

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: P776557

Luminaire Tested: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776557
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B034)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5647.1 lumens
Efficiency: N/A
Efficacy: 117.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

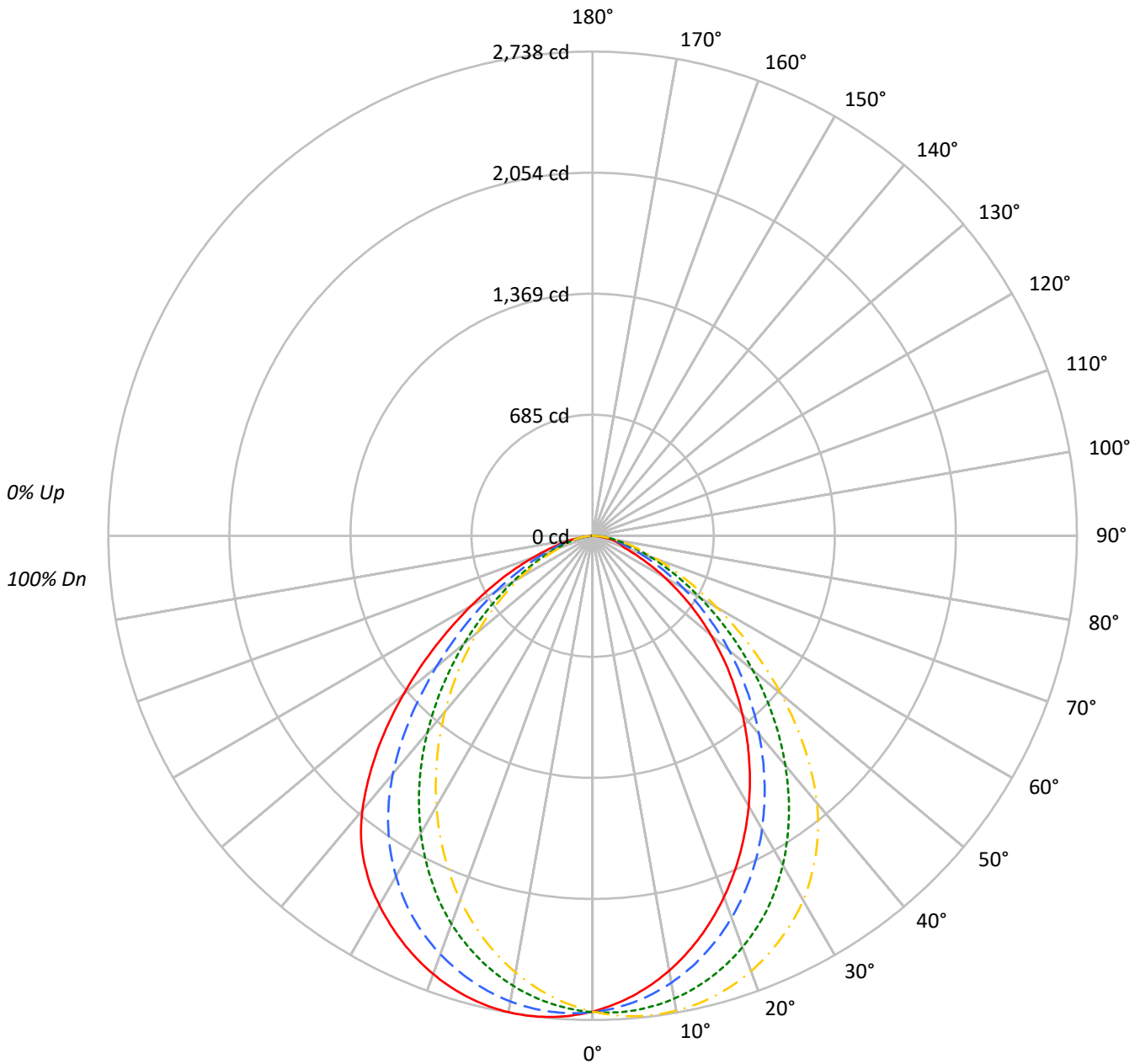
Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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			
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87					87			
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75					75			
3	94	84	77	71	91	83	76	71	80	74	70	77	72	68	75	71	67	65					65			
4	87	76	68	62	84	74	67	61	72	66	61	70	64	60	68	63	59	57					57			
5	80	68	60	54	78	67	60	54	65	59	53	63	57	53	62	56	52	50					50			
6	74	62	54	48	73	61	53	48	59	53	47	58	52	47	56	51	47	45					45			
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40					40			
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36					36			
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	35	33					33			
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	338750	338750	338750	338750
5°	329912	340347	345059	335635
10°	319082	339644	349586	330238
15°	306010	336746	352302	322674
20°	291036	331616	353164	312585
25°	274373	323905	352343	299076
30°	256415	312435	350422	282267
35°	237012	297175	345969	262161
40°	216298	278562	332513	238789
45°	194264	256503	306728	212916
50°	170844	231440	273476	185802
55°	145470	204383	236900	157582
60°	117946	176743	199900	130884
65°	89931	150799	165688	106935
70°	68073	127645	130405	85440
75°	71381	106682	102355	68172
80°	65299	93347	72836	52326
85°	32778	94724	20504	27869

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 89.5°
 Luminance: 347558 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	253.5	4.5
10°-20°	711.9	12.6
20°-30°	1035.2	18.3
30°-40°	1159.5	20.5
40°-50°	1049.0	18.6
50°-60°	761.9	13.5
60°-70°	435.9	7.7
70°-80°	193.5	3.4
80°-90°	46.8	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°	2000.6	35.4
0°-40°	3160.1	56.0
0°-60°	4971.0	88.0
0°-90°	5647.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5647.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2692	2692	2692	2692	2692	
5°	2612	2694	2731	2657	2612	246
15°	2349	2585	2704	2477	2349	659
25°	1976	2333	2537	2154	1976	908
35°	1543	1934	2252	1706	1543	963
45°	1092	1441	1723	1196	1092	841
55°	663	932	1080	718	663	593
65°	302	506	556	359	302	305
75°	147	219	210	140	147	151
85°	23	66	14	19	23	36
90°	0	14	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°	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7
0.5°	2684.2	2690.8	2690.8	2690.3	2695.5	2695.5	2696.0	2696.0	2696.0	2699.8	2696.0
1°	2677.1	2685.6	2687.5	2689.4	2696.9	2698.8	2700.7	2701.7	2701.2	2703.5	2698.4
1.5°	2670.5	2680.4	2683.7	2688.0	2697.4	2702.1	2705.4	2706.8	2706.4	2707.3	2700.2
2°	2663.0	2674.3	2680.0	2686.1	2698.4	2704.5	2709.7	2712.0	2711.1	2710.6	2701.7
2.5°	2655.4	2668.2	2675.7	2684.2	2698.4	2706.8	2713.5	2716.3	2715.3	2713.5	2702.6
3°	2646.9	2661.5	2671.0	2681.8	2698.4	2708.7	2716.8	2720.5	2719.6	2715.8	2703.1
3.5°	2638.9	2654.5	2665.8	2679.0	2697.9	2710.6	2720.1	2724.3	2722.9	2718.2	2703.5
4°	2629.9	2647.4	2660.6	2675.7	2696.9	2712.0	2722.9	2727.6	2726.2	2719.6	2703.1
4.5°	2621.0	2639.8	2654.5	2672.4	2695.5	2713.0	2725.3	2730.9	2729.0	2721.0	2702.6
5°	2611.5	2631.3	2648.3	2668.6	2694.1	2713.5	2727.1	2733.7	2731.4	2721.9	2702.1
5.5°	2601.6	2623.3	2641.7	2664.4	2692.2	2713.5	2728.6	2735.6	2733.3	2722.9	2700.7
6°	2591.2	2614.4	2634.6	2659.7	2689.9	2713.0	2730.0	2738.0	2735.2	2722.9	2699.3
6.5°	2580.9	2605.4	2627.6	2654.5	2687.0	2712.5	2730.9	2739.4	2736.6	2722.9	2697.4
7°	2570.0	2596.0	2620.0	2649.3	2683.7	2711.6	2731.4	2740.4	2737.5	2722.4	2695.1
7.5°	2558.7	2586.0	2612.0	2643.6	2680.4	2710.6	2731.4	2741.3	2738.0	2721.5	2692.7
8°	2546.9	2575.7	2603.5	2637.5	2676.6	2708.7	2731.4	2741.8	2738.5	2720.5	2689.4
8.5°	2535.1	2564.8	2594.5	2630.9	2672.4	2706.4	2730.9	2741.8	2738.0	2719.1	2686.1
9°	2522.8	2554.0	2585.6	2624.3	2668.2	2704.0	2729.5	2741.8	2737.5	2716.8	2682.8
9.5°	2509.6	2542.6	2576.1	2616.7	2663.0	2701.2	2728.6	2740.8	2737.1	2714.9	2678.5
10°	2496.9	2530.8	2566.2	2609.2	2657.8	2698.4	2726.7	2739.9	2735.6	2712.0	2674.3
10.5°	2483.2	2518.6	2555.8	2601.1	2651.6	2694.6	2724.8	2738.5	2734.2	2709.2	2669.6
11°	2470.0	2506.8	2545.5	2593.1	2645.5	2690.8	2722.4	2736.6	2731.9	2705.9	2664.4
11.5°	2455.3	2493.5	2534.6	2584.6	2639.4	2686.6	2719.6	2734.7	2730.0	2702.1	2659.2
12°	2441.2	2481.3	2523.3	2575.2	2632.8	2681.8	2716.8	2732.3	2727.1	2698.4	2653.5
12.5°	2426.5	2467.6	2511.5	2566.2	2625.7	2677.1	2713.0	2729.5	2724.3	2694.1	2647.4
13°	2411.4	2453.9	2499.7	2556.3	2618.1	2671.9	2709.2	2726.2	2721.0	2689.4	2641.3
13.5°	2396.3	2439.8	2487.4	2545.9	2610.6	2666.3	2705.4	2722.4	2717.2	2684.2	2634.2
14°	2380.8	2425.6	2474.7	2535.5	2602.1	2660.1	2700.7	2718.6	2713.0	2679.0	2627.1
14.5°	2364.7	2411.0	2461.5	2524.7	2593.6	2653.5	2696.0	2714.4	2708.3	2673.3	2619.5
15°	2348.7	2396.3	2448.7	2513.8	2584.6	2646.9	2690.8	2710.2	2704.0	2667.2	2612.5
15.5°	2332.2	2380.3	2434.6	2502.0	2575.2	2639.8	2685.1	2705.0	2698.8	2660.6	2604.0
16°	2315.6	2365.2	2420.9	2490.2	2565.3	2632.3	2679.0	2699.8	2693.2	2654.0	2595.5
16.5°	2298.2	2349.6	2406.2	2478.4	2555.8	2624.7	2672.9	2694.1	2687.0	2646.9	2587.0
17°	2281.2	2333.6	2392.1	2466.2	2545.5	2616.7	2666.3	2688.4	2681.4	2639.4	2578.0
17.5°	2263.7	2317.1	2377.0	2453.0	2534.6	2608.2	2659.2	2681.8	2674.8	2631.3	2568.6
18°	2246.3	2300.5	2361.9	2439.8	2523.7	2599.3	2652.1	2675.2	2667.7	2623.8	2559.1
18.5°	2227.9	2283.5	2346.3	2426.1	2512.4	2590.3	2644.6	2668.2	2660.6	2615.3	2548.8
19°	2209.5	2266.1	2330.7	2411.9	2500.6	2580.9	2636.5	2661.1	2653.1	2606.3	2538.9
19.5°	2191.5	2248.6	2314.2	2397.8	2488.8	2570.9	2628.0	2653.1	2645.0	2597.4	2528.5
20°	2173.1	2231.2	2298.2	2383.6	2476.1	2561.0	2619.5	2645.0	2637.0	2588.4	2517.6
20.5°	2153.8	2213.2	2281.7	2368.5	2463.3	2550.6	2610.6	2637.0	2628.5	2578.5	2506.3
21°	2134.9	2194.8	2264.7	2353.4	2450.1	2539.8	2601.1	2628.0	2619.5	2568.6	2495.0



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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°	2076.4	2139.1	2212.3	2305.7	2408.6	2505.3	2571.4	2600.2	2591.2	2537.0	2458.6
23°	2057.0	2120.3	2194.4	2289.7	2394.4	2493.1	2561.0	2590.3	2580.9	2526.1	2445.9
23.5°	2036.7	2100.5	2176.0	2272.7	2379.3	2480.3	2550.2	2580.4	2570.9	2514.8	2433.1
24°	2016.5	2082.0	2157.6	2255.2	2364.2	2468.1	2538.9	2569.5	2560.1	2503.0	2419.5
24.5°	1996.2	2062.2	2138.7	2237.8	2348.7	2454.4	2527.5	2558.7	2549.2	2491.2	2405.3
25°	1975.9	2041.9	2119.3	2220.3	2332.6	2441.2	2515.7	2547.8	2537.4	2479.4	2391.1
25.5°	1955.1	2022.1	2100.0	2201.9	2316.1	2427.0	2503.9	2536.0	2526.1	2467.1	2376.5
26°	1934.8	2002.3	2079.7	2183.5	2299.6	2412.4	2491.7	2524.7	2514.8	2454.4	2361.4
26.5°	1913.6	1982.0	2060.3	2164.2	2282.1	2397.8	2478.9	2512.9	2502.5	2441.2	2345.8
27°	1892.8	1961.2	2040.5	2145.8	2264.2	2383.1	2466.2	2501.1	2490.2	2428.0	2329.3
27.5°	1871.6	1940.5	2020.2	2126.4	2246.3	2367.1	2453.0	2488.8	2478.0	2414.7	2312.8
28°	1850.3	1919.7	1999.0	2106.1	2227.9	2351.0	2439.3	2475.6	2464.8	2401.1	2295.8
28.5°	1829.1	1898.9	1979.2	2085.8	2209.0	2334.5	2424.6	2463.3	2452.0	2386.0	2277.9
29°	1807.4	1877.7	1958.4	2065.1	2189.6	2318.0	2410.5	2450.1	2438.8	2371.3	2260.0
29.5°	1785.7	1856.5	1937.6	2044.8	2169.8	2300.1	2395.4	2436.9	2425.6	2355.8	2242.0
30°	1764.5	1835.2	1915.0	2024.0	2150.0	2282.1	2380.3	2423.2	2411.4	2340.2	2223.6
30.5°	1742.3	1814.0	1894.2	2002.3	2130.2	2263.3	2364.2	2409.1	2397.8	2323.7	2204.3
31°	1720.1	1791.8	1872.5	1981.1	2109.4	2244.4	2347.7	2394.4	2383.6	2306.7	2184.9
31.5°	1698.4	1770.6	1850.8	1959.4	2088.2	2225.0	2331.2	2379.8	2369.4	2289.7	2165.6
32°	1676.7	1748.4	1828.2	1937.2	2066.9	2206.2	2313.8	2364.7	2354.3	2272.2	2145.3
32.5°	1654.5	1726.2	1806.5	1915.9	2045.7	2185.9	2295.3	2348.7	2339.7	2253.8	2125.0
33°	1632.3	1704.5	1783.8	1892.8	2024.0	2166.0	2276.9	2332.2	2323.7	2234.9	2103.8
33.5°	1610.1	1682.3	1762.1	1870.6	2001.8	2145.3	2258.1	2315.6	2306.2	2215.6	2082.5
34°	1588.0	1660.2	1739.0	1848.5	1979.6	2124.5	2239.2	2298.2	2287.8	2197.2	2060.3
34.5°	1565.3	1638.0	1716.8	1825.8	1956.5	2103.3	2219.8	2280.2	2269.9	2176.4	2038.2
35°	1542.7	1615.3	1693.7	1802.7	1934.3	2081.6	2200.0	2261.4	2251.9	2156.1	2015.5
35.5°	1520.5	1593.2	1671.0	1779.1	1911.2	2059.9	2179.7	2243.0	2234.0	2134.9	1991.4
36°	1497.8	1570.5	1647.9	1756.0	1888.1	2037.7	2159.0	2223.1	2214.7	2113.2	1967.8
36.5°	1475.6	1548.3	1625.7	1732.8	1865.0	2014.6	2137.7	2203.8	2194.4	2089.1	1942.8
37°	1452.5	1525.7	1603.1	1709.7	1841.4	1991.4	2116.0	2183.0	2173.1	2065.5	1917.8
37.5°	1430.3	1502.5	1579.0	1686.1	1816.8	1968.3	2093.4	2162.3	2151.4	2041.0	1892.3
38°	1407.2	1479.9	1556.3	1662.1	1792.8	1944.2	2070.2	2140.1	2127.3	2015.5	1866.4
38.5°	1385.5	1457.7	1532.7	1638.5	1768.7	1919.7	2047.1	2117.0	2103.3	1989.1	1840.0
39°	1362.9	1434.6	1509.6	1613.9	1744.2	1896.1	2023.1	2092.0	2078.3	1962.2	1812.1
39.5°	1339.7	1412.4	1486.5	1591.3	1719.6	1871.1	1999.0	2066.5	2050.9	1934.3	1784.7
40°	1316.6	1389.8	1463.4	1567.2	1695.6	1846.1	1973.0	2039.6	2024.0	1906.0	1756.4
40.5°	1294.9	1367.1	1440.3	1542.7	1670.1	1820.1	1947.1	2013.1	1996.2	1876.8	1727.6
41°	1271.3	1344.5	1416.7	1518.6	1645.1	1794.7	1919.7	1984.8	1967.8	1847.0	1698.9
41.5°	1249.1	1321.8	1394.0	1495.0	1620.1	1768.7	1893.8	1957.5	1938.6	1816.8	1670.1
42°	1226.5	1298.7	1370.9	1470.5	1594.6	1741.8	1865.4	1928.2	1908.9	1786.2	1640.3
42.5°	1204.3	1276.5	1347.3	1446.4	1569.1	1715.4	1837.6	1900.4	1879.1	1756.0	1610.6
43°	1181.7	1253.9	1324.2	1422.8	1544.1	1688.9	1808.8	1870.6	1848.9	1723.4	1580.4
43.5°	1159.5	1231.7	1301.0	1398.7	1518.6	1661.6	1780.5	1840.9	1817.8	1691.8	1550.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1091.5	1164.2	1232.1	1326.5	1441.2	1578.1	1692.3	1749.4	1723.4	1595.5	1457.7
45.5°	1070.3	1141.5	1209.0	1302.0	1415.7	1550.2	1663.0	1718.7	1691.3	1563.4	1427.0
46°	1047.6	1119.4	1186.4	1277.9	1389.8	1521.4	1632.3	1687.5	1659.2	1531.3	1395.4
46.5°	1025.5	1097.7	1163.7	1254.3	1363.3	1493.6	1602.6	1655.9	1626.2	1498.8	1364.8
47°	1003.3	1075.0	1141.1	1230.3	1337.4	1464.8	1572.4	1623.8	1593.6	1466.2	1333.6
47.5°	981.6	1052.8	1118.4	1206.7	1311.4	1436.5	1541.7	1591.7	1560.6	1434.1	1303.4
48°	959.4	1030.6	1095.8	1182.6	1285.9	1408.2	1511.0	1560.1	1528.0	1402.0	1272.7
48.5°	937.7	1008.9	1073.1	1159.0	1260.0	1379.4	1480.8	1528.5	1495.5	1370.4	1242.5
49°	916.0	987.2	1050.9	1135.4	1234.0	1351.1	1450.2	1495.9	1462.0	1337.9	1212.8
49.5°	894.7	965.0	1029.2	1112.3	1208.1	1322.8	1419.5	1463.9	1429.4	1306.7	1183.1
50°	872.6	943.8	1006.6	1089.2	1182.1	1294.4	1388.8	1431.3	1396.8	1274.6	1153.3
50.5°	851.3	922.1	984.4	1065.1	1156.6	1266.1	1358.6	1398.7	1363.8	1243.9	1123.6
51°	830.1	900.4	962.7	1041.5	1130.7	1237.3	1327.9	1367.1	1331.7	1212.8	1095.3
51.5°	808.8	878.7	941.0	1018.8	1105.2	1210.0	1297.7	1335.0	1298.7	1181.7	1066.5
52°	788.1	857.5	919.7	996.2	1080.2	1181.7	1268.0	1302.9	1266.6	1151.4	1038.2
52.5°	767.3	836.2	898.0	973.5	1055.2	1153.8	1237.3	1270.4	1234.5	1121.2	1010.3
53°	746.1	815.5	876.3	949.9	1030.2	1126.0	1207.1	1238.8	1203.4	1091.5	982.5
53.5°	724.4	793.7	855.1	927.8	1004.7	1099.1	1177.4	1207.1	1171.7	1061.3	955.1
54°	704.1	773.5	834.3	905.1	980.1	1071.2	1147.7	1176.0	1139.7	1032.5	928.2
54.5°	683.3	752.2	813.1	882.5	956.1	1044.8	1118.9	1143.9	1109.4	1003.7	901.8
55°	663.0	732.4	792.3	860.8	931.5	1018.4	1090.1	1114.6	1079.7	975.4	875.9
55.5°	642.7	711.6	771.6	838.6	907.5	991.9	1060.8	1083.0	1048.6	947.1	849.0
56°	622.4	691.8	751.3	816.4	882.9	965.0	1031.6	1052.8	1018.8	918.8	823.9
56.5°	602.2	671.5	731.0	794.7	859.8	939.1	1003.3	1022.6	989.1	891.4	799.4
57°	582.3	651.7	710.7	773.5	836.7	913.6	975.4	992.9	959.9	864.5	774.4
57.5°	563.0	631.9	690.4	751.7	813.6	888.6	948.1	963.6	931.1	838.1	750.3
58°	543.2	612.5	670.6	730.5	790.4	863.1	920.2	934.8	903.2	812.1	726.7
58.5°	524.3	593.2	651.2	709.7	768.3	838.6	893.3	906.5	874.9	785.7	703.1
59°	505.4	574.8	631.9	689.5	745.6	814.0	866.4	878.7	847.1	760.7	680.5
59.5°	486.5	555.4	611.6	669.2	723.9	790.0	840.0	851.3	820.2	735.7	657.8
60°	468.6	537.0	592.7	649.3	702.2	765.9	814.0	824.4	794.2	711.6	635.7
60.5°	450.2	518.2	573.4	629.0	681.0	742.8	788.1	797.5	767.3	687.6	613.5
61°	432.3	500.2	555.0	609.7	660.2	719.7	763.1	771.6	742.3	664.0	592.7
61.5°	414.8	482.3	536.1	590.4	640.4	697.0	738.5	746.1	716.8	640.8	571.9
62°	397.8	464.8	518.6	571.9	619.6	674.8	714.0	721.1	693.2	619.1	551.7
62.5°	380.4	447.4	500.7	553.1	600.3	652.6	689.9	696.1	668.7	596.5	531.4
63°	364.3	430.4	483.2	535.1	580.4	630.9	666.3	672.0	644.6	574.8	512.0
63.5°	348.3	413.4	465.8	517.7	561.6	609.7	643.2	648.4	622.0	553.5	492.7
64°	332.7	396.4	449.7	500.2	542.7	588.9	620.6	625.7	599.3	534.2	474.3
64.5°	316.6	379.9	432.7	482.8	524.8	568.6	598.4	603.1	577.1	513.4	456.3
65°	302.0	364.3	416.7	466.2	506.4	548.8	577.1	580.9	556.4	494.1	438.9
65.5°	286.9	348.7	400.6	450.2	488.9	529.0	555.9	559.7	534.7	474.3	421.4
66°	272.3	333.2	385.5	434.2	471.9	509.7	535.1	538.4	512.5	455.9	404.9



TEST NUMBER: P776557

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	232.6	288.8	340.2	387.0	422.8	454.9	476.6	478.5	449.7	403.0	356.3
68°	220.9	275.1	326.6	372.3	407.7	437.0	457.3	458.7	429.9	385.5	341.7
68.5°	210.0	261.4	312.4	357.7	392.6	420.0	439.3	439.8	411.0	368.1	327.0
69°	199.6	248.2	298.7	343.5	377.1	404.0	421.9	421.9	392.2	350.6	312.9
69.5°	190.6	235.5	285.5	329.4	362.0	387.9	405.4	404.4	373.3	334.1	299.2
70°	185.0	223.2	272.3	315.7	346.9	372.3	388.8	387.0	354.4	318.5	285.5
70.5°	181.7	211.4	260.0	302.0	332.2	356.3	372.3	370.0	338.4	303.0	272.8
71°	178.4	201.0	247.8	289.3	318.5	341.2	355.8	352.5	322.3	288.3	260.0
71.5°	175.1	191.1	236.4	276.1	304.9	326.6	340.7	336.0	305.8	274.2	247.8
72°	171.8	183.1	225.1	263.8	291.6	312.9	325.6	320.4	290.7	260.5	236.0
72.5°	167.5	177.4	214.2	252.0	278.9	298.7	311.0	305.3	276.1	247.3	224.2
73°	163.3	173.2	204.3	240.2	266.2	285.5	297.8	290.7	261.9	234.1	212.8
73.5°	159.5	169.4	194.4	228.9	253.9	272.3	283.6	276.5	248.2	221.3	202.0
74°	155.3	165.6	185.5	218.0	242.1	260.5	270.4	262.9	235.5	209.1	191.1
74.5°	151.5	162.3	176.5	207.6	230.8	248.2	257.7	249.6	222.7	197.3	180.7
75°	146.8	158.6	168.5	197.7	219.4	236.4	245.9	236.9	210.5	185.9	170.8
75.5°	142.0	154.8	162.8	187.8	208.6	224.6	233.1	224.6	198.7	174.6	160.9
76°	136.9	150.5	157.1	178.9	198.7	213.8	221.8	212.4	186.9	163.8	151.0
76.5°	131.2	145.8	151.5	169.9	188.3	203.4	210.5	200.6	176.0	152.9	141.6
77°	126.0	141.1	145.3	162.3	178.9	193.0	199.6	188.8	164.7	142.5	132.6
77.5°	120.3	136.4	141.1	155.3	169.9	183.1	188.8	177.9	153.8	132.1	123.6
78°	114.7	131.2	137.3	148.2	160.9	173.2	178.4	167.1	143.0	122.2	114.2
78.5°	108.5	126.5	133.5	141.1	152.4	164.2	168.5	156.7	132.1	112.3	105.7
79°	102.4	120.8	129.3	134.0	144.4	155.3	158.6	146.3	121.3	102.4	97.2
79.5°	96.3	115.6	125.1	127.9	136.4	146.8	149.1	135.9	110.9	93.0	88.7
80°	90.1	110.0	120.3	121.8	128.8	138.3	140.2	126.0	100.5	84.0	80.7
80.5°	83.5	104.3	115.6	116.6	121.8	130.2	131.2	117.0	90.1	74.6	73.1
81°	76.9	98.2	110.9	111.4	114.7	122.2	122.2	107.1	79.8	66.1	65.6
81.5°	70.3	92.5	105.7	106.2	108.1	114.7	113.7	98.2	69.4	57.6	58.0
82°	63.7	85.9	100.5	101.0	101.5	107.1	104.8	89.2	59.0	50.5	51.0
82.5°	57.1	79.8	95.3	96.3	95.3	100.0	96.3	80.7	51.0	43.9	44.8
83°	49.6	73.1	90.1	91.1	89.2	92.5	88.2	72.2	42.5	37.3	38.7
83.5°	42.5	66.5	84.5	86.8	83.1	85.4	80.2	64.7	34.0	30.7	32.6
84°	35.4	59.9	79.3	82.1	76.9	78.3	72.7	56.6	26.0	24.1	26.4
84.5°	28.8	53.3	73.6	77.4	71.3	71.7	65.6	50.0	17.5	19.3	20.8
85°	22.7	46.7	68.4	72.7	65.6	65.1	58.5	43.4	14.2	15.1	15.1
85.5°	18.4	40.6	63.2	68.0	60.4	59.0	51.9	37.3	11.3	10.9	10.9
86°	16.0	35.4	58.0	62.8	55.2	52.9	46.2	30.7	9.4	7.1	6.6
86.5°	13.2	31.1	52.9	57.6	50.0	47.2	40.1	24.1	7.6	3.8	3.8
87°	10.9	27.4	47.7	51.9	45.3	41.5	34.0	18.9	5.7	1.9	1.4
87.5°	8.5	23.6	42.0	46.7	40.1	35.9	27.8	13.7	4.7	0.9	0.0
88°	6.1	19.8	36.8	41.1	34.9	30.2	21.7	9.4	2.8	0.5	0.0
88.5°	3.8	16.0	31.1	35.9	30.2	24.5	16.5	5.7	1.4	0.0	0.0



TEST NUMBER: P776557

CATALOG NUMBER: HCDJBS4050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	5.2	15.6	17.9	14.2	10.4	3.8	0.5	0.0	0.0	0.0

TEST NUMBER: P776557

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2691.7	2691.7	2691.7	2691.7	2691.7	2691.7
0.5°	2690.8	2691.7	2687.5	2684.7	2683.7	2684.2
1°	2690.8	2689.4	2683.3	2678.5	2676.6	2677.1
1.5°	2690.3	2686.6	2678.1	2671.9	2669.6	2670.5
2°	2689.4	2683.3	2672.9	2665.3	2662.0	2663.0
2.5°	2688.0	2680.0	2667.2	2658.7	2654.5	2655.4
3°	2686.6	2676.2	2661.1	2650.7	2646.4	2646.9
3.5°	2684.2	2671.9	2654.9	2643.1	2638.0	2638.9
4°	2682.3	2667.2	2648.3	2634.6	2628.5	2629.9
4.5°	2679.5	2662.5	2640.8	2626.2	2619.1	2621.0
5°	2676.2	2656.8	2633.7	2617.2	2609.6	2611.5
5.5°	2672.9	2651.2	2625.7	2607.7	2599.7	2601.6
6°	2669.1	2645.5	2617.2	2597.8	2589.3	2591.2
6.5°	2664.8	2638.9	2609.2	2587.9	2578.5	2580.9
7°	2660.1	2632.3	2600.2	2577.5	2567.2	2570.0
7.5°	2655.4	2625.2	2590.8	2566.7	2555.8	2558.7
8°	2650.2	2617.7	2581.3	2555.4	2543.6	2546.9
8.5°	2644.6	2610.1	2570.9	2544.0	2531.3	2535.1
9°	2638.9	2601.6	2561.0	2532.2	2519.0	2522.8
9.5°	2632.3	2593.1	2549.7	2520.0	2505.8	2509.6
10°	2625.7	2584.2	2538.9	2507.2	2492.6	2496.9
10.5°	2619.1	2575.2	2527.5	2494.5	2479.4	2483.2
11°	2611.5	2565.3	2515.7	2481.3	2465.2	2470.0
11.5°	2604.0	2555.8	2503.9	2468.1	2451.1	2455.3
12°	2596.0	2545.0	2491.2	2453.9	2436.4	2441.2
12.5°	2587.9	2534.6	2478.4	2439.3	2421.8	2426.5
13°	2579.0	2523.7	2465.2	2425.1	2406.7	2411.4
13.5°	2570.0	2512.4	2452.0	2410.0	2390.7	2396.3
14°	2560.6	2500.6	2437.9	2394.9	2375.6	2380.8
14.5°	2551.1	2488.8	2424.2	2379.3	2359.5	2364.7
15°	2541.2	2476.6	2409.5	2363.8	2343.0	2348.7
15.5°	2530.8	2463.3	2394.4	2347.3	2326.5	2332.2
16°	2520.0	2450.6	2379.3	2331.2	2309.5	2315.6
16.5°	2509.1	2437.9	2364.2	2314.7	2292.5	2298.2
17°	2497.8	2423.7	2348.7	2297.7	2274.6	2281.2
17.5°	2486.5	2409.5	2332.2	2280.2	2256.7	2263.7
18°	2474.2	2395.4	2316.1	2262.8	2239.2	2246.3
18.5°	2462.4	2380.8	2299.1	2244.9	2220.8	2227.9
19°	2449.7	2365.7	2282.1	2226.9	2202.4	2209.5
19.5°	2436.9	2350.6	2264.7	2208.0	2183.5	2191.5
20°	2423.7	2334.0	2246.7	2189.6	2165.1	2173.1
20.5°	2410.0	2318.0	2228.8	2170.8	2146.2	2153.8
21°	2395.4	2301.0	2210.4	2151.4	2126.9	2134.9

TEST NUMBER: P776557

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2351.5	2249.6	2152.8	2092.0	2067.4	2076.4
23°	2335.5	2230.7	2133.0	2071.7	2047.6	2057.0
23.5°	2319.4	2212.8	2112.7	2050.9	2027.3	2036.7
24°	2302.4	2193.4	2092.4	2030.1	2006.5	2016.5
24.5°	2285.9	2174.1	2071.7	2008.9	1985.8	1996.2
25°	2268.0	2153.8	2050.4	1987.7	1964.5	1975.9
25.5°	2250.5	2134.4	2029.7	1966.4	1943.8	1955.1
26°	2231.6	2114.6	2007.5	1944.7	1922.5	1934.8
26.5°	2213.2	2094.3	1986.7	1922.5	1900.8	1913.6
27°	2194.4	2072.6	1964.1	1900.8	1879.6	1892.8
27.5°	2175.0	2051.8	1942.4	1878.7	1857.9	1871.6
28°	2155.2	2030.1	1919.2	1856.0	1835.7	1850.3
28.5°	2135.8	2008.9	1897.5	1833.8	1813.5	1829.1
29°	2115.1	1987.2	1874.4	1811.2	1791.8	1807.4
29.5°	2094.3	1965.0	1852.2	1788.5	1769.6	1785.7
30°	2074.0	1942.4	1828.6	1765.9	1747.5	1764.5
30.5°	2053.3	1919.7	1805.5	1742.7	1724.8	1742.3
31°	2031.6	1897.1	1781.9	1719.6	1702.6	1720.1
31.5°	2009.4	1873.9	1758.8	1696.5	1680.0	1698.4
32°	1987.2	1850.3	1735.2	1672.9	1657.3	1676.7
32.5°	1964.5	1827.2	1711.1	1650.7	1634.2	1654.5
33°	1941.9	1803.6	1687.5	1626.7	1612.0	1632.3
33.5°	1918.3	1780.0	1663.9	1603.5	1588.9	1610.1
34°	1894.7	1755.5	1640.3	1579.5	1566.3	1588.0
34.5°	1871.1	1730.9	1616.3	1555.9	1543.6	1565.3
35°	1847.0	1706.4	1591.3	1532.7	1520.5	1542.7
35.5°	1822.0	1682.3	1567.2	1509.2	1497.8	1520.5
36°	1797.0	1657.8	1543.6	1485.6	1474.7	1497.8
36.5°	1772.0	1632.3	1519.5	1462.4	1452.1	1475.6
37°	1746.0	1606.8	1495.0	1438.4	1429.4	1452.5
37.5°	1720.1	1581.8	1470.5	1414.8	1406.3	1430.3
38°	1693.2	1556.3	1445.9	1391.2	1383.2	1407.2
38.5°	1668.2	1530.9	1421.9	1368.1	1360.5	1385.5
39°	1640.8	1505.4	1397.8	1344.5	1337.9	1362.9
39.5°	1613.4	1479.4	1373.2	1321.8	1315.2	1339.7
40°	1586.5	1453.5	1348.7	1297.7	1291.6	1316.6
40.5°	1559.2	1427.5	1324.2	1274.6	1269.4	1294.9
41°	1531.8	1402.0	1300.1	1251.0	1246.8	1271.3
41.5°	1504.4	1376.1	1275.6	1228.4	1224.1	1249.1
42°	1477.1	1350.6	1251.5	1205.7	1201.0	1226.5
42.5°	1449.7	1325.1	1227.4	1182.1	1179.3	1204.3
43°	1420.9	1299.2	1203.8	1159.5	1157.1	1181.7
43.5°	1393.1	1273.2	1179.3	1136.3	1134.0	1159.5

TEST NUMBER: P776557

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1309.1	1196.3	1108.5	1068.9	1067.4	1091.5
45.5°	1281.7	1171.7	1085.4	1046.2	1045.3	1070.3
46°	1252.9	1146.7	1062.3	1024.5	1023.6	1047.6
46.5°	1225.5	1121.2	1039.1	1002.3	1001.4	1025.5
47°	1197.2	1096.2	1015.5	980.6	980.1	1003.3
47.5°	1169.4	1071.2	992.4	958.4	958.4	981.6
48°	1141.5	1046.7	969.8	936.3	936.7	959.4
48.5°	1114.2	1021.7	946.6	915.0	915.0	937.7
49°	1087.3	997.6	924.9	893.8	893.8	916.0
49.5°	1059.9	973.5	902.3	871.6	873.0	894.7
50°	1032.1	949.0	879.6	850.4	852.3	872.6
50.5°	1005.2	924.9	857.5	829.6	830.6	851.3
51°	979.7	900.9	836.2	808.8	809.8	830.1
51.5°	952.8	877.3	815.0	787.1	789.5	808.8
52°	926.8	854.1	793.3	767.8	769.2	788.1
52.5°	900.9	831.0	772.0	747.0	748.9	767.3
53°	875.9	807.4	751.7	726.7	728.6	746.1
53.5°	850.4	785.3	731.0	706.4	708.3	724.4
54°	826.8	762.1	710.7	687.1	688.5	704.1
54.5°	802.2	740.4	690.9	667.7	669.2	683.3
55°	778.2	718.2	671.0	648.4	649.8	663.0
55.5°	754.1	697.5	651.7	629.5	630.5	642.7
56°	731.5	675.8	632.4	611.1	611.1	622.4
56.5°	708.8	655.9	613.9	592.7	592.2	602.2
57°	686.6	634.7	595.1	574.3	573.4	582.3
57.5°	664.9	614.9	576.7	556.4	554.5	563.0
58°	643.2	595.1	558.7	538.9	537.0	543.2
58.5°	622.0	576.2	540.8	521.5	518.2	524.3
59°	601.2	556.8	523.8	504.9	500.7	505.4
59.5°	580.9	538.9	506.4	488.0	482.8	486.5
60°	561.1	520.0	489.4	471.9	465.8	468.6
60.5°	541.3	502.6	472.8	454.9	448.3	450.2
61°	522.9	485.1	456.3	439.3	431.8	432.3
61.5°	504.0	468.1	440.8	423.8	415.3	414.8
62°	486.1	451.6	424.7	408.7	399.7	397.8
62.5°	468.1	435.1	408.7	393.1	383.7	380.4
63°	450.7	419.1	393.6	378.0	368.6	364.3
63.5°	434.2	404.0	378.5	363.4	353.5	348.3
64°	417.6	387.9	363.8	348.7	338.8	332.7
64.5°	402.1	373.7	349.2	334.6	324.7	316.6
65°	387.0	359.1	335.5	320.4	311.0	302.0
65.5°	371.4	345.0	321.4	306.7	297.3	286.9
66°	355.8	330.8	307.7	293.1	284.1	272.3



TEST NUMBER: P776557

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	313.8	291.6	269.5	254.8	244.9	232.6
68°	300.1	278.9	257.7	243.0	232.2	220.9
68.5°	287.4	266.6	245.9	231.7	219.9	210.0
69°	274.6	254.8	234.5	220.9	208.1	199.6
69.5°	262.4	243.0	223.7	210.0	196.8	190.6
70°	250.6	232.2	213.3	200.1	186.4	185.0
70.5°	239.3	221.3	202.9	191.1	177.4	181.7
71°	227.5	210.9	193.0	182.2	170.4	178.4
71.5°	216.6	200.6	184.0	173.7	167.1	175.1
72°	206.2	190.6	175.1	167.1	163.3	171.8
72.5°	196.3	181.2	169.4	160.4	160.0	167.5
73°	185.9	172.2	161.4	153.8	156.2	163.3
73.5°	176.5	164.2	153.4	147.7	152.4	159.5
74°	167.5	156.2	145.3	141.1	147.7	155.3
74.5°	158.6	148.2	137.3	136.4	143.5	151.5
75°	149.6	140.2	130.7	131.7	138.7	146.8
75.5°	141.6	131.7	124.6	127.4	133.5	142.0
76°	133.1	124.6	118.4	123.2	128.4	136.9
76.5°	125.1	117.5	112.3	118.9	123.2	131.2
77°	117.5	110.4	107.1	114.2	117.5	126.0
77.5°	110.0	103.8	101.5	109.0	112.3	120.3
78°	102.4	97.2	96.3	104.3	106.7	114.7
78.5°	94.9	90.6	90.6	99.1	100.5	108.5
79°	87.8	84.5	85.4	93.9	94.4	102.4
79.5°	80.7	77.9	80.7	88.7	88.2	96.3
80°	74.1	72.2	76.0	83.1	81.6	90.1
80.5°	67.5	66.5	71.3	77.9	75.5	83.5
81°	60.9	60.9	66.5	72.2	69.4	76.9
81.5°	54.7	55.7	61.8	66.5	62.8	70.3
82°	49.1	50.0	56.6	61.3	56.6	63.7
82.5°	43.4	44.8	51.4	55.7	50.5	57.1
83°	37.3	40.1	45.8	50.5	44.4	49.6
83.5°	31.6	34.9	40.6	45.3	38.7	42.5
84°	26.0	29.7	34.9	40.1	33.5	35.4
84.5°	20.3	24.5	29.3	34.9	28.8	28.8
85°	15.1	19.3	23.6	29.3	25.0	22.7
85.5°	10.4	14.6	17.5	23.6	21.2	18.4
86°	6.1	9.9	13.2	17.9	17.5	16.0
86.5°	2.4	5.2	9.0	13.7	14.2	13.2
87°	0.0	0.9	4.7	9.4	10.9	10.9
87.5°	0.0	0.0	0.5	4.7	7.1	8.5
88°	0.0	0.0	0.0	0.5	3.8	6.1
88.5°	0.0	0.0	0.0	0.5	0.9	3.8



TEST NUMBER: P776557

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-HCD41TRLWW-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.5	0.5	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°	2115.6	2176.4	2247.2	2337.8	2436.9	2528.5	2591.7	2619.1	2610.6	2558.2	2483.2
22°	2096.2	2158.0	2230.2	2322.2	2422.8	2517.1	2581.8	2610.1	2601.1	2547.8	2470.9



44°	1136.3	1209.0	1277.9	1374.2	1492.2	1633.7	1751.2	1810.2	1786.6	1659.7	1518.6
44.5°	1114.6	1186.4	1254.8	1350.1	1466.7	1605.9	1722.0	1780.0	1755.5	1628.5	1488.4



66.5°	258.6	317.6	370.0	418.1	454.9	490.8	514.8	518.2	490.8	437.9	388.8
67°	245.4	303.0	354.9	403.0	438.4	472.8	495.5	498.3	470.5	420.5	372.8



89°	1.4	12.3	25.0	29.7	25.0	19.8	11.3	2.8	0.5	0.0	0.0
89.5°	0.5	9.0	19.3	24.1	19.3	14.6	7.1	1.4	0.0	0.0	0.0

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21.5°	2380.8	2284.5	2191.5	2132.1	2107.1	2115.6
22°	2366.6	2267.0	2171.7	2112.2	2087.7	2096.2



44°	1364.8	1247.7	1156.2	1114.2	1111.8	1136.3
44.5°	1337.9	1222.2	1132.1	1091.0	1089.6	1114.6

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66.5°	341.7	317.1	294.9	280.3	270.4	258.6
67°	327.5	303.9	281.7	267.6	257.7	245.4

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89°	0.0	0.0	0.0	0.5	0.5	1.4
89.5°	0.0	0.0	0.0	0.5	0.5	0.5

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Scaled Data Report



(END OF REPORT)