

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: P776666

Luminaire Tested: HCDJBS4050CSD-HCD61TRMW-5000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776666
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-3000K
Description: 6 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5673.8 lumens
Efficiency: N/A
Efficacy: 118.2 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

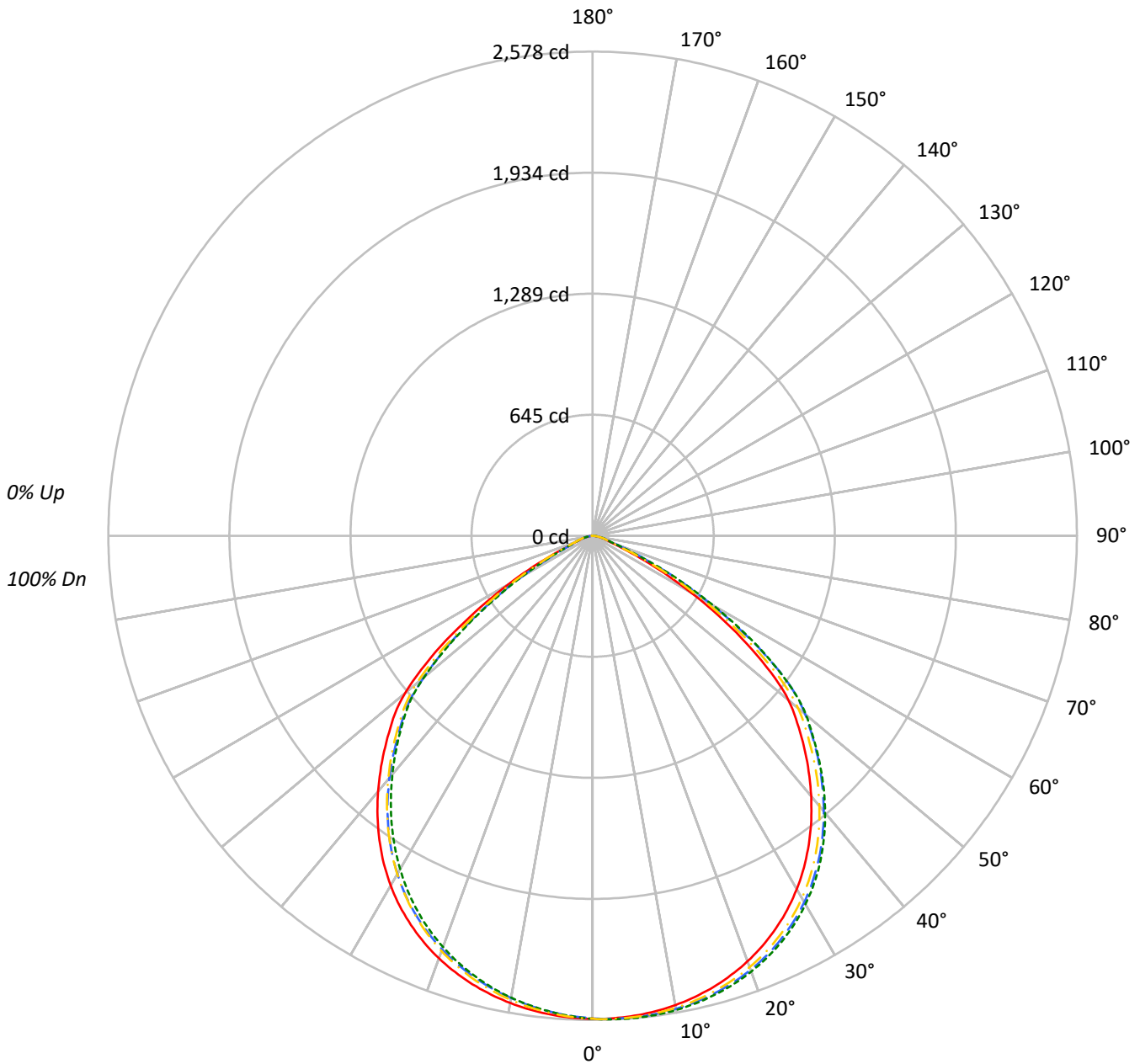
Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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																			
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°	140943	140943	140943	140943
5°	141151	141866	140843	140050
10°	141258	142727	140634	139003
15°	141142	143491	140296	137714
20°	140666	144055	139633	135923
25°	139581	144160	138371	133369
30°	137546	143427	136103	129748
35°	134254	141435	132447	124832
40°	129528	137772	127138	118694
45°	123400	132471	120408	111515
50°	116090	126478	111024	99928
55°	95729	110161	87204	74645
60°	66420	81046	56947	47014
65°	35983	47852	27175	24049
70°	17134	20324	14970	14890
75°	13768	15547	11416	12010
80°	10418	12754	7766	9092
85°	6416	10253	3208	5284

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 136185 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.5	4.3
10°-20°	699.1	12.3
20°-30°	1056.5	18.6
30°-40°	1242.5	21.9
40°-50°	1210.0	21.3
50°-60°	853.5	15.0
60°-70°	286.0	5.0
70°-80°	69.0	1.2
80°-90°	13.7	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°	1999.1	35.2
0°-40°	3241.6	57.1
0°-60°	5305.0	93.5
0°-90°	5673.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5673.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2571	2571	2571	2571	2571	
5°	2565	2578	2559	2545	2565	244
15°	2487	2528	2472	2426	2487	702
25°	2308	2383	2288	2205	2308	1062
35°	2006	2113	1979	1865	2006	1252
45°	1592	1709	1553	1438	1592	1226
55°	1002	1153	912	781	1002	887
65°	277	369	210	185	277	298
75°	65	73	54	57	65	70
85°	10	16	5	8	10	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°	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0
0.5°	2572.4	2571.9	2570.5	2568.2	2573.3	2573.8	2573.3	2573.3	2571.9	2570.1	2567.8
1°	2572.4	2572.4	2571.9	2570.1	2574.7	2574.7	2574.3	2573.3	2571.5	2569.1	2565.9
1.5°	2572.4	2572.9	2572.4	2571.5	2575.7	2575.7	2574.7	2572.9	2570.1	2567.3	2564.0
2°	2571.9	2572.9	2573.3	2572.9	2576.6	2576.1	2574.7	2572.4	2569.1	2565.9	2561.7
2.5°	2571.0	2572.9	2573.8	2573.8	2577.5	2576.1	2574.7	2571.9	2568.2	2564.0	2559.9
3°	2570.5	2572.9	2574.3	2574.7	2577.5	2576.6	2574.7	2571.0	2566.4	2562.2	2557.1
3.5°	2569.1	2572.9	2574.7	2575.7	2578.0	2576.6	2574.3	2570.1	2565.0	2559.9	2554.3
4°	2568.2	2571.9	2574.3	2576.1	2578.0	2576.6	2573.8	2569.1	2563.6	2557.5	2551.5
4.5°	2566.4	2571.0	2574.3	2576.6	2578.4	2576.1	2573.3	2567.3	2561.2	2554.7	2547.8
5°	2565.0	2570.1	2573.8	2576.6	2578.0	2575.7	2571.9	2565.9	2559.4	2552.0	2545.0
5.5°	2563.1	2569.1	2572.9	2576.1	2577.5	2574.7	2571.0	2564.0	2557.1	2549.2	2541.3
6°	2561.2	2567.3	2572.4	2576.1	2576.6	2573.8	2570.1	2562.2	2554.3	2545.9	2537.6
6.5°	2558.9	2565.9	2571.0	2575.7	2575.7	2572.9	2568.2	2559.9	2551.5	2542.2	2533.4
7°	2556.6	2564.0	2569.6	2574.7	2574.7	2571.0	2566.8	2557.5	2548.7	2538.9	2529.2
7.5°	2553.8	2562.2	2568.2	2573.8	2573.3	2569.6	2565.0	2554.7	2545.5	2535.2	2524.5
8°	2551.0	2559.9	2566.4	2572.9	2571.9	2567.8	2562.6	2552.0	2542.2	2531.1	2520.4
8.5°	2547.8	2557.5	2565.0	2571.9	2570.1	2565.9	2559.9	2549.2	2538.5	2526.9	2515.3
9°	2544.5	2554.7	2562.6	2570.1	2568.2	2563.6	2557.5	2545.9	2534.8	2522.2	2510.6
9.5°	2540.8	2552.0	2560.3	2568.2	2566.4	2561.2	2555.2	2542.7	2530.6	2517.6	2505.0
10°	2537.6	2548.7	2558.0	2566.4	2564.0	2558.5	2552.0	2538.5	2526.4	2512.9	2499.9
10.5°	2533.4	2545.5	2555.2	2564.5	2561.2	2555.2	2548.7	2534.8	2521.8	2507.8	2493.9
11°	2529.2	2541.7	2552.0	2561.7	2558.5	2552.4	2545.5	2530.6	2517.1	2502.7	2488.3
11.5°	2524.5	2538.0	2549.2	2559.4	2555.2	2548.7	2541.7	2526.4	2512.5	2497.1	2482.3
12°	2519.9	2533.8	2545.5	2556.6	2552.0	2545.5	2538.0	2521.8	2507.4	2491.6	2476.2
12.5°	2514.8	2529.7	2541.7	2553.4	2548.7	2541.7	2533.8	2517.1	2501.8	2485.5	2469.7
13°	2509.7	2525.0	2538.0	2550.1	2545.0	2538.0	2529.7	2512.0	2496.2	2479.5	2462.8
13.5°	2504.1	2520.8	2533.8	2546.8	2541.3	2533.4	2525.0	2506.9	2490.6	2473.0	2455.8
14°	2498.5	2515.7	2529.7	2543.1	2537.1	2529.2	2520.4	2501.3	2484.6	2466.5	2448.8
14.5°	2493.0	2510.6	2525.0	2539.4	2532.4	2524.5	2515.3	2495.7	2478.1	2459.5	2440.9
15°	2486.9	2505.0	2520.4	2534.8	2528.3	2519.9	2510.1	2489.7	2472.0	2453.0	2433.5
15.5°	2480.4	2499.5	2515.3	2530.6	2523.6	2514.3	2504.6	2483.7	2465.1	2445.6	2425.6
16°	2473.9	2493.4	2510.1	2525.9	2518.5	2509.2	2498.5	2477.2	2458.6	2438.1	2417.7
16.5°	2466.9	2487.4	2504.1	2521.8	2512.9	2503.6	2493.0	2470.7	2451.1	2430.2	2409.3
17°	2459.5	2480.9	2499.0	2516.2	2507.8	2497.6	2486.9	2463.7	2443.7	2422.3	2400.5
17.5°	2452.1	2474.4	2493.0	2511.1	2501.8	2491.6	2480.4	2456.3	2435.8	2414.0	2391.7
18°	2444.6	2467.4	2486.9	2505.5	2495.7	2485.5	2473.4	2448.8	2427.9	2405.6	2382.8
18.5°	2436.7	2460.4	2480.4	2499.5	2489.2	2478.6	2466.5	2441.4	2420.0	2396.8	2373.1
19°	2428.4	2453.0	2473.4	2493.4	2483.2	2472.0	2459.5	2433.5	2411.2	2388.0	2363.8
19.5°	2420.0	2445.1	2466.5	2487.4	2476.2	2464.6	2452.1	2425.1	2402.4	2378.7	2354.0
20°	2411.2	2437.2	2459.0	2480.9	2469.3	2457.2	2444.6	2416.8	2393.5	2368.9	2343.8
20.5°	2402.4	2429.3	2452.1	2473.9	2461.8	2449.3	2436.3	2407.9	2384.2	2359.2	2333.1
21°	2393.1	2420.5	2444.2	2466.9	2454.4	2441.4	2427.9	2398.6	2375.0	2349.4	2322.9



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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°	2362.9	2393.5	2419.1	2444.6	2429.8	2415.8	2401.4	2370.3	2344.3	2317.3	2289.5
23°	2352.7	2384.2	2410.3	2436.3	2420.9	2407.0	2392.1	2360.1	2333.1	2306.2	2276.9
23.5°	2342.0	2374.0	2401.0	2427.9	2412.1	2397.7	2382.4	2349.4	2322.5	2294.6	2265.3
24°	2330.8	2363.8	2391.2	2419.6	2402.8	2388.0	2372.2	2338.7	2310.8	2283.0	2252.8
24.5°	2319.7	2353.1	2381.5	2410.3	2393.1	2377.7	2361.9	2327.6	2299.2	2270.4	2240.2
25°	2307.6	2342.0	2371.2	2401.0	2383.3	2367.5	2351.7	2316.4	2287.6	2258.3	2227.2
25.5°	2295.5	2330.8	2361.0	2391.2	2373.1	2356.8	2340.6	2304.3	2275.1	2245.8	2213.3
26°	2283.0	2319.2	2349.9	2381.5	2362.4	2346.1	2329.4	2292.3	2262.5	2232.8	2199.8
26.5°	2270.9	2307.6	2339.2	2371.2	2351.7	2334.5	2318.3	2280.2	2249.5	2218.9	2185.9
27°	2257.4	2295.0	2327.6	2360.5	2340.6	2323.4	2306.2	2267.2	2236.5	2205.8	2171.5
27.5°	2244.4	2283.0	2315.9	2349.9	2329.0	2311.3	2293.6	2254.2	2223.0	2191.9	2157.1
28°	2230.5	2270.4	2304.3	2338.7	2316.9	2298.8	2281.6	2241.2	2209.1	2177.0	2141.7
28.5°	2217.0	2256.9	2291.8	2327.6	2304.8	2286.2	2268.6	2227.7	2194.7	2162.6	2126.9
29°	2202.6	2243.5	2279.2	2315.5	2292.3	2273.2	2255.1	2213.7	2180.3	2147.3	2111.1
29.5°	2187.7	2230.0	2265.8	2303.4	2279.2	2259.7	2241.6	2199.3	2165.0	2132.0	2095.3
30°	2172.9	2215.6	2252.8	2290.9	2265.8	2246.7	2228.1	2184.5	2150.1	2116.2	2078.5
30.5°	2158.0	2201.2	2239.3	2277.9	2252.3	2232.3	2213.3	2169.6	2134.3	2099.9	2061.8
31°	2142.2	2186.8	2224.9	2265.3	2238.4	2217.9	2198.9	2154.3	2118.5	2083.7	2045.1
31.5°	2126.4	2171.5	2210.5	2251.4	2224.0	2203.1	2184.5	2138.5	2102.2	2066.9	2027.4
32°	2110.1	2155.7	2195.6	2237.4	2209.6	2188.2	2168.7	2122.2	2085.5	2049.7	2009.8
32.5°	2093.4	2140.3	2180.8	2223.0	2194.2	2172.9	2152.9	2106.0	2068.8	2032.1	1991.2
33°	2076.7	2124.1	2165.0	2208.6	2178.9	2156.6	2137.1	2089.7	2051.6	2014.4	1973.1
33.5°	2059.5	2107.4	2149.2	2193.3	2163.1	2140.3	2120.8	2072.5	2033.5	1995.9	1955.0
34°	2041.8	2091.1	2133.4	2178.4	2147.3	2124.1	2104.1	2054.9	2015.4	1977.3	1935.5
34.5°	2024.7	2073.9	2116.6	2162.6	2130.6	2107.4	2086.9	2037.2	1997.2	1958.7	1916.4
35°	2006.1	2056.7	2099.9	2146.4	2113.4	2090.2	2069.7	2019.5	1979.1	1939.6	1896.4
35.5°	1988.0	2038.6	2082.7	2130.1	2096.2	2073.0	2051.6	2001.0	1960.1	1919.7	1876.5
36°	1968.4	2020.5	2065.1	2113.4	2079.0	2054.4	2033.9	1982.4	1940.6	1900.1	1855.5
36.5°	1949.9	2002.4	2047.4	2096.2	2060.9	2035.8	2015.4	1963.3	1920.6	1879.7	1835.1
37°	1931.3	1983.8	2028.8	2079.0	2042.3	2017.2	1996.3	1944.3	1901.1	1859.3	1814.2
37.5°	1911.3	1965.2	2011.2	2060.9	2023.3	1998.2	1977.3	1924.3	1881.1	1838.8	1793.3
38°	1891.3	1945.7	1992.1	2042.8	2004.7	1979.1	1958.2	1904.3	1861.1	1817.9	1771.5
38.5°	1871.3	1926.2	1973.1	2024.2	1984.7	1959.6	1938.2	1884.4	1839.8	1796.5	1749.2
39°	1850.9	1906.2	1953.6	2005.6	1965.7	1939.2	1918.3	1863.4	1818.8	1774.7	1727.3
39.5°	1830.9	1886.2	1934.1	1986.1	1945.2	1919.2	1897.8	1842.5	1797.9	1752.4	1705.0
40°	1810.0	1866.2	1914.1	1966.6	1925.2	1898.8	1877.4	1822.1	1776.6	1730.6	1682.3
40.5°	1788.6	1845.3	1894.1	1946.6	1904.3	1877.8	1856.5	1800.7	1755.2	1708.3	1660.4
41°	1767.7	1824.4	1873.2	1926.6	1883.9	1856.5	1835.6	1779.4	1732.9	1685.5	1636.7
41.5°	1746.4	1803.5	1852.3	1905.7	1863.0	1835.6	1813.7	1757.1	1711.1	1663.2	1614.0
42°	1724.5	1782.6	1831.4	1885.3	1841.6	1814.2	1792.4	1735.2	1688.8	1640.4	1590.7
42.5°	1702.7	1761.2	1810.5	1864.4	1819.8	1792.4	1771.5	1713.4	1666.5	1617.7	1567.5
43°	1680.9	1739.4	1788.6	1843.5	1797.9	1770.5	1749.2	1691.1	1644.2	1594.0	1543.3
43.5°	1659.0	1717.6	1767.3	1821.6	1776.1	1748.7	1726.4	1668.8	1621.4	1570.8	1520.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1591.7	1651.1	1701.3	1756.6	1708.7	1680.9	1659.0	1600.0	1553.1	1501.5	1451.4
45.5°	1568.9	1628.4	1679.5	1734.3	1686.0	1658.1	1636.3	1577.3	1530.3	1479.2	1429.1
46°	1546.1	1605.6	1656.7	1712.0	1663.7	1634.9	1613.0	1554.5	1507.1	1456.5	1407.2
46.5°	1522.9	1582.8	1633.9	1689.2	1640.4	1612.1	1589.8	1531.3	1484.3	1433.7	1384.9
47°	1500.6	1560.5	1611.2	1666.5	1617.2	1589.8	1567.5	1509.0	1462.5	1411.9	1361.2
47.5°	1478.3	1537.8	1588.9	1643.7	1594.9	1567.5	1545.2	1486.7	1440.2	1388.2	1336.1
48°	1456.0	1515.0	1565.6	1620.5	1573.1	1544.7	1522.9	1464.4	1416.1	1362.6	1308.7
48.5°	1432.8	1492.7	1543.3	1598.2	1550.3	1523.4	1500.1	1440.7	1390.5	1334.7	1277.6
49°	1410.9	1470.4	1520.6	1575.4	1528.0	1500.1	1477.8	1414.2	1363.6	1304.1	1244.6
49.5°	1386.3	1447.2	1498.7	1552.2	1505.7	1477.8	1454.1	1387.2	1333.8	1271.1	1208.8
50°	1361.2	1423.9	1476.0	1529.9	1483.0	1452.8	1428.1	1358.4	1301.8	1236.3	1173.1
50.5°	1333.8	1398.4	1452.3	1507.6	1457.9	1426.7	1401.2	1327.8	1268.3	1201.9	1137.3
51°	1302.7	1371.0	1426.7	1484.8	1431.4	1397.9	1371.9	1294.8	1233.9	1165.2	1099.7
51.5°	1267.8	1340.3	1399.3	1460.7	1403.5	1364.9	1339.4	1259.0	1196.3	1128.0	1062.0
52°	1232.5	1307.8	1370.5	1434.6	1371.9	1331.5	1304.6	1220.9	1157.7	1089.9	1023.5
52.5°	1195.8	1273.0	1338.5	1407.2	1337.5	1297.6	1270.2	1181.9	1118.7	1051.4	985.4
53°	1158.2	1236.3	1305.0	1378.0	1303.2	1261.3	1232.5	1141.9	1078.8	1010.9	946.8
53.5°	1119.2	1198.2	1268.8	1346.4	1266.5	1224.6	1194.9	1100.6	1038.3	971.0	908.3
54°	1080.6	1160.5	1230.7	1312.0	1229.3	1187.5	1155.9	1059.7	996.5	931.5	870.2
54.5°	1041.1	1121.0	1190.3	1275.3	1190.7	1150.3	1116.4	1019.3	955.2	891.5	831.1
55°	1001.6	1081.1	1149.8	1236.3	1152.6	1111.7	1075.5	976.6	912.4	850.2	791.7
55.5°	961.7	1039.3	1108.5	1196.3	1113.1	1072.3	1035.1	935.7	870.6	810.2	753.6
56°	922.7	997.9	1066.2	1155.0	1073.2	1031.8	994.2	893.9	828.4	770.3	715.0
56.5°	881.8	956.1	1023.0	1113.1	1032.3	991.0	952.9	853.9	787.0	730.3	676.9
57°	842.3	913.4	979.3	1070.9	991.0	950.1	911.0	813.5	746.6	691.3	639.7
57.5°	802.3	871.6	937.1	1028.1	948.7	909.2	870.2	774.0	706.6	652.3	603.5
58°	761.9	828.8	894.8	986.3	907.3	867.4	829.3	734.0	667.1	613.7	567.3
58.5°	722.4	786.1	851.6	944.0	865.1	824.6	788.9	694.6	628.1	576.5	531.5
59°	683.4	745.2	809.3	902.2	822.8	782.4	748.0	655.1	591.0	538.9	497.1
59.5°	644.8	704.3	768.4	861.3	781.0	740.1	708.0	617.9	554.7	503.1	464.1
60°	605.8	663.9	728.5	820.0	739.2	698.7	668.5	579.8	519.4	467.8	432.5
60.5°	567.7	624.9	688.5	779.6	698.3	657.4	629.5	543.6	485.0	436.7	400.9
61°	531.9	586.3	647.6	738.7	658.3	617.0	591.4	506.9	451.1	405.6	369.3
61.5°	495.2	548.7	609.5	700.6	619.3	577.5	553.8	472.5	419.5	374.9	337.8
62°	460.9	512.0	572.4	660.2	580.3	538.5	516.2	440.4	387.9	343.8	306.2
62.5°	427.4	476.7	536.1	622.1	541.7	499.9	479.5	407.9	355.9	312.7	279.2
63°	395.4	442.7	500.4	584.4	504.5	463.7	446.5	375.8	324.3	286.2	253.7
63.5°	363.8	409.3	465.0	547.3	468.3	429.7	413.0	343.8	292.2	261.6	230.0
64°	334.0	377.7	431.6	510.6	434.9	396.3	379.6	311.7	263.0	237.9	208.1
64.5°	305.2	347.0	399.1	474.3	401.9	362.4	346.6	282.9	235.1	215.6	188.2
65°	277.4	318.2	368.0	440.0	368.9	328.9	313.1	256.0	209.5	195.1	170.5
65.5°	250.9	290.4	338.2	406.5	335.4	299.2	282.9	230.4	185.4	176.1	154.7
66°	225.8	265.3	309.4	373.5	302.4	270.4	255.1	206.7	164.9	159.8	141.7



TEST NUMBER: P776666

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	163.1	197.0	230.4	282.0	221.6	196.5	183.0	148.2	119.9	120.8	112.9
68°	150.5	177.5	207.2	255.1	197.4	175.6	164.0	133.8	111.5	112.0	106.4
68.5°	138.4	161.7	185.8	229.0	177.0	156.6	147.3	121.7	106.4	104.5	101.7
69°	125.9	149.1	167.3	205.3	157.5	140.3	133.3	112.0	102.2	99.4	97.6
69.5°	113.4	137.1	154.7	183.0	141.2	126.4	121.3	105.0	98.0	95.2	93.8
70°	106.9	124.5	142.2	162.6	126.8	115.7	112.0	99.9	93.4	91.1	89.7
70.5°	102.2	112.4	130.1	149.6	116.1	106.9	105.0	95.7	89.2	86.9	85.9
71°	98.0	104.5	118.0	136.1	107.3	101.7	100.4	91.5	84.6	83.2	82.2
71.5°	93.8	99.0	105.5	123.1	101.3	97.6	96.2	87.3	80.4	79.0	78.1
72°	89.7	94.8	100.4	110.1	97.1	93.4	92.5	83.2	76.2	74.8	74.3
72.5°	85.0	90.6	96.6	103.1	92.9	89.2	88.3	79.0	72.0	71.1	70.6
73°	80.8	86.4	92.5	99.0	89.2	85.5	84.1	74.8	68.3	67.4	66.9
73.5°	76.7	82.2	88.3	94.8	85.0	81.3	80.4	71.1	64.6	63.6	63.6
74°	72.9	78.1	84.1	91.1	80.8	77.6	76.2	66.9	60.9	59.9	59.9
74.5°	68.8	74.3	80.4	86.9	77.1	73.4	72.5	63.2	57.1	56.2	56.7
75°	65.0	70.2	76.2	82.7	73.4	69.7	68.8	59.5	53.9	53.0	53.4
75.5°	61.3	66.4	72.5	79.0	69.7	66.0	65.0	56.2	50.6	49.7	50.2
76°	57.6	62.7	68.3	74.8	66.0	62.7	61.3	52.5	47.4	46.5	47.4
76.5°	54.4	59.0	65.0	71.1	62.3	59.0	58.1	49.2	44.1	43.2	44.1
77°	50.6	55.8	61.3	67.4	59.0	55.8	54.8	46.0	40.9	40.4	41.3
77.5°	47.4	52.0	57.6	63.6	55.8	52.5	51.6	42.7	38.1	37.6	38.6
78°	44.6	48.8	54.4	60.4	52.5	49.2	48.3	40.0	35.3	34.8	35.8
78.5°	41.3	45.5	51.1	56.7	49.2	46.5	45.1	37.2	32.5	31.6	33.0
79°	38.6	42.7	47.9	53.4	46.0	43.2	42.3	34.4	29.7	28.8	30.7
79.5°	35.8	39.5	44.6	50.6	43.2	40.9	39.5	31.6	26.9	26.5	27.9
80°	33.0	36.7	41.8	47.4	40.4	38.1	36.7	28.8	24.6	23.7	25.1
80.5°	30.2	33.9	39.0	44.1	37.6	35.3	33.9	26.0	22.3	21.4	22.8
81°	27.9	31.1	36.2	41.3	34.8	32.5	31.1	23.7	20.0	19.0	20.9
81.5°	25.6	28.8	33.5	38.6	32.1	30.2	28.3	20.9	17.7	16.7	18.6
82°	22.8	26.0	30.7	35.8	29.3	27.4	26.0	19.0	15.8	14.4	16.3
82.5°	20.4	23.7	28.3	33.5	26.9	25.1	23.7	16.7	13.5	12.5	14.4
83°	18.6	21.4	26.0	30.7	24.6	22.8	21.4	14.4	11.6	10.7	12.5
83.5°	16.3	19.5	23.7	28.3	22.8	20.4	19.0	12.5	9.8	8.8	10.7
84°	14.4	17.2	21.4	26.0	20.4	18.6	17.2	10.7	7.9	7.0	8.8
84.5°	12.5	15.3	19.0	23.7	18.1	16.3	14.9	8.8	6.5	5.6	7.4
85°	10.2	13.0	17.2	21.4	16.3	14.4	13.0	7.4	5.1	4.6	6.0
85.5°	8.4	11.2	14.9	19.0	14.4	12.5	11.2	6.0	3.7	3.7	4.6
86°	7.0	9.3	13.0	17.2	12.5	10.7	9.8	5.1	3.3	2.8	3.3
86.5°	5.1	7.4	11.6	15.3	10.7	8.8	7.9	3.7	2.3	1.9	1.9
87°	4.2	6.0	9.8	13.5	8.8	7.4	6.5	2.8	1.4	0.9	0.9
87.5°	3.3	5.1	8.4	11.6	7.0	5.6	5.1	1.9	0.9	0.5	0.0
88°	2.3	4.2	6.5	9.8	5.6	4.2	3.7	0.9	0.5	0.0	0.0
88.5°	1.4	2.8	5.1	7.9	4.2	2.8	2.3	0.5	0.0	0.0	0.0



TEST NUMBER: P776666
CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.5	1.4	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776666

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2571.0	2571.0	2571.0	2571.0	2571.0	2571.0
0.5°	2564.5	2570.1	2571.0	2571.0	2572.4	2572.4
1°	2562.2	2568.2	2569.1	2569.6	2571.9	2572.4
1.5°	2559.4	2565.9	2567.3	2568.2	2571.0	2572.4
2°	2556.6	2563.6	2565.4	2566.4	2570.1	2571.9
2.5°	2553.8	2560.8	2563.1	2564.5	2568.7	2571.0
3°	2550.6	2558.0	2560.8	2562.6	2567.3	2570.5
3.5°	2547.3	2555.2	2558.0	2559.9	2565.9	2569.1
4°	2544.1	2552.0	2555.2	2557.5	2563.6	2568.2
4.5°	2540.3	2548.7	2552.0	2554.7	2561.7	2566.4
5°	2536.2	2545.0	2548.2	2551.5	2559.4	2565.0
5.5°	2532.0	2541.3	2545.0	2548.2	2557.1	2563.1
6°	2527.3	2537.1	2541.3	2545.0	2554.3	2561.2
6.5°	2522.7	2532.9	2537.6	2541.3	2551.5	2558.9
7°	2518.0	2528.3	2533.4	2537.6	2548.2	2556.6
7.5°	2512.9	2523.6	2528.7	2533.4	2545.0	2553.8
8°	2507.8	2519.0	2524.1	2529.2	2541.7	2551.0
8.5°	2502.2	2513.9	2519.4	2524.5	2538.0	2547.8
9°	2496.7	2508.8	2514.3	2519.9	2533.8	2544.5
9.5°	2491.1	2503.2	2509.2	2514.8	2529.7	2540.8
10°	2484.6	2497.1	2503.6	2509.7	2525.0	2537.6
10.5°	2478.6	2491.6	2498.1	2504.1	2520.4	2533.4
11°	2471.6	2485.1	2492.0	2498.5	2515.3	2529.2
11.5°	2465.1	2478.6	2485.5	2492.5	2510.6	2524.5
12°	2458.1	2472.0	2479.0	2486.5	2505.5	2519.9
12.5°	2450.7	2465.1	2472.5	2479.9	2499.5	2514.8
13°	2442.8	2457.6	2465.5	2473.4	2493.9	2509.7
13.5°	2435.3	2450.2	2458.1	2466.5	2487.4	2504.1
14°	2427.4	2442.8	2450.7	2459.5	2480.9	2498.5
14.5°	2419.1	2434.9	2442.8	2451.6	2474.4	2493.0
15°	2410.7	2426.5	2435.3	2444.6	2467.9	2486.9
15.5°	2401.9	2418.2	2427.0	2436.3	2460.4	2480.4
16°	2393.1	2409.3	2418.6	2427.9	2453.0	2473.9
16.5°	2383.8	2400.5	2409.3	2419.6	2445.1	2466.9
17°	2374.0	2391.2	2400.5	2410.7	2437.2	2459.5
17.5°	2364.7	2381.5	2391.2	2401.9	2429.3	2452.1
18°	2354.5	2372.2	2381.5	2392.6	2420.9	2444.6
18.5°	2344.3	2361.5	2371.7	2382.8	2412.1	2436.7
19°	2333.6	2351.7	2361.5	2373.1	2402.8	2428.4
19.5°	2322.5	2341.0	2351.3	2362.9	2393.5	2420.0
20°	2311.3	2329.9	2340.6	2352.7	2384.2	2411.2
20.5°	2300.2	2319.2	2329.0	2342.0	2374.5	2402.4
21°	2288.5	2307.1	2317.8	2330.8	2364.3	2393.1

TEST NUMBER: P776666

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2251.4	2270.9	2282.5	2296.0	2332.2	2362.9
23°	2238.8	2258.8	2269.5	2283.4	2321.1	2352.7
23.5°	2225.4	2245.8	2256.9	2270.9	2309.4	2342.0
24°	2211.9	2232.3	2243.9	2257.9	2297.8	2330.8
24.5°	2198.4	2218.9	2230.5	2244.9	2285.8	2319.7
25°	2184.0	2204.9	2216.5	2231.9	2272.7	2307.6
25.5°	2169.6	2191.0	2202.1	2217.9	2259.7	2295.5
26°	2155.2	2176.1	2188.2	2204.0	2246.7	2283.0
26.5°	2139.9	2161.7	2173.3	2189.1	2233.3	2270.9
27°	2124.5	2146.4	2158.5	2174.3	2219.3	2257.4
27.5°	2109.2	2131.0	2142.7	2159.8	2205.4	2244.4
28°	2093.4	2115.2	2127.3	2144.5	2191.0	2230.5
28.5°	2076.7	2099.0	2111.5	2128.7	2176.1	2217.0
29°	2060.0	2082.7	2094.8	2112.5	2161.2	2202.6
29.5°	2043.2	2066.0	2078.5	2096.7	2145.4	2187.7
30°	2025.6	2049.7	2061.4	2079.5	2129.7	2172.9
30.5°	2008.4	2032.1	2044.2	2063.2	2113.9	2158.0
31°	1990.3	2014.4	2027.0	2045.6	2097.6	2142.2
31.5°	1971.7	1997.2	2009.8	2028.4	2080.9	2126.4
32°	1953.1	1979.1	1991.7	2010.3	2063.7	2110.1
32.5°	1934.5	1960.5	1973.1	1992.6	2046.5	2093.4
33°	1915.0	1942.4	1955.4	1974.5	2028.8	2076.7
33.5°	1895.5	1923.8	1936.8	1955.9	2010.7	2059.5
34°	1876.0	1904.3	1917.8	1936.8	1992.6	2041.8
34.5°	1855.5	1884.8	1898.3	1918.3	1974.0	2024.7
35°	1835.6	1865.3	1879.2	1898.3	1955.4	2006.1
35.5°	1814.7	1845.3	1859.7	1878.8	1936.4	1988.0
36°	1794.2	1825.3	1839.8	1858.8	1916.9	1968.4
36.5°	1772.9	1805.4	1820.2	1838.8	1897.4	1949.9
37°	1751.9	1784.9	1799.8	1818.8	1876.9	1931.3
37.5°	1730.1	1764.0	1779.4	1798.4	1857.4	1911.3
38°	1708.7	1743.1	1758.9	1777.5	1837.0	1891.3
38.5°	1686.0	1722.7	1738.0	1756.1	1816.5	1871.3
39°	1664.6	1700.8	1717.6	1735.7	1795.2	1850.9
39.5°	1641.8	1679.5	1696.7	1714.8	1774.2	1830.9
40°	1619.5	1658.6	1675.3	1693.4	1753.3	1810.0
40.5°	1597.2	1637.2	1653.9	1671.6	1732.0	1788.6
41°	1574.5	1614.9	1632.1	1650.2	1710.6	1767.7
41.5°	1551.2	1593.1	1610.7	1628.4	1688.3	1746.4
42°	1528.5	1571.2	1588.9	1606.5	1666.9	1724.5
42.5°	1505.3	1549.4	1567.0	1584.7	1644.6	1702.7
43°	1483.0	1527.6	1545.2	1562.9	1622.8	1680.9
43.5°	1459.7	1504.8	1523.4	1540.1	1600.5	1659.0



TEST NUMBER: P776666

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1394.2	1438.4	1456.9	1473.2	1533.1	1591.7
45.5°	1372.4	1416.5	1434.6	1450.9	1509.9	1568.9
46°	1349.2	1394.2	1412.8	1429.1	1487.6	1546.1
46.5°	1325.0	1372.4	1390.5	1406.3	1464.8	1522.9
47°	1299.0	1350.1	1369.1	1384.5	1443.0	1500.6
47.5°	1269.2	1325.5	1346.4	1362.2	1420.7	1478.3
48°	1236.7	1300.8	1321.7	1338.0	1398.4	1456.0
48.5°	1201.4	1273.0	1296.2	1312.9	1375.6	1432.8
49°	1165.2	1241.8	1270.2	1287.4	1351.5	1410.9
49.5°	1128.5	1207.9	1238.1	1257.6	1326.9	1386.3
50°	1091.8	1171.7	1204.7	1224.6	1299.9	1361.2
50.5°	1053.2	1134.0	1167.0	1188.4	1269.2	1333.8
51°	1014.7	1096.4	1129.9	1151.2	1234.9	1302.7
51.5°	976.1	1057.4	1090.4	1113.1	1198.2	1267.8
52°	937.1	1018.8	1052.3	1074.1	1161.0	1232.5
52.5°	899.0	978.9	1013.3	1034.6	1123.4	1195.8
53°	859.9	938.0	972.8	995.1	1085.7	1158.2
53.5°	822.3	898.5	931.0	954.3	1046.7	1119.2
54°	784.2	858.6	891.5	914.3	1007.7	1080.6
54.5°	746.1	820.5	851.1	874.3	968.2	1041.1
55°	709.0	781.0	810.2	836.3	928.2	1001.6
55.5°	671.8	742.4	771.2	796.8	888.7	961.7
56°	636.0	704.8	732.2	758.2	849.3	922.7
56.5°	601.6	667.1	693.6	720.6	810.2	881.8
57°	565.9	630.4	656.0	683.9	771.2	842.3
57.5°	531.5	594.7	618.8	645.8	733.1	802.3
58°	497.1	558.9	582.6	609.5	695.0	761.9
58.5°	465.5	525.0	548.7	575.2	657.4	722.4
59°	434.4	492.0	515.2	540.3	621.6	683.4
59.5°	403.7	459.5	483.2	506.9	585.8	644.8
60°	372.6	428.8	451.6	474.3	551.0	605.8
60.5°	341.9	397.7	421.4	442.3	517.1	567.7
61°	310.8	368.4	392.1	411.6	482.7	531.9
61.5°	283.9	341.0	364.7	381.4	449.7	495.2
62°	257.8	315.0	337.8	353.5	417.7	460.9
62.5°	234.2	289.4	312.2	326.1	386.5	427.4
63°	211.9	265.7	288.0	299.7	356.3	395.4
63.5°	192.3	243.4	265.3	275.5	328.0	363.8
64°	173.8	222.5	243.9	252.3	300.1	334.0
64.5°	158.0	203.0	223.0	230.9	273.2	305.2
65°	145.0	185.4	204.4	210.5	248.1	277.4
65.5°	133.3	168.6	186.8	191.9	224.9	250.9
66°	123.6	157.0	170.5	174.7	204.0	225.8



TEST NUMBER: P776666

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	102.7	122.7	135.2	135.2	156.1	163.1
68°	99.0	111.0	123.6	127.3	145.4	150.5
68.5°	94.8	104.5	112.0	118.9	134.3	138.4
69°	91.1	100.4	105.0	110.6	123.6	125.9
69.5°	87.3	96.6	100.4	102.2	112.4	113.4
70°	83.6	92.9	96.6	98.5	105.5	106.9
70.5°	79.9	88.7	92.9	94.3	100.4	102.2
71°	76.2	85.0	89.2	90.6	96.2	98.0
71.5°	72.5	81.3	85.5	86.9	92.0	93.8
72°	68.8	77.6	81.3	83.2	87.8	89.7
72.5°	65.5	73.9	77.6	79.4	84.1	85.0
73°	62.3	70.2	73.9	75.7	79.9	80.8
73.5°	58.5	66.9	70.6	72.0	76.2	76.7
74°	55.3	63.2	66.9	68.3	72.0	72.9
74.5°	52.5	59.9	63.6	64.6	68.3	68.8
75°	49.2	56.7	60.4	61.3	64.6	65.0
75.5°	46.5	53.4	57.1	58.1	60.9	61.3
76°	43.2	50.6	53.9	54.8	57.6	57.6
76.5°	40.4	47.4	50.6	51.6	53.9	54.4
77°	38.1	44.6	47.9	48.3	50.6	50.6
77.5°	35.3	41.8	44.6	45.1	47.4	47.4
78°	33.0	39.0	41.8	42.3	44.1	44.6
78.5°	30.2	36.2	39.0	39.5	41.3	41.3
79°	27.9	33.9	36.2	36.7	38.6	38.6
79.5°	25.6	31.1	33.9	33.9	35.3	35.8
80°	23.2	28.8	31.1	31.6	33.0	33.0
80.5°	20.9	26.5	28.8	28.8	30.2	30.2
81°	19.0	24.2	26.5	26.5	27.4	27.9
81.5°	16.7	21.8	24.2	24.2	25.1	25.6
82°	14.9	20.0	21.8	21.8	22.8	22.8
82.5°	13.0	17.7	20.0	20.0	20.4	20.4
83°	11.2	15.8	17.7	17.7	18.1	18.6
83.5°	9.3	13.9	15.8	15.8	15.8	16.3
84°	7.4	12.1	13.9	13.9	13.9	14.4
84.5°	5.6	10.2	12.1	12.1	12.1	12.5
85°	4.2	8.4	10.2	10.2	9.8	10.2
85.5°	2.8	6.5	8.4	8.4	8.4	8.4
86°	1.4	4.6	6.5	7.0	7.0	7.0
86.5°	0.5	3.3	5.1	5.1	5.6	5.1
87°	0.0	1.9	3.3	3.7	4.2	4.2
87.5°	0.0	0.9	1.9	2.3	3.3	3.3
88°	0.0	0.0	0.9	0.9	2.3	2.3
88.5°	0.0	0.0	0.0	0.5	1.4	1.4



TEST NUMBER: P776666

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMW-5000lm-3000K

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°	2383.3	2411.7	2435.8	2460.0	2446.5	2433.0	2419.6	2389.8	2364.7	2338.7	2311.8
22°	2373.1	2402.8	2427.4	2452.5	2438.6	2425.1	2410.7	2380.1	2354.5	2328.5	2300.6



44°	1637.2	1695.7	1745.9	1800.7	1753.8	1725.9	1704.1	1646.0	1598.6	1547.5	1496.9
44.5°	1614.0	1673.0	1723.1	1778.9	1731.0	1704.1	1681.3	1623.3	1575.4	1524.8	1474.1



66.5°	203.0	240.7	282.0	342.9	273.6	244.4	228.6	185.4	146.8	145.0	130.5
67°	182.6	217.9	255.5	311.3	246.2	219.3	204.9	165.4	131.9	131.9	120.8



89°	0.9	1.9	3.7	6.5	2.8	1.4	0.9	0.0	0.0	0.0	0.0
89.5°	0.5	0.9	2.3	4.6	1.4	0.5	0.5	0.0	0.0	0.0	0.0

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21.5°	2276.5	2295.5	2306.2	2319.2	2354.0	2383.3
22°	2263.9	2283.9	2294.6	2307.6	2343.4	2373.1



44°	1437.9	1482.5	1501.1	1518.3	1578.2	1637.2
44.5°	1416.1	1460.2	1478.8	1495.5	1555.4	1614.0



66.5°	115.2	145.4	158.9	158.9	184.4	203.0
67°	108.2	133.8	146.8	145.4	167.3	182.6

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89°	0.0	0.0	0.0	0.0	0.5	0.9
89.5°	0.0	0.0	0.0	0.0	0.0	0.5

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(END OF REPORT)