

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: P776349

Luminaire Tested: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776349  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B041)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K  
Description: 6 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4953.1 lumens  
Efficiency: N/A  
Efficacy: 128.7 lumens/watt  
Spacing Criteria (0/90/45): 1.17 / 1.16 / 1.25  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

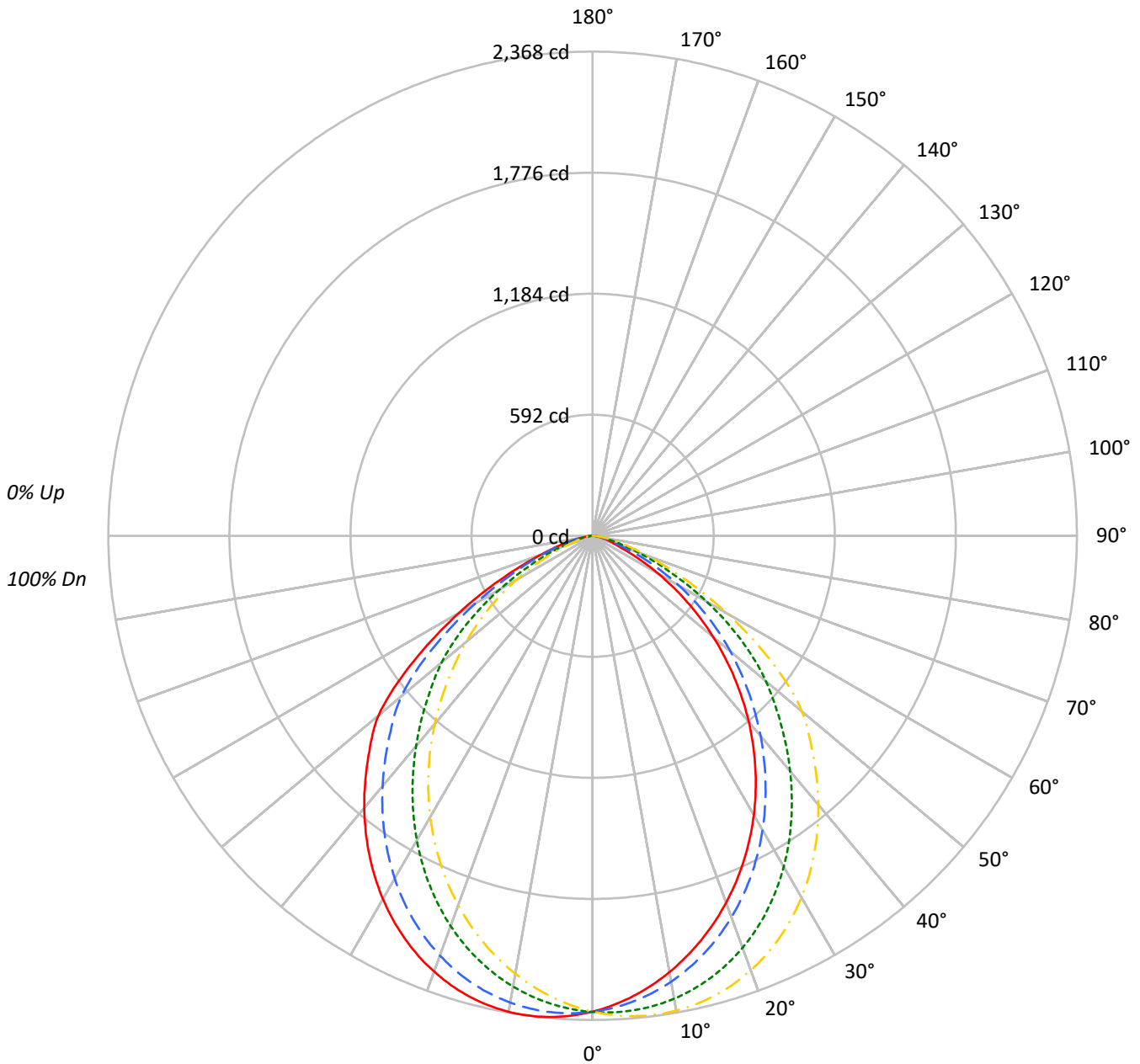
Input Watts (W): 38.5  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100				
1	111	107	103	100	108	105	101	99	100	98	95	97	94	93	93	91	90	88				88				
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76				76				
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66				66				
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58				58				
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51				51				
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45				45				
7	69	57	49	43	68	56	48	43	55	48	43	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	44	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°	127616	127616	127616	127616
5°	124416	128175	130018	126507
10°	120595	127948	131611	124625
15°	116249	126970	132373	121953
20°	111380	125072	132300	118468
25°	105913	122209	131487	114049
30°	99788	118290	129836	108821
35°	92822	113348	127415	102760
40°	84952	107516	124311	96101
45°	75992	100941	120563	89079
50°	65704	94300	116585	82232
55°	53972	84422	102047	71720
60°	40797	70521	82581	57517
65°	26786	54104	61796	42430
70°	17759	37891	42667	28579
75°	14212	24422	29611	18110
80°	10450	14964	17805	10702
85°	5661	8743	3837	6164

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 157.5°  
 Vertical Angle: 45°  
 Luminance: 121385 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	219.3	4.4
10°-20°	617.1	12.5
20°-30°	900.5	18.2
30°-40°	1019.2	20.6
40°-50°	964.3	19.5
50°-60°	732.1	14.8
60°-70°	366.8	7.4
70°-80°	116.2	2.3
80°-90°	17.6	0.4
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°	1736.9	35.1
0°-40°	2756.1	55.6
0°-60°	4452.5	89.9
0°-90°	4953.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4953.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2328	2328	2328	2328	2328	
5°	2261	2329	2363	2299	2261	213
15°	2048	2237	2332	2149	2048	576
25°	1751	2020	2174	1886	1751	804
35°	1387	1694	1904	1536	1387	865
45°	980	1302	1555	1149	980	754
55°	565	883	1068	750	565	505
65°	206	417	476	327	206	214
75°	67	115	140	86	67	72
85°	9	14	6	10	9	13
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°	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9
0.5°	2322.2	2323.9	2325.5	2326.7	2330.4	2330.8	2331.6	2332.0	2332.4	2332.4	2330.8
1°	2316.5	2319.4	2322.2	2325.9	2331.6	2333.7	2335.7	2336.9	2336.9	2336.1	2332.9
1.5°	2310.8	2314.5	2319.0	2324.3	2332.4	2336.5	2339.8	2341.4	2341.4	2339.4	2334.9
2°	2304.6	2309.1	2315.3	2322.6	2332.9	2338.6	2343.1	2345.5	2345.1	2342.7	2336.1
2.5°	2297.7	2303.4	2311.2	2320.6	2332.9	2340.6	2346.4	2349.2	2349.2	2345.5	2337.8
3°	2291.1	2297.7	2306.7	2318.1	2332.9	2342.3	2349.6	2352.9	2352.1	2347.6	2338.6
3.5°	2284.2	2291.6	2302.2	2315.3	2332.4	2343.9	2352.1	2356.2	2355.3	2349.6	2339.0
4°	2276.4	2285.0	2297.3	2312.4	2331.6	2344.7	2354.5	2359.0	2358.2	2351.7	2339.4
4.5°	2269.1	2278.1	2292.0	2309.1	2330.8	2345.5	2356.6	2361.9	2360.7	2352.9	2339.4
5°	2260.9	2271.1	2286.2	2305.5	2329.2	2345.9	2358.2	2363.9	2362.7	2354.1	2339.0
5.5°	2252.7	2263.3	2280.5	2301.4	2327.5	2346.4	2359.4	2366.0	2364.3	2354.9	2338.6
6°	2244.1	2255.6	2274.0	2297.3	2325.5	2345.9	2360.7	2367.6	2365.6	2355.3	2337.4
6.5°	2235.5	2247.8	2267.8	2292.8	2323.5	2345.5	2361.5	2368.8	2366.8	2355.3	2336.1
7°	2226.5	2239.6	2260.9	2287.9	2320.6	2344.7	2361.9	2369.7	2367.2	2355.3	2334.5
7.5°	2217.1	2231.0	2253.9	2282.6	2317.7	2343.5	2361.9	2370.1	2367.6	2354.5	2332.4
8°	2207.3	2222.0	2246.6	2276.8	2314.5	2342.3	2361.9	2370.5	2367.6	2353.7	2330.4
8.5°	2197.5	2213.0	2238.8	2271.1	2311.2	2340.6	2361.5	2370.5	2367.2	2352.5	2327.5
9°	2187.7	2204.0	2230.6	2265.0	2307.1	2339.0	2360.3	2370.1	2366.8	2351.3	2324.7
9.5°	2177.1	2194.2	2222.5	2258.8	2303.0	2336.5	2359.4	2369.3	2365.6	2349.2	2321.8
10°	2166.4	2184.4	2214.3	2251.9	2298.5	2334.1	2357.8	2368.0	2364.3	2347.2	2318.1
10.5°	2155.8	2174.2	2205.3	2244.9	2294.0	2330.8	2356.2	2366.8	2362.7	2344.3	2314.5
11°	2144.8	2164.0	2195.9	2237.6	2288.7	2327.5	2354.1	2365.2	2360.3	2341.9	2310.4
11.5°	2133.3	2153.3	2186.5	2229.8	2283.4	2324.3	2351.7	2362.7	2358.2	2338.6	2305.9
12°	2121.9	2142.3	2177.1	2221.6	2277.7	2320.2	2348.8	2360.7	2355.3	2335.3	2301.4
12.5°	2110.0	2131.3	2166.8	2213.9	2271.9	2316.1	2345.5	2357.8	2352.5	2331.6	2296.1
13°	2098.1	2119.8	2156.6	2204.9	2265.4	2311.6	2342.3	2354.5	2349.2	2327.5	2290.7
13.5°	2085.9	2108.4	2146.0	2196.3	2258.8	2307.1	2338.6	2351.3	2345.1	2323.0	2285.4
14°	2073.6	2096.5	2135.4	2187.3	2251.9	2301.8	2334.5	2347.6	2341.4	2318.1	2279.3
14.5°	2060.9	2084.6	2124.3	2177.9	2244.5	2296.5	2330.0	2343.5	2336.9	2313.2	2273.2
15°	2048.3	2072.0	2112.9	2167.7	2237.2	2290.3	2325.5	2339.0	2332.4	2307.9	2266.6
15.5°	2035.2	2059.3	2101.0	2157.8	2229.0	2284.6	2320.6	2334.5	2327.5	2302.2	2259.7
16°	2022.1	2046.6	2089.6	2147.2	2220.8	2278.1	2315.3	2329.2	2321.8	2296.1	2252.3
16.5°	2008.6	2033.5	2077.3	2137.0	2212.6	2271.5	2309.5	2323.9	2316.5	2289.9	2244.9
17°	1994.7	2020.4	2064.6	2125.5	2204.0	2264.6	2303.8	2318.5	2310.4	2283.4	2237.2
17.5°	1981.2	2007.0	2051.9	2114.5	2194.6	2257.2	2297.3	2312.4	2304.2	2276.4	2229.4
18°	1966.9	1993.0	2039.3	2103.0	2184.8	2249.8	2290.7	2305.9	2297.3	2269.1	2220.8
18.5°	1953.0	1979.6	2025.8	2091.2	2175.4	2241.7	2283.8	2299.3	2290.7	2261.3	2212.2
19°	1938.3	1965.2	2012.7	2078.9	2165.2	2233.5	2276.4	2292.4	2283.4	2253.5	2203.2
19.5°	1923.5	1951.3	1998.8	2066.2	2155.0	2224.9	2269.1	2285.0	2275.6	2245.8	2193.8
20°	1909.2	1936.6	1985.3	2054.0	2143.9	2215.9	2261.7	2277.2	2267.8	2237.2	2184.4
20.5°	1893.7	1921.9	1971.0	2040.9	2132.9	2206.5	2253.5	2269.5	2259.7	2228.2	2174.2
21°	1878.6	1906.8	1956.7	2027.8	2121.9	2197.5	2244.9	2261.3	2251.5	2219.2	2164.4



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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°	1832.3	1861.0	1912.1	1986.1	2086.3	2166.8	2217.5	2235.1	2224.5	2190.6	2132.5
23°	1816.4	1845.0	1897.0	1971.8	2073.6	2156.2	2208.1	2225.7	2214.7	2180.3	2121.0
23.5°	1800.5	1829.5	1881.8	1957.1	2060.9	2145.2	2198.3	2215.9	2204.9	2169.7	2109.6
24°	1784.1	1813.5	1865.9	1942.3	2047.8	2133.7	2187.7	2206.1	2195.1	2158.7	2097.7
24.5°	1767.3	1797.2	1849.5	1926.8	2034.3	2121.9	2177.1	2195.9	2184.0	2147.6	2085.5
25°	1751.0	1780.4	1833.6	1911.7	2020.4	2110.4	2166.4	2185.2	2173.8	2136.6	2073.2
25.5°	1734.2	1764.1	1817.6	1896.1	2006.5	2097.7	2155.4	2174.6	2162.3	2125.1	2060.5
26°	1717.4	1747.3	1801.3	1880.2	1992.6	2085.1	2143.9	2163.6	2151.3	2112.9	2047.8
26.5°	1700.3	1730.5	1783.7	1863.8	1977.9	2072.4	2132.1	2151.7	2139.4	2101.0	2034.8
27°	1683.1	1713.4	1767.3	1847.9	1962.8	2059.3	2119.8	2140.3	2128.0	2088.3	2021.3
27.5°	1665.5	1695.8	1750.2	1831.1	1948.1	2045.8	2108.0	2128.4	2115.7	2076.1	2007.8
28°	1647.9	1678.2	1733.0	1814.4	1932.5	2031.9	2095.3	2116.1	2103.0	2063.4	1993.5
28.5°	1630.3	1660.6	1715.0	1797.2	1917.0	2018.0	2082.2	2103.5	2090.4	2049.9	1979.6
29°	1612.8	1643.4	1697.4	1780.4	1901.5	2004.1	2069.1	2091.2	2077.3	2036.4	1965.2
29.5°	1594.8	1625.4	1679.8	1763.2	1885.1	1989.0	2056.0	2077.7	2064.2	2022.9	1950.5
30°	1576.4	1607.0	1662.2	1745.7	1868.7	1974.6	2042.1	2064.6	2051.1	2009.0	1935.4
30.5°	1558.0	1589.0	1643.4	1727.7	1852.4	1959.1	2027.8	2051.1	2037.6	1994.7	1920.3
31°	1539.6	1570.6	1625.4	1710.1	1835.6	1943.6	2013.5	2037.6	2023.7	1980.4	1905.1
31.5°	1521.2	1552.2	1606.6	1691.7	1818.4	1927.6	1999.2	2023.3	2009.0	1965.7	1889.2
32°	1502.4	1533.8	1588.2	1673.3	1800.9	1912.5	1984.5	2009.0	1995.1	1950.9	1873.6
32.5°	1483.5	1515.0	1569.4	1655.3	1783.7	1896.1	1969.7	1994.3	1980.8	1935.8	1857.7
33°	1464.3	1495.8	1551.0	1636.9	1766.5	1879.4	1954.2	1979.6	1965.7	1920.7	1841.8
33.5°	1445.5	1477.0	1531.8	1617.7	1748.5	1863.0	1938.7	1964.8	1950.5	1905.1	1825.8
34°	1426.3	1458.2	1513.0	1599.3	1730.5	1846.2	1922.7	1949.7	1935.0	1889.2	1808.6
34.5°	1406.7	1439.0	1493.4	1580.0	1711.7	1828.7	1906.8	1933.8	1919.4	1873.2	1791.9
35°	1387.0	1419.3	1474.5	1560.8	1693.7	1811.5	1890.8	1918.2	1903.9	1857.3	1775.1
35.5°	1367.8	1400.1	1454.5	1542.0	1675.3	1794.3	1874.1	1902.3	1888.4	1841.3	1758.3
36°	1348.2	1380.5	1435.7	1522.8	1656.5	1776.3	1857.7	1886.3	1872.4	1824.6	1740.7
36.5°	1328.6	1360.9	1416.1	1503.2	1637.7	1758.3	1840.9	1870.0	1855.7	1808.6	1723.6
37°	1308.5	1340.8	1395.6	1483.5	1618.5	1740.3	1823.8	1853.2	1839.3	1791.5	1706.0
37.5°	1288.5	1321.2	1376.4	1463.9	1599.3	1721.9	1806.2	1836.4	1822.5	1774.7	1688.0
38°	1268.0	1301.2	1356.8	1444.3	1580.5	1703.5	1789.0	1819.7	1805.8	1757.1	1670.0
38.5°	1248.4	1281.5	1336.7	1424.7	1560.8	1684.7	1771.0	1802.5	1789.0	1740.3	1652.8
39°	1228.8	1261.1	1317.1	1404.6	1541.6	1665.9	1753.4	1785.3	1771.4	1722.8	1634.4
39.5°	1207.9	1241.5	1297.1	1385.0	1522.4	1647.1	1735.4	1767.7	1754.7	1705.2	1616.4
40°	1187.1	1221.0	1277.4	1365.0	1502.4	1627.9	1717.0	1750.2	1737.1	1687.6	1597.6
40.5°	1167.0	1200.6	1256.6	1344.9	1481.9	1609.1	1698.6	1732.2	1719.1	1670.0	1579.6
41°	1146.6	1180.1	1237.0	1324.9	1462.3	1589.0	1679.8	1714.2	1701.5	1651.6	1560.8
41.5°	1125.7	1160.1	1216.5	1304.4	1443.1	1569.8	1661.4	1696.2	1683.9	1634.0	1542.4
42°	1104.9	1139.2	1196.5	1284.8	1422.2	1550.2	1642.6	1677.8	1665.5	1615.6	1523.6
42.5°	1084.4	1119.2	1176.9	1264.8	1403.0	1531.0	1623.8	1659.4	1647.5	1597.6	1504.8
43°	1064.0	1098.8	1156.4	1244.7	1382.5	1511.3	1604.6	1641.0	1629.1	1578.8	1486.0
43.5°	1043.1	1078.3	1136.4	1224.7	1362.9	1491.7	1585.8	1622.6	1611.1	1560.4	1467.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	980.2	1016.6	1075.9	1164.6	1302.0	1432.0	1527.3	1565.7	1555.1	1504.8	1410.3
45.5°	959.3	996.5	1056.6	1145.0	1283.2	1412.0	1508.1	1546.9	1536.7	1486.0	1391.5
46°	938.5	975.7	1036.2	1124.9	1262.3	1391.5	1488.4	1528.1	1517.9	1468.0	1373.1
46.5°	916.8	955.6	1016.6	1105.3	1242.3	1372.3	1469.6	1509.7	1500.3	1450.0	1355.1
47°	895.5	934.8	996.5	1085.7	1222.2	1352.7	1450.8	1491.3	1482.7	1432.4	1337.2
47.5°	875.1	914.3	976.9	1066.0	1203.4	1333.5	1432.4	1473.7	1464.7	1414.4	1318.7
48°	854.2	894.3	956.9	1046.4	1183.4	1314.7	1413.6	1455.7	1447.1	1396.9	1301.2
48.5°	833.4	873.9	937.2	1027.6	1164.6	1295.8	1395.6	1437.7	1429.2	1378.5	1282.4
49°	812.1	853.8	917.6	1008.4	1145.0	1276.2	1376.4	1418.9	1410.3	1358.8	1263.1
49.5°	791.7	833.8	898.4	989.2	1125.3	1257.0	1357.2	1400.1	1390.3	1338.0	1241.9
50°	770.4	813.3	879.2	969.1	1105.7	1237.0	1336.3	1378.0	1367.0	1315.1	1220.6
50.5°	749.5	793.3	859.1	950.3	1086.1	1215.3	1313.4	1354.3	1342.5	1289.3	1196.5
51°	727.9	773.7	839.9	930.3	1065.2	1192.4	1289.7	1328.2	1313.4	1262.3	1172.4
51.5°	707.8	753.6	820.7	910.2	1043.5	1169.9	1264.8	1300.8	1285.6	1234.5	1145.8
52°	687.0	733.6	801.1	890.2	1022.3	1145.4	1237.8	1271.3	1256.6	1205.5	1118.4
52.5°	666.5	714.0	781.8	869.4	999.4	1120.4	1210.0	1241.1	1225.5	1175.2	1090.2
53°	646.1	694.3	762.2	848.9	976.1	1095.1	1180.9	1210.4	1195.7	1145.0	1062.4
53.5°	625.6	674.7	742.2	828.1	953.6	1068.9	1151.5	1179.7	1163.4	1113.9	1033.3
54°	604.8	655.1	722.6	806.4	929.9	1041.9	1122.5	1149.0	1131.1	1082.8	1004.7
54.5°	584.7	635.5	702.9	785.9	907.4	1015.7	1092.2	1117.2	1099.2	1051.7	975.7
55°	564.7	616.2	683.3	765.5	883.3	988.8	1062.4	1086.1	1067.7	1020.7	947.0
55.5°	544.3	597.0	662.9	744.2	859.9	961.8	1031.3	1054.6	1035.0	988.8	917.2
56°	525.0	577.4	643.2	723.0	835.8	933.6	1001.0	1022.7	1002.2	956.5	888.2
56.5°	505.0	557.8	623.6	701.7	812.1	905.7	969.9	990.8	970.8	925.4	858.7
57°	485.4	538.5	603.6	680.4	787.6	877.9	940.1	958.5	938.5	894.7	830.1
57.5°	465.8	519.3	583.5	659.2	764.3	850.5	909.0	927.0	907.0	862.8	800.7
58°	446.9	500.5	564.3	637.9	739.7	822.3	880.0	895.5	876.3	831.7	772.0
58.5°	428.1	481.3	544.3	617.1	715.6	794.9	849.3	864.4	844.8	801.5	743.8
59°	408.9	462.9	525.0	595.4	691.1	767.1	819.1	833.4	813.7	772.0	715.2
59.5°	390.5	444.1	505.4	574.5	667.8	739.7	789.6	802.3	783.1	741.8	687.0
60°	372.1	425.7	486.6	554.1	643.2	712.7	760.2	772.0	753.2	712.7	660.4
60.5°	353.7	406.9	467.4	533.2	619.5	685.3	730.3	742.2	723.8	684.1	633.0
61°	335.7	389.3	448.2	512.4	595.4	659.2	701.7	712.7	694.3	656.7	606.8
61.5°	318.5	371.3	429.8	491.9	572.5	633.4	673.5	683.3	665.7	629.3	581.5
62°	301.0	353.7	411.8	471.9	548.8	608.1	646.5	655.1	637.5	602.7	556.5
62.5°	283.8	336.1	393.0	451.9	526.3	582.3	617.5	626.5	609.7	576.6	531.6
63°	267.4	319.4	375.0	431.8	503.4	556.5	590.5	598.7	583.1	550.4	507.5
63.5°	251.5	302.2	357.0	412.2	481.3	532.8	563.9	571.7	555.3	525.9	484.6
64°	235.5	285.8	339.0	392.6	459.2	507.9	538.9	545.5	527.9	503.0	462.5
64.5°	220.8	269.9	321.4	373.3	437.9	484.2	513.2	519.3	501.7	479.2	440.8
65°	206.5	254.3	304.2	354.5	417.1	461.3	488.2	494.8	476.4	456.8	419.5
65.5°	192.2	238.4	287.1	336.5	397.1	438.8	464.5	470.3	450.2	434.3	399.5
66°	179.1	223.7	269.9	317.7	377.0	416.3	441.6	446.1	425.7	413.0	379.9





TEST NUMBER: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	144.8	180.3	221.6	265.8	320.6	356.2	376.6	379.9	359.8	354.5	327.1
68°	137.4	166.8	206.5	249.8	301.8	337.4	357.8	360.3	340.2	335.7	309.5
68.5°	129.6	154.2	191.8	233.5	285.0	318.5	339.0	341.0	320.2	316.9	292.0
69°	122.3	143.9	177.9	218.4	268.2	299.7	320.2	321.8	300.1	298.5	276.4
69.5°	114.5	134.1	164.4	202.8	251.9	281.7	301.0	302.6	282.6	281.7	260.9
70°	110.8	124.3	152.1	189.3	236.4	265.4	284.2	286.2	266.2	265.8	246.2
70.5°	106.7	114.1	142.3	175.8	221.6	249.8	268.7	270.3	250.7	251.1	232.7
71°	102.2	104.3	132.5	162.7	207.7	234.7	253.1	254.8	235.9	236.4	219.2
71.5°	97.7	99.8	122.3	150.9	193.8	220.0	238.0	239.6	221.6	222.4	206.1
72°	92.8	95.7	112.5	141.1	180.7	206.9	224.1	226.1	208.1	209.0	193.8
72.5°	88.3	91.6	102.6	131.3	168.1	193.4	211.0	212.6	195.5	196.7	182.0
73°	83.8	87.1	94.9	121.4	156.6	181.1	198.3	200.4	183.2	184.0	170.5
73.5°	79.3	83.0	87.9	111.2	145.6	169.3	185.6	188.1	172.2	173.0	159.9
74°	75.2	78.9	81.8	101.4	134.9	158.2	174.6	176.7	160.7	161.9	149.7
74.5°	70.7	74.8	76.5	93.6	124.7	147.2	163.6	165.6	150.1	151.3	139.8
75°	67.1	70.7	71.6	86.3	115.3	137.0	153.3	155.0	139.8	141.5	130.0
75.5°	63.0	67.1	67.5	79.3	106.7	127.6	143.1	145.2	130.0	131.7	121.0
76°	59.3	63.0	63.4	73.2	98.1	118.2	133.3	135.4	120.2	122.3	112.5
76.5°	55.6	59.3	60.1	67.1	90.4	109.6	124.3	125.9	111.2	113.7	104.3
77°	51.9	55.6	56.4	61.7	83.0	101.4	115.3	117.4	102.2	105.1	96.5
77.5°	48.7	52.3	53.2	56.8	76.1	93.6	107.1	108.8	94.1	96.9	89.1
78°	45.0	48.7	49.9	52.3	69.5	86.3	99.0	100.6	85.9	89.1	81.8
78.5°	42.1	45.4	46.6	47.8	63.4	78.9	91.2	92.8	77.7	82.2	74.8
79°	38.8	42.1	43.8	43.8	57.7	72.4	83.8	85.1	70.3	74.8	68.3
79.5°	36.0	38.8	40.9	40.1	52.3	65.8	76.9	78.1	63.4	68.3	62.2
80°	33.1	36.0	38.0	36.8	47.4	59.7	69.9	71.2	56.4	61.7	56.0
80.5°	30.3	33.1	35.2	33.5	42.9	54.0	63.4	64.6	49.5	55.6	50.3
81°	27.4	30.3	32.3	30.7	38.8	48.7	57.2	58.5	43.8	49.9	45.0
81.5°	24.9	27.8	29.9	28.2	35.2	43.8	51.1	52.3	38.4	44.6	40.5
82°	22.5	24.9	27.4	25.8	31.5	39.3	45.4	47.0	32.7	40.1	36.0
82.5°	20.0	22.5	24.9	23.3	27.8	35.2	40.9	42.1	27.0	35.6	31.5
83°	17.6	20.0	22.5	21.3	24.1	31.1	36.4	37.6	21.7	31.1	27.0
83.5°	15.1	17.6	20.0	19.2	21.3	27.0	31.9	33.1	17.2	26.2	22.5
84°	13.1	15.1	18.0	17.2	18.4	22.9	27.0	28.2	12.7	21.7	19.2
84.5°	11.0	13.1	15.9	15.1	15.9	19.6	22.5	23.7	9.0	18.0	15.9
85°	9.0	11.0	13.9	13.5	13.9	16.4	18.8	19.2	6.1	14.7	13.1
85.5°	7.0	9.0	12.3	11.9	11.9	13.9	15.5	15.5	4.1	11.4	10.2
86°	5.3	7.4	10.2	10.2	9.8	11.0	12.7	11.9	2.9	8.6	7.8
86.5°	4.5	5.7	8.2	8.2	8.2	9.0	9.8	9.0	2.5	6.1	5.7
87°	3.3	4.5	6.5	6.5	6.5	7.0	7.4	6.5	1.6	4.1	4.1
87.5°	2.5	3.3	4.9	4.9	5.3	5.3	5.3	4.5	1.2	2.5	2.5
88°	1.6	2.5	3.3	3.7	4.1	3.7	3.3	2.5	0.8	1.2	1.2
88.5°	0.8	1.2	2.0	2.0	2.5	2.0	1.6	1.2	0.4	0.4	0.4



TEST NUMBER: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**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: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2327.9	2327.9	2327.9	2327.9	2327.9	2327.9
0.5°	2328.4	2327.5	2324.3	2322.2	2321.4	2322.2
1°	2328.8	2325.5	2320.2	2317.3	2315.7	2316.5
1.5°	2328.4	2323.0	2316.5	2311.6	2309.5	2310.8
2°	2328.4	2320.6	2312.0	2305.9	2303.0	2304.6
2.5°	2327.5	2317.7	2307.1	2300.1	2296.5	2297.7
3°	2326.7	2314.5	2302.2	2293.6	2289.5	2291.1
3.5°	2325.5	2310.8	2296.9	2287.1	2282.6	2284.2
4°	2323.9	2307.1	2291.6	2280.1	2275.2	2276.4
4.5°	2321.8	2303.0	2285.8	2272.7	2267.0	2269.1
5°	2319.8	2298.9	2279.7	2265.4	2258.8	2260.9
5.5°	2317.3	2294.0	2273.2	2257.6	2250.7	2252.7
6°	2314.5	2289.1	2266.2	2249.4	2242.1	2244.1
6.5°	2311.2	2283.8	2259.3	2241.3	2233.1	2235.5
7°	2307.9	2278.5	2252.3	2232.7	2223.7	2226.5
7.5°	2303.8	2272.3	2244.5	2223.7	2214.3	2217.1
8°	2300.1	2266.2	2236.8	2214.7	2204.9	2207.3
8.5°	2295.6	2260.1	2228.2	2205.3	2194.6	2197.5
9°	2291.1	2253.1	2220.0	2195.9	2184.4	2187.7
9.5°	2286.2	2245.8	2211.0	2185.6	2173.8	2177.1
10°	2280.9	2238.8	2202.0	2175.4	2163.2	2166.4
10.5°	2275.2	2231.0	2192.6	2165.2	2152.5	2155.8
11°	2269.5	2223.3	2183.2	2154.6	2141.5	2144.8
11.5°	2263.3	2214.7	2173.4	2143.5	2130.0	2133.3
12°	2257.2	2206.1	2163.2	2132.5	2118.2	2121.9
12.5°	2250.3	2197.5	2152.5	2120.6	2106.3	2110.0
13°	2243.3	2188.5	2141.9	2109.2	2094.5	2098.1
13.5°	2235.9	2178.7	2131.3	2097.3	2081.8	2085.9
14°	2228.2	2169.3	2119.8	2085.5	2069.5	2073.6
14.5°	2220.4	2159.1	2108.4	2073.2	2056.8	2060.9
15°	2211.8	2148.8	2096.9	2060.5	2043.8	2048.3
15.5°	2203.2	2138.6	2084.6	2047.4	2030.7	2035.2
16°	2194.6	2127.6	2072.4	2034.3	2017.6	2022.1
16.5°	2185.6	2116.5	2059.7	2021.3	2003.7	2008.6
17°	2176.2	2105.1	2047.0	2007.8	1990.2	1994.7
17.5°	2166.4	2093.6	2033.9	1993.9	1975.9	1981.2
18°	2156.2	2081.4	2020.9	1980.0	1962.0	1966.9
18.5°	2146.0	2069.1	2007.0	1965.7	1947.7	1953.0
19°	2135.4	2056.4	1993.5	1951.3	1932.9	1938.3
19.5°	2124.3	2043.8	1979.6	1936.6	1918.2	1923.5
20°	2113.3	2030.7	1965.2	1922.3	1903.5	1909.2
20.5°	2101.8	2017.6	1950.5	1907.2	1888.4	1893.7
21°	2090.0	2003.7	1935.8	1891.6	1872.8	1878.6

TEST NUMBER: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2053.2	1961.6	1890.0	1845.0	1826.2	1832.3
23°	2040.1	1946.4	1874.5	1829.1	1810.3	1816.4
23.5°	2027.4	1932.1	1858.9	1813.1	1794.3	1800.5
24°	2013.9	1916.6	1842.6	1796.8	1777.6	1784.1
24.5°	2000.0	1901.5	1826.6	1780.4	1760.8	1767.3
25°	1986.1	1885.5	1809.9	1763.6	1744.4	1751.0
25.5°	1971.8	1870.0	1793.5	1746.5	1727.7	1734.2
26°	1957.5	1854.4	1776.3	1729.3	1710.5	1717.4
26.5°	1942.3	1837.7	1760.0	1712.5	1693.3	1700.3
27°	1927.6	1820.9	1742.4	1695.4	1676.1	1683.1
27.5°	1912.9	1804.5	1725.2	1677.8	1658.6	1665.5
28°	1897.4	1787.8	1707.2	1659.8	1640.6	1647.9
28.5°	1882.2	1771.0	1690.0	1642.2	1623.4	1630.3
29°	1865.9	1753.4	1672.1	1624.2	1605.0	1612.8
29.5°	1849.9	1736.3	1654.1	1606.2	1587.0	1594.8
30°	1833.6	1719.1	1636.1	1587.8	1568.6	1576.4
30.5°	1817.6	1701.1	1617.7	1569.4	1550.6	1558.0
31°	1800.9	1683.1	1598.9	1551.0	1531.8	1539.6
31.5°	1783.7	1665.1	1580.9	1532.2	1513.4	1521.2
32°	1766.5	1646.7	1562.1	1513.4	1494.2	1502.4
32.5°	1749.7	1628.7	1543.2	1494.6	1475.8	1483.5
33°	1732.2	1610.7	1524.4	1475.8	1456.6	1464.3
33.5°	1714.6	1591.9	1505.6	1456.6	1437.7	1445.5
34°	1697.0	1573.1	1486.4	1437.3	1418.5	1426.3
34.5°	1679.0	1554.3	1466.8	1418.1	1399.3	1406.7
35°	1661.0	1535.5	1447.6	1398.5	1379.3	1387.0
35.5°	1643.0	1516.3	1428.7	1378.9	1360.5	1367.8
36°	1625.0	1497.9	1409.1	1359.6	1340.8	1348.2
36.5°	1606.6	1478.2	1389.9	1340.0	1320.8	1328.6
37°	1587.8	1459.0	1369.9	1320.0	1301.2	1308.5
37.5°	1569.4	1440.2	1350.6	1300.3	1281.5	1288.5
38°	1550.6	1420.6	1330.6	1280.3	1261.5	1268.0
38.5°	1531.8	1400.9	1311.4	1260.7	1241.5	1248.4
39°	1513.0	1382.1	1291.8	1241.1	1221.4	1228.8
39.5°	1494.2	1362.5	1272.1	1221.0	1201.4	1207.9
40°	1475.0	1342.9	1252.1	1200.6	1180.9	1187.1
40.5°	1456.1	1323.7	1232.5	1180.9	1160.9	1167.0
41°	1436.9	1303.6	1212.8	1160.9	1140.1	1146.6
41.5°	1417.7	1284.4	1192.8	1140.9	1119.6	1125.7
42°	1398.5	1265.2	1173.2	1120.8	1099.6	1104.9
42.5°	1379.3	1246.0	1154.0	1100.8	1079.1	1084.4
43°	1360.5	1226.7	1134.3	1080.8	1058.7	1064.0
43.5°	1340.8	1206.7	1115.1	1060.7	1038.2	1043.1

TEST NUMBER: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1283.6	1149.0	1056.2	1001.0	976.9	980.2
45.5°	1264.4	1129.8	1037.0	981.0	956.0	959.3
46°	1245.6	1111.4	1018.2	961.8	935.6	938.5
46.5°	1227.2	1093.0	999.4	941.7	915.2	916.8
47°	1208.8	1074.6	980.2	922.1	894.7	895.5
47.5°	1190.3	1055.8	961.4	902.5	874.7	875.1
48°	1172.8	1038.6	943.0	882.8	854.2	854.2
48.5°	1154.8	1020.2	924.1	863.6	833.4	833.4
49°	1136.0	1001.8	906.2	844.8	813.3	812.1
49.5°	1115.9	983.4	888.2	825.6	793.3	791.7
50°	1095.5	964.2	869.8	806.4	772.8	770.4
50.5°	1073.8	944.2	850.5	787.6	753.2	749.5
51°	1051.7	924.1	832.1	768.8	732.8	727.9
51.5°	1028.8	903.3	813.3	749.9	713.1	707.8
52°	1005.5	882.4	794.1	731.5	693.5	687.0
52.5°	981.0	860.8	774.5	712.3	673.5	666.5
53°	956.9	839.1	754.9	693.5	654.3	646.1
53.5°	931.1	817.0	735.2	674.3	634.6	625.6
54°	905.3	794.9	715.2	655.9	615.4	604.8
54.5°	879.6	772.8	695.2	636.7	596.2	584.7
55°	854.2	750.4	674.7	617.5	577.4	564.7
55.5°	827.6	727.0	654.7	598.2	557.8	544.3
56°	801.5	704.6	634.2	579.4	538.9	525.0
56.5°	775.7	682.1	614.2	560.2	520.1	505.0
57°	749.9	659.2	593.3	541.4	501.3	485.4
57.5°	723.8	636.3	572.9	521.8	482.5	465.8
58°	698.4	613.8	552.9	503.4	464.5	446.9
58.5°	673.5	591.3	532.8	484.2	445.7	428.1
59°	647.7	568.8	512.8	465.3	427.3	408.9
59.5°	623.2	546.3	492.7	446.9	409.3	390.5
60°	598.7	524.6	473.1	428.5	391.3	372.1
60.5°	574.5	503.0	453.5	410.1	373.3	353.7
61°	550.4	481.7	434.3	392.1	355.8	335.7
61.5°	527.1	461.3	415.0	374.6	338.6	318.5
62°	505.0	440.8	396.2	357.0	321.8	301.0
62.5°	482.1	420.8	377.8	339.4	305.1	283.8
63°	460.0	400.7	359.8	322.2	288.7	267.4
63.5°	438.4	381.9	341.9	305.5	272.3	251.5
64°	417.5	363.1	324.3	288.7	256.8	235.5
64.5°	397.5	345.1	307.1	272.3	241.3	220.8
65°	377.8	327.1	290.3	256.4	226.9	206.5
65.5°	359.4	310.0	274.0	240.4	212.2	192.2
66°	341.4	292.8	257.6	225.3	198.3	179.1



TEST NUMBER: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	289.1	245.8	212.6	182.0	159.1	144.8
68°	273.2	231.0	198.3	169.3	147.6	137.4
68.5°	258.0	217.1	185.2	156.6	138.6	129.6
69°	243.3	203.6	171.7	144.3	130.0	122.3
69.5°	229.4	191.0	159.5	134.9	121.4	114.5
70°	215.9	178.3	148.4	125.5	112.5	110.8
70.5°	203.2	166.4	139.0	116.1	103.9	106.7
71°	190.6	155.4	129.6	106.7	99.8	102.2
71.5°	179.1	144.3	120.2	99.4	96.1	97.7
72°	167.7	135.4	110.8	92.8	92.0	92.8
72.5°	157.0	126.4	101.4	86.7	87.5	88.3
73°	146.4	117.4	93.6	81.0	83.0	83.8
73.5°	136.6	108.0	86.7	76.1	78.9	79.3
74°	127.2	100.2	80.1	72.0	74.8	75.2
74.5°	118.6	92.4	74.0	68.3	70.7	70.7
75°	110.0	85.5	68.7	65.0	67.1	67.1
75.5°	101.8	78.5	63.4	61.3	63.0	63.0
76°	94.1	72.4	58.9	58.1	59.3	59.3
76.5°	87.1	66.2	54.4	54.8	55.6	55.6
77°	80.1	60.5	50.3	51.5	52.3	51.9
77.5°	73.6	55.6	46.6	48.3	49.1	48.7
78°	67.1	50.3	42.9	45.4	45.8	45.0
78.5°	61.3	45.8	39.7	42.5	42.5	42.1
79°	55.6	41.7	36.8	39.7	39.3	38.8
79.5°	50.7	37.6	33.9	36.8	36.4	36.0
80°	45.8	33.9	31.5	33.9	33.5	33.1
80.5°	40.9	30.7	29.4	31.5	30.7	30.3
81°	37.2	27.4	27.0	29.0	27.8	27.4
81.5°	33.5	24.5	24.9	26.6	25.4	24.9
82°	29.4	22.1	22.5	24.1	22.5	22.5
82.5°	25.8	19.6	20.4	21.7	20.0	20.0
83°	21.7	17.2	18.4	19.6	17.6	17.6
83.5°	18.8	15.1	16.4	17.6	15.1	15.1
84°	15.9	13.1	14.7	15.5	13.5	13.1
84.5°	13.5	11.4	12.7	13.5	11.4	11.0
85°	11.0	9.8	11.0	11.4	9.4	9.0
85.5°	9.0	7.8	9.0	9.8	7.4	7.0
86°	7.0	6.5	7.4	7.8	6.1	5.3
86.5°	5.3	4.9	5.7	6.1	4.9	4.5
87°	3.7	3.7	4.1	4.5	3.7	3.3
87.5°	2.5	2.0	2.5	2.9	2.5	2.5
88°	1.6	0.8	1.2	1.6	1.6	1.6
88.5°	0.4	0.4	0.4	0.4	0.8	0.8



TEST NUMBER: P776349

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-5000K

**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°	1863.4	1891.6	1941.9	2013.9	2110.0	2187.3	2235.9	2253.1	2242.9	2210.2	2153.8
22°	1847.9	1876.5	1927.2	2000.0	2098.5	2177.1	2227.4	2244.1	2233.5	2200.0	2143.1



44°	1021.5	1057.5	1116.3	1204.7	1342.5	1471.3	1566.1	1603.4	1592.3	1542.0	1448.4
44.5°	1001.0	1037.0	1096.3	1185.0	1322.4	1451.6	1546.9	1584.5	1573.9	1523.6	1429.6



66.5°	166.4	209.0	253.5	300.1	358.2	395.0	419.1	423.2	402.0	391.7	362.3
67°	154.6	194.6	237.6	282.6	339.4	375.0	397.9	401.1	379.9	372.9	344.7



89°	0.4	0.4	0.8	0.8	1.6	1.2	0.8	0.4	0.0	0.0	0.0
89.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0



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21.5°	2078.1	1989.8	1921.1	1876.1	1857.3	1863.4
22°	2065.4	1975.9	1905.5	1861.0	1841.8	1847.9



44°	1321.6	1187.5	1095.1	1040.7	1017.4	1021.5
44.5°	1302.0	1168.3	1075.9	1020.7	997.3	1001.0

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66.5°	323.0	276.8	242.1	209.8	184.8	166.4
67°	305.1	260.5	226.9	196.3	171.7	154.6

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

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Scaled Data Report



(END OF REPORT)