

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: P776761

Luminaire Tested: HCDJBS4050CSD-HCD81TRMB-5000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776761
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B045-HCD81TRMB)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD81TRMB-5000lm-3000K
Description: 8 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

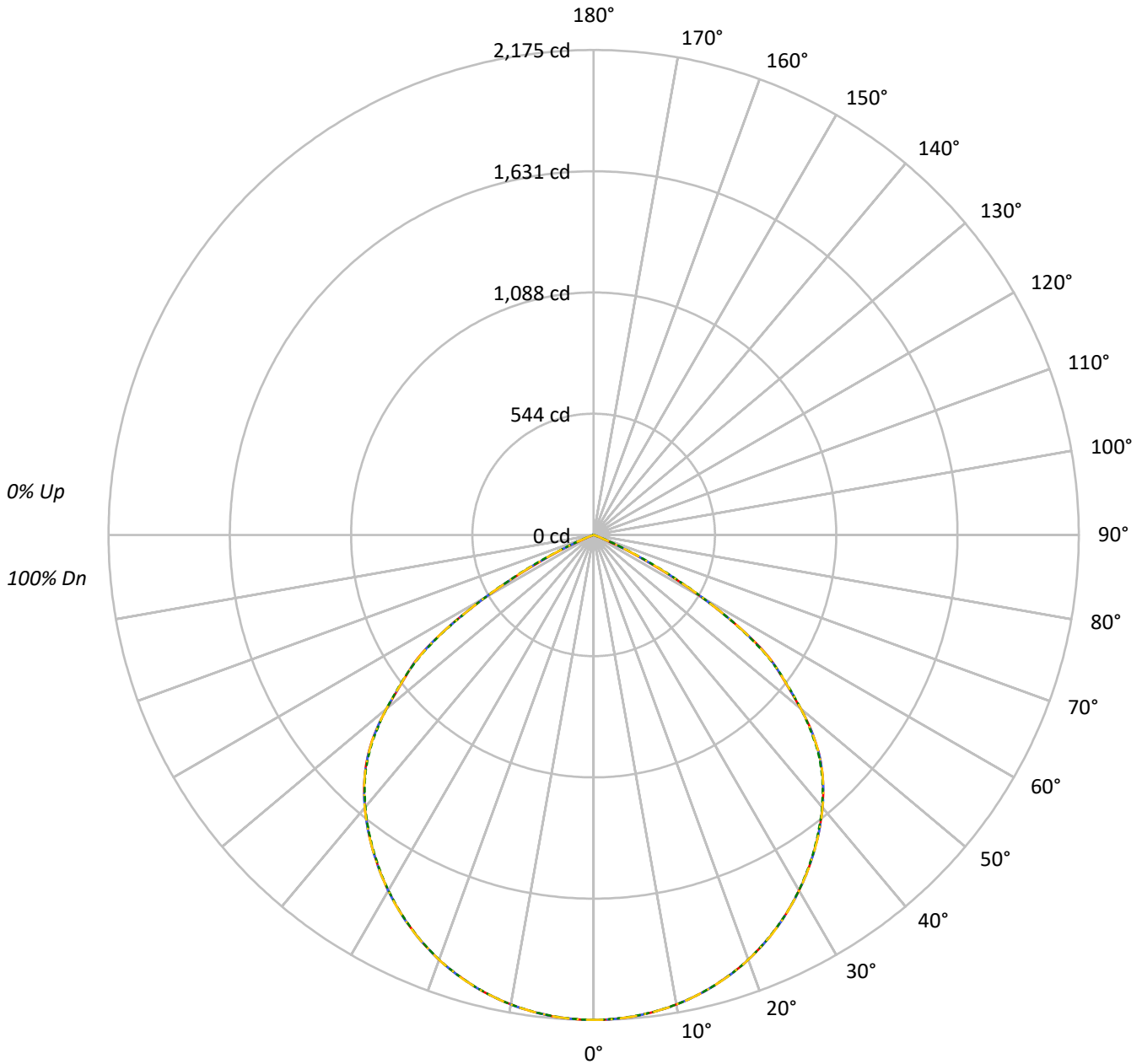
Lumens per Lamp: N/A
Luminaire Lumens: 4912.3 lumens
Efficiency: N/A
Efficacy: 102.3 lumens/watt
Spacing Criteria (0/90/45): 1.26 / 1.26 / 1.37
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

Input Watts (W): 48
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					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	108	105	102	109	106	103	100	101	99	97	98	96	94	94	93	91	89								
2	103	97	91	86	101	95	90	85	91	87	84	88	85	82	85	82	80	78								
3	95	86	80	74	93	85	79	74	82	77	72	80	75	71	77	73	70	68								
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59								
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52								
6	75	63	55	50	74	62	55	49	61	54	49	59	53	49	58	52	48	46								
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41								
8	65	53	45	39	64	52	45	39	51	44	39	50	43	39	48	43	39	37								
9	61	48	41	36	60	48	41	36	47	40	35	46	40	35	45	39	35	33								
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	42	36	32	30								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	66397	66397	66397	66397
5°	66378	66351	66378	66351
10°	66296	66284	66296	66284
15°	66126	66110	66126	66110
20°	65857	65844	65857	65844
25°	65453	65419	65453	65419
30°	64926	64877	64926	64877
35°	64314	64228	64314	64228
40°	63588	63460	63588	63460
45°	62152	61932	62152	61932
50°	57561	57561	57561	57561
55°	51227	50657	51227	50657
60°	34206	34689	34206	34689
65°	12115	14499	12115	14499
70°	125	1366	125	1366
75°	0	0	0	0
80°	0	0	0	0
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 62152 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	205.9	4.2
10°-20°	590.5	12.0
20°-30°	895.3	18.2
30°-40°	1079.3	22.0
40°-50°	1100.3	22.4
50°-60°	826.8	16.8
60°-70°	213.6	4.3
70°-80°	0.6	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°	1691.6	34.4
0°-40°	2771.0	56.4
0°-60°	4698.1	95.6
0°-90°	4912.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4912.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2175	2175	2175	2175	2175	
5°	2166	2165	2166	2165	2166	206
15°	2092	2092	2092	2092	2092	590
25°	1943	1942	1943	1942	1943	895
35°	1726	1723	1726	1723	1726	1079
45°	1440	1434	1440	1434	1440	1101
55°	962	952	962	952	962	827
65°	168	201	168	201	168	200
75°	0	0	0	0	0	0
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°	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8
0.5°	2174.8	2174.8	2174.8	2174.8	2174.3	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8
1°	2174.8	2174.8	2174.8	2174.3	2173.8	2174.3	2174.8	2174.8	2174.8	2174.8	2174.8
1.5°	2174.3	2174.3	2174.3	2174.3	2173.8	2174.3	2174.3	2174.3	2174.3	2174.3	2174.3
2°	2173.8	2173.8	2173.8	2173.4	2172.9	2173.4	2173.8	2173.8	2173.8	2173.8	2173.8
2.5°	2172.4	2172.9	2172.9	2172.9	2172.0	2172.9	2172.9	2172.9	2172.4	2172.9	2172.9
3°	2171.5	2172.0	2172.0	2172.0	2171.0	2172.0	2172.0	2172.0	2171.5	2172.0	2172.0
3.5°	2170.6	2170.6	2170.6	2170.6	2170.1	2170.6	2170.6	2170.6	2170.6	2170.6	2170.6
4°	2169.2	2169.2	2169.2	2169.2	2168.3	2169.2	2169.2	2169.2	2169.2	2169.2	2169.2
4.5°	2167.8	2167.8	2167.8	2167.8	2166.9	2167.8	2167.8	2167.8	2167.8	2167.8	2167.8
5°	2165.9	2165.9	2165.9	2165.9	2165.0	2165.9	2165.9	2165.9	2165.9	2165.9	2165.9
5.5°	2164.1	2164.1	2164.1	2164.1	2163.1	2164.1	2164.1	2164.1	2164.1	2164.1	2164.1
6°	2161.7	2162.2	2161.7	2161.7	2161.3	2161.7	2161.7	2162.2	2161.7	2162.2	2161.7
6.5°	2159.4	2159.9	2159.9	2159.4	2159.0	2159.4	2159.9	2159.9	2159.4	2159.9	2159.9
7°	2157.1	2157.1	2157.1	2157.1	2156.6	2157.1	2157.1	2157.1	2157.1	2157.1	2157.1
7.5°	2154.3	2154.3	2154.3	2154.8	2153.9	2154.8	2154.3	2154.3	2154.3	2154.3	2154.3
8°	2151.5	2151.5	2151.5	2151.5	2151.1	2151.5	2151.5	2151.5	2151.5	2151.5	2151.5
8.5°	2148.7	2148.7	2148.7	2148.7	2147.8	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7
9°	2145.5	2145.5	2145.5	2145.5	2145.0	2145.5	2145.5	2145.5	2145.5	2145.5	2145.5
9.5°	2141.8	2142.2	2142.2	2142.2	2141.3	2142.2	2142.2	2142.2	2141.8	2142.2	2142.2
10°	2138.5	2138.5	2138.5	2138.5	2138.1	2138.5	2138.5	2138.5	2138.5	2138.5	2138.5
10.5°	2134.8	2134.8	2134.8	2134.8	2134.3	2134.8	2134.8	2134.8	2134.8	2134.8	2134.8
11°	2130.6	2130.6	2130.6	2131.1	2130.2	2131.1	2130.6	2130.6	2130.6	2130.6	2130.6
11.5°	2126.4	2126.4	2126.4	2126.9	2126.0	2126.9	2126.4	2126.4	2126.4	2126.4	2126.4
12°	2122.3	2122.3	2122.3	2122.3	2121.8	2122.3	2122.3	2122.3	2122.3	2122.3	2122.3
12.5°	2117.6	2117.6	2117.6	2118.1	2117.2	2118.1	2117.6	2117.6	2117.6	2117.6	2117.6
13°	2113.0	2113.0	2113.0	2113.0	2112.5	2113.0	2113.0	2113.0	2113.0	2113.0	2113.0
13.5°	2107.9	2108.3	2108.3	2108.3	2107.4	2108.3	2108.3	2108.3	2107.9	2108.3	2108.3
14°	2102.8	2103.2	2103.2	2103.2	2102.3	2103.2	2103.2	2103.2	2102.8	2103.2	2103.2
14.5°	2097.6	2097.6	2097.6	2097.6	2097.2	2097.6	2097.6	2097.6	2097.6	2097.6	2097.6
15°	2092.1	2092.1	2092.1	2092.5	2091.6	2092.5	2092.1	2092.1	2092.1	2092.1	2092.1
15.5°	2086.5	2086.5	2086.5	2086.5	2086.0	2086.5	2086.5	2086.5	2086.5	2086.5	2086.5
16°	2080.5	2080.9	2080.9	2080.9	2080.0	2080.9	2080.9	2080.9	2080.5	2080.9	2080.9
16.5°	2074.4	2074.4	2074.9	2074.9	2074.4	2074.9	2074.9	2074.4	2074.4	2074.4	2074.9
17°	2068.4	2068.4	2068.9	2068.4	2067.9	2068.4	2068.9	2068.4	2068.4	2068.4	2068.9
17.5°	2061.9	2061.9	2062.3	2062.3	2061.9	2062.3	2062.3	2061.9	2061.9	2061.9	2062.3
18°	2055.4	2055.4	2055.4	2055.4	2054.9	2055.4	2055.4	2055.4	2055.4	2055.4	2055.4
18.5°	2048.4	2048.4	2048.9	2048.9	2047.9	2048.9	2048.9	2048.4	2048.4	2048.4	2048.9
19°	2041.4	2041.4	2041.9	2041.9	2041.0	2041.9	2041.9	2041.4	2041.4	2041.4	2041.9
19.5°	2034.5	2034.5	2034.5	2034.5	2034.0	2034.5	2034.5	2034.5	2034.5	2034.5	2034.5
20°	2027.0	2027.0	2027.0	2027.0	2026.6	2027.0	2027.0	2027.0	2027.0	2027.0	2027.0
20.5°	2019.1	2019.6	2019.6	2019.6	2018.7	2019.6	2019.6	2019.6	2019.1	2019.6	2019.6
21°	2011.7	2011.7	2011.7	2011.7	2011.3	2011.7	2011.7	2011.7	2011.7	2011.7	2011.7



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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°	1987.1	1987.6	1987.6	1987.6	1986.6	1987.6	1987.6	1987.6	1987.1	1987.6	1987.6
23°	1978.7	1978.7	1978.7	1978.7	1978.3	1978.7	1978.7	1978.7	1978.7	1978.7	1978.7
23.5°	1969.9	1970.4	1970.4	1970.4	1969.4	1970.4	1970.4	1970.4	1969.9	1970.4	1970.4
24°	1961.1	1961.1	1961.6	1961.1	1960.6	1961.1	1961.6	1961.1	1961.1	1961.1	1961.6
24.5°	1951.8	1952.3	1952.7	1952.3	1951.3	1952.3	1952.7	1952.3	1951.8	1952.3	1952.7
25°	1943.0	1943.0	1943.4	1943.0	1942.0	1943.0	1943.4	1943.0	1943.0	1943.0	1943.4
25.5°	1933.2	1933.7	1934.1	1933.7	1932.8	1933.7	1934.1	1933.7	1933.2	1933.7	1934.1
26°	1923.9	1923.9	1924.4	1923.9	1923.0	1923.9	1924.4	1923.9	1923.9	1923.9	1924.4
26.5°	1914.2	1914.6	1914.6	1914.2	1913.2	1914.2	1914.6	1914.6	1914.2	1914.6	1914.6
27°	1904.4	1904.4	1904.9	1904.4	1903.5	1904.4	1904.9	1904.4	1904.4	1904.4	1904.9
27.5°	1894.2	1894.7	1894.7	1894.2	1893.3	1894.2	1894.7	1894.7	1894.2	1894.7	1894.7
28°	1884.0	1884.4	1884.4	1884.0	1883.1	1884.0	1884.4	1884.4	1884.0	1884.4	1884.4
28.5°	1873.8	1873.8	1874.2	1873.8	1872.8	1873.8	1874.2	1873.8	1873.8	1873.8	1874.2
29°	1863.1	1863.5	1863.5	1863.1	1861.7	1863.1	1863.5	1863.5	1863.1	1863.5	1863.5
29.5°	1852.4	1852.9	1852.9	1852.4	1851.0	1852.4	1852.9	1852.9	1852.4	1852.9	1852.9
30°	1841.7	1842.2	1842.2	1841.2	1840.3	1841.2	1842.2	1842.2	1841.7	1842.2	1842.2
30.5°	1831.0	1831.0	1831.0	1830.6	1829.2	1830.6	1831.0	1831.0	1831.0	1831.0	1831.0
31°	1819.4	1819.9	1820.3	1819.0	1818.0	1819.0	1820.3	1819.9	1819.4	1819.9	1820.3
31.5°	1808.3	1808.7	1808.7	1807.8	1806.4	1807.8	1808.7	1808.7	1808.3	1808.7	1808.7
32°	1797.1	1797.6	1797.6	1796.7	1794.8	1796.7	1797.6	1797.6	1797.1	1797.6	1797.6
32.5°	1785.5	1786.0	1786.0	1784.6	1783.2	1784.6	1786.0	1786.0	1785.5	1786.0	1786.0
33°	1773.4	1774.4	1774.4	1773.4	1771.6	1773.4	1774.4	1774.4	1773.4	1774.4	1774.4
33.5°	1761.8	1762.3	1762.7	1761.4	1759.5	1761.4	1762.7	1762.3	1761.8	1762.3	1762.7
34°	1749.7	1750.2	1750.7	1749.3	1747.9	1749.3	1750.7	1750.2	1749.7	1750.2	1750.7
34.5°	1737.7	1738.1	1738.6	1737.2	1735.8	1737.2	1738.6	1738.1	1737.7	1738.1	1738.6
35°	1725.6	1726.1	1726.5	1725.1	1723.3	1725.1	1726.5	1726.1	1725.6	1726.1	1726.5
35.5°	1713.0	1714.0	1714.0	1712.6	1710.7	1712.6	1714.0	1714.0	1713.0	1714.0	1714.0
36°	1701.0	1701.4	1701.9	1700.0	1698.2	1700.0	1701.9	1701.4	1701.0	1701.4	1701.9
36.5°	1688.4	1688.9	1689.4	1687.5	1685.6	1687.5	1689.4	1688.9	1688.4	1688.9	1689.4
37°	1675.4	1675.9	1676.4	1674.5	1673.1	1674.5	1676.4	1675.9	1675.4	1675.9	1676.4
37.5°	1662.4	1663.3	1663.8	1661.5	1659.6	1661.5	1663.8	1663.3	1662.4	1663.3	1663.8
38°	1649.4	1649.9	1650.8	1648.5	1647.1	1648.5	1650.8	1649.9	1649.4	1649.9	1650.8
38.5°	1635.9	1636.9	1637.3	1635.5	1633.6	1635.5	1637.3	1636.9	1635.9	1636.9	1637.3
39°	1622.9	1623.9	1624.3	1622.0	1620.2	1622.0	1624.3	1623.9	1622.9	1623.9	1624.3
39.5°	1609.5	1609.9	1610.4	1608.5	1606.2	1608.5	1610.4	1609.9	1609.5	1609.9	1610.4
40°	1595.5	1596.5	1596.5	1594.6	1592.3	1594.6	1596.5	1596.5	1595.5	1596.5	1596.5
40.5°	1581.6	1582.1	1582.5	1580.2	1578.3	1580.2	1582.5	1582.1	1581.6	1582.1	1582.5
41°	1567.2	1568.1	1568.6	1566.3	1563.9	1566.3	1568.6	1568.1	1567.2	1568.1	1568.6
41.5°	1552.8	1553.3	1553.7	1551.4	1549.5	1551.4	1553.7	1553.3	1552.8	1553.3	1553.7
42°	1537.9	1538.4	1538.9	1536.5	1534.2	1536.5	1538.9	1538.4	1537.9	1538.4	1538.9
42.5°	1522.6	1523.5	1523.5	1521.2	1518.9	1521.2	1523.5	1523.5	1522.6	1523.5	1523.5
43°	1507.3	1507.7	1507.7	1505.4	1503.1	1505.4	1507.7	1507.7	1507.3	1507.7	1507.7
43.5°	1491.0	1491.5	1491.5	1489.2	1486.8	1489.2	1491.5	1491.5	1491.0	1491.5	1491.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1439.5	1439.5	1439.0	1436.7	1434.4	1436.7	1439.0	1439.5	1439.5	1439.5	1439.0
45.5°	1420.9	1420.9	1420.4	1417.6	1415.3	1417.6	1420.4	1420.9	1420.9	1420.9	1420.4
46°	1401.8	1401.8	1400.9	1398.1	1395.3	1398.1	1400.9	1401.8	1401.8	1401.8	1400.9
46.5°	1381.4	1381.4	1380.5	1377.2	1375.4	1377.2	1380.5	1381.4	1381.4	1381.4	1380.5
47°	1360.0	1360.0	1358.6	1355.9	1353.5	1355.9	1358.6	1360.0	1360.0	1360.0	1358.6
47.5°	1337.7	1337.7	1336.3	1333.6	1331.2	1333.6	1336.3	1337.7	1337.7	1337.7	1336.3
48°	1314.5	1314.5	1313.6	1310.8	1308.9	1310.8	1313.6	1314.5	1314.5	1314.5	1313.6
48.5°	1290.4	1290.4	1289.4	1287.6	1285.7	1287.6	1289.4	1290.4	1290.4	1290.4	1289.4
49°	1264.8	1264.8	1264.3	1263.0	1262.0	1263.0	1264.3	1264.8	1264.8	1264.8	1264.3
49.5°	1239.3	1238.8	1239.3	1237.9	1237.4	1237.9	1239.3	1238.8	1239.3	1238.8	1239.3
50°	1211.9	1212.3	1213.3	1212.3	1211.9	1212.3	1213.3	1212.3	1211.9	1212.3	1213.3
50.5°	1183.5	1185.4	1186.8	1186.3	1186.3	1186.3	1186.8	1185.4	1183.5	1185.4	1186.8
51°	1156.6	1157.5	1158.9	1160.3	1161.2	1160.3	1158.9	1157.5	1156.6	1157.5	1158.9
51.5°	1130.1	1130.6	1132.4	1133.8	1135.2	1133.8	1132.4	1130.6	1130.1	1130.6	1132.4
52°	1103.6	1104.6	1106.4	1108.3	1110.6	1108.3	1106.4	1104.6	1103.6	1104.6	1106.4
52.5°	1078.6	1079.5	1081.8	1084.1	1086.0	1084.1	1081.8	1079.5	1078.6	1079.5	1081.8
53°	1054.9	1055.8	1058.1	1060.0	1061.8	1060.0	1058.1	1055.8	1054.9	1055.8	1058.1
53.5°	1032.6	1033.5	1034.4	1035.4	1036.7	1035.4	1034.4	1033.5	1032.6	1033.5	1034.4
54°	1011.7	1010.7	1010.7	1010.3	1010.3	1010.3	1010.7	1010.7	1011.7	1010.7	1010.7
54.5°	988.4	987.5	985.7	983.3	981.5	983.3	985.7	987.5	988.4	987.5	985.7
55°	962.4	960.6	957.8	954.5	951.7	954.5	957.8	960.6	962.4	960.6	957.8
55.5°	931.8	929.4	926.7	923.9	921.1	923.9	926.7	929.4	931.8	929.4	926.7
56°	897.4	896.0	893.2	890.4	887.2	890.4	893.2	896.0	897.4	896.0	893.2
56.5°	859.8	858.4	857.5	854.7	852.3	854.7	857.5	858.4	859.8	858.4	857.5
57°	820.3	819.4	818.9	816.6	813.8	816.6	818.9	819.4	820.3	819.4	818.9
57.5°	778.5	778.5	778.5	776.2	774.3	776.2	778.5	778.5	778.5	778.5	778.5
58°	736.2	736.7	737.1	735.8	733.9	735.8	737.1	736.7	736.2	736.7	737.1
58.5°	693.0	693.0	694.4	694.0	692.1	694.0	694.4	693.0	693.0	693.0	694.4
59°	648.9	649.8	651.2	651.7	651.2	651.7	651.2	649.8	648.9	649.8	651.2
59.5°	604.8	605.7	608.0	609.9	609.9	609.9	608.0	605.7	604.8	605.7	608.0
60°	560.2	562.0	564.8	568.5	568.1	568.5	564.8	562.0	560.2	562.0	564.8
60.5°	516.1	518.4	522.1	526.3	526.7	526.3	522.1	518.4	516.1	518.4	522.1
61°	473.3	476.1	479.8	484.5	485.9	484.5	479.8	476.1	473.3	476.1	479.8
61.5°	431.5	433.8	438.9	443.1	445.9	443.1	438.9	433.8	431.5	433.8	438.9
62°	389.7	393.0	398.5	403.6	407.4	403.6	398.5	393.0	389.7	393.0	398.5
62.5°	348.4	352.1	359.5	365.1	368.8	365.1	359.5	352.1	348.4	352.1	359.5
63°	308.9	313.1	321.4	327.5	331.6	327.5	321.4	313.1	308.9	313.1	321.4
63.5°	271.3	275.4	284.3	291.7	298.7	291.7	284.3	275.4	271.3	275.4	284.3
64°	235.0	239.7	248.5	258.3	266.2	258.3	248.5	239.7	235.0	239.7	248.5
64.5°	200.2	206.2	215.5	225.7	233.2	225.7	215.5	206.2	200.2	206.2	215.5
65°	167.7	175.6	184.4	194.2	200.7	194.2	184.4	175.6	167.7	175.6	184.4
65.5°	138.0	146.8	154.7	164.0	170.0	164.0	154.7	146.8	138.0	146.8	154.7
66°	110.5	121.2	127.3	136.6	142.1	136.6	127.3	121.2	110.5	121.2	127.3



TEST NUMBER: P776761

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	42.3	57.1	63.6	71.5	75.7	71.5	63.6	57.1	42.3	57.1	63.6
68°	24.6	39.5	48.3	53.9	59.0	53.9	48.3	39.5	24.6	39.5	48.3
68.5°	9.3	26.5	34.8	40.9	46.9	40.9	34.8	26.5	9.3	26.5	34.8
69°	4.6	15.8	22.3	28.3	34.8	28.3	22.3	15.8	4.6	15.8	22.3
69.5°	2.8	7.0	12.5	18.6	25.1	18.6	12.5	7.0	2.8	7.0	12.5
70°	1.4	3.3	7.0	10.7	15.3	10.7	7.0	3.3	1.4	3.3	7.0
70.5°	0.5	1.9	4.2	5.1	6.0	5.1	4.2	1.9	0.5	1.9	4.2
71°	0.5	0.9	2.3	2.8	2.3	2.8	2.3	0.9	0.5	0.9	2.3
71.5°	0.5	0.5	1.4	1.4	0.5	1.4	1.4	0.5	0.5	0.5	1.4
72°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
73°	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
73.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	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	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: P776761
CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

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: P776761

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2174.8	2174.8	2174.8	2174.8	2174.8	2174.8
0.5°	2174.8	2174.3	2174.8	2174.8	2174.8	2174.8
1°	2174.3	2173.8	2174.3	2174.8	2174.8	2174.8
1.5°	2174.3	2173.8	2174.3	2174.3	2174.3	2174.3
2°	2173.4	2172.9	2173.4	2173.8	2173.8	2173.8
2.5°	2172.9	2172.0	2172.9	2172.9	2172.9	2172.4
3°	2172.0	2171.0	2172.0	2172.0	2172.0	2171.5
3.5°	2170.6	2170.1	2170.6	2170.6	2170.6	2170.6
4°	2169.2	2168.3	2169.2	2169.2	2169.2	2169.2
4.5°	2167.8	2166.9	2167.8	2167.8	2167.8	2167.8
5°	2165.9	2165.0	2165.9	2165.9	2165.9	2165.9
5.5°	2164.1	2163.1	2164.1	2164.1	2164.1	2164.1
6°	2161.7	2161.3	2161.7	2161.7	2162.2	2161.7
6.5°	2159.4	2159.0	2159.4	2159.9	2159.9	2159.4
7°	2157.1	2156.6	2157.1	2157.1	2157.1	2157.1
7.5°	2154.8	2153.9	2154.8	2154.3	2154.3	2154.3
8°	2151.5	2151.1	2151.5	2151.5	2151.5	2151.5
8.5°	2148.7	2147.8	2148.7	2148.7	2148.7	2148.7
9°	2145.5	2145.0	2145.5	2145.5	2145.5	2145.5
9.5°	2142.2	2141.3	2142.2	2142.2	2142.2	2141.8
10°	2138.5	2138.1	2138.5	2138.5	2138.5	2138.5
10.5°	2134.8	2134.3	2134.8	2134.8	2134.8	2134.8
11°	2131.1	2130.2	2131.1	2130.6	2130.6	2130.6
11.5°	2126.9	2126.0	2126.9	2126.4	2126.4	2126.4
12°	2122.3	2121.8	2122.3	2122.3	2122.3	2122.3
12.5°	2118.1	2117.2	2118.1	2117.6	2117.6	2117.6
13°	2113.0	2112.5	2113.0	2113.0	2113.0	2113.0
13.5°	2108.3	2107.4	2108.3	2108.3	2108.3	2107.9
14°	2103.2	2102.3	2103.2	2103.2	2103.2	2102.8
14.5°	2097.6	2097.2	2097.6	2097.6	2097.6	2097.6
15°	2092.5	2091.6	2092.5	2092.1	2092.1	2092.1
15.5°	2086.5	2086.0	2086.5	2086.5	2086.5	2086.5
16°	2080.9	2080.0	2080.9	2080.9	2080.9	2080.5
16.5°	2074.9	2074.4	2074.9	2074.9	2074.4	2074.4
17°	2068.4	2067.9	2068.4	2068.9	2068.4	2068.4
17.5°	2062.3	2061.9	2062.3	2062.3	2061.9	2061.9
18°	2055.4	2054.9	2055.4	2055.4	2055.4	2055.4
18.5°	2048.9	2047.9	2048.9	2048.9	2048.4	2048.4
19°	2041.9	2041.0	2041.9	2041.9	2041.4	2041.4
19.5°	2034.5	2034.0	2034.5	2034.5	2034.5	2034.5
20°	2027.0	2026.6	2027.0	2027.0	2027.0	2027.0
20.5°	2019.6	2018.7	2019.6	2019.6	2019.6	2019.1
21°	2011.7	2011.3	2011.7	2011.7	2011.7	2011.7



TEST NUMBER: P776761

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1987.6	1986.6	1987.6	1987.6	1987.6	1987.1
23°	1978.7	1978.3	1978.7	1978.7	1978.7	1978.7
23.5°	1970.4	1969.4	1970.4	1970.4	1970.4	1969.9
24°	1961.1	1960.6	1961.1	1961.6	1961.1	1961.1
24.5°	1952.3	1951.3	1952.3	1952.7	1952.3	1951.8
25°	1943.0	1942.0	1943.0	1943.4	1943.0	1943.0
25.5°	1933.7	1932.8	1933.7	1934.1	1933.7	1933.2
26°	1923.9	1923.0	1923.9	1924.4	1923.9	1923.9
26.5°	1914.2	1913.2	1914.2	1914.6	1914.6	1914.2
27°	1904.4	1903.5	1904.4	1904.9	1904.4	1904.4
27.5°	1894.2	1893.3	1894.2	1894.7	1894.7	1894.2
28°	1884.0	1883.1	1884.0	1884.4	1884.4	1884.0
28.5°	1873.8	1872.8	1873.8	1874.2	1873.8	1873.8
29°	1863.1	1861.7	1863.1	1863.5	1863.5	1863.1
29.5°	1852.4	1851.0	1852.4	1852.9	1852.9	1852.4
30°	1841.2	1840.3	1841.2	1842.2	1842.2	1841.7
30.5°	1830.6	1829.2	1830.6	1831.0	1831.0	1831.0
31°	1819.0	1818.0	1819.0	1820.3	1819.9	1819.4
31.5°	1807.8	1806.4	1807.8	1808.7	1808.7	1808.3
32°	1796.7	1794.8	1796.7	1797.6	1797.6	1797.1
32.5°	1784.6	1783.2	1784.6	1786.0	1786.0	1785.5
33°	1773.4	1771.6	1773.4	1774.4	1774.4	1773.4
33.5°	1761.4	1759.5	1761.4	1762.7	1762.3	1761.8
34°	1749.3	1747.9	1749.3	1750.7	1750.2	1749.7
34.5°	1737.2	1735.8	1737.2	1738.6	1738.1	1737.7
35°	1725.1	1723.3	1725.1	1726.5	1726.1	1725.6
35.5°	1712.6	1710.7	1712.6	1714.0	1714.0	1713.0
36°	1700.0	1698.2	1700.0	1701.9	1701.4	1701.0
36.5°	1687.5	1685.6	1687.5	1689.4	1688.9	1688.4
37°	1674.5	1673.1	1674.5	1676.4	1675.9	1675.4
37.5°	1661.5	1659.6	1661.5	1663.8	1663.3	1662.4
38°	1648.5	1647.1	1648.5	1650.8	1649.9	1649.4
38.5°	1635.5	1633.6	1635.5	1637.3	1636.9	1635.9
39°	1622.0	1620.2	1622.0	1624.3	1623.9	1622.9
39.5°	1608.5	1606.2	1608.5	1610.4	1609.9	1609.5
40°	1594.6	1592.3	1594.6	1596.5	1596.5	1595.5
40.5°	1580.2	1578.3	1580.2	1582.5	1582.1	1581.6
41°	1566.3	1563.9	1566.3	1568.6	1568.1	1567.2
41.5°	1551.4	1549.5	1551.4	1553.7	1553.3	1552.8
42°	1536.5	1534.2	1536.5	1538.9	1538.4	1537.9
42.5°	1521.2	1518.9	1521.2	1523.5	1523.5	1522.6
43°	1505.4	1503.1	1505.4	1507.7	1507.7	1507.3
43.5°	1489.2	1486.8	1489.2	1491.5	1491.5	1491.0



TEST NUMBER: P776761

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1436.7	1434.4	1436.7	1439.0	1439.5	1439.5
45.5°	1417.6	1415.3	1417.6	1420.4	1420.9	1420.9
46°	1398.1	1395.3	1398.1	1400.9	1401.8	1401.8
46.5°	1377.2	1375.4	1377.2	1380.5	1381.4	1381.4
47°	1355.9	1353.5	1355.9	1358.6	1360.0	1360.0
47.5°	1333.6	1331.2	1333.6	1336.3	1337.7	1337.7
48°	1310.8	1308.9	1310.8	1313.6	1314.5	1314.5
48.5°	1287.6	1285.7	1287.6	1289.4	1290.4	1290.4
49°	1263.0	1262.0	1263.0	1264.3	1264.8	1264.8
49.5°	1237.9	1237.4	1237.9	1239.3	1238.8	1239.3
50°	1212.3	1211.9	1212.3	1213.3	1212.3	1211.9
50.5°	1186.3	1186.3	1186.3	1186.8	1185.4	1183.5
51°	1160.3	1161.2	1160.3	1158.9	1157.5	1156.6
51.5°	1133.8	1135.2	1133.8	1132.4	1130.6	1130.1
52°	1108.3	1110.6	1108.3	1106.4	1104.6	1103.6
52.5°	1084.1	1086.0	1084.1	1081.8	1079.5	1078.6
53°	1060.0	1061.8	1060.0	1058.1	1055.8	1054.9
53.5°	1035.4	1036.7	1035.4	1034.4	1033.5	1032.6
54°	1010.3	1010.3	1010.3	1010.7	1010.7	1011.7
54.5°	983.3	981.5	983.3	985.7	987.5	988.4
55°	954.5	951.7	954.5	957.8	960.6	962.4
55.5°	923.9	921.1	923.9	926.7	929.4	931.8
56°	890.4	887.2	890.4	893.2	896.0	897.4
56.5°	854.7	852.3	854.7	857.5	858.4	859.8
57°	816.6	813.8	816.6	818.9	819.4	820.3
57.5°	776.2	774.3	776.2	778.5	778.5	778.5
58°	735.8	733.9	735.8	737.1	736.7	736.2
58.5°	694.0	692.1	694.0	694.4	693.0	693.0
59°	651.7	651.2	651.7	651.2	649.8	648.9
59.5°	609.9	609.9	609.9	608.0	605.7	604.8
60°	568.5	568.1	568.5	564.8	562.0	560.2
60.5°	526.3	526.7	526.3	522.1	518.4	516.1
61°	484.5	485.9	484.5	479.8	476.1	473.3
61.5°	443.1	445.9	443.1	438.9	433.8	431.5
62°	403.6	407.4	403.6	398.5	393.0	389.7
62.5°	365.1	368.8	365.1	359.5	352.1	348.4
63°	327.5	331.6	327.5	321.4	313.1	308.9
63.5°	291.7	298.7	291.7	284.3	275.4	271.3
64°	258.3	266.2	258.3	248.5	239.7	235.0
64.5°	225.7	233.2	225.7	215.5	206.2	200.2
65°	194.2	200.7	194.2	184.4	175.6	167.7
65.5°	164.0	170.0	164.0	154.7	146.8	138.0
66°	136.6	142.1	136.6	127.3	121.2	110.5



TEST NUMBER: P776761

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	71.5	75.7	71.5	63.6	57.1	42.3
68°	53.9	59.0	53.9	48.3	39.5	24.6
68.5°	40.9	46.9	40.9	34.8	26.5	9.3
69°	28.3	34.8	28.3	22.3	15.8	4.6
69.5°	18.6	25.1	18.6	12.5	7.0	2.8
70°	10.7	15.3	10.7	7.0	3.3	1.4
70.5°	5.1	6.0	5.1	4.2	1.9	0.5
71°	2.8	2.3	2.8	2.3	0.9	0.5
71.5°	1.4	0.5	1.4	1.4	0.5	0.5
72°	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	0.5	0.5	0.5	0.5	0.5	0.5
73°	0.5	0.5	0.5	0.0	0.0	0.0
73.5°	0.0	0.0	0.0	0.0	0.0	0.0
74°	0.0	0.0	0.0	0.0	0.0	0.0
74.5°	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0
75.5°	0.0	0.0	0.0	0.0	0.0	0.0
76°	0.0	0.0	0.0	0.0	0.0	0.0
76.5°	0.0	0.0	0.0	0.0	0.0	0.0
77°	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0
78°	0.0	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	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: P776761

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-3000K

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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Peachtree City, GA 30269

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

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21.5°	2003.8	2003.8	2003.8	2003.8	2002.9	2003.8	2003.8	2003.8	2003.8	2003.8	2003.8
22°	1995.5	1995.5	1995.9	1995.9	1995.0	1995.9	1995.9	1995.5	1995.5	1995.5	1995.9



44°	1474.3	1474.8	1474.3	1472.0	1470.1	1472.0	1474.3	1474.8	1474.3	1474.8	1474.3
44.5°	1457.1	1457.6	1457.6	1454.8	1452.0	1454.8	1457.6	1457.6	1457.1	1457.6	1457.6



66.5°	87.3	98.0	103.1	111.9	117.1	111.9	103.1	98.0	87.3	98.0	103.1
67°	64.6	75.2	82.7	90.1	94.3	90.1	82.7	75.2	64.6	75.2	82.7



89°	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

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21.5°	2003.8	2002.9	2003.8	2003.8	2003.8	2003.8
22°	1995.9	1995.0	1995.9	1995.9	1995.5	1995.5



44°	1472.0	1470.1	1472.0	1474.3	1474.8	1474.3
44.5°	1454.8	1452.0	1454.8	1457.6	1457.6	1457.1

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66.5°	111.9	117.1	111.9	103.1	98.0	87.3
67°	90.1	94.3	90.1	82.7	75.2	64.6

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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)