

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: P776357

Luminaire Tested: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776357  
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: HCDJBS3040CSD-HCD61TRMW-4000lm-3500K  
Description: 6 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

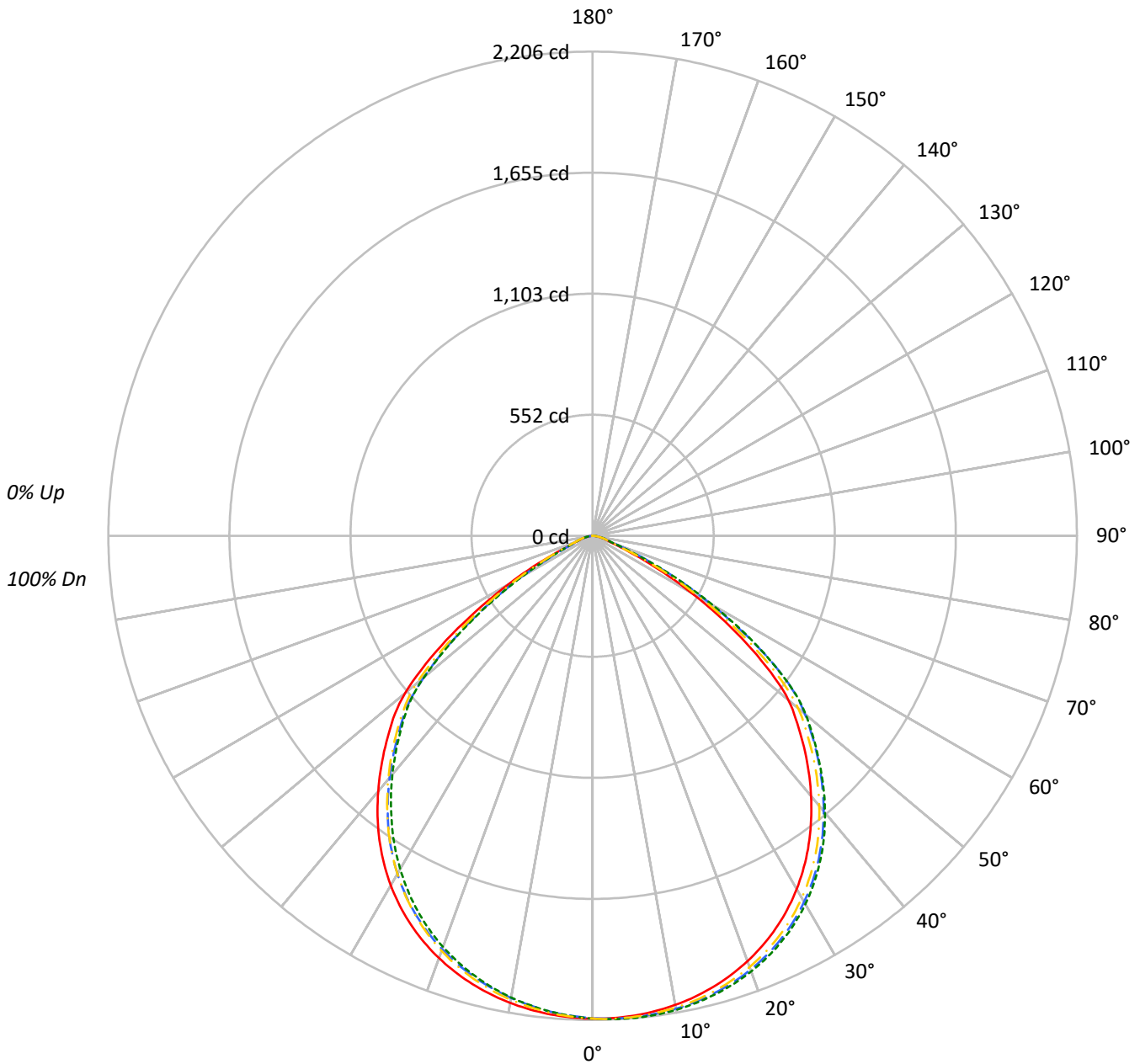
Lumens per Lamp: N/A  
Luminaire Lumens: 4853.1 lumens  
Efficiency: N/A  
Efficacy: 126.1 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.24 / 1.32  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 38.5  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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°	120555	120555	120555	120555
5°	120735	121346	120471	119794
10°	120823	122086	120294	118897
15°	120727	122736	120006	117793
20°	120317	123217	119436	116263
25°	119390	123310	118356	114079
30°	117651	122677	116417	110985
35°	114833	120977	113294	106776
40°	110793	117849	108747	101526
45°	105546	113314	102995	95382
50°	99297	108184	94965	85473
55°	81890	94228	74597	63845
60°	56816	69315	48713	40216
65°	30769	40925	23245	20573
70°	14650	17391	12807	12743
75°	11777	13302	9764	10273
80°	8903	10923	6661	7766
85°	5472	8743	2768	4529

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 116485 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	208.3	4.3
10°-20°	598.0	12.3
20°-30°	903.7	18.6
30°-40°	1062.8	21.9
40°-50°	1035.0	21.3
50°-60°	730.1	15.0
60°-70°	244.6	5.0
70°-80°	59.0	1.2
80°-90°	11.7	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°	1709.9	35.2
0°-40°	2772.7	57.1
0°-60°	4537.7	93.5
0°-90°	4853.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4853.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2199	2199	2199	2199	2199	
5°	2194	2205	2189	2177	2194	209
15°	2127	2163	2114	2076	2127	600
25°	1974	2039	1957	1886	1974	909
35°	1716	1808	1693	1596	1716	1071
45°	1361	1462	1328	1230	1361	1049
55°	857	986	780	668	857	759
65°	237	316	179	159	237	255
75°	56	63	46	48	56	60
85°	9	14	4	7	9	12
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°	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1
0.5°	2200.3	2199.9	2198.7	2196.7	2201.1	2201.5	2201.1	2201.1	2199.9	2198.3	2196.3
1°	2200.3	2200.3	2199.9	2198.3	2202.3	2202.3	2201.9	2201.1	2199.5	2197.5	2194.8
1.5°	2200.3	2200.7	2200.3	2199.5	2203.1	2203.1	2202.3	2200.7	2198.3	2195.9	2193.2
2°	2199.9	2200.7	2201.1	2200.7	2203.9	2203.5	2202.3	2200.3	2197.5	2194.8	2191.2
2.5°	2199.1	2200.7	2201.5	2201.5	2204.7	2203.5	2202.3	2199.9	2196.7	2193.2	2189.6
3°	2198.7	2200.7	2201.9	2202.3	2204.7	2203.9	2202.3	2199.1	2195.2	2191.6	2187.2
3.5°	2197.5	2200.7	2202.3	2203.1	2205.1	2203.9	2201.9	2198.3	2194.0	2189.6	2184.8
4°	2196.7	2199.9	2201.9	2203.5	2205.1	2203.9	2201.5	2197.5	2192.8	2187.6	2182.4
4.5°	2195.2	2199.1	2201.9	2203.9	2205.5	2203.5	2201.1	2195.9	2190.8	2185.2	2179.3
5°	2194.0	2198.3	2201.5	2203.9	2205.1	2203.1	2199.9	2194.8	2189.2	2182.8	2176.9
5.5°	2192.4	2197.5	2200.7	2203.5	2204.7	2202.3	2199.1	2193.2	2187.2	2180.4	2173.7
6°	2190.8	2195.9	2200.3	2203.5	2203.9	2201.5	2198.3	2191.6	2184.8	2177.7	2170.5
6.5°	2188.8	2194.8	2199.1	2203.1	2203.1	2200.7	2196.7	2189.6	2182.4	2174.5	2166.9
7°	2186.8	2193.2	2197.9	2202.3	2202.3	2199.1	2195.5	2187.6	2180.0	2171.7	2163.4
7.5°	2184.4	2191.6	2196.7	2201.5	2201.1	2197.9	2194.0	2185.2	2177.3	2168.5	2159.4
8°	2182.0	2189.6	2195.2	2200.7	2199.9	2196.3	2192.0	2182.8	2174.5	2164.9	2155.8
8.5°	2179.3	2187.6	2194.0	2199.9	2198.3	2194.8	2189.6	2180.4	2171.3	2161.4	2151.4
9°	2176.5	2185.2	2192.0	2198.3	2196.7	2192.8	2187.6	2177.7	2168.1	2157.4	2147.5
9.5°	2173.3	2182.8	2190.0	2196.7	2195.2	2190.8	2185.6	2174.9	2164.6	2153.4	2142.7
10°	2170.5	2180.0	2188.0	2195.2	2193.2	2188.4	2182.8	2171.3	2161.0	2149.5	2138.3
10.5°	2166.9	2177.3	2185.6	2193.6	2190.8	2185.6	2180.0	2168.1	2157.0	2145.1	2133.2
11°	2163.4	2174.1	2182.8	2191.2	2188.4	2183.2	2177.3	2164.6	2153.0	2140.7	2128.4
11.5°	2159.4	2170.9	2180.4	2189.2	2185.6	2180.0	2174.1	2161.0	2149.1	2135.9	2123.2
12°	2155.4	2167.3	2177.3	2186.8	2182.8	2177.3	2170.9	2157.0	2144.7	2131.2	2118.1
12.5°	2151.0	2163.8	2174.1	2184.0	2180.0	2174.1	2167.3	2153.0	2139.9	2126.0	2112.5
13°	2146.7	2159.8	2170.9	2181.2	2176.9	2170.9	2163.8	2148.7	2135.1	2120.8	2106.5
13.5°	2141.9	2156.2	2167.3	2178.5	2173.7	2166.9	2159.8	2144.3	2130.4	2115.3	2100.6
14°	2137.1	2151.8	2163.8	2175.3	2170.1	2163.4	2155.8	2139.5	2125.2	2109.7	2094.6
14.5°	2132.4	2147.5	2159.8	2172.1	2166.1	2159.4	2151.4	2134.7	2119.6	2103.8	2087.9
15°	2127.2	2142.7	2155.8	2168.1	2162.6	2155.4	2147.1	2129.6	2114.5	2098.2	2081.5
15.5°	2121.6	2137.9	2151.4	2164.6	2158.6	2150.6	2142.3	2124.4	2108.5	2091.8	2074.7
16°	2116.1	2132.8	2147.1	2160.6	2154.2	2146.3	2137.1	2118.9	2103.0	2085.5	2068.0
16.5°	2110.1	2127.6	2141.9	2157.0	2149.5	2141.5	2132.4	2113.3	2096.6	2078.7	2060.8
17°	2103.8	2122.0	2137.5	2152.2	2145.1	2136.3	2127.2	2107.3	2090.2	2072.0	2053.3
17.5°	2097.4	2116.5	2132.4	2147.9	2139.9	2131.2	2121.6	2101.0	2083.5	2064.8	2045.7
18°	2091.0	2110.5	2127.2	2143.1	2134.7	2126.0	2115.7	2094.6	2076.7	2057.7	2038.2
18.5°	2084.3	2104.5	2121.6	2137.9	2129.2	2120.0	2109.7	2088.3	2070.0	2050.1	2029.8
19°	2077.1	2098.2	2115.7	2132.8	2124.0	2114.5	2103.8	2081.5	2062.4	2042.6	2021.9
19.5°	2070.0	2091.4	2109.7	2127.6	2118.1	2108.1	2097.4	2074.3	2054.9	2034.6	2013.5
20°	2062.4	2084.7	2103.4	2122.0	2112.1	2101.8	2091.0	2067.2	2047.3	2026.3	2004.8
20.5°	2054.9	2077.9	2097.4	2116.1	2105.7	2095.0	2083.9	2059.6	2039.4	2017.9	1995.7
21°	2046.9	2070.4	2090.6	2110.1	2099.4	2088.3	2076.7	2051.7	2031.4	2009.6	1986.9

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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°	2021.1	2047.3	2069.2	2091.0	2078.3	2066.4	2054.1	2027.5	2005.2	1982.2	1958.3
23°	2012.4	2039.4	2061.6	2083.9	2070.8	2058.8	2046.1	2018.7	1995.7	1972.6	1947.6
23.5°	2003.2	2030.6	2053.7	2076.7	2063.2	2050.9	2037.8	2009.6	1986.5	1962.7	1937.6
24°	1993.7	2021.9	2045.3	2069.6	2055.3	2042.6	2029.0	2000.4	1976.6	1952.7	1926.9
24.5°	1984.1	2012.8	2037.0	2061.6	2046.9	2033.8	2020.3	1990.9	1966.7	1942.0	1916.2
25°	1973.8	2003.2	2028.2	2053.7	2038.6	2025.1	2011.6	1981.4	1956.7	1931.7	1905.1
25.5°	1963.5	1993.7	2019.5	2045.3	2029.8	2015.9	2002.0	1971.0	1946.0	1921.0	1893.1
26°	1952.7	1983.7	2010.0	2037.0	2020.7	2006.8	1992.5	1960.7	1935.3	1909.8	1881.6
26.5°	1942.4	1973.8	2000.8	2028.2	2011.6	1996.9	1982.9	1950.4	1924.1	1897.9	1869.7
27°	1930.9	1963.1	1990.9	2019.1	2002.0	1987.3	1972.6	1939.2	1913.0	1886.8	1857.4
27.5°	1919.8	1952.7	1981.0	2010.0	1992.1	1977.0	1961.9	1928.1	1901.5	1874.9	1845.1
28°	1907.8	1942.0	1971.0	2000.4	1981.8	1966.3	1951.6	1917.0	1889.6	1862.1	1831.9
28.5°	1896.3	1930.5	1960.3	1990.9	1971.4	1955.5	1940.4	1905.5	1877.2	1849.8	1819.2
29°	1884.0	1919.0	1949.6	1980.6	1960.7	1944.4	1928.9	1893.5	1864.9	1836.7	1805.7
29.5°	1871.3	1907.4	1938.0	1970.2	1949.6	1932.9	1917.4	1881.2	1851.8	1823.6	1792.2
30°	1858.6	1895.1	1926.9	1959.5	1938.0	1921.7	1905.9	1868.5	1839.1	1810.1	1777.9
30.5°	1845.8	1882.8	1915.4	1948.4	1926.5	1909.4	1893.1	1855.8	1825.6	1796.2	1763.6
31°	1832.3	1870.5	1903.1	1937.6	1914.6	1897.1	1880.8	1842.7	1812.1	1782.3	1749.3
31.5°	1818.8	1857.4	1890.8	1925.7	1902.3	1884.4	1868.5	1829.2	1798.2	1768.0	1734.2
32°	1804.9	1843.9	1878.0	1913.8	1890.0	1871.7	1855.0	1815.3	1783.9	1753.3	1719.1
32.5°	1790.6	1830.7	1865.3	1901.5	1876.8	1858.6	1841.5	1801.3	1769.6	1738.2	1703.2
33°	1776.3	1816.8	1851.8	1889.2	1863.7	1844.7	1828.0	1787.4	1754.8	1723.1	1687.7
33.5°	1761.6	1802.5	1838.3	1876.1	1850.2	1830.7	1814.1	1772.7	1739.4	1707.2	1672.2
34°	1746.5	1788.6	1824.8	1863.3	1836.7	1816.8	1799.8	1757.6	1723.9	1691.3	1655.5
34.5°	1731.8	1773.9	1810.5	1849.8	1822.4	1802.5	1785.0	1742.5	1708.4	1675.4	1639.2
35°	1715.9	1759.2	1796.2	1835.9	1807.7	1787.8	1770.3	1727.4	1692.9	1659.1	1622.1
35.5°	1700.4	1743.7	1781.5	1822.0	1793.0	1773.1	1754.8	1711.5	1676.6	1642.0	1605.0
36°	1683.7	1728.2	1766.4	1807.7	1778.3	1757.2	1739.7	1695.6	1659.9	1625.3	1587.2
36.5°	1667.8	1712.7	1751.3	1793.0	1762.8	1741.3	1723.9	1679.3	1642.8	1607.8	1569.7
37°	1651.9	1696.8	1735.4	1778.3	1746.9	1725.4	1707.6	1663.1	1626.1	1590.3	1551.8
37.5°	1634.8	1680.9	1720.3	1762.8	1730.6	1709.1	1691.3	1646.0	1609.0	1572.8	1533.9
38°	1617.8	1664.2	1704.0	1747.3	1714.7	1692.9	1675.0	1628.9	1591.9	1555.0	1515.2
38.5°	1600.7	1647.6	1687.7	1731.4	1697.6	1676.2	1657.9	1611.8	1573.6	1536.7	1496.2
39°	1583.2	1630.5	1671.0	1715.5	1681.3	1658.7	1640.8	1593.9	1555.8	1518.0	1477.5
39.5°	1566.1	1613.4	1654.3	1698.8	1663.8	1641.6	1623.3	1576.0	1537.9	1498.9	1458.4
40°	1548.2	1596.3	1637.2	1682.1	1646.8	1624.1	1605.8	1558.5	1519.6	1480.3	1438.9
40.5°	1529.9	1578.4	1620.1	1665.0	1628.9	1606.2	1587.9	1540.3	1501.3	1461.2	1420.3
41°	1512.0	1560.5	1602.3	1648.0	1611.4	1587.9	1570.1	1522.0	1482.2	1441.7	1400.0
41.5°	1493.8	1542.6	1584.4	1630.1	1593.5	1570.1	1551.4	1502.9	1463.6	1422.6	1380.5
42°	1475.1	1524.8	1566.5	1612.6	1575.2	1551.8	1533.1	1484.2	1444.5	1403.2	1360.6
42.5°	1456.4	1506.5	1548.6	1594.7	1556.6	1533.1	1515.2	1465.6	1425.4	1383.7	1340.8
43°	1437.7	1487.8	1529.9	1576.8	1537.9	1514.4	1496.2	1446.5	1406.3	1363.4	1320.1
43.5°	1419.1	1469.1	1511.6	1558.1	1519.2	1495.8	1476.7	1427.4	1386.9	1343.6	1300.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1361.4	1412.3	1455.2	1502.5	1461.6	1437.7	1419.1	1368.6	1328.5	1284.3	1241.4
45.5°	1342.0	1392.8	1436.5	1483.4	1442.1	1418.3	1399.6	1349.1	1309.0	1265.3	1222.4
46°	1322.5	1373.4	1417.1	1464.4	1423.0	1398.4	1379.7	1329.6	1289.1	1245.8	1203.7
46.5°	1302.6	1353.9	1397.6	1444.9	1403.2	1378.9	1359.8	1309.8	1269.6	1226.3	1184.6
47°	1283.6	1334.8	1378.1	1425.4	1383.3	1359.8	1340.8	1290.7	1251.0	1207.7	1164.3
47.5°	1264.5	1315.3	1359.1	1405.9	1364.2	1340.8	1321.7	1271.6	1231.9	1187.4	1142.9
48°	1245.4	1295.9	1339.2	1386.1	1345.5	1321.3	1302.6	1252.6	1211.2	1165.5	1119.4
48.5°	1225.5	1276.8	1320.1	1367.0	1326.1	1303.0	1283.2	1232.3	1189.4	1141.7	1092.8
49°	1206.9	1257.7	1300.6	1347.5	1307.0	1283.2	1264.1	1209.6	1166.3	1115.5	1064.6
49.5°	1185.8	1237.9	1282.0	1327.7	1287.9	1264.1	1243.8	1186.6	1140.9	1087.2	1034.0
50°	1164.3	1218.0	1262.5	1308.6	1268.5	1242.6	1221.6	1162.0	1113.5	1057.4	1003.4
50.5°	1140.9	1196.1	1242.2	1289.5	1247.0	1220.4	1198.5	1135.7	1084.9	1028.0	972.8
51°	1114.3	1172.7	1220.4	1270.0	1224.3	1195.7	1173.5	1107.5	1055.5	996.6	940.6
51.5°	1084.5	1146.5	1196.9	1249.4	1200.5	1167.5	1145.7	1076.9	1023.3	964.8	908.4
52°	1054.3	1118.6	1172.3	1227.1	1173.5	1138.9	1115.9	1044.3	990.3	932.3	875.4
52.5°	1022.9	1088.8	1144.9	1203.7	1144.1	1109.9	1086.4	1010.9	956.9	899.3	842.9
53°	990.7	1057.4	1116.3	1178.6	1114.7	1078.9	1054.3	976.8	922.7	864.7	809.9
53.5°	957.3	1024.9	1085.3	1151.6	1083.3	1047.5	1022.1	941.4	888.2	830.5	776.9
54°	924.3	992.7	1052.7	1122.2	1051.5	1015.7	988.7	906.4	852.4	796.8	744.3
54.5°	890.5	958.9	1018.1	1090.8	1018.5	983.9	954.9	871.9	817.0	762.6	710.9
55°	856.8	924.7	983.5	1057.4	985.9	950.9	919.9	835.3	780.5	727.2	677.1
55.5°	822.6	888.9	948.2	1023.3	952.1	917.2	885.4	800.3	744.7	693.0	644.6
56°	789.2	853.6	912.0	987.9	918.0	882.6	850.4	764.6	708.5	658.9	611.6
56.5°	754.2	817.8	875.0	952.1	883.0	847.6	815.0	730.4	673.2	624.7	579.0
57°	720.5	781.3	837.7	916.0	847.6	812.7	779.3	695.8	638.6	591.3	547.2
57.5°	686.3	745.5	801.5	879.4	811.5	777.7	744.3	662.0	604.4	557.9	516.2
58°	651.7	708.9	765.4	843.6	776.1	741.9	709.3	627.9	570.6	524.9	485.2
58.5°	617.9	672.4	728.4	807.5	739.9	705.4	674.8	594.1	537.3	493.2	454.6
59°	584.6	637.4	692.2	771.7	703.8	669.2	639.8	560.3	505.5	461.0	425.2
59.5°	551.6	602.4	657.3	736.8	668.0	633.0	605.6	528.5	474.5	430.4	397.0
60°	518.2	567.9	623.1	701.4	632.2	597.7	571.8	495.9	444.3	400.2	370.0
60.5°	485.6	534.5	588.9	666.8	597.3	562.3	538.5	464.9	414.9	373.5	342.9
61°	455.0	501.5	554.0	631.8	563.1	527.7	505.9	433.5	385.9	346.9	315.9
61.5°	423.6	469.3	521.4	599.3	529.7	493.9	473.7	404.1	358.8	320.7	288.9
62°	394.2	437.9	489.6	564.7	496.3	460.6	441.5	376.7	331.8	294.1	261.9
62.5°	365.6	407.7	458.6	532.1	463.3	427.6	410.1	348.9	304.4	267.4	238.8
63°	338.2	378.7	428.0	499.9	431.6	396.6	381.9	321.5	277.4	244.8	217.0
63.5°	311.2	350.1	397.8	468.1	400.6	367.6	353.3	294.1	250.0	223.7	196.7
64°	285.7	323.1	369.2	436.7	372.0	339.0	324.7	266.6	224.9	203.5	178.0
64.5°	261.1	296.8	341.4	405.7	343.7	310.0	296.4	242.0	201.1	184.4	160.9
65°	237.2	272.2	314.7	376.3	315.5	281.3	267.8	219.0	179.2	166.9	145.8
65.5°	214.6	248.4	289.3	347.7	286.9	255.9	242.0	197.1	158.6	150.6	132.3
66°	193.1	226.9	264.7	319.5	258.7	231.3	218.2	176.8	141.1	136.7	121.2





TEST NUMBER: P776357

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	139.5	168.5	197.1	241.2	189.6	168.1	156.6	126.8	102.5	103.3	96.6
68°	128.8	151.8	177.2	218.2	168.9	150.2	140.3	114.4	95.4	95.8	91.0
68.5°	118.4	138.3	159.0	195.9	151.4	133.9	126.0	104.1	91.0	89.4	87.0
69°	107.7	127.6	143.1	175.6	134.7	120.0	114.0	95.8	87.4	85.0	83.5
69.5°	97.0	117.2	132.3	156.6	120.8	108.1	103.7	89.8	83.8	81.5	80.3
70°	91.4	106.5	121.6	139.1	108.5	98.9	95.8	85.4	79.9	77.9	76.7
70.5°	87.4	96.2	111.3	128.0	99.3	91.4	89.8	81.9	76.3	74.3	73.5
71°	83.8	89.4	100.9	116.4	91.8	87.0	85.8	78.3	72.3	71.1	70.3
71.5°	80.3	84.6	90.2	105.3	86.6	83.5	82.3	74.7	68.7	67.6	66.8
72°	76.7	81.1	85.8	94.2	83.1	79.9	79.1	71.1	65.2	64.0	63.6
72.5°	72.7	77.5	82.7	88.2	79.5	76.3	75.5	67.6	61.6	60.8	60.4
73°	69.1	73.9	79.1	84.6	76.3	73.1	71.9	64.0	58.4	57.6	57.2
73.5°	65.6	70.3	75.5	81.1	72.7	69.5	68.7	60.8	55.2	54.4	54.4
74°	62.4	66.8	71.9	77.9	69.1	66.4	65.2	57.2	52.1	51.3	51.3
74.5°	58.8	63.6	68.7	74.3	66.0	62.8	62.0	54.0	48.9	48.1	48.5
75°	55.6	60.0	65.2	70.7	62.8	59.6	58.8	50.9	46.1	45.3	45.7
75.5°	52.5	56.8	62.0	67.6	59.6	56.4	55.6	48.1	43.3	42.5	42.9
76°	49.3	53.6	58.4	64.0	56.4	53.6	52.5	44.9	40.5	39.7	40.5
76.5°	46.5	50.5	55.6	60.8	53.2	50.5	49.7	42.1	37.8	37.0	37.8
77°	43.3	47.7	52.5	57.6	50.5	47.7	46.9	39.3	35.0	34.6	35.4
77.5°	40.5	44.5	49.3	54.4	47.7	44.9	44.1	36.6	32.6	32.2	33.0
78°	38.1	41.7	46.5	51.7	44.9	42.1	41.3	34.2	30.2	29.8	30.6
78.5°	35.4	38.9	43.7	48.5	42.1	39.7	38.5	31.8	27.8	27.0	28.2
79°	33.0	36.6	40.9	45.7	39.3	37.0	36.2	29.4	25.4	24.6	26.2
79.5°	30.6	33.8	38.1	43.3	37.0	35.0	33.8	27.0	23.0	22.7	23.8
80°	28.2	31.4	35.8	40.5	34.6	32.6	31.4	24.6	21.1	20.3	21.5
80.5°	25.8	29.0	33.4	37.8	32.2	30.2	29.0	22.3	19.1	18.3	19.5
81°	23.8	26.6	31.0	35.4	29.8	27.8	26.6	20.3	17.1	16.3	17.9
81.5°	21.9	24.6	28.6	33.0	27.4	25.8	24.2	17.9	15.1	14.3	15.9
82°	19.5	22.3	26.2	30.6	25.0	23.4	22.3	16.3	13.5	12.3	13.9
82.5°	17.5	20.3	24.2	28.6	23.0	21.5	20.3	14.3	11.5	10.7	12.3
83°	15.9	18.3	22.3	26.2	21.1	19.5	18.3	12.3	9.9	9.1	10.7
83.5°	13.9	16.7	20.3	24.2	19.5	17.5	16.3	10.7	8.3	7.6	9.1
84°	12.3	14.7	18.3	22.3	17.5	15.9	14.7	9.1	6.8	6.0	7.6
84.5°	10.7	13.1	16.3	20.3	15.5	13.9	12.7	7.6	5.6	4.8	6.4
85°	8.7	11.1	14.7	18.3	13.9	12.3	11.1	6.4	4.4	4.0	5.2
85.5°	7.2	9.5	12.7	16.3	12.3	10.7	9.5	5.2	3.2	3.2	4.0
86°	6.0	7.9	11.1	14.7	10.7	9.1	8.3	4.4	2.8	2.4	2.8
86.5°	4.4	6.4	9.9	13.1	9.1	7.6	6.8	3.2	2.0	1.6	1.6
87°	3.6	5.2	8.3	11.5	7.6	6.4	5.6	2.4	1.2	0.8	0.8
87.5°	2.8	4.4	7.2	9.9	6.0	4.8	4.4	1.6	0.8	0.4	0.0
88°	2.0	3.6	5.6	8.3	4.8	3.6	3.2	0.8	0.4	0.0	0.0
88.5°	1.2	2.4	4.4	6.8	3.6	2.4	2.0	0.4	0.0	0.0	0.0



TEST NUMBER: P776357

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.4	1.2	2.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776357

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2199.1	2199.1	2199.1	2199.1	2199.1	2199.1
0.5°	2193.6	2198.3	2199.1	2199.1	2200.3	2200.3
1°	2191.6	2196.7	2197.5	2197.9	2199.9	2200.3
1.5°	2189.2	2194.8	2195.9	2196.7	2199.1	2200.3
2°	2186.8	2192.8	2194.4	2195.2	2198.3	2199.9
2.5°	2184.4	2190.4	2192.4	2193.6	2197.1	2199.1
3°	2181.6	2188.0	2190.4	2192.0	2195.9	2198.7
3.5°	2178.9	2185.6	2188.0	2189.6	2194.8	2197.5
4°	2176.1	2182.8	2185.6	2187.6	2192.8	2196.7
4.5°	2172.9	2180.0	2182.8	2185.2	2191.2	2195.2
5°	2169.3	2176.9	2179.7	2182.4	2189.2	2194.0
5.5°	2165.7	2173.7	2176.9	2179.7	2187.2	2192.4
6°	2161.8	2170.1	2173.7	2176.9	2184.8	2190.8
6.5°	2157.8	2166.5	2170.5	2173.7	2182.4	2188.8
7°	2153.8	2162.6	2166.9	2170.5	2179.7	2186.8
7.5°	2149.5	2158.6	2163.0	2166.9	2176.9	2184.4
8°	2145.1	2154.6	2159.0	2163.4	2174.1	2182.0
8.5°	2140.3	2150.2	2155.0	2159.4	2170.9	2179.3
9°	2135.5	2145.9	2150.6	2155.4	2167.3	2176.5
9.5°	2130.8	2141.1	2146.3	2151.0	2163.8	2173.3
10°	2125.2	2135.9	2141.5	2146.7	2159.8	2170.5
10.5°	2120.0	2131.2	2136.7	2141.9	2155.8	2166.9
11°	2114.1	2125.6	2131.6	2137.1	2151.4	2163.4
11.5°	2108.5	2120.0	2126.0	2132.0	2147.5	2159.4
12°	2102.6	2114.5	2120.4	2126.8	2143.1	2155.4
12.5°	2096.2	2108.5	2114.9	2121.2	2137.9	2151.0
13°	2089.4	2102.2	2108.9	2115.7	2133.2	2146.7
13.5°	2083.1	2095.8	2102.6	2109.7	2127.6	2141.9
14°	2076.3	2089.4	2096.2	2103.8	2122.0	2137.1
14.5°	2069.2	2082.7	2089.4	2097.0	2116.5	2132.4
15°	2062.0	2075.5	2083.1	2091.0	2110.9	2127.2
15.5°	2054.5	2068.4	2075.9	2083.9	2104.5	2121.6
16°	2046.9	2060.8	2068.8	2076.7	2098.2	2116.1
16.5°	2039.0	2053.3	2060.8	2069.6	2091.4	2110.1
17°	2030.6	2045.3	2053.3	2062.0	2084.7	2103.8
17.5°	2022.7	2037.0	2045.3	2054.5	2077.9	2097.4
18°	2013.9	2029.0	2037.0	2046.5	2070.8	2091.0
18.5°	2005.2	2019.9	2028.6	2038.2	2063.2	2084.3
19°	1996.1	2011.6	2019.9	2029.8	2055.3	2077.1
19.5°	1986.5	2002.4	2011.2	2021.1	2047.3	2070.0
20°	1977.0	1992.9	2002.0	2012.4	2039.4	2062.4
20.5°	1967.4	1983.7	1992.1	2003.2	2031.0	2054.9
21°	1957.5	1973.4	1982.5	1993.7	2022.3	2046.9

TEST NUMBER: P776357

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1925.7	1942.4	1952.3	1963.9	1994.9	2021.1
23°	1915.0	1932.1	1941.2	1953.1	1985.3	2012.4
23.5°	1903.5	1921.0	1930.5	1942.4	1975.4	2003.2
24°	1891.9	1909.4	1919.4	1931.3	1965.5	1993.7
24.5°	1880.4	1897.9	1907.8	1920.2	1955.1	1984.1
25°	1868.1	1886.0	1895.9	1909.0	1944.0	1973.8
25.5°	1855.8	1874.1	1883.6	1897.1	1932.9	1963.5
26°	1843.5	1861.3	1871.7	1885.2	1921.7	1952.7
26.5°	1830.4	1849.0	1859.0	1872.5	1910.2	1942.4
27°	1817.2	1835.9	1846.2	1859.8	1898.3	1930.9
27.5°	1804.1	1822.8	1832.7	1847.4	1886.4	1919.8
28°	1790.6	1809.3	1819.6	1834.3	1874.1	1907.8
28.5°	1776.3	1795.4	1806.1	1820.8	1861.3	1896.3
29°	1762.0	1781.5	1791.8	1806.9	1848.6	1884.0
29.5°	1747.7	1767.2	1777.9	1793.4	1835.1	1871.3
30°	1732.6	1753.3	1763.2	1778.7	1821.6	1858.6
30.5°	1717.9	1738.2	1748.5	1764.8	1808.1	1845.8
31°	1702.4	1723.1	1733.8	1749.7	1794.2	1832.3
31.5°	1686.5	1708.4	1719.1	1735.0	1779.9	1818.8
32°	1670.6	1692.9	1703.6	1719.5	1765.2	1804.9
32.5°	1654.7	1677.0	1687.7	1704.4	1750.5	1790.6
33°	1638.0	1661.5	1672.6	1688.9	1735.4	1776.3
33.5°	1621.3	1645.6	1656.7	1673.0	1719.9	1761.6
34°	1604.6	1628.9	1640.4	1656.7	1704.4	1746.5
34.5°	1587.2	1612.2	1623.7	1640.8	1688.5	1731.8
35°	1570.1	1595.5	1607.4	1623.7	1672.6	1715.9
35.5°	1552.2	1578.4	1590.7	1607.0	1656.3	1700.4
36°	1534.7	1561.3	1573.6	1589.9	1639.6	1683.7
36.5°	1516.4	1544.2	1557.0	1572.8	1622.9	1667.8
37°	1498.5	1526.8	1539.5	1555.8	1605.4	1651.9
37.5°	1479.9	1508.9	1522.0	1538.3	1588.7	1634.8
38°	1461.6	1491.0	1504.5	1520.4	1571.3	1617.8
38.5°	1442.1	1473.5	1486.6	1502.1	1553.8	1600.7
39°	1423.8	1454.8	1469.1	1484.6	1535.5	1583.2
39.5°	1404.4	1436.5	1451.2	1466.7	1517.6	1566.1
40°	1385.3	1418.7	1433.0	1448.5	1499.7	1548.2
40.5°	1366.2	1400.4	1414.7	1429.8	1481.4	1529.9
41°	1346.7	1381.3	1396.0	1411.5	1463.2	1512.0
41.5°	1326.9	1362.6	1377.7	1392.8	1444.1	1493.8
42°	1307.4	1344.0	1359.1	1374.2	1425.8	1475.1
42.5°	1287.5	1325.3	1340.4	1355.5	1406.7	1456.4
43°	1268.5	1306.6	1321.7	1336.8	1388.1	1437.7
43.5°	1248.6	1287.1	1303.0	1317.3	1369.0	1419.1



TEST NUMBER: P776357

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1192.5	1230.3	1246.2	1260.1	1311.4	1361.4
45.5°	1173.9	1211.6	1227.1	1241.0	1291.5	1342.0
46°	1154.0	1192.5	1208.4	1222.4	1272.4	1322.5
46.5°	1133.3	1173.9	1189.4	1202.9	1253.0	1302.6
47°	1111.1	1154.8	1171.1	1184.2	1234.3	1283.6
47.5°	1085.7	1133.7	1151.6	1165.1	1215.2	1264.5
48°	1057.8	1112.7	1130.6	1144.5	1196.1	1245.4
48.5°	1027.6	1088.8	1108.7	1123.0	1176.7	1225.5
49°	996.6	1062.2	1086.4	1101.2	1156.0	1206.9
49.5°	965.2	1033.2	1059.0	1075.7	1134.9	1185.8
50°	933.9	1002.2	1030.4	1047.5	1111.9	1164.3
50.5°	900.9	970.0	998.2	1016.5	1085.7	1140.9
51°	867.9	937.8	966.4	984.7	1056.2	1114.3
51.5°	834.9	904.4	932.7	952.1	1024.9	1084.5
52°	801.5	871.5	900.1	918.8	993.1	1054.3
52.5°	768.9	837.3	866.7	885.0	960.9	1022.9
53°	735.6	802.3	832.1	851.2	928.7	990.7
53.5°	703.4	768.5	796.4	816.2	895.3	957.3
54°	670.8	734.4	762.6	782.1	861.9	924.3
54.5°	638.2	701.8	728.0	747.9	828.1	890.5
55°	606.4	668.0	693.0	715.3	794.0	856.8
55.5°	574.6	635.0	659.7	681.5	760.2	822.6
56°	544.0	602.8	626.3	648.5	726.4	789.2
56.5°	514.6	570.6	593.3	616.3	693.0	754.2
57°	484.0	539.3	561.1	584.9	659.7	720.5
57.5°	454.6	508.7	529.3	552.4	627.1	686.3
58°	425.2	478.1	498.3	521.4	594.5	651.7
58.5°	398.2	449.0	469.3	492.0	562.3	617.9
59°	371.6	420.8	440.7	462.2	531.7	584.6
59.5°	345.3	393.0	413.3	433.5	501.1	551.6
60°	318.7	366.8	386.3	405.7	471.3	518.2
60.5°	292.5	340.2	360.4	378.3	442.3	485.6
61°	265.9	315.1	335.4	352.1	412.9	455.0
61.5°	242.8	291.7	311.9	326.3	384.7	423.6
62°	220.5	269.4	288.9	302.4	357.2	394.2
62.5°	200.3	247.6	267.0	279.0	330.6	365.6
63°	181.2	227.3	246.4	256.3	304.8	338.2
63.5°	164.5	208.2	226.9	235.6	280.6	311.2
64°	148.6	190.3	208.6	215.8	256.7	285.7
64.5°	135.1	173.7	190.7	197.5	233.7	261.1
65°	124.0	158.6	174.8	180.0	212.2	237.2
65.5°	114.0	144.3	159.7	164.1	192.3	214.6
66°	105.7	134.3	145.8	149.4	174.5	193.1



TEST NUMBER: P776357

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	87.8	104.9	115.6	115.6	133.5	139.5
68°	84.6	95.0	105.7	108.9	124.4	128.8
68.5°	81.1	89.4	95.8	101.7	114.8	118.4
69°	77.9	85.8	89.8	94.6	105.7	107.7
69.5°	74.7	82.7	85.8	87.4	96.2	97.0
70°	71.5	79.5	82.7	84.2	90.2	91.4
70.5°	68.4	75.9	79.5	80.7	85.8	87.4
71°	65.2	72.7	76.3	77.5	82.3	83.8
71.5°	62.0	69.5	73.1	74.3	78.7	80.3
72°	58.8	66.4	69.5	71.1	75.1	76.7
72.5°	56.0	63.2	66.4	68.0	71.9	72.7
73°	53.2	60.0	63.2	64.8	68.4	69.1
73.5°	50.1	57.2	60.4	61.6	65.2	65.6
74°	47.3	54.0	57.2	58.4	61.6	62.4
74.5°	44.9	51.3	54.4	55.2	58.4	58.8
75°	42.1	48.5	51.7	52.5	55.2	55.6
75.5°	39.7	45.7	48.9	49.7	52.1	52.5
76°	37.0	43.3	46.1	46.9	49.3	49.3
76.5°	34.6	40.5	43.3	44.1	46.1	46.5
77°	32.6	38.1	40.9	41.3	43.3	43.3
77.5°	30.2	35.8	38.1	38.5	40.5	40.5
78°	28.2	33.4	35.8	36.2	37.8	38.1
78.5°	25.8	31.0	33.4	33.8	35.4	35.4
79°	23.8	29.0	31.0	31.4	33.0	33.0
79.5°	21.9	26.6	29.0	29.0	30.2	30.6
80°	19.9	24.6	26.6	27.0	28.2	28.2
80.5°	17.9	22.7	24.6	24.6	25.8	25.8
81°	16.3	20.7	22.7	22.7	23.4	23.8
81.5°	14.3	18.7	20.7	20.7	21.5	21.9
82°	12.7	17.1	18.7	18.7	19.5	19.5
82.5°	11.1	15.1	17.1	17.1	17.5	17.5
83°	9.5	13.5	15.1	15.1	15.5	15.9
83.5°	7.9	11.9	13.5	13.5	13.5	13.9
84°	6.4	10.3	11.9	11.9	11.9	12.3
84.5°	4.8	8.7	10.3	10.3	10.3	10.7
85°	3.6	7.2	8.7	8.7	8.3	8.7
85.5°	2.4	5.6	7.2	7.2	7.2	7.2
86°	1.2	4.0	5.6	6.0	6.0	6.0
86.5°	0.4	2.8	4.4	4.4	4.8	4.4
87°	0.0	1.6	2.8	3.2	3.6	3.6
87.5°	0.0	0.8	1.6	2.0	2.8	2.8
88°	0.0	0.0	0.8	0.8	2.0	2.0
88.5°	0.0	0.0	0.0	0.4	1.2	1.2



TEST NUMBER: P776357  
CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMW-4000lm-3500K

**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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21.5°	2038.6	2062.8	2083.5	2104.1	2092.6	2081.1	2069.6	2044.1	2022.7	2000.4	1977.4
22°	2029.8	2055.3	2076.3	2097.8	2085.9	2074.3	2062.0	2035.8	2013.9	1991.7	1967.8



44°	1400.4	1450.5	1493.4	1540.3	1500.1	1476.3	1457.6	1407.9	1367.4	1323.7	1280.4
44.5°	1380.5	1431.0	1473.9	1521.6	1480.7	1457.6	1438.1	1388.5	1347.5	1304.2	1260.9



66.5°	173.7	205.8	241.2	293.3	234.1	209.0	195.5	158.6	125.6	124.0	111.7
67°	156.2	186.4	218.6	266.2	210.6	187.6	175.2	141.5	112.9	112.9	103.3



89°	0.8	1.6	3.2	5.6	2.4	1.2	0.8	0.0	0.0	0.0	0.0
89.5°	0.4	0.8	2.0	4.0	1.2	0.4	0.4	0.0	0.0	0.0	0.0



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21.5°	1947.2	1963.5	1972.6	1983.7	2013.5	2038.6
22°	1936.5	1953.5	1962.7	1973.8	2004.4	2029.8



44°	1229.9	1268.1	1283.9	1298.7	1349.9	1400.4
44.5°	1211.2	1249.0	1264.9	1279.2	1330.4	1380.5



66.5°	98.6	124.4	135.9	135.9	157.8	173.7
67°	92.6	114.4	125.6	124.4	143.1	156.2

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89°	0.0	0.0	0.0	0.0	0.4	0.8
89.5°	0.0	0.0	0.0	0.0	0.0	0.4

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(END OF REPORT)