

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: P776663

Luminaire Tested: HCDJBS4050CSD-HCD61TRMB-5000lm-4000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776663  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B038)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS4050CSD-HCD61TRMB-5000lm-4000K  
Description: 6 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

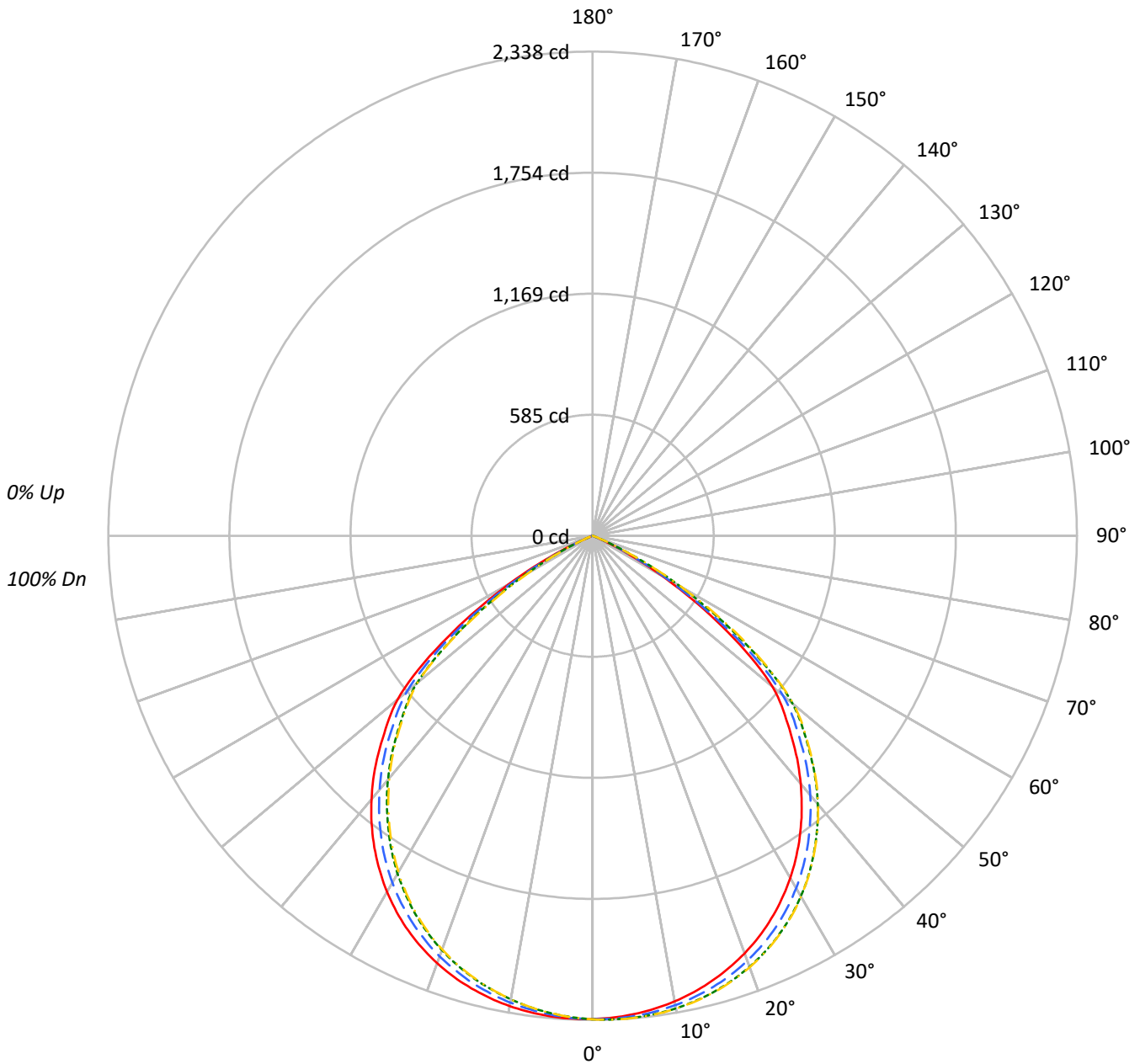
Lumens per Lamp: N/A  
Luminaire Lumens: 4885.0 lumens  
Efficiency: N/A  
Efficacy: 101.8 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.32  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

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



TEST NUMBER: P776663  
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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								
1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	95	93	92	90								
2	104	97	92	88	101	96	91	87	92	88	85	89	86	83	86	83	81	79								
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	71	69								
4	89	79	72	66	87	78	71	65	75	69	65	73	68	64	71	67	63	61								
5	82	71	64	58	81	70	63	58	68	62	57	66	61	56	65	60	56	54								
6	77	65	57	51	75	64	57	51	62	56	51	61	55	50	59	54	50	48								
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45	43								
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39								
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35								
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32								

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

	0°	90°	180°	270°
0°	127983	127983	127983	127983
5°	127575	128527	128180	127338
10°	127057	129000	128360	126551
15°	126312	129269	128400	125574
20°	125177	129220	128105	124197
25°	123424	128626	127296	122148
30°	120778	127254	125652	119234
35°	116961	124771	122951	115168
40°	111824	120962	118880	109942
45°	104941	115105	112764	102980
50°	96722	107408	104756	94479
55°	73097	84709	81918	70860
60°	42376	52967	50917	41532
65°	13023	20106	18433	14087
70°	224	385	224	224
75°	106	212	106	106
80°	158	158	0	158
85°	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 112.5°

Vertical Angle: 45°

Luminance: 115508 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	221.0	4.5
10°-20°	633.4	13.0
20°-30°	954.1	19.5
30°-40°	1119.1	22.9
40°-50°	1083.7	22.2
50°-60°	721.0	14.8
60°-70°	152.1	3.1
70°-80°	0.9	0.0
80°-90°	0.0	0.0
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°	1808.4	37.0
0°-40°	2927.5	59.9
0°-60°	4732.1	96.9
0°-90°	4885.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4885.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2335	2335	2335	2335	2335	
5°	2318	2336	2329	2314	2318	220
15°	2226	2278	2262	2213	2226	628
25°	2040	2126	2104	2019	2040	939
35°	1748	1864	1837	1721	1748	1091
45°	1354	1485	1454	1328	1354	1044
55°	765	886	857	741	765	678
65°	100	155	142	109	100	127
75°	0	1	0	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6
0.5°	2333.2	2333.2	2334.6	2336.0	2335.6	2336.0	2336.0	2335.6	2334.1	2333.7	2334.1
1°	2332.2	2333.2	2334.6	2336.5	2336.5	2337.0	2337.0	2336.0	2334.6	2333.2	2333.2
1.5°	2331.3	2332.2	2334.6	2336.0	2337.0	2337.5	2337.5	2336.5	2334.6	2333.2	2332.7
2°	2329.8	2331.3	2334.1	2336.0	2337.5	2338.4	2338.4	2336.5	2334.6	2332.2	2331.7
2.5°	2328.4	2330.3	2333.2	2336.0	2337.5	2338.4	2338.4	2336.5	2334.1	2331.7	2330.3
3°	2326.5	2329.3	2332.7	2335.6	2337.5	2338.4	2338.4	2336.5	2333.7	2330.8	2328.9
3.5°	2325.0	2327.9	2331.7	2335.1	2337.0	2338.4	2338.4	2336.5	2332.7	2329.3	2327.0
4°	2322.7	2326.0	2330.8	2334.1	2337.0	2338.0	2338.0	2335.6	2331.7	2328.4	2325.5
4.5°	2320.7	2324.6	2329.3	2333.2	2336.0	2337.5	2337.5	2335.1	2330.8	2327.0	2323.6
5°	2318.3	2322.7	2327.4	2332.2	2335.6	2337.0	2336.5	2334.1	2329.3	2325.0	2321.2
5.5°	2316.0	2320.3	2326.0	2331.3	2334.6	2336.0	2335.6	2332.7	2327.9	2323.1	2318.8
6°	2312.6	2317.9	2324.6	2329.8	2333.2	2335.1	2334.6	2331.3	2326.5	2320.7	2316.0
6.5°	2309.7	2315.5	2322.2	2327.9	2332.2	2333.7	2333.2	2329.8	2324.6	2318.8	2313.1
7°	2306.4	2312.6	2319.8	2326.0	2330.3	2332.2	2331.7	2327.9	2322.7	2316.0	2310.2
7.5°	2303.0	2309.7	2317.4	2324.1	2328.9	2330.8	2330.3	2326.0	2319.8	2313.6	2307.3
8°	2299.7	2306.9	2314.5	2321.7	2327.0	2328.9	2328.4	2324.1	2317.9	2310.7	2304.0
8.5°	2295.4	2303.5	2311.7	2319.3	2324.6	2327.0	2326.5	2321.7	2315.0	2307.3	2300.2
9°	2291.6	2299.7	2308.3	2316.4	2322.7	2324.6	2324.1	2319.3	2312.1	2304.5	2296.8
9.5°	2287.3	2295.9	2305.0	2313.6	2319.8	2322.2	2321.7	2316.4	2309.3	2300.6	2292.5
10°	2282.5	2292.0	2301.6	2310.2	2317.4	2319.3	2318.8	2314.0	2305.9	2296.8	2288.7
10.5°	2278.2	2287.7	2297.8	2306.9	2314.0	2316.4	2316.0	2310.7	2302.6	2293.0	2284.4
11°	2272.9	2283.4	2294.0	2303.5	2311.2	2313.6	2312.6	2307.3	2299.2	2289.2	2279.6
11.5°	2268.1	2278.6	2289.6	2299.2	2307.8	2310.2	2309.3	2303.5	2294.9	2284.9	2275.3
12°	2262.4	2273.9	2285.3	2295.4	2304.0	2306.9	2305.9	2300.2	2291.1	2280.6	2270.0
12.5°	2257.1	2268.6	2280.6	2291.1	2300.2	2303.0	2302.1	2296.3	2287.3	2275.8	2265.3
13°	2250.9	2263.3	2275.8	2286.8	2295.9	2299.2	2297.8	2292.0	2282.5	2271.0	2259.5
13.5°	2245.2	2257.6	2271.0	2282.0	2292.0	2294.9	2294.0	2287.7	2277.7	2265.7	2253.8
14°	2238.9	2251.9	2265.3	2277.2	2287.3	2290.6	2289.2	2283.0	2272.9	2260.5	2248.0
14.5°	2232.3	2246.1	2260.0	2272.4	2282.5	2285.8	2284.4	2278.2	2267.6	2254.7	2242.3
15°	2225.6	2239.4	2254.3	2266.7	2277.7	2281.0	2279.6	2272.9	2262.4	2249.0	2236.1
15.5°	2218.4	2233.2	2248.5	2261.4	2272.4	2275.8	2274.8	2268.1	2256.6	2243.3	2229.9
16°	2211.7	2226.5	2242.3	2255.7	2267.2	2270.5	2269.1	2262.4	2250.9	2237.0	2222.7
16.5°	2204.0	2219.3	2235.6	2249.9	2261.4	2264.8	2263.3	2256.6	2245.2	2230.3	2215.5
17°	2196.4	2212.2	2228.9	2243.3	2255.7	2259.0	2257.6	2250.4	2238.9	2223.6	2208.3
17.5°	2188.7	2205.0	2222.2	2236.6	2249.5	2253.3	2251.9	2244.7	2232.3	2216.5	2200.7
18°	2180.6	2197.8	2215.0	2229.9	2242.8	2246.6	2245.2	2237.5	2225.6	2209.3	2193.0
18.5°	2172.0	2189.7	2207.9	2223.2	2236.6	2239.9	2238.5	2230.8	2218.4	2202.1	2185.4
19°	2163.4	2181.1	2199.7	2216.0	2229.4	2233.2	2231.8	2223.6	2211.2	2194.5	2177.2
19.5°	2154.8	2172.9	2192.1	2208.3	2222.7	2226.5	2224.6	2216.5	2203.6	2186.8	2169.1
20°	2145.7	2164.8	2183.9	2200.7	2215.0	2218.9	2217.4	2209.3	2195.9	2178.7	2161.0
20.5°	2136.1	2155.7	2175.3	2193.0	2207.4	2211.2	2209.8	2201.2	2188.2	2170.1	2151.4
21°	2127.0	2146.2	2167.2	2184.9	2199.2	2203.6	2201.6	2193.5	2180.1	2161.5	2142.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	2096.4	2117.9	2139.5	2158.1	2174.4	2178.2	2176.3	2167.7	2153.3	2134.2	2113.6
23°	2085.9	2107.9	2129.9	2149.0	2165.3	2169.6	2167.2	2158.6	2144.2	2124.2	2103.1
23.5°	2074.9	2097.4	2120.3	2139.5	2156.2	2160.5	2158.6	2149.5	2135.2	2114.1	2093.1
24°	2063.9	2086.8	2109.8	2129.9	2146.6	2150.9	2148.5	2139.5	2125.1	2104.1	2082.5
24.5°	2051.9	2075.4	2099.3	2119.4	2137.1	2141.4	2139.0	2129.9	2115.1	2093.5	2071.5
25°	2040.5	2063.9	2088.3	2108.8	2126.5	2130.9	2128.5	2119.8	2104.5	2083.0	2060.1
25.5°	2028.5	2052.9	2077.3	2098.3	2116.5	2120.8	2118.4	2109.3	2094.0	2071.5	2048.6
26°	2016.5	2040.9	2066.3	2087.3	2106.0	2109.8	2107.9	2098.3	2083.0	2060.1	2037.1
26.5°	2003.6	2029.0	2054.3	2076.3	2095.0	2099.3	2096.9	2087.3	2072.0	2048.6	2024.7
27°	1991.2	2016.5	2042.4	2064.8	2083.5	2088.3	2085.4	2076.3	2060.1	2036.6	2012.7
27.5°	1977.8	2003.6	2029.9	2052.9	2072.5	2076.8	2074.4	2064.8	2048.6	2024.7	2000.3
28°	1964.4	1990.7	2017.5	2040.5	2060.5	2064.4	2062.5	2052.9	2036.1	2011.8	1987.4
28.5°	1950.5	1977.8	2005.1	2028.5	2048.1	2052.9	2050.5	2040.9	2023.7	1999.3	1974.4
29°	1936.7	1963.9	1991.7	2016.1	2035.7	2040.0	2038.1	2028.5	2011.8	1986.4	1961.1
29.5°	1922.8	1950.5	1978.3	2003.1	2023.7	2027.5	2025.1	2015.6	1998.4	1973.5	1947.2
30°	1908.0	1936.2	1964.9	1989.8	2010.3	2014.6	2012.2	2002.7	1985.0	1959.1	1933.3
30.5°	1893.1	1922.3	1951.0	1975.9	1996.9	2001.2	1999.3	1989.8	1971.6	1945.3	1919.4
31°	1878.3	1907.5	1936.7	1962.0	1983.5	1987.4	1985.4	1975.9	1957.7	1931.4	1904.6
31.5°	1862.5	1892.7	1922.3	1948.1	1969.7	1973.5	1971.1	1962.0	1943.4	1917.0	1890.3
32°	1847.2	1877.3	1907.5	1934.3	1955.3	1959.6	1957.2	1947.7	1929.0	1902.2	1875.0
32.5°	1831.0	1862.0	1892.2	1919.0	1941.0	1944.8	1943.4	1933.8	1914.7	1887.4	1859.7
33°	1815.2	1846.3	1877.3	1904.1	1926.6	1930.4	1928.5	1918.5	1899.8	1872.1	1844.3
33.5°	1798.9	1830.5	1861.6	1888.8	1911.3	1915.1	1913.2	1903.2	1884.5	1856.8	1828.6
34°	1782.2	1814.2	1845.8	1873.5	1896.0	1900.3	1897.9	1888.3	1868.7	1841.0	1812.3
34.5°	1764.9	1798.0	1829.5	1857.3	1880.2	1884.5	1882.6	1872.6	1853.0	1824.7	1796.0
35°	1747.7	1781.2	1812.8	1841.5	1864.4	1868.3	1866.3	1856.8	1837.2	1808.0	1779.3
35.5°	1730.5	1764.0	1796.5	1824.7	1848.2	1852.5	1850.1	1840.5	1820.4	1791.7	1762.6
36°	1712.3	1746.3	1779.3	1808.5	1831.9	1835.7	1833.8	1824.3	1803.7	1775.5	1745.3
36.5°	1695.1	1729.1	1762.1	1791.3	1815.2	1819.5	1817.6	1807.5	1786.9	1758.3	1728.1
37°	1676.5	1711.4	1744.4	1773.6	1798.4	1802.3	1800.3	1790.8	1769.7	1740.6	1710.4
37.5°	1657.8	1693.2	1726.7	1756.3	1780.7	1785.0	1782.6	1773.6	1752.0	1723.3	1693.2
38°	1638.7	1675.0	1708.5	1738.2	1763.5	1767.3	1765.4	1755.4	1734.8	1704.7	1675.0
38.5°	1620.5	1656.4	1690.8	1720.0	1745.8	1749.6	1748.2	1737.7	1716.6	1687.5	1656.4
39°	1601.8	1638.2	1672.2	1702.3	1727.6	1731.5	1730.0	1720.0	1698.0	1668.8	1638.2
39.5°	1582.2	1619.1	1653.0	1683.2	1709.0	1713.3	1711.4	1701.3	1679.8	1650.2	1619.1
40°	1562.6	1599.5	1634.4	1664.0	1690.3	1694.6	1692.7	1683.2	1661.2	1631.0	1600.4
40.5°	1543.0	1580.3	1614.8	1644.9	1671.2	1676.0	1674.1	1663.5	1642.0	1612.4	1581.3
41°	1522.9	1560.2	1595.1	1624.8	1652.1	1656.9	1654.9	1644.4	1622.9	1592.8	1561.7
41.5°	1502.4	1540.1	1575.1	1605.7	1632.0	1637.2	1635.8	1624.8	1602.8	1573.1	1542.1
42°	1482.3	1519.6	1555.0	1585.1	1612.4	1617.6	1615.7	1605.2	1583.2	1553.1	1522.0
42.5°	1461.7	1500.0	1534.4	1564.5	1592.3	1597.5	1596.1	1584.6	1562.6	1533.4	1501.9
43°	1440.2	1478.9	1513.4	1543.5	1571.7	1576.5	1575.5	1564.1	1542.1	1511.9	1481.3
43.5°	1419.1	1456.9	1492.3	1522.0	1550.2	1555.9	1554.5	1543.0	1521.0	1490.9	1460.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1353.6	1391.4	1425.8	1455.5	1484.7	1489.9	1489.4	1477.0	1454.5	1424.9	1394.3
45.5°	1331.6	1368.9	1403.8	1433.0	1462.2	1468.4	1467.4	1454.5	1432.0	1402.4	1371.8
46°	1310.1	1347.4	1381.8	1411.0	1440.2	1446.9	1445.4	1433.0	1410.0	1379.9	1350.3
46.5°	1289.0	1326.3	1360.3	1389.5	1418.7	1426.3	1424.9	1411.5	1387.6	1358.4	1328.3
47°	1268.5	1305.3	1339.3	1368.0	1397.1	1404.8	1403.8	1390.0	1366.0	1336.4	1306.7
47.5°	1247.9	1284.7	1318.2	1346.9	1376.1	1383.7	1382.8	1368.9	1345.0	1315.3	1286.2
48°	1227.3	1263.7	1296.7	1325.4	1355.0	1363.2	1362.2	1348.3	1323.9	1294.3	1265.6
48.5°	1207.2	1242.6	1276.1	1304.3	1334.0	1343.6	1341.6	1327.3	1302.4	1273.7	1245.0
49°	1185.2	1220.2	1252.2	1280.4	1310.6	1320.1	1318.7	1304.3	1279.5	1250.3	1221.6
49.5°	1161.3	1196.2	1227.3	1254.6	1285.7	1294.8	1293.3	1279.0	1254.1	1224.9	1197.2
50°	1134.1	1169.9	1200.1	1225.9	1259.4	1268.5	1267.5	1252.7	1228.3	1199.1	1170.4
50.5°	1103.9	1137.4	1169.9	1196.7	1230.2	1238.3	1235.9	1223.0	1199.6	1169.0	1140.3
51°	1070.9	1103.9	1136.5	1164.2	1198.2	1205.8	1203.9	1191.9	1168.0	1136.5	1107.3
51.5°	1035.5	1068.5	1100.6	1129.8	1164.2	1171.4	1170.4	1157.0	1135.0	1103.0	1072.4
52°	997.7	1032.2	1063.8	1092.4	1127.4	1136.5	1135.5	1121.6	1098.7	1067.1	1037.4
52.5°	960.9	994.9	1025.5	1051.8	1089.6	1101.1	1100.1	1084.8	1059.9	1029.8	1001.1
53°	922.7	955.7	985.8	1010.7	1050.4	1062.8	1062.8	1047.0	1020.2	991.5	963.8
53.5°	883.9	916.4	945.6	969.0	1009.7	1025.5	1026.0	1007.3	979.1	952.3	925.5
54°	844.2	876.7	903.5	926.5	968.6	986.7	987.2	967.6	938.4	912.6	885.8
54.5°	805.0	837.0	861.4	883.9	927.0	947.0	948.0	926.5	896.8	870.5	847.1
55°	764.8	796.4	818.9	840.9	886.3	908.3	909.3	885.8	857.1	830.3	807.9
55.5°	724.6	754.8	776.3	798.3	844.7	866.2	868.6	843.7	815.5	788.2	767.2
56°	685.4	714.6	733.2	754.8	802.1	825.1	827.5	803.1	775.3	746.2	728.0
56.5°	646.2	673.9	690.7	714.6	760.5	783.5	785.9	761.5	733.2	705.0	687.8
57°	606.0	633.3	648.1	672.5	719.4	741.9	744.7	721.3	694.0	663.4	648.1
57.5°	567.7	592.6	607.0	631.4	678.7	699.8	703.1	680.6	653.4	623.7	608.4
58°	530.0	552.9	565.8	591.7	638.1	658.1	661.5	640.5	614.6	583.1	569.2
58.5°	493.1	513.2	525.2	552.4	598.4	617.0	620.4	601.2	576.4	544.3	530.9
59°	456.8	474.5	486.9	514.2	559.1	575.9	579.2	563.0	538.1	506.0	493.6
59.5°	420.4	435.3	449.1	476.4	520.9	536.2	537.6	524.2	499.8	469.2	457.3
60°	386.5	398.4	413.3	439.1	483.1	497.0	497.4	486.4	464.4	434.8	421.4
60.5°	352.0	362.1	376.9	402.7	447.7	459.7	460.6	450.6	429.0	400.3	385.5
61°	318.6	327.2	342.5	367.8	412.3	422.8	423.3	414.7	394.1	365.9	350.1
61.5°	286.0	293.7	309.9	334.3	376.9	385.5	386.0	378.8	358.7	331.5	314.2
62°	254.9	262.1	277.4	301.3	341.5	348.7	348.7	342.9	323.3	299.9	283.2
62.5°	225.3	232.0	247.3	269.8	306.1	311.9	311.4	307.1	290.8	268.8	252.1
63°	197.1	202.8	217.6	240.6	272.6	277.4	276.9	273.6	259.7	239.6	222.9
63.5°	169.3	176.0	190.4	211.4	241.1	245.4	244.9	242.0	230.1	211.4	195.6
64°	146.4	154.5	164.1	184.1	210.9	214.3	214.3	211.4	199.9	184.6	170.3
64.5°	123.4	133.4	143.0	160.2	182.2	185.1	184.6	181.8	170.8	159.8	145.9
65°	100.4	111.9	121.5	137.8	155.0	157.4	157.4	154.5	142.1	135.4	123.9
65.5°	78.0	90.9	100.0	114.8	128.7	132.0	132.0	128.2	114.8	112.9	103.3
66°	55.0	69.4	78.9	92.3	104.7	107.6	107.6	103.8	89.4	91.8	84.2





TEST NUMBER: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	17.7	29.7	34.4	37.8	54.5	56.4	56.4	53.6	40.2	48.3	44.5
68°	13.4	20.6	23.9	25.4	40.2	41.6	41.6	39.7	23.9	36.4	31.1
68.5°	9.6	16.7	14.8	15.8	25.8	26.8	26.8	25.4	7.7	23.9	18.2
69°	5.3	12.9	11.5	12.0	12.0	12.4	12.0	12.0	2.4	11.5	10.5
69.5°	1.4	9.1	8.1	8.6	5.7	5.7	5.7	5.7	1.4	5.7	5.3
70°	1.4	5.3	4.8	4.8	2.4	2.4	2.4	2.4	1.4	2.4	2.4
70.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
71°	1.0	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
71.5°	1.0	1.0	1.0	1.0	1.4	1.4	1.4	1.0	1.0	1.0	1.0
72°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
73°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
73.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
74°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
74.5°	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
75°	0.5	0.5	0.5	0.5	1.0	1.0	1.0	0.5	0.5	0.5	0.5
75.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
76°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
76.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
78°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
78.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
79°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5
80.5°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
81°	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776663  
CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**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: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2334.6	2334.6	2334.6	2334.6	2334.6	2334.6
0.5°	2334.1	2333.7	2333.7	2334.1	2333.7	2333.2
1°	2333.2	2332.2	2332.2	2332.7	2332.7	2332.2
1.5°	2332.2	2330.8	2330.3	2331.3	2331.3	2331.3
2°	2330.8	2328.9	2328.4	2329.3	2329.3	2329.8
2.5°	2329.3	2326.5	2326.5	2327.0	2327.4	2328.4
3°	2327.4	2324.6	2324.1	2325.0	2325.5	2326.5
3.5°	2325.5	2322.2	2321.7	2322.7	2323.6	2325.0
4°	2323.1	2319.8	2318.8	2319.8	2321.2	2322.7
4.5°	2320.7	2316.9	2316.0	2316.9	2318.3	2320.7
5°	2318.3	2314.0	2313.1	2314.0	2315.5	2318.3
5.5°	2315.5	2310.7	2309.7	2310.7	2312.6	2316.0
6°	2312.6	2307.3	2306.4	2307.3	2309.3	2312.6
6.5°	2309.3	2304.0	2302.6	2303.5	2306.4	2309.7
7°	2305.9	2300.2	2298.7	2300.2	2302.6	2306.4
7.5°	2302.6	2295.9	2294.9	2295.9	2298.7	2303.0
8°	2298.7	2292.0	2290.1	2291.6	2294.9	2299.7
8.5°	2294.4	2287.7	2285.8	2287.3	2290.6	2295.4
9°	2290.6	2283.0	2281.0	2282.5	2285.8	2291.6
9.5°	2285.8	2278.6	2276.7	2277.7	2281.5	2287.3
10°	2281.5	2273.4	2271.5	2272.9	2276.7	2282.5
10.5°	2276.7	2268.1	2266.2	2267.6	2271.5	2278.2
11°	2272.0	2262.9	2260.5	2262.4	2266.2	2272.9
11.5°	2266.7	2257.6	2254.7	2256.2	2260.9	2268.1
12°	2261.4	2251.4	2249.0	2250.4	2255.2	2262.4
12.5°	2255.7	2245.6	2242.8	2244.2	2249.5	2257.1
13°	2249.9	2239.4	2236.6	2238.0	2243.3	2250.9
13.5°	2243.7	2233.2	2229.9	2231.3	2236.6	2245.2
14°	2238.0	2226.5	2223.2	2224.6	2230.3	2238.9
14.5°	2231.3	2219.3	2216.5	2217.9	2223.2	2232.3
15°	2224.6	2212.6	2208.8	2210.7	2216.5	2225.6
15.5°	2217.9	2205.0	2201.2	2203.1	2208.8	2218.4
16°	2210.2	2197.8	2193.5	2195.4	2201.6	2211.7
16.5°	2203.6	2189.7	2185.9	2187.8	2194.0	2204.0
17°	2195.9	2181.6	2177.7	2179.2	2185.9	2196.4
17.5°	2187.8	2173.4	2169.1	2171.0	2177.7	2188.7
18°	2180.1	2164.8	2160.5	2162.4	2169.1	2180.6
18.5°	2171.5	2156.2	2151.4	2153.3	2160.5	2172.0
19°	2162.9	2147.6	2142.3	2144.2	2151.4	2163.4
19.5°	2154.3	2138.5	2132.8	2134.7	2142.8	2154.8
20°	2145.2	2128.9	2123.2	2125.1	2133.2	2145.7
20.5°	2136.1	2118.9	2113.2	2115.1	2123.2	2136.1
21°	2126.5	2108.8	2103.1	2104.5	2113.2	2127.0

TEST NUMBER: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2095.9	2077.3	2070.6	2072.5	2081.6	2096.4
23°	2085.9	2066.3	2059.1	2061.0	2070.6	2085.9
23.5°	2074.9	2055.3	2048.1	2049.5	2059.6	2074.9
24°	2063.9	2043.8	2036.1	2037.6	2047.6	2063.9
24.5°	2052.4	2031.4	2024.2	2025.6	2035.7	2051.9
25°	2040.9	2019.4	2011.8	2013.2	2023.7	2040.5
25.5°	2029.0	2007.4	1998.8	2000.8	2011.3	2028.5
26°	2017.0	1994.5	1985.9	1987.8	1998.8	2016.5
26.5°	2004.1	1981.1	1972.5	1974.4	1985.4	2003.6
27°	1991.2	1967.7	1959.6	1961.1	1972.5	1991.2
27.5°	1978.7	1954.8	1946.2	1947.2	1959.1	1977.8
28°	1965.4	1941.0	1931.9	1933.3	1945.3	1964.4
28.5°	1951.5	1926.6	1917.5	1919.0	1930.9	1950.5
29°	1938.1	1912.7	1903.2	1905.1	1917.0	1936.7
29.5°	1924.2	1897.9	1888.3	1889.8	1902.7	1922.8
30°	1909.4	1883.6	1873.5	1875.0	1887.4	1908.0
30.5°	1895.0	1868.3	1857.7	1859.2	1872.6	1893.1
31°	1880.2	1852.5	1842.4	1843.9	1856.8	1878.3
31.5°	1864.9	1837.2	1826.2	1827.6	1841.0	1862.5
32°	1849.1	1821.4	1810.4	1811.8	1825.2	1847.2
32.5°	1833.8	1805.1	1794.1	1795.1	1809.4	1831.0
33°	1817.6	1788.9	1777.4	1778.8	1792.7	1815.2
33.5°	1801.8	1772.6	1760.6	1762.6	1775.9	1798.9
34°	1785.0	1755.9	1743.9	1744.9	1759.2	1782.2
34.5°	1768.8	1738.2	1726.2	1727.6	1742.0	1764.9
35°	1751.1	1720.9	1708.5	1710.4	1724.3	1747.7
35.5°	1734.3	1703.2	1691.3	1692.7	1706.6	1730.5
36°	1717.1	1686.0	1673.6	1675.0	1689.4	1712.3
36.5°	1699.9	1667.9	1655.9	1656.9	1671.7	1695.1
37°	1681.7	1649.7	1637.7	1638.7	1653.0	1676.5
37.5°	1663.5	1631.5	1618.6	1620.5	1634.8	1657.8
38°	1645.4	1612.8	1600.4	1601.8	1615.7	1638.7
38.5°	1626.2	1594.2	1581.8	1583.2	1597.1	1620.5
39°	1608.1	1575.1	1563.1	1564.1	1578.4	1601.8
39.5°	1588.9	1556.4	1544.0	1545.4	1559.3	1582.2
40°	1569.8	1536.3	1524.8	1525.8	1539.2	1562.6
40.5°	1550.7	1517.2	1505.2	1506.7	1519.6	1543.0
41°	1530.6	1497.1	1485.6	1487.1	1500.0	1522.9
41.5°	1511.0	1477.0	1465.0	1467.0	1479.9	1502.4
42°	1490.9	1456.9	1445.4	1446.9	1459.8	1482.3
42.5°	1470.8	1436.4	1425.4	1426.3	1439.2	1461.7
43°	1450.2	1415.3	1403.8	1405.7	1417.7	1440.2
43.5°	1428.7	1393.8	1382.8	1384.2	1396.2	1419.1

TEST NUMBER: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1363.6	1328.3	1318.2	1319.2	1330.6	1353.6
45.5°	1341.6	1306.7	1296.2	1297.6	1308.6	1331.6
46°	1320.1	1285.2	1274.7	1276.1	1287.6	1310.1
46.5°	1298.1	1264.6	1254.1	1255.1	1266.6	1289.0
47°	1277.6	1244.1	1234.0	1235.0	1245.5	1268.5
47.5°	1257.0	1223.5	1213.5	1214.9	1224.9	1247.9
48°	1236.9	1203.4	1192.9	1194.8	1204.9	1227.3
48.5°	1216.3	1182.8	1172.8	1173.8	1184.3	1207.2
49°	1194.3	1160.4	1150.3	1151.8	1162.8	1185.2
49.5°	1170.4	1136.0	1126.9	1128.3	1138.8	1161.3
50°	1144.1	1107.8	1099.1	1102.0	1113.0	1134.1
50.5°	1113.0	1076.2	1068.5	1071.9	1081.9	1103.9
51°	1080.0	1042.2	1035.1	1037.9	1049.4	1070.9
51.5°	1045.1	1007.8	999.7	1002.0	1015.0	1035.5
52°	1010.2	971.0	962.8	965.2	977.7	997.7
52.5°	973.4	933.7	925.5	927.0	938.9	960.9
53°	936.5	894.9	885.8	887.3	900.2	922.7
53.5°	898.3	857.1	846.1	848.0	860.9	883.9
54°	861.4	818.9	806.4	807.9	820.8	844.2
54.5°	822.2	780.1	767.7	768.2	781.6	805.0
55°	784.4	741.4	727.5	728.0	741.4	764.8
55.5°	744.7	704.1	688.3	687.3	701.7	724.6
56°	706.9	666.3	649.1	646.7	662.9	685.4
56.5°	667.7	629.0	610.8	607.9	624.7	646.2
57°	629.4	590.7	572.5	568.7	585.9	606.0
57.5°	591.7	554.4	534.7	530.9	548.1	567.7
58°	554.4	518.0	498.4	494.6	511.3	530.0
58.5°	517.0	482.6	462.5	457.7	474.0	493.1
59°	480.2	447.2	427.6	422.8	439.6	456.8
59.5°	445.3	412.3	394.1	388.9	405.1	420.4
60°	409.9	378.8	360.2	356.3	371.2	386.5
60.5°	375.0	345.8	328.6	324.8	338.6	352.0
61°	340.1	313.3	298.0	294.6	307.1	318.6
61.5°	308.0	283.2	269.3	265.9	276.5	286.0
62°	276.5	253.0	241.5	239.6	247.3	254.9
62.5°	245.8	223.8	215.2	213.3	219.1	225.3
63°	216.2	197.1	190.4	188.9	191.8	197.1
63.5°	188.5	171.2	166.0	165.0	166.5	169.3
64°	162.1	150.2	146.4	145.4	145.9	146.4
64.5°	137.8	129.1	126.8	126.3	125.3	123.4
65°	115.3	108.6	107.1	106.7	104.7	100.4
65.5°	94.7	87.5	87.5	87.5	84.2	78.0
66°	75.1	67.0	70.8	71.7	67.0	55.0



TEST NUMBER: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	39.2	27.7	31.6	32.5	28.2	17.7
68°	27.3	19.1	22.0	22.5	19.6	13.4
68.5°	15.8	14.8	13.9	14.3	14.8	9.6
69°	9.6	10.5	10.5	11.0	10.5	5.3
69.5°	4.8	5.7	7.7	7.7	5.7	1.4
70°	2.4	1.4	4.3	4.3	1.4	1.4
70.5°	1.4	1.4	1.4	1.4	1.4	1.4
71°	1.0	1.0	1.0	1.0	1.0	1.0
71.5°	1.0	1.0	1.0	1.0	1.0	1.0
72°	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0
73°	1.0	1.0	1.0	1.0	1.0	1.0
73.5°	1.0	1.0	1.0	1.0	1.0	1.0
74°	1.0	1.0	1.0	1.0	1.0	1.0
74.5°	1.0	0.5	0.5	0.5	0.5	0.5
75°	0.5	0.5	0.5	0.5	0.5	0.5
75.5°	0.5	0.5	0.5	0.5	0.5	0.5
76°	0.5	0.5	0.5	0.5	0.5	0.5
76.5°	0.5	0.5	0.5	0.5	0.5	0.5
77°	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5	0.5
78°	0.5	0.5	0.5	0.5	0.5	0.5
78.5°	0.5	0.5	0.5	0.5	0.5	0.5
79°	0.5	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.5	0.5
80.5°	0.5	0.5	0.5	0.5	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776663

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-4000K

**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°	2116.5	2137.1	2158.1	2176.3	2191.6	2195.4	2193.5	2185.4	2171.5	2152.4	2133.2
22°	2106.9	2127.5	2149.0	2167.7	2183.0	2187.3	2184.9	2176.3	2162.9	2143.3	2123.7



44°	1397.1	1434.9	1469.4	1500.4	1528.2	1533.9	1533.0	1521.0	1498.5	1469.4	1438.3
44.5°	1375.1	1413.4	1447.8	1478.0	1506.7	1513.4	1510.5	1499.5	1476.5	1447.4	1416.3



66.5°	39.7	54.0	62.2	69.8	83.2	86.1	86.1	81.8	73.2	73.2	70.8
67°	27.3	40.7	47.4	52.6	68.9	71.3	71.3	67.4	56.9	60.7	57.9



89°	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0



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21.5°	2116.5	2098.8	2092.6	2094.0	2103.1	2116.5
22°	2106.5	2088.3	2082.1	2083.5	2092.6	2106.9



44°	1407.2	1371.8	1361.3	1362.2	1374.6	1397.1
44.5°	1385.7	1350.3	1339.7	1340.7	1352.6	1375.1



66.5°	63.1	51.2	56.4	56.4	52.1	39.7
67°	51.2	38.3	43.0	43.5	39.2	27.3

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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)