

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: P776457

Luminaire Tested: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776457
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: HCDJBS3040CSD-HCD81TRMW-4000lm-3500K
Description: 8 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: 4904.7 lumens
Efficiency: N/A
Efficacy: 127.4 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

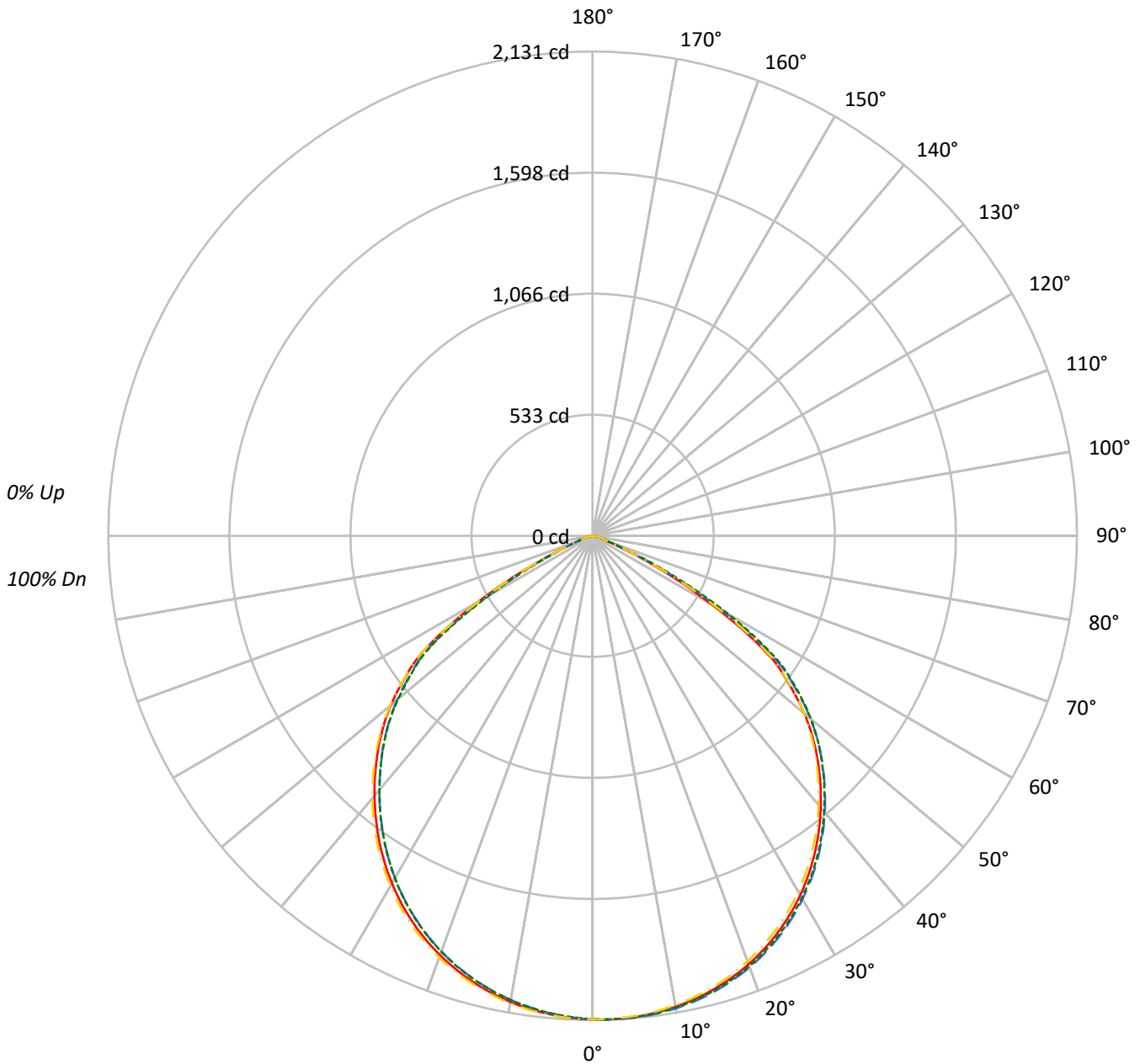
Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	64978	64978	64978	64978
5°	65155	65177	64824	64656
10°	65255	65366	64588	64318
15°	65285	65474	64258	63878
20°	65197	65483	63816	63287
25°	64910	65311	63155	62458
30°	64383	64901	62268	61344
35°	63520	64202	61064	59879
40°	62241	63157	59515	58156
45°	60494	61734	57684	56138
50°	57680	59566	55015	53035
55°	52669	55224	50194	48075
60°	37247	41930	35476	32466
65°	18284	21875	16507	14896
70°	5820	6418	5856	5749
75°	4223	4730	4270	4365
80°	2936	3499	2936	3147
85°	1681	2382	1681	1962

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 61867 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	201.5	4.1
10°-20°	578.0	11.8
20°-30°	874.7	17.8
30°-40°	1042.7	21.3
40°-50°	1052.3	21.5
50°-60°	835.8	17.0
60°-70°	271.0	5.5
70°-80°	41.6	0.8
80°-90°	7.3	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°	1654.1	33.7
0°-40°	2696.8	55.0
0°-60°	4584.9	93.5
0°-90°	4904.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4904.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2128	2128	2128	2128	2128	
5°	2126	2127	2115	2110	2126	202
15°	2066	2072	2033	2021	2066	583
25°	1927	1939	1875	1854	1927	888
35°	1704	1723	1638	1607	1704	1065
45°	1401	1430	1336	1300	1401	1078
55°	990	1038	943	903	990	854
65°	253	303	228	206	253	274
75°	36	40	36	37	36	39
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°	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3
0.5°	2129.5	2129.1	2129.1	2129.5	2127.5	2127.9	2128.7	2128.7	2128.3	2127.5	2127.1
1°	2129.5	2129.5	2129.9	2130.3	2128.3	2128.3	2128.3	2128.3	2127.5	2126.3	2126.0
1.5°	2129.9	2129.9	2130.3	2130.7	2128.7	2128.3	2128.3	2127.9	2126.3	2125.2	2124.4
2°	2129.5	2129.9	2130.7	2131.1	2129.1	2128.3	2127.9	2127.1	2125.6	2123.6	2122.8
2.5°	2129.1	2129.9	2130.7	2131.1	2129.1	2128.3	2127.1	2126.0	2124.0	2122.4	2121.2
3°	2129.1	2129.9	2130.7	2131.1	2128.7	2127.9	2126.7	2124.8	2122.8	2120.4	2119.6
3.5°	2128.3	2129.5	2130.3	2131.1	2128.7	2127.1	2125.6	2123.6	2121.2	2118.4	2117.2
4°	2127.9	2129.1	2129.9	2130.3	2128.3	2126.7	2124.4	2122.0	2119.2	2116.4	2115.2
4.5°	2126.7	2128.3	2129.5	2129.9	2127.5	2125.6	2123.2	2120.4	2117.2	2114.0	2112.4
5°	2126.0	2127.5	2129.1	2129.1	2126.7	2124.8	2121.6	2118.4	2115.2	2111.6	2110.1
5.5°	2124.8	2126.3	2127.9	2128.3	2125.6	2123.6	2120.0	2116.4	2112.4	2108.9	2107.3
6°	2123.2	2125.2	2126.7	2127.1	2124.4	2122.0	2118.0	2114.4	2110.1	2106.1	2104.5
6.5°	2121.6	2124.0	2125.6	2126.0	2123.2	2120.4	2116.0	2112.0	2107.3	2102.9	2101.3
7°	2119.6	2122.4	2124.4	2124.4	2121.6	2118.4	2114.0	2109.7	2104.5	2099.7	2097.7
7.5°	2117.6	2120.4	2122.8	2122.8	2120.0	2116.4	2112.0	2106.5	2101.3	2096.5	2094.6
8°	2115.6	2118.4	2120.8	2121.2	2118.0	2114.4	2109.3	2103.7	2098.1	2093.0	2090.6
8.5°	2112.8	2116.4	2118.8	2118.8	2116.0	2111.6	2106.5	2100.5	2094.6	2089.4	2087.0
9°	2110.5	2114.4	2116.8	2116.8	2113.6	2109.3	2103.3	2097.3	2091.0	2085.4	2083.0
9.5°	2107.7	2111.6	2114.4	2114.4	2111.2	2106.9	2100.5	2093.8	2087.4	2081.4	2078.7
10°	2104.9	2109.3	2111.6	2111.6	2108.5	2103.7	2097.3	2090.2	2083.4	2077.1	2074.3
10.5°	2101.7	2106.5	2108.9	2108.9	2105.7	2100.5	2094.2	2086.2	2079.1	2072.7	2069.5
11°	2098.5	2103.3	2106.1	2106.1	2102.5	2097.3	2090.2	2082.2	2074.7	2067.9	2064.8
11.5°	2095.0	2100.1	2102.9	2102.9	2099.3	2093.8	2086.2	2078.3	2070.3	2063.2	2060.0
12°	2091.4	2096.9	2099.7	2099.7	2095.7	2090.2	2082.2	2073.5	2065.5	2058.4	2054.8
12.5°	2087.8	2093.4	2096.1	2096.1	2092.6	2086.2	2078.3	2069.1	2060.4	2052.8	2049.3
13°	2083.4	2089.4	2092.6	2092.2	2088.6	2082.2	2073.9	2064.4	2055.2	2047.7	2044.1
13.5°	2079.1	2085.0	2088.6	2088.2	2084.6	2077.9	2069.5	2059.2	2050.1	2042.1	2038.1
14°	2074.7	2081.0	2084.6	2084.2	2080.3	2073.5	2064.8	2054.4	2044.5	2036.5	2032.2
14.5°	2070.3	2076.7	2080.6	2079.9	2076.3	2068.7	2059.6	2048.9	2038.9	2030.6	2026.2
15°	2065.5	2072.7	2076.3	2075.5	2071.5	2064.4	2054.4	2043.3	2033.0	2024.2	2020.2
15.5°	2060.4	2067.5	2071.5	2070.7	2066.7	2059.2	2049.3	2038.1	2027.0	2018.3	2013.5
16°	2055.2	2062.8	2066.7	2065.5	2061.6	2054.0	2043.7	2031.8	2020.6	2011.5	2006.7
16.5°	2050.1	2057.6	2061.6	2060.4	2056.8	2048.9	2038.1	2025.8	2014.3	2005.1	2000.0
17°	2044.1	2052.4	2056.4	2055.2	2051.6	2043.3	2032.2	2019.5	2007.9	1998.4	1992.8
17.5°	2038.5	2046.9	2051.2	2049.7	2046.1	2037.7	2025.8	2013.1	2000.8	1990.8	1985.7
18°	2032.6	2040.9	2045.3	2044.1	2040.5	2031.8	2019.9	2006.3	1994.0	1983.7	1978.1
18.5°	2026.6	2035.3	2039.7	2037.7	2034.6	2025.4	2013.5	1999.6	1986.9	1976.1	1970.6
19°	2019.9	2029.4	2033.4	2032.2	2028.2	2019.1	2006.7	1992.4	1979.3	1968.2	1962.6
19.5°	2013.5	2023.0	2027.4	2025.8	2021.8	2012.7	2000.0	1985.3	1971.8	1960.6	1954.7
20°	2006.7	2016.3	2021.0	2019.5	2015.5	2005.9	1992.8	1978.1	1964.2	1952.7	1946.3
20.5°	2000.0	2009.5	2014.3	2012.7	2008.7	1999.2	1985.7	1970.2	1955.9	1944.4	1938.0
21°	1992.4	2002.8	2007.1	2005.9	2001.6	1992.0	1977.7	1962.2	1947.9	1935.6	1929.3



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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°	1969.8	1980.5	1985.7	1983.7	1979.7	1969.4	1954.3	1938.0	1922.1	1909.0	1902.2
23°	1961.4	1973.0	1977.7	1976.1	1972.2	1961.4	1946.3	1928.9	1913.0	1900.2	1892.7
23.5°	1953.5	1965.0	1970.2	1968.2	1963.8	1953.5	1937.6	1920.5	1903.8	1890.3	1883.2
24°	1944.7	1956.7	1961.8	1960.2	1955.9	1945.1	1928.9	1911.4	1894.7	1881.2	1873.2
24.5°	1936.0	1948.3	1953.5	1951.5	1947.5	1936.4	1920.1	1902.2	1884.7	1870.8	1862.9
25°	1926.9	1939.6	1944.7	1942.8	1938.8	1927.3	1911.4	1892.7	1874.8	1860.9	1852.6
25.5°	1918.1	1930.8	1936.0	1934.0	1930.0	1918.5	1902.2	1882.8	1865.3	1851.0	1842.2
26°	1909.0	1921.7	1926.9	1925.3	1920.9	1909.4	1892.7	1873.2	1854.9	1840.2	1831.9
26.5°	1899.4	1912.6	1918.1	1916.1	1911.4	1900.2	1882.8	1863.3	1844.6	1829.5	1820.8
27°	1889.5	1903.0	1908.2	1906.6	1901.8	1890.7	1873.2	1853.0	1833.9	1818.8	1809.6
27.5°	1879.6	1893.1	1899.0	1896.7	1892.7	1880.8	1862.9	1842.6	1823.2	1807.7	1798.5
28°	1869.2	1883.2	1889.1	1886.7	1882.8	1870.8	1852.6	1831.5	1812.0	1796.5	1787.4
28.5°	1858.9	1872.8	1878.8	1876.8	1872.4	1860.5	1842.2	1820.8	1800.9	1784.6	1775.5
29°	1848.6	1862.9	1868.5	1866.5	1862.1	1849.8	1831.1	1809.6	1789.8	1773.5	1763.5
29.5°	1837.5	1852.6	1858.1	1856.1	1851.8	1839.4	1820.4	1798.5	1777.9	1761.2	1751.6
30°	1826.3	1841.4	1847.0	1845.4	1841.0	1828.3	1809.2	1787.0	1766.3	1749.2	1739.3
30.5°	1815.6	1830.3	1836.3	1834.3	1830.3	1817.6	1798.1	1775.5	1754.0	1736.9	1726.6
31°	1803.7	1819.2	1825.1	1823.2	1818.8	1806.1	1786.2	1763.5	1742.1	1724.6	1714.3
31.5°	1792.2	1807.7	1813.6	1811.6	1807.7	1794.5	1774.7	1751.2	1729.8	1711.9	1701.6
32°	1780.2	1795.7	1802.1	1800.1	1796.1	1783.0	1762.8	1739.3	1717.1	1699.2	1688.8
32.5°	1767.9	1783.8	1790.6	1788.2	1784.2	1771.1	1750.4	1726.6	1704.3	1686.1	1674.9
33°	1756.0	1771.9	1778.6	1776.3	1772.7	1759.2	1738.1	1714.3	1691.2	1672.9	1662.2
33.5°	1743.3	1759.6	1766.3	1764.3	1760.4	1746.9	1725.4	1701.2	1678.5	1659.0	1648.3
34°	1730.2	1746.9	1754.0	1751.6	1747.7	1734.5	1713.1	1688.0	1665.0	1645.5	1634.8
34.5°	1717.4	1734.1	1741.3	1738.9	1734.9	1721.4	1700.0	1674.9	1651.5	1632.0	1620.5
35°	1704.3	1721.0	1728.6	1726.2	1722.6	1708.7	1686.9	1661.8	1638.4	1618.1	1607.0
35.5°	1690.8	1707.9	1715.5	1713.1	1709.5	1695.6	1673.3	1647.9	1624.5	1603.8	1592.7
36°	1677.3	1694.8	1702.0	1700.4	1696.8	1682.5	1660.2	1634.0	1610.2	1589.9	1578.4
36.5°	1663.4	1680.9	1688.4	1686.9	1682.9	1669.0	1646.7	1620.5	1596.3	1575.6	1564.1
37°	1649.5	1667.0	1674.9	1673.3	1669.8	1655.5	1632.8	1607.0	1581.5	1560.9	1549.8
37.5°	1635.6	1653.1	1661.4	1659.4	1655.9	1641.2	1618.9	1592.3	1567.2	1546.6	1534.7
38°	1620.9	1638.8	1647.1	1645.5	1641.9	1627.6	1604.6	1578.0	1552.9	1531.5	1520.0
38.5°	1606.6	1624.5	1632.8	1631.6	1627.6	1613.3	1590.3	1563.7	1538.2	1516.8	1504.9
39°	1591.9	1609.8	1618.5	1616.9	1613.7	1599.0	1576.0	1549.0	1523.5	1501.7	1490.2
39.5°	1576.8	1595.1	1603.8	1602.6	1599.4	1584.3	1560.9	1534.3	1508.4	1486.6	1475.1
40°	1561.7	1580.0	1589.5	1587.9	1584.7	1570.0	1546.2	1518.8	1493.3	1471.5	1459.6
40.5°	1546.6	1564.9	1574.0	1573.2	1570.0	1554.9	1531.1	1503.7	1478.2	1455.6	1444.5
41°	1530.7	1549.4	1558.9	1558.1	1554.5	1539.8	1516.0	1488.6	1462.7	1440.5	1428.6
41.5°	1514.8	1533.9	1543.4	1543.0	1539.8	1524.7	1500.9	1473.5	1447.6	1425.0	1413.1
42°	1499.3	1518.4	1528.3	1527.9	1524.7	1509.2	1485.4	1458.4	1431.7	1409.1	1397.2
42.5°	1483.4	1502.5	1512.8	1512.4	1509.2	1493.7	1469.9	1442.5	1415.8	1393.6	1381.7
43°	1467.5	1486.2	1496.9	1496.9	1494.1	1478.2	1454.4	1427.0	1400.3	1377.3	1365.8
43.5°	1451.2	1470.3	1481.0	1481.4	1478.2	1462.3	1438.5	1411.1	1384.5	1361.4	1349.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1401.1	1420.2	1432.1	1432.9	1429.8	1413.9	1390.4	1363.4	1336.0	1312.5	1301.4
45.5°	1383.7	1403.1	1415.0	1416.6	1413.5	1397.2	1373.7	1346.3	1319.7	1296.2	1285.1
46°	1366.6	1386.4	1398.4	1399.9	1396.8	1380.5	1357.4	1330.0	1303.0	1279.5	1268.4
46.5°	1349.1	1368.2	1381.3	1382.9	1380.1	1363.8	1340.3	1313.3	1285.9	1262.9	1251.7
47°	1330.8	1350.7	1363.8	1365.8	1363.4	1346.3	1322.9	1295.8	1268.8	1245.8	1234.2
47.5°	1312.5	1332.4	1345.9	1348.3	1346.3	1328.8	1305.4	1278.4	1251.7	1227.9	1216.8
48°	1294.2	1313.7	1328.0	1330.4	1328.0	1311.3	1289.1	1261.3	1234.2	1210.4	1199.3
48.5°	1274.8	1294.6	1308.9	1312.1	1310.5	1293.8	1270.0	1243.4	1216.0	1192.5	1181.0
49°	1255.7	1276.0	1290.3	1294.2	1292.3	1274.8	1251.7	1224.7	1196.9	1173.4	1161.9
49.5°	1235.4	1256.1	1270.8	1274.8	1273.6	1256.1	1232.7	1205.6	1178.2	1154.4	1142.4
50°	1214.4	1235.4	1250.9	1255.3	1254.1	1237.0	1214.0	1186.6	1158.3	1134.5	1122.2
50.5°	1192.9	1213.6	1230.3	1234.2	1233.8	1217.6	1193.7	1165.9	1138.1	1113.4	1101.5
51°	1171.9	1192.5	1208.8	1214.0	1213.6	1196.1	1172.3	1144.8	1116.6	1092.4	1080.5
51.5°	1148.8	1169.9	1186.6	1192.1	1192.9	1175.0	1151.2	1123.4	1096.0	1072.1	1059.4
52°	1126.2	1148.0	1164.7	1170.3	1170.7	1153.2	1129.3	1101.1	1073.3	1049.9	1037.1
52.5°	1103.5	1124.6	1142.1	1147.2	1148.4	1130.5	1106.7	1078.9	1051.8	1028.0	1015.7
53°	1080.9	1101.5	1119.0	1125.4	1125.8	1108.3	1084.0	1056.6	1030.0	1006.5	994.6
53.5°	1058.6	1078.5	1096.4	1102.3	1103.5	1086.4	1061.8	1035.6	1009.3	986.7	975.2
54°	1037.1	1057.4	1074.5	1081.3	1081.7	1064.2	1040.7	1014.5	989.5	966.4	954.5
54.5°	1014.9	1035.6	1052.6	1059.4	1059.8	1043.5	1019.7	992.6	967.6	944.6	933.0
55°	989.5	1009.7	1028.0	1035.2	1037.5	1020.1	996.2	968.8	943.0	920.3	908.8
55.5°	961.2	981.5	1001.0	1008.1	1011.7	994.6	969.6	941.8	913.6	890.1	879.8
56°	928.3	951.3	969.2	976.7	982.7	966.0	939.4	909.2	880.6	857.9	846.8
56.5°	893.3	917.1	935.4	943.8	950.5	934.2	907.2	875.4	846.8	822.6	811.4
57°	855.9	879.4	899.7	908.4	916.3	898.5	871.4	840.0	810.2	786.0	774.1
57.5°	816.6	838.9	862.3	872.6	880.6	861.5	834.5	803.5	773.3	749.4	735.9
58°	775.7	798.3	823.8	836.1	844.0	822.6	794.7	764.5	735.5	710.9	697.4
58.5°	735.5	757.4	783.6	798.3	806.7	784.0	755.8	726.4	697.8	673.9	658.8
59°	693.0	716.9	743.9	759.8	766.9	741.9	714.5	685.9	658.4	635.0	619.1
59.5°	652.1	675.1	703.0	719.2	726.8	701.4	673.2	645.3	619.5	596.5	580.6
60°	610.0	635.0	662.0	679.5	686.7	660.4	631.8	604.0	581.0	558.7	543.2
60.5°	570.2	594.9	620.7	638.2	646.5	621.1	590.5	564.7	542.4	520.6	505.5
61°	530.1	555.5	579.4	596.9	604.8	581.0	550.4	523.7	503.5	484.0	468.9
61.5°	491.2	517.4	539.6	554.7	565.1	543.2	511.0	484.8	465.7	448.2	432.7
62°	453.4	478.4	500.7	513.8	525.7	503.5	472.9	446.3	428.8	413.3	398.6
62.5°	416.8	441.5	462.1	472.5	485.2	465.3	434.7	408.5	394.6	380.7	366.8
63°	381.5	404.9	424.4	433.1	446.6	428.0	401.3	374.7	360.4	348.1	334.6
63.5°	346.9	369.6	386.2	393.0	409.3	393.8	367.6	340.5	326.2	315.1	302.4
64°	313.5	334.6	350.5	355.6	373.9	359.2	333.8	306.4	292.1	282.5	270.6
64.5°	282.1	302.0	315.5	319.5	338.6	325.1	300.0	272.6	258.3	249.6	242.0
65°	253.1	270.2	281.7	285.3	302.8	290.5	266.6	242.8	228.5	220.9	215.8
65.5°	223.7	239.6	249.9	253.5	267.4	256.3	236.4	215.4	201.5	193.9	191.5
66°	193.9	210.2	219.0	222.5	234.8	224.9	209.0	190.3	175.6	169.3	168.9



TEST NUMBER: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	127.2	135.5	141.1	144.2	151.4	147.0	137.9	126.8	110.9	111.3	113.6
68°	112.5	120.0	126.4	129.1	129.1	125.2	118.0	110.5	95.8	97.8	99.7
68.5°	97.8	104.9	112.1	114.0	110.1	106.1	101.7	96.2	83.8	87.4	88.2
69°	83.4	89.8	97.8	99.3	94.2	90.6	88.6	84.2	75.1	78.7	78.7
69.5°	68.7	74.7	83.4	84.2	81.5	79.1	77.5	74.7	69.1	71.5	71.1
70°	65.2	67.6	69.1	69.1	71.9	70.7	69.5	68.0	65.6	66.0	66.4
70.5°	62.0	63.2	64.4	64.4	66.0	65.6	65.2	64.0	62.4	62.8	62.8
71°	58.4	60.0	61.2	61.2	62.4	62.4	62.0	60.8	59.2	59.6	60.0
71.5°	55.2	57.2	58.4	58.4	59.6	59.2	58.8	57.6	55.6	56.4	56.8
72°	52.1	54.0	55.2	55.2	56.4	56.4	56.0	54.8	52.9	53.6	54.0
72.5°	49.3	50.9	52.5	52.5	53.6	53.2	52.9	51.7	49.7	50.5	51.3
73°	46.1	48.1	49.3	49.7	50.9	50.5	50.1	48.9	46.9	47.7	48.5
73.5°	43.3	45.3	46.5	46.9	48.1	47.7	47.3	46.1	44.1	44.9	45.7
74°	40.9	42.5	44.1	44.1	45.3	44.9	44.9	43.3	41.3	42.1	42.9
74.5°	38.1	39.7	41.3	41.3	42.5	42.5	42.1	40.5	38.5	39.7	40.5
75°	35.8	37.4	38.9	38.9	40.1	39.7	39.7	38.1	36.2	37.0	38.1
75.5°	33.4	35.0	36.6	36.6	37.8	37.4	37.4	35.8	34.2	34.6	35.8
76°	31.0	32.6	34.2	34.2	35.4	35.4	35.0	33.4	31.8	32.6	33.8
76.5°	29.0	30.2	31.8	32.2	33.4	33.0	33.0	31.4	29.8	30.6	31.4
77°	27.0	28.2	29.8	30.2	31.0	31.0	30.6	29.4	27.4	28.2	29.4
77.5°	25.0	26.2	27.8	28.2	29.0	29.0	28.6	27.0	25.4	26.2	27.4
78°	23.0	24.2	25.8	26.2	27.0	27.0	26.6	25.0	23.4	24.2	25.0
78.5°	21.5	22.7	23.8	24.2	25.0	25.0	24.6	23.0	21.5	22.3	23.4
79°	19.9	20.7	22.3	22.7	23.0	23.0	22.7	21.1	19.9	20.3	21.5
79.5°	17.9	19.1	20.7	20.7	21.5	21.5	21.1	19.5	18.3	18.7	19.9
80°	16.7	17.5	18.7	19.1	19.9	19.9	19.5	17.9	16.7	17.1	18.3
80.5°	15.1	15.9	17.1	17.5	18.3	18.3	17.9	16.3	15.1	15.5	16.7
81°	13.5	14.3	15.9	16.3	16.7	16.7	16.3	14.7	13.5	13.9	15.1
81.5°	12.3	13.1	14.3	14.7	15.1	15.1	14.7	13.5	12.3	12.7	13.5
82°	11.1	11.9	13.1	13.1	13.9	13.9	13.5	11.9	11.1	11.1	12.3
82.5°	9.5	10.3	11.5	11.9	12.3	12.3	11.9	10.7	9.5	9.9	11.1
83°	8.3	9.1	10.3	10.7	11.1	11.1	10.7	9.5	8.3	8.7	9.9
83.5°	7.6	7.9	9.1	9.5	9.9	9.9	9.5	8.3	7.6	7.6	8.7
84°	6.4	6.8	7.9	8.3	8.7	8.7	8.3	7.2	6.4	6.8	7.6
84.5°	5.6	6.0	6.8	7.2	7.6	7.6	7.2	6.0	5.6	5.6	6.4
85°	4.8	5.2	6.0	6.4	6.8	6.8	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: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2128.3	2128.3	2128.3	2128.3	2128.3	2128.3
0.5°	2127.5	2126.0	2126.7	2127.9	2129.1	2129.5
1°	2126.3	2124.8	2126.0	2127.5	2129.1	2129.5
1.5°	2125.2	2123.6	2124.8	2127.1	2129.1	2129.9
2°	2123.6	2122.4	2123.6	2126.3	2128.7	2129.5
2.5°	2122.0	2120.8	2122.4	2125.2	2127.9	2129.1
3°	2120.0	2118.8	2120.8	2124.0	2127.1	2129.1
3.5°	2118.0	2116.8	2119.2	2122.8	2126.3	2128.3
4°	2115.6	2114.8	2117.2	2121.2	2125.2	2127.9
4.5°	2113.2	2112.4	2115.2	2119.6	2124.0	2126.7
5°	2110.9	2109.7	2113.2	2117.6	2122.4	2126.0
5.5°	2107.7	2107.3	2110.9	2115.6	2120.8	2124.8
6°	2104.9	2104.5	2108.1	2113.6	2118.8	2123.2
6.5°	2102.1	2101.3	2105.3	2110.9	2116.8	2121.6
7°	2098.5	2098.1	2102.9	2108.5	2114.8	2119.6
7.5°	2095.4	2094.6	2099.7	2105.7	2112.4	2117.6
8°	2091.4	2091.0	2096.1	2102.5	2110.1	2115.6
8.5°	2087.8	2087.0	2092.6	2099.7	2106.9	2112.8
9°	2083.8	2083.0	2088.6	2096.1	2104.1	2110.5
9.5°	2079.5	2079.1	2085.0	2092.6	2100.9	2107.7
10°	2075.1	2074.7	2081.0	2089.0	2097.7	2104.9
10.5°	2070.3	2070.3	2076.7	2085.0	2094.2	2101.7
11°	2065.9	2065.5	2072.3	2081.0	2090.6	2098.5
11.5°	2060.8	2060.8	2067.5	2076.7	2087.0	2095.0
12°	2055.6	2055.6	2062.8	2072.3	2082.6	2091.4
12.5°	2050.4	2050.4	2058.0	2067.5	2078.7	2087.8
13°	2044.9	2044.9	2052.8	2062.8	2074.3	2083.4
13.5°	2038.9	2039.3	2047.3	2057.6	2069.5	2079.1
14°	2033.0	2033.0	2041.7	2052.4	2064.8	2074.7
14.5°	2027.0	2027.0	2036.1	2047.3	2059.6	2070.3
15°	2021.0	2021.0	2030.2	2041.7	2054.4	2065.5
15.5°	2014.3	2014.7	2023.4	2035.7	2049.3	2060.4
16°	2007.5	2007.9	2017.1	2029.8	2043.7	2055.2
16.5°	2000.8	2001.2	2010.7	2023.4	2037.7	2050.1
17°	1994.0	1994.4	2004.0	2017.1	2031.8	2044.1
17.5°	1986.1	1986.9	1997.2	2010.7	2025.8	2038.5
18°	1978.9	1979.7	1989.7	2004.0	2019.1	2032.6
18.5°	1971.4	1971.8	1982.5	1996.8	2012.7	2026.6
19°	1963.4	1964.2	1974.9	1989.7	2005.9	2019.9
19.5°	1955.5	1955.9	1967.0	1982.5	1999.2	2013.5
20°	1947.1	1947.9	1959.1	1974.9	1991.6	2006.7
20.5°	1938.4	1939.2	1951.1	1967.0	1984.5	2000.0
21°	1929.6	1930.4	1942.4	1959.1	1976.9	1992.4



TEST NUMBER: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1902.2	1903.4	1916.5	1933.6	1953.1	1969.8
23°	1893.1	1893.9	1907.0	1924.9	1944.7	1961.4
23.5°	1883.2	1884.3	1897.9	1916.1	1936.0	1953.5
24°	1873.2	1874.4	1888.3	1906.6	1927.3	1944.7
24.5°	1863.3	1864.5	1878.0	1897.5	1918.1	1936.0
25°	1853.0	1854.1	1868.1	1887.5	1909.0	1926.9
25.5°	1842.2	1843.8	1858.1	1878.0	1899.4	1918.1
26°	1831.9	1833.1	1847.8	1867.7	1889.9	1909.0
26.5°	1820.8	1822.4	1837.5	1857.7	1879.6	1899.4
27°	1809.6	1811.2	1826.3	1847.0	1869.6	1889.5
27.5°	1798.5	1799.7	1815.2	1836.3	1859.3	1879.6
28°	1787.0	1788.2	1804.1	1825.5	1849.0	1869.2
28.5°	1775.1	1776.7	1793.0	1814.4	1838.3	1858.9
29°	1763.1	1764.7	1780.6	1803.3	1827.1	1848.6
29.5°	1750.8	1752.8	1769.1	1791.8	1816.0	1837.5
30°	1738.1	1740.1	1757.2	1779.8	1804.9	1826.3
30.5°	1725.8	1727.8	1744.5	1767.9	1793.0	1815.6
31°	1713.5	1715.1	1732.6	1756.0	1781.0	1803.7
31.5°	1700.4	1702.3	1719.8	1743.7	1769.1	1792.2
32°	1687.2	1688.8	1706.7	1731.4	1757.2	1780.2
32.5°	1673.7	1675.7	1693.6	1718.2	1744.9	1767.9
33°	1660.6	1662.6	1680.9	1705.5	1732.6	1756.0
33.5°	1647.1	1648.7	1667.0	1692.8	1719.4	1743.3
34°	1633.2	1634.8	1653.5	1679.3	1706.3	1730.2
34.5°	1618.9	1621.3	1640.0	1665.8	1693.2	1717.4
35°	1605.0	1606.6	1626.1	1652.3	1679.7	1704.3
35.5°	1591.1	1593.1	1611.7	1638.4	1666.2	1690.8
36°	1576.8	1578.4	1597.8	1624.5	1652.3	1677.3
36.5°	1562.1	1564.5	1583.5	1610.6	1638.8	1663.4
37°	1547.8	1549.8	1568.8	1596.3	1624.5	1649.5
37.5°	1532.7	1534.7	1554.1	1581.5	1610.2	1635.6
38°	1518.0	1519.6	1539.0	1566.8	1595.5	1620.9
38.5°	1503.3	1504.9	1524.3	1552.1	1580.8	1606.6
39°	1487.8	1489.8	1509.2	1537.4	1566.1	1591.9
39.5°	1472.7	1474.3	1494.1	1521.9	1551.3	1576.8
40°	1457.6	1459.2	1478.6	1506.8	1536.2	1561.7
40.5°	1442.1	1443.7	1462.7	1491.3	1521.1	1546.6
41°	1427.0	1428.2	1447.6	1475.8	1505.3	1530.7
41.5°	1411.1	1411.9	1431.3	1460.0	1489.8	1514.8
42°	1395.6	1396.8	1415.8	1444.9	1474.3	1499.3
42.5°	1380.1	1380.5	1399.9	1429.0	1458.0	1483.4
43°	1363.8	1365.0	1384.5	1412.7	1442.1	1467.5
43.5°	1347.9	1348.7	1367.8	1396.4	1425.8	1451.2



TEST NUMBER: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1299.8	1300.2	1318.5	1347.1	1376.5	1401.1
45.5°	1283.5	1283.5	1301.8	1330.4	1359.0	1383.7
46°	1266.8	1266.4	1284.7	1313.3	1341.9	1366.6
46.5°	1250.1	1248.9	1267.6	1295.8	1324.4	1349.1
47°	1233.1	1232.3	1249.7	1278.0	1306.6	1330.8
47.5°	1215.2	1214.0	1231.1	1259.7	1288.3	1312.5
48°	1197.3	1195.7	1212.8	1241.0	1269.2	1294.2
48.5°	1179.0	1176.6	1194.1	1221.9	1250.1	1274.8
49°	1159.9	1157.6	1174.6	1202.1	1231.1	1255.7
49.5°	1140.5	1137.7	1154.4	1182.6	1210.8	1235.4
50°	1120.2	1116.6	1133.7	1161.1	1190.1	1214.4
50.5°	1099.5	1096.4	1112.6	1140.1	1168.3	1192.9
51°	1078.5	1074.9	1091.6	1119.0	1146.8	1171.9
51.5°	1057.0	1053.4	1069.3	1097.5	1125.0	1148.8
52°	1034.8	1032.0	1048.3	1075.3	1102.3	1126.2
52.5°	1013.3	1010.5	1026.8	1053.0	1078.5	1103.5
53°	992.6	990.3	1006.2	1032.0	1057.4	1080.9
53.5°	972.4	970.8	986.7	1011.7	1036.4	1058.6
54°	952.9	950.9	966.4	991.8	1015.7	1037.1
54.5°	931.0	928.7	944.6	969.2	993.0	1014.9
55°	907.6	903.2	920.3	945.0	968.8	989.5
55.5°	879.8	873.0	890.1	914.8	939.0	961.2
56°	846.0	839.7	857.1	881.4	906.0	928.3
56.5°	810.6	803.9	821.0	846.4	870.2	893.3
57°	774.1	766.1	783.6	809.1	834.1	855.9
57.5°	735.9	726.8	745.9	771.3	795.5	816.6
58°	697.4	687.1	707.3	733.2	756.6	775.7
58.5°	657.3	648.1	668.4	694.6	714.1	735.5
59°	617.1	608.0	629.0	654.1	674.7	693.0
59.5°	577.8	570.2	590.5	615.1	634.2	652.1
60°	538.4	531.7	552.3	575.4	592.5	610.0
60.5°	500.3	493.9	514.2	535.7	550.8	570.2
61°	462.1	456.2	476.1	495.9	511.4	530.1
61.5°	426.8	421.6	439.5	458.2	472.9	491.2
62°	394.6	385.9	404.5	419.6	433.5	453.4
62.5°	362.8	352.5	369.6	382.7	397.0	416.8
63°	331.0	320.3	335.4	346.9	360.4	381.5
63.5°	299.2	289.3	303.2	312.7	326.2	346.9
64°	267.4	259.5	271.0	279.8	292.5	313.5
64.5°	240.8	232.5	241.2	249.2	262.3	282.1
65°	215.8	206.2	213.0	219.7	232.9	253.1
65.5°	192.3	182.8	186.4	192.7	205.4	223.7
66°	170.1	160.5	161.3	168.1	180.4	193.9



TEST NUMBER: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	116.0	114.4	113.6	118.8	122.8	127.2
68°	101.3	101.3	100.9	104.9	108.5	112.5
68.5°	89.0	88.2	88.2	91.0	94.6	97.8
69°	79.1	75.1	75.5	77.1	80.3	83.4
69.5°	71.1	68.3	68.7	69.9	71.5	68.7
70°	66.0	64.4	64.8	65.6	66.0	65.2
70.5°	62.8	61.6	62.0	62.4	62.4	62.0
71°	60.0	58.4	58.8	59.6	59.6	58.4
71.5°	56.8	55.6	56.0	56.4	56.4	55.2
72°	54.0	52.5	52.9	53.6	53.2	52.1
72.5°	50.9	49.7	50.1	50.9	50.5	49.3
73°	48.1	46.9	47.3	47.7	47.3	46.1
73.5°	45.7	44.5	44.5	45.3	44.5	43.3
74°	42.9	41.7	42.1	42.5	42.1	40.9
74.5°	40.5	39.3	39.7	40.1	39.3	38.1
75°	38.1	37.0	37.4	37.4	37.0	35.8
75.5°	35.8	34.6	35.0	35.4	34.6	33.4
76°	33.8	32.6	32.6	33.0	32.2	31.0
76.5°	31.4	30.2	30.6	30.6	29.8	29.0
77°	29.4	28.2	28.6	28.6	27.8	27.0
77.5°	27.4	26.2	26.6	26.6	25.8	25.0
78°	25.4	24.6	24.6	25.0	23.8	23.0
78.5°	23.4	22.7	23.0	23.0	22.3	21.5
79°	21.9	21.1	21.1	21.5	20.3	19.9
79.5°	20.3	19.5	19.5	19.5	18.7	17.9
80°	18.7	17.9	17.9	17.9	17.1	16.7
80.5°	17.1	16.3	16.3	16.3	15.5	15.1
81°	15.5	15.1	15.1	15.1	14.3	13.5
81.5°	13.9	13.5	13.9	13.5	12.7	12.3
82°	12.7	12.3	12.3	12.3	11.5	11.1
82.5°	11.5	11.1	11.1	11.1	9.9	9.5
83°	10.3	9.5	9.9	9.5	8.7	8.3
83.5°	9.1	8.7	8.7	8.3	7.6	7.6
84°	7.9	7.6	7.6	7.6	6.8	6.4
84.5°	6.8	6.4	6.8	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: P776457

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRMW-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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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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21.5°	1984.9	1995.6	2000.4	1998.8	1994.4	1984.5	1970.2	1954.3	1939.6	1926.9	1920.5
22°	1977.3	1988.5	1992.8	1991.6	1987.3	1976.9	1962.2	1946.3	1931.2	1918.5	1911.4



44°	1434.5	1454.0	1464.7	1465.1	1461.9	1446.4	1422.6	1395.6	1368.2	1345.1	1334.0
44.5°	1417.8	1436.9	1448.0	1449.2	1446.4	1429.8	1406.3	1379.3	1352.3	1329.2	1317.7



66.5°	166.5	184.0	190.7	194.3	205.0	196.7	182.8	166.5	151.4	147.0	148.6
67°	141.9	158.6	164.5	167.7	177.6	170.9	158.9	145.8	129.1	127.6	129.9



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°	1920.9	1922.1	1934.0	1951.1	1969.0	1984.9
22°	1911.8	1913.0	1925.3	1942.4	1961.0	1977.3



44°	1332.0	1332.8	1351.9	1380.5	1409.5	1434.5
44.5°	1316.1	1316.5	1335.2	1364.2	1393.2	1417.8



66.5°	150.2	141.1	139.5	146.2	158.6	166.5
67°	132.7	128.0	126.4	132.3	137.1	141.9

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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)