

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: P776441

Luminaire Tested: HCDJBL3040CSD-HCD81TRH-4000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776441
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B043-HCD81TRH)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD81TRH-4000lm-3000K
Description: 8 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4756.8 lumens
Efficiency: N/A
Efficacy: 123.6 lumens/watt
Spacing Criteria (0/90/45): 1.42 / 1.42 / 1.43
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

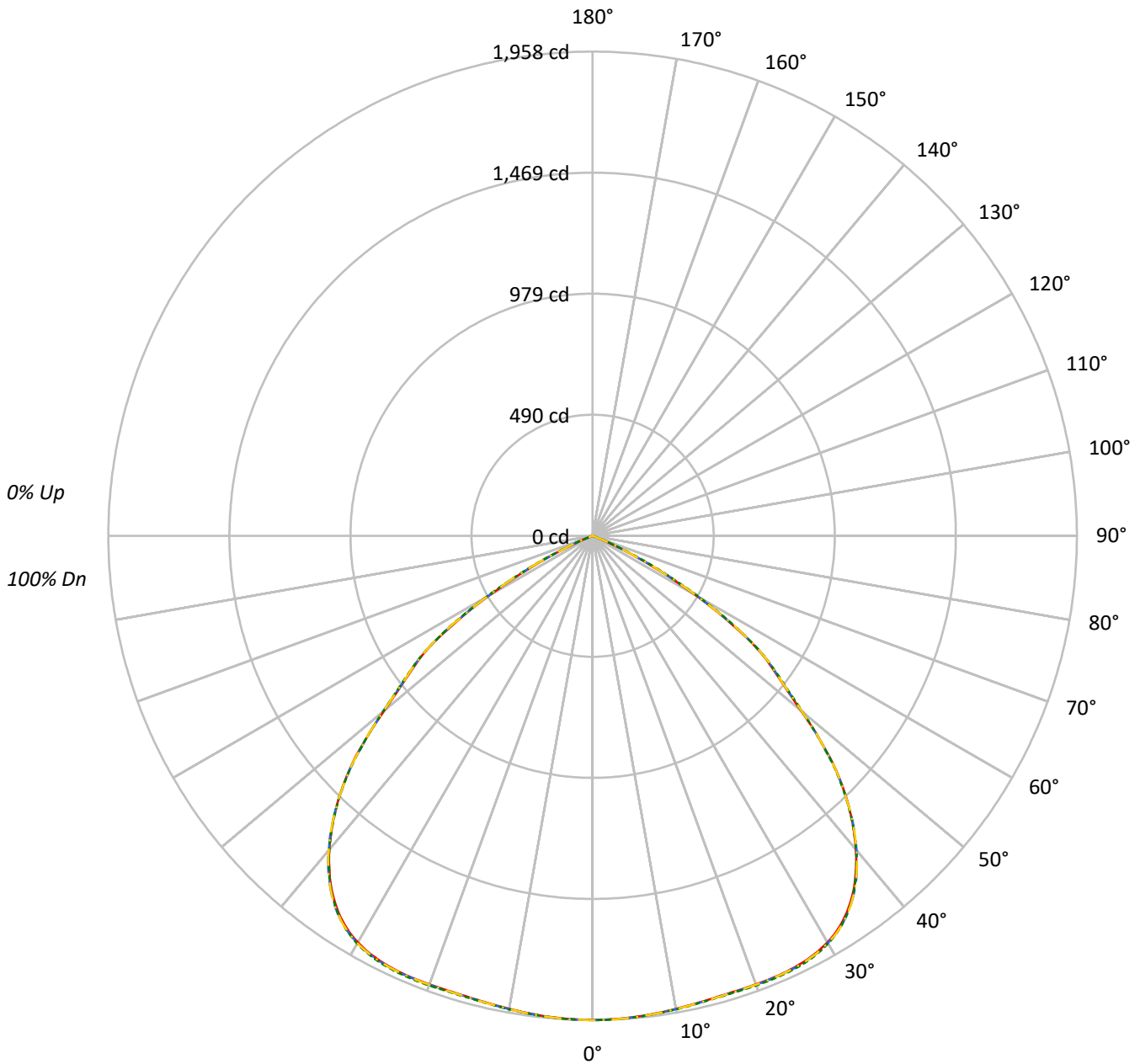
Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89								
2	103	97	91	87	101	95	90	86	92	87	84	88	85	82	86	83	80	78								
3	96	87	80	75	93	85	79	74	82	77	73	80	75	71	77	74	70	68								
4	88	78	70	65	86	77	70	64	74	68	63	72	67	63	70	66	62	60								
5	82	70	62	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53								
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	47								
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	41								
8	65	53	45	40	64	52	45	40	51	44	39	50	44	39	49	43	39	37								
9	61	49	41	36	60	48	41	36	47	40	36	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°	59794	59794	59794	59794
5°	59878	59899	59878	59899
10°	60229	60279	60229	60279
15°	61072	61160	61072	61160
20°	62715	62854	62715	62854
25°	64904	65089	64904	65089
30°	66928	67122	66928	67122
35°	67635	67784	67635	67784
40°	65987	66019	65987	66019
45°	61548	61462	61548	61462
50°	52232	52603	52232	52603
55°	44648	44898	44648	44898
60°	29364	30512	29364	30512
65°	10352	12476	10352	12476
70°	179	946	179	946
75°	47	47	47	47
80°	0	70	0	70
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 61548 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	186.2	3.9
10°-20°	548.4	11.5
20°-30°	890.8	18.7
30°-40°	1131.1	23.8
40°-50°	1084.7	22.8
50°-60°	730.1	15.3
60°-70°	184.7	3.9
70°-80°	0.8	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°	1625.4	34.2
0°-40°	2756.5	57.9
0°-60°	4571.3	96.1
0°-90°	4756.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4756.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1958	1958	1958	1958	1958	
5°	1954	1954	1954	1954	1954	186
15°	1932	1935	1932	1935	1932	548
25°	1927	1932	1927	1932	1927	890
35°	1815	1819	1815	1819	1815	1129
45°	1426	1424	1426	1424	1426	1085
55°	839	844	839	844	839	725
65°	143	173	143	173	143	172
75°	0	0	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°	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5
0.5°	1958.1	1958.1	1958.5	1958.9	1958.5	1958.9	1958.5	1958.1	1958.1	1958.1	1958.5
1°	1958.1	1958.1	1958.5	1958.9	1958.1	1958.9	1958.5	1958.1	1958.1	1958.1	1958.5
1.5°	1957.7	1957.7	1958.1	1958.5	1958.1	1958.5	1958.1	1957.7	1957.7	1957.7	1958.1
2°	1957.3	1957.3	1958.1	1958.1	1957.7	1958.1	1958.1	1957.3	1957.3	1957.3	1958.1
2.5°	1956.9	1957.3	1957.7	1958.1	1957.3	1958.1	1957.7	1957.3	1956.9	1957.3	1957.7
3°	1956.5	1956.5	1957.3	1957.3	1956.9	1957.3	1957.3	1956.5	1956.5	1956.5	1957.3
3.5°	1955.7	1956.1	1956.5	1956.9	1956.5	1956.9	1956.5	1956.1	1955.7	1956.1	1956.5
4°	1955.3	1955.3	1955.7	1956.5	1955.7	1956.5	1955.7	1955.3	1955.3	1955.3	1955.7
4.5°	1954.5	1954.9	1955.3	1955.7	1955.3	1955.7	1955.3	1954.9	1954.5	1954.9	1955.3
5°	1953.8	1954.2	1954.5	1954.9	1954.5	1954.9	1954.5	1954.2	1953.8	1954.2	1954.5
5.5°	1953.0	1953.0	1953.8	1954.2	1953.8	1954.2	1953.8	1953.0	1953.0	1953.0	1953.8
6°	1951.8	1952.2	1952.6	1953.4	1953.0	1953.4	1952.6	1952.2	1951.8	1952.2	1952.6
6.5°	1951.0	1951.4	1951.8	1952.6	1951.8	1952.6	1951.8	1951.4	1951.0	1951.4	1951.8
7°	1949.8	1950.2	1951.0	1951.4	1951.0	1951.4	1951.0	1950.2	1949.8	1950.2	1951.0
7.5°	1948.7	1949.1	1949.8	1950.2	1949.8	1950.2	1949.8	1949.1	1948.7	1949.1	1949.8
8°	1947.9	1947.9	1948.7	1949.5	1949.1	1949.5	1948.7	1947.9	1947.9	1947.9	1948.7
8.5°	1946.7	1946.7	1947.5	1947.9	1947.9	1947.9	1947.5	1946.7	1946.7	1946.7	1947.5
9°	1945.1	1945.5	1946.3	1947.1	1946.7	1947.1	1946.3	1945.5	1945.1	1945.5	1946.3
9.5°	1944.0	1944.4	1945.1	1945.9	1945.5	1945.9	1945.1	1944.4	1944.0	1944.4	1945.1
10°	1942.8	1943.2	1944.0	1944.8	1944.4	1944.8	1944.0	1943.2	1942.8	1943.2	1944.0
10.5°	1941.6	1942.0	1942.4	1943.6	1943.2	1943.6	1942.4	1942.0	1941.6	1942.0	1942.4
11°	1940.4	1940.4	1941.2	1942.4	1942.0	1942.4	1941.2	1940.4	1940.4	1940.4	1941.2
11.5°	1939.3	1939.3	1940.1	1941.2	1940.8	1941.2	1940.1	1939.3	1939.3	1939.3	1940.1
12°	1938.1	1938.1	1938.9	1940.1	1940.1	1940.1	1938.9	1938.1	1938.1	1938.1	1938.9
12.5°	1936.9	1936.9	1938.1	1938.9	1938.9	1938.9	1938.1	1936.9	1936.9	1936.9	1938.1
13°	1935.7	1936.1	1936.9	1937.7	1938.1	1937.7	1936.9	1936.1	1935.7	1936.1	1936.9
13.5°	1934.6	1935.0	1936.1	1936.9	1936.9	1936.9	1936.1	1935.0	1934.6	1935.0	1936.1
14°	1933.8	1934.2	1935.0	1936.1	1936.1	1936.1	1935.0	1934.2	1933.8	1934.2	1935.0
14.5°	1933.0	1933.4	1934.2	1935.4	1935.7	1935.4	1934.2	1933.4	1933.0	1933.4	1934.2
15°	1932.2	1932.6	1933.4	1935.0	1935.0	1935.0	1933.4	1932.6	1932.2	1932.6	1933.4
15.5°	1931.4	1931.8	1933.0	1934.2	1934.6	1934.2	1933.0	1931.8	1931.4	1931.8	1933.0
16°	1931.0	1931.4	1932.2	1933.8	1934.2	1933.8	1932.2	1931.4	1931.0	1931.4	1932.2
16.5°	1930.7	1931.0	1931.8	1933.4	1933.8	1933.4	1931.8	1931.0	1930.7	1931.0	1931.8
17°	1930.3	1930.7	1931.8	1933.4	1933.8	1933.4	1931.8	1930.7	1930.3	1930.7	1931.8
17.5°	1930.3	1930.7	1931.4	1933.4	1933.8	1933.4	1931.4	1930.7	1930.3	1930.7	1931.4
18°	1929.9	1930.3	1931.4	1933.4	1933.8	1933.4	1931.4	1930.3	1929.9	1930.3	1931.4
18.5°	1929.9	1930.3	1931.4	1933.4	1933.8	1933.4	1931.4	1930.3	1929.9	1930.3	1931.4
19°	1930.3	1930.3	1931.4	1933.8	1934.2	1933.8	1931.4	1930.3	1930.3	1930.3	1931.4
19.5°	1930.3	1930.7	1931.8	1933.8	1934.6	1933.8	1931.8	1930.7	1930.3	1930.7	1931.8
20°	1930.3	1930.7	1931.8	1934.2	1934.6	1934.2	1931.8	1930.7	1930.3	1930.7	1931.8
20.5°	1930.7	1930.7	1932.2	1934.2	1935.0	1934.2	1932.2	1930.7	1930.7	1930.7	1932.2
21°	1930.7	1931.0	1932.2	1934.6	1935.0	1934.6	1932.2	1931.0	1930.7	1931.0	1932.2



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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°	1930.3	1930.7	1932.2	1934.6	1935.4	1934.6	1932.2	1930.7	1930.3	1930.7	1932.2
23°	1929.9	1930.3	1931.8	1934.2	1935.0	1934.2	1931.8	1930.3	1929.9	1930.3	1931.8
23.5°	1929.5	1929.9	1931.4	1933.8	1934.6	1933.8	1931.4	1929.9	1929.5	1929.9	1931.4
24°	1929.1	1929.1	1930.7	1933.4	1934.2	1933.4	1930.7	1929.1	1929.1	1929.1	1930.7
24.5°	1927.9	1928.3	1929.9	1932.6	1933.4	1932.6	1929.9	1928.3	1927.9	1928.3	1929.9
25°	1926.7	1927.1	1929.1	1931.8	1932.2	1931.8	1929.1	1927.1	1926.7	1927.1	1929.1
25.5°	1925.6	1926.0	1927.9	1930.7	1931.0	1930.7	1927.9	1926.0	1925.6	1926.0	1927.9
26°	1924.0	1924.4	1926.3	1929.1	1929.9	1929.1	1926.3	1924.4	1924.0	1924.4	1926.3
26.5°	1922.0	1922.4	1924.8	1927.5	1927.9	1927.5	1924.8	1922.4	1922.0	1922.4	1924.8
27°	1920.1	1920.5	1922.4	1925.2	1925.6	1925.2	1922.4	1920.5	1920.1	1920.5	1922.4
27.5°	1917.3	1918.1	1920.1	1922.8	1923.2	1922.8	1920.1	1918.1	1917.3	1918.1	1920.1
28°	1914.6	1915.0	1917.3	1920.1	1920.5	1920.1	1917.3	1915.0	1914.6	1915.0	1917.3
28.5°	1911.5	1911.9	1914.2	1917.0	1917.0	1917.0	1914.2	1911.9	1911.5	1911.9	1914.2
29°	1907.6	1908.3	1910.7	1913.0	1913.4	1913.0	1910.7	1908.3	1907.6	1908.3	1910.7
29.5°	1903.2	1904.0	1906.8	1909.1	1909.1	1909.1	1906.8	1904.0	1903.2	1904.0	1906.8
30°	1898.5	1899.3	1902.1	1904.4	1904.0	1904.4	1902.1	1899.3	1898.5	1899.3	1902.1
30.5°	1893.5	1894.2	1897.0	1899.3	1898.9	1899.3	1897.0	1894.2	1893.5	1894.2	1897.0
31°	1887.6	1888.4	1891.5	1893.5	1892.7	1893.5	1891.5	1888.4	1887.6	1888.4	1891.5
31.5°	1880.9	1882.1	1885.2	1886.8	1886.0	1886.8	1885.2	1882.1	1880.9	1882.1	1885.2
32°	1873.5	1875.0	1878.2	1879.7	1879.0	1879.7	1878.2	1875.0	1873.5	1875.0	1878.2
32.5°	1865.6	1867.2	1870.3	1871.5	1870.7	1871.5	1870.3	1867.2	1865.6	1867.2	1870.3
33°	1857.0	1858.6	1862.1	1862.9	1861.7	1862.9	1862.1	1858.6	1857.0	1858.6	1862.1
33.5°	1847.2	1849.2	1852.7	1853.5	1852.3	1853.5	1852.7	1849.2	1847.2	1849.2	1852.7
34°	1837.5	1839.4	1842.9	1843.3	1841.8	1843.3	1842.9	1839.4	1837.5	1839.4	1842.9
34.5°	1826.1	1828.4	1832.0	1832.0	1830.4	1832.0	1832.0	1828.4	1826.1	1828.4	1832.0
35°	1814.7	1816.7	1820.6	1820.2	1818.7	1820.2	1820.6	1816.7	1814.7	1816.7	1820.6
35.5°	1802.2	1804.2	1808.1	1807.7	1806.1	1807.7	1808.1	1804.2	1802.2	1804.2	1808.1
36°	1788.9	1791.2	1795.2	1794.4	1792.4	1794.4	1795.2	1791.2	1788.9	1791.2	1795.2
36.5°	1775.2	1777.1	1781.1	1780.3	1777.9	1780.3	1781.1	1777.1	1775.2	1777.1	1781.1
37°	1759.9	1762.3	1765.8	1765.4	1763.0	1765.4	1765.8	1762.3	1759.9	1762.3	1765.8
37.5°	1744.6	1746.6	1750.5	1749.3	1747.0	1749.3	1750.5	1746.6	1744.6	1746.6	1750.5
38°	1728.2	1730.5	1734.1	1732.9	1730.2	1732.9	1734.1	1730.5	1728.2	1730.5	1734.1
38.5°	1711.0	1713.3	1716.8	1715.3	1712.9	1715.3	1716.8	1713.3	1711.0	1713.3	1716.8
39°	1693.7	1695.7	1698.8	1697.6	1694.9	1697.6	1698.8	1695.7	1693.7	1695.7	1698.8
39.5°	1675.3	1676.9	1680.0	1678.8	1676.1	1678.8	1680.0	1676.9	1675.3	1676.9	1680.0
40°	1655.7	1657.3	1660.4	1659.3	1656.5	1659.3	1660.4	1657.3	1655.7	1657.3	1660.4
40.5°	1636.2	1637.3	1640.1	1638.9	1636.2	1638.9	1640.1	1637.3	1636.2	1637.3	1640.1
41°	1615.4	1616.6	1618.9	1618.1	1615.4	1618.1	1618.9	1616.6	1615.4	1616.6	1618.9
41.5°	1594.3	1595.0	1597.4	1595.8	1593.9	1595.8	1597.4	1595.0	1594.3	1595.0	1597.4
42°	1572.3	1573.1	1574.7	1573.9	1571.9	1573.9	1574.7	1573.1	1572.3	1573.1	1574.7
42.5°	1550.0	1550.0	1551.6	1550.8	1548.8	1550.8	1551.6	1550.0	1550.0	1550.0	1551.6
43°	1526.5	1526.5	1527.7	1526.9	1524.9	1526.9	1527.7	1526.5	1526.5	1526.5	1527.7
43.5°	1502.2	1502.2	1502.6	1501.8	1500.7	1501.8	1502.6	1502.2	1502.2	1502.2	1502.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1425.5	1424.3	1424.3	1423.9	1423.5	1423.9	1424.3	1424.3	1425.5	1424.3	1424.3
45.5°	1398.1	1396.9	1396.5	1396.1	1395.7	1396.1	1396.5	1396.9	1398.1	1396.9	1396.5
46°	1369.9	1368.3	1367.9	1367.9	1367.5	1367.9	1367.9	1368.3	1369.9	1368.3	1367.9
46.5°	1340.5	1338.9	1338.5	1338.1	1337.8	1338.1	1338.5	1338.9	1340.5	1338.9	1338.5
47°	1309.2	1307.6	1306.4	1305.6	1304.9	1305.6	1306.4	1307.6	1309.2	1307.6	1306.4
47.5°	1275.1	1273.5	1272.0	1272.4	1272.0	1272.4	1272.0	1273.5	1275.1	1273.5	1272.0
48°	1239.1	1238.7	1239.5	1239.8	1240.2	1239.8	1239.5	1238.7	1239.1	1238.7	1239.5
48.5°	1204.6	1204.6	1206.2	1206.6	1206.6	1206.6	1206.2	1204.6	1204.6	1204.6	1206.2
49°	1171.3	1170.9	1172.1	1172.5	1172.9	1172.5	1172.1	1170.9	1171.3	1170.9	1172.1
49.5°	1135.3	1135.7	1138.0	1139.6	1140.0	1139.6	1138.0	1135.7	1135.3	1135.7	1138.0
50°	1099.7	1101.2	1104.4	1106.3	1107.5	1106.3	1104.4	1101.2	1099.7	1101.2	1104.4
50.5°	1066.8	1068.7	1071.8	1073.8	1074.6	1073.8	1071.8	1068.7	1066.8	1068.7	1071.8
51°	1036.6	1037.8	1040.9	1042.5	1043.3	1042.5	1040.9	1037.8	1036.6	1037.8	1040.9
51.5°	1007.6	1008.4	1011.9	1014.7	1015.8	1014.7	1011.9	1008.4	1007.6	1008.4	1011.9
52°	979.0	980.6	984.1	987.7	989.2	987.7	984.1	980.6	979.0	980.6	984.1
52.5°	953.2	954.8	958.7	962.2	964.5	962.2	958.7	954.8	953.2	954.8	958.7
53°	929.3	930.9	935.2	938.7	940.3	938.7	935.2	930.9	929.3	930.9	935.2
53.5°	907.0	908.5	912.5	915.6	917.2	915.6	912.5	908.5	907.0	908.5	912.5
54°	885.8	887.0	890.5	892.5	893.3	892.5	890.5	887.0	885.8	887.0	890.5
54.5°	863.5	864.7	867.4	869.8	870.2	869.8	867.4	864.7	863.5	864.7	867.4
55°	838.8	840.0	842.8	844.3	843.5	844.3	842.8	840.0	838.8	840.0	842.8
55.5°	810.2	811.4	814.6	816.1	815.7	816.1	814.6	811.4	810.2	811.4	814.6
56°	778.5	780.1	784.0	786.0	785.6	786.0	784.0	780.1	778.5	780.1	784.0
56.5°	744.8	747.2	750.7	753.9	753.5	753.9	750.7	747.2	744.8	747.2	750.7
57°	709.6	711.6	716.7	718.6	719.0	718.6	716.7	711.6	709.6	711.6	716.7
57.5°	672.8	675.1	680.6	683.0	683.4	683.0	680.6	675.1	672.8	675.1	680.6
58°	635.6	637.9	643.4	646.9	647.7	646.9	643.4	637.9	635.6	637.9	643.4
58.5°	597.6	599.6	605.4	609.7	610.9	609.7	605.4	599.6	597.6	599.6	605.4
59°	559.2	561.2	566.7	572.5	574.1	572.5	566.7	561.2	559.2	561.2	566.7
59.5°	520.1	522.4	528.7	535.3	536.9	535.3	528.7	522.4	520.1	522.4	528.7
60°	480.9	484.4	490.7	498.9	499.7	498.9	490.7	484.4	480.9	484.4	490.7
60.5°	442.5	445.7	454.3	461.7	463.3	461.7	454.3	445.7	442.5	445.7	454.3
61°	404.9	408.8	418.2	425.3	427.3	425.3	418.2	408.8	404.9	408.8	418.2
61.5°	368.9	372.4	382.6	388.9	392.4	388.9	382.6	372.4	368.9	372.4	382.6
62°	333.3	336.8	347.4	353.6	357.5	353.6	347.4	336.8	333.3	336.8	347.4
62.5°	297.6	302.3	313.3	319.6	323.9	319.6	313.3	302.3	297.6	302.3	313.3
63°	262.8	268.6	280.0	286.7	291.8	286.7	280.0	268.6	262.8	268.6	280.0
63.5°	230.7	235.8	247.9	254.9	260.0	254.9	247.9	235.8	230.7	235.8	247.9
64°	200.1	205.6	216.6	224.8	229.5	224.8	216.6	205.6	200.1	205.6	216.6
64.5°	171.1	176.2	186.8	196.2	200.9	196.2	186.8	176.2	171.1	176.2	186.8
65°	143.3	150.4	159.4	168.4	172.7	168.4	159.4	150.4	143.3	150.4	159.4
65.5°	119.1	125.7	133.5	142.5	146.5	142.5	133.5	125.7	119.1	125.7	133.5
66°	95.9	102.6	110.4	119.1	121.0	119.1	110.4	102.6	95.9	102.6	110.4



TEST NUMBER: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	38.4	49.0	52.9	60.3	60.7	60.3	52.9	49.0	38.4	49.0	52.9
68°	23.5	34.5	38.4	45.8	45.0	45.8	38.4	34.5	23.5	34.5	38.4
68.5°	10.2	22.3	27.0	32.5	36.0	32.5	27.0	22.3	10.2	22.3	27.0
69°	5.5	13.7	17.6	21.1	27.8	21.1	17.6	13.7	5.5	13.7	17.6
69.5°	3.5	6.7	9.8	12.5	19.2	12.5	9.8	6.7	3.5	6.7	9.8
70°	2.0	3.9	4.7	5.5	10.6	5.5	4.7	3.9	2.0	3.9	4.7
70.5°	0.8	2.0	2.7	2.3	3.1	2.3	2.7	2.0	0.8	2.0	2.7
71°	0.8	1.2	1.6	1.2	1.2	1.2	1.6	1.2	0.8	1.2	1.6
71.5°	0.8	0.8	0.8	0.8	0.8	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	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°	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.8	0.8
73.5°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.8
74°	0.4	0.4	0.4	0.8	0.8	0.8	0.4	0.4	0.4	0.4	0.4
74.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	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	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°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	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	0.4	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: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-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: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1958.5	1958.5	1958.5	1958.5	1958.5	1958.5
0.5°	1958.9	1958.5	1958.9	1958.5	1958.1	1958.1
1°	1958.9	1958.1	1958.9	1958.5	1958.1	1958.1
1.5°	1958.5	1958.1	1958.5	1958.1	1957.7	1957.7
2°	1958.1	1957.7	1958.1	1958.1	1957.3	1957.3
2.5°	1958.1	1957.3	1958.1	1957.7	1957.3	1956.9
3°	1957.3	1956.9	1957.3	1957.3	1956.5	1956.5
3.5°	1956.9	1956.5	1956.9	1956.5	1956.1	1955.7
4°	1956.5	1955.7	1956.5	1955.7	1955.3	1955.3
4.5°	1955.7	1955.3	1955.7	1955.3	1954.9	1954.5
5°	1954.9	1954.5	1954.9	1954.5	1954.2	1953.8
5.5°	1954.2	1953.8	1954.2	1953.8	1953.0	1953.0
6°	1953.4	1953.0	1953.4	1952.6	1952.2	1951.8
6.5°	1952.6	1951.8	1952.6	1951.8	1951.4	1951.0
7°	1951.4	1951.0	1951.4	1951.0	1950.2	1949.8
7.5°	1950.2	1949.8	1950.2	1949.8	1949.1	1948.7
8°	1949.5	1949.1	1949.5	1948.7	1947.9	1947.9
8.5°	1947.9	1947.9	1947.9	1947.5	1946.7	1946.7
9°	1947.1	1946.7	1947.1	1946.3	1945.5	1945.1
9.5°	1945.9	1945.5	1945.9	1945.1	1944.4	1944.0
10°	1944.8	1944.4	1944.8	1944.0	1943.2	1942.8
10.5°	1943.6	1943.2	1943.6	1942.4	1942.0	1941.6
11°	1942.4	1942.0	1942.4	1941.2	1940.4	1940.4
11.5°	1941.2	1940.8	1941.2	1940.1	1939.3	1939.3
12°	1940.1	1940.1	1940.1	1938.9	1938.1	1938.1
12.5°	1938.9	1938.9	1938.9	1938.1	1936.9	1936.9
13°	1937.7	1938.1	1937.7	1936.9	1936.1	1935.7
13.5°	1936.9	1936.9	1936.9	1936.1	1935.0	1934.6
14°	1936.1	1936.1	1936.1	1935.0	1934.2	1933.8
14.5°	1935.4	1935.7	1935.4	1934.2	1933.4	1933.0
15°	1935.0	1935.0	1935.0	1933.4	1932.6	1932.2
15.5°	1934.2	1934.6	1934.2	1933.0	1931.8	1931.4
16°	1933.8	1934.2	1933.8	1932.2	1931.4	1931.0
16.5°	1933.4	1933.8	1933.4	1931.8	1931.0	1930.7
17°	1933.4	1933.8	1933.4	1931.8	1930.7	1930.3
17.5°	1933.4	1933.8	1933.4	1931.4	1930.7	1930.3
18°	1933.4	1933.8	1933.4	1931.4	1930.3	1929.9
18.5°	1933.4	1933.8	1933.4	1931.4	1930.3	1929.9
19°	1933.8	1934.2	1933.8	1931.4	1930.3	1930.3
19.5°	1933.8	1934.6	1933.8	1931.8	1930.7	1930.3
20°	1934.2	1934.6	1934.2	1931.8	1930.7	1930.3
20.5°	1934.2	1935.0	1934.2	1932.2	1930.7	1930.7
21°	1934.6	1935.0	1934.6	1932.2	1931.0	1930.7

TEST NUMBER: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1934.6	1935.4	1934.6	1932.2	1930.7	1930.3
23°	1934.2	1935.0	1934.2	1931.8	1930.3	1929.9
23.5°	1933.8	1934.6	1933.8	1931.4	1929.9	1929.5
24°	1933.4	1934.2	1933.4	1930.7	1929.1	1929.1
24.5°	1932.6	1933.4	1932.6	1929.9	1928.3	1927.9
25°	1931.8	1932.2	1931.8	1929.1	1927.1	1926.7
25.5°	1930.7	1931.0	1930.7	1927.9	1926.0	1925.6
26°	1929.1	1929.9	1929.1	1926.3	1924.4	1924.0
26.5°	1927.5	1927.9	1927.5	1924.8	1922.4	1922.0
27°	1925.2	1925.6	1925.2	1922.4	1920.5	1920.1
27.5°	1922.8	1923.2	1922.8	1920.1	1918.1	1917.3
28°	1920.1	1920.5	1920.1	1917.3	1915.0	1914.6
28.5°	1917.0	1917.0	1917.0	1914.2	1911.9	1911.5
29°	1913.0	1913.4	1913.0	1910.7	1908.3	1907.6
29.5°	1909.1	1909.1	1909.1	1906.8	1904.0	1903.2
30°	1904.4	1904.0	1904.4	1902.1	1899.3	1898.5
30.5°	1899.3	1898.9	1899.3	1897.0	1894.2	1893.5
31°	1893.5	1892.7	1893.5	1891.5	1888.4	1887.6
31.5°	1886.8	1886.0	1886.8	1885.2	1882.1	1880.9
32°	1879.7	1879.0	1879.7	1878.2	1875.0	1873.5
32.5°	1871.5	1870.7	1871.5	1870.3	1867.2	1865.6
33°	1862.9	1861.7	1862.9	1862.1	1858.6	1857.0
33.5°	1853.5	1852.3	1853.5	1852.7	1849.2	1847.2
34°	1843.3	1841.8	1843.3	1842.9	1839.4	1837.5
34.5°	1832.0	1830.4	1832.0	1832.0	1828.4	1826.1
35°	1820.2	1818.7	1820.2	1820.6	1816.7	1814.7
35.5°	1807.7	1806.1	1807.7	1808.1	1804.2	1802.2
36°	1794.4	1792.4	1794.4	1795.2	1791.2	1788.9
36.5°	1780.3	1777.9	1780.3	1781.1	1777.1	1775.2
37°	1765.4	1763.0	1765.4	1765.8	1762.3	1759.9
37.5°	1749.3	1747.0	1749.3	1750.5	1746.6	1744.6
38°	1732.9	1730.2	1732.9	1734.1	1730.5	1728.2
38.5°	1715.3	1712.9	1715.3	1716.8	1713.3	1711.0
39°	1697.6	1694.9	1697.6	1698.8	1695.7	1693.7
39.5°	1678.8	1676.1	1678.8	1680.0	1676.9	1675.3
40°	1659.3	1656.5	1659.3	1660.4	1657.3	1655.7
40.5°	1638.9	1636.2	1638.9	1640.1	1637.3	1636.2
41°	1618.1	1615.4	1618.1	1618.9	1616.6	1615.4
41.5°	1595.8	1593.9	1595.8	1597.4	1595.0	1594.3
42°	1573.9	1571.9	1573.9	1574.7	1573.1	1572.3
42.5°	1550.8	1548.8	1550.8	1551.6	1550.0	1550.0
43°	1526.9	1524.9	1526.9	1527.7	1526.5	1526.5
43.5°	1501.8	1500.7	1501.8	1502.6	1502.2	1502.2



TEST NUMBER: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1423.9	1423.5	1423.9	1424.3	1424.3	1425.5
45.5°	1396.1	1395.7	1396.1	1396.5	1396.9	1398.1
46°	1367.9	1367.5	1367.9	1367.9	1368.3	1369.9
46.5°	1338.1	1337.8	1338.1	1338.5	1338.9	1340.5
47°	1305.6	1304.9	1305.6	1306.4	1307.6	1309.2
47.5°	1272.4	1272.0	1272.4	1272.0	1273.5	1275.1
48°	1239.8	1240.2	1239.8	1239.5	1238.7	1239.1
48.5°	1206.6	1206.6	1206.6	1206.2	1204.6	1204.6
49°	1172.5	1172.9	1172.5	1172.1	1170.9	1171.3
49.5°	1139.6	1140.0	1139.6	1138.0	1135.7	1135.3
50°	1106.3	1107.5	1106.3	1104.4	1101.2	1099.7
50.5°	1073.8	1074.6	1073.8	1071.8	1068.7	1066.8
51°	1042.5	1043.3	1042.5	1040.9	1037.8	1036.6
51.5°	1014.7	1015.8	1014.7	1011.9	1008.4	1007.6
52°	987.7	989.2	987.7	984.1	980.6	979.0
52.5°	962.2	964.5	962.2	958.7	954.8	953.2
53°	938.7	940.3	938.7	935.2	930.9	929.3
53.5°	915.6	917.2	915.6	912.5	908.5	907.0
54°	892.5	893.3	892.5	890.5	887.0	885.8
54.5°	869.8	870.2	869.8	867.4	864.7	863.5
55°	844.3	843.5	844.3	842.8	840.0	838.8
55.5°	816.1	815.7	816.1	814.6	811.4	810.2
56°	786.0	785.6	786.0	784.0	780.1	778.5
56.5°	753.9	753.5	753.9	750.7	747.2	744.8
57°	718.6	719.0	718.6	716.7	711.6	709.6
57.5°	683.0	683.4	683.0	680.6	675.1	672.8
58°	646.9	647.7	646.9	643.4	637.9	635.6
58.5°	609.7	610.9	609.7	605.4	599.6	597.6
59°	572.5	574.1	572.5	566.7	561.2	559.2
59.5°	535.3	536.9	535.3	528.7	522.4	520.1
60°	498.9	499.7	498.9	490.7	484.4	480.9
60.5°	461.7	463.3	461.7	454.3	445.7	442.5
61°	425.3	427.3	425.3	418.2	408.8	404.9
61.5°	388.9	392.4	388.9	382.6	372.4	368.9
62°	353.6	357.5	353.6	347.4	336.8	333.3
62.5°	319.6	323.9	319.6	313.3	302.3	297.6
63°	286.7	291.8	286.7	280.0	268.6	262.8
63.5°	254.9	260.0	254.9	247.9	235.8	230.7
64°	224.8	229.5	224.8	216.6	205.6	200.1
64.5°	196.2	200.9	196.2	186.8	176.2	171.1
65°	168.4	172.7	168.4	159.4	150.4	143.3
65.5°	142.5	146.5	142.5	133.5	125.7	119.1
66°	119.1	121.0	119.1	110.4	102.6	95.9



TEST NUMBER: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	60.3	60.7	60.3	52.9	49.0	38.4
68°	45.8	45.0	45.8	38.4	34.5	23.5
68.5°	32.5	36.0	32.5	27.0	22.3	10.2
69°	21.1	27.8	21.1	17.6	13.7	5.5
69.5°	12.5	19.2	12.5	9.8	6.7	3.5
70°	5.5	10.6	5.5	4.7	3.9	2.0
70.5°	2.3	3.1	2.3	2.7	2.0	0.8
71°	1.2	1.2	1.2	1.6	1.2	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	0.4
73.5°	0.8	0.8	0.8	0.8	0.4	0.4
74°	0.8	0.8	0.8	0.4	0.4	0.4
74.5°	0.4	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	0.0	0.0
80.5°	0.4	0.4	0.4	0.4	0.0	0.0
81°	0.0	0.4	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: P776441

CATALOG NUMBER: HCDJBL3040CSD-HCD81TRH-4000lm-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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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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21.5°	1930.7	1931.0	1932.2	1934.6	1935.4	1934.6	1932.2	1931.0	1930.7	1931.0	1932.2
22°	1930.7	1930.7	1932.2	1934.6	1935.4	1934.6	1932.2	1930.7	1930.7	1930.7	1932.2



44°	1477.6	1476.8	1477.2	1476.4	1475.6	1476.4	1477.2	1476.8	1477.6	1476.8	1477.2
44.5°	1452.1	1450.9	1451.3	1450.9	1449.8	1450.9	1451.3	1450.9	1452.1	1450.9	1451.3



66.5°	76.8	83.0	88.5	96.7	99.1	96.7	88.5	83.0	76.8	83.0	88.5
67°	57.6	64.2	70.1	77.9	78.7	77.9	70.1	64.2	57.6	64.2	70.1



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°	1934.6	1935.4	1934.6	1932.2	1931.0	1930.7
22°	1934.6	1935.4	1934.6	1932.2	1930.7	1930.7



44°	1476.4	1475.6	1476.4	1477.2	1476.8	1477.6
44.5°	1450.9	1449.8	1450.9	1451.3	1450.9	1452.1



66.5°	96.7	99.1	96.7	88.5	83.0	76.8
67°	77.9	78.7	77.9	70.1	64.2	57.6

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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)