

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: P776769

Luminaire Tested: HCDJBS4050CSD-HCD81TRMW-5000lm-5000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776769  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B044)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS4050CSD-HCD81TRMW-5000lm-5000K  
Description: 8 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

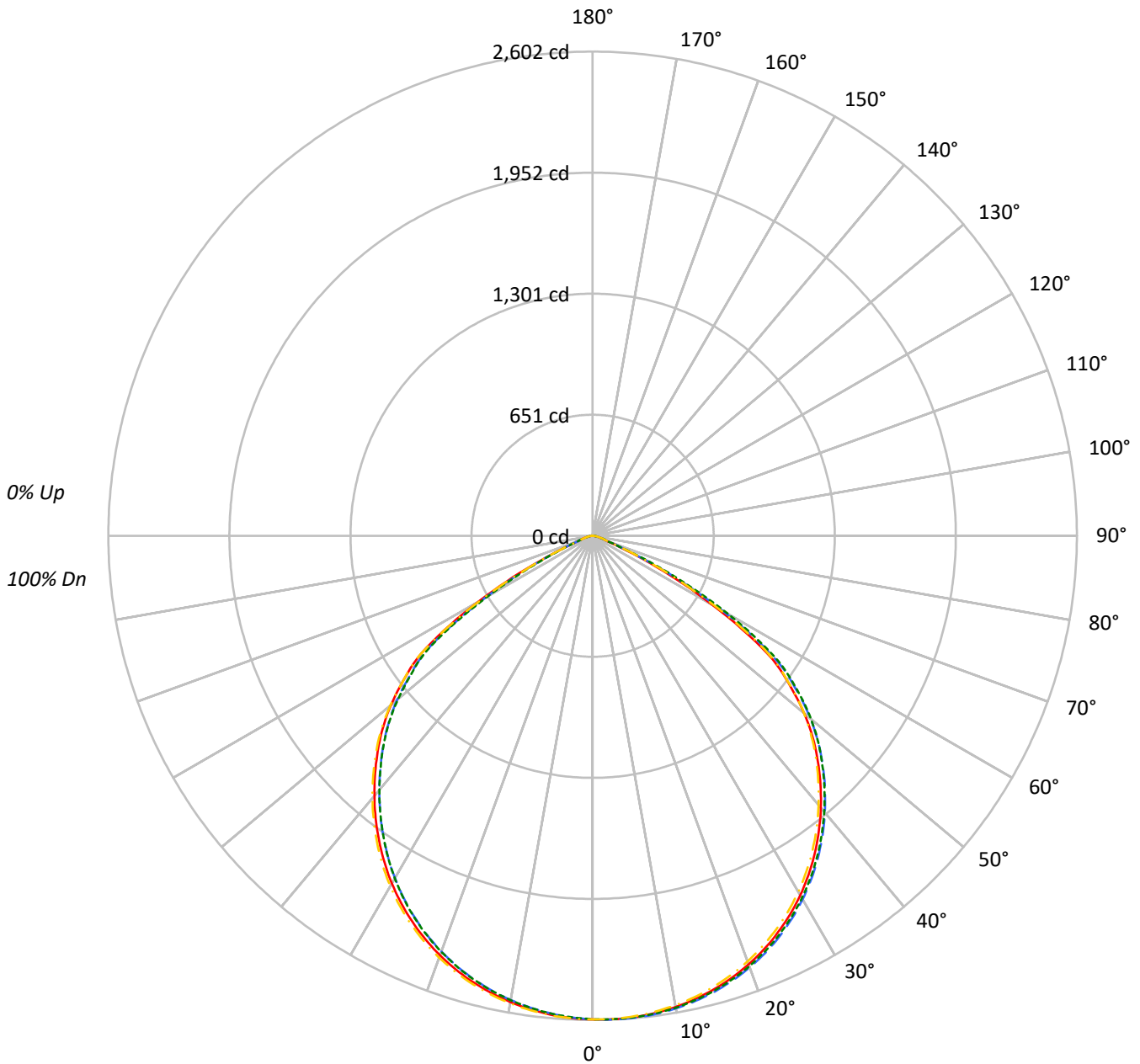
Lumens per Lamp: N/A  
Luminaire Lumens: 5990.5 lumens  
Efficiency: N/A  
Efficacy: 124.8 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.25 / 1.35  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

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					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	98	96	97	95	93	94	92	91	89								
2	103	96	90	85	100	94	89	84	91	86	83	87	84	81	85	82	79	77								
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67								
4	87	77	69	63	85	75	68	63	73	67	62	71	65	61	69	64	60	58								
5	81	69	61	55	79	68	60	55	66	59	54	64	58	54	62	57	53	51								
6	75	62	54	48	73	62	54	48	60	53	48	58	52	47	57	51	47	45								
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40								
8	65	52	44	39	63	51	44	38	50	43	38	49	43	38	48	42	38	36								
9	60	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	32								
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29								

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

	0°	90°	180°	270°
0°	79363	79363	79363	79363
5°	79578	79608	79176	78968
10°	79701	79834	78889	78557
15°	79739	79970	78481	78023
20°	79632	79980	77946	77299
25°	79278	79769	77139	76286
30°	78636	79271	76056	74924
35°	77582	78417	74582	73132
40°	76018	77142	72691	71029
45°	73888	75399	70451	68564
50°	70447	72751	67198	64776
55°	64326	67450	61303	58721
60°	45490	51211	43329	39653
65°	22337	26715	20162	18197
70°	7105	7837	7150	7016
75°	5155	5780	5214	5320
80°	3587	4272	3587	3833
85°	2032	2907	2032	2382

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 75567 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	246.1	4.1
10°-20°	705.9	11.8
20°-30°	1068.3	17.8
30°-40°	1273.5	21.3
40°-50°	1285.2	21.5
50°-60°	1020.9	17.0
60°-70°	331.0	5.5
70°-80°	50.8	0.8
80°-90°	8.9	0.1
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°	2020.3	33.7
0°-40°	3293.8	55.0
0°-60°	5599.9	93.5
0°-90°	5990.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5990.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2600	2600	2600	2600	2600	
5°	2597	2598	2584	2577	2597	247
15°	2523	2530	2483	2468	2523	712
25°	2353	2368	2290	2265	2353	1084
35°	2082	2104	2001	1962	2082	1301
45°	1711	1746	1632	1588	1711	1317
55°	1208	1267	1152	1103	1208	1043
65°	309	370	279	252	309	334
75°	44	49	44	45	44	48
85°	6	8	6	7	6	8
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°	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5
0.5°	2601.0	2600.5	2600.5	2601.0	2598.5	2599.0	2600.0	2600.0	2599.5	2598.5	2598.1
1°	2601.0	2601.0	2601.4	2601.9	2599.5	2599.5	2599.5	2599.5	2598.5	2597.1	2596.6
1.5°	2601.4	2601.4	2601.9	2602.4	2600.0	2599.5	2599.5	2599.0	2597.1	2595.6	2594.7
2°	2601.0	2601.4	2602.4	2602.9	2600.5	2599.5	2599.0	2598.1	2596.1	2593.7	2592.7
2.5°	2600.5	2601.4	2602.4	2602.9	2600.5	2599.5	2598.1	2596.6	2594.2	2592.2	2590.8
3°	2600.5	2601.4	2602.4	2602.9	2600.0	2599.0	2597.6	2595.1	2592.7	2589.8	2588.8
3.5°	2599.5	2601.0	2601.9	2602.9	2600.0	2598.1	2596.1	2593.7	2590.8	2587.4	2585.9
4°	2599.0	2600.5	2601.4	2601.9	2599.5	2597.6	2594.7	2591.7	2588.3	2584.9	2583.5
4.5°	2597.6	2599.5	2601.0	2601.4	2598.5	2596.1	2593.2	2589.8	2585.9	2582.0	2580.1
5°	2596.6	2598.5	2600.5	2600.5	2597.6	2595.1	2591.3	2587.4	2583.5	2579.1	2577.2
5.5°	2595.1	2597.1	2599.0	2599.5	2596.1	2593.7	2589.3	2584.9	2580.1	2575.7	2573.8
6°	2593.2	2595.6	2597.6	2598.1	2594.7	2591.7	2586.9	2582.5	2577.2	2572.3	2570.4
6.5°	2591.3	2594.2	2596.1	2596.6	2593.2	2589.8	2584.5	2579.6	2573.8	2568.4	2566.5
7°	2588.8	2592.2	2594.7	2594.7	2591.3	2587.4	2582.0	2576.7	2570.4	2564.6	2562.1
7.5°	2586.4	2589.8	2592.7	2592.7	2589.3	2584.9	2579.6	2572.8	2566.5	2560.7	2558.3
8°	2584.0	2587.4	2590.3	2590.8	2586.9	2582.5	2576.2	2569.4	2562.6	2556.3	2553.4
8.5°	2580.6	2584.9	2587.9	2587.9	2584.5	2579.1	2572.8	2565.5	2558.3	2551.9	2549.0
9°	2577.7	2582.5	2585.4	2585.4	2581.6	2576.2	2568.9	2561.7	2553.9	2547.1	2544.2
9.5°	2574.3	2579.1	2582.5	2582.5	2578.6	2573.3	2565.5	2557.3	2549.5	2542.2	2538.8
10°	2570.9	2576.2	2579.1	2579.1	2575.2	2569.4	2561.7	2552.9	2544.7	2536.9	2533.5
10.5°	2567.0	2572.8	2575.7	2575.7	2571.8	2565.5	2557.8	2548.1	2539.3	2531.6	2527.7
11°	2563.1	2568.9	2572.3	2572.3	2568.0	2561.7	2552.9	2543.2	2534.0	2525.7	2521.9
11.5°	2558.7	2565.0	2568.4	2568.4	2564.1	2557.3	2548.1	2538.4	2528.6	2519.9	2516.0
12°	2554.4	2561.2	2564.6	2564.6	2559.7	2552.9	2543.2	2532.5	2522.8	2514.1	2509.7
12.5°	2550.0	2556.8	2560.2	2560.2	2555.8	2548.1	2538.4	2527.2	2516.5	2507.3	2502.9
13°	2544.7	2551.9	2555.8	2555.3	2551.0	2543.2	2533.0	2521.4	2510.2	2501.0	2496.6
13.5°	2539.3	2546.6	2551.0	2550.5	2546.1	2537.9	2527.7	2515.1	2503.9	2494.2	2489.3
14°	2534.0	2541.8	2546.1	2545.6	2540.8	2532.5	2521.9	2509.2	2497.1	2487.4	2482.1
14.5°	2528.6	2536.4	2541.3	2540.3	2535.9	2526.7	2515.5	2502.4	2490.3	2480.1	2474.8
15°	2522.8	2531.6	2535.9	2535.0	2530.1	2521.4	2509.2	2495.6	2483.0	2472.3	2467.5
15.5°	2516.5	2525.3	2530.1	2529.1	2524.3	2515.1	2502.9	2489.3	2475.7	2465.1	2459.2
16°	2510.2	2519.4	2524.3	2522.8	2518.0	2508.7	2496.1	2481.6	2468.0	2456.8	2451.0
16.5°	2503.9	2513.1	2518.0	2516.5	2512.1	2502.4	2489.3	2474.3	2460.2	2449.1	2442.7
17°	2496.6	2506.8	2511.7	2510.2	2505.8	2495.6	2482.1	2466.5	2452.4	2440.8	2434.0
17.5°	2489.8	2500.0	2505.4	2503.4	2499.0	2488.8	2474.3	2458.8	2443.7	2431.6	2425.3
18°	2482.5	2492.7	2498.1	2496.6	2492.2	2481.6	2467.0	2450.5	2435.5	2422.8	2416.0
18.5°	2475.3	2485.9	2491.3	2488.8	2485.0	2473.8	2459.2	2442.3	2426.7	2413.6	2406.8
19°	2467.0	2478.7	2483.5	2482.1	2477.2	2466.0	2451.0	2433.5	2417.5	2403.9	2397.1
19.5°	2459.2	2470.9	2476.2	2474.3	2469.4	2458.3	2442.7	2424.8	2408.3	2394.7	2387.4
20°	2451.0	2462.6	2468.5	2466.5	2461.7	2450.0	2434.0	2416.0	2399.1	2385.0	2377.2
20.5°	2442.7	2454.4	2460.2	2458.3	2453.4	2441.8	2425.3	2406.3	2388.9	2374.8	2367.0
21°	2433.5	2446.1	2451.5	2450.0	2444.7	2433.0	2415.6	2396.6	2379.2	2364.1	2356.4



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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°	2405.9	2419.0	2425.3	2422.8	2418.0	2405.4	2386.9	2367.0	2347.6	2331.6	2323.3
23°	2395.7	2409.7	2415.6	2413.6	2408.8	2395.7	2377.2	2355.9	2336.5	2320.9	2311.7
23.5°	2386.0	2400.0	2406.3	2403.9	2398.6	2386.0	2366.5	2345.7	2325.3	2308.8	2300.1
24°	2375.3	2389.8	2396.1	2394.2	2388.9	2375.8	2355.9	2334.5	2314.1	2297.6	2287.9
24.5°	2364.6	2379.6	2386.0	2383.5	2378.7	2365.1	2345.2	2323.3	2302.0	2285.0	2275.3
25°	2353.4	2369.0	2375.3	2372.9	2368.0	2353.9	2334.5	2311.7	2289.9	2272.9	2262.7
25.5°	2342.8	2358.3	2364.6	2362.2	2357.3	2343.2	2323.3	2299.6	2278.2	2260.7	2250.1
26°	2331.6	2347.1	2353.4	2351.5	2346.2	2332.1	2311.7	2287.9	2265.6	2247.6	2237.4
26.5°	2319.9	2336.0	2342.8	2340.3	2334.5	2320.9	2299.6	2275.8	2253.0	2234.5	2223.9
27°	2307.8	2324.3	2330.6	2328.7	2322.9	2309.3	2287.9	2263.2	2239.9	2221.4	2210.3
27.5°	2295.7	2312.2	2319.5	2316.6	2311.7	2297.1	2275.3	2250.5	2226.8	2207.8	2196.7
28°	2283.1	2300.1	2307.3	2304.4	2299.6	2285.0	2262.7	2237.0	2213.2	2194.2	2183.1
28.5°	2270.4	2287.4	2294.7	2292.3	2286.9	2272.4	2250.1	2223.9	2199.6	2179.7	2168.5
29°	2257.8	2275.3	2282.1	2279.7	2274.3	2259.3	2236.5	2210.3	2186.0	2166.1	2154.0
29.5°	2244.2	2262.7	2269.5	2267.0	2261.7	2246.7	2223.4	2196.7	2171.4	2151.0	2139.4
30°	2230.6	2249.1	2255.9	2253.9	2248.6	2233.1	2209.8	2182.6	2157.4	2136.5	2124.4
30.5°	2217.5	2235.5	2242.8	2240.4	2235.5	2220.0	2196.2	2168.5	2142.3	2121.4	2108.8
31°	2203.0	2221.9	2229.2	2226.8	2221.4	2205.9	2181.6	2154.0	2127.8	2106.4	2093.8
31.5°	2188.9	2207.8	2215.1	2212.7	2207.8	2191.8	2167.6	2138.9	2112.7	2090.9	2078.2
32°	2174.3	2193.3	2201.0	2198.6	2193.8	2177.7	2153.0	2124.4	2097.2	2075.3	2062.7
32.5°	2159.3	2178.7	2187.0	2184.1	2179.2	2163.2	2137.9	2108.8	2081.6	2059.3	2045.7
33°	2144.7	2164.2	2172.4	2169.5	2165.1	2148.6	2122.9	2093.8	2065.6	2043.3	2030.2
33.5°	2129.2	2149.1	2157.4	2154.9	2150.1	2133.6	2107.4	2077.8	2050.1	2026.3	2013.2
34°	2113.2	2133.6	2142.3	2139.4	2134.5	2118.5	2092.3	2061.7	2033.6	2009.8	1996.7
34.5°	2097.7	2118.0	2126.8	2123.9	2119.0	2102.5	2076.3	2045.7	2017.1	1993.3	1979.2
35°	2081.6	2102.0	2111.3	2108.3	2104.0	2087.0	2060.3	2029.7	2001.1	1976.3	1962.7
35.5°	2065.1	2086.0	2095.2	2092.3	2088.0	2071.0	2043.8	2012.7	1984.1	1958.9	1945.3
36°	2048.6	2070.0	2078.7	2076.8	2072.4	2055.0	2027.8	1995.7	1966.6	1941.9	1927.8
36.5°	2031.7	2053.0	2062.2	2060.3	2055.4	2038.4	2011.3	1979.2	1949.6	1924.4	1910.3
37°	2014.7	2036.0	2045.7	2043.8	2039.4	2021.9	1994.3	1962.7	1931.7	1906.4	1892.8
37.5°	1997.7	2019.0	2029.2	2026.8	2022.4	2004.5	1977.3	1944.8	1914.2	1889.0	1874.4
38°	1979.7	2001.6	2011.8	2009.8	2005.4	1988.0	1959.8	1927.3	1896.7	1870.5	1856.4
38.5°	1962.2	1984.1	1994.3	1992.8	1988.0	1970.5	1942.4	1909.8	1878.8	1852.6	1838.0
39°	1944.3	1966.1	1976.8	1974.9	1971.0	1953.0	1924.9	1891.9	1860.8	1834.1	1820.0
39.5°	1925.8	1948.2	1958.9	1957.4	1953.5	1935.1	1906.4	1873.9	1842.4	1815.7	1801.6
40°	1907.4	1929.7	1941.4	1939.4	1935.6	1917.6	1888.5	1855.0	1823.9	1797.2	1782.7
40.5°	1889.0	1911.3	1922.5	1921.5	1917.6	1899.2	1870.0	1836.5	1805.5	1777.8	1764.2
41°	1869.5	1892.4	1904.0	1903.0	1898.7	1880.7	1851.6	1818.1	1786.6	1759.4	1744.8
41.5°	1850.1	1873.4	1885.1	1884.6	1880.7	1862.3	1833.1	1799.7	1768.1	1740.4	1725.9
42°	1831.2	1854.5	1866.6	1866.2	1862.3	1843.3	1814.2	1781.2	1748.7	1721.0	1706.5
42.5°	1811.8	1835.1	1847.7	1847.2	1843.3	1824.4	1795.3	1761.8	1729.3	1702.1	1687.5
43°	1792.4	1815.2	1828.3	1828.3	1824.9	1805.5	1776.4	1742.9	1710.4	1682.2	1668.1
43.5°	1772.5	1795.8	1808.9	1809.4	1805.5	1786.1	1756.9	1723.5	1690.9	1662.8	1648.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1711.3	1734.6	1749.2	1750.2	1746.3	1726.9	1698.2	1665.2	1631.7	1603.1	1589.5
45.5°	1690.0	1713.8	1728.3	1730.3	1726.4	1706.5	1677.8	1644.3	1611.8	1583.2	1569.6
46°	1669.1	1693.4	1707.9	1709.9	1706.0	1686.1	1657.9	1624.4	1591.4	1562.8	1549.2
46.5°	1647.7	1671.0	1687.1	1689.0	1685.6	1665.7	1637.1	1604.1	1570.6	1542.4	1528.8
47°	1625.4	1649.7	1665.7	1668.1	1665.2	1644.3	1615.7	1582.7	1549.7	1521.6	1507.5
47.5°	1603.1	1627.4	1643.9	1646.8	1644.3	1623.0	1594.4	1561.4	1528.8	1499.7	1486.1
48°	1580.8	1604.6	1622.0	1624.9	1622.0	1601.6	1574.5	1540.5	1507.5	1478.4	1464.8
48.5°	1557.0	1581.3	1598.7	1602.6	1600.7	1580.3	1551.2	1518.6	1485.2	1456.5	1442.4
49°	1533.7	1558.4	1575.9	1580.8	1578.3	1557.0	1528.8	1495.8	1461.9	1433.2	1419.1
49.5°	1508.9	1534.2	1552.1	1557.0	1555.5	1534.2	1505.5	1472.5	1439.0	1409.9	1395.4
50°	1483.2	1508.9	1527.9	1533.2	1531.7	1510.9	1482.7	1449.2	1414.8	1385.7	1370.6
50.5°	1457.0	1482.2	1502.6	1507.5	1507.0	1487.1	1458.0	1424.0	1390.0	1359.9	1345.4
51°	1431.3	1456.5	1476.4	1482.7	1482.2	1460.9	1431.8	1398.3	1363.8	1334.2	1319.7
51.5°	1403.1	1428.9	1449.2	1456.0	1457.0	1435.2	1406.0	1372.1	1338.6	1309.5	1293.9
52°	1375.5	1402.2	1422.5	1429.3	1429.8	1408.5	1379.4	1344.9	1310.9	1282.3	1266.8
52.5°	1347.8	1373.5	1394.9	1401.2	1402.6	1380.8	1351.7	1317.7	1284.7	1255.6	1240.5
53°	1320.1	1345.4	1366.7	1374.5	1375.0	1353.6	1324.0	1290.5	1258.0	1229.4	1214.8
53.5°	1293.0	1317.2	1339.1	1346.3	1347.8	1326.9	1296.8	1264.8	1232.8	1205.1	1191.0
54°	1266.8	1291.5	1312.4	1320.6	1321.1	1299.8	1271.1	1239.1	1208.5	1180.4	1165.8
54.5°	1239.6	1264.8	1285.7	1293.9	1294.4	1274.5	1245.4	1212.4	1181.8	1153.7	1139.6
55°	1208.5	1233.3	1255.6	1264.3	1267.2	1245.9	1216.8	1183.3	1151.7	1124.1	1110.0
55.5°	1174.0	1198.8	1222.6	1231.3	1235.7	1214.8	1184.2	1150.3	1115.8	1087.2	1074.6
56°	1133.8	1161.9	1183.8	1193.0	1200.3	1179.9	1147.4	1110.5	1075.5	1047.9	1034.3
56.5°	1091.1	1120.2	1142.5	1152.7	1160.9	1141.0	1108.0	1069.2	1034.3	1004.7	991.1
57°	1045.4	1074.1	1098.8	1109.5	1119.2	1097.4	1064.4	1026.0	989.6	960.0	945.5
57.5°	997.4	1024.6	1053.2	1065.8	1075.5	1052.2	1019.2	981.4	944.5	915.4	898.9
58°	947.4	975.1	1006.1	1021.2	1030.9	1004.7	970.7	933.8	898.4	868.3	851.8
58.5°	898.4	925.1	957.1	975.1	985.3	957.6	923.1	887.2	852.3	823.1	804.7
59°	846.4	875.6	908.6	928.0	936.7	906.1	872.7	837.7	804.2	775.6	756.2
59.5°	796.5	824.6	858.6	878.5	887.7	856.6	822.2	788.2	756.7	728.5	709.1
60°	745.0	775.6	808.6	829.9	838.7	806.6	771.7	737.7	709.6	682.4	663.5
60.5°	696.5	726.6	758.1	779.5	789.7	758.6	721.2	689.7	662.5	635.8	617.4
61°	647.5	678.5	707.6	729.0	738.7	709.6	672.2	639.7	614.9	591.2	572.7
61.5°	599.9	631.9	659.1	677.5	690.2	663.5	624.2	592.1	568.8	547.5	528.5
62°	553.8	584.4	611.5	627.6	642.1	614.9	577.6	545.0	523.7	504.8	486.8
62.5°	509.1	539.2	564.5	577.1	592.6	568.3	531.0	498.9	481.9	465.0	448.0
63°	465.9	494.6	518.3	529.0	545.5	522.7	490.2	457.7	440.2	425.2	408.7
63.5°	423.7	451.4	471.8	480.0	499.9	481.0	448.9	415.9	398.5	384.9	369.3
64°	382.9	408.7	428.1	434.4	456.7	438.8	407.7	374.2	356.7	345.1	330.5
64.5°	344.6	368.9	385.4	390.2	413.5	397.0	366.4	332.9	315.5	304.8	295.6
65°	309.2	330.0	344.1	348.5	369.8	354.8	325.7	296.5	279.1	269.9	263.5
65.5°	273.2	292.7	305.3	309.7	326.6	313.0	288.8	263.1	246.1	236.8	233.9
66°	236.8	256.7	267.4	271.8	286.8	274.7	255.3	232.5	214.5	206.8	206.3





TEST NUMBER: P776769

CATALOG NUMBER: HCDJBLS4050CSD-HCD81TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	155.3	165.5	172.3	176.2	184.9	179.6	168.4	154.8	135.4	135.9	138.8
68°	137.4	146.6	154.3	157.7	157.7	152.9	144.1	134.9	117.0	119.4	121.8
68.5°	119.4	128.1	136.9	139.3	134.4	129.6	124.2	117.5	102.4	106.8	107.7
69°	101.9	109.7	119.4	121.3	115.0	110.7	108.2	102.9	91.7	96.1	96.1
69.5°	84.0	91.2	101.9	102.9	99.5	96.6	94.6	91.2	84.5	87.4	86.9
70°	79.6	82.5	84.5	84.5	87.8	86.4	84.9	83.0	80.1	80.6	81.1
70.5°	75.7	77.2	78.6	78.6	80.6	80.1	79.6	78.1	76.2	76.7	76.7
71°	71.3	73.3	74.7	74.7	76.2	76.2	75.7	74.3	72.3	72.8	73.3
71.5°	67.5	69.9	71.3	71.3	72.8	72.3	71.8	70.4	67.9	68.9	69.4
72°	63.6	66.0	67.5	67.5	68.9	68.9	68.4	67.0	64.6	65.5	66.0
72.5°	60.2	62.1	64.1	64.1	65.5	65.0	64.6	63.1	60.7	61.6	62.6
73°	56.3	58.7	60.2	60.7	62.1	61.6	61.2	59.7	57.3	58.2	59.2
73.5°	52.9	55.3	56.8	57.3	58.7	58.2	57.8	56.3	53.9	54.8	55.8
74°	50.0	51.9	53.9	53.9	55.3	54.8	54.8	52.9	50.5	51.4	52.4
74.5°	46.6	48.5	50.5	50.5	51.9	51.9	51.4	49.5	47.1	48.5	49.5
75°	43.7	45.6	47.6	47.6	49.0	48.5	48.5	46.6	44.2	45.1	46.6
75.5°	40.8	42.7	44.7	44.7	46.1	45.6	45.6	43.7	41.7	42.2	43.7
76°	37.9	39.8	41.7	41.7	43.2	43.2	42.7	40.8	38.8	39.8	41.3
76.5°	35.4	36.9	38.8	39.3	40.8	40.3	40.3	38.3	36.4	37.4	38.3
77°	33.0	34.5	36.4	36.9	37.9	37.9	37.4	35.9	33.5	34.5	35.9
77.5°	30.6	32.0	34.0	34.5	35.4	35.4	34.9	33.0	31.1	32.0	33.5
78°	28.2	29.6	31.5	32.0	33.0	33.0	32.5	30.6	28.6	29.6	30.6
78.5°	26.2	27.7	29.1	29.6	30.6	30.6	30.1	28.2	26.2	27.2	28.6
79°	24.3	25.2	27.2	27.7	28.2	28.2	27.7	25.7	24.3	24.8	26.2
79.5°	21.8	23.3	25.2	25.2	26.2	26.2	25.7	23.8	22.3	22.8	24.3
80°	20.4	21.4	22.8	23.3	24.3	24.3	23.8	21.8	20.4	20.9	22.3
80.5°	18.4	19.4	20.9	21.4	22.3	22.3	21.8	19.9	18.4	18.9	20.4
81°	16.5	17.5	19.4	19.9	20.4	20.4	19.9	18.0	16.5	17.0	18.4
81.5°	15.0	16.0	17.5	18.0	18.4	18.4	18.0	16.5	15.0	15.5	16.5
82°	13.6	14.6	16.0	16.0	17.0	17.0	16.5	14.6	13.6	13.6	15.0
82.5°	11.6	12.6	14.1	14.6	15.0	15.0	14.6	13.1	11.6	12.1	13.6
83°	10.2	11.2	12.6	13.1	13.6	13.6	13.1	11.6	10.2	10.7	12.1
83.5°	9.2	9.7	11.2	11.6	12.1	12.1	11.6	10.2	9.2	9.2	10.7
84°	7.8	8.3	9.7	10.2	10.7	10.7	10.2	8.7	7.8	8.3	9.2
84.5°	6.8	7.3	8.3	8.7	9.2	9.2	8.7	7.3	6.8	6.8	7.8
85°	5.8	6.3	7.3	7.8	8.3	8.3	7.8	6.3	5.8	5.8	6.8
85.5°	4.4	4.9	6.3	6.8	6.8	6.8	6.3	4.9	4.9	4.4	5.8
86°	3.9	3.9	5.3	5.3	5.8	5.8	5.3	3.9	3.9	3.4	4.9
86.5°	2.9	2.9	4.4	4.4	4.9	4.9	4.4	3.4	2.9	2.9	3.9
87°	1.9	2.4	3.4	3.9	3.9	3.9	3.4	2.4	1.9	1.9	2.9
87.5°	1.5	1.9	2.4	2.9	2.9	2.9	2.9	1.9	1.5	1.5	2.4
88°	1.0	1.5	1.9	1.9	2.4	2.4	1.9	1.5	1.0	1.0	1.5
88.5°	0.5	1.0	1.0	1.5	1.5	1.5	1.5	1.0	0.5	0.5	1.0



TEST NUMBER: P776769

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

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



TEST NUMBER: P776769

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2599.5	2599.5	2599.5	2599.5	2599.5	2599.5
0.5°	2598.5	2596.6	2597.6	2599.0	2600.5	2601.0
1°	2597.1	2595.1	2596.6	2598.5	2600.5	2601.0
1.5°	2595.6	2593.7	2595.1	2598.1	2600.5	2601.4
2°	2593.7	2592.2	2593.7	2597.1	2600.0	2601.0
2.5°	2591.7	2590.3	2592.2	2595.6	2599.0	2600.5
3°	2589.3	2587.9	2590.3	2594.2	2598.1	2600.5
3.5°	2586.9	2585.4	2588.3	2592.7	2597.1	2599.5
4°	2584.0	2583.0	2585.9	2590.8	2595.6	2599.0
4.5°	2581.1	2580.1	2583.5	2588.8	2594.2	2597.6
5°	2578.2	2576.7	2581.1	2586.4	2592.2	2596.6
5.5°	2574.3	2573.8	2578.2	2584.0	2590.3	2595.1
6°	2570.9	2570.4	2574.8	2581.6	2587.9	2593.2
6.5°	2567.5	2566.5	2571.4	2578.2	2585.4	2591.3
7°	2563.1	2562.6	2568.4	2575.2	2583.0	2588.8
7.5°	2559.2	2558.3	2564.6	2571.8	2580.1	2586.4
8°	2554.4	2553.9	2560.2	2568.0	2577.2	2584.0
8.5°	2550.0	2549.0	2555.8	2564.6	2573.3	2580.6
9°	2545.1	2544.2	2551.0	2560.2	2569.9	2577.7
9.5°	2539.8	2539.3	2546.6	2555.8	2566.0	2574.3
10°	2534.5	2534.0	2541.8	2551.5	2562.1	2570.9
10.5°	2528.6	2528.6	2536.4	2546.6	2557.8	2567.0
11°	2523.3	2522.8	2531.1	2541.8	2553.4	2563.1
11.5°	2517.0	2517.0	2525.3	2536.4	2549.0	2558.7
12°	2510.7	2510.7	2519.4	2531.1	2543.7	2554.4
12.5°	2504.4	2504.4	2513.6	2525.3	2538.8	2550.0
13°	2497.6	2497.6	2507.3	2519.4	2533.5	2544.7
13.5°	2490.3	2490.8	2500.5	2513.1	2527.7	2539.3
14°	2483.0	2483.0	2493.7	2506.8	2521.9	2534.0
14.5°	2475.7	2475.7	2486.9	2500.5	2515.5	2528.6
15°	2468.5	2468.5	2479.6	2493.7	2509.2	2522.8
15.5°	2460.2	2460.7	2471.4	2486.4	2502.9	2516.5
16°	2452.0	2452.4	2463.6	2479.1	2496.1	2510.2
16.5°	2443.7	2444.2	2455.8	2471.4	2488.8	2503.9
17°	2435.5	2435.9	2447.6	2463.6	2481.6	2496.6
17.5°	2425.8	2426.7	2439.3	2455.8	2474.3	2489.8
18°	2417.0	2418.0	2430.1	2447.6	2466.0	2482.5
18.5°	2407.8	2408.3	2421.4	2438.9	2458.3	2475.3
19°	2398.1	2399.1	2412.2	2430.1	2450.0	2467.0
19.5°	2388.4	2388.9	2402.5	2421.4	2441.8	2459.2
20°	2378.2	2379.2	2392.8	2412.2	2432.5	2451.0
20.5°	2367.5	2368.5	2383.0	2402.5	2423.8	2442.7
21°	2356.8	2357.8	2372.4	2392.8	2414.6	2433.5

TEST NUMBER: P776769

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2323.3	2324.8	2340.8	2361.7	2385.5	2405.9
23°	2312.2	2313.2	2329.2	2351.0	2375.3	2395.7
23.5°	2300.1	2301.5	2318.0	2340.3	2364.6	2386.0
24°	2287.9	2289.4	2306.4	2328.7	2353.9	2375.3
24.5°	2275.8	2277.2	2293.7	2317.5	2342.8	2364.6
25°	2263.2	2264.6	2281.6	2305.4	2331.6	2353.4
25.5°	2250.1	2252.0	2269.5	2293.7	2319.9	2342.8
26°	2237.4	2238.9	2256.9	2281.1	2308.3	2331.6
26.5°	2223.9	2225.8	2244.2	2269.0	2295.7	2319.9
27°	2210.3	2212.2	2230.6	2255.9	2283.5	2307.8
27.5°	2196.7	2198.1	2217.1	2242.8	2270.9	2295.7
28°	2182.6	2184.1	2203.5	2229.7	2258.3	2283.1
28.5°	2168.0	2170.0	2189.9	2216.1	2245.2	2270.4
29°	2153.5	2155.4	2174.8	2202.5	2231.6	2257.8
29.5°	2138.4	2140.9	2160.8	2188.4	2218.0	2244.2
30°	2122.9	2125.3	2146.2	2173.9	2204.4	2230.6
30.5°	2107.9	2110.3	2130.7	2159.3	2189.9	2217.5
31°	2092.8	2094.7	2116.1	2144.7	2175.3	2203.0
31.5°	2076.8	2079.2	2100.6	2129.7	2160.8	2188.9
32°	2060.8	2062.7	2084.6	2114.6	2146.2	2174.3
32.5°	2044.3	2046.7	2068.5	2098.6	2131.1	2159.3
33°	2028.3	2030.7	2053.0	2083.1	2116.1	2144.7
33.5°	2011.8	2013.7	2036.0	2067.6	2100.1	2129.2
34°	1994.8	1996.7	2019.5	2051.1	2084.1	2113.2
34.5°	1977.3	1980.2	2003.0	2034.6	2068.1	2097.7
35°	1960.3	1962.2	1986.0	2018.1	2051.6	2081.6
35.5°	1943.3	1945.7	1968.6	2001.1	2035.1	2065.1
36°	1925.8	1927.8	1951.6	1984.1	2018.1	2048.6
36.5°	1907.9	1910.8	1934.1	1967.1	2001.6	2031.7
37°	1890.4	1892.8	1916.1	1949.6	1984.1	2014.7
37.5°	1872.0	1874.4	1898.2	1931.7	1966.6	1997.7
38°	1854.0	1856.0	1879.7	1913.7	1948.7	1979.7
38.5°	1836.1	1838.0	1861.8	1895.8	1930.7	1962.2
39°	1817.1	1819.6	1843.3	1877.8	1912.7	1944.3
39.5°	1798.7	1800.6	1824.9	1858.9	1894.8	1925.8
40°	1780.2	1782.2	1806.0	1840.4	1876.3	1907.4
40.5°	1761.3	1763.3	1786.6	1821.5	1857.9	1889.0
41°	1742.9	1744.3	1768.1	1802.6	1838.5	1869.5
41.5°	1723.5	1724.4	1748.2	1783.2	1819.6	1850.1
42°	1704.5	1706.0	1729.3	1764.7	1800.6	1831.2
42.5°	1685.6	1686.1	1709.9	1745.3	1780.7	1811.8
43°	1665.7	1667.2	1690.9	1725.4	1761.3	1792.4
43.5°	1646.3	1647.3	1670.6	1705.5	1741.4	1772.5

TEST NUMBER: P776769

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1587.6	1588.0	1610.4	1645.3	1681.2	1711.3
45.5°	1567.7	1567.7	1590.0	1624.9	1659.9	1690.0
46°	1547.3	1546.8	1569.1	1604.1	1639.0	1669.1
46.5°	1526.9	1525.4	1548.3	1582.7	1617.7	1647.7
47°	1506.0	1505.1	1526.4	1560.9	1595.8	1625.4
47.5°	1484.2	1482.7	1503.6	1538.5	1573.5	1603.1
48°	1462.3	1460.4	1481.3	1515.7	1550.2	1580.8
48.5°	1440.0	1437.1	1458.5	1492.4	1526.9	1557.0
49°	1416.7	1413.8	1434.7	1468.2	1503.6	1533.7
49.5°	1392.9	1389.5	1409.9	1444.4	1478.8	1508.9
50°	1368.2	1363.8	1384.7	1418.2	1453.6	1483.2
50.5°	1342.9	1339.1	1359.0	1392.5	1426.9	1457.0
51°	1317.2	1312.9	1333.2	1366.7	1400.7	1431.3
51.5°	1291.0	1286.6	1306.1	1340.5	1374.0	1403.1
52°	1263.8	1260.4	1280.3	1313.3	1346.3	1375.5
52.5°	1237.6	1234.2	1254.1	1286.2	1317.2	1347.8
53°	1212.4	1209.5	1228.9	1260.4	1291.5	1320.1
53.5°	1187.6	1185.7	1205.1	1235.7	1265.8	1293.0
54°	1163.9	1161.4	1180.4	1211.4	1240.5	1266.8
54.5°	1137.2	1134.3	1153.7	1183.8	1212.9	1239.6
55°	1108.5	1103.2	1124.1	1154.2	1183.3	1208.5
55.5°	1074.6	1066.3	1087.2	1117.3	1146.9	1174.0
56°	1033.3	1025.5	1046.9	1076.5	1106.6	1133.8
56.5°	990.1	981.9	1002.7	1033.8	1062.9	1091.1
57°	945.5	935.7	957.1	988.2	1018.7	1045.4
57.5°	898.9	887.7	911.0	942.1	971.7	997.4
58°	851.8	839.2	863.9	895.5	924.1	947.4
58.5°	802.8	791.6	816.4	848.4	872.2	898.4
59°	753.7	742.6	768.3	798.9	824.1	846.4
59.5°	705.7	696.5	721.2	751.3	774.6	796.5
60°	657.6	649.4	674.6	702.8	723.6	745.0
60.5°	611.0	603.3	628.0	654.2	672.7	696.5
61°	564.5	557.2	581.4	605.7	624.6	647.5
61.5°	521.3	515.0	536.8	559.6	577.6	599.9
62°	481.9	471.3	494.1	512.5	529.5	553.8
62.5°	443.1	430.5	451.4	467.4	484.9	509.1
63°	404.3	391.2	409.6	423.7	440.2	465.9
63.5°	365.5	353.3	370.3	382.0	398.5	423.7
64°	326.6	316.9	331.0	341.7	357.2	382.9
64.5°	294.1	283.9	294.6	304.3	320.3	344.6
65°	263.5	251.9	260.1	268.4	284.4	309.2
65.5°	234.9	223.3	227.6	235.4	250.9	273.2
66°	207.7	196.1	197.1	205.3	220.3	236.8



TEST NUMBER: P776769

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	141.7	139.8	138.8	145.1	150.0	155.3
68°	123.8	123.8	123.3	128.1	132.5	137.4
68.5°	108.7	107.7	107.7	111.1	115.5	119.4
69°	96.6	91.7	92.2	94.2	98.0	101.9
69.5°	86.9	83.5	84.0	85.4	87.4	84.0
70°	80.6	78.6	79.1	80.1	80.6	79.6
70.5°	76.7	75.2	75.7	76.2	76.2	75.7
71°	73.3	71.3	71.8	72.8	72.8	71.3
71.5°	69.4	67.9	68.4	68.9	68.9	67.5
72°	66.0	64.1	64.6	65.5	65.0	63.6
72.5°	62.1	60.7	61.2	62.1	61.6	60.2
73°	58.7	57.3	57.8	58.2	57.8	56.3
73.5°	55.8	54.4	54.4	55.3	54.4	52.9
74°	52.4	51.0	51.4	51.9	51.4	50.0
74.5°	49.5	48.0	48.5	49.0	48.0	46.6
75°	46.6	45.1	45.6	45.6	45.1	43.7
75.5°	43.7	42.2	42.7	43.2	42.2	40.8
76°	41.3	39.8	39.8	40.3	39.3	37.9
76.5°	38.3	36.9	37.4	37.4	36.4	35.4
77°	35.9	34.5	34.9	34.9	34.0	33.0
77.5°	33.5	32.0	32.5	32.5	31.5	30.6
78°	31.1	30.1	30.1	30.6	29.1	28.2
78.5°	28.6	27.7	28.2	28.2	27.2	26.2
79°	26.7	25.7	25.7	26.2	24.8	24.3
79.5°	24.8	23.8	23.8	23.8	22.8	21.8
80°	22.8	21.8	21.8	21.8	20.9	20.4
80.5°	20.9	19.9	19.9	19.9	18.9	18.4
81°	18.9	18.4	18.4	18.4	17.5	16.5
81.5°	17.0	16.5	17.0	16.5	15.5	15.0
82°	15.5	15.0	15.0	15.0	14.1	13.6
82.5°	14.1	13.6	13.6	13.6	12.1	11.6
83°	12.6	11.6	12.1	11.6	10.7	10.2
83.5°	11.2	10.7	10.7	10.2	9.2	9.2
84°	9.7	9.2	9.2	9.2	8.3	7.8
84.5°	8.3	7.8	8.3	7.8	6.8	6.8
85°	7.3	6.8	6.8	6.8	5.8	5.8
85.5°	6.3	5.8	5.8	5.8	4.4	4.4
86°	4.9	4.9	4.9	4.9	3.9	3.9
86.5°	4.4	3.9	3.9	3.9	2.9	2.9
87°	3.4	2.9	2.9	2.9	2.4	1.9
87.5°	2.4	1.9	1.9	1.9	1.9	1.5
88°	1.5	1.5	1.5	1.5	1.0	1.0
88.5°	1.0	0.5	0.5	0.5	0.5	0.5



TEST NUMBER: P776769

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMW-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°	2424.3	2437.4	2443.2	2441.3	2435.9	2423.8	2406.3	2386.9	2369.0	2353.4	2345.7
22°	2415.1	2428.7	2434.0	2432.5	2427.2	2414.6	2396.6	2377.2	2358.8	2343.2	2334.5



44°	1752.1	1775.9	1789.0	1789.5	1785.6	1766.7	1737.5	1704.5	1671.0	1642.9	1629.3
44.5°	1731.7	1755.0	1768.6	1770.1	1766.7	1746.3	1717.6	1684.6	1651.6	1623.5	1609.4



66.5°	203.4	224.7	233.0	237.3	250.4	240.2	223.3	203.4	184.9	179.6	181.5
67°	173.3	193.7	200.9	204.8	216.9	208.7	194.1	178.1	157.7	155.8	158.7



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



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21.5°	2346.2	2347.6	2362.2	2383.0	2404.9	2424.3
22°	2335.0	2336.5	2351.5	2372.4	2395.2	2415.1



44°	1626.9	1627.8	1651.1	1686.1	1721.5	1752.1
44.5°	1607.5	1607.9	1630.8	1666.2	1701.6	1731.7



66.5°	183.5	172.3	170.4	178.6	193.7	203.4
67°	162.1	156.3	154.3	161.6	167.4	173.3

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

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Scaled Data Report



(END OF REPORT)