

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: P776567

Luminaire Tested: HCDJBS4050CSD-HCD41TRMW-5000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776567
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B030)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD41TRMW-5000lm-3500K
Description: 4 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

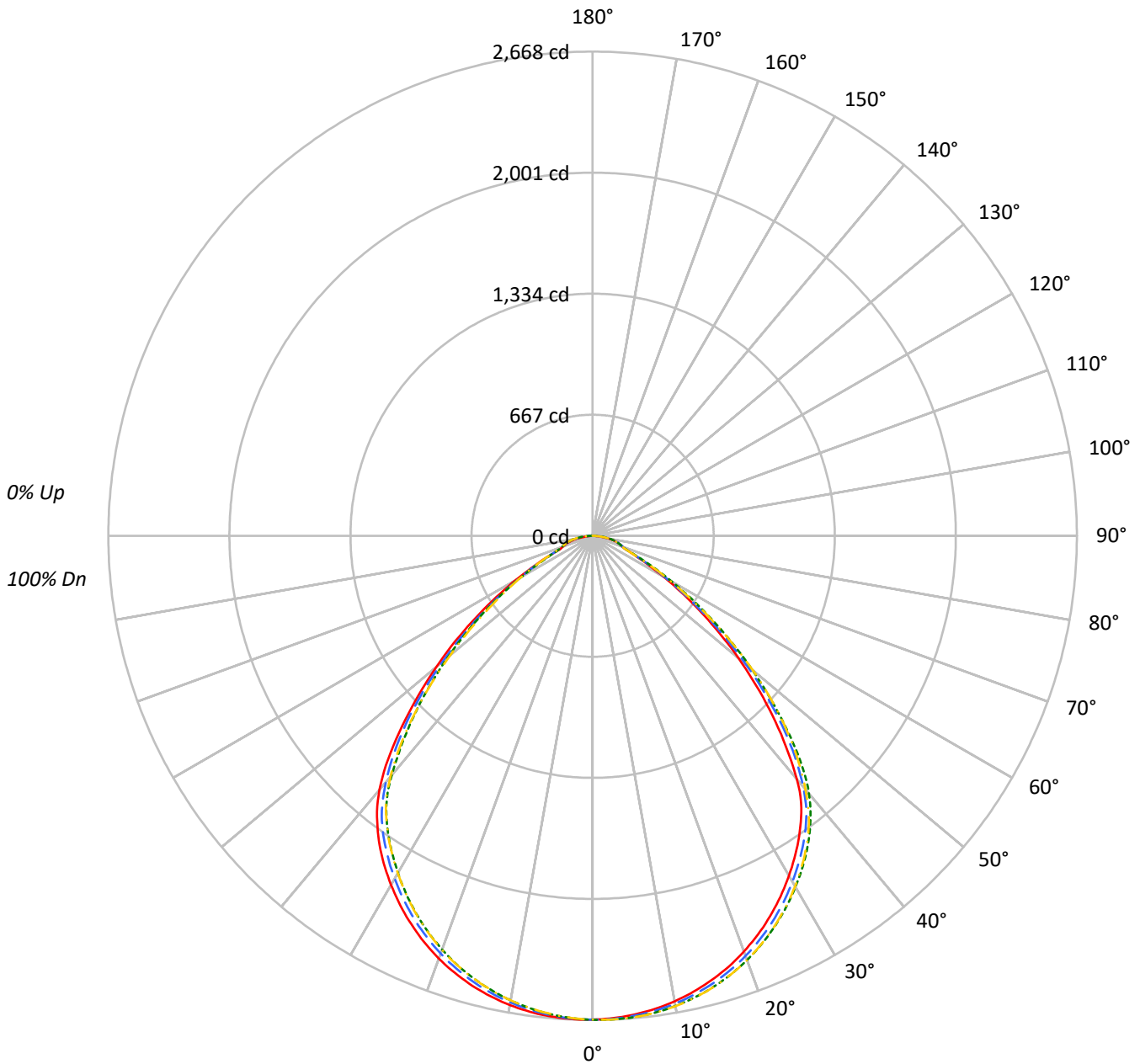
Lumens per Lamp: N/A
Luminaire Lumens: 5567.0 lumens
Efficiency: N/A
Efficacy: 116.0 lumens/watt
Spacing Criteria (0/90/45): 1.22 / 1.22 / 1.28
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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					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	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	100	100	100	100		
	1	111	107	103	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88	88	88	88	88	88		
	2	103	96	90	85	100	94	89	84	90	86	82	87	84	81	84	81	79	77	77	77	77	77	77		
	3	95	86	79	73	93	84	78	73	82	76	72	79	74	70	76	73	69	67	67	67	67	67	67		
	4	88	77	70	64	86	76	69	64	74	68	63	72	66	62	69	65	61	59	59	59	59	59	59		
	5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52		
	6	76	64	56	50	74	63	55	50	61	54	49	60	54	49	58	53	49	47	47	47	47	47	47		
	7	71	58	50	45	69	57	50	45	56	49	44	55	49	44	53	48	44	42	42	42	42	42	42		
	8	66	54	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38	38	38	38	38	38		
	9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34	34	34	34	34	34		
	10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	43	37	33	31	31	31	31	31	31		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	335516	335516	335516	335516
5°	334536	336317	335900	334296
10°	332794	336231	335503	332193
15°	330257	335247	334322	329150
20°	326459	333169	331897	324879
25°	321197	329778	328070	319031
30°	314397	324744	322768	311723
35°	305701	317961	315350	302659
40°	287368	304568	300149	282636
45°	249419	270082	264280	246144
50°	205362	224490	219967	203619
55°	158613	175486	172063	158613
60°	113189	126001	123408	113668
65°	76859	82338	80224	77007
70°	64062	63731	64246	65460
75°	67442	67929	65157	71138
80°	62907	70082	57110	75228
85°	34800	64112	24547	72920

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 112.5°
 Vertical Angle: 45°
 Luminance: 274372 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.1	4.5
10°-20°	719.0	12.9
20°-30°	1075.6	19.3
30°-40°	1257.7	22.6
40°-50°	1112.3	20.0
50°-60°	677.0	12.2
60°-70°	282.1	5.1
70°-80°	146.4	2.6
80°-90°	44.8	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°	2046.8	36.8
0°-40°	3304.5	59.4
0°-60°	5093.8	91.5
0°-90°	5567.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5567.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2666	2666	2666	2666	2666	
5°	2648	2662	2659	2646	2648	251
15°	2535	2573	2566	2526	2535	715
25°	2313	2375	2363	2298	2313	1065
35°	1990	2070	2053	1970	1990	1239
45°	1401	1518	1485	1383	1401	1077
55°	723	800	784	723	723	651
65°	258	276	269	259	258	272
75°	139	140	134	146	139	143
85°	24	44	17	50	24	36
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°	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0
0.5°	2665.5	2666.0	2666.5	2665.5	2667.4	2667.9	2667.0	2666.5	2666.5	2666.5	2666.0
1°	2664.6	2665.5	2666.0	2666.0	2667.9	2668.4	2667.9	2667.0	2666.5	2666.5	2665.5
1.5°	2663.2	2664.6	2665.5	2666.0	2667.9	2668.8	2667.9	2667.0	2666.5	2666.0	2664.6
2°	2661.8	2663.2	2665.1	2665.5	2667.9	2668.8	2667.9	2667.0	2666.0	2665.1	2663.7
2.5°	2659.9	2661.8	2664.1	2665.1	2667.4	2668.8	2667.9	2666.5	2665.5	2664.1	2662.2
3°	2658.0	2660.4	2662.7	2664.1	2667.0	2668.4	2667.0	2666.0	2664.6	2663.2	2660.8
3.5°	2656.1	2658.5	2661.3	2663.2	2666.0	2667.9	2666.5	2665.1	2663.7	2661.3	2658.9
4°	2653.7	2656.1	2659.4	2661.8	2665.1	2667.0	2665.1	2663.7	2662.2	2659.9	2656.6
4.5°	2650.9	2653.7	2657.1	2659.9	2663.7	2665.5	2664.1	2662.2	2660.4	2658.0	2654.2
5°	2648.1	2651.4	2654.7	2658.0	2662.2	2664.1	2662.2	2660.8	2658.9	2655.6	2651.4
5.5°	2644.8	2648.1	2652.3	2656.1	2659.9	2662.7	2660.4	2658.5	2656.6	2652.8	2648.6
6°	2641.0	2645.3	2649.5	2653.7	2658.0	2660.4	2658.5	2656.6	2654.2	2650.4	2645.3
6.5°	2637.2	2641.5	2646.7	2650.9	2655.6	2658.5	2656.1	2654.2	2651.9	2647.6	2642.0
7°	2633.5	2637.7	2643.4	2648.1	2652.8	2655.6	2653.3	2651.4	2648.6	2644.3	2638.6
7.5°	2629.2	2633.9	2639.6	2644.8	2650.0	2653.3	2650.4	2648.6	2645.3	2640.5	2634.4
8°	2625.0	2629.7	2636.3	2641.5	2646.2	2650.0	2647.1	2645.3	2642.0	2636.8	2630.2
8.5°	2620.2	2625.4	2631.6	2637.7	2642.9	2647.1	2643.8	2641.5	2638.2	2633.0	2625.9
9°	2615.1	2620.7	2627.3	2633.9	2639.1	2643.4	2640.1	2637.7	2634.4	2628.3	2621.2
9.5°	2609.9	2615.5	2623.1	2629.2	2635.3	2639.6	2636.3	2633.9	2630.2	2624.0	2616.0
10°	2604.2	2610.3	2617.9	2625.0	2631.1	2635.3	2632.0	2629.7	2625.4	2619.3	2610.8
10.5°	2598.5	2605.1	2612.7	2619.8	2626.4	2631.1	2627.3	2625.0	2620.7	2614.1	2605.6
11°	2592.4	2599.0	2607.5	2615.1	2621.7	2626.4	2622.6	2619.8	2616.0	2608.4	2599.5
11.5°	2586.3	2593.3	2601.8	2609.9	2616.5	2621.7	2617.4	2615.1	2610.3	2602.8	2593.3
12°	2579.7	2586.7	2595.7	2603.7	2611.3	2616.5	2612.2	2609.9	2605.1	2597.1	2587.2
12.5°	2572.6	2580.1	2589.6	2598.1	2605.6	2611.3	2606.6	2603.7	2599.5	2591.0	2580.6
13°	2566.0	2573.5	2583.0	2591.9	2599.5	2605.6	2600.4	2598.1	2593.3	2584.4	2574.0
13.5°	2558.0	2566.5	2575.9	2585.8	2593.3	2599.5	2594.3	2591.9	2586.7	2577.8	2566.9
14°	2550.9	2559.4	2569.3	2579.2	2586.7	2593.3	2588.2	2585.3	2580.1	2570.7	2559.4
14.5°	2542.9	2551.8	2561.7	2572.1	2580.1	2586.7	2581.1	2578.2	2573.1	2563.6	2551.8
15°	2534.8	2543.8	2554.7	2565.0	2573.1	2580.1	2574.5	2571.6	2566.0	2556.1	2543.8
15.5°	2526.3	2535.3	2546.6	2557.0	2566.0	2572.6	2566.9	2564.1	2558.4	2548.5	2535.8
16°	2517.4	2526.8	2538.1	2549.5	2558.4	2565.5	2558.9	2556.5	2550.4	2540.0	2527.3
16.5°	2508.4	2518.3	2530.1	2541.4	2550.4	2557.5	2551.4	2548.5	2542.9	2532.0	2518.3
17°	2499.4	2509.4	2521.6	2533.0	2542.4	2549.5	2543.3	2540.0	2533.9	2523.5	2509.4
17.5°	2490.0	2499.9	2512.7	2524.9	2533.9	2541.4	2534.4	2531.5	2525.4	2514.1	2499.9
18°	2480.1	2490.5	2503.2	2516.0	2525.4	2532.5	2525.9	2523.0	2516.9	2505.1	2490.5
18.5°	2469.7	2480.6	2493.8	2506.5	2516.4	2523.5	2516.9	2514.1	2507.5	2495.7	2480.6
19°	2459.3	2470.7	2483.9	2497.1	2507.0	2514.5	2507.5	2504.6	2498.5	2486.2	2470.7
19.5°	2448.5	2460.3	2474.0	2487.7	2497.6	2505.1	2497.6	2495.2	2488.6	2475.9	2460.3
20°	2437.6	2449.4	2463.6	2477.7	2487.7	2495.7	2487.7	2484.8	2478.2	2465.9	2449.4
20.5°	2426.8	2438.6	2453.2	2467.4	2477.7	2485.3	2477.3	2474.4	2467.8	2455.1	2438.1
21°	2414.5	2427.3	2441.9	2457.0	2467.4	2475.4	2466.9	2464.1	2457.5	2444.2	2427.3



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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°	2378.7	2391.9	2407.9	2423.5	2434.8	2442.8	2433.4	2431.0	2424.0	2410.3	2391.9
23°	2365.9	2379.6	2395.6	2412.2	2423.5	2431.5	2421.6	2419.2	2412.2	2398.5	2379.1
23.5°	2353.2	2366.9	2383.4	2399.9	2411.7	2419.7	2409.8	2407.0	2400.4	2385.7	2366.9
24°	2340.0	2354.1	2371.1	2388.1	2399.4	2407.9	2397.5	2394.7	2388.1	2373.5	2354.1
24.5°	2326.7	2340.9	2358.4	2375.3	2387.1	2395.6	2385.3	2382.4	2375.3	2360.7	2340.9
25°	2313.1	2327.2	2345.2	2362.6	2374.9	2382.9	2372.0	2369.7	2362.6	2348.0	2327.7
25.5°	2299.4	2314.0	2331.9	2349.9	2362.1	2370.2	2359.3	2356.5	2349.9	2334.8	2314.0
26°	2284.8	2300.3	2318.3	2336.7	2348.9	2357.4	2346.1	2343.3	2336.7	2321.1	2299.9
26.5°	2271.1	2286.2	2304.6	2323.4	2335.2	2344.2	2332.4	2329.6	2322.5	2307.9	2286.2
27°	2256.4	2271.5	2290.4	2309.3	2322.0	2331.0	2318.3	2315.9	2308.8	2293.7	2272.0
27.5°	2241.3	2257.4	2276.7	2295.6	2307.9	2316.8	2304.6	2301.7	2295.1	2279.1	2257.4
28°	2226.2	2242.3	2261.6	2281.4	2293.7	2302.7	2289.9	2287.6	2280.5	2265.4	2242.3
28.5°	2210.7	2227.2	2247.0	2266.8	2280.0	2288.5	2275.3	2273.0	2265.9	2249.8	2227.2
29°	2195.6	2211.6	2231.9	2252.2	2264.9	2273.9	2260.2	2258.3	2251.3	2235.7	2212.1
29.5°	2179.5	2196.5	2216.8	2237.1	2250.3	2259.3	2245.1	2243.2	2236.2	2220.1	2197.0
30°	2163.5	2180.9	2201.2	2222.0	2234.7	2244.2	2230.0	2227.7	2221.1	2205.0	2180.9
30.5°	2147.0	2164.9	2185.7	2206.9	2219.6	2228.6	2214.4	2212.1	2205.5	2189.0	2164.9
31°	2130.5	2148.4	2170.1	2190.9	2204.1	2213.5	2198.4	2196.0	2189.4	2173.4	2148.9
31.5°	2113.9	2132.3	2153.6	2175.3	2188.0	2197.5	2182.4	2180.0	2173.4	2157.3	2133.3
32°	2097.4	2115.8	2137.1	2159.2	2172.0	2181.4	2165.8	2164.0	2157.3	2141.8	2116.3
32.5°	2080.0	2098.8	2121.0	2142.7	2156.4	2165.4	2149.3	2147.4	2140.8	2125.3	2099.3
33°	2063.0	2081.9	2104.0	2126.2	2139.4	2148.9	2132.3	2130.5	2124.3	2108.3	2082.3
33.5°	2045.5	2064.4	2087.0	2109.7	2122.4	2131.9	2115.4	2113.0	2106.9	2090.8	2064.9
34°	2027.1	2046.9	2069.1	2092.2	2105.4	2114.9	2097.0	2095.1	2088.9	2072.9	2046.9
34.5°	2009.2	2028.5	2051.7	2074.3	2088.0	2096.5	2079.5	2077.1	2071.0	2055.4	2029.0
35°	1989.8	2010.1	2033.3	2056.4	2069.6	2078.5	2060.6	2058.7	2052.6	2037.0	2010.6
35.5°	1971.0	1991.3	2014.4	2038.0	2051.2	2060.1	2042.2	2039.9	2034.2	2018.2	1991.7
36°	1951.6	1971.9	1995.5	2019.1	2032.8	2041.7	2022.4	2019.6	2014.4	1998.3	1971.9
36.5°	1931.3	1952.1	1975.7	2000.2	2013.0	2021.9	2001.6	1999.3	1993.6	1978.0	1951.6
37°	1910.6	1931.3	1954.9	1979.0	1992.2	2001.2	1980.9	1978.5	1972.9	1957.3	1930.9
37.5°	1888.4	1910.1	1934.2	1958.7	1971.4	1980.4	1958.2	1956.8	1951.6	1935.6	1906.8
38°	1865.3	1887.4	1912.9	1937.0	1949.7	1959.2	1933.7	1933.2	1929.4	1912.5	1881.8
38.5°	1839.3	1861.5	1887.4	1914.8	1927.6	1936.0	1907.3	1906.8	1905.4	1888.9	1856.3
39°	1811.9	1833.2	1860.1	1890.3	1904.0	1911.5	1879.9	1880.4	1880.4	1863.4	1828.5
39.5°	1781.7	1804.4	1833.2	1865.3	1879.4	1885.6	1852.5	1852.5	1854.4	1836.5	1801.1
40°	1749.2	1773.7	1804.9	1837.4	1853.9	1857.7	1823.7	1822.8	1827.0	1808.2	1771.4
40.5°	1715.7	1741.2	1774.7	1809.6	1826.6	1828.9	1795.0	1793.5	1797.8	1778.4	1743.5
41°	1681.7	1708.6	1744.5	1779.4	1797.8	1799.7	1766.2	1764.3	1766.6	1748.2	1711.9
41.5°	1647.7	1675.6	1712.9	1748.7	1766.6	1770.0	1736.0	1733.1	1734.6	1717.1	1681.2
42°	1611.9	1641.1	1681.2	1717.1	1734.6	1739.3	1705.8	1702.9	1701.5	1685.0	1649.2
42.5°	1577.4	1606.7	1648.7	1685.0	1700.6	1707.7	1674.2	1670.9	1667.1	1651.5	1616.6
43°	1542.5	1572.7	1615.7	1651.5	1665.7	1675.1	1642.5	1638.3	1631.7	1617.5	1582.6
43.5°	1507.6	1538.3	1580.3	1617.5	1628.9	1643.0	1610.5	1605.3	1594.9	1582.6	1549.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1401.4	1434.9	1474.6	1510.0	1517.5	1541.6	1509.5	1502.9	1484.9	1473.2	1444.4
45.5°	1366.0	1400.0	1438.2	1472.7	1479.3	1505.2	1476.0	1467.5	1447.7	1435.4	1409.0
46°	1331.1	1365.1	1401.4	1434.5	1440.6	1469.8	1440.1	1430.7	1410.9	1397.7	1371.7
46.5°	1295.7	1329.7	1364.6	1396.2	1403.3	1433.5	1404.7	1394.8	1374.1	1359.9	1334.9
47°	1259.4	1294.8	1327.8	1357.5	1366.5	1396.2	1369.3	1359.0	1338.2	1322.2	1298.6
47.5°	1224.0	1258.9	1289.6	1319.3	1329.2	1359.0	1334.4	1321.7	1302.3	1285.4	1262.2
48°	1188.6	1222.6	1253.3	1280.6	1292.4	1321.7	1297.6	1284.9	1266.0	1247.1	1224.5
48.5°	1153.2	1187.2	1215.5	1241.9	1256.1	1284.4	1262.2	1247.6	1230.1	1210.3	1188.6
49°	1118.3	1151.3	1178.7	1204.2	1219.3	1247.6	1224.5	1211.3	1194.8	1173.0	1151.3
49.5°	1083.4	1114.5	1141.9	1166.0	1182.5	1209.9	1187.2	1174.5	1158.9	1136.7	1115.0
50°	1048.9	1079.1	1104.6	1128.2	1146.6	1173.0	1150.9	1137.7	1123.5	1099.9	1078.7
50.5°	1014.5	1042.8	1067.8	1090.5	1110.8	1136.2	1112.6	1101.8	1087.6	1064.5	1042.3
51°	980.1	1007.4	1031.5	1053.7	1074.4	1099.0	1076.8	1066.4	1053.2	1029.6	1007.0
51.5°	947.0	973.0	995.6	1016.9	1039.0	1064.0	1039.0	1030.5	1018.7	994.2	972.0
52°	913.5	938.1	959.8	981.5	1004.1	1027.7	1001.3	994.7	985.2	958.8	937.1
52.5°	881.0	903.6	924.4	946.1	968.7	991.4	965.4	959.8	950.3	924.8	901.7
53°	848.4	869.6	888.5	911.2	934.3	955.5	929.1	925.3	915.9	890.4	867.8
53.5°	816.3	836.1	854.1	876.7	899.4	921.1	893.7	890.4	881.9	857.8	834.3
54°	784.7	803.1	819.2	843.2	866.3	886.2	856.9	856.4	850.3	824.3	802.2
54.5°	753.6	769.6	786.1	809.7	833.3	852.2	822.5	823.4	817.3	792.3	770.1
55°	722.9	738.0	753.6	777.6	799.8	819.2	788.0	790.4	784.2	760.2	737.5
55.5°	693.2	706.8	720.5	745.5	767.2	785.6	754.0	757.8	752.1	729.5	706.4
56°	663.9	676.2	688.4	714.9	735.2	751.7	721.0	724.8	721.9	698.4	676.6
56.5°	634.7	645.5	658.2	684.2	704.0	719.6	688.4	693.6	690.3	668.6	646.9
57°	606.3	616.3	628.0	654.5	672.9	688.4	656.8	662.5	659.7	639.8	618.1
57.5°	578.5	587.0	598.3	624.7	642.7	656.8	626.2	632.3	629.9	611.5	589.4
58°	551.1	558.7	569.1	596.9	612.5	625.7	596.4	602.6	601.6	583.7	562.5
58.5°	524.7	531.3	541.7	568.6	584.6	596.0	567.2	572.4	572.4	556.8	536.0
59°	499.2	504.9	515.7	542.6	555.4	566.7	538.9	543.6	544.1	530.4	509.6
59.5°	474.2	478.9	489.8	515.3	527.5	537.9	511.0	516.2	516.7	504.4	485.1
60°	449.7	453.9	465.3	489.8	500.6	509.6	484.1	488.8	490.3	479.4	461.0
60.5°	426.6	429.9	441.2	464.8	474.7	482.7	459.1	462.0	464.3	455.3	437.4
61°	403.4	406.7	418.1	440.7	449.2	457.2	436.0	436.9	439.3	433.2	416.7
61.5°	381.7	385.0	396.4	416.7	426.1	433.6	412.4	413.8	416.2	411.0	396.4
62°	361.0	364.3	375.1	394.5	403.0	409.6	389.3	390.2	393.1	388.8	375.6
62.5°	341.2	344.0	354.8	372.3	380.3	386.0	366.2	366.6	369.9	366.6	354.8
63°	322.3	324.6	335.5	351.1	357.2	361.9	343.0	343.5	347.3	344.5	334.1
63.5°	304.8	306.7	317.1	330.8	334.1	338.3	321.8	322.8	327.0	324.6	315.7
64°	287.8	290.2	299.6	311.0	314.3	317.6	302.5	302.5	307.2	306.2	298.2
64.5°	271.8	274.2	283.1	293.0	294.9	298.2	284.5	284.5	288.3	288.3	282.2
65°	258.1	259.5	267.5	276.0	276.5	279.8	267.1	267.5	269.4	271.8	267.1
65.5°	244.9	246.3	253.4	260.0	259.5	262.4	251.0	251.5	251.5	256.7	252.9
66°	232.2	234.0	240.2	244.9	243.5	246.8	236.4	236.9	234.5	241.6	239.7



TEST NUMBER: P776567

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	201.5	203.8	206.7	208.1	205.3	208.6	200.5	202.4	197.2	206.2	207.6
68°	193.5	195.8	197.7	198.7	195.8	198.7	192.0	193.9	189.2	197.7	199.1
68.5°	185.9	189.2	190.2	190.2	187.8	190.2	185.4	186.9	184.5	190.2	191.6
69°	180.7	183.6	183.1	183.1	181.7	183.6	180.3	181.2	181.2	184.5	185.4
69.5°	177.4	178.4	177.9	177.4	176.5	177.9	176.5	177.4	177.9	179.8	181.2
70°	174.1	174.1	174.1	173.6	173.2	174.6	173.6	174.1	174.6	176.5	177.9
70.5°	170.8	171.3	172.2	170.8	170.3	171.8	170.8	170.8	171.3	173.2	175.1
71°	167.5	168.0	168.9	167.5	167.0	168.5	167.5	167.0	167.5	169.9	172.2
71.5°	164.7	164.7	166.1	164.7	164.2	165.6	164.2	163.7	164.2	166.1	168.9
72°	161.4	161.4	162.8	161.8	160.9	162.3	160.9	160.0	160.0	162.3	165.6
72.5°	158.5	158.5	159.5	159.0	157.6	159.0	157.6	156.2	156.2	158.5	162.3
73°	154.8	154.8	156.2	155.7	154.3	155.7	153.8	151.9	151.9	154.8	158.5
73.5°	151.0	151.0	152.9	151.9	151.0	151.9	150.1	147.7	147.7	150.5	154.8
74°	146.7	147.2	149.1	148.6	147.2	148.6	146.3	143.4	143.4	146.3	151.0
74.5°	142.5	143.0	145.3	145.3	143.4	144.9	142.5	139.2	138.7	142.0	147.2
75°	138.7	138.7	141.6	141.6	139.7	141.1	138.3	134.5	134.0	137.3	143.0
75.5°	134.0	134.5	137.8	137.8	135.9	137.3	134.0	129.8	129.3	132.6	138.7
76°	129.3	129.8	133.5	134.0	132.1	133.5	129.8	125.0	124.1	127.9	134.5
76.5°	125.0	125.5	129.3	129.8	127.9	129.3	125.0	120.3	119.4	122.7	130.2
77°	119.9	120.8	125.0	126.0	123.6	125.0	120.8	115.1	113.7	117.5	126.0
77.5°	114.7	115.6	120.8	121.7	119.4	120.8	116.1	109.9	108.1	111.8	120.8
78°	109.5	110.9	116.1	117.5	115.1	116.5	110.9	104.3	102.4	106.6	116.1
78.5°	104.3	105.7	111.4	113.2	110.4	111.8	106.2	98.6	96.7	101.0	110.9
79°	98.6	100.0	106.6	108.5	106.2	107.1	101.0	93.0	91.1	95.3	106.2
79.5°	93.0	94.8	101.9	103.8	101.5	102.9	95.8	87.3	84.9	89.2	101.0
80°	86.8	88.7	96.7	99.1	96.7	97.7	90.6	81.6	78.8	83.0	95.3
80.5°	81.2	83.0	91.5	94.4	91.5	93.0	85.4	75.5	72.7	77.4	90.1
81°	75.5	77.4	86.4	89.7	86.8	87.8	80.2	69.4	66.1	70.8	84.5
81.5°	68.9	71.3	81.2	84.5	81.6	82.6	74.6	63.2	59.9	64.6	78.8
82°	62.8	65.1	75.5	79.3	76.4	77.9	69.4	57.1	53.3	58.5	73.6
82.5°	56.6	59.0	70.3	74.1	71.3	72.2	64.2	51.4	47.2	51.9	67.9
83°	50.0	52.8	65.1	68.9	66.1	67.0	59.0	46.2	40.6	46.7	62.8
83.5°	43.4	46.7	59.9	63.7	60.9	61.8	53.8	41.1	34.4	41.5	57.1
84°	36.8	40.6	54.7	58.5	55.7	56.6	48.6	35.9	27.8	36.3	52.4
84.5°	30.2	34.9	49.5	52.8	50.0	51.0	43.4	31.1	21.2	30.7	47.2
85°	24.1	30.2	44.8	47.7	44.4	45.3	38.2	26.0	17.0	25.5	42.0
85.5°	18.4	26.4	39.6	42.0	38.7	39.6	32.6	22.2	14.6	22.6	37.3
86°	16.0	23.1	34.4	36.3	33.0	34.0	27.4	18.9	12.7	19.3	32.1
86.5°	13.7	19.3	28.8	30.7	27.4	28.3	22.2	15.6	10.4	16.5	26.9
87°	11.3	16.0	23.6	24.5	21.7	22.2	17.0	11.8	8.5	13.2	21.7
87.5°	8.5	12.7	17.9	18.9	16.0	16.5	11.3	8.5	6.1	10.4	16.5
88°	6.1	9.4	13.7	14.2	10.4	11.3	6.6	5.2	3.8	7.1	11.3
88.5°	4.2	6.1	9.4	9.4	5.7	6.1	2.4	2.4	2.4	4.2	6.6



TEST NUMBER: P776567
CATALOG NUMBER: HCDJBL4050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P776567

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2666.0	2666.0	2666.0	2666.0	2666.0	2666.0
0.5°	2664.6	2666.0	2666.0	2665.5	2665.1	2665.5
1°	2663.7	2665.1	2664.1	2664.6	2664.1	2664.6
1.5°	2662.7	2663.7	2662.7	2662.7	2662.7	2663.2
2°	2660.8	2661.8	2660.8	2661.3	2660.8	2661.8
2.5°	2659.4	2659.9	2658.9	2659.4	2658.9	2659.9
3°	2657.5	2657.5	2656.1	2657.1	2656.6	2658.0
3.5°	2655.2	2655.2	2653.7	2654.7	2654.7	2656.1
4°	2652.8	2652.8	2650.4	2651.9	2651.9	2653.7
4.5°	2650.0	2649.5	2647.6	2649.0	2649.0	2650.9
5°	2646.7	2646.2	2644.3	2645.7	2645.7	2648.1
5.5°	2643.4	2642.9	2640.5	2642.0	2642.4	2644.8
6°	2640.1	2639.1	2636.3	2638.6	2638.6	2641.0
6.5°	2636.3	2635.3	2632.0	2634.4	2634.9	2637.2
7°	2632.5	2631.1	2627.8	2630.2	2630.6	2633.5
7.5°	2627.8	2626.4	2623.1	2625.4	2625.9	2629.2
8°	2623.5	2621.7	2617.9	2620.7	2621.7	2625.0
8.5°	2618.4	2616.0	2613.2	2616.0	2616.5	2620.2
9°	2613.6	2610.8	2607.5	2610.8	2611.8	2615.1
9.5°	2608.0	2605.1	2601.8	2605.1	2606.1	2609.9
10°	2602.3	2599.5	2595.7	2599.0	2600.4	2604.2
10.5°	2596.7	2593.3	2589.1	2593.3	2594.8	2598.5
11°	2590.0	2587.2	2582.5	2586.7	2588.6	2592.4
11.5°	2583.9	2580.6	2575.9	2580.1	2582.0	2586.3
12°	2577.3	2573.5	2568.8	2573.5	2574.9	2579.7
12.5°	2570.2	2566.0	2561.3	2566.5	2568.3	2572.6
13°	2563.2	2558.9	2553.7	2558.9	2560.8	2566.0
13.5°	2555.1	2550.9	2546.2	2551.4	2553.2	2558.0
14°	2547.6	2543.3	2538.1	2543.8	2545.2	2550.9
14.5°	2539.6	2534.8	2529.6	2535.3	2537.2	2542.9
15°	2531.1	2526.3	2520.7	2527.3	2529.2	2534.8
15.5°	2522.6	2517.9	2512.2	2518.3	2520.2	2526.3
16°	2513.6	2508.4	2502.8	2509.4	2511.2	2517.4
16.5°	2504.6	2499.4	2493.3	2499.9	2502.3	2508.4
17°	2495.2	2489.5	2483.4	2490.5	2492.8	2499.4
17.5°	2485.3	2479.6	2473.5	2480.6	2482.9	2490.0
18°	2475.4	2469.3	2462.6	2470.7	2473.0	2480.1
18.5°	2465.0	2458.9	2452.3	2460.3	2462.6	2469.7
19°	2454.6	2448.0	2441.4	2449.4	2451.8	2459.3
19.5°	2443.8	2437.2	2430.1	2438.6	2440.9	2448.5
20°	2432.9	2425.8	2418.8	2427.3	2430.1	2437.6
20.5°	2421.1	2414.0	2406.5	2415.5	2419.2	2426.8
21°	2409.3	2401.8	2394.2	2404.1	2407.4	2414.5

TEST NUMBER: P776567

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2373.0	2365.0	2356.5	2366.9	2370.6	2378.7
23°	2360.3	2352.2	2343.3	2354.1	2357.9	2365.9
23.5°	2347.5	2339.5	2330.1	2340.9	2344.7	2353.2
24°	2334.3	2325.3	2316.4	2327.2	2331.0	2340.0
24.5°	2320.6	2311.6	2302.7	2314.0	2317.8	2326.7
25°	2306.9	2297.5	2288.5	2299.9	2304.1	2313.1
25.5°	2292.8	2283.3	2273.4	2285.7	2289.9	2299.4
26°	2278.6	2268.7	2259.3	2271.5	2275.8	2284.8
26.5°	2264.0	2254.6	2244.6	2256.4	2261.2	2271.1
27°	2249.4	2239.5	2229.1	2241.8	2246.5	2256.4
27.5°	2234.7	2224.4	2214.0	2226.7	2231.4	2241.3
28°	2219.6	2208.3	2198.4	2211.1	2215.9	2226.2
28.5°	2204.1	2193.2	2182.4	2195.1	2200.8	2210.7
29°	2188.5	2177.6	2166.8	2179.1	2184.7	2195.6
29.5°	2172.4	2161.6	2149.8	2163.5	2168.7	2179.5
30°	2156.9	2145.1	2134.2	2147.0	2152.6	2163.5
30.5°	2140.4	2128.6	2117.2	2130.5	2136.1	2147.0
31°	2124.3	2112.1	2100.7	2114.4	2119.6	2130.5
31.5°	2107.8	2095.5	2082.8	2097.0	2102.6	2113.9
32°	2090.8	2078.1	2066.3	2080.0	2085.6	2097.4
32.5°	2073.8	2061.1	2048.8	2062.5	2068.6	2080.0
33°	2056.4	2043.6	2031.4	2045.0	2051.2	2063.0
33.5°	2038.9	2025.7	2013.0	2027.6	2033.7	2045.5
34°	2020.5	2007.8	1994.6	2009.2	2015.3	2027.1
34.5°	2002.1	1988.9	1976.2	1990.8	1996.9	2009.2
35°	1983.7	1970.0	1956.8	1971.4	1978.0	1989.8
35.5°	1964.4	1950.7	1937.0	1952.1	1958.7	1971.0
36°	1944.5	1930.9	1917.2	1933.2	1939.3	1951.6
36.5°	1924.3	1910.6	1896.9	1912.5	1918.6	1931.3
37°	1903.0	1889.3	1875.6	1891.7	1897.8	1910.6
37.5°	1879.0	1866.7	1853.0	1870.5	1876.6	1888.4
38°	1852.1	1841.7	1827.0	1848.3	1853.5	1865.3
38.5°	1824.7	1814.8	1798.7	1822.3	1826.1	1839.3
39°	1795.9	1785.5	1770.9	1793.5	1798.7	1811.9
39.5°	1766.2	1753.4	1740.7	1763.8	1769.5	1781.7
40°	1735.5	1720.4	1708.1	1732.7	1738.8	1749.2
40.5°	1704.4	1687.4	1675.6	1700.6	1705.8	1715.7
41°	1672.3	1653.9	1641.6	1668.0	1672.7	1681.7
41.5°	1639.2	1619.4	1607.2	1635.5	1638.3	1647.7
42°	1605.7	1586.4	1572.7	1601.5	1603.4	1611.9
42.5°	1572.2	1553.4	1536.9	1567.5	1568.0	1577.4
43°	1538.3	1519.9	1501.5	1533.1	1533.1	1542.5
43.5°	1504.8	1485.4	1465.1	1497.7	1496.7	1507.6



TEST NUMBER: P776567

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1402.8	1383.0	1359.0	1389.2	1387.7	1401.4
45.5°	1368.9	1348.6	1323.6	1352.4	1350.9	1366.0
46°	1334.9	1315.1	1288.7	1315.5	1314.6	1331.1
46.5°	1300.9	1279.7	1253.3	1279.7	1278.3	1295.7
47°	1265.5	1244.8	1218.8	1241.9	1241.9	1259.4
47.5°	1231.6	1210.3	1183.4	1205.1	1206.1	1224.0
48°	1197.1	1175.9	1149.0	1167.4	1170.7	1188.6
48.5°	1162.2	1141.0	1113.6	1132.0	1135.3	1153.2
49°	1126.8	1107.5	1080.6	1094.7	1100.4	1118.3
49.5°	1091.9	1074.0	1047.1	1059.3	1065.5	1083.4
50°	1057.0	1040.0	1012.6	1023.0	1031.0	1048.9
50.5°	1022.5	1006.5	979.1	988.5	996.6	1014.5
51°	988.5	974.4	946.1	953.6	962.1	980.1
51.5°	954.1	941.4	913.5	920.1	928.2	947.0
52°	920.1	909.3	881.0	886.6	895.1	913.5
52.5°	886.6	877.2	848.4	855.0	862.6	881.0
53°	853.6	845.6	816.8	822.5	830.5	848.4
53.5°	821.0	814.4	786.1	790.8	798.4	816.3
54°	788.5	782.8	755.0	760.6	766.8	784.7
54.5°	756.9	752.6	725.3	730.9	736.1	753.6
55°	725.7	722.9	696.0	701.2	706.8	722.9
55.5°	695.1	693.2	667.2	673.3	677.6	693.2
56°	664.9	663.4	638.4	645.5	648.3	663.9
56.5°	635.6	635.1	611.1	618.6	620.5	634.7
57°	606.3	606.8	584.2	592.2	593.6	606.3
57.5°	578.0	579.4	557.7	566.2	567.2	578.5
58°	551.1	552.5	532.7	542.2	541.2	551.1
58.5°	524.2	526.6	508.2	518.1	517.2	524.7
59°	498.3	500.6	484.1	494.5	492.6	499.2
59.5°	472.8	475.6	461.5	471.9	470.0	474.2
60°	448.7	451.6	438.8	450.6	447.3	449.7
60.5°	427.5	428.0	417.1	429.4	426.1	426.6
61°	405.8	405.3	396.4	409.1	404.9	403.4
61.5°	384.1	383.6	377.0	389.3	385.0	381.7
62°	362.9	362.4	358.1	370.9	365.7	361.0
62.5°	341.2	342.6	339.7	353.0	347.3	341.2
63°	322.8	323.7	322.3	335.5	329.4	322.3
63.5°	305.8	305.3	305.8	319.0	312.8	304.8
64°	288.8	288.3	290.2	302.9	296.8	287.8
64.5°	273.2	272.7	275.6	287.8	281.7	271.8
65°	259.1	258.6	261.4	273.2	266.6	258.1
65.5°	245.8	245.8	248.2	260.0	254.3	244.9
66°	233.6	234.0	236.4	247.3	241.6	232.2



TEST NUMBER: P776567

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	204.8	206.7	206.2	214.2	210.0	201.5
68°	197.7	199.1	198.7	205.3	201.0	193.5
68.5°	191.1	192.5	191.6	197.2	193.5	185.9
69°	185.4	186.9	185.4	189.7	186.9	180.7
69.5°	180.7	181.7	180.3	183.6	181.2	177.4
70°	177.9	177.9	176.5	178.8	176.9	174.1
70.5°	175.1	175.1	173.6	175.5	173.2	170.8
71°	171.8	171.8	170.8	172.7	169.9	167.5
71.5°	168.9	168.9	168.0	169.4	167.0	164.7
72°	165.6	165.6	164.7	166.6	163.7	161.4
72.5°	162.3	162.8	161.4	163.3	160.4	158.5
73°	159.0	160.0	158.5	160.4	157.1	154.8
73.5°	155.7	156.7	155.2	157.6	153.4	151.0
74°	152.4	153.4	152.4	153.8	149.6	146.7
74.5°	148.6	150.1	148.6	150.1	145.3	142.5
75°	144.9	146.3	144.9	146.7	141.6	138.7
75.5°	141.1	142.5	141.1	142.5	136.8	134.0
76°	137.3	138.7	137.3	138.7	132.6	129.3
76.5°	133.1	134.5	133.5	134.5	127.9	125.0
77°	128.8	130.7	129.3	130.2	123.2	119.9
77.5°	124.6	126.5	125.5	126.0	118.4	114.7
78°	120.3	122.2	121.3	121.7	113.2	109.5
78.5°	115.6	118.0	116.5	117.0	108.1	104.3
79°	110.9	113.2	112.3	112.3	102.9	98.6
79.5°	106.2	108.5	107.6	107.1	97.2	93.0
80°	101.5	103.8	102.4	102.4	91.5	86.8
80.5°	96.3	98.6	97.7	97.2	85.9	81.2
81°	91.5	93.9	93.0	92.0	80.2	75.5
81.5°	86.4	88.7	87.8	86.8	74.1	68.9
82°	80.7	83.5	82.6	81.2	67.9	62.8
82.5°	75.5	78.3	77.4	76.0	61.8	56.6
83°	70.3	72.7	71.7	70.8	56.2	50.0
83.5°	64.6	67.5	66.5	65.6	50.0	43.4
84°	59.0	61.8	61.3	59.9	43.9	36.8
84.5°	53.3	56.2	55.7	54.7	38.2	30.2
85°	47.7	50.5	50.0	50.0	33.0	24.1
85.5°	42.0	44.8	44.4	44.8	28.8	18.4
86°	35.9	39.2	38.7	39.6	25.0	16.0
86.5°	30.2	33.0	32.6	34.4	21.7	13.7
87°	24.5	27.4	26.9	28.8	17.9	11.3
87.5°	18.4	21.2	20.8	23.6	14.6	8.5
88°	12.7	15.6	15.1	17.9	11.3	6.1
88.5°	7.5	11.8	11.3	13.7	8.0	4.2



TEST NUMBER: P776567

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

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



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Peachtree City, GA 30269

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°	2403.2	2415.5	2431.0	2446.1	2457.0	2464.5	2456.0	2453.2	2446.1	2432.9	2415.5
22°	2390.9	2404.1	2419.7	2434.8	2445.7	2453.7	2444.7	2442.4	2435.3	2421.6	2403.7



44°	1472.2	1504.3	1545.8	1582.6	1592.1	1609.5	1577.9	1572.2	1558.6	1546.8	1514.7
44.5°	1436.3	1469.4	1510.4	1546.3	1554.8	1575.5	1543.5	1537.3	1521.8	1510.9	1479.8



66.5°	220.8	222.7	227.9	231.7	228.9	232.6	222.7	224.1	220.4	228.4	227.9
67°	210.9	212.3	216.6	218.9	216.1	219.9	210.9	212.3	207.6	216.6	217.1



89°	2.4	2.8	4.7	5.2	0.9	1.4	0.0	0.5	0.5	1.4	2.8
89.5°	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.0	0.5	0.0

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21.5°	2397.5	2390.0	2382.0	2391.9	2395.2	2403.2
22°	2385.7	2377.7	2369.7	2379.6	2382.9	2390.9



44°	1470.3	1451.0	1429.7	1461.8	1459.9	1472.2
44.5°	1436.8	1417.0	1393.9	1425.5	1423.6	1436.3

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66.5°	223.2	224.1	225.5	235.5	229.8	220.8
67°	213.3	214.2	215.2	224.6	219.4	210.9



89°	3.3	8.0	7.5	9.4	4.7	2.4
89.5°	0.0	4.2	4.2	5.2	1.9	0.5

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(END OF REPORT)