

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: P776759

Luminaire Tested: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776759
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B048)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K
Description: 8 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: 5956.6 lumens
Efficiency: N/A
Efficacy: 124.1 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.17 / 1.27
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

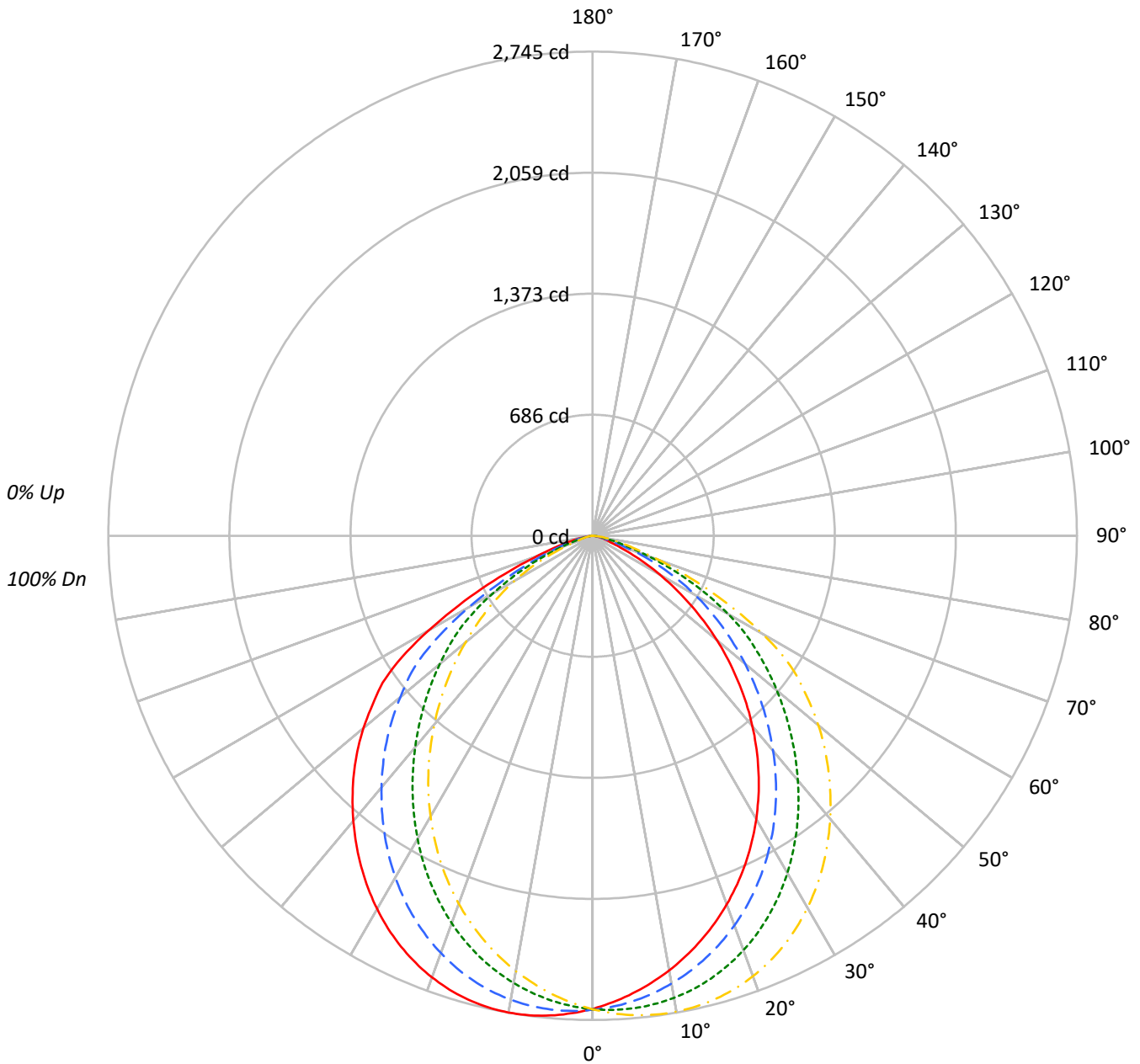
Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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				100															
1	111	107	103	100	108	105	101	98	100	98	95	97	94	92	93	91	90	88				88															
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	83	80	78	76				76															
3	94	85	77	72	92	83	76	71	80	74	70	77	73	69	75	71	67	65				65															
4	87	76	68	62	84	74	67	61	72	66	61	70	64	60	68	63	59	57				57															
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50				50															
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44				44															
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39				39															
8	64	52	44	38	63	51	43	38	50	43	38	48	42	37	47	42	37	35				35															
9	60	47	40	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32				32															
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29				29															

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	81968	81968	81968	81968
5°	79811	82400	83663	81092
10°	77547	82451	85098	79816
15°	75042	82100	86057	78127
20°	72250	81237	86549	75906
25°	69057	79830	86567	73160
30°	65391	77829	86127	69978
35°	61120	75246	85268	66312
40°	56131	72129	84101	62360
45°	50352	68603	82644	58171
50°	43588	64752	80493	53709
55°	35700	60344	77319	48773
60°	26757	54112	65463	39885
65°	17143	43583	47433	28542
70°	9703	29939	29332	17201
75°	7384	17517	18543	9331
80°	5204	9635	10584	4431
85°	3048	5254	2732	1857

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°
 Vertical Angle: 45°
 Luminance: 83797 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	253.3	4.3
10°-20°	716.7	12.0
20°-30°	1055.3	17.7
30°-40°	1209.9	20.3
40°-50°	1164.4	19.5
50°-60°	928.4	15.6
60°-70°	481.9	8.1
70°-80°	130.0	2.2
80°-90°	16.7	0.3
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°	2025.3	34.0
0°-40°	3235.2	54.3
0°-60°	5328.0	89.4
0°-90°	5956.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5956.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2685	2685	2685	2685	2685	
5°	2604	2689	2730	2646	2604	245
15°	2374	2598	2723	2472	2374	668
25°	2050	2370	2570	2172	2050	942
35°	1640	2019	2288	1779	1640	1023
45°	1166	1589	1914	1347	1166	897
55°	671	1134	1453	916	671	600
65°	237	603	657	395	237	245
75°	63	148	157	79	63	69
85°	9	15	8	5	9	12
90°	0	2	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°	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8
0.5°	2675.1	2686.7	2685.8	2684.3	2685.8	2688.2	2689.7	2689.7	2687.7	2696.0	2690.1
1°	2668.3	2681.9	2682.9	2683.8	2687.7	2692.6	2695.5	2695.5	2693.5	2699.9	2692.6
1.5°	2661.0	2676.6	2679.5	2683.4	2688.7	2695.5	2700.3	2701.3	2699.4	2703.3	2694.0
2°	2653.7	2671.2	2676.1	2681.9	2689.7	2698.9	2705.2	2707.1	2704.7	2706.6	2695.5
2.5°	2646.0	2665.4	2671.7	2680.9	2690.1	2701.8	2710.0	2712.5	2709.6	2710.0	2696.5
3°	2638.2	2659.1	2667.8	2679.0	2690.6	2704.7	2714.4	2717.3	2713.9	2713.0	2696.9
3.5°	2630.5	2652.8	2663.5	2677.0	2690.6	2707.1	2718.3	2722.2	2718.8	2715.4	2697.4
4°	2621.7	2646.0	2658.6	2674.6	2690.1	2709.1	2721.7	2726.5	2722.7	2717.3	2697.4
4.5°	2613.5	2639.2	2653.3	2671.7	2689.7	2710.5	2725.1	2730.4	2726.5	2719.3	2696.9
5°	2604.2	2631.9	2647.9	2668.8	2688.7	2711.5	2728.0	2734.3	2729.9	2720.7	2696.5
5.5°	2595.5	2624.6	2642.6	2665.4	2687.2	2712.5	2730.4	2737.7	2732.9	2721.7	2695.0
6°	2585.8	2616.9	2636.3	2661.5	2685.8	2713.0	2732.9	2740.6	2735.8	2722.2	2694.0
6.5°	2576.1	2608.6	2630.0	2657.6	2683.4	2713.4	2734.8	2743.0	2738.2	2722.7	2692.6
7°	2566.4	2600.4	2623.7	2653.3	2680.9	2713.4	2736.7	2746.0	2740.1	2722.7	2690.6
7.5°	2556.2	2591.6	2616.9	2648.9	2678.0	2713.0	2737.7	2747.9	2741.6	2722.2	2688.2
8°	2545.5	2582.9	2609.6	2643.6	2675.6	2712.5	2738.7	2749.4	2743.0	2721.7	2685.3
8.5°	2534.8	2573.7	2601.8	2638.2	2672.2	2711.0	2739.6	2750.8	2744.0	2720.2	2682.4
9°	2523.7	2564.4	2594.1	2632.4	2668.3	2710.0	2739.6	2751.8	2745.0	2719.3	2679.0
9.5°	2513.0	2554.7	2586.3	2626.6	2664.4	2708.1	2739.6	2752.3	2745.0	2717.3	2675.1
10°	2501.4	2545.0	2577.6	2620.3	2659.6	2705.7	2739.2	2752.8	2745.0	2714.9	2671.2
10.5°	2490.2	2534.8	2568.8	2613.5	2655.2	2703.7	2738.7	2752.3	2744.0	2712.5	2666.9
11°	2478.1	2524.2	2560.1	2606.2	2649.9	2700.8	2737.2	2751.8	2743.0	2709.6	2662.0
11.5°	2465.9	2514.0	2550.9	2599.4	2644.5	2697.9	2735.8	2750.8	2742.1	2706.6	2656.7
12°	2453.3	2502.8	2541.6	2591.6	2638.7	2694.5	2734.3	2749.8	2740.1	2702.8	2651.3
12.5°	2441.2	2491.6	2531.4	2583.4	2632.9	2690.6	2731.9	2747.9	2738.2	2698.9	2645.5
13°	2428.1	2480.0	2521.7	2575.1	2626.6	2686.7	2729.5	2746.0	2735.8	2694.5	2639.2
13.5°	2415.0	2468.4	2511.1	2566.9	2619.8	2682.4	2726.5	2743.5	2733.3	2690.1	2632.9
14°	2401.9	2456.7	2500.4	2557.7	2612.5	2677.5	2723.1	2741.1	2730.4	2684.8	2625.6
14.5°	2387.8	2444.6	2489.7	2548.9	2605.2	2672.2	2719.8	2738.2	2726.5	2679.5	2618.8
15°	2374.2	2432.4	2478.5	2539.2	2597.5	2666.4	2715.9	2734.3	2722.7	2673.6	2611.0
15.5°	2360.1	2419.3	2466.9	2529.5	2589.2	2661.0	2711.5	2730.4	2718.3	2667.8	2603.3
16°	2346.1	2406.2	2454.8	2519.3	2580.5	2654.7	2706.6	2726.5	2713.9	2661.0	2595.5
16.5°	2331.5	2393.1	2442.6	2508.6	2571.7	2647.9	2701.8	2721.7	2709.1	2654.2	2586.8
17°	2316.4	2379.5	2430.5	2497.5	2562.5	2641.1	2696.5	2716.8	2703.7	2647.0	2577.6
17.5°	2301.4	2366.0	2417.9	2486.8	2553.3	2633.8	2690.6	2711.5	2697.9	2639.2	2568.3
18°	2286.8	2351.9	2405.3	2475.1	2543.1	2626.1	2684.8	2705.7	2691.6	2631.4	2558.6
18.5°	2271.3	2337.8	2391.7	2463.5	2532.9	2617.8	2678.5	2699.9	2684.8	2623.2	2548.9
19°	2254.8	2323.2	2378.1	2451.4	2522.2	2610.1	2671.7	2693.5	2678.5	2614.9	2538.7
19.5°	2239.3	2308.2	2364.5	2438.7	2511.5	2601.3	2664.4	2686.7	2671.2	2605.7	2528.0
20°	2223.8	2293.6	2350.4	2426.6	2500.4	2592.1	2657.1	2679.5	2663.9	2596.5	2516.9
20.5°	2207.3	2278.1	2336.3	2413.5	2488.3	2582.9	2649.4	2672.2	2656.2	2586.8	2506.2
21°	2189.8	2263.1	2321.8	2400.4	2476.6	2573.2	2641.1	2664.4	2647.9	2577.1	2494.6



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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°	2139.8	2215.0	2276.2	2358.2	2439.2	2542.1	2614.4	2638.7	2620.7	2545.5	2458.2
23°	2122.3	2198.5	2260.6	2343.6	2426.1	2531.0	2604.7	2630.0	2611.0	2533.9	2445.1
23.5°	2104.4	2182.0	2244.6	2329.1	2412.1	2519.8	2595.0	2620.3	2601.3	2522.7	2432.4
24°	2086.4	2165.0	2228.1	2314.0	2398.5	2507.7	2584.8	2610.6	2591.1	2510.6	2418.9
24.5°	2068.4	2148.0	2211.6	2298.0	2384.4	2495.5	2574.2	2600.4	2580.5	2498.4	2405.3
25°	2050.0	2130.6	2195.1	2282.5	2369.8	2483.4	2563.0	2589.7	2569.8	2485.8	2391.2
25.5°	2031.6	2112.6	2178.1	2266.5	2354.8	2470.3	2551.8	2579.0	2558.1	2473.2	2377.1
26°	2012.6	2095.1	2160.7	2250.0	2339.7	2457.2	2540.2	2567.8	2546.5	2460.1	2362.6
26.5°	1993.7	2077.2	2143.2	2233.0	2324.2	2444.1	2528.5	2556.2	2534.8	2446.5	2348.0
27°	1974.3	2059.2	2125.7	2216.5	2308.7	2430.5	2515.9	2544.1	2522.7	2432.9	2332.5
27.5°	1954.9	2040.8	2107.8	2199.5	2292.7	2416.4	2503.3	2532.4	2510.1	2419.3	2317.4
28°	1935.5	2021.9	2089.8	2182.0	2275.7	2401.4	2490.7	2519.8	2497.5	2404.8	2301.4
28.5°	1915.1	2002.4	2071.4	2164.1	2259.2	2387.3	2477.6	2506.7	2483.9	2390.2	2285.9
29°	1895.2	1983.5	2052.4	2145.6	2242.2	2371.8	2463.5	2493.6	2470.8	2375.2	2269.4
29.5°	1875.3	1964.1	2034.0	2127.7	2225.2	2356.7	2449.9	2480.5	2456.7	2360.1	2252.9
30°	1854.9	1945.2	2014.6	2109.2	2207.7	2341.2	2435.8	2466.9	2443.1	2345.1	2235.9
30.5°	1834.0	1924.8	1995.2	2090.8	2189.8	2324.7	2421.3	2452.8	2428.6	2329.1	2219.4
31°	1813.2	1904.9	1975.8	2072.3	2172.3	2308.7	2406.7	2438.3	2414.0	2313.5	2202.4
31.5°	1791.8	1885.0	1955.9	2052.4	2153.9	2292.2	2391.2	2423.7	2399.0	2297.5	2184.9
32°	1770.9	1864.6	1936.0	2033.0	2134.9	2275.2	2376.1	2408.7	2383.9	2281.5	2167.5
32.5°	1749.6	1843.3	1915.6	2013.1	2116.0	2258.2	2360.6	2394.1	2368.4	2264.5	2150.0
33°	1728.2	1822.9	1894.7	1993.7	2097.1	2240.3	2344.6	2379.1	2352.8	2248.0	2131.5
33.5°	1706.4	1802.0	1874.3	1973.3	2077.7	2222.8	2328.6	2362.6	2336.8	2230.5	2113.6
34°	1684.1	1781.1	1853.9	1953.4	2058.7	2205.3	2311.6	2346.5	2320.8	2213.6	2095.1
34.5°	1662.2	1759.8	1833.1	1932.6	2038.8	2186.9	2295.1	2330.5	2304.3	2196.6	2076.7
35°	1639.9	1737.9	1812.2	1912.7	2018.9	2168.4	2278.1	2314.5	2287.8	2178.6	2057.8
35.5°	1617.6	1716.1	1790.4	1891.3	1998.6	2150.0	2260.6	2297.5	2271.3	2160.7	2039.3
36°	1594.8	1694.3	1769.0	1870.4	1978.7	2131.1	2243.6	2280.0	2253.8	2142.2	2019.4
36.5°	1572.0	1672.4	1747.2	1848.6	1958.3	2112.1	2225.2	2263.1	2236.9	2124.7	2000.0
37°	1549.2	1650.1	1725.8	1828.2	1937.9	2092.2	2207.3	2246.1	2218.9	2105.8	1981.1
37.5°	1526.3	1627.8	1703.5	1806.9	1916.5	2072.8	2188.8	2228.1	2201.4	2087.4	1961.7
38°	1502.6	1605.4	1681.2	1785.0	1895.7	2052.9	2170.4	2210.2	2183.5	2068.4	1941.8
38.5°	1479.3	1582.6	1658.8	1762.2	1874.3	2033.0	2151.9	2192.2	2165.5	2050.0	1921.9
39°	1456.5	1559.3	1636.5	1741.3	1853.9	2013.1	2133.0	2174.7	2147.1	2030.6	1902.0
39.5°	1433.2	1537.0	1614.2	1719.0	1831.6	1992.7	2113.6	2155.8	2129.1	2011.2	1882.1
40°	1408.4	1514.2	1591.4	1697.2	1809.8	1971.9	2094.7	2136.9	2110.2	1991.8	1861.2
40.5°	1385.1	1490.9	1568.6	1674.4	1787.9	1951.5	2075.2	2118.0	2091.3	1972.4	1841.3
41°	1360.8	1467.6	1545.8	1652.5	1766.1	1930.6	2054.9	2099.5	2072.3	1952.5	1820.4
41.5°	1337.1	1444.3	1522.9	1630.2	1744.3	1909.3	2035.4	2080.1	2052.9	1933.5	1800.1
42°	1312.3	1421.0	1499.2	1607.9	1722.4	1887.9	2015.1	2060.2	2033.5	1913.1	1779.7
42.5°	1289.0	1397.2	1476.8	1585.6	1700.6	1867.0	1995.6	2040.8	2014.1	1892.8	1758.3
43°	1264.3	1373.5	1453.5	1563.2	1678.2	1845.7	1974.8	2021.4	1994.7	1871.9	1737.5
43.5°	1239.5	1349.7	1430.7	1539.9	1655.9	1824.3	1954.4	2001.5	1974.8	1852.0	1716.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1166.2	1277.4	1360.4	1472.0	1588.9	1758.8	1891.8	1940.8	1914.1	1788.9	1652.0
45.5°	1141.5	1253.6	1337.6	1449.7	1566.6	1737.0	1870.4	1920.4	1893.7	1767.1	1630.2
46°	1116.7	1229.3	1313.8	1426.4	1544.3	1715.1	1849.1	1899.1	1872.9	1745.7	1608.4
46.5°	1092.0	1205.1	1291.0	1403.6	1522.0	1692.8	1827.7	1878.2	1852.0	1723.9	1586.0
47°	1067.7	1181.3	1267.2	1380.7	1499.6	1670.5	1805.4	1856.8	1830.2	1701.5	1563.7
47.5°	1042.5	1157.0	1243.9	1357.9	1476.4	1648.2	1784.0	1835.0	1808.3	1679.2	1540.4
48°	1016.8	1132.7	1220.1	1335.6	1454.0	1625.8	1761.7	1813.2	1787.0	1655.4	1517.6
48.5°	992.5	1108.0	1196.8	1312.3	1431.7	1603.5	1739.4	1790.8	1764.6	1632.1	1494.3
49°	967.7	1084.2	1173.0	1289.5	1408.9	1580.2	1716.6	1768.5	1741.8	1608.4	1470.5
49.5°	943.0	1059.9	1150.2	1266.7	1385.6	1557.4	1694.3	1745.7	1718.0	1584.1	1446.7
50°	917.7	1035.7	1127.4	1243.4	1363.3	1534.6	1670.5	1722.4	1694.7	1559.8	1423.0
50.5°	892.5	1011.4	1103.6	1221.1	1340.5	1511.3	1646.7	1698.6	1670.5	1534.6	1399.7
51°	867.8	986.7	1080.3	1198.3	1317.7	1488.0	1622.9	1674.4	1646.2	1510.3	1376.4
51.5°	843.5	962.4	1057.0	1175.5	1294.8	1464.7	1598.7	1649.6	1621.5	1486.5	1353.6
52°	818.3	938.6	1033.7	1152.6	1271.5	1440.4	1573.9	1624.4	1596.2	1463.7	1331.7
52.5°	794.0	914.3	1010.4	1129.8	1248.3	1416.7	1549.2	1599.1	1571.0	1441.4	1308.9
53°	768.8	890.1	987.6	1107.0	1225.0	1391.9	1523.9	1574.9	1547.2	1417.6	1286.1
53.5°	744.0	866.3	964.3	1084.7	1202.1	1367.6	1498.7	1549.2	1523.9	1392.9	1259.4
54°	719.7	842.5	941.5	1060.9	1178.9	1343.4	1474.4	1525.9	1501.1	1364.7	1232.2
54.5°	695.5	818.7	918.2	1038.6	1156.0	1320.1	1450.6	1503.5	1477.3	1333.7	1201.2
55°	670.7	795.0	895.4	1015.8	1133.7	1296.8	1427.8	1480.7	1452.6	1298.7	1169.1
55.5°	646.9	770.7	873.1	993.9	1111.9	1274.5	1404.0	1455.0	1423.0	1264.8	1135.7
56°	622.7	747.9	849.8	971.6	1089.6	1251.2	1379.3	1426.4	1390.5	1226.9	1101.2
56.5°	598.9	724.6	827.5	949.3	1067.2	1226.4	1351.6	1394.3	1356.5	1189.0	1066.7
57°	575.1	700.8	805.6	927.9	1043.0	1199.7	1322.0	1361.8	1320.1	1150.2	1031.8
57.5°	551.3	678.0	783.8	906.1	1018.7	1173.0	1290.5	1325.4	1280.8	1111.9	994.4
58°	529.0	655.2	761.0	884.3	993.0	1143.9	1258.0	1288.0	1241.0	1070.1	957.5
58.5°	505.7	632.9	738.7	861.0	967.7	1114.3	1224.0	1248.3	1200.7	1028.4	920.7
59°	482.9	610.5	716.8	837.7	940.6	1083.7	1187.1	1208.0	1158.5	987.6	883.8
59.5°	460.1	588.2	694.5	813.9	913.9	1051.7	1150.2	1164.8	1115.3	947.4	846.4
60°	438.2	565.4	672.2	790.1	886.2	1020.1	1112.4	1123.0	1072.1	905.1	810.0
60.5°	416.4	543.6	648.9	766.3	859.5	987.6	1074.0	1079.8	1028.9	864.4	773.6
61°	395.1	522.2	626.6	741.6	830.9	954.6	1034.2	1038.1	986.2	824.1	737.7
61.5°	373.2	499.9	603.7	717.8	802.7	921.1	993.9	994.9	942.5	782.8	701.8
62°	352.8	478.0	580.9	693.0	775.1	887.2	955.1	953.2	900.3	743.0	665.9
62.5°	332.4	456.2	558.6	668.8	745.9	853.2	914.3	911.0	857.1	704.2	631.4
63°	312.5	434.8	535.3	644.5	717.3	818.3	874.6	868.7	815.8	667.8	597.9
63.5°	292.2	413.5	513.0	618.8	688.7	783.8	835.2	827.0	774.6	630.9	564.9
64°	273.7	393.1	490.7	594.5	660.5	749.8	797.4	786.7	734.8	596.0	532.9
64.5°	255.3	372.2	468.3	569.8	631.9	715.4	758.6	746.9	696.0	562.0	501.8
65°	237.3	351.4	446.5	545.5	603.3	681.4	721.7	708.1	656.6	529.0	472.2
65.5°	219.9	331.5	424.2	520.8	574.6	647.9	684.8	669.7	618.3	497.9	446.0
66°	203.4	312.1	402.3	496.5	546.0	614.9	648.4	632.4	580.4	467.9	420.3



TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	160.6	255.3	337.3	424.2	463.5	520.3	545.0	528.0	473.2	389.2	342.6
68°	148.5	237.3	316.4	400.4	437.8	490.2	512.5	495.5	443.1	362.5	319.8
68.5°	136.9	219.9	296.0	376.6	412.0	460.6	480.5	464.0	413.0	336.3	299.0
69°	124.7	202.4	275.2	353.3	386.3	433.4	452.8	435.8	382.9	314.0	279.1
69.5°	115.5	185.4	254.8	329.5	361.1	406.7	425.1	408.2	353.3	293.1	260.1
70°	108.7	170.3	234.9	307.7	335.4	379.5	398.0	380.0	328.6	273.2	242.7
70.5°	104.3	155.8	215.5	285.4	312.5	352.3	370.3	352.3	305.3	254.8	226.2
71°	99.5	141.7	197.0	263.5	290.7	329.0	342.6	328.6	283.4	237.3	210.1
71.5°	94.6	127.6	179.1	242.7	269.4	305.3	318.9	305.8	263.0	220.8	195.6
72°	89.8	113.6	164.5	222.8	249.0	283.4	296.0	284.4	244.6	205.8	182.0
72.5°	84.9	103.4	150.5	203.8	229.1	262.6	275.2	264.5	227.1	191.2	168.4
73°	80.1	96.1	136.4	186.4	210.6	243.1	255.8	245.6	211.1	177.6	156.3
73.5°	75.7	91.2	122.3	169.4	193.6	224.7	237.3	228.1	196.6	165.0	144.6
74°	71.3	86.4	107.7	155.8	177.6	207.7	219.9	212.1	182.5	152.9	133.5
74.5°	67.0	82.0	97.5	141.7	162.1	191.7	203.8	197.0	169.4	141.7	123.3
75°	62.6	77.7	88.3	128.1	148.5	176.7	188.8	183.0	157.2	131.0	113.1
75.5°	58.7	73.3	81.0	114.5	135.4	162.6	174.7	169.9	145.1	120.4	103.9
76°	54.8	68.9	74.3	103.4	123.3	149.5	161.6	157.2	133.9	110.7	94.6
76.5°	51.4	65.0	68.4	93.2	111.6	136.9	149.5	146.1	123.3	101.4	86.4
77°	48.0	60.7	63.6	84.4	101.9	126.2	137.8	134.9	112.6	92.7	78.1
77.5°	44.6	56.8	59.2	76.2	92.2	115.0	127.2	124.7	102.9	84.0	70.4
78°	41.3	53.4	55.8	68.9	83.5	104.8	116.5	114.5	93.7	76.2	63.1
78.5°	38.3	50.0	51.9	62.6	75.2	95.6	106.8	104.8	84.4	68.9	56.3
79°	35.4	46.6	49.0	56.8	67.9	86.9	97.5	96.1	75.7	61.6	50.0
79.5°	32.5	43.2	45.6	51.4	61.2	78.6	88.8	87.4	67.9	55.3	45.1
80°	29.6	39.8	42.7	46.6	54.8	70.9	80.6	79.1	60.2	50.0	39.8
80.5°	27.2	36.9	39.3	42.2	49.0	64.1	72.8	71.8	52.9	44.2	34.5
81°	24.8	34.0	36.9	38.3	44.6	56.8	65.5	64.5	47.1	38.8	29.6
81.5°	22.3	31.5	34.0	34.9	39.8	51.0	58.2	57.8	41.3	33.5	24.3
82°	19.9	28.6	31.5	31.5	35.4	45.6	51.9	51.0	35.4	28.1	20.4
82.5°	18.0	26.2	28.6	28.6	30.6	40.8	46.6	45.6	29.1	22.8	17.0
83°	15.5	23.3	26.2	25.7	26.2	35.9	41.3	40.3	23.3	18.9	13.6
83.5°	13.6	21.4	24.3	23.8	22.8	30.6	35.9	34.9	18.9	15.0	10.7
84°	12.1	18.9	21.8	21.4	19.9	25.7	30.6	29.6	14.6	11.6	8.3
84.5°	10.2	17.0	19.4	19.4	17.5	22.3	25.2	24.3	11.2	8.7	6.3
85°	8.7	15.0	17.5	17.5	15.0	18.9	21.4	19.9	7.8	5.8	4.4
85.5°	7.3	13.1	16.0	15.5	12.6	15.5	17.5	16.0	4.9	3.9	2.9
86°	5.8	11.2	14.1	14.1	11.2	13.1	14.1	12.6	2.9	2.4	1.5
86.5°	4.4	9.2	12.1	12.1	9.2	10.7	11.2	9.2	1.9	1.0	0.5
87°	3.4	7.8	10.2	10.7	7.8	8.3	8.7	6.8	1.5	0.5	0.0
87.5°	2.4	6.3	8.7	9.2	6.3	6.8	6.3	4.9	1.0	0.0	0.0
88°	1.9	4.9	7.3	7.8	5.3	4.9	4.4	2.9	0.5	0.0	0.0
88.5°	1.0	3.9	5.8	6.3	3.9	3.4	2.9	1.5	0.5	0.0	0.0



TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	1.5	2.4	2.9	1.5	1.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2684.8	2684.8	2684.8	2684.8	2684.8	2684.8
0.5°	2684.3	2681.9	2679.5	2678.0	2676.1	2675.1
1°	2683.8	2679.0	2674.6	2671.7	2668.8	2668.3
1.5°	2682.9	2676.1	2669.3	2664.4	2661.5	2661.0
2°	2681.9	2672.7	2663.9	2657.6	2653.7	2653.7
2.5°	2680.0	2668.8	2658.1	2650.4	2646.0	2646.0
3°	2678.0	2664.9	2651.8	2642.6	2637.7	2638.2
3.5°	2676.1	2661.0	2645.5	2634.8	2629.5	2630.5
4°	2673.2	2656.2	2638.7	2626.6	2620.3	2621.7
4.5°	2670.7	2651.3	2631.4	2617.8	2611.5	2613.5
5°	2667.3	2646.0	2624.1	2609.1	2601.8	2604.2
5.5°	2663.9	2640.2	2616.4	2599.9	2592.6	2595.5
6°	2660.1	2634.3	2608.1	2590.7	2582.9	2585.8
6.5°	2655.7	2628.0	2599.9	2580.9	2572.7	2576.1
7°	2651.3	2621.7	2591.1	2571.2	2562.5	2566.4
7.5°	2646.5	2614.4	2582.4	2561.1	2551.8	2556.2
8°	2641.1	2607.2	2573.2	2550.4	2541.2	2545.5
8.5°	2635.8	2599.4	2563.5	2539.7	2530.0	2534.8
9°	2629.5	2591.6	2553.8	2528.5	2518.3	2523.7
9.5°	2623.7	2583.4	2543.6	2517.4	2506.7	2513.0
10°	2616.9	2574.6	2532.9	2505.7	2495.0	2501.4
10.5°	2610.1	2566.4	2522.2	2493.6	2482.9	2490.2
11°	2602.8	2556.7	2511.1	2481.9	2470.8	2478.1
11.5°	2595.5	2547.0	2499.4	2469.3	2458.2	2465.9
12°	2587.3	2537.3	2487.8	2456.7	2445.1	2453.3
12.5°	2579.0	2527.1	2475.6	2443.6	2432.0	2441.2
13°	2570.3	2516.9	2463.5	2430.5	2418.9	2428.1
13.5°	2561.5	2505.7	2450.9	2416.9	2405.7	2415.0
14°	2552.3	2494.6	2437.8	2403.8	2391.7	2401.9
14.5°	2543.1	2483.4	2425.2	2389.7	2377.6	2387.8
15°	2532.9	2471.8	2411.6	2375.2	2363.5	2374.2
15.5°	2522.7	2459.6	2397.5	2360.6	2348.5	2360.1
16°	2512.0	2447.0	2383.9	2346.1	2334.4	2346.1
16.5°	2501.4	2434.4	2369.3	2331.0	2319.4	2331.5
17°	2490.2	2421.3	2354.8	2316.0	2304.3	2316.4
17.5°	2478.5	2407.7	2339.7	2299.9	2288.8	2301.4
18°	2466.4	2394.1	2324.7	2284.9	2273.3	2286.8
18.5°	2454.3	2380.0	2309.2	2268.4	2256.8	2271.3
19°	2442.1	2366.0	2293.2	2252.9	2241.2	2254.8
19.5°	2429.0	2351.4	2277.1	2235.9	2224.7	2239.3
20°	2415.9	2336.3	2260.6	2219.4	2208.2	2223.8
20.5°	2402.4	2321.3	2244.1	2201.9	2191.7	2207.3
21°	2388.8	2305.8	2227.1	2184.9	2174.2	2189.8

TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2346.1	2257.7	2175.2	2131.5	2121.8	2139.8
23°	2331.0	2241.2	2157.7	2113.6	2103.9	2122.3
23.5°	2316.0	2224.2	2139.8	2095.6	2085.9	2104.4
24°	2299.9	2206.8	2121.3	2077.2	2067.5	2086.4
24.5°	2284.4	2189.8	2102.9	2057.8	2049.0	2068.4
25°	2268.4	2171.8	2083.5	2038.8	2030.1	2050.0
25.5°	2251.9	2154.8	2065.1	2019.9	2011.2	2031.6
26°	2235.4	2136.4	2046.1	2000.5	1992.3	2012.6
26.5°	2218.4	2118.4	2026.7	1980.6	1972.8	1993.7
27°	2201.4	2099.5	2007.3	1960.7	1953.4	1974.3
27.5°	2184.0	2081.1	1987.4	1940.8	1933.5	1954.9
28°	2166.5	2062.1	1967.5	1920.9	1913.1	1935.5
28.5°	2148.5	2042.7	1947.6	1900.5	1893.2	1915.1
29°	2130.6	2023.8	1927.2	1879.7	1873.3	1895.2
29.5°	2112.1	2004.4	1906.8	1858.8	1852.5	1875.3
30°	2093.7	1985.0	1886.5	1838.4	1831.6	1854.9
30.5°	2075.2	1964.6	1865.6	1817.1	1811.2	1834.0
31°	2056.8	1944.7	1844.7	1796.2	1789.9	1813.2
31.5°	2037.4	1924.3	1823.4	1774.8	1769.0	1791.8
32°	2018.5	1903.9	1802.0	1753.0	1747.2	1770.9
32.5°	1998.6	1883.5	1781.1	1731.6	1725.8	1749.6
33°	1979.1	1863.2	1759.8	1709.8	1704.0	1728.2
33.5°	1959.3	1841.8	1738.4	1688.0	1682.1	1706.4
34°	1939.4	1821.4	1716.1	1666.1	1659.8	1684.1
34.5°	1919.9	1800.1	1694.7	1644.3	1638.0	1662.2
35°	1899.6	1779.2	1672.4	1622.0	1615.2	1639.9
35.5°	1879.2	1758.3	1650.6	1599.1	1593.3	1617.6
36°	1858.8	1736.5	1629.2	1577.3	1570.0	1594.8
36.5°	1838.4	1715.6	1606.9	1555.0	1548.2	1572.0
37°	1817.5	1694.3	1585.1	1532.2	1524.9	1549.2
37.5°	1796.7	1672.9	1563.2	1509.4	1502.1	1526.3
38°	1775.8	1651.1	1540.9	1486.5	1478.8	1502.6
38.5°	1754.9	1629.2	1519.1	1464.2	1456.0	1479.3
39°	1734.5	1607.9	1496.3	1441.4	1432.7	1456.5
39.5°	1713.2	1586.5	1474.4	1418.6	1409.4	1433.2
40°	1691.8	1564.7	1452.1	1395.8	1386.1	1408.4
40.5°	1671.0	1542.8	1430.2	1373.0	1362.8	1385.1
41°	1649.6	1520.5	1407.9	1350.2	1338.5	1360.8
41.5°	1628.7	1499.6	1385.1	1327.4	1315.2	1337.1
42°	1607.4	1478.3	1363.3	1304.1	1291.9	1312.3
42.5°	1585.6	1456.0	1341.4	1281.3	1268.1	1289.0
43°	1564.2	1434.1	1319.6	1258.0	1243.9	1264.3
43.5°	1542.8	1412.8	1296.8	1235.6	1220.6	1239.5

TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1477.8	1347.3	1230.8	1166.7	1148.3	1166.2
45.5°	1456.0	1326.4	1208.5	1144.4	1125.0	1141.5
46°	1434.6	1305.0	1187.1	1121.6	1101.2	1116.7
46.5°	1412.3	1282.7	1164.8	1098.8	1076.9	1092.0
47°	1390.0	1260.9	1143.4	1076.0	1053.2	1067.7
47.5°	1367.6	1239.5	1120.6	1053.2	1028.9	1042.5
48°	1344.8	1217.7	1099.7	1030.8	1005.1	1016.8
48.5°	1322.5	1195.8	1077.4	1008.0	981.3	992.5
49°	1299.7	1174.5	1056.1	985.7	957.5	967.7
49.5°	1276.4	1152.6	1034.2	962.9	934.2	943.0
50°	1254.1	1130.8	1012.4	940.6	910.0	917.7
50.5°	1231.8	1108.5	990.5	918.7	886.2	892.5
51°	1209.9	1086.6	969.2	896.4	862.9	867.8
51.5°	1188.1	1065.8	947.8	873.6	839.6	843.5
52°	1167.7	1045.4	927.0	852.2	816.3	818.3
52.5°	1145.8	1025.0	906.1	830.4	792.5	794.0
53°	1123.0	1004.6	886.2	809.0	769.2	768.8
53.5°	1098.8	983.8	865.3	787.2	746.4	744.0
54°	1072.6	961.9	844.9	765.8	723.1	719.7
54.5°	1046.4	939.6	824.1	745.5	700.3	695.5
55°	1017.2	916.3	802.7	724.6	678.0	670.7
55.5°	988.1	891.5	780.4	702.7	655.7	646.9
56°	957.5	866.8	758.6	681.9	633.8	622.7
56.5°	927.5	841.6	736.2	660.0	611.5	598.9
57°	895.4	815.3	713.9	638.7	589.7	575.1
57.5°	864.4	788.7	691.1	616.8	567.8	551.3
58°	832.3	762.0	668.8	596.0	546.5	529.0
58.5°	800.3	735.3	645.0	574.6	525.1	505.7
59°	768.8	707.6	622.2	553.3	503.8	482.9
59.5°	737.2	680.4	598.9	531.9	482.4	460.1
60°	705.2	653.2	575.1	511.0	461.1	438.2
60.5°	674.1	626.1	551.3	489.2	440.2	416.4
61°	643.5	598.9	527.5	468.3	419.3	395.1
61.5°	612.5	572.2	503.8	447.5	398.9	373.2
62°	581.9	545.5	480.5	426.6	379.0	352.8
62.5°	552.8	519.3	456.7	405.2	358.7	332.4
63°	523.7	493.6	432.9	384.4	339.2	312.5
63.5°	495.5	467.9	410.1	362.5	319.8	292.2
64°	468.8	442.6	387.3	341.7	301.4	273.7
64.5°	443.1	418.8	365.0	320.8	282.9	255.3
65°	417.4	395.1	342.6	300.9	265.0	237.3
65.5°	392.1	370.8	321.8	280.0	246.5	219.9
66°	366.4	347.5	299.9	259.6	229.6	203.4



TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	297.0	283.9	240.7	204.3	179.1	160.6
68°	277.1	263.5	221.8	186.8	165.5	148.5
68.5°	257.7	244.1	203.8	169.4	151.9	136.9
69°	239.3	226.2	186.8	156.3	138.8	124.7
69.5°	222.3	209.2	169.9	143.2	125.2	115.5
70°	206.7	192.7	156.8	129.6	111.6	108.7
70.5°	191.2	177.6	144.1	116.5	101.9	104.3
71°	176.7	165.0	131.0	105.3	95.1	99.5
71.5°	163.6	152.4	117.9	96.1	90.3	94.6
72°	150.5	140.3	107.3	87.8	85.9	89.8
72.5°	139.3	127.6	97.5	80.6	81.5	84.9
73°	128.1	115.5	88.3	74.3	77.2	80.1
73.5°	117.4	104.8	80.1	68.4	72.8	75.7
74°	107.7	95.6	72.8	63.6	68.4	71.3
74.5°	98.0	86.9	66.5	59.7	64.5	67.0
75°	89.3	79.1	60.2	55.8	60.7	62.6
75.5°	81.0	71.3	54.8	52.4	56.8	58.7
76°	73.8	64.5	49.5	49.0	52.9	54.8
76.5°	66.0	57.8	45.1	46.1	49.5	51.4
77°	59.7	51.9	41.3	42.7	46.1	48.0
77.5°	53.4	46.6	37.4	40.3	42.7	44.6
78°	48.0	41.7	34.0	37.4	39.8	41.3
78.5°	43.2	36.9	31.1	34.5	36.9	38.3
79°	37.9	33.0	28.1	32.0	34.0	35.4
79.5°	33.0	29.1	25.7	29.1	31.1	32.5
80°	28.1	25.2	23.3	26.7	28.1	29.6
80.5°	24.3	22.3	21.4	24.3	25.7	27.2
81°	20.9	19.4	19.4	22.3	23.3	24.8
81.5°	17.5	17.5	17.5	19.9	20.9	22.3
82°	14.6	15.5	15.5	18.0	18.4	19.9
82.5°	12.1	13.1	13.6	16.0	16.5	18.0
83°	9.7	11.2	12.1	14.1	14.6	15.5
83.5°	7.8	9.2	10.2	12.1	12.6	13.6
84°	6.3	7.8	8.7	10.2	10.7	12.1
84.5°	4.4	6.3	7.8	8.7	8.7	10.2
85°	3.4	5.3	6.3	7.3	7.3	8.7
85.5°	2.4	3.9	4.9	6.3	5.8	7.3
86°	1.5	2.9	3.9	4.9	4.9	5.8
86.5°	0.5	1.9	2.4	3.4	3.9	4.4
87°	0.0	1.0	1.5	2.4	2.9	3.4
87.5°	0.0	0.5	0.5	1.5	1.9	2.4
88°	0.0	0.0	0.0	0.5	1.0	1.9
88.5°	0.0	0.0	0.0	0.0	0.5	1.0



TEST NUMBER: P776759

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-HCD81TRLWW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	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°	2173.3	2247.0	2306.7	2386.3	2464.5	2563.0	2632.4	2656.2	2639.2	2566.9	2482.9
22°	2156.8	2231.5	2291.7	2372.3	2452.3	2552.8	2623.7	2647.4	2630.5	2556.2	2470.3



44°	1215.2	1325.9	1407.0	1517.6	1633.6	1802.0	1933.0	1981.1	1954.9	1831.1	1695.2
44.5°	1191.0	1301.6	1384.1	1495.3	1611.3	1780.7	1912.7	1960.7	1935.0	1810.3	1673.9



66.5°	187.8	292.6	381.0	472.2	518.3	582.9	613.0	596.5	543.1	441.6	394.1
67°	172.3	273.2	359.6	448.0	491.1	550.8	579.0	562.0	508.1	415.4	368.4



89°	0.5	2.9	4.9	5.3	2.9	2.4	1.5	0.5	0.0	0.0	0.0
89.5°	0.0	1.9	3.4	3.9	1.9	1.5	0.5	0.0	0.0	0.0	0.0

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21.5°	2374.7	2289.8	2210.2	2167.5	2156.8	2173.3
22°	2360.1	2273.7	2193.2	2149.5	2139.8	2156.8



44°	1521.5	1391.4	1274.5	1212.3	1196.8	1215.2
44.5°	1499.2	1369.1	1252.6	1190.0	1172.5	1191.0



66.5°	341.2	326.1	279.5	240.7	212.1	187.8
67°	317.9	304.3	259.2	221.8	195.1	172.3

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

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Scaled Data Report



(END OF REPORT)