

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: P776354

Luminaire Tested: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776354
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B038)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K
Description: 6 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

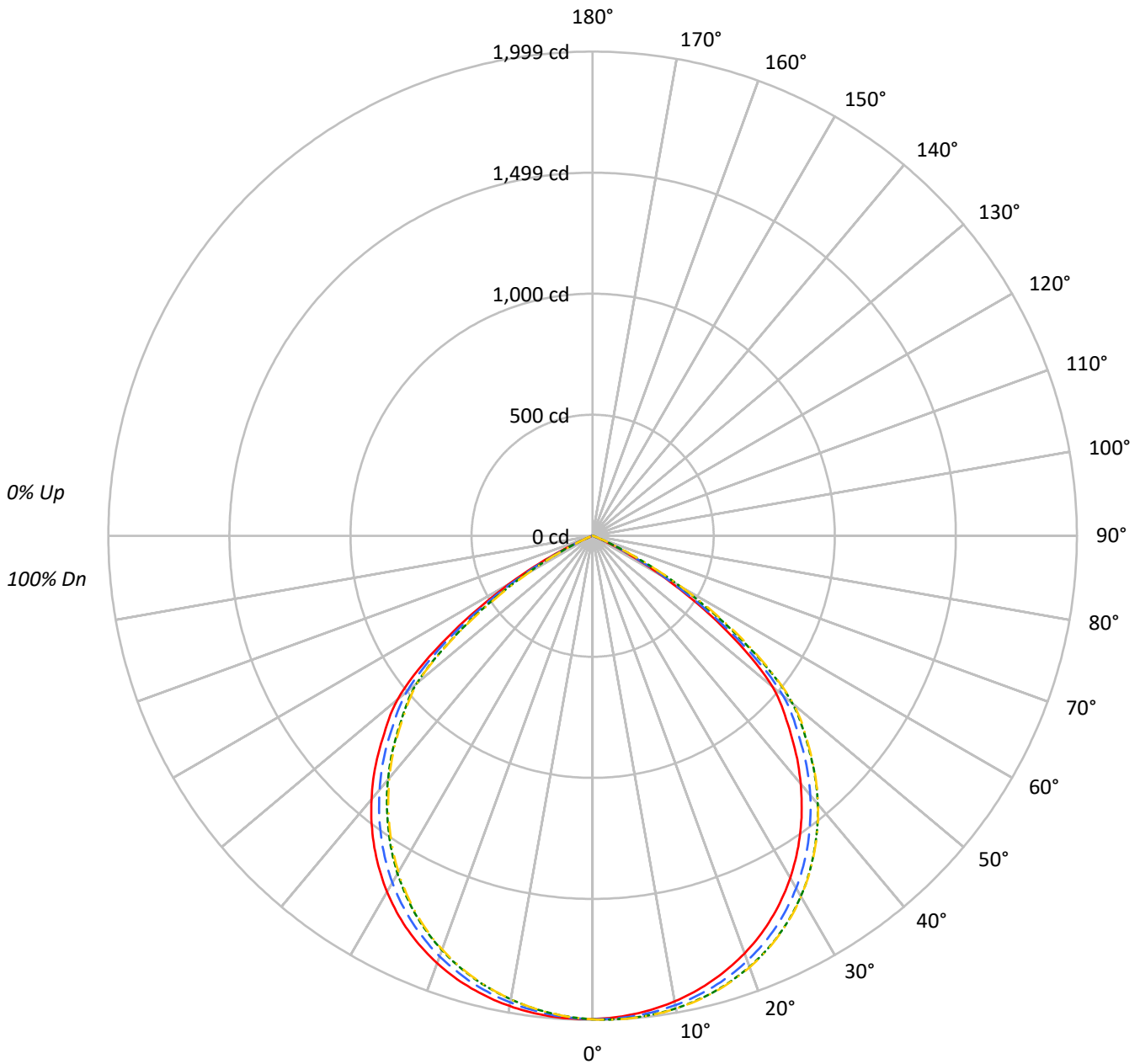
Lumens per Lamp: N/A
Luminaire Lumens: 4176.6 lumens
Efficiency: N/A
Efficacy: 108.5 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.32
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 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	100	100	100	100	100		
	1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	95	93	92	90	90	90	90	90	90		
	2	104	97	92	88	101	96	91	87	92	88	85	89	86	83	86	83	81	79	79	79	79	79	79		
	3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	71	69	69	69	69	69	69		
	4	89	79	72	66	87	78	71	65	75	69	65	73	68	64	71	67	63	61	61	61	61	61	61		
	5	82	71	64	58	81	70	63	58	68	62	57	66	61	56	65	60	56	54	54	54	54	54	54		
	6	77	65	57	51	75	64	57	51	62	56	51	61	55	50	59	54	50	48	48	48	48	48	48		
	7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45	43	43	43	43	43	43		
	8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39	39	39	39	39	39		
	9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35	35	35	35	35	35		
	10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32	32	32	32	32	32		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	109427	109427	109427	109427
5°	109080	109889	109597	108876
10°	108632	110291	109745	108198
15°	107992	110523	109779	107367
20°	107022	110481	109530	106188
25°	105526	109978	108841	104437
30°	103263	108802	107428	101940
35°	100003	106682	105123	98471
40°	95608	103422	101640	93998
45°	89722	98413	96413	88040
50°	82692	91835	89566	80773
55°	62497	72428	70038	60586
60°	36225	45281	43538	35513
65°	11143	17187	15760	12038
70°	192	321	192	192
75°	85	169	85	85
80°	126	126	0	126
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 112.5°

Vertical Angle: 45°

Luminance: 98762 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	188.9	4.5
10°-20°	541.5	13.0
20°-30°	815.7	19.5
30°-40°	956.8	22.9
40°-50°	926.5	22.2
50°-60°	616.4	14.8
60°-70°	130.0	3.1
70°-80°	0.7	0.0
80°-90°	0.0	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1546.2	37.0
0°-40°	2502.9	59.9
0°-60°	4045.9	96.9
0°-90°	4176.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4176.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1996	1996	1996	1996	1996	
5°	1982	1997	1992	1978	1982	188
15°	1903	1947	1934	1892	1903	537
25°	1745	1818	1799	1727	1745	803
35°	1494	1594	1571	1471	1494	933
45°	1157	1269	1244	1136	1157	892
55°	654	758	733	634	654	580
65°	86	132	122	93	86	109
75°	0	1	0	0	0	1
85°	0	0	0	0	0	0
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°	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1
0.5°	1994.8	1994.8	1996.1	1997.3	1996.9	1997.3	1997.3	1996.9	1995.7	1995.2	1995.7
1°	1994.0	1994.8	1996.1	1997.7	1997.7	1998.1	1998.1	1997.3	1996.1	1994.8	1994.8
1.5°	1993.2	1994.0	1996.1	1997.3	1998.1	1998.5	1998.5	1997.7	1996.1	1994.8	1994.4
2°	1992.0	1993.2	1995.7	1997.3	1998.5	1999.3	1999.3	1997.7	1996.1	1994.0	1993.6
2.5°	1990.7	1992.4	1994.8	1997.3	1998.5	1999.3	1999.3	1997.7	1995.7	1993.6	1992.4
3°	1989.1	1991.6	1994.4	1996.9	1998.5	1999.3	1999.3	1997.7	1995.2	1992.8	1991.2
3.5°	1987.9	1990.3	1993.6	1996.5	1998.1	1999.3	1999.3	1997.7	1994.4	1991.6	1989.5
4°	1985.8	1988.7	1992.8	1995.7	1998.1	1998.9	1998.9	1996.9	1993.6	1990.7	1988.3
4.5°	1984.2	1987.5	1991.6	1994.8	1997.3	1998.5	1998.5	1996.5	1992.8	1989.5	1986.7
5°	1982.2	1985.8	1989.9	1994.0	1996.9	1998.1	1997.7	1995.7	1991.6	1987.9	1984.6
5.5°	1980.1	1983.8	1988.7	1993.2	1996.1	1997.3	1996.9	1994.4	1990.3	1986.2	1982.6
6°	1977.3	1981.7	1987.5	1992.0	1994.8	1996.5	1996.1	1993.2	1989.1	1984.2	1980.1
6.5°	1974.8	1979.7	1985.4	1990.3	1994.0	1995.2	1994.8	1992.0	1987.5	1982.6	1977.7
7°	1971.9	1977.3	1983.4	1988.7	1992.4	1994.0	1993.6	1990.3	1985.8	1980.1	1975.2
7.5°	1969.1	1974.8	1981.3	1987.1	1991.2	1992.8	1992.4	1988.7	1983.4	1978.1	1972.8
8°	1966.2	1972.3	1978.9	1985.0	1989.5	1991.2	1990.7	1987.1	1981.7	1975.6	1969.9
8.5°	1962.5	1969.5	1976.4	1983.0	1987.5	1989.5	1989.1	1985.0	1979.3	1972.8	1966.6
9°	1959.3	1966.2	1973.6	1980.5	1985.8	1987.5	1987.1	1983.0	1976.8	1970.3	1963.8
9.5°	1955.6	1962.9	1970.7	1978.1	1983.4	1985.4	1985.0	1980.5	1974.4	1967.0	1960.1
10°	1951.5	1959.7	1967.8	1975.2	1981.3	1983.0	1982.6	1978.5	1971.5	1963.8	1956.8
10.5°	1947.8	1956.0	1964.6	1972.3	1978.5	1980.5	1980.1	1975.6	1968.7	1960.5	1953.1
11°	1943.3	1952.3	1961.3	1969.5	1976.0	1978.1	1977.3	1972.8	1965.8	1957.2	1949.0
11.5°	1939.2	1948.2	1957.6	1965.8	1973.2	1975.2	1974.4	1969.5	1962.1	1953.5	1945.4
12°	1934.3	1944.1	1953.9	1962.5	1969.9	1972.3	1971.5	1966.6	1958.8	1949.9	1940.9
12.5°	1929.8	1939.6	1949.9	1958.8	1966.6	1969.1	1968.3	1963.3	1955.6	1945.8	1936.8
13°	1924.5	1935.1	1945.8	1955.2	1962.9	1965.8	1964.6	1959.7	1951.5	1941.7	1931.9
13.5°	1919.6	1930.2	1941.7	1951.1	1959.7	1962.1	1961.3	1956.0	1947.4	1937.2	1927.0
14°	1914.3	1925.3	1936.8	1947.0	1955.6	1958.4	1957.2	1951.9	1943.3	1932.7	1922.0
14.5°	1908.5	1920.4	1932.3	1942.9	1951.5	1954.4	1953.1	1947.8	1938.8	1927.8	1917.1
15°	1902.8	1914.7	1927.4	1938.0	1947.4	1950.3	1949.0	1943.3	1934.3	1922.9	1911.8
15.5°	1896.7	1909.4	1922.5	1933.5	1942.9	1945.8	1944.9	1939.2	1929.4	1918.0	1906.5
16°	1891.0	1903.6	1917.1	1928.6	1938.4	1941.3	1940.0	1934.3	1924.5	1912.6	1900.4
16.5°	1884.4	1897.5	1911.4	1923.7	1933.5	1936.4	1935.1	1929.4	1919.6	1906.9	1894.2
17°	1877.9	1891.4	1905.7	1918.0	1928.6	1931.4	1930.2	1924.1	1914.3	1901.2	1888.1
17.5°	1871.3	1885.2	1900.0	1912.2	1923.3	1926.5	1925.3	1919.2	1908.5	1895.1	1881.6
18°	1864.4	1879.1	1893.8	1906.5	1917.5	1920.8	1919.6	1913.0	1902.8	1888.9	1875.0
18.5°	1857.0	1872.2	1887.7	1900.8	1912.2	1915.1	1913.9	1907.3	1896.7	1882.8	1868.5
19°	1849.7	1864.8	1880.7	1894.6	1906.1	1909.4	1908.1	1901.2	1890.6	1876.2	1861.5
19.5°	1842.3	1857.8	1874.2	1888.1	1900.4	1903.6	1902.0	1895.1	1884.0	1869.7	1854.6
20°	1834.5	1850.9	1867.2	1881.6	1893.8	1897.1	1895.9	1888.9	1877.5	1862.7	1847.6
20.5°	1826.4	1843.1	1859.9	1875.0	1887.3	1890.6	1889.3	1882.0	1870.9	1855.4	1839.4
21°	1818.6	1834.9	1852.9	1868.1	1880.3	1884.0	1882.4	1875.4	1864.0	1848.0	1832.1



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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°	1792.4	1810.8	1829.2	1845.2	1859.1	1862.3	1860.7	1853.3	1841.1	1824.7	1807.1
23°	1783.4	1802.2	1821.0	1837.4	1851.3	1855.0	1852.9	1845.6	1833.3	1816.1	1798.1
23.5°	1774.0	1793.2	1812.9	1829.2	1843.5	1847.2	1845.6	1837.8	1825.5	1807.5	1789.5
24°	1764.6	1784.2	1803.9	1821.0	1835.3	1839.0	1837.0	1829.2	1816.9	1799.0	1780.5
24.5°	1754.4	1774.4	1794.9	1812.0	1827.2	1830.8	1828.8	1821.0	1808.4	1790.0	1771.1
25°	1744.6	1764.6	1785.5	1803.0	1818.2	1821.9	1819.8	1812.4	1799.4	1781.0	1761.3
25.5°	1734.3	1755.2	1776.1	1794.0	1809.6	1813.3	1811.2	1803.4	1790.4	1771.1	1751.5
26°	1724.1	1745.0	1766.6	1784.6	1800.6	1803.9	1802.2	1794.0	1781.0	1761.3	1741.7
26.5°	1713.1	1734.7	1756.4	1775.2	1791.2	1794.9	1792.8	1784.6	1771.6	1751.5	1731.1
27°	1702.4	1724.1	1746.2	1765.4	1781.4	1785.5	1783.0	1775.2	1761.3	1741.3	1720.8
27.5°	1691.0	1713.1	1735.6	1755.2	1772.0	1775.6	1773.6	1765.4	1751.5	1731.1	1710.2
28°	1679.5	1702.0	1724.9	1744.6	1761.7	1765.0	1763.4	1755.2	1740.9	1720.0	1699.2
28.5°	1667.7	1691.0	1714.3	1734.3	1751.1	1755.2	1753.1	1745.0	1730.2	1709.4	1688.1
29°	1655.8	1679.1	1702.8	1723.7	1740.5	1744.2	1742.5	1734.3	1720.0	1698.4	1676.7
29.5°	1644.0	1667.7	1691.4	1712.7	1730.2	1733.5	1731.5	1723.3	1708.6	1687.3	1664.8
30°	1631.3	1655.4	1679.9	1701.2	1718.8	1722.5	1720.4	1712.3	1697.1	1675.0	1653.0
30.5°	1618.6	1643.6	1668.1	1689.4	1707.3	1711.0	1709.4	1701.2	1685.7	1663.2	1641.1
31°	1605.9	1630.9	1655.8	1677.5	1695.9	1699.2	1697.5	1689.4	1673.8	1651.3	1628.4
31.5°	1592.4	1618.2	1643.6	1665.6	1684.0	1687.3	1685.3	1677.5	1661.5	1639.1	1616.2
32°	1579.3	1605.1	1630.9	1653.8	1671.8	1675.4	1673.4	1665.2	1649.3	1626.4	1603.1
32.5°	1565.4	1592.0	1617.8	1640.7	1659.5	1662.8	1661.5	1653.4	1637.0	1613.7	1590.0
33°	1551.9	1578.5	1605.1	1628.0	1647.2	1650.5	1648.9	1640.3	1624.3	1600.6	1576.9
33.5°	1538.0	1565.0	1591.6	1614.9	1634.1	1637.4	1635.8	1627.2	1611.2	1587.5	1563.4
34°	1523.7	1551.1	1578.1	1601.8	1621.1	1624.7	1622.7	1614.5	1597.7	1574.0	1549.5
34.5°	1509.0	1537.2	1564.2	1587.9	1607.6	1611.2	1609.6	1601.0	1584.3	1560.1	1535.6
35°	1494.3	1522.9	1549.9	1574.4	1594.1	1597.3	1595.7	1587.5	1570.8	1545.8	1521.3
35.5°	1479.6	1508.2	1536.0	1560.1	1580.2	1583.8	1581.8	1573.6	1556.4	1531.9	1507.0
36°	1464.0	1493.1	1521.3	1546.2	1566.3	1569.5	1567.9	1559.7	1542.1	1518.0	1492.2
36.5°	1449.3	1478.3	1506.6	1531.5	1551.9	1555.6	1554.0	1545.4	1527.8	1503.3	1477.5
37°	1433.4	1463.2	1491.4	1516.4	1537.6	1540.9	1539.3	1531.1	1513.1	1488.2	1462.4
37.5°	1417.4	1447.7	1476.3	1501.6	1522.5	1526.2	1524.1	1516.4	1498.0	1473.4	1447.7
38°	1401.0	1432.1	1460.8	1486.1	1507.8	1511.1	1509.4	1500.8	1483.2	1457.5	1432.1
38.5°	1385.5	1416.2	1445.6	1470.6	1492.7	1495.9	1494.7	1485.7	1467.7	1442.8	1416.2
39°	1369.6	1400.6	1429.7	1455.4	1477.1	1480.4	1479.2	1470.6	1451.8	1426.8	1400.6
39.5°	1352.8	1384.3	1413.3	1439.1	1461.2	1464.8	1463.2	1454.6	1436.2	1410.9	1384.3
40°	1336.0	1367.5	1397.4	1422.7	1445.2	1448.9	1447.3	1439.1	1420.3	1394.5	1368.3
40.5°	1319.3	1351.2	1380.6	1406.4	1428.9	1432.9	1431.3	1422.3	1403.9	1378.6	1352.0
41°	1302.1	1334.0	1363.8	1389.2	1412.5	1416.6	1415.0	1406.0	1387.6	1361.8	1335.2
41.5°	1284.5	1316.8	1346.7	1372.8	1395.3	1399.8	1398.6	1389.2	1370.4	1345.0	1318.4
42°	1267.3	1299.2	1329.5	1355.2	1378.6	1383.1	1381.4	1372.4	1353.6	1327.8	1301.3
42.5°	1249.7	1282.5	1311.9	1337.7	1361.4	1365.9	1364.7	1354.8	1336.0	1311.1	1284.1
43°	1231.3	1264.5	1293.9	1319.7	1343.8	1347.9	1347.1	1337.3	1318.4	1292.7	1266.5
43.5°	1213.3	1245.6	1275.9	1301.3	1325.4	1330.3	1329.1	1319.3	1300.4	1274.7	1248.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1157.3	1189.6	1219.1	1244.4	1269.4	1273.9	1273.5	1262.8	1243.6	1218.2	1192.1
45.5°	1138.5	1170.4	1200.3	1225.2	1250.1	1255.5	1254.6	1243.6	1224.4	1199.0	1172.9
46°	1120.1	1152.0	1181.4	1206.4	1231.3	1237.1	1235.8	1225.2	1205.6	1179.8	1154.5
46.5°	1102.1	1134.0	1163.0	1188.0	1212.9	1219.5	1218.2	1206.8	1186.4	1161.4	1135.6
47°	1084.5	1116.0	1145.0	1169.6	1194.5	1201.1	1200.3	1188.4	1167.9	1142.6	1117.2
47.5°	1066.9	1098.4	1127.1	1151.6	1176.5	1183.1	1182.3	1170.4	1150.0	1124.6	1099.7
48°	1049.4	1080.4	1108.7	1133.2	1158.5	1165.5	1164.7	1152.8	1132.0	1106.6	1082.1
48.5°	1032.2	1062.4	1091.1	1115.2	1140.5	1148.7	1147.1	1134.8	1113.6	1089.0	1064.5
49°	1013.4	1043.2	1070.6	1094.7	1120.5	1128.7	1127.5	1115.2	1093.9	1069.0	1044.4
49.5°	992.9	1022.8	1049.4	1072.7	1099.2	1107.0	1105.8	1093.5	1072.3	1047.3	1023.6
50°	969.6	1000.3	1026.0	1048.1	1076.8	1084.5	1083.7	1071.0	1050.2	1025.2	1000.7
50.5°	943.8	972.5	1000.3	1023.2	1051.8	1058.8	1056.7	1045.7	1025.6	999.5	974.9
51°	915.6	943.8	971.7	995.4	1024.4	1031.0	1029.3	1019.1	998.6	971.7	946.7
51.5°	885.4	913.6	941.0	965.9	995.4	1001.5	1000.7	989.2	970.4	943.0	916.9
52°	853.1	882.5	909.5	934.0	963.9	971.7	970.8	959.0	939.3	912.4	887.0
52.5°	821.6	850.6	876.8	899.3	931.6	941.4	940.6	927.5	906.2	880.5	855.9
53°	788.9	817.1	842.8	864.1	898.0	908.7	908.7	895.2	872.3	847.7	824.0
53.5°	755.7	783.5	808.5	828.5	863.3	876.8	877.2	861.2	837.1	814.2	791.3
54°	721.8	749.6	772.5	792.1	828.1	843.7	844.1	827.3	802.4	780.3	757.4
54.5°	688.3	715.7	736.5	755.7	792.5	809.7	810.5	792.1	766.8	744.3	724.2
55°	653.9	680.9	700.1	718.9	757.8	776.6	777.4	757.4	732.8	709.9	690.7
55.5°	619.6	645.3	663.7	682.5	722.2	740.6	742.6	721.4	697.3	673.9	655.9
56°	586.0	611.0	626.9	645.3	685.8	705.4	707.5	686.6	662.9	638.0	622.4
56.5°	552.5	576.2	590.5	611.0	650.2	669.9	671.9	651.0	626.9	602.8	588.1
57°	518.1	541.4	554.1	575.0	615.1	634.3	636.7	616.7	593.4	567.2	554.1
57.5°	485.4	506.7	519.0	539.8	580.3	598.3	601.1	581.9	558.6	533.3	520.2
58°	453.1	472.7	483.8	505.9	545.5	562.7	565.6	547.6	525.5	498.5	486.6
58.5°	421.6	438.8	449.0	472.3	511.6	527.5	530.4	514.0	492.8	465.4	453.9
59°	390.5	405.7	416.3	439.6	478.1	492.4	495.2	481.3	460.1	432.7	422.0
59.5°	359.5	372.1	384.0	407.3	445.3	458.4	459.7	448.2	427.3	401.2	391.0
60°	330.4	340.7	353.3	375.4	413.0	424.9	425.3	415.9	397.1	371.7	360.3
60.5°	301.0	309.6	322.2	344.3	382.8	393.0	393.8	385.2	366.8	342.3	329.6
61°	272.4	279.7	292.8	314.5	352.5	361.5	361.9	354.6	337.0	312.8	299.3
61.5°	244.5	251.1	265.0	285.9	322.2	329.6	330.0	323.9	306.7	283.4	268.7
62°	218.0	224.1	237.2	257.6	292.0	298.1	298.1	293.2	276.4	256.4	242.1
62.5°	192.6	198.3	211.4	230.6	261.7	266.6	266.2	262.5	248.6	229.8	215.5
63°	168.5	173.4	186.1	205.7	233.1	237.2	236.8	233.9	222.1	204.9	190.6
63.5°	144.8	150.5	162.8	180.8	206.1	209.8	209.4	206.9	196.7	180.8	167.3
64°	125.1	132.1	140.3	157.4	180.3	183.2	183.2	180.8	170.9	157.9	145.6
64.5°	105.5	114.1	122.3	137.0	155.8	158.3	157.9	155.4	146.0	136.6	124.7
65°	85.9	95.7	103.9	117.8	132.5	134.5	134.5	132.1	121.5	115.7	105.9
65.5°	66.7	77.7	85.5	98.1	110.0	112.9	112.9	109.6	98.1	96.5	88.3
66°	47.0	59.3	67.5	78.9	89.6	92.0	92.0	88.7	76.5	78.5	72.0



TEST NUMBER: P776354

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	15.1	25.4	29.4	32.3	46.6	48.3	48.3	45.8	34.4	41.3	38.0
68°	11.5	17.6	20.4	21.7	34.4	35.6	35.6	33.9	20.4	31.1	26.6
68.5°	8.2	14.3	12.7	13.5	22.1	22.9	22.9	21.7	6.5	20.4	15.5
69°	4.5	11.0	9.8	10.2	10.2	10.6	10.2	10.2	2.0	9.8	9.0
69.5°	1.2	7.8	7.0	7.4	4.9	4.9	4.9	4.9	1.2	4.9	4.5
70°	1.2	4.5	4.1	4.1	2.0	2.0	2.0	2.0	1.2	2.0	2.0
70.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
71°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
71.5°	0.8	0.8	0.8	0.8	1.2	1.2	1.2	0.8	0.8	0.8	0.8
72°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
73°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
73.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
74°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
74.5°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.8	0.8
75°	0.4	0.4	0.4	0.4	0.8	0.8	0.8	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
78°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
78.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
79.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.4	0.4
80.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.4
81°	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776354
CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-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: P776354

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1996.1	1996.1	1996.1	1996.1	1996.1	1996.1
0.5°	1995.7	1995.2	1995.2	1995.7	1995.2	1994.8
1°	1994.8	1994.0	1994.0	1994.4	1994.4	1994.0
1.5°	1994.0	1992.8	1992.4	1993.2	1993.2	1993.2
2°	1992.8	1991.2	1990.7	1991.6	1991.6	1992.0
2.5°	1991.6	1989.1	1989.1	1989.5	1989.9	1990.7
3°	1989.9	1987.5	1987.1	1987.9	1988.3	1989.1
3.5°	1988.3	1985.4	1985.0	1985.8	1986.7	1987.9
4°	1986.2	1983.4	1982.6	1983.4	1984.6	1985.8
4.5°	1984.2	1980.9	1980.1	1980.9	1982.2	1984.2
5°	1982.2	1978.5	1977.7	1978.5	1979.7	1982.2
5.5°	1979.7	1975.6	1974.8	1975.6	1977.3	1980.1
6°	1977.3	1972.8	1971.9	1972.8	1974.4	1977.3
6.5°	1974.4	1969.9	1968.7	1969.5	1971.9	1974.8
7°	1971.5	1966.6	1965.4	1966.6	1968.7	1971.9
7.5°	1968.7	1962.9	1962.1	1962.9	1965.4	1969.1
8°	1965.4	1959.7	1958.0	1959.3	1962.1	1966.2
8.5°	1961.7	1956.0	1954.4	1955.6	1958.4	1962.5
9°	1958.4	1951.9	1950.3	1951.5	1954.4	1959.3
9.5°	1954.4	1948.2	1946.6	1947.4	1950.7	1955.6
10°	1950.7	1943.7	1942.1	1943.3	1946.6	1951.5
10.5°	1946.6	1939.2	1937.6	1938.8	1942.1	1947.8
11°	1942.5	1934.7	1932.7	1934.3	1937.6	1943.3
11.5°	1938.0	1930.2	1927.8	1929.0	1933.1	1939.2
12°	1933.5	1924.9	1922.9	1924.1	1928.2	1934.3
12.5°	1928.6	1920.0	1917.5	1918.8	1923.3	1929.8
13°	1923.7	1914.7	1912.2	1913.5	1918.0	1924.5
13.5°	1918.4	1909.4	1906.5	1907.7	1912.2	1919.6
14°	1913.5	1903.6	1900.8	1902.0	1906.9	1914.3
14.5°	1907.7	1897.5	1895.1	1896.3	1900.8	1908.5
15°	1902.0	1891.8	1888.5	1890.1	1895.1	1902.8
15.5°	1896.3	1885.2	1882.0	1883.6	1888.5	1896.7
16°	1889.7	1879.1	1875.4	1877.1	1882.4	1891.0
16.5°	1884.0	1872.2	1868.9	1870.5	1875.8	1884.4
17°	1877.5	1865.2	1861.9	1863.2	1868.9	1877.9
17.5°	1870.5	1858.2	1854.6	1856.2	1861.9	1871.3
18°	1864.0	1850.9	1847.2	1848.8	1854.6	1864.4
18.5°	1856.6	1843.5	1839.4	1841.1	1847.2	1857.0
19°	1849.3	1836.2	1831.7	1833.3	1839.4	1849.7
19.5°	1841.9	1828.4	1823.5	1825.1	1832.1	1842.3
20°	1834.1	1820.2	1815.3	1816.9	1823.9	1834.5
20.5°	1826.4	1811.6	1806.7	1808.4	1815.3	1826.4
21°	1818.2	1803.0	1798.1	1799.4	1806.7	1818.6

TEST NUMBER: P776354

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1792.0	1776.1	1770.3	1772.0	1779.7	1792.4
23°	1783.4	1766.6	1760.5	1762.1	1770.3	1783.4
23.5°	1774.0	1757.2	1751.1	1752.3	1760.9	1774.0
24°	1764.6	1747.4	1740.9	1742.1	1750.7	1764.6
24.5°	1754.8	1736.8	1730.7	1731.9	1740.5	1754.4
25°	1745.0	1726.6	1720.0	1721.3	1730.2	1744.6
25.5°	1734.7	1716.3	1709.0	1710.6	1719.6	1734.3
26°	1724.5	1705.3	1697.9	1699.6	1709.0	1724.1
26.5°	1713.5	1693.9	1686.5	1688.1	1697.5	1713.1
27°	1702.4	1682.4	1675.4	1676.7	1686.5	1702.4
27.5°	1691.8	1671.4	1664.0	1664.8	1675.0	1691.0
28°	1680.4	1659.5	1651.7	1653.0	1663.2	1679.5
28.5°	1668.5	1647.2	1639.5	1640.7	1650.9	1667.7
29°	1657.0	1635.4	1627.2	1628.8	1639.1	1655.8
29.5°	1645.2	1622.7	1614.5	1615.7	1626.8	1644.0
30°	1632.5	1610.4	1601.8	1603.1	1613.7	1631.3
30.5°	1620.2	1597.3	1588.3	1589.6	1601.0	1618.6
31°	1607.6	1583.8	1575.3	1576.5	1587.5	1605.9
31.5°	1594.5	1570.8	1561.4	1562.6	1574.0	1592.4
32°	1581.0	1557.3	1547.9	1549.1	1560.5	1579.3
32.5°	1567.9	1543.4	1534.0	1534.8	1547.0	1565.4
33°	1554.0	1529.5	1519.6	1520.9	1532.7	1551.9
33.5°	1540.5	1515.6	1505.3	1507.0	1518.4	1538.0
34°	1526.2	1501.2	1491.0	1491.8	1504.1	1523.7
34.5°	1512.3	1486.1	1475.9	1477.1	1489.4	1509.0
35°	1497.1	1471.4	1460.8	1462.4	1474.2	1494.3
35.5°	1482.8	1456.3	1446.0	1447.3	1459.1	1479.6
36°	1468.1	1441.5	1430.9	1432.1	1444.4	1464.0
36.5°	1453.4	1426.0	1415.8	1416.6	1429.3	1449.3
37°	1437.9	1410.5	1400.2	1401.0	1413.3	1433.4
37.5°	1422.3	1394.9	1383.9	1385.5	1397.8	1417.4
38°	1406.8	1379.0	1368.3	1369.6	1381.4	1401.0
38.5°	1390.4	1363.0	1352.4	1353.6	1365.5	1385.5
39°	1374.9	1346.7	1336.4	1337.3	1349.5	1369.6
39.5°	1358.5	1330.7	1320.1	1321.3	1333.2	1352.8
40°	1342.2	1313.5	1303.7	1304.5	1316.0	1336.0
40.5°	1325.8	1297.2	1287.0	1288.2	1299.2	1319.3
41°	1308.6	1280.0	1270.2	1271.4	1282.5	1302.1
41.5°	1291.9	1262.8	1252.6	1254.2	1265.3	1284.5
42°	1274.7	1245.6	1235.8	1237.1	1248.1	1267.3
42.5°	1257.5	1228.1	1218.7	1219.5	1230.5	1249.7
43°	1239.9	1210.1	1200.3	1201.9	1212.1	1231.3
43.5°	1221.5	1191.7	1182.3	1183.5	1193.7	1213.3



TEST NUMBER: P776354

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1165.9	1135.6	1127.1	1127.9	1137.7	1157.3
45.5°	1147.1	1117.2	1108.2	1109.5	1118.9	1138.5
46°	1128.7	1098.8	1089.8	1091.1	1100.9	1120.1
46.5°	1109.9	1081.3	1072.3	1073.1	1082.9	1102.1
47°	1092.3	1063.7	1055.1	1055.9	1064.9	1084.5
47.5°	1074.7	1046.1	1037.5	1038.7	1047.3	1066.9
48°	1057.5	1028.9	1019.9	1021.5	1030.1	1049.4
48.5°	1039.9	1011.3	1002.7	1003.6	1012.5	1032.2
49°	1021.1	992.1	983.5	984.7	994.1	1013.4
49.5°	1000.7	971.2	963.5	964.7	973.7	992.9
50°	978.2	947.1	939.8	942.2	951.6	969.6
50.5°	951.6	920.1	913.6	916.4	925.0	943.8
51°	923.4	891.1	885.0	887.4	897.2	915.6
51.5°	893.5	861.6	854.7	856.7	867.8	885.4
52°	863.7	830.2	823.2	825.3	835.9	853.1
52.5°	832.2	798.3	791.3	792.5	802.8	821.6
53°	800.7	765.1	757.4	758.6	769.6	788.9
53.5°	768.0	732.8	723.4	725.1	736.1	755.7
54°	736.5	700.1	689.5	690.7	701.8	721.8
54.5°	703.0	667.0	656.4	656.8	668.2	688.3
55°	670.7	633.9	622.0	622.4	633.9	653.9
55.5°	636.7	602.0	588.5	587.7	599.9	619.6
56°	604.4	569.7	554.9	552.9	566.8	586.0
56.5°	570.9	537.8	522.2	519.8	534.1	552.5
57°	538.2	505.0	489.5	486.2	501.0	518.1
57.5°	505.9	474.0	457.2	453.9	468.7	485.4
58°	474.0	442.9	426.1	422.8	437.2	453.1
58.5°	442.1	412.6	395.5	391.4	405.3	421.6
59°	410.6	382.4	365.6	361.5	375.8	390.5
59.5°	380.7	352.5	337.0	332.5	346.4	359.5
60°	350.5	323.9	307.9	304.7	317.3	330.4
60.5°	320.6	295.7	280.9	277.7	289.5	301.0
61°	290.8	267.9	254.8	251.9	262.5	272.4
61.5°	263.4	242.1	230.2	227.4	236.4	244.5
62°	236.4	216.3	206.5	204.9	211.4	218.0
62.5°	210.2	191.4	184.0	182.4	187.3	192.6
63°	184.8	168.5	162.8	161.5	164.0	168.5
63.5°	161.1	146.4	141.9	141.1	142.3	144.8
64°	138.6	128.4	125.1	124.3	124.7	125.1
64.5°	117.8	110.4	108.4	108.0	107.1	105.5
65°	98.6	92.8	91.6	91.2	89.6	85.9
65.5°	81.0	74.8	74.8	74.8	72.0	66.7
66°	64.2	57.3	60.5	61.3	57.3	47.0



TEST NUMBER: P776354

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	33.5	23.7	27.0	27.8	24.1	15.1
68°	23.3	16.4	18.8	19.2	16.8	11.5
68.5°	13.5	12.7	11.9	12.3	12.7	8.2
69°	8.2	9.0	9.0	9.4	9.0	4.5
69.5°	4.1	4.9	6.5	6.5	4.9	1.2
70°	2.0	1.2	3.7	3.7	1.2	1.2
70.5°	1.2	1.2	1.2	1.2	1.2	1.2
71°	0.8	0.8	0.8	0.8	0.8	0.8
71.5°	0.8	0.8	0.8	0.8	0.8	0.8
72°	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8
73°	0.8	0.8	0.8	0.8	0.8	0.8
73.5°	0.8	0.8	0.8	0.8	0.8	0.8
74°	0.8	0.8	0.8	0.8	0.8	0.8
74.5°	0.8	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4
78°	0.4	0.4	0.4	0.4	0.4	0.4
78.5°	0.4	0.4	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.4	0.4	0.4
79.5°	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4
80.5°	0.4	0.4	0.4	0.4	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776354
CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-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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Cooper Lighting Solutions Photometric Lab
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Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270° - · - · 135°-315°

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Scaled Data Report





21.5°	1809.6	1827.2	1845.2	1860.7	1873.8	1877.1	1875.4	1868.5	1856.6	1840.3	1823.9
22°	1801.4	1819.0	1837.4	1853.3	1866.4	1870.1	1868.1	1860.7	1849.3	1832.5	1815.7



44°	1194.5	1226.8	1256.3	1282.9	1306.6	1311.5	1310.7	1300.4	1281.2	1256.3	1229.7
44.5°	1175.7	1208.4	1237.9	1263.6	1288.2	1293.9	1291.4	1282.0	1262.4	1237.5	1210.9



66.5°	33.9	46.2	53.2	59.7	71.2	73.6	73.6	69.9	62.6	62.6	60.5
67°	23.3	34.8	40.5	45.0	58.9	60.9	60.9	57.7	48.7	51.9	49.5



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

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21.5°	1809.6	1794.5	1789.1	1790.4	1798.1	1809.6
22°	1801.0	1785.5	1780.1	1781.4	1789.1	1801.4



44°	1203.1	1172.9	1163.9	1164.7	1175.3	1194.5
44.5°	1184.7	1154.5	1145.5	1146.3	1156.5	1175.7

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66.5°	54.0	43.8	48.3	48.3	44.6	33.9
67°	43.8	32.7	36.8	37.2	33.5	23.3

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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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Scaled Data Report



(END OF REPORT)