

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: P776669

Luminaire Tested: HCDJBS4050CSD-HCD61TRMW-5000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776669
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B037)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD61TRMW-5000lm-5000K
Description: 6 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

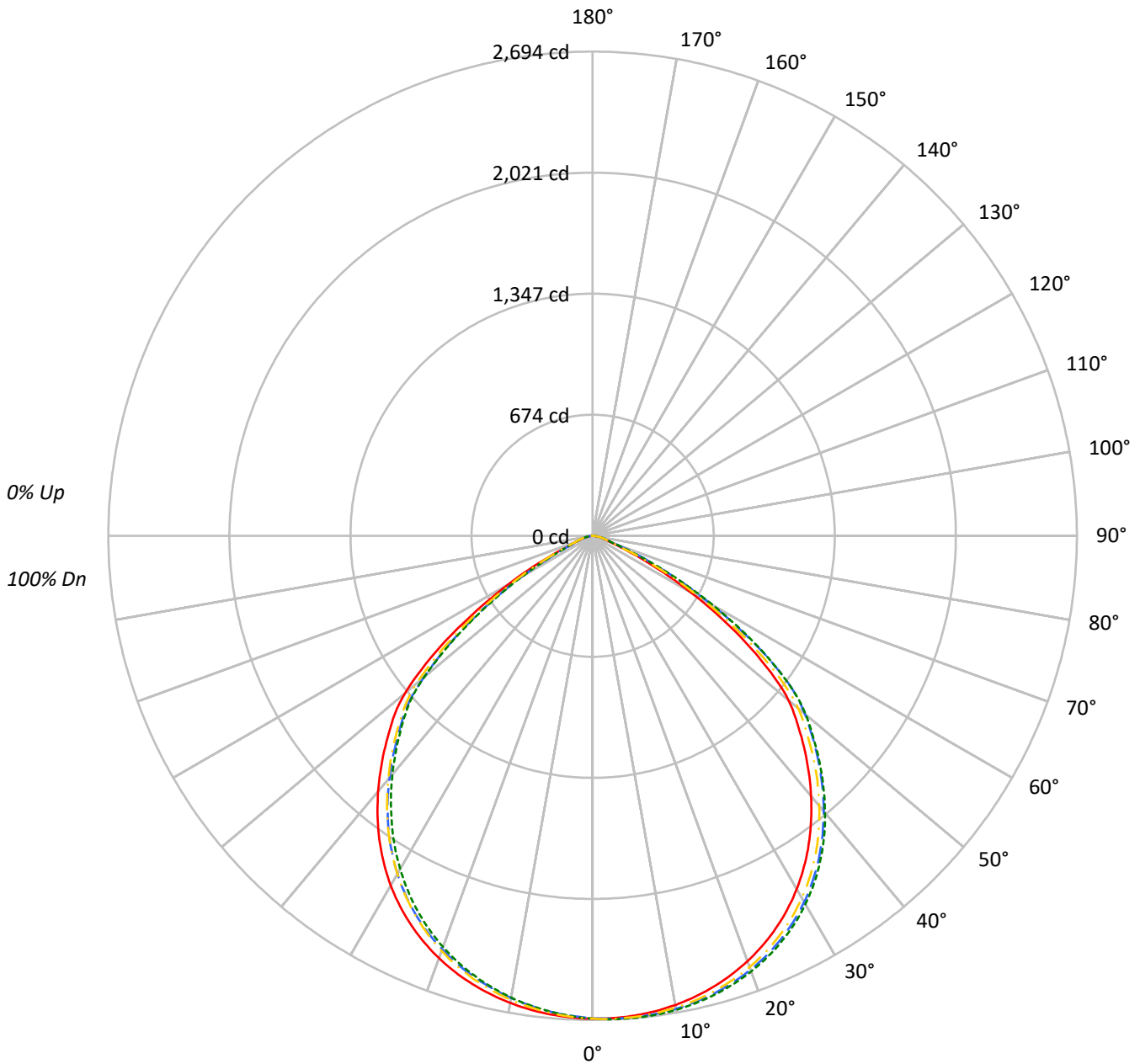
Lumens per Lamp: N/A
Luminaire Lumens: 5927.5 lumens
Efficiency: N/A
Efficacy: 123.5 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.32
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): 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					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	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89								
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77								
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67								
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59								
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52								
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46								
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41								
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37								
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	34								
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	30								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	147247	147247	147247	147247
5°	147463	148206	147138	146313
10°	147570	149112	146924	145221
15°	147453	149904	146573	143871
20°	146954	150496	145881	142002
25°	145823	150607	144559	139333
30°	143693	149840	142186	135553
35°	140257	147759	138370	130413
40°	135325	143934	132820	123997
45°	128913	138394	125796	116500
50°	121284	132132	115988	104397
55°	100011	115093	91103	77980
60°	69391	84664	59491	49119
65°	37592	49992	28395	25126
70°	17888	21238	15644	15564
75°	14403	16246	11925	12539
80°	10892	13322	8113	9502
85°	6730	10693	3334	5472

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 142271 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	254.4	4.3
10°-20°	730.3	12.3
20°-30°	1103.7	18.6
30°-40°	1298.1	21.9
40°-50°	1264.1	21.3
50°-60°	891.7	15.0
60°-70°	298.8	5.0
70°-80°	72.1	1.2
80°-90°	14.3	0.2
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°	2088.5	35.2
0°-40°	3386.5	57.1
0°-60°	5542.3	93.5
0°-90°	5927.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5927.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2686	2686	2686	2686	2686	
5°	2680	2693	2674	2659	2680	255
15°	2598	2641	2583	2535	2598	733
25°	2411	2490	2390	2304	2411	1110
35°	2096	2208	2068	1949	2096	1308
45°	1663	1785	1623	1503	1663	1281
55°	1046	1204	953	816	1046	927
65°	290	385	219	194	290	311
75°	68	77	56	59	68	73
85°	11	17	5	9	11	14
90°	0	0	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°	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0
0.5°	2687.4	2686.9	2685.5	2683.1	2688.4	2688.9	2688.4	2688.4	2686.9	2685.0	2682.6
1°	2687.4	2687.4	2686.9	2685.0	2689.9	2689.9	2689.4	2688.4	2686.5	2684.0	2680.6
1.5°	2687.4	2687.9	2687.4	2686.5	2690.8	2690.8	2689.9	2687.9	2685.0	2682.1	2678.7
2°	2686.9	2687.9	2688.4	2687.9	2691.8	2691.3	2689.9	2687.4	2684.0	2680.6	2676.3
2.5°	2686.0	2687.9	2688.9	2688.9	2692.8	2691.3	2689.9	2686.9	2683.1	2678.7	2674.3
3°	2685.5	2687.9	2689.4	2689.9	2692.8	2691.8	2689.9	2686.0	2681.1	2676.7	2671.4
3.5°	2684.0	2687.9	2689.9	2690.8	2693.2	2691.8	2689.4	2685.0	2679.7	2674.3	2668.5
4°	2683.1	2686.9	2689.4	2691.3	2693.2	2691.8	2688.9	2684.0	2678.2	2671.9	2665.6
4.5°	2681.1	2686.0	2689.4	2691.8	2693.7	2691.3	2688.4	2682.1	2675.8	2669.0	2661.7
5°	2679.7	2685.0	2688.9	2691.8	2693.2	2690.8	2686.9	2680.6	2673.8	2666.1	2658.8
5.5°	2677.7	2684.0	2687.9	2691.3	2692.8	2689.9	2686.0	2678.7	2671.4	2663.2	2654.9
6°	2675.8	2682.1	2687.4	2691.3	2691.8	2688.9	2685.0	2676.7	2668.5	2659.8	2651.0
6.5°	2673.3	2680.6	2686.0	2690.8	2690.8	2687.9	2683.1	2674.3	2665.6	2655.9	2646.7
7°	2670.9	2678.7	2684.5	2689.9	2689.9	2686.0	2681.6	2671.9	2662.7	2652.5	2642.3
7.5°	2668.0	2676.7	2683.1	2688.9	2688.4	2684.5	2679.7	2669.0	2659.3	2648.6	2637.4
8°	2665.1	2674.3	2681.1	2687.9	2686.9	2682.6	2677.2	2666.1	2655.9	2644.2	2633.1
8.5°	2661.7	2671.9	2679.7	2686.9	2685.0	2680.6	2674.3	2663.2	2652.0	2639.9	2627.7
9°	2658.3	2669.0	2677.2	2685.0	2683.1	2678.2	2671.9	2659.8	2648.1	2635.0	2622.9
9.5°	2654.4	2666.1	2674.8	2683.1	2681.1	2675.8	2669.5	2656.4	2643.7	2630.2	2617.0
10°	2651.0	2662.7	2672.4	2681.1	2678.7	2672.9	2666.1	2652.0	2639.4	2625.3	2611.7
10.5°	2646.7	2659.3	2669.5	2679.2	2675.8	2669.5	2662.7	2648.1	2634.5	2620.0	2605.4
11°	2642.3	2655.4	2666.1	2676.3	2672.9	2666.6	2659.3	2643.7	2629.7	2614.6	2599.6
11.5°	2637.4	2651.5	2663.2	2673.8	2669.5	2662.7	2655.4	2639.4	2624.8	2608.8	2593.3
12°	2632.6	2647.1	2659.3	2670.9	2666.1	2659.3	2651.5	2634.5	2619.5	2603.0	2587.0
12.5°	2627.2	2642.8	2655.4	2667.5	2662.7	2655.4	2647.1	2629.7	2613.7	2596.7	2580.2
13°	2621.9	2637.9	2651.5	2664.1	2658.8	2651.5	2642.8	2624.3	2607.8	2590.4	2572.9
13.5°	2616.1	2633.6	2647.1	2660.7	2654.9	2646.7	2637.9	2619.0	2602.0	2583.6	2565.6
14°	2610.3	2628.2	2642.8	2656.8	2650.5	2642.3	2633.1	2613.2	2595.7	2576.8	2558.3
14.5°	2604.4	2622.9	2637.9	2653.0	2645.7	2637.4	2627.7	2607.3	2588.9	2569.5	2550.1
15°	2598.1	2617.0	2633.1	2648.1	2641.3	2632.6	2622.4	2601.0	2582.6	2562.7	2542.3
15.5°	2591.3	2611.2	2627.7	2643.7	2636.5	2626.8	2616.6	2594.7	2575.3	2554.9	2534.1
16°	2584.5	2604.9	2622.4	2638.9	2631.1	2621.4	2610.3	2587.9	2568.5	2547.2	2525.8
16.5°	2577.2	2598.6	2616.1	2634.5	2625.3	2615.6	2604.4	2581.1	2560.7	2538.9	2517.1
17°	2569.5	2591.8	2610.7	2628.7	2620.0	2609.3	2598.1	2573.9	2553.0	2530.7	2507.8
17.5°	2561.7	2585.0	2604.4	2623.4	2613.7	2603.0	2591.3	2566.1	2544.7	2521.9	2498.6
18°	2554.0	2577.7	2598.1	2617.5	2607.3	2596.7	2584.0	2558.3	2536.5	2513.2	2489.4
18.5°	2545.7	2570.5	2591.3	2611.2	2600.5	2589.4	2576.8	2550.6	2528.2	2504.0	2479.2
19°	2537.0	2562.7	2584.0	2604.9	2594.2	2582.6	2569.5	2542.3	2519.0	2494.7	2469.5
19.5°	2528.2	2554.4	2576.8	2598.6	2587.0	2574.8	2561.7	2533.6	2509.8	2485.0	2459.3
20°	2519.0	2546.2	2569.0	2591.8	2579.7	2567.1	2554.0	2524.8	2500.6	2474.8	2448.6
20.5°	2509.8	2537.9	2561.7	2584.5	2571.9	2558.8	2545.2	2515.6	2490.9	2464.6	2437.5
21°	2500.1	2528.7	2553.5	2577.2	2564.1	2550.6	2536.5	2505.9	2481.1	2454.5	2426.8

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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°	2468.5	2500.6	2527.3	2554.0	2538.4	2523.9	2508.8	2476.3	2449.1	2421.0	2391.8
23°	2457.9	2490.9	2518.0	2545.2	2529.2	2514.6	2499.1	2465.6	2437.5	2409.3	2378.7
23.5°	2446.7	2480.2	2508.3	2536.5	2520.0	2504.9	2488.9	2454.5	2426.3	2397.2	2366.6
24°	2435.0	2469.5	2498.1	2527.7	2510.3	2494.7	2478.2	2443.3	2414.2	2385.0	2353.5
24.5°	2423.4	2458.3	2487.9	2518.0	2500.1	2484.1	2467.6	2431.6	2402.0	2371.9	2340.4
25°	2410.8	2446.7	2477.3	2508.3	2489.9	2473.4	2456.9	2420.0	2389.9	2359.3	2326.8
25.5°	2398.2	2435.0	2466.6	2498.1	2479.2	2462.2	2445.2	2407.4	2376.8	2346.2	2312.2
26°	2385.0	2422.9	2454.9	2487.9	2468.0	2451.1	2433.6	2394.8	2363.7	2332.6	2298.2
26.5°	2372.4	2410.8	2443.8	2477.3	2456.9	2438.9	2421.9	2382.1	2350.1	2318.1	2283.6
27°	2358.4	2397.7	2431.6	2466.1	2445.2	2427.3	2409.3	2368.5	2336.5	2304.5	2268.6
27.5°	2344.8	2385.0	2419.5	2454.9	2433.1	2414.7	2396.2	2355.0	2322.4	2289.9	2253.5
28°	2330.2	2371.9	2407.4	2443.3	2420.5	2401.5	2383.6	2341.4	2307.9	2274.4	2237.5
28.5°	2316.1	2357.9	2394.3	2431.6	2407.9	2388.4	2370.0	2327.3	2292.8	2259.3	2222.0
29°	2301.1	2343.8	2381.2	2419.0	2394.8	2374.9	2355.9	2312.7	2277.8	2243.3	2205.5
29.5°	2285.5	2329.7	2367.1	2406.4	2381.2	2360.8	2341.9	2297.7	2261.8	2227.3	2189.0
30°	2270.0	2314.7	2353.5	2393.3	2367.1	2347.2	2327.8	2282.2	2246.2	2210.8	2171.5
30.5°	2254.5	2299.6	2339.4	2379.7	2353.0	2332.1	2312.2	2266.6	2229.7	2193.8	2154.0
31°	2238.0	2284.6	2324.4	2366.6	2338.5	2317.1	2297.2	2250.6	2213.2	2176.8	2136.5
31.5°	2221.5	2268.6	2309.3	2352.0	2323.4	2301.6	2282.2	2234.1	2196.2	2159.4	2118.1
32°	2204.5	2252.1	2293.8	2337.5	2308.4	2286.0	2265.6	2217.1	2178.8	2141.4	2099.7
32.5°	2187.0	2236.0	2278.3	2322.4	2292.3	2270.0	2249.1	2200.1	2161.3	2123.0	2080.2
33°	2169.5	2219.1	2261.8	2307.4	2276.3	2253.0	2232.6	2183.1	2143.3	2104.5	2061.3
33.5°	2151.6	2201.6	2245.3	2291.4	2259.8	2236.0	2215.7	2165.2	2124.4	2085.1	2042.4
34°	2133.1	2184.6	2228.8	2275.8	2243.3	2219.1	2198.2	2146.7	2105.5	2065.7	2022.0
34.5°	2115.2	2166.6	2211.3	2259.3	2225.9	2201.6	2180.2	2128.3	2086.6	2046.3	2002.1
35°	2095.8	2148.7	2193.8	2242.4	2207.9	2183.6	2162.3	2109.8	2067.6	2026.4	1981.2
35.5°	2076.8	2129.7	2175.9	2225.4	2189.9	2165.7	2143.3	2090.4	2047.7	2005.5	1960.4
36°	2056.5	2110.8	2157.4	2207.9	2172.0	2146.3	2124.9	2071.0	2027.3	1985.1	1938.5
36.5°	2037.0	2091.9	2139.0	2189.9	2153.0	2126.8	2105.5	2051.1	2006.5	1963.8	1917.2
37°	2017.6	2072.5	2119.6	2172.0	2133.6	2107.4	2085.6	2031.2	1986.1	1942.4	1895.3
37.5°	1996.8	2053.1	2101.1	2153.0	2113.7	2087.5	2065.7	2010.4	1965.2	1921.0	1873.5
38°	1975.9	2032.7	2081.2	2134.1	2094.3	2067.6	2045.8	1989.5	1944.3	1899.2	1850.7
38.5°	1955.0	2012.3	2061.3	2114.7	2073.4	2047.2	2024.9	1968.6	1922.0	1876.9	1827.4
39°	1933.7	1991.4	2040.9	2095.3	2053.5	2025.9	2004.0	1946.8	1900.2	1854.1	1804.6
39.5°	1912.8	1970.6	2020.5	2074.9	2032.2	2005.0	1982.7	1924.9	1878.3	1830.8	1781.3
40°	1891.0	1949.7	1999.7	2054.5	2011.3	1983.7	1961.3	1903.6	1856.0	1808.0	1757.5
40.5°	1868.6	1927.8	1978.8	2033.6	1989.5	1961.8	1939.5	1881.2	1833.7	1784.7	1734.7
41°	1846.8	1906.0	1957.0	2012.8	1968.1	1939.5	1917.6	1858.9	1810.4	1760.9	1709.9
41.5°	1824.5	1884.2	1935.1	1990.9	1946.3	1917.6	1894.8	1835.6	1787.6	1737.6	1686.1
42°	1801.6	1862.3	1913.3	1969.6	1924.0	1895.3	1872.5	1812.8	1764.3	1713.8	1661.9
42.5°	1778.8	1840.0	1891.4	1947.7	1901.1	1872.5	1850.7	1790.0	1741.0	1690.0	1637.6
43°	1756.0	1817.2	1868.6	1925.9	1878.3	1849.7	1827.4	1766.7	1717.7	1665.3	1612.4
43.5°	1733.2	1794.4	1846.3	1903.1	1855.5	1826.9	1803.6	1743.4	1693.9	1641.0	1588.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1662.8	1725.0	1777.4	1835.1	1785.1	1756.0	1733.2	1671.6	1622.6	1568.7	1516.3
45.5°	1639.1	1701.2	1754.6	1811.8	1761.4	1732.2	1709.4	1647.8	1598.8	1545.4	1493.0
46°	1615.3	1677.4	1730.8	1788.5	1738.1	1708.0	1685.2	1624.0	1574.5	1521.6	1470.1
46.5°	1591.0	1653.6	1707.0	1764.8	1713.8	1684.2	1660.9	1599.7	1550.7	1497.8	1446.9
47°	1567.7	1630.3	1683.2	1741.0	1689.5	1660.9	1637.6	1576.4	1527.9	1475.0	1422.1
47.5°	1544.4	1606.5	1659.9	1717.2	1666.2	1637.6	1614.3	1553.1	1504.6	1450.2	1395.9
48°	1521.1	1582.8	1635.7	1692.9	1643.4	1613.8	1591.0	1529.8	1479.4	1423.6	1367.3
48.5°	1496.8	1559.5	1612.4	1669.6	1619.6	1591.5	1567.2	1505.1	1452.7	1394.4	1334.7
49°	1474.0	1536.2	1588.6	1645.8	1596.3	1567.2	1543.9	1477.4	1424.5	1362.4	1300.3
49.5°	1448.3	1511.9	1565.8	1621.6	1573.0	1543.9	1519.2	1449.3	1393.5	1327.9	1262.9
50°	1422.1	1487.6	1542.0	1598.3	1549.3	1517.7	1492.0	1419.2	1360.0	1291.5	1225.5
50.5°	1393.5	1460.9	1517.2	1575.0	1523.1	1490.5	1463.8	1387.2	1325.0	1255.6	1188.2
51°	1360.9	1432.3	1490.5	1551.2	1495.4	1460.4	1433.3	1352.7	1289.1	1217.3	1148.8
51.5°	1324.5	1400.3	1461.9	1526.0	1466.3	1426.0	1399.3	1315.3	1249.8	1178.4	1109.5
52°	1287.7	1366.3	1431.8	1498.8	1433.3	1391.0	1362.9	1275.5	1209.5	1138.6	1069.2
52.5°	1249.3	1329.9	1398.3	1470.1	1397.3	1355.6	1327.0	1234.7	1168.7	1098.4	1029.4
53°	1210.0	1291.5	1363.4	1439.6	1361.4	1317.7	1287.7	1193.0	1127.0	1056.1	989.2
53.5°	1169.2	1251.7	1325.5	1406.6	1323.1	1279.4	1248.3	1149.8	1084.8	1014.4	948.9
54°	1128.9	1212.4	1285.7	1370.6	1284.3	1240.6	1207.6	1107.1	1041.1	973.1	909.1
54.5°	1087.7	1171.2	1243.5	1332.3	1244.0	1201.7	1166.3	1064.9	997.9	931.4	868.3
55°	1046.4	1129.4	1201.3	1291.5	1204.2	1161.5	1123.6	1020.2	953.2	888.2	827.0
55.5°	1004.7	1085.7	1158.1	1249.8	1162.9	1120.2	1081.4	977.5	909.6	846.5	787.3
56°	963.9	1042.5	1113.9	1206.6	1121.2	1078.0	1038.7	933.8	865.4	804.7	747.0
56.5°	921.2	998.9	1068.8	1162.9	1078.5	1035.3	995.5	892.1	822.2	763.0	707.2
57°	880.0	954.2	1023.1	1118.7	1035.3	992.6	951.8	849.9	780.0	722.2	668.3
57.5°	838.2	910.5	979.0	1074.1	991.1	949.8	909.1	808.6	738.2	681.4	630.5
58°	796.0	865.9	934.8	1030.4	947.9	906.2	866.4	766.9	697.0	641.2	592.6
58.5°	754.7	821.2	889.7	986.2	903.7	861.5	824.1	725.6	656.2	602.3	555.2
59°	714.0	778.5	845.5	942.6	859.6	817.3	781.4	684.4	617.4	563.0	519.3
59.5°	673.7	735.8	802.8	899.9	815.9	773.2	739.7	645.5	579.5	525.6	484.9
60°	632.9	693.6	761.0	856.7	772.2	730.0	698.4	605.7	542.6	488.8	451.9
60.5°	593.1	652.8	719.3	814.4	729.5	686.8	657.7	567.9	506.7	456.2	418.9
61°	555.7	612.5	676.6	771.7	687.8	644.6	617.9	529.5	471.3	423.7	385.9
61.5°	517.4	573.2	636.8	731.9	647.0	603.3	578.5	493.6	438.3	391.7	352.9
62°	481.5	534.9	598.0	689.7	606.2	562.5	539.2	460.1	405.3	359.2	319.9
62.5°	446.5	498.0	560.1	649.9	565.9	522.2	500.9	426.1	371.8	326.6	291.7
63°	413.0	462.5	522.7	610.6	527.1	484.4	466.4	392.7	338.8	299.0	265.0
63.5°	380.0	427.6	485.8	571.8	489.2	449.0	431.5	359.2	305.3	273.3	240.3
64°	349.0	394.6	450.9	533.4	454.3	414.0	396.5	325.7	274.7	248.5	217.4
64.5°	318.9	362.6	416.9	495.6	419.8	378.6	362.1	295.6	245.6	225.2	196.6
65°	289.8	332.5	384.4	459.6	385.4	343.6	327.1	267.4	218.9	203.9	178.1
65.5°	262.1	303.3	353.3	424.7	350.4	312.6	295.6	240.7	193.7	184.0	161.6
66°	235.9	277.1	323.2	390.2	316.0	282.5	266.5	216.0	172.3	167.0	148.0



TEST NUMBER: P776669

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	170.4	205.8	240.7	294.6	231.5	205.3	191.2	154.8	125.2	126.2	117.9
68°	157.3	185.4	216.5	266.5	206.3	183.5	171.3	139.8	116.5	117.0	111.1
68.5°	144.6	168.9	194.1	239.3	184.9	163.6	153.9	127.2	111.1	109.2	106.3
69°	131.5	155.8	174.7	214.5	164.5	146.6	139.3	117.0	106.8	103.9	101.9
69.5°	118.4	143.2	161.6	191.2	147.5	132.0	126.7	109.7	102.4	99.5	98.0
70°	111.6	130.1	148.5	169.9	132.5	120.9	117.0	104.4	97.6	95.1	93.7
70.5°	106.8	117.5	135.9	156.3	121.3	111.6	109.7	100.0	93.2	90.8	89.8
71°	102.4	109.2	123.3	142.2	112.1	106.3	104.8	95.6	88.3	86.9	85.9
71.5°	98.0	103.4	110.2	128.6	105.8	101.9	100.5	91.2	84.0	82.5	81.5
72°	93.7	99.0	104.8	115.0	101.4	97.6	96.6	86.9	79.6	78.1	77.7
72.5°	88.8	94.6	101.0	107.7	97.1	93.2	92.2	82.5	75.2	74.3	73.8
73°	84.5	90.3	96.6	103.4	93.2	89.3	87.8	78.1	71.3	70.4	69.9
73.5°	80.1	85.9	92.2	99.0	88.8	84.9	84.0	74.3	67.5	66.5	66.5
74°	76.2	81.5	87.8	95.1	84.5	81.1	79.6	69.9	63.6	62.6	62.6
74.5°	71.8	77.7	84.0	90.8	80.6	76.7	75.7	66.0	59.7	58.7	59.2
75°	68.0	73.3	79.6	86.4	76.7	72.8	71.8	62.1	56.3	55.3	55.8
75.5°	64.1	69.4	75.7	82.5	72.8	68.9	68.0	58.7	52.9	51.9	52.4
76°	60.2	65.5	71.3	78.1	68.9	65.5	64.1	54.8	49.5	48.5	49.5
76.5°	56.8	61.6	68.0	74.3	65.0	61.6	60.7	51.4	46.1	45.1	46.1
77°	52.9	58.2	64.1	70.4	61.6	58.2	57.3	48.1	42.7	42.2	43.2
77.5°	49.5	54.4	60.2	66.5	58.2	54.8	53.9	44.7	39.8	39.3	40.3
78°	46.6	51.0	56.8	63.1	54.8	51.4	50.5	41.7	36.9	36.4	37.4
78.5°	43.2	47.6	53.4	59.2	51.4	48.5	47.1	38.8	34.0	33.0	34.5
79°	40.3	44.7	50.0	55.8	48.1	45.1	44.2	35.9	31.1	30.1	32.0
79.5°	37.4	41.3	46.6	52.9	45.1	42.7	41.3	33.0	28.2	27.7	29.1
80°	34.5	38.3	43.7	49.5	42.2	39.8	38.3	30.1	25.7	24.8	26.2
80.5°	31.5	35.4	40.8	46.1	39.3	36.9	35.4	27.2	23.3	22.3	23.8
81°	29.1	32.5	37.9	43.2	36.4	34.0	32.5	24.8	20.9	19.9	21.8
81.5°	26.7	30.1	34.9	40.3	33.5	31.5	29.6	21.8	18.4	17.5	19.4
82°	23.8	27.2	32.0	37.4	30.6	28.6	27.2	19.9	16.5	15.0	17.0
82.5°	21.4	24.8	29.6	34.9	28.2	26.2	24.8	17.5	14.1	13.1	15.0
83°	19.4	22.3	27.2	32.0	25.7	23.8	22.3	15.0	12.1	11.2	13.1
83.5°	17.0	20.4	24.8	29.6	23.8	21.4	19.9	13.1	10.2	9.2	11.2
84°	15.0	18.0	22.3	27.2	21.4	19.4	18.0	11.2	8.3	7.3	9.2
84.5°	13.1	16.0	19.9	24.8	18.9	17.0	15.5	9.2	6.8	5.8	7.8
85°	10.7	13.6	18.0	22.3	17.0	15.0	13.6	7.8	5.3	4.9	6.3
85.5°	8.7	11.6	15.5	19.9	15.0	13.1	11.6	6.3	3.9	3.9	4.9
86°	7.3	9.7	13.6	18.0	13.1	11.2	10.2	5.3	3.4	2.9	3.4
86.5°	5.3	7.8	12.1	16.0	11.2	9.2	8.3	3.9	2.4	1.9	1.9
87°	4.4	6.3	10.2	14.1	9.2	7.8	6.8	2.9	1.5	1.0	1.0
87.5°	3.4	5.3	8.7	12.1	7.3	5.8	5.3	1.9	1.0	0.5	0.0
88°	2.4	4.4	6.8	10.2	5.8	4.4	3.9	1.0	0.5	0.0	0.0
88.5°	1.5	2.9	5.3	8.3	4.4	2.9	2.4	0.5	0.0	0.0	0.0



TEST NUMBER: P776669

CATALOG NUMBER: HCDJBL4050CSD-HCD61TRMW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.5	1.5	3.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776669

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2686.0	2686.0	2686.0	2686.0	2686.0	2686.0
0.5°	2679.2	2685.0	2686.0	2686.0	2687.4	2687.4
1°	2676.7	2683.1	2684.0	2684.5	2686.9	2687.4
1.5°	2673.8	2680.6	2682.1	2683.1	2686.0	2687.4
2°	2670.9	2678.2	2680.1	2681.1	2685.0	2686.9
2.5°	2668.0	2675.3	2677.7	2679.2	2683.5	2686.0
3°	2664.6	2672.4	2675.3	2677.2	2682.1	2685.5
3.5°	2661.2	2669.5	2672.4	2674.3	2680.6	2684.0
4°	2657.8	2666.1	2669.5	2671.9	2678.2	2683.1
4.5°	2653.9	2662.7	2666.1	2669.0	2676.3	2681.1
5°	2649.6	2658.8	2662.2	2665.6	2673.8	2679.7
5.5°	2645.2	2654.9	2658.8	2662.2	2671.4	2677.7
6°	2640.3	2650.5	2654.9	2658.8	2668.5	2675.8
6.5°	2635.5	2646.2	2651.0	2654.9	2665.6	2673.3
7°	2630.6	2641.3	2646.7	2651.0	2662.2	2670.9
7.5°	2625.3	2636.5	2641.8	2646.7	2658.8	2668.0
8°	2620.0	2631.6	2636.9	2642.3	2655.4	2665.1
8.5°	2614.1	2626.3	2632.1	2637.4	2651.5	2661.7
9°	2608.3	2620.9	2626.8	2632.6	2647.1	2658.3
9.5°	2602.5	2615.1	2621.4	2627.2	2642.8	2654.4
10°	2595.7	2608.8	2615.6	2621.9	2637.9	2651.0
10.5°	2589.4	2603.0	2609.8	2616.1	2633.1	2646.7
11°	2582.1	2596.2	2603.5	2610.3	2627.7	2642.3
11.5°	2575.3	2589.4	2596.7	2603.9	2622.9	2637.4
12°	2568.0	2582.6	2589.9	2597.6	2617.5	2632.6
12.5°	2560.3	2575.3	2583.1	2590.8	2611.2	2627.2
13°	2552.0	2567.5	2575.8	2584.0	2605.4	2621.9
13.5°	2544.2	2559.8	2568.0	2576.8	2598.6	2616.1
14°	2536.0	2552.0	2560.3	2569.5	2591.8	2610.3
14.5°	2527.3	2543.8	2552.0	2561.2	2585.0	2604.4
15°	2518.5	2535.0	2544.2	2554.0	2578.2	2598.1
15.5°	2509.3	2526.3	2535.5	2545.2	2570.5	2591.3
16°	2500.1	2517.1	2526.8	2536.5	2562.7	2584.5
16.5°	2490.4	2507.8	2517.1	2527.7	2554.4	2577.2
17°	2480.2	2498.1	2507.8	2518.5	2546.2	2569.5
17.5°	2470.5	2487.9	2498.1	2509.3	2537.9	2561.7
18°	2459.8	2478.2	2487.9	2499.6	2529.2	2554.0
18.5°	2449.1	2467.1	2477.8	2489.4	2520.0	2545.7
19°	2438.0	2456.9	2467.1	2479.2	2510.3	2537.0
19.5°	2426.3	2445.7	2456.4	2468.5	2500.6	2528.2
20°	2414.7	2434.1	2445.2	2457.9	2490.9	2519.0
20.5°	2403.0	2422.9	2433.1	2446.7	2480.7	2509.8
21°	2390.9	2410.3	2421.4	2435.0	2470.0	2500.1

TEST NUMBER: P776669

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2352.0	2372.4	2384.6	2398.6	2436.5	2468.5
23°	2338.9	2359.8	2371.0	2385.5	2424.8	2457.9
23.5°	2324.9	2346.2	2357.9	2372.4	2412.7	2446.7
24°	2310.8	2332.1	2344.3	2358.8	2400.6	2435.0
24.5°	2296.7	2318.1	2330.2	2345.2	2388.0	2423.4
25°	2281.7	2303.5	2315.6	2331.7	2374.4	2410.8
25.5°	2266.6	2288.9	2300.6	2317.1	2360.8	2398.2
26°	2251.6	2273.4	2286.0	2302.5	2347.2	2385.0
26.5°	2235.6	2258.4	2270.5	2287.0	2333.1	2372.4
27°	2219.5	2242.4	2255.0	2271.5	2318.6	2358.4
27.5°	2203.5	2226.3	2238.5	2256.4	2304.0	2344.8
28°	2187.0	2209.8	2222.5	2240.4	2288.9	2330.2
28.5°	2169.5	2192.8	2206.0	2223.9	2273.4	2316.1
29°	2152.1	2175.9	2188.5	2206.9	2257.9	2301.1
29.5°	2134.6	2158.4	2171.5	2190.4	2241.4	2285.5
30°	2116.2	2141.4	2153.5	2172.5	2224.9	2270.0
30.5°	2098.2	2123.0	2135.6	2155.5	2208.4	2254.5
31°	2079.3	2104.5	2117.6	2137.0	2191.4	2238.0
31.5°	2059.9	2086.6	2099.7	2119.1	2173.9	2221.5
32°	2040.4	2067.6	2080.7	2100.1	2156.0	2204.5
32.5°	2021.0	2048.2	2061.3	2081.7	2138.0	2187.0
33°	2000.6	2029.3	2042.9	2062.8	2119.6	2169.5
33.5°	1980.3	2009.9	2023.5	2043.4	2100.6	2151.6
34°	1959.9	1989.5	2003.6	2023.5	2081.7	2133.1
34.5°	1938.5	1969.1	1983.2	2004.0	2062.3	2115.2
35°	1917.6	1948.7	1963.3	1983.2	2042.9	2095.8
35.5°	1895.8	1927.8	1942.9	1962.8	2023.0	2076.8
36°	1874.5	1907.0	1922.0	1941.9	2002.6	2056.5
36.5°	1852.1	1886.1	1901.6	1921.0	1982.2	2037.0
37°	1830.3	1864.7	1880.3	1900.2	1960.8	2017.6
37.5°	1807.5	1842.9	1858.9	1878.8	1940.5	1996.8
38°	1785.1	1821.1	1837.6	1857.0	1919.1	1975.9
38.5°	1761.4	1799.7	1815.7	1834.7	1897.7	1955.0
39°	1739.0	1776.9	1794.4	1813.3	1875.4	1933.7
39.5°	1715.3	1754.6	1772.5	1791.5	1853.6	1912.8
40°	1692.0	1732.7	1750.2	1769.1	1831.7	1891.0
40.5°	1668.7	1710.4	1727.9	1746.3	1809.4	1868.6
41°	1644.9	1687.1	1705.1	1724.0	1787.1	1846.8
41.5°	1620.6	1664.3	1682.7	1701.2	1763.8	1824.5
42°	1596.8	1641.5	1659.9	1678.4	1741.5	1801.6
42.5°	1572.6	1618.7	1637.1	1655.6	1718.2	1778.8
43°	1549.3	1595.9	1614.3	1632.7	1695.4	1756.0
43.5°	1525.0	1572.1	1591.5	1609.0	1672.1	1733.2



TEST NUMBER: P776669

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1456.6	1502.7	1522.1	1539.1	1601.7	1662.8
45.5°	1433.7	1479.9	1498.8	1515.8	1577.4	1639.1
46°	1409.5	1456.6	1476.0	1493.0	1554.1	1615.3
46.5°	1384.2	1433.7	1452.7	1469.2	1530.3	1591.0
47°	1357.1	1410.4	1430.3	1446.4	1507.5	1567.7
47.5°	1326.0	1384.7	1406.6	1423.1	1484.2	1544.4
48°	1292.0	1359.0	1380.8	1397.8	1460.9	1521.1
48.5°	1255.1	1329.9	1354.1	1371.6	1437.1	1496.8
49°	1217.3	1297.4	1327.0	1344.9	1411.9	1474.0
49.5°	1178.9	1261.9	1293.5	1313.9	1386.2	1448.3
50°	1140.6	1224.1	1258.5	1279.4	1358.0	1422.1
50.5°	1100.3	1184.8	1219.2	1241.5	1326.0	1393.5
51°	1060.0	1145.4	1180.4	1202.7	1290.1	1360.9
51.5°	1019.7	1104.7	1139.1	1162.9	1251.7	1324.5
52°	979.0	1064.4	1099.3	1122.1	1212.9	1287.7
52.5°	939.2	1022.6	1058.6	1080.9	1173.6	1249.3
53°	898.4	979.9	1016.3	1039.6	1134.3	1210.0
53.5°	859.1	938.7	972.7	996.9	1093.5	1169.2
54°	819.3	896.9	931.4	955.2	1052.7	1128.9
54.5°	779.5	857.1	889.2	913.4	1011.5	1087.7
55°	740.7	815.9	846.5	873.6	969.7	1046.4
55.5°	701.8	775.6	805.7	832.4	928.5	1004.7
56°	664.5	736.3	764.9	792.1	887.2	963.9
56.5°	628.5	697.0	724.6	752.8	846.5	921.2
57°	591.2	658.6	685.3	714.4	805.7	880.0
57.5°	555.2	621.3	646.5	674.6	765.9	838.2
58°	519.3	583.9	608.6	636.8	726.1	796.0
58.5°	486.3	548.5	573.2	600.9	686.8	754.7
59°	453.8	514.0	538.3	564.5	649.4	714.0
59.5°	421.8	480.0	504.8	529.5	612.0	673.7
60°	389.3	448.0	471.8	495.6	575.6	632.9
60.5°	357.2	415.5	440.2	462.1	540.2	593.1
61°	324.7	384.9	409.6	430.0	504.3	555.7
61.5°	296.6	356.3	381.0	398.5	469.8	517.4
62°	269.4	329.1	352.9	369.4	436.3	481.5
62.5°	244.6	302.4	326.2	340.7	403.8	446.5
63°	221.3	277.6	300.9	313.1	372.3	413.0
63.5°	200.9	254.3	277.1	287.8	342.7	380.0
64°	181.5	232.5	254.8	263.5	313.5	349.0
64.5°	165.0	212.1	233.0	241.2	285.4	318.9
65°	151.4	193.7	213.6	219.9	259.2	289.8
65.5°	139.3	176.2	195.1	200.5	234.9	262.1
66°	129.1	164.1	178.1	182.5	213.1	235.9



TEST NUMBER: P776669

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	107.3	128.1	141.2	141.2	163.1	170.4
68°	103.4	116.0	129.1	133.0	151.9	157.3
68.5°	99.0	109.2	117.0	124.3	140.3	144.6
69°	95.1	104.8	109.7	115.5	129.1	131.5
69.5°	91.2	101.0	104.8	106.8	117.5	118.4
70°	87.4	97.1	101.0	102.9	110.2	111.6
70.5°	83.5	92.7	97.1	98.5	104.8	106.8
71°	79.6	88.8	93.2	94.6	100.5	102.4
71.5°	75.7	84.9	89.3	90.8	96.1	98.0
72°	71.8	81.1	84.9	86.9	91.7	93.7
72.5°	68.4	77.2	81.1	83.0	87.8	88.8
73°	65.0	73.3	77.2	79.1	83.5	84.5
73.5°	61.2	69.9	73.8	75.2	79.6	80.1
74°	57.8	66.0	69.9	71.3	75.2	76.2
74.5°	54.8	62.6	66.5	67.5	71.3	71.8
75°	51.4	59.2	63.1	64.1	67.5	68.0
75.5°	48.5	55.8	59.7	60.7	63.6	64.1
76°	45.1	52.9	56.3	57.3	60.2	60.2
76.5°	42.2	49.5	52.9	53.9	56.3	56.8
77°	39.8	46.6	50.0	50.5	52.9	52.9
77.5°	36.9	43.7	46.6	47.1	49.5	49.5
78°	34.5	40.8	43.7	44.2	46.1	46.6
78.5°	31.5	37.9	40.8	41.3	43.2	43.2
79°	29.1	35.4	37.9	38.3	40.3	40.3
79.5°	26.7	32.5	35.4	35.4	36.9	37.4
80°	24.3	30.1	32.5	33.0	34.5	34.5
80.5°	21.8	27.7	30.1	30.1	31.5	31.5
81°	19.9	25.2	27.7	27.7	28.6	29.1
81.5°	17.5	22.8	25.2	25.2	26.2	26.7
82°	15.5	20.9	22.8	22.8	23.8	23.8
82.5°	13.6	18.4	20.9	20.9	21.4	21.4
83°	11.6	16.5	18.4	18.4	18.9	19.4
83.5°	9.7	14.6	16.5	16.5	16.5	17.0
84°	7.8	12.6	14.6	14.6	14.6	15.0
84.5°	5.8	10.7	12.6	12.6	12.6	13.1
85°	4.4	8.7	10.7	10.7	10.2	10.7
85.5°	2.9	6.8	8.7	8.7	8.7	8.7
86°	1.5	4.9	6.8	7.3	7.3	7.3
86.5°	0.5	3.4	5.3	5.3	5.8	5.3
87°	0.0	1.9	3.4	3.9	4.4	4.4
87.5°	0.0	1.0	1.9	2.4	3.4	3.4
88°	0.0	0.0	1.0	1.0	2.4	2.4
88.5°	0.0	0.0	0.0	0.5	1.5	1.5



TEST NUMBER: P776669
CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-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°	2489.9	2519.5	2544.7	2570.0	2555.9	2541.8	2527.7	2496.7	2470.5	2443.3	2415.1
22°	2479.2	2510.3	2536.0	2562.2	2547.6	2533.6	2518.5	2486.5	2459.8	2432.6	2403.5



44°	1710.4	1771.6	1824.0	1881.2	1832.2	1803.1	1780.3	1719.6	1670.1	1616.7	1563.8
44.5°	1686.1	1747.8	1800.2	1858.4	1808.4	1780.3	1756.5	1695.8	1645.8	1592.9	1540.0



66.5°	212.1	251.4	294.6	358.2	285.9	255.3	238.8	193.7	153.4	151.4	136.4
67°	190.7	227.6	266.9	325.2	257.2	229.1	214.0	172.8	137.8	137.8	126.2



89°	1.0	1.9	3.9	6.8	2.9	1.5	1.0	0.0	0.0	0.0	0.0
89.5°	0.5	1.0	2.4	4.9	1.5	0.5	0.5	0.0	0.0	0.0	0.0

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21.5°	2378.3	2398.2	2409.3	2422.9	2459.3	2489.9
22°	2365.1	2386.0	2397.2	2410.8	2448.1	2479.2



44°	1502.2	1548.8	1568.2	1586.1	1648.8	1710.4
44.5°	1479.4	1525.5	1544.9	1562.4	1625.0	1686.1



66.5°	120.4	151.9	166.0	166.0	192.7	212.1
67°	113.1	139.8	153.4	151.9	174.7	190.7

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89°	0.0	0.0	0.0	0.0	0.5	1.0
89.5°	0.0	0.0	0.0	0.0	0.0	0.5

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(END OF REPORT)