

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: P776661

Luminaire Tested: HCDJBS4050CSD-HCD61TRMB-5000lm-3000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776661  
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-3000K  
Description: 6 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

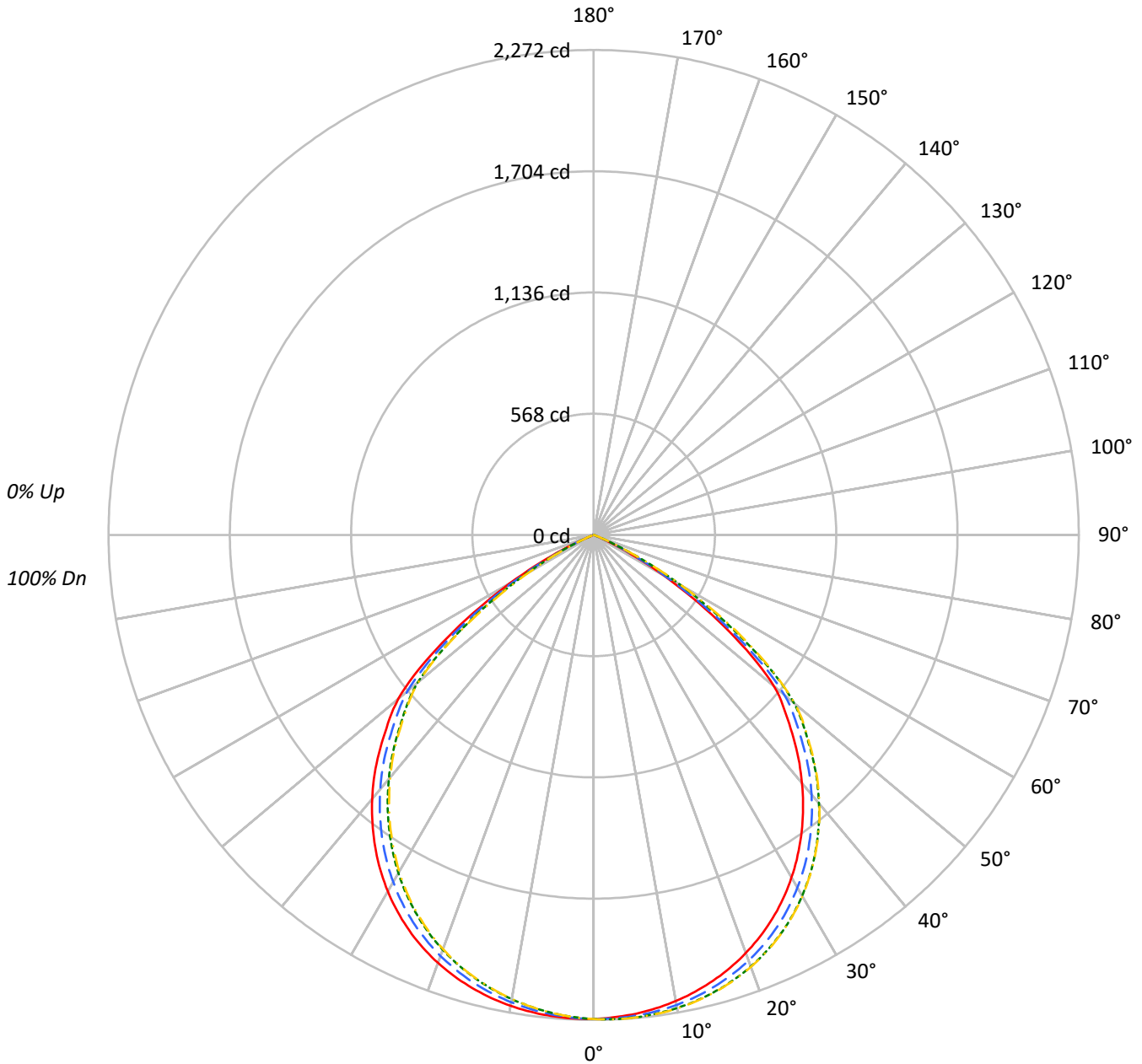
Lumens per Lamp: N/A  
Luminaire Lumens: 4745.2 lumens  
Efficiency: N/A  
Efficacy: 98.9 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.32  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

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					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°	124321	124321	124321	124321
5°	123927	124846	124515	123695
10°	123417	125304	124686	122927
15°	122691	125568	124723	121981
20°	121595	125521	124436	120644
25°	119886	124949	123654	118652
30°	117316	123614	122050	115815
35°	113615	121204	119431	111875
40°	108625	117499	115473	106793
45°	101941	111810	109539	100026
50°	93950	104329	101754	91767
55°	71003	82281	79577	68824
60°	41159	51454	49459	40348
65°	12660	19522	17901	13685
70°	224	369	224	224
75°	106	191	106	106
80°	158	158	0	158
85°	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 112.5°  
 Vertical Angle: 45°  
 Luminance: 112205 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.6	4.5
10°-20°	615.2	13.0
20°-30°	926.8	19.5
30°-40°	1087.0	22.9
40°-50°	1052.6	22.2
50°-60°	700.3	14.8
60°-70°	147.7	3.1
70°-80°	0.8	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°	1756.6	37.0
0°-40°	2843.7	59.9
0°-60°	4596.6	96.9
0°-90°	4745.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4745.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2268	2268	2268	2268	2268	
5°	2252	2269	2263	2248	2252	214
15°	2162	2212	2198	2149	2162	610
25°	1982	2066	2044	1962	1982	912
35°	1698	1811	1785	1672	1698	1060
45°	1315	1442	1413	1290	1315	1014
55°	743	861	833	720	743	659
65°	98	150	138	106	98	123
75°	0	1	0	0	0	1
85°	0	0	0	0	0	0
90°	0	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°	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8
0.5°	2266.4	2266.4	2267.8	2269.2	2268.7	2269.2	2269.2	2268.7	2267.3	2266.8	2267.3
1°	2265.5	2266.4	2267.8	2269.6	2269.6	2270.1	2270.1	2269.2	2267.8	2266.4	2266.4
1.5°	2264.5	2265.5	2267.8	2269.2	2270.1	2270.6	2270.6	2269.6	2267.8	2266.4	2265.9
2°	2263.1	2264.5	2267.3	2269.2	2270.6	2271.5	2271.5	2269.6	2267.8	2265.5	2265.0
2.5°	2261.7	2263.6	2266.4	2269.2	2270.6	2271.5	2271.5	2269.6	2267.3	2265.0	2263.6
3°	2259.9	2262.7	2265.9	2268.7	2270.6	2271.5	2271.5	2269.6	2266.8	2264.1	2262.2
3.5°	2258.5	2261.3	2265.0	2268.2	2270.1	2271.5	2271.5	2269.6	2265.9	2262.7	2260.3
4°	2256.2	2259.4	2264.1	2267.3	2270.1	2271.0	2271.0	2268.7	2265.0	2261.7	2258.9
4.5°	2254.3	2258.0	2262.7	2266.4	2269.2	2270.6	2270.6	2268.2	2264.1	2260.3	2257.1
5°	2252.0	2256.2	2260.8	2265.5	2268.7	2270.1	2269.6	2267.3	2262.7	2258.5	2254.8
5.5°	2249.7	2253.8	2259.4	2264.5	2267.8	2269.2	2268.7	2265.9	2261.3	2256.6	2252.4
6°	2246.4	2251.5	2258.0	2263.1	2266.4	2268.2	2267.8	2264.5	2259.9	2254.3	2249.7
6.5°	2243.6	2249.2	2255.7	2261.3	2265.5	2266.8	2266.4	2263.1	2258.0	2252.4	2246.9
7°	2240.4	2246.4	2253.4	2259.4	2263.6	2265.5	2265.0	2261.3	2256.2	2249.7	2244.1
7.5°	2237.1	2243.6	2251.0	2257.6	2262.2	2264.1	2263.6	2259.4	2253.4	2247.3	2241.3
8°	2233.9	2240.8	2248.3	2255.2	2260.3	2262.2	2261.7	2257.6	2251.5	2244.5	2238.0
8.5°	2229.7	2237.6	2245.5	2252.9	2258.0	2260.3	2259.9	2255.2	2248.7	2241.3	2234.3
9°	2226.0	2233.9	2242.2	2250.1	2256.2	2258.0	2257.6	2252.9	2245.9	2238.5	2231.1
9.5°	2221.8	2230.1	2239.0	2247.3	2253.4	2255.7	2255.2	2250.1	2243.1	2234.8	2226.9
10°	2217.1	2226.4	2235.7	2244.1	2251.0	2252.9	2252.4	2247.8	2239.9	2231.1	2223.2
10.5°	2212.9	2222.2	2232.0	2240.8	2247.8	2250.1	2249.7	2244.5	2236.6	2227.4	2219.0
11°	2207.8	2218.1	2228.3	2237.6	2245.0	2247.3	2246.4	2241.3	2233.4	2223.6	2214.3
11.5°	2203.2	2213.4	2224.1	2233.4	2241.8	2244.1	2243.1	2237.6	2229.2	2219.5	2210.2
12°	2197.6	2208.8	2219.9	2229.7	2238.0	2240.8	2239.9	2234.3	2225.5	2215.3	2205.1
12.5°	2192.5	2203.7	2215.3	2225.5	2234.3	2237.1	2236.2	2230.6	2221.8	2210.6	2200.4
13°	2186.5	2198.5	2210.6	2221.3	2230.1	2233.4	2232.0	2226.4	2217.1	2206.0	2194.8
13.5°	2180.9	2193.0	2206.0	2216.7	2226.4	2229.2	2228.3	2222.2	2212.5	2200.9	2189.3
14°	2174.9	2187.4	2200.4	2212.0	2221.8	2225.0	2223.6	2217.6	2207.8	2195.8	2183.7
14.5°	2168.3	2181.8	2195.3	2207.4	2217.1	2220.4	2219.0	2212.9	2202.7	2190.2	2178.1
15°	2161.8	2175.3	2189.7	2201.8	2212.5	2215.7	2214.3	2207.8	2197.6	2184.6	2172.1
15.5°	2154.9	2169.3	2184.1	2196.7	2207.4	2210.6	2209.7	2203.2	2192.0	2179.0	2166.0
16°	2148.4	2162.8	2178.1	2191.1	2202.3	2205.5	2204.1	2197.6	2186.5	2173.0	2159.1
16.5°	2140.9	2155.8	2171.6	2185.5	2196.7	2199.9	2198.5	2192.0	2180.9	2166.5	2152.1
17°	2133.5	2148.8	2165.1	2179.0	2191.1	2194.4	2193.0	2186.0	2174.9	2160.0	2145.1
17.5°	2126.1	2141.9	2158.6	2172.5	2185.1	2188.8	2187.4	2180.4	2168.3	2153.0	2137.7
18°	2118.2	2134.9	2151.6	2166.0	2178.6	2182.3	2180.9	2173.5	2161.8	2146.0	2130.2
18.5°	2109.8	2127.0	2144.7	2159.5	2172.5	2175.8	2174.4	2167.0	2154.9	2139.1	2122.8
19°	2101.4	2118.6	2136.8	2152.6	2165.6	2169.3	2167.9	2160.0	2147.9	2131.6	2114.9
19.5°	2093.1	2110.7	2129.3	2145.1	2159.1	2162.8	2160.9	2153.0	2140.5	2124.2	2107.0
20°	2084.3	2102.8	2121.4	2137.7	2151.6	2155.3	2153.9	2146.0	2133.0	2116.3	2099.1
20.5°	2075.0	2094.0	2113.1	2130.2	2144.2	2147.9	2146.5	2138.1	2125.6	2107.9	2089.8
21°	2066.1	2084.7	2105.2	2122.4	2136.3	2140.5	2138.6	2130.7	2117.7	2099.6	2081.5



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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°	2036.4	2057.3	2078.2	2096.3	2112.1	2115.8	2114.0	2105.6	2091.7	2073.1	2053.1
23°	2026.2	2047.5	2068.9	2087.5	2103.3	2107.5	2105.2	2096.8	2082.9	2063.3	2042.9
23.5°	2015.5	2037.3	2059.6	2078.2	2094.5	2098.7	2096.8	2088.0	2074.0	2053.6	2033.1
24°	2004.8	2027.1	2049.4	2068.9	2085.2	2089.4	2087.0	2078.2	2064.3	2043.8	2022.9
24.5°	1993.2	2016.0	2039.2	2058.7	2075.9	2080.1	2077.7	2068.9	2054.5	2033.6	2012.2
25°	1982.0	2004.8	2028.5	2048.5	2065.7	2069.8	2067.5	2059.2	2044.3	2023.4	2001.1
25.5°	1970.4	1994.1	2017.8	2038.3	2055.9	2060.1	2057.8	2048.9	2034.1	2012.2	1989.9
26°	1958.8	1982.5	2007.1	2027.6	2045.7	2049.4	2047.5	2038.3	2023.4	2001.1	1978.8
26.5°	1946.3	1970.9	1995.5	2016.9	2035.0	2039.2	2036.9	2027.6	2012.7	1989.9	1966.7
27°	1934.2	1958.8	1983.9	2005.7	2023.9	2028.5	2025.7	2016.9	2001.1	1978.3	1955.1
27.5°	1921.2	1946.3	1971.8	1994.1	2013.2	2017.3	2015.0	2005.7	1989.9	1966.7	1943.0
28°	1908.2	1933.7	1959.7	1982.0	2001.6	2005.3	2003.4	1994.1	1977.9	1954.2	1930.5
28.5°	1894.7	1921.2	1947.7	1970.4	1989.5	1994.1	1991.8	1982.5	1965.8	1942.1	1917.9
29°	1881.2	1907.7	1934.6	1958.3	1977.4	1981.6	1979.7	1970.4	1954.2	1929.5	1904.9
29.5°	1867.7	1894.7	1921.6	1945.8	1965.8	1969.5	1967.2	1957.9	1941.2	1917.0	1891.4
30°	1853.3	1880.8	1908.6	1932.8	1952.8	1956.9	1954.6	1945.3	1928.1	1903.1	1878.0
30.5°	1838.9	1867.3	1895.2	1919.3	1939.8	1943.9	1942.1	1932.8	1915.1	1889.6	1864.5
31°	1824.5	1852.9	1881.2	1905.8	1926.7	1930.5	1928.6	1919.3	1901.7	1876.1	1850.1
31.5°	1809.2	1838.5	1867.3	1892.4	1913.3	1917.0	1914.7	1905.8	1887.7	1862.2	1836.1
32°	1794.3	1823.6	1852.9	1878.9	1899.3	1903.5	1901.2	1891.9	1873.8	1847.8	1821.3
32.5°	1778.5	1808.7	1838.0	1864.0	1885.4	1889.1	1887.7	1878.4	1859.8	1833.4	1806.4
33°	1763.2	1793.4	1823.6	1849.6	1871.5	1875.2	1873.3	1863.6	1845.4	1818.5	1791.5
33.5°	1747.4	1778.1	1808.3	1834.8	1856.6	1860.3	1858.5	1848.7	1830.6	1803.6	1776.2
34°	1731.1	1762.3	1792.9	1819.9	1841.7	1845.9	1843.6	1834.3	1815.2	1788.3	1760.4
34.5°	1714.4	1746.5	1777.1	1804.1	1826.4	1830.6	1828.7	1819.0	1799.9	1772.5	1744.6
35°	1697.7	1730.2	1760.9	1788.8	1811.1	1814.8	1812.9	1803.6	1784.6	1756.2	1728.4
35.5°	1681.0	1713.5	1745.1	1772.5	1795.3	1799.4	1797.1	1787.8	1768.3	1740.4	1712.1
36°	1663.3	1696.3	1728.4	1756.7	1779.5	1783.2	1781.3	1772.0	1752.1	1724.6	1695.4
36.5°	1646.6	1679.6	1711.6	1740.0	1763.2	1767.4	1765.5	1755.8	1735.8	1707.9	1678.6
37°	1628.5	1662.4	1694.4	1722.8	1746.9	1750.7	1748.8	1739.5	1719.1	1690.7	1661.5
37.5°	1610.3	1644.7	1677.3	1706.1	1729.8	1733.9	1731.6	1722.8	1701.9	1674.0	1644.7
38°	1591.8	1627.1	1659.6	1688.4	1713.0	1716.7	1714.9	1705.1	1685.1	1655.9	1627.1
38.5°	1574.1	1609.0	1642.4	1670.7	1695.8	1699.6	1698.2	1687.9	1667.5	1639.2	1609.0
39°	1556.0	1591.3	1624.3	1653.6	1678.2	1681.9	1680.5	1670.7	1649.4	1621.0	1591.3
39.5°	1536.9	1572.7	1605.7	1635.0	1660.1	1664.2	1662.4	1652.6	1631.7	1602.9	1572.7
40°	1517.9	1553.7	1587.6	1616.4	1641.9	1646.1	1644.3	1635.0	1613.6	1584.3	1554.6
40.5°	1498.8	1535.1	1568.5	1597.8	1623.4	1628.0	1626.1	1615.9	1595.0	1566.2	1536.0
41°	1479.3	1515.6	1549.5	1578.3	1604.8	1609.4	1607.6	1597.3	1576.4	1547.2	1517.0
41.5°	1459.3	1496.1	1530.0	1559.7	1585.3	1590.4	1589.0	1578.3	1556.9	1528.1	1497.9
42°	1439.8	1476.1	1510.5	1539.7	1566.2	1571.3	1569.5	1559.2	1537.9	1508.6	1478.4
42.5°	1419.9	1457.0	1490.5	1519.7	1546.7	1551.8	1550.4	1539.3	1517.9	1489.5	1458.9
43°	1398.9	1436.6	1470.0	1499.3	1526.7	1531.4	1530.4	1519.3	1497.9	1468.6	1438.9
43.5°	1378.5	1415.2	1449.6	1478.4	1505.8	1511.4	1510.0	1498.8	1477.5	1448.2	1418.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1314.9	1351.6	1385.0	1413.8	1442.2	1447.3	1446.8	1434.7	1412.9	1384.1	1354.3
45.5°	1293.5	1329.7	1363.6	1392.0	1420.3	1426.4	1425.4	1412.9	1391.1	1362.2	1332.5
46°	1272.6	1308.8	1342.3	1370.6	1398.9	1405.5	1404.1	1392.0	1369.7	1340.4	1311.6
46.5°	1252.1	1288.4	1321.4	1349.7	1378.0	1385.5	1384.1	1371.1	1347.8	1319.5	1290.2
47°	1232.2	1267.9	1300.9	1328.8	1357.1	1364.6	1363.6	1350.2	1326.9	1298.1	1269.3
47.5°	1212.2	1247.9	1280.5	1308.3	1336.7	1344.1	1343.2	1329.7	1306.5	1277.7	1249.3
48°	1192.2	1227.5	1259.6	1287.4	1316.2	1324.1	1323.2	1309.7	1286.0	1257.2	1229.4
48.5°	1172.7	1207.1	1239.6	1267.0	1295.8	1305.1	1303.2	1289.3	1265.1	1237.3	1209.4
49°	1151.3	1185.2	1216.4	1243.8	1273.0	1282.3	1280.9	1267.0	1242.8	1214.5	1186.6
49.5°	1128.1	1162.0	1192.2	1218.7	1248.9	1257.7	1256.3	1242.4	1218.2	1189.9	1162.9
50°	1101.6	1136.4	1165.7	1190.8	1223.3	1232.2	1231.2	1216.8	1193.1	1164.8	1136.9
50.5°	1072.3	1104.8	1136.4	1162.5	1195.0	1202.9	1200.6	1188.0	1165.2	1135.5	1107.6
51°	1040.3	1072.3	1103.9	1130.9	1163.9	1171.3	1169.4	1157.8	1134.6	1103.9	1075.6
51.5°	1005.9	1037.9	1069.1	1097.4	1130.9	1137.8	1136.9	1123.9	1102.5	1071.4	1041.7
52°	969.2	1002.6	1033.3	1061.2	1095.1	1103.9	1103.0	1089.5	1067.2	1036.6	1007.7
52.5°	933.4	966.4	996.1	1021.7	1058.4	1069.5	1068.6	1053.7	1029.6	1000.3	972.4
53°	896.2	928.3	957.6	981.7	1020.3	1032.4	1032.4	1017.0	991.0	963.1	936.2
53.5°	858.6	890.2	918.5	941.3	980.8	996.1	996.6	978.5	951.1	925.0	899.0
54°	820.0	851.6	877.7	900.0	940.8	958.5	959.0	939.9	911.6	886.5	860.5
54.5°	781.9	813.1	836.8	858.6	900.4	919.9	920.9	900.0	871.1	845.6	822.8
55°	742.9	773.6	795.4	816.8	860.9	882.3	883.2	860.5	832.6	806.6	784.7
55.5°	703.9	733.2	754.1	775.4	820.5	841.4	843.7	819.6	792.2	765.7	745.2
56°	665.8	694.1	712.3	733.2	779.2	801.5	803.8	780.1	753.1	724.8	707.1
56.5°	627.7	654.6	670.9	694.1	738.7	761.0	763.4	739.7	712.3	684.8	668.1
57°	588.7	615.1	629.6	653.2	698.8	720.6	723.4	700.6	674.2	644.4	629.6
57.5°	551.5	575.7	589.6	613.3	659.3	679.7	683.0	661.1	634.7	605.9	591.0
58°	514.8	537.1	549.6	574.7	619.8	639.3	642.6	622.1	597.0	566.4	552.9
58.5°	479.0	498.5	510.1	536.6	581.2	599.4	602.6	584.0	559.9	528.7	515.7
59°	443.7	460.9	473.0	499.5	543.1	559.4	562.6	546.8	522.7	491.6	479.5
59.5°	408.4	422.8	436.3	462.8	506.0	520.8	522.2	509.2	485.5	455.8	444.2
60°	375.4	387.0	401.4	426.5	469.3	482.7	483.2	472.5	451.1	422.3	409.3
60.5°	342.0	351.7	366.1	391.2	434.9	446.5	447.4	437.7	416.8	388.9	374.5
61°	309.4	317.8	332.7	357.3	400.5	410.7	411.2	402.8	382.8	355.4	340.1
61.5°	277.8	285.3	301.1	324.8	366.1	374.5	374.9	368.0	348.5	322.0	305.3
62°	247.6	254.6	269.5	292.7	331.7	338.7	338.7	333.1	314.1	291.3	275.1
62.5°	218.8	225.3	240.2	262.0	297.4	302.9	302.5	298.3	282.5	261.1	244.9
63°	191.4	197.0	211.4	233.7	264.8	269.5	269.0	265.8	252.3	232.8	216.5
63.5°	164.5	171.0	184.9	205.4	234.2	238.3	237.9	235.1	223.5	205.4	190.0
64°	142.2	150.1	159.4	178.9	204.9	208.1	208.1	205.4	194.2	179.3	165.4
64.5°	119.9	129.6	138.9	155.6	177.0	179.8	179.3	176.6	165.9	155.2	141.7
65°	97.6	108.7	118.0	133.8	150.5	152.9	152.9	150.1	138.0	131.5	120.3
65.5°	75.7	88.3	97.1	111.5	125.0	128.2	128.2	124.5	111.5	109.6	100.4
66°	53.4	67.4	76.7	89.7	101.8	104.5	104.5	100.8	86.9	89.2	81.8





TEST NUMBER: P776661

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	17.2	28.8	33.5	36.7	53.0	54.8	54.8	52.0	39.0	46.9	43.2
68°	13.0	20.0	23.2	24.6	39.0	40.4	40.4	38.6	23.2	35.3	30.2
68.5°	9.3	16.3	14.4	15.3	25.1	26.0	26.0	24.6	7.4	23.2	17.7
69°	5.1	12.5	11.2	11.6	11.6	12.1	11.6	11.6	2.3	11.2	10.2
69.5°	1.4	8.8	7.9	8.4	5.6	5.6	5.6	5.6	1.4	5.6	5.1
70°	1.4	5.1	4.6	4.6	2.3	2.3	2.3	2.3	1.4	2.3	2.3
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°	0.9	0.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
71.5°	0.9	0.9	0.9	0.9	1.4	1.4	1.4	0.9	0.9	0.9	0.9
72°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
73°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
73.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
74°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
74.5°	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.5	0.9	0.9
75°	0.5	0.5	0.5	0.5	0.9	0.9	0.9	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: P776661

CATALOG NUMBER: HCDJBL4050CSD-HCD61TRMB-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

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



TEST NUMBER: P776661

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2267.8	2267.8	2267.8	2267.8	2267.8	2267.8
0.5°	2267.3	2266.8	2266.8	2267.3	2266.8	2266.4
1°	2266.4	2265.5	2265.5	2265.9	2265.9	2265.5
1.5°	2265.5	2264.1	2263.6	2264.5	2264.5	2264.5
2°	2264.1	2262.2	2261.7	2262.7	2262.7	2263.1
2.5°	2262.7	2259.9	2259.9	2260.3	2260.8	2261.7
3°	2260.8	2258.0	2257.6	2258.5	2258.9	2259.9
3.5°	2258.9	2255.7	2255.2	2256.2	2257.1	2258.5
4°	2256.6	2253.4	2252.4	2253.4	2254.8	2256.2
4.5°	2254.3	2250.6	2249.7	2250.6	2252.0	2254.3
5°	2252.0	2247.8	2246.9	2247.8	2249.2	2252.0
5.5°	2249.2	2244.5	2243.6	2244.5	2246.4	2249.7
6°	2246.4	2241.3	2240.4	2241.3	2243.1	2246.4
6.5°	2243.1	2238.0	2236.6	2237.6	2240.4	2243.6
7°	2239.9	2234.3	2232.9	2234.3	2236.6	2240.4
7.5°	2236.6	2230.1	2229.2	2230.1	2232.9	2237.1
8°	2232.9	2226.4	2224.6	2226.0	2229.2	2233.9
8.5°	2228.7	2222.2	2220.4	2221.8	2225.0	2229.7
9°	2225.0	2217.6	2215.7	2217.1	2220.4	2226.0
9.5°	2220.4	2213.4	2211.6	2212.5	2216.2	2221.8
10°	2216.2	2208.3	2206.4	2207.8	2211.6	2217.1
10.5°	2211.6	2203.2	2201.3	2202.7	2206.4	2212.9
11°	2206.9	2198.1	2195.8	2197.6	2201.3	2207.8
11.5°	2201.8	2193.0	2190.2	2191.6	2196.2	2203.2
12°	2196.7	2186.9	2184.6	2186.0	2190.6	2197.6
12.5°	2191.1	2181.4	2178.6	2180.0	2185.1	2192.5
13°	2185.5	2175.3	2172.5	2173.9	2179.0	2186.5
13.5°	2179.5	2169.3	2166.0	2167.4	2172.5	2180.9
14°	2173.9	2162.8	2159.5	2160.9	2166.5	2174.9
14.5°	2167.4	2155.8	2153.0	2154.4	2159.5	2168.3
15°	2160.9	2149.3	2145.6	2147.4	2153.0	2161.8
15.5°	2154.4	2141.9	2138.1	2140.0	2145.6	2154.9
16°	2147.0	2134.9	2130.7	2132.6	2138.6	2148.4
16.5°	2140.5	2127.0	2123.3	2125.1	2131.2	2140.9
17°	2133.0	2119.1	2115.4	2116.8	2123.3	2133.5
17.5°	2125.1	2111.2	2107.0	2108.9	2115.4	2126.1
18°	2117.7	2102.8	2098.7	2100.5	2107.0	2118.2
18.5°	2109.3	2094.5	2089.8	2091.7	2098.7	2109.8
19°	2101.0	2086.1	2081.0	2082.9	2089.8	2101.4
19.5°	2092.6	2077.3	2071.7	2073.6	2081.5	2093.1
20°	2083.8	2068.0	2062.4	2064.3	2072.2	2084.3
20.5°	2075.0	2058.2	2052.7	2054.5	2062.4	2075.0
21°	2065.7	2048.5	2042.9	2044.3	2052.7	2066.1



TEST NUMBER: P776661

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2035.9	2017.8	2011.3	2013.2	2022.0	2036.4
23°	2026.2	2007.1	2000.2	2002.0	2011.3	2026.2
23.5°	2015.5	1996.4	1989.5	1990.9	2000.6	2015.5
24°	2004.8	1985.3	1977.9	1979.2	1989.0	2004.8
24.5°	1993.7	1973.2	1966.2	1967.6	1977.4	1993.2
25°	1982.5	1961.6	1954.2	1955.6	1965.8	1982.0
25.5°	1970.9	1950.0	1941.6	1943.5	1953.7	1970.4
26°	1959.3	1937.4	1929.1	1930.9	1941.6	1958.8
26.5°	1946.7	1924.4	1916.1	1917.9	1928.6	1946.3
27°	1934.2	1911.4	1903.5	1904.9	1916.1	1934.2
27.5°	1922.1	1898.9	1890.5	1891.4	1903.1	1921.2
28°	1909.1	1885.4	1876.6	1878.0	1889.6	1908.2
28.5°	1895.6	1871.5	1862.6	1864.0	1875.6	1894.7
29°	1882.6	1858.0	1848.7	1850.6	1862.2	1881.2
29.5°	1869.1	1843.6	1834.3	1835.7	1848.2	1867.7
30°	1854.7	1829.6	1819.9	1821.3	1833.4	1853.3
30.5°	1840.8	1814.8	1804.6	1805.9	1819.0	1838.9
31°	1826.4	1799.4	1789.7	1791.1	1803.6	1824.5
31.5°	1811.5	1784.6	1773.9	1775.3	1788.3	1809.2
32°	1796.2	1769.2	1758.6	1760.0	1773.0	1794.3
32.5°	1781.3	1753.4	1742.8	1743.7	1757.6	1778.5
33°	1765.5	1737.7	1726.5	1727.9	1741.4	1763.2
33.5°	1750.2	1721.9	1710.2	1712.1	1725.1	1747.4
34°	1733.9	1705.6	1694.0	1694.9	1708.8	1731.1
34.5°	1718.1	1688.4	1676.8	1678.2	1692.1	1714.4
35°	1700.9	1671.7	1659.6	1661.5	1674.9	1697.7
35.5°	1684.7	1654.5	1642.9	1644.3	1657.7	1681.0
36°	1668.0	1637.8	1625.7	1627.1	1641.0	1663.3
36.5°	1651.2	1620.1	1608.5	1609.4	1623.8	1646.6
37°	1633.6	1602.4	1590.8	1591.8	1605.7	1628.5
37.5°	1615.9	1584.8	1572.2	1574.1	1588.0	1610.3
38°	1598.3	1566.7	1554.6	1556.0	1569.5	1591.8
38.5°	1579.7	1548.6	1536.5	1537.9	1551.3	1574.1
39°	1562.0	1530.0	1518.4	1519.3	1533.2	1556.0
39.5°	1543.4	1511.8	1499.8	1501.2	1514.6	1536.9
40°	1524.9	1492.3	1481.2	1482.1	1495.1	1517.9
40.5°	1506.3	1473.8	1462.1	1463.5	1476.1	1498.8
41°	1486.8	1454.2	1443.1	1444.5	1457.0	1479.3
41.5°	1467.7	1434.7	1423.1	1425.0	1437.5	1459.3
42°	1448.2	1415.2	1404.1	1405.5	1418.0	1439.8
42.5°	1428.7	1395.2	1384.5	1385.5	1398.0	1419.9
43°	1408.7	1374.8	1363.6	1365.5	1377.1	1398.9
43.5°	1387.8	1353.9	1343.2	1344.6	1356.2	1378.5

TEST NUMBER: P776661

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1324.6	1290.2	1280.5	1281.4	1292.6	1314.9
45.5°	1303.2	1269.3	1259.1	1260.5	1271.2	1293.5
46°	1282.3	1248.4	1238.2	1239.6	1250.7	1272.6
46.5°	1261.0	1228.4	1218.2	1219.1	1230.3	1252.1
47°	1241.0	1208.5	1198.7	1199.6	1209.9	1232.2
47.5°	1221.0	1188.5	1178.7	1180.1	1189.9	1212.2
48°	1201.5	1169.0	1158.7	1160.6	1170.4	1192.2
48.5°	1181.5	1149.0	1139.2	1140.2	1150.4	1172.7
49°	1160.1	1127.2	1117.4	1118.8	1129.5	1151.3
49.5°	1136.9	1103.5	1094.6	1096.0	1106.2	1128.1
50°	1111.4	1076.0	1067.7	1070.5	1081.2	1101.6
50.5°	1081.2	1045.4	1037.9	1041.2	1051.0	1072.3
51°	1049.1	1012.4	1005.4	1008.2	1019.4	1040.3
51.5°	1015.2	978.9	971.0	973.4	985.9	1005.9
52°	981.3	943.2	935.3	937.6	949.7	969.2
52.5°	945.5	906.9	899.0	900.4	912.0	933.4
53°	909.7	869.3	860.5	861.9	874.4	896.2
53.5°	872.5	832.6	821.9	823.8	836.3	858.6
54°	836.8	795.4	783.3	784.7	797.3	820.0
54.5°	798.7	757.8	745.7	746.2	759.2	781.9
55°	762.0	720.1	706.7	707.1	720.1	742.9
55.5°	723.4	683.9	668.6	667.6	681.6	703.9
56°	686.7	647.2	630.5	628.2	644.0	665.8
56.5°	648.6	611.0	593.3	590.5	606.8	627.7
57°	611.4	573.8	556.1	552.4	569.2	588.7
57.5°	574.7	538.5	519.4	515.7	532.4	551.5
58°	538.5	503.2	484.1	480.4	496.7	514.8
58.5°	502.2	468.8	449.3	444.6	460.4	479.0
59°	466.5	434.4	415.4	410.7	427.0	443.7
59.5°	432.6	400.5	382.8	377.7	393.5	408.4
60°	398.2	368.0	349.9	346.1	360.5	375.4
60.5°	364.3	335.9	319.2	315.5	328.9	342.0
61°	330.3	304.3	289.5	286.2	298.3	309.4
61.5°	299.2	275.1	261.6	258.3	268.5	277.8
62°	268.5	245.8	234.6	232.8	240.2	247.6
62.5°	238.8	217.4	209.1	207.2	212.8	218.8
63°	210.0	191.4	184.9	183.5	186.3	191.4
63.5°	183.1	166.3	161.2	160.3	161.7	164.5
64°	157.5	145.9	142.2	141.2	141.7	142.2
64.5°	133.8	125.4	123.1	122.7	121.7	119.9
65°	112.0	105.5	104.1	103.6	101.8	97.6
65.5°	92.0	85.0	85.0	85.0	81.8	75.7
66°	72.9	65.0	68.8	69.7	65.0	53.4



TEST NUMBER: P776661

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	38.1	26.9	30.7	31.6	27.4	17.2
68°	26.5	18.6	21.4	21.8	19.0	13.0
68.5°	15.3	14.4	13.5	13.9	14.4	9.3
69°	9.3	10.2	10.2	10.7	10.2	5.1
69.5°	4.6	5.6	7.4	7.4	5.6	1.4
70°	2.3	1.4	4.2	4.2	1.4	1.4
70.5°	1.4	1.4	1.4	1.4	1.4	1.4
71°	0.9	0.9	0.9	0.9	0.9	0.9
71.5°	0.9	0.9	0.9	0.9	0.9	0.9
72°	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9
73°	0.9	0.9	0.9	0.9	0.9	0.9
73.5°	0.9	0.9	0.9	0.9	0.9	0.9
74°	0.9	0.9	0.9	0.9	0.9	0.9
74.5°	0.9	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: P776661

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRMB-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





21.5°	2055.9	2075.9	2096.3	2114.0	2128.9	2132.6	2130.7	2122.8	2109.3	2090.8	2072.2
22°	2046.6	2066.6	2087.5	2105.6	2120.5	2124.7	2122.4	2114.0	2101.0	2081.9	2062.9



44°	1357.1	1393.8	1427.3	1457.5	1484.4	1490.0	1489.1	1477.5	1455.6	1427.3	1397.1
44.5°	1335.8	1372.9	1406.4	1435.7	1463.5	1470.0	1467.2	1456.6	1434.3	1405.9	1375.7



66.5°	38.6	52.5	60.4	67.8	80.8	83.6	83.6	79.4	71.1	71.1	68.8
67°	26.5	39.5	46.0	51.1	66.9	69.2	69.2	65.5	55.3	59.0	56.2



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°	2055.9	2038.7	2032.7	2034.1	2042.9	2055.9
22°	2046.2	2028.5	2022.5	2023.9	2032.7	2046.6



44°	1366.9	1332.5	1322.3	1323.2	1335.3	1357.1
44.5°	1346.0	1311.6	1301.4	1302.3	1313.9	1335.8



66.5°	61.3	49.7	54.8	54.8	50.6	38.6
67°	49.7	37.2	41.8	42.3	38.1	26.5

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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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(END OF REPORT)