	2536.8	2541.7
11.5°	2679.6	2630.0	2576.6	2539.7	2522.2	2526.6
12°	2671.3	2618.9	2563.5	2525.1	2507.2	2512.0
12.5°	2663.1	2608.2	2550.4	2510.1	2492.1	2497.0
13°	2653.8	2597.0	2536.8	2495.5	2476.6	2481.4
13.5°	2644.6	2585.4	2523.2	2480.0	2460.1	2465.9
14°	2634.9	2573.2	2508.6	2464.4	2444.5	2449.9
14.5°	2625.2	2561.1	2494.5	2448.4	2428.0	2433.4
15°	2615.0	2548.5	2479.5	2432.4	2411.0	2416.9
15.5°	2604.3	2534.9	2464.0	2415.4	2394.0	2399.9
16°	2593.1	2521.7	2448.4	2398.9	2376.5	2382.9
16.5°	2582.0	2508.6	2432.9	2381.9	2359.1	2364.9
17°	2570.3	2494.1	2416.9	2364.4	2340.6	2347.4
17.5°	2558.6	2479.5	2399.9	2346.4	2322.2	2329.4
18°	2546.0	2464.9	2383.3	2328.5	2304.2	2311.5
18.5°	2533.9	2449.9	2365.9	2310.0	2285.3	2292.5
19°	2520.8	2434.3	2348.4	2291.6	2266.3	2273.6
19.5°	2507.7	2418.8	2330.4	2272.1	2246.9	2255.1
20°	2494.1	2401.8	2312.0	2253.2	2228.0	2236.2
20.5°	2480.0	2385.3	2293.5	2233.8	2208.5	2216.3
21°	2464.9	2367.8	2274.6	2213.9	2188.6	2196.9

TEST NUMBER: P776559

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2419.8	2314.9	2215.3	2152.7	2127.4	2136.7
23°	2403.3	2295.5	2194.9	2131.8	2107.0	2116.7
23.5°	2386.7	2277.0	2174.1	2110.4	2086.2	2095.9
24°	2369.3	2257.1	2153.2	2089.1	2064.8	2075.0
24.5°	2352.3	2237.2	2131.8	2067.2	2043.4	2054.1
25°	2333.8	2216.3	2110.0	2045.4	2021.6	2033.2
25.5°	2315.8	2196.4	2088.6	2023.5	2000.2	2011.9
26°	2296.4	2176.0	2065.8	2001.2	1978.4	1991.0
26.5°	2277.5	2155.1	2044.4	1978.4	1956.0	1969.1
27°	2258.1	2132.8	2021.1	1956.0	1934.2	1947.8
27.5°	2238.2	2111.4	1998.7	1933.2	1911.8	1925.9
28°	2217.8	2089.1	1975.0	1909.9	1889.0	1904.1
28.5°	2197.8	2067.2	1952.6	1887.1	1866.2	1882.2
29°	2176.5	2044.9	1928.8	1863.7	1843.8	1859.9
29.5°	2155.1	2022.1	1906.0	1840.4	1821.0	1837.5
30°	2134.2	1998.7	1881.7	1817.1	1798.2	1815.7
30.5°	2112.9	1975.4	1857.9	1793.3	1774.9	1792.9
31°	2090.5	1952.1	1833.6	1769.5	1752.1	1770.0
31.5°	2067.7	1928.3	1809.8	1745.7	1728.8	1747.7
32°	2044.9	1904.1	1785.6	1721.5	1705.4	1725.4
32.5°	2021.6	1880.3	1760.8	1698.6	1681.6	1702.5
33°	1998.3	1856.0	1736.5	1673.9	1658.8	1679.7
33.5°	1974.0	1831.7	1712.2	1650.1	1635.0	1656.9
34°	1949.7	1806.4	1688.0	1625.3	1611.7	1634.1
34.5°	1925.4	1781.2	1663.2	1601.0	1588.4	1610.7
35°	1900.7	1755.9	1637.5	1577.2	1564.6	1587.4
35.5°	1874.9	1731.2	1612.7	1553.0	1541.3	1564.6
36°	1849.2	1705.9	1588.4	1528.7	1517.5	1541.3
36.5°	1823.4	1679.7	1563.6	1504.9	1494.2	1518.5
37°	1796.7	1653.5	1538.4	1480.1	1470.9	1494.7
37.5°	1770.0	1627.7	1513.1	1455.8	1447.1	1471.9
38°	1742.3	1601.5	1487.9	1431.6	1423.3	1448.1
38.5°	1716.6	1575.3	1463.1	1407.8	1400.0	1425.7
39°	1688.4	1549.1	1438.4	1383.5	1376.7	1402.4
39.5°	1660.3	1522.4	1413.1	1360.2	1353.4	1378.6
40°	1632.6	1495.7	1387.9	1335.4	1329.1	1354.8
40.5°	1604.4	1469.0	1362.6	1311.6	1306.3	1332.5
41°	1576.3	1442.7	1337.8	1287.3	1283.0	1308.2
41.5°	1548.1	1416.0	1312.6	1264.0	1259.7	1285.4
42°	1519.9	1389.8	1287.8	1240.7	1235.9	1262.1
42.5°	1491.8	1363.6	1263.1	1216.4	1213.5	1239.3
43°	1462.2	1336.9	1238.8	1193.1	1190.7	1216.0
43.5°	1433.5	1310.2	1213.5	1169.3	1166.9	1193.1



TEST NUMBER: P776559

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1347.1	1231.0	1140.7	1099.9	1098.4	1123.2
45.5°	1318.9	1205.8	1116.9	1076.6	1075.6	1101.4
46°	1289.3	1180.0	1093.1	1054.2	1053.3	1078.0
46.5°	1261.1	1153.8	1069.3	1031.4	1030.5	1055.2
47°	1232.0	1128.1	1045.0	1009.1	1008.6	1032.4
47.5°	1203.3	1102.3	1021.2	986.3	986.3	1010.1
48°	1174.7	1077.1	997.9	963.4	963.9	987.2
48.5°	1146.5	1051.3	974.1	941.6	941.6	964.9
49°	1118.8	1026.6	951.8	919.7	919.7	942.6
49.5°	1090.7	1001.8	928.5	896.9	898.4	920.7
50°	1062.0	976.6	905.2	875.1	877.0	897.9
50.5°	1034.3	951.8	882.3	853.7	854.7	876.0
51°	1008.1	927.0	860.5	832.3	833.3	854.2
51.5°	980.4	902.7	838.6	810.0	812.4	832.3
52°	953.7	878.9	816.3	790.1	791.5	811.0
52.5°	927.0	855.1	794.4	768.7	770.7	789.6
53°	901.3	830.9	773.6	747.8	749.8	767.7
53.5°	875.1	808.0	752.2	726.9	728.9	745.4
54°	850.8	784.3	731.3	707.0	708.5	724.5
54.5°	825.5	761.9	710.9	687.1	688.6	703.2
55°	800.8	739.1	690.5	667.2	668.7	682.3
55.5°	776.0	717.7	670.6	647.8	648.8	661.4
56°	752.7	695.4	650.7	628.9	628.9	640.5
56.5°	729.4	675.0	631.8	609.9	609.4	619.6
57°	706.6	653.1	612.3	591.0	590.0	599.2
57.5°	684.2	632.7	593.4	572.5	570.6	579.3
58°	661.9	612.3	575.0	554.6	552.6	558.9
58.5°	640.0	592.9	556.5	536.6	533.2	539.5
59°	618.7	573.0	539.0	519.6	515.2	520.1
59.5°	597.8	554.6	521.1	502.1	496.8	500.7
60°	577.4	535.1	503.6	485.6	479.3	482.2
60.5°	557.0	517.2	486.6	468.1	461.3	463.3
61°	538.0	499.2	469.6	452.1	444.3	444.8
61.5°	518.6	481.7	453.6	436.1	427.3	426.8
62°	500.2	464.7	437.0	420.5	411.3	409.4
62.5°	481.7	447.7	420.5	404.5	394.8	391.4
63°	463.8	431.2	405.0	389.0	379.3	374.9
63.5°	446.8	415.7	389.5	373.9	363.7	358.4
64°	429.8	399.2	374.4	358.9	348.7	342.4
64.5°	413.7	384.6	359.3	344.3	334.1	325.8
65°	398.2	369.5	345.3	329.7	320.0	310.8
65.5°	382.2	355.0	330.7	315.6	305.9	295.2
66°	366.1	340.4	316.6	301.6	292.3	280.2



TEST NUMBER: P776559

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	322.9	300.1	277.3	262.2	252.0	239.4
68°	308.8	287.0	265.1	250.1	238.9	227.3
68.5°	295.7	274.4	253.0	238.4	226.3	216.1
69°	282.6	262.2	241.3	227.3	214.2	205.4
69.5°	270.0	250.1	230.2	216.1	202.5	196.2
70°	257.9	238.9	219.5	205.9	191.8	190.4
70.5°	246.2	227.7	208.8	196.7	182.6	187.0
71°	234.1	217.1	198.6	187.4	175.3	183.6
71.5°	222.9	206.4	189.4	178.7	171.9	180.2
72°	212.2	196.2	180.2	171.9	168.0	176.8
72.5°	202.0	186.5	174.3	165.1	164.6	172.4
73°	191.3	177.2	166.1	158.3	160.7	168.0
73.5°	181.6	169.0	157.8	152.0	156.9	164.1
74°	172.4	160.7	149.6	145.2	152.0	159.8
74.5°	163.2	152.5	141.3	140.3	147.6	155.9
75°	153.9	144.2	134.5	135.5	142.8	151.0
75.5°	145.7	135.5	128.2	131.1	137.4	146.2
76°	136.9	128.2	121.9	126.7	132.1	140.8
76.5°	128.7	120.9	115.6	122.4	126.7	135.0
77°	120.9	113.6	110.2	117.5	120.9	129.7
77.5°	113.1	106.8	104.4	112.2	115.6	123.8
78°	105.4	100.0	99.1	107.3	109.7	118.0
78.5°	97.6	93.2	93.2	102.0	103.4	111.7
79°	90.3	86.9	87.9	96.6	97.1	105.4
79.5°	83.0	80.1	83.0	91.3	90.8	99.1
80°	76.2	74.3	78.2	85.5	84.0	92.8
80.5°	69.4	68.5	73.3	80.1	77.7	86.0
81°	62.6	62.6	68.5	74.3	71.4	79.2
81.5°	56.3	57.3	63.6	68.5	64.6	72.4
82°	50.5	51.5	58.3	63.1	58.3	65.6
82.5°	44.7	46.1	52.9	57.3	52.0	58.8
83°	38.4	41.3	47.1	52.0	45.6	51.0
83.5°	32.5	35.9	41.8	46.6	39.8	43.7
84°	26.7	30.6	35.9	41.3	34.5	36.4
84.5°	20.9	25.3	30.1	35.9	29.6	29.6
85°	15.5	19.9	24.3	30.1	25.7	23.3
85.5°	10.7	15.1	18.0	24.3	21.9	18.9
86°	6.3	10.2	13.6	18.5	18.0	16.5
86.5°	2.4	5.3	9.2	14.1	14.6	13.6
87°	0.0	1.0	4.9	9.7	11.2	11.2
87.5°	0.0	0.0	0.5	4.9	7.3	8.7
88°	0.0	0.0	0.0	0.5	3.9	6.3
88.5°	0.0	0.0	0.0	0.5	1.0	3.9



TEST NUMBER: P776559

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

**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°	2177.0	2239.6	2312.4	2405.7	2507.7	2601.9	2666.9	2695.1	2686.4	2632.5	2555.2
22°	2157.1	2220.7	2295.0	2389.7	2493.1	2590.2	2656.7	2685.9	2676.7	2621.8	2542.6



44°	1169.3	1244.1	1315.0	1414.1	1535.5	1681.2	1802.1	1862.8	1838.5	1707.9	1562.7
44.5°	1147.0	1220.8	1291.2	1389.3	1509.3	1652.5	1772.0	1831.7	1806.4	1675.8	1531.6



66.5°	266.1	326.8	380.7	430.2	468.1	505.0	529.8	533.2	505.0	450.6	400.1
67°	252.5	311.8	365.2	414.7	451.1	486.6	509.9	512.8	484.1	432.7	383.6



89°	1.5	12.6	25.7	30.6	25.7	20.4	11.7	2.9	0.5	0.0	0.0
89.5°	0.5	9.2	19.9	24.8	19.9	15.1	7.3	1.5	0.0	0.0	0.0



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21.5°	2449.9	2350.8	2255.1	2194.0	2168.2	2177.0
22°	2435.3	2332.8	2234.8	2173.6	2148.3	2157.1



44°	1404.4	1283.9	1189.7	1146.5	1144.1	1169.3
44.5°	1376.7	1257.7	1165.0	1122.7	1121.3	1147.0

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66.5°	351.6	326.3	303.5	288.4	278.3	266.1
67°	337.0	312.7	289.9	275.3	265.1	252.5

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89°	0.0	0.0	0.0	0.5	0.5	1.5
89.5°	0.0	0.0	0.0	0.5	0.5	0.5

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Scaled Data Report



(END OF REPORT)