

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: P776458

Luminaire Tested: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776458
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B044)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K
Description: 8 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4973.5 lumens
Efficiency: N/A
Efficacy: 129.2 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.25 / 1.35
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

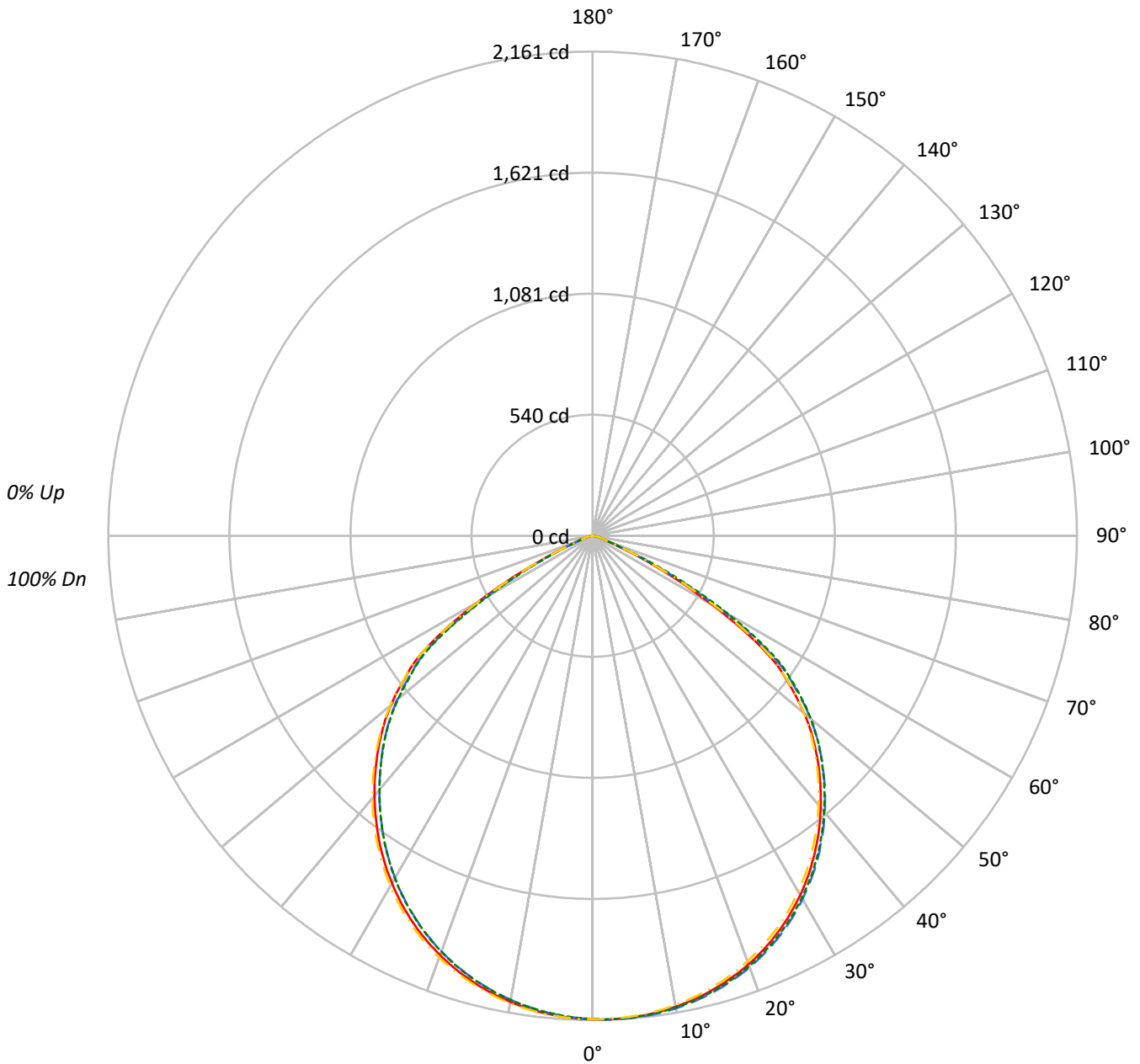
Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	111	107	104	101	109	105	102	99	101	98	96	97	95	93	94	92	91	89								
2	103	96	90	85	100	94	89	84	91	86	83	87	84	81	85	82	79	77								
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67								
4	87	77	69	63	85	75	68	63	73	67	62	71	65	61	69	64	60	58								
5	81	69	61	55	79	68	60	55	66	59	54	64	58	54	62	57	53	51								
6	75	62	54	48	73	62	54	48	60	53	48	58	52	47	57	51	47	45								
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40								
8	65	52	44	39	63	51	44	38	50	43	38	49	43	38	48	42	38	36								
9	60	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	32								
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	65890	65890	65890	65890
5°	66066	66090	65735	65560
10°	66169	66281	65493	65220
15°	66201	66391	65158	64776
20°	66113	66399	64710	64174
25°	65820	66228	64041	63334
30°	65286	65811	63142	62205
35°	64411	65104	61918	60718
40°	63114	64042	60352	58969
45°	61345	62597	58491	56924
50°	58487	60402	55790	53780
55°	53404	56001	50897	48751
60°	37766	42516	35971	32918
65°	18544	22178	16738	15106
70°	5900	6507	5936	5829
75°	4282	4801	4329	4423
80°	2971	3534	2971	3182
85°	1681	2417	1681	1962

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 62735 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	204.3	4.1
10°-20°	586.1	11.8
20°-30°	887.0	17.8
30°-40°	1057.3	21.3
40°-50°	1067.0	21.5
50°-60°	847.5	17.0
60°-70°	274.8	5.5
70°-80°	42.2	0.8
80°-90°	7.4	0.1
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°	1677.3	33.7
0°-40°	2734.6	55.0
0°-60°	4649.1	93.5
0°-90°	4973.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4973.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2158	2158	2158	2158	2158	
5°	2156	2156	2145	2139	2156	205
15°	2094	2100	2062	2049	2094	591
25°	1954	1966	1901	1880	1954	900
35°	1728	1747	1661	1629	1728	1080
45°	1421	1450	1355	1318	1421	1093
55°	1003	1052	956	916	1003	866
65°	257	307	232	209	257	278
75°	36	41	37	38	36	40
85°	5	7	5	6	5	6
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°	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2
0.5°	2159.4	2159.0	2159.0	2159.4	2157.4	2157.8	2158.6	2158.6	2158.2	2157.4	2157.0
1°	2159.4	2159.4	2159.8	2160.2	2158.2	2158.2	2158.2	2158.2	2157.4	2156.1	2155.7
1.5°	2159.8	2159.8	2160.2	2160.6	2158.6	2158.2	2158.2	2157.8	2156.1	2154.9	2154.1
2°	2159.4	2159.8	2160.6	2161.0	2159.0	2158.2	2157.8	2157.0	2155.3	2153.3	2152.5
2.5°	2159.0	2159.8	2160.6	2161.0	2159.0	2158.2	2157.0	2155.7	2153.7	2152.1	2150.9
3°	2159.0	2159.8	2160.6	2161.0	2158.6	2157.8	2156.5	2154.5	2152.5	2150.1	2149.3
3.5°	2158.2	2159.4	2160.2	2161.0	2158.6	2157.0	2155.3	2153.3	2150.9	2148.1	2146.9
4°	2157.8	2159.0	2159.8	2160.2	2158.2	2156.5	2154.1	2151.7	2148.9	2146.1	2144.9
4.5°	2156.5	2158.2	2159.4	2159.8	2157.4	2155.3	2152.9	2150.1	2146.9	2143.7	2142.0
5°	2155.7	2157.4	2159.0	2159.0	2156.5	2154.5	2151.3	2148.1	2144.9	2141.2	2139.6
5.5°	2154.5	2156.1	2157.8	2158.2	2155.3	2153.3	2149.7	2146.1	2142.0	2138.4	2136.8
6°	2152.9	2154.9	2156.5	2157.0	2154.1	2151.7	2147.7	2144.1	2139.6	2135.6	2134.0
6.5°	2151.3	2153.7	2155.3	2155.7	2152.9	2150.1	2145.7	2141.6	2136.8	2132.4	2130.8
7°	2149.3	2152.1	2154.1	2154.1	2151.3	2148.1	2143.7	2139.2	2134.0	2129.1	2127.1
7.5°	2147.3	2150.1	2152.5	2152.5	2149.7	2146.1	2141.6	2136.0	2130.8	2125.9	2123.9
8°	2145.3	2148.1	2150.5	2150.9	2147.7	2144.1	2138.8	2133.2	2127.5	2122.3	2119.9
8.5°	2142.4	2146.1	2148.5	2148.5	2145.7	2141.2	2136.0	2130.0	2123.9	2118.7	2116.3
9°	2140.0	2144.1	2146.5	2146.5	2143.3	2138.8	2132.8	2126.7	2120.3	2114.6	2112.2
9.5°	2137.2	2141.2	2144.1	2144.1	2140.8	2136.4	2130.0	2123.1	2116.7	2110.6	2107.8
10°	2134.4	2138.8	2141.2	2141.2	2138.0	2133.2	2126.7	2119.5	2112.6	2106.2	2103.4
10.5°	2131.2	2136.0	2138.4	2138.4	2135.2	2130.0	2123.5	2115.4	2108.2	2101.7	2098.5
11°	2127.9	2132.8	2135.6	2135.6	2132.0	2126.7	2119.5	2111.4	2103.8	2096.9	2093.7
11.5°	2124.3	2129.6	2132.4	2132.4	2128.7	2123.1	2115.4	2107.4	2099.3	2092.1	2088.9
12°	2120.7	2126.3	2129.1	2129.1	2125.1	2119.5	2111.4	2102.6	2094.5	2087.2	2083.6
12.5°	2117.1	2122.7	2125.5	2125.5	2121.9	2115.4	2107.4	2098.1	2089.3	2081.6	2078.0
13°	2112.6	2118.7	2121.9	2121.5	2117.9	2111.4	2103.0	2093.3	2084.0	2076.4	2072.7
13.5°	2108.2	2114.2	2117.9	2117.5	2113.8	2107.0	2098.5	2088.0	2078.8	2070.7	2066.7
14°	2103.8	2110.2	2113.8	2113.4	2109.4	2102.6	2093.7	2083.2	2073.1	2065.1	2060.6
14.5°	2099.3	2105.8	2109.8	2109.0	2105.4	2097.7	2088.5	2077.6	2067.5	2059.0	2054.6
15°	2094.5	2101.7	2105.4	2104.6	2100.5	2093.3	2083.2	2071.9	2061.5	2052.6	2048.6
15.5°	2089.3	2096.5	2100.5	2099.7	2095.7	2088.0	2078.0	2066.7	2055.4	2046.5	2041.7
16°	2084.0	2091.7	2095.7	2094.5	2090.5	2082.8	2072.3	2060.2	2049.0	2039.7	2034.9
16.5°	2078.8	2086.4	2090.5	2089.3	2085.6	2077.6	2066.7	2054.2	2042.5	2033.2	2028.0
17°	2072.7	2081.2	2085.2	2084.0	2080.4	2071.9	2060.6	2047.8	2036.1	2026.4	2020.8
17.5°	2067.1	2075.6	2080.0	2078.4	2074.8	2066.3	2054.2	2041.3	2028.8	2018.7	2013.5
18°	2061.1	2069.5	2073.9	2072.7	2069.1	2060.2	2048.2	2034.5	2022.0	2011.5	2005.8
18.5°	2055.0	2063.9	2068.3	2066.3	2063.1	2053.8	2041.7	2027.6	2014.7	2003.8	1998.2
19°	2048.2	2057.8	2061.9	2060.6	2056.6	2047.4	2034.9	2020.4	2007.1	1995.8	1990.1
19.5°	2041.7	2051.4	2055.8	2054.2	2050.2	2040.9	2028.0	2013.1	1999.4	1988.1	1982.1
20°	2034.9	2044.5	2049.4	2047.8	2043.7	2034.1	2020.8	2005.8	1991.7	1980.1	1973.6
20.5°	2028.0	2037.7	2042.5	2040.9	2036.9	2027.2	2013.5	1997.8	1983.3	1971.6	1965.2
21°	2020.4	2030.8	2035.3	2034.1	2029.6	2020.0	2005.4	1989.7	1975.2	1962.7	1956.3



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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°	1997.4	2008.3	2013.5	2011.5	2007.5	1997.0	1981.7	1965.2	1949.0	1935.7	1928.9
23°	1988.9	2000.6	2005.4	2003.8	1999.8	1988.9	1973.6	1955.9	1939.8	1926.9	1919.2
23.5°	1980.9	1992.6	1997.8	1995.8	1991.3	1980.9	1964.7	1947.4	1930.5	1916.8	1909.5
24°	1972.0	1984.1	1989.3	1987.7	1983.3	1972.4	1955.9	1938.2	1921.2	1907.5	1899.5
24.5°	1963.1	1975.6	1980.9	1978.9	1974.8	1963.5	1947.0	1928.9	1911.2	1897.1	1889.0
25°	1953.9	1966.8	1972.0	1970.0	1966.0	1954.3	1938.2	1919.2	1901.1	1887.0	1878.5
25.5°	1945.0	1957.9	1963.1	1961.1	1957.1	1945.4	1928.9	1909.1	1891.4	1876.9	1868.0
26°	1935.7	1948.6	1953.9	1952.3	1947.8	1936.1	1919.2	1899.5	1880.9	1866.0	1857.6
26.5°	1926.1	1939.4	1945.0	1943.0	1938.2	1926.9	1909.1	1889.4	1870.5	1855.1	1846.3
27°	1916.0	1929.7	1934.9	1933.3	1928.5	1917.2	1899.5	1878.9	1859.6	1844.3	1835.0
27.5°	1905.9	1919.6	1925.7	1923.2	1919.2	1907.1	1889.0	1868.4	1848.7	1833.0	1823.7
28°	1895.4	1909.5	1915.6	1913.2	1909.1	1897.1	1878.5	1857.2	1837.4	1821.7	1812.4
28.5°	1885.0	1899.1	1905.1	1903.1	1898.7	1886.6	1868.0	1846.3	1826.1	1809.6	1800.3
29°	1874.5	1889.0	1894.6	1892.6	1888.2	1875.7	1856.8	1835.0	1814.9	1798.3	1788.3
29.5°	1863.2	1878.5	1884.2	1882.1	1877.7	1865.2	1845.9	1823.7	1802.8	1785.8	1776.2
30°	1851.9	1867.2	1872.9	1871.3	1866.8	1853.9	1834.6	1812.0	1791.1	1773.8	1763.7
30.5°	1841.0	1856.0	1862.0	1860.0	1856.0	1843.1	1823.3	1800.3	1778.6	1761.3	1750.8
31°	1829.0	1844.7	1850.7	1848.7	1844.3	1831.4	1811.2	1788.3	1766.5	1748.8	1738.3
31.5°	1817.3	1833.0	1839.0	1837.0	1833.0	1819.7	1799.5	1775.8	1754.0	1735.9	1725.4
32°	1805.2	1820.9	1827.3	1825.3	1821.3	1808.0	1787.5	1763.7	1741.1	1723.0	1712.5
32.5°	1792.7	1808.8	1815.7	1813.2	1809.2	1795.9	1775.0	1750.8	1728.2	1709.7	1698.4
33°	1780.6	1796.7	1803.6	1801.2	1797.5	1783.8	1762.5	1738.3	1714.9	1696.4	1685.5
33.5°	1767.7	1784.2	1791.1	1789.1	1785.0	1771.3	1749.6	1725.0	1702.0	1682.3	1671.4
34°	1754.4	1771.3	1778.6	1776.2	1772.1	1758.8	1737.1	1711.7	1688.3	1668.6	1657.7
34.5°	1741.5	1758.4	1765.7	1763.3	1759.2	1745.5	1723.8	1698.4	1674.6	1654.9	1643.2
35°	1728.2	1745.1	1752.8	1750.4	1746.8	1732.7	1710.5	1685.1	1661.3	1640.8	1629.5
35.5°	1714.5	1731.8	1739.5	1737.1	1733.5	1719.4	1696.8	1671.0	1647.2	1626.3	1615.0
36°	1700.8	1718.6	1725.8	1724.2	1720.6	1706.1	1683.5	1656.9	1632.7	1612.2	1600.5
36.5°	1686.7	1704.4	1712.1	1710.5	1706.5	1692.4	1669.8	1643.2	1618.6	1597.7	1586.0
37°	1672.6	1690.3	1698.4	1696.8	1693.2	1678.7	1655.7	1629.5	1603.7	1582.8	1571.5
37.5°	1658.5	1676.2	1684.7	1682.7	1679.1	1664.2	1641.6	1614.6	1589.2	1568.3	1556.2
38°	1643.6	1661.7	1670.2	1668.6	1665.0	1650.5	1627.1	1600.1	1574.7	1552.9	1541.3
38.5°	1629.1	1647.2	1655.7	1654.5	1650.5	1635.9	1612.6	1585.6	1559.8	1538.0	1525.9
39°	1614.2	1632.3	1641.2	1639.6	1636.4	1621.4	1598.1	1570.7	1544.9	1522.7	1511.0
39.5°	1598.9	1617.4	1626.3	1625.1	1621.8	1606.5	1582.8	1555.8	1529.6	1507.4	1495.7
40°	1583.6	1602.1	1611.8	1610.2	1606.9	1592.0	1567.8	1540.0	1514.3	1492.1	1480.0
40.5°	1568.3	1586.8	1596.1	1595.3	1592.0	1576.7	1552.5	1524.7	1498.9	1476.0	1464.7
41°	1552.1	1571.1	1580.7	1579.9	1576.3	1561.4	1537.2	1509.4	1483.2	1460.7	1448.6
41.5°	1536.0	1555.4	1565.0	1564.6	1561.4	1546.1	1521.9	1494.1	1467.9	1445.0	1432.9
42°	1520.3	1539.6	1549.7	1549.3	1546.1	1530.4	1506.2	1478.8	1451.8	1428.8	1416.7
42.5°	1504.2	1523.5	1534.0	1533.6	1530.4	1514.7	1490.5	1462.7	1435.7	1413.1	1401.0
43°	1488.1	1507.0	1517.9	1517.9	1515.1	1498.9	1474.8	1447.0	1420.0	1396.6	1384.9
43.5°	1471.5	1490.9	1501.8	1502.2	1498.9	1482.8	1458.7	1430.8	1403.9	1380.5	1368.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1420.8	1440.1	1452.2	1453.0	1449.8	1433.7	1409.9	1382.5	1354.7	1330.9	1319.6
45.5°	1403.0	1422.8	1434.9	1436.5	1433.3	1416.7	1393.0	1365.2	1338.2	1314.4	1303.1
46°	1385.7	1405.9	1418.0	1419.6	1416.3	1399.8	1376.5	1348.6	1321.2	1297.5	1286.2
46.5°	1368.0	1387.3	1400.6	1402.2	1399.4	1382.9	1359.1	1331.7	1303.9	1280.6	1269.3
47°	1349.5	1369.6	1382.9	1384.9	1382.5	1365.2	1341.4	1314.0	1286.6	1263.2	1251.5
47.5°	1330.9	1351.1	1364.8	1367.2	1365.2	1347.4	1323.7	1296.3	1269.3	1245.1	1233.8
48°	1312.4	1332.1	1346.6	1349.1	1346.6	1329.7	1307.1	1278.9	1251.5	1227.4	1216.1
48.5°	1292.6	1312.8	1327.3	1330.5	1328.9	1312.0	1287.8	1260.8	1233.0	1209.2	1197.5
49°	1273.3	1293.8	1308.4	1312.4	1310.4	1292.6	1269.3	1241.9	1213.7	1189.9	1178.2
49.5°	1252.7	1273.7	1288.6	1292.6	1291.4	1273.7	1249.9	1222.5	1194.7	1170.5	1158.5
50°	1231.4	1252.7	1268.5	1272.9	1271.7	1254.4	1231.0	1203.2	1174.6	1150.4	1137.9
50.5°	1209.6	1230.6	1247.5	1251.5	1251.1	1234.6	1210.4	1182.2	1154.0	1129.0	1117.0
51°	1188.3	1209.2	1225.8	1231.0	1230.6	1212.9	1188.7	1160.9	1132.3	1107.7	1095.6
51.5°	1164.9	1186.3	1203.2	1208.8	1209.6	1191.5	1167.3	1139.1	1111.3	1087.1	1074.2
52°	1141.9	1164.1	1181.0	1186.7	1187.1	1169.3	1145.2	1116.6	1088.3	1064.6	1051.7
52.5°	1119.0	1140.3	1158.1	1163.3	1164.5	1146.4	1122.2	1094.0	1066.6	1042.4	1029.9
53°	1096.0	1117.0	1134.7	1141.1	1141.5	1123.8	1099.2	1071.4	1044.4	1020.7	1008.6
53.5°	1073.4	1093.6	1111.7	1117.8	1119.0	1101.6	1076.7	1050.1	1023.5	1000.5	988.8
54°	1051.7	1072.2	1089.6	1096.4	1096.8	1079.1	1055.3	1028.7	1003.3	980.0	967.9
54.5°	1029.1	1050.1	1067.4	1074.2	1074.6	1058.1	1034.0	1006.6	981.2	957.8	946.1
55°	1003.3	1023.9	1042.4	1049.7	1052.1	1034.4	1010.2	982.4	956.2	933.2	921.5
55.5°	974.7	995.3	1015.0	1022.3	1025.9	1008.6	983.2	955.0	926.4	902.6	892.1
56°	941.3	964.6	982.8	990.4	996.5	979.6	952.6	921.9	892.9	870.0	858.7
56.5°	905.8	930.0	948.5	957.0	963.8	947.3	919.9	887.7	858.7	834.1	822.8
57°	867.9	891.7	912.3	921.1	929.2	911.1	883.7	851.8	821.6	797.0	784.9
57.5°	828.0	850.6	874.4	884.9	892.9	873.6	846.2	814.8	784.1	759.9	746.2
58°	786.5	809.5	835.3	847.8	855.9	834.1	805.9	775.3	745.8	720.9	707.2
58.5°	745.8	768.0	794.6	809.5	818.0	795.0	766.4	736.6	707.6	683.4	668.1
59°	702.7	726.9	754.3	770.4	777.7	752.3	724.5	695.5	667.7	643.9	627.8
59.5°	661.2	684.6	712.8	729.3	737.0	711.2	682.6	654.4	628.2	604.8	588.7
60°	618.5	643.9	671.3	689.0	696.3	669.7	640.7	612.5	589.1	566.5	550.8
60.5°	578.2	603.2	629.4	647.1	655.6	629.8	598.8	572.6	550.0	527.9	512.5
61°	537.5	563.3	587.5	605.2	613.3	589.1	558.1	531.1	510.5	490.8	475.5
61.5°	498.0	524.6	547.2	562.5	573.0	550.8	518.2	491.6	472.2	454.5	438.8
62°	459.8	485.1	507.7	521.0	533.1	510.5	479.5	452.5	434.8	419.1	404.2
62.5°	422.7	447.7	468.6	479.1	492.0	471.8	440.8	414.2	400.1	386.0	371.9
63°	386.8	410.6	430.3	439.2	452.9	434.0	407.0	380.0	365.5	353.0	339.3
63.5°	351.8	374.7	391.7	398.5	415.0	399.3	372.7	345.3	330.8	319.5	306.6
64°	317.9	339.3	355.4	360.6	379.2	364.3	338.5	310.7	296.2	286.5	274.4
64.5°	286.1	306.2	319.9	324.0	343.3	329.6	304.2	276.4	261.9	253.0	245.4
65°	256.7	274.0	285.7	289.3	307.0	294.6	270.4	246.2	231.7	224.0	218.8
65.5°	226.9	243.0	253.5	257.1	271.2	259.9	239.8	218.4	204.3	196.6	194.2
66°	196.6	213.2	222.0	225.6	238.1	228.1	211.9	193.0	178.1	171.7	171.3



TEST NUMBER: P776458

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	128.9	137.4	143.0	146.3	153.5	149.1	139.8	128.5	112.4	112.8	115.2
68°	114.0	121.7	128.1	131.0	131.0	126.9	119.7	112.0	97.1	99.1	101.1
68.5°	99.1	106.4	113.6	115.6	111.6	107.6	103.2	97.5	85.0	88.6	89.5
69°	84.6	91.1	99.1	100.7	95.5	91.9	89.9	85.4	76.2	79.8	79.8
69.5°	69.7	75.8	84.6	85.4	82.6	80.2	78.6	75.8	70.1	72.5	72.1
70°	66.1	68.5	70.1	70.1	72.9	71.7	70.5	68.9	66.5	66.9	67.3
70.5°	62.9	64.1	65.3	65.3	66.9	66.5	66.1	64.9	63.3	63.7	63.7
71°	59.2	60.8	62.1	62.1	63.3	63.3	62.9	61.7	60.0	60.4	60.8
71.5°	56.0	58.0	59.2	59.2	60.4	60.0	59.6	58.4	56.4	57.2	57.6
72°	52.8	54.8	56.0	56.0	57.2	57.2	56.8	55.6	53.6	54.4	54.8
72.5°	50.0	51.6	53.2	53.2	54.4	54.0	53.6	52.4	50.4	51.2	52.0
73°	46.7	48.8	50.0	50.4	51.6	51.2	50.8	49.6	47.5	48.4	49.2
73.5°	43.9	45.9	47.1	47.5	48.8	48.4	48.0	46.7	44.7	45.5	46.3
74°	41.5	43.1	44.7	44.7	45.9	45.5	45.5	43.9	41.9	42.7	43.5
74.5°	38.7	40.3	41.9	41.9	43.1	43.1	42.7	41.1	39.1	40.3	41.1
75°	36.3	37.9	39.5	39.5	40.7	40.3	40.3	38.7	36.7	37.5	38.7
75.5°	33.8	35.5	37.1	37.1	38.3	37.9	37.9	36.3	34.7	35.1	36.3
76°	31.4	33.0	34.7	34.7	35.9	35.9	35.5	33.8	32.2	33.0	34.3
76.5°	29.4	30.6	32.2	32.6	33.8	33.4	33.4	31.8	30.2	31.0	31.8
77°	27.4	28.6	30.2	30.6	31.4	31.4	31.0	29.8	27.8	28.6	29.8
77.5°	25.4	26.6	28.2	28.6	29.4	29.4	29.0	27.4	25.8	26.6	27.8
78°	23.4	24.6	26.2	26.6	27.4	27.4	27.0	25.4	23.8	24.6	25.4
78.5°	21.8	23.0	24.2	24.6	25.4	25.4	25.0	23.4	21.8	22.6	23.8
79°	20.1	21.0	22.6	23.0	23.4	23.4	23.0	21.4	20.1	20.6	21.8
79.5°	18.1	19.3	21.0	21.0	21.8	21.8	21.4	19.7	18.5	18.9	20.1
80°	16.9	17.7	18.9	19.3	20.1	20.1	19.7	18.1	16.9	17.3	18.5
80.5°	15.3	16.1	17.3	17.7	18.5	18.5	18.1	16.5	15.3	15.7	16.9
81°	13.7	14.5	16.1	16.5	16.9	16.9	16.5	14.9	13.7	14.1	15.3
81.5°	12.5	13.3	14.5	14.9	15.3	15.3	14.9	13.7	12.5	12.9	13.7
82°	11.3	12.1	13.3	13.3	14.1	14.1	13.7	12.1	11.3	11.3	12.5
82.5°	9.7	10.5	11.7	12.1	12.5	12.5	12.1	10.9	9.7	10.1	11.3
83°	8.5	9.3	10.5	10.9	11.3	11.3	10.9	9.7	8.5	8.9	10.1
83.5°	7.7	8.1	9.3	9.7	10.1	10.1	9.7	8.5	7.7	7.7	8.9
84°	6.4	6.9	8.1	8.5	8.9	8.9	8.5	7.3	6.4	6.9	7.7
84.5°	5.6	6.0	6.9	7.3	7.7	7.7	7.3	6.0	5.6	5.6	6.4
85°	4.8	5.2	6.0	6.4	6.9	6.9	6.4	5.2	4.8	4.8	5.6
85.5°	3.6	4.0	5.2	5.6	5.6	5.6	5.2	4.0	4.0	3.6	4.8
86°	3.2	3.2	4.4	4.4	4.8	4.8	4.4	3.2	3.2	2.8	4.0
86.5°	2.4	2.4	3.6	3.6	4.0	4.0	3.6	2.8	2.4	2.4	3.2
87°	1.6	2.0	2.8	3.2	3.2	3.2	2.8	2.0	1.6	1.6	2.4
87.5°	1.2	1.6	2.0	2.4	2.4	2.4	2.4	1.6	1.2	1.2	2.0
88°	0.8	1.2	1.6	1.6	2.0	2.0	1.6	1.2	0.8	0.8	1.2
88.5°	0.4	0.8	0.8	1.2	1.2	1.2	1.2	0.8	0.4	0.4	0.8



TEST NUMBER: P776458
CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-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: P776458

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2158.2	2158.2	2158.2	2158.2	2158.2	2158.2
0.5°	2157.4	2155.7	2156.5	2157.8	2159.0	2159.4
1°	2156.1	2154.5	2155.7	2157.4	2159.0	2159.4
1.5°	2154.9	2153.3	2154.5	2157.0	2159.0	2159.8
2°	2153.3	2152.1	2153.3	2156.1	2158.6	2159.4
2.5°	2151.7	2150.5	2152.1	2154.9	2157.8	2159.0
3°	2149.7	2148.5	2150.5	2153.7	2157.0	2159.0
3.5°	2147.7	2146.5	2148.9	2152.5	2156.1	2158.2
4°	2145.3	2144.5	2146.9	2150.9	2154.9	2157.8
4.5°	2142.8	2142.0	2144.9	2149.3	2153.7	2156.5
5°	2140.4	2139.2	2142.8	2147.3	2152.1	2155.7
5.5°	2137.2	2136.8	2140.4	2145.3	2150.5	2154.5
6°	2134.4	2134.0	2137.6	2143.3	2148.5	2152.9
6.5°	2131.6	2130.8	2134.8	2140.4	2146.5	2151.3
7°	2127.9	2127.5	2132.4	2138.0	2144.5	2149.3
7.5°	2124.7	2123.9	2129.1	2135.2	2142.0	2147.3
8°	2120.7	2120.3	2125.5	2132.0	2139.6	2145.3
8.5°	2117.1	2116.3	2121.9	2129.1	2136.4	2142.4
9°	2113.0	2112.2	2117.9	2125.5	2133.6	2140.0
9.5°	2108.6	2108.2	2114.2	2121.9	2130.4	2137.2
10°	2104.2	2103.8	2110.2	2118.3	2127.1	2134.4
10.5°	2099.3	2099.3	2105.8	2114.2	2123.5	2131.2
11°	2094.9	2094.5	2101.3	2110.2	2119.9	2127.9
11.5°	2089.7	2089.7	2096.5	2105.8	2116.3	2124.3
12°	2084.4	2084.4	2091.7	2101.3	2111.8	2120.7
12.5°	2079.2	2079.2	2086.8	2096.5	2107.8	2117.1
13°	2073.5	2073.5	2081.6	2091.7	2103.4	2112.6
13.5°	2067.5	2067.9	2076.0	2086.4	2098.5	2108.2
14°	2061.5	2061.5	2070.3	2081.2	2093.7	2103.8
14.5°	2055.4	2055.4	2064.7	2076.0	2088.5	2099.3
15°	2049.4	2049.4	2058.6	2070.3	2083.2	2094.5
15.5°	2042.5	2042.9	2051.8	2064.3	2078.0	2089.3
16°	2035.7	2036.1	2045.3	2058.2	2072.3	2084.0
16.5°	2028.8	2029.2	2038.9	2051.8	2066.3	2078.8
17°	2022.0	2022.4	2032.0	2045.3	2060.2	2072.7
17.5°	2013.9	2014.7	2025.2	2038.9	2054.2	2067.1
18°	2006.7	2007.5	2017.5	2032.0	2047.4	2061.1
18.5°	1999.0	1999.4	2010.3	2024.8	2040.9	2055.0
19°	1990.9	1991.7	2002.6	2017.5	2034.1	2048.2
19.5°	1982.9	1983.3	1994.6	2010.3	2027.2	2041.7
20°	1974.4	1975.2	1986.5	2002.6	2019.5	2034.9
20.5°	1965.6	1966.4	1978.4	1994.6	2012.3	2028.0
21°	1956.7	1957.5	1969.6	1986.5	2004.6	2020.4

TEST NUMBER: P776458

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1928.9	1930.1	1943.4	1960.7	1980.5	1997.4
23°	1919.6	1920.4	1933.7	1951.9	1972.0	1988.9
23.5°	1909.5	1910.8	1924.5	1943.0	1963.1	1980.9
24°	1899.5	1900.7	1914.8	1933.3	1954.3	1972.0
24.5°	1889.4	1890.6	1904.3	1924.1	1945.0	1963.1
25°	1878.9	1880.1	1894.2	1914.0	1935.7	1953.9
25.5°	1868.0	1869.7	1884.2	1904.3	1926.1	1945.0
26°	1857.6	1858.8	1873.7	1893.8	1916.4	1935.7
26.5°	1846.3	1847.9	1863.2	1883.8	1905.9	1926.1
27°	1835.0	1836.6	1851.9	1872.9	1895.8	1916.0
27.5°	1823.7	1824.9	1840.6	1862.0	1885.4	1905.9
28°	1812.0	1813.2	1829.4	1851.1	1874.9	1895.4
28.5°	1799.9	1801.6	1818.1	1839.8	1864.0	1885.0
29°	1787.9	1789.5	1805.6	1828.6	1852.7	1874.5
29.5°	1775.4	1777.4	1793.9	1816.9	1841.4	1863.2
30°	1762.5	1764.5	1781.8	1804.8	1830.2	1851.9
30.5°	1750.0	1752.0	1768.9	1792.7	1818.1	1841.0
31°	1737.5	1739.1	1756.8	1780.6	1806.0	1829.0
31.5°	1724.2	1726.2	1743.9	1768.1	1793.9	1817.3
32°	1710.9	1712.5	1730.6	1755.6	1781.8	1805.2
32.5°	1697.2	1699.2	1717.3	1742.3	1769.3	1792.7
33°	1683.9	1685.9	1704.4	1729.4	1756.8	1780.6
33.5°	1670.2	1671.8	1690.3	1716.5	1743.5	1767.7
34°	1656.1	1657.7	1676.6	1702.8	1730.2	1754.4
34.5°	1641.6	1644.0	1662.9	1689.1	1716.9	1741.5
35°	1627.5	1629.1	1648.8	1675.4	1703.2	1728.2
35.5°	1613.4	1615.4	1634.3	1661.3	1689.5	1714.5
36°	1598.9	1600.5	1620.2	1647.2	1675.4	1700.8
36.5°	1584.0	1586.4	1605.7	1633.1	1661.7	1686.7
37°	1569.5	1571.5	1590.8	1618.6	1647.2	1672.6
37.5°	1554.1	1556.2	1575.9	1603.7	1632.7	1658.5
38°	1539.2	1540.9	1560.6	1588.8	1617.8	1643.6
38.5°	1524.3	1525.9	1545.7	1573.9	1602.9	1629.1
39°	1508.6	1510.6	1530.4	1559.0	1588.0	1614.2
39.5°	1493.3	1494.9	1515.1	1543.3	1573.1	1598.9
40°	1478.0	1479.6	1499.3	1528.0	1557.8	1583.6
40.5°	1462.3	1463.9	1483.2	1512.2	1542.5	1568.3
41°	1447.0	1448.2	1467.9	1496.5	1526.3	1552.1
41.5°	1430.8	1431.7	1451.4	1480.4	1510.6	1536.0
42°	1415.1	1416.3	1435.7	1465.1	1494.9	1520.3
42.5°	1399.4	1399.8	1419.6	1449.0	1478.4	1504.2
43°	1382.9	1384.1	1403.9	1432.5	1462.3	1488.1
43.5°	1366.8	1367.6	1386.9	1415.9	1445.8	1471.5



TEST NUMBER: P776458

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1318.0	1318.4	1337.0	1366.0	1395.8	1420.8
45.5°	1301.5	1301.5	1320.0	1349.1	1378.1	1403.0
46°	1284.6	1284.2	1302.7	1331.7	1360.7	1385.7
46.5°	1267.7	1266.4	1285.4	1314.0	1343.0	1368.0
47°	1250.3	1249.5	1267.3	1295.9	1324.9	1349.5
47.5°	1232.2	1231.0	1248.3	1277.3	1306.3	1330.9
48°	1214.1	1212.5	1229.8	1258.4	1287.0	1312.4
48.5°	1195.5	1193.1	1210.8	1239.0	1267.7	1292.6
49°	1176.2	1173.8	1191.1	1218.9	1248.3	1273.3
49.5°	1156.4	1153.6	1170.5	1199.2	1227.8	1252.7
50°	1135.9	1132.3	1149.6	1177.4	1206.8	1231.4
50.5°	1114.9	1111.7	1128.2	1156.0	1184.7	1209.6
51°	1093.6	1090.0	1106.9	1134.7	1162.9	1188.3
51.5°	1071.8	1068.2	1084.3	1112.9	1140.7	1164.9
52°	1049.3	1046.4	1063.0	1090.4	1117.8	1141.9
52.5°	1027.5	1024.7	1041.2	1067.8	1093.6	1119.0
53°	1006.6	1004.1	1020.3	1046.4	1072.2	1096.0
53.5°	986.0	984.4	1000.5	1025.9	1050.9	1073.4
54°	966.3	964.2	980.0	1005.7	1029.9	1051.7
54.5°	944.1	941.7	957.8	982.8	1007.0	1029.1
55°	920.3	915.9	933.2	958.2	982.4	1003.3
55.5°	892.1	885.3	902.6	927.6	952.2	974.7
56°	857.9	851.4	869.1	893.7	918.7	941.3
56.5°	822.0	815.2	832.5	858.3	882.4	905.8
57°	784.9	776.9	794.6	820.4	845.8	867.9
57.5°	746.2	737.0	756.3	782.1	806.7	828.0
58°	707.2	696.7	717.2	743.4	767.2	786.5
58.5°	666.5	657.2	677.7	704.3	724.1	745.8
59°	625.8	616.5	637.9	663.2	684.2	702.7
59.5°	585.9	578.2	598.8	623.8	643.1	661.2
60°	546.0	539.1	560.1	583.5	600.8	618.5
60.5°	507.3	500.9	521.4	543.2	558.5	578.2
61°	468.6	462.6	482.7	502.9	518.6	537.5
61.5°	432.8	427.5	445.7	464.6	479.5	498.0
62°	400.1	391.3	410.2	425.5	439.6	459.8
62.5°	367.9	357.4	374.7	388.0	402.5	422.7
63°	335.7	324.8	340.1	351.8	365.5	386.8
63.5°	303.4	293.3	307.4	317.1	330.8	351.8
64°	271.2	263.1	274.8	283.7	296.6	317.9
64.5°	244.2	235.7	244.6	252.6	265.9	286.1
65°	218.8	209.1	216.0	222.8	236.1	256.7
65.5°	195.0	185.4	189.0	195.4	208.3	226.9
66°	172.5	162.8	163.6	170.4	182.9	196.6



TEST NUMBER: P776458

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	117.7	116.0	115.2	120.5	124.5	128.9
68°	102.8	102.8	102.3	106.4	110.0	114.0
68.5°	90.3	89.5	89.5	92.3	95.9	99.1
69°	80.2	76.2	76.6	78.2	81.4	84.6
69.5°	72.1	69.3	69.7	70.9	72.5	69.7
70°	66.9	65.3	65.7	66.5	66.9	66.1
70.5°	63.7	62.5	62.9	63.3	63.3	62.9
71°	60.8	59.2	59.6	60.4	60.4	59.2
71.5°	57.6	56.4	56.8	57.2	57.2	56.0
72°	54.8	53.2	53.6	54.4	54.0	52.8
72.5°	51.6	50.4	50.8	51.6	51.2	50.0
73°	48.8	47.5	48.0	48.4	48.0	46.7
73.5°	46.3	45.1	45.1	45.9	45.1	43.9
74°	43.5	42.3	42.7	43.1	42.7	41.5
74.5°	41.1	39.9	40.3	40.7	39.9	38.7
75°	38.7	37.5	37.9	37.9	37.5	36.3
75.5°	36.3	35.1	35.5	35.9	35.1	33.8
76°	34.3	33.0	33.0	33.4	32.6	31.4
76.5°	31.8	30.6	31.0	31.0	30.2	29.4
77°	29.8	28.6	29.0	29.0	28.2	27.4
77.5°	27.8	26.6	27.0	27.0	26.2	25.4
78°	25.8	25.0	25.0	25.4	24.2	23.4
78.5°	23.8	23.0	23.4	23.4	22.6	21.8
79°	22.2	21.4	21.4	21.8	20.6	20.1
79.5°	20.6	19.7	19.7	19.7	18.9	18.1
80°	18.9	18.1	18.1	18.1	17.3	16.9
80.5°	17.3	16.5	16.5	16.5	15.7	15.3
81°	15.7	15.3	15.3	15.3	14.5	13.7
81.5°	14.1	13.7	14.1	13.7	12.9	12.5
82°	12.9	12.5	12.5	12.5	11.7	11.3
82.5°	11.7	11.3	11.3	11.3	10.1	9.7
83°	10.5	9.7	10.1	9.7	8.9	8.5
83.5°	9.3	8.9	8.9	8.5	7.7	7.7
84°	8.1	7.7	7.7	7.7	6.9	6.4
84.5°	6.9	6.4	6.9	6.4	5.6	5.6
85°	6.0	5.6	5.6	5.6	4.8	4.8
85.5°	5.2	4.8	4.8	4.8	3.6	3.6
86°	4.0	4.0	4.0	4.0	3.2	3.2
86.5°	3.6	3.2	3.2	3.2	2.4	2.4
87°	2.8	2.4	2.4	2.4	2.0	1.6
87.5°	2.0	1.6	1.6	1.6	1.6	1.2
88°	1.2	1.2	1.2	1.2	0.8	0.8
88.5°	0.8	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P776458

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-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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Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

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°	2012.7	2023.6	2028.4	2026.8	2022.4	2012.3	1997.8	1981.7	1966.8	1953.9	1947.4
22°	2005.0	2016.3	2020.8	2019.5	2015.1	2004.6	1989.7	1973.6	1958.3	1945.4	1938.2



44°	1454.6	1474.4	1485.2	1485.6	1482.4	1466.7	1442.5	1415.1	1387.3	1364.0	1352.7
44.5°	1437.7	1457.0	1468.3	1469.5	1466.7	1449.8	1426.0	1398.6	1371.2	1347.8	1336.2



66.5°	168.8	186.6	193.4	197.0	207.9	199.5	185.4	168.8	153.5	149.1	150.7
67°	143.9	160.8	166.8	170.0	180.1	173.3	161.2	147.9	131.0	129.3	131.8



89°	0.0	0.4	0.4	0.4	0.8	0.4	0.4	0.4	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

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21.5°	1947.8	1949.0	1961.1	1978.4	1996.6	2012.7
22°	1938.6	1939.8	1952.3	1969.6	1988.5	2005.0



44°	1350.7	1351.5	1370.8	1399.8	1429.2	1454.6
44.5°	1334.5	1334.9	1353.9	1383.3	1412.7	1437.7



66.5°	152.3	143.0	141.4	148.3	160.8	168.8
67°	134.6	129.7	128.1	134.2	139.0	143.9

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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)