

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: P776760

Luminaire Tested: HCDJBS4050CSD-HCD81TRMB-5000lm-2700K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776760
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-2700K
Description: 8 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT
Ballast/Driver: -

Summary

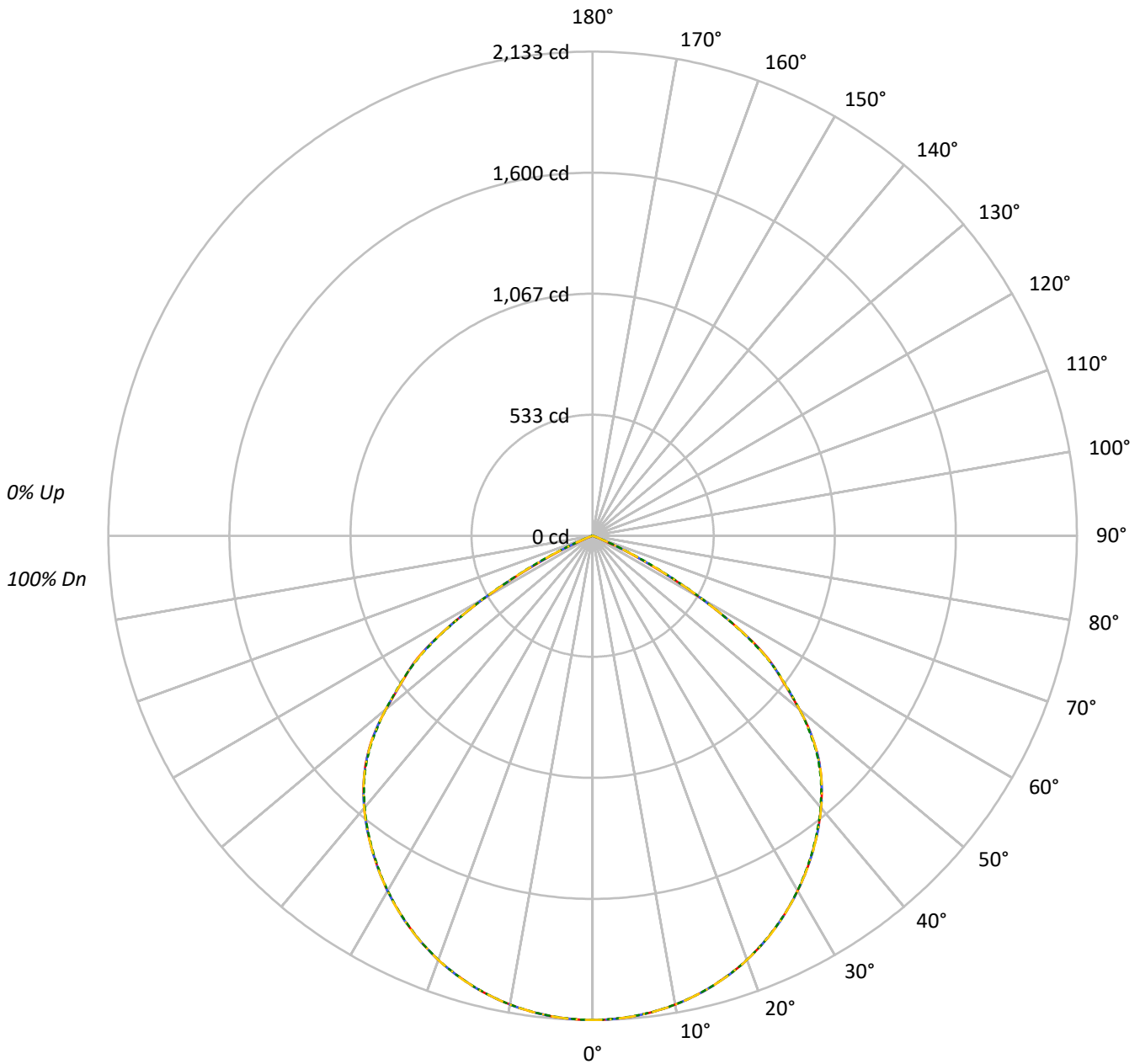
Lumens per Lamp: N/A
Luminaire Lumens: 4817.5 lumens
Efficiency: N/A
Efficacy: 100.4 lumens/watt
Spacing Criteria (0/90/45): 1.26 / 1.26 / 1.37
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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				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	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100			100
1	111	108	105	102	109	106	103	100	101	99	97	98	96	94	94	93	91	89			89
2	103	97	91	86	101	95	90	85	91	87	84	88	85	82	85	82	80	78			78
3	95	86	80	74	93	85	79	74	82	77	72	80	75	71	77	73	70	68			68
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59			59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52			52
6	75	63	55	50	74	62	55	49	61	54	49	59	53	49	58	52	48	46			46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41			41
8	65	53	45	39	64	52	45	39	51	44	39	50	43	39	48	43	39	37			37
9	61	48	41	36	60	48	41	36	47	40	35	46	40	35	45	39	35	33			33
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	42	36	32	30			30

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	65115	65115	65115	65115
5°	65097	65069	65097	65069
10°	65016	65003	65016	65003
15°	64849	64833	64849	64833
20°	64586	64573	64586	64573
25°	64190	64156	64190	64156
30°	63675	63625	63675	63625
35°	63073	62987	63073	62987
40°	62360	62233	62360	62233
45°	60952	60736	60952	60736
50°	56450	56450	56450	56450
55°	50237	49683	50237	49683
60°	33547	34017	33547	34017
65°	11876	14217	11876	14217
70°	125	1339	125	1339
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: 60952 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	201.9	4.2
10°-20°	579.1	12.0
20°-30°	878.0	18.2
30°-40°	1058.5	22.0
40°-50°	1079.0	22.4
50°-60°	810.9	16.8
60°-70°	209.5	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°	1659.0	34.4
0°-40°	2717.5	56.4
0°-60°	4607.4	95.6
0°-90°	4817.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4817.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2133	2133	2133	2133	2133	
5°	2124	2123	2124	2123	2124	202
15°	2052	2051	2052	2051	2052	579
25°	1906	1904	1906	1904	1906	878
35°	1692	1690	1692	1690	1692	1059
45°	1412	1407	1412	1407	1412	1080
55°	944	933	944	933	944	811
65°	164	197	164	197	164	196
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
90°	0	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°	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8
0.5°	2132.8	2132.8	2132.8	2132.8	2132.3	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8
1°	2132.8	2132.8	2132.8	2132.3	2131.9	2132.3	2132.8	2132.8	2132.8	2132.8	2132.8
1.5°	2132.3	2132.3	2132.3	2132.3	2131.9	2132.3	2132.3	2132.3	2132.3	2132.3	2132.3
2°	2131.9	2131.9	2131.9	2131.4	2130.9	2131.4	2131.9	2131.9	2131.9	2131.9	2131.9
2.5°	2130.5	2130.9	2130.9	2130.9	2130.0	2130.9	2130.9	2130.9	2130.5	2130.9	2130.9
3°	2129.6	2130.0	2130.0	2130.0	2129.1	2130.0	2130.0	2130.0	2129.6	2130.0	2130.0
3.5°	2128.7	2128.7	2128.7	2128.7	2128.2	2128.7	2128.7	2128.7	2128.7	2128.7	2128.7
4°	2127.3	2127.3	2127.3	2127.3	2126.4	2127.3	2127.3	2127.3	2127.3	2127.3	2127.3
4.5°	2125.9	2125.9	2125.9	2125.9	2125.0	2125.9	2125.9	2125.9	2125.9	2125.9	2125.9
5°	2124.1	2124.1	2124.1	2124.1	2123.2	2124.1	2124.1	2124.1	2124.1	2124.1	2124.1
5.5°	2122.3	2122.3	2122.3	2122.3	2121.4	2122.3	2122.3	2122.3	2122.3	2122.3	2122.3
6°	2120.0	2120.5	2120.0	2120.0	2119.6	2120.0	2120.0	2120.5	2120.0	2120.5	2120.0
6.5°	2117.7	2118.2	2118.2	2117.7	2117.3	2117.7	2118.2	2118.2	2117.7	2118.2	2118.2
7°	2115.5	2115.5	2115.5	2115.5	2115.0	2115.5	2115.5	2115.5	2115.5	2115.5	2115.5
7.5°	2112.7	2112.7	2112.7	2113.2	2112.3	2113.2	2112.7	2112.7	2112.7	2112.7	2112.7
8°	2110.0	2110.0	2110.0	2110.0	2109.5	2110.0	2110.0	2110.0	2110.0	2110.0	2110.0
8.5°	2107.3	2107.3	2107.3	2107.3	2106.3	2107.3	2107.3	2107.3	2107.3	2107.3	2107.3
9°	2104.1	2104.1	2104.1	2104.1	2103.6	2104.1	2104.1	2104.1	2104.1	2104.1	2104.1
9.5°	2100.4	2100.9	2100.9	2100.9	2100.0	2100.9	2100.9	2100.9	2100.4	2100.9	2100.9
10°	2097.2	2097.2	2097.2	2097.2	2096.8	2097.2	2097.2	2097.2	2097.2	2097.2	2097.2
10.5°	2093.6	2093.6	2093.6	2093.6	2093.1	2093.6	2093.6	2093.6	2093.6	2093.6	2093.6
11°	2089.5	2089.5	2089.5	2089.9	2089.0	2089.9	2089.5	2089.5	2089.5	2089.5	2089.5
11.5°	2085.4	2085.4	2085.4	2085.8	2084.9	2085.8	2085.4	2085.4	2085.4	2085.4	2085.4
12°	2081.3	2081.3	2081.3	2081.3	2080.8	2081.3	2081.3	2081.3	2081.3	2081.3	2081.3
12.5°	2076.7	2076.7	2076.7	2077.2	2076.3	2077.2	2076.7	2076.7	2076.7	2076.7	2076.7
13°	2072.2	2072.2	2072.2	2072.2	2071.7	2072.2	2072.2	2072.2	2072.2	2072.2	2072.2
13.5°	2067.2	2067.6	2067.6	2067.6	2066.7	2067.6	2067.6	2067.6	2067.2	2067.6	2067.6
14°	2062.2	2062.6	2062.6	2062.6	2061.7	2062.6	2062.6	2062.6	2062.2	2062.6	2062.6
14.5°	2057.1	2057.1	2057.1	2057.1	2056.7	2057.1	2057.1	2057.1	2057.1	2057.1	2057.1
15°	2051.7	2051.7	2051.7	2052.1	2051.2	2052.1	2051.7	2051.7	2051.7	2051.7	2051.7
15.5°	2046.2	2046.2	2046.2	2046.2	2045.8	2046.2	2046.2	2046.2	2046.2	2046.2	2046.2
16°	2040.3	2040.7	2040.7	2040.7	2039.8	2040.7	2040.7	2040.7	2040.3	2040.7	2040.7
16.5°	2034.4	2034.4	2034.8	2034.8	2034.4	2034.8	2034.8	2034.4	2034.4	2034.4	2034.8
17°	2028.4	2028.4	2028.9	2028.4	2028.0	2028.4	2028.9	2028.4	2028.4	2028.4	2028.9
17.5°	2022.1	2022.1	2022.5	2022.5	2022.1	2022.5	2022.5	2022.1	2022.1	2022.1	2022.5
18°	2015.7	2015.7	2015.7	2015.7	2015.2	2015.7	2015.7	2015.7	2015.7	2015.7	2015.7
18.5°	2008.9	2008.9	2009.3	2009.3	2008.4	2009.3	2009.3	2008.9	2008.9	2008.9	2009.3
19°	2002.0	2002.0	2002.5	2002.5	2001.6	2002.5	2002.5	2002.0	2002.0	2002.0	2002.5
19.5°	1995.2	1995.2	1995.2	1995.2	1994.7	1995.2	1995.2	1995.2	1995.2	1995.2	1995.2
20°	1987.9	1987.9	1987.9	1987.9	1987.5	1987.9	1987.9	1987.9	1987.9	1987.9	1987.9
20.5°	1980.2	1980.6	1980.6	1980.6	1979.7	1980.6	1980.6	1980.6	1980.2	1980.6	1980.6
21°	1972.9	1972.9	1972.9	1972.9	1972.4	1972.9	1972.9	1972.9	1972.9	1972.9	1972.9



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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°	1948.7	1949.2	1949.2	1949.2	1948.3	1949.2	1949.2	1949.2	1948.7	1949.2	1949.2
23°	1940.5	1940.5	1940.5	1940.5	1940.1	1940.5	1940.5	1940.5	1940.5	1940.5	1940.5
23.5°	1931.9	1932.3	1932.3	1932.3	1931.4	1932.3	1932.3	1932.3	1931.9	1932.3	1932.3
24°	1923.2	1923.2	1923.7	1923.2	1922.8	1923.2	1923.7	1923.2	1923.2	1923.2	1923.7
24.5°	1914.1	1914.6	1915.0	1914.6	1913.7	1914.6	1915.0	1914.6	1914.1	1914.6	1915.0
25°	1905.5	1905.5	1905.9	1905.5	1904.5	1905.5	1905.9	1905.5	1905.5	1905.5	1905.9
25.5°	1895.9	1896.3	1896.8	1896.3	1895.4	1896.3	1896.8	1896.3	1895.9	1896.3	1896.8
26°	1886.8	1886.8	1887.2	1886.8	1885.9	1886.8	1887.2	1886.8	1886.8	1886.8	1887.2
26.5°	1877.2	1877.7	1877.7	1877.2	1876.3	1877.2	1877.7	1877.7	1877.2	1877.7	1877.7
27°	1867.6	1867.6	1868.1	1867.6	1866.7	1867.6	1868.1	1867.6	1867.6	1867.6	1868.1
27.5°	1857.6	1858.1	1858.1	1857.6	1856.7	1857.6	1858.1	1858.1	1857.6	1858.1	1858.1
28°	1847.6	1848.1	1848.1	1847.6	1846.7	1847.6	1848.1	1848.1	1847.6	1848.1	1848.1
28.5°	1837.6	1837.6	1838.0	1837.6	1836.7	1837.6	1838.0	1837.6	1837.6	1837.6	1838.0
29°	1827.1	1827.6	1827.6	1827.1	1825.7	1827.1	1827.6	1827.6	1827.1	1827.6	1827.6
29.5°	1816.6	1817.1	1817.1	1816.6	1815.3	1816.6	1817.1	1817.1	1816.6	1817.1	1817.1
30°	1806.6	1806.6	1806.6	1805.7	1804.8	1805.7	1806.6	1806.6	1806.2	1806.6	1806.6
30.5°	1795.7	1795.7	1795.7	1795.2	1793.9	1795.2	1795.7	1795.7	1795.7	1795.7	1795.7
31°	1784.3	1784.7	1785.2	1783.8	1782.9	1783.8	1785.2	1784.7	1784.3	1784.7	1785.2
31.5°	1773.4	1773.8	1773.8	1772.9	1771.5	1772.9	1773.8	1773.8	1773.4	1773.8	1773.8
32°	1762.4	1762.9	1762.9	1762.0	1760.1	1762.0	1762.9	1762.9	1762.4	1762.9	1762.9
32.5°	1751.0	1751.5	1751.5	1750.1	1748.8	1750.1	1751.5	1751.5	1751.0	1751.5	1751.5
33°	1739.2	1740.1	1740.1	1739.2	1737.4	1739.2	1740.1	1740.1	1739.2	1740.1	1740.1
33.5°	1727.8	1728.3	1728.7	1727.3	1725.5	1727.3	1728.7	1728.3	1727.8	1728.3	1728.7
34°	1716.0	1716.4	1716.9	1715.5	1714.1	1715.5	1716.9	1716.4	1716.0	1716.4	1716.9
34.5°	1704.1	1704.6	1705.0	1703.7	1702.3	1703.7	1705.0	1704.6	1704.1	1704.6	1705.0
35°	1692.3	1692.7	1693.2	1691.8	1690.0	1691.8	1693.2	1692.7	1692.3	1692.7	1693.2
35.5°	1680.0	1680.9	1680.9	1679.5	1677.7	1679.5	1680.9	1680.9	1680.0	1680.9	1680.9
36°	1668.1	1668.6	1669.0	1667.2	1665.4	1667.2	1669.0	1668.6	1668.1	1668.6	1669.0
36.5°	1655.8	1656.3	1656.7	1654.9	1653.1	1654.9	1656.7	1656.3	1655.8	1656.3	1656.7
37°	1643.1	1643.5	1644.0	1642.2	1640.8	1642.2	1644.0	1643.5	1643.1	1643.5	1644.0
37.5°	1630.3	1631.2	1631.7	1629.4	1627.6	1629.4	1631.7	1631.2	1630.3	1631.2	1631.7
38°	1617.6	1618.0	1618.9	1616.7	1615.3	1616.7	1618.9	1618.0	1617.6	1618.0	1618.9
38.5°	1604.4	1605.3	1605.7	1603.9	1602.1	1603.9	1605.7	1605.3	1604.4	1605.3	1605.7
39°	1591.6	1592.5	1593.0	1590.7	1588.9	1590.7	1593.0	1592.5	1591.6	1592.5	1593.0
39.5°	1578.4	1578.8	1579.3	1577.5	1575.2	1577.5	1579.3	1578.8	1578.4	1578.8	1579.3
40°	1564.7	1565.6	1565.6	1563.8	1561.5	1563.8	1565.6	1565.6	1564.7	1565.6	1565.6
40.5°	1551.1	1551.5	1552.0	1549.7	1547.9	1549.7	1552.0	1551.5	1551.1	1551.5	1552.0
41°	1536.9	1537.8	1538.3	1536.0	1533.7	1536.0	1538.3	1537.8	1536.9	1537.8	1538.3
41.5°	1522.8	1523.3	1523.7	1521.4	1519.6	1521.4	1523.7	1523.3	1522.8	1523.3	1523.7
42°	1508.2	1508.7	1509.2	1506.9	1504.6	1506.9	1509.2	1508.7	1508.2	1508.7	1509.2
42.5°	1493.2	1494.1	1494.1	1491.8	1489.6	1491.8	1494.1	1494.1	1493.2	1494.1	1494.1
43°	1478.2	1478.6	1478.6	1476.4	1474.1	1476.4	1478.6	1478.6	1478.2	1478.6	1478.6
43.5°	1462.2	1462.7	1462.7	1460.4	1458.1	1460.4	1462.7	1462.7	1462.2	1462.7	1462.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1411.7	1411.7	1411.2	1408.9	1406.7	1408.9	1411.2	1411.7	1411.7	1411.7	1411.2
45.5°	1393.4	1393.4	1393.0	1390.3	1388.0	1390.3	1393.0	1393.4	1393.4	1393.4	1393.0
46°	1374.8	1374.8	1373.9	1371.1	1368.4	1371.1	1373.9	1374.8	1374.8	1374.8	1373.9
46.5°	1354.7	1354.7	1353.8	1350.6	1348.8	1350.6	1353.8	1354.7	1354.7	1354.7	1353.8
47°	1333.8	1333.8	1332.4	1329.7	1327.4	1329.7	1332.4	1333.8	1333.8	1333.8	1332.4
47.5°	1311.9	1311.9	1310.5	1307.8	1305.5	1307.8	1310.5	1311.9	1311.9	1311.9	1310.5
48°	1289.1	1289.1	1288.2	1285.5	1283.7	1285.5	1288.2	1289.1	1289.1	1289.1	1288.2
48.5°	1265.4	1265.4	1264.5	1262.7	1260.9	1262.7	1264.5	1265.4	1265.4	1265.4	1264.5
49°	1240.4	1240.4	1239.9	1238.6	1237.7	1238.6	1239.9	1240.4	1240.4	1240.4	1239.9
49.5°	1215.3	1214.9	1215.3	1214.0	1213.5	1214.0	1215.3	1214.9	1215.3	1214.9	1215.3
50°	1188.5	1188.9	1189.8	1188.9	1188.5	1188.9	1189.8	1188.9	1188.5	1188.9	1189.8
50.5°	1160.7	1162.5	1163.9	1163.4	1163.4	1163.4	1163.9	1162.5	1160.7	1162.5	1163.9
51°	1134.3	1135.2	1136.5	1137.9	1138.8	1137.9	1136.5	1135.2	1134.3	1135.2	1136.5
51.5°	1108.3	1108.7	1110.6	1111.9	1113.3	1111.9	1110.6	1108.7	1108.3	1108.7	1110.6
52°	1082.3	1083.2	1085.1	1086.9	1089.2	1086.9	1085.1	1083.2	1082.3	1083.2	1085.1
52.5°	1057.7	1058.6	1060.9	1063.2	1065.0	1063.2	1060.9	1058.6	1057.7	1058.6	1060.9
53°	1034.5	1035.4	1037.7	1039.5	1041.3	1039.5	1037.7	1035.4	1034.5	1035.4	1037.7
53.5°	1012.6	1013.5	1014.5	1015.4	1016.7	1015.4	1014.5	1013.5	1012.6	1013.5	1014.5
54°	992.1	991.2	991.2	990.8	990.8	990.8	991.2	991.2	992.1	991.2	991.2
54.5°	969.4	968.4	966.6	964.3	962.5	964.3	966.6	968.4	969.4	968.4	966.6
55°	943.8	942.0	939.3	936.1	933.4	936.1	939.3	942.0	943.8	942.0	939.3
55.5°	913.8	911.5	908.8	906.0	903.3	906.0	908.8	911.5	913.8	911.5	908.8
56°	880.1	878.7	876.0	873.2	870.1	873.2	876.0	878.7	880.1	878.7	876.0
56.5°	843.2	841.8	840.9	838.2	835.9	838.2	840.9	841.8	843.2	841.8	840.9
57°	804.5	803.5	803.1	800.8	798.1	800.8	803.1	803.5	804.5	803.5	803.1
57.5°	763.5	763.5	763.5	761.2	759.4	761.2	763.5	763.5	763.5	763.5	763.5
58°	722.0	722.5	722.9	721.5	719.7	721.5	722.9	722.5	722.0	722.5	722.9
58.5°	679.6	679.6	681.0	680.6	678.7	680.6	681.0	679.6	679.6	679.6	681.0
59°	636.4	637.3	638.6	639.1	638.6	639.1	638.6	637.3	636.4	637.3	638.6
59.5°	593.1	594.0	596.3	598.1	598.1	598.1	596.3	594.0	593.1	594.0	596.3
60°	549.4	551.2	553.9	557.6	557.1	557.6	553.9	551.2	549.4	551.2	553.9
60.5°	506.1	508.4	512.0	516.1	516.6	516.1	512.0	508.4	506.1	508.4	512.0
61°	464.2	466.9	470.6	475.1	476.5	475.1	470.6	466.9	464.2	466.9	470.6
61.5°	423.2	425.5	430.5	434.6	437.3	434.6	430.5	425.5	423.2	425.5	430.5
62°	382.2	385.4	390.8	395.9	399.5	395.9	390.8	385.4	382.2	385.4	390.8
62.5°	341.6	345.3	352.6	358.0	361.7	358.0	352.6	345.3	341.6	345.3	352.6
63°	302.9	307.0	315.2	321.1	325.2	321.1	315.2	307.0	302.9	307.0	315.2
63.5°	266.0	270.1	278.8	286.1	292.9	286.1	278.8	270.1	266.0	270.1	278.8
64°	230.5	235.1	243.7	253.3	261.0	253.3	243.7	235.1	230.5	235.1	243.7
64.5°	196.3	202.3	211.4	221.4	228.7	221.4	211.4	202.3	196.3	202.3	211.4
65°	164.4	172.2	180.8	190.4	196.8	190.4	180.8	172.2	164.4	172.2	180.8
65.5°	135.3	143.9	151.7	160.8	166.7	160.8	151.7	143.9	135.3	143.9	151.7
66°	108.4	118.9	124.8	133.9	139.4	133.9	124.8	118.9	108.4	118.9	124.8



TEST NUMBER: P776760

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	41.5	56.0	62.4	70.2	74.3	70.2	62.4	56.0	41.5	56.0	62.4
68°	24.1	38.7	47.4	52.8	57.9	52.8	47.4	38.7	24.1	38.7	47.4
68.5°	9.1	26.0	34.2	40.1	46.0	40.1	34.2	26.0	9.1	26.0	34.2
69°	4.6	15.5	21.9	27.8	34.2	27.8	21.9	15.5	4.6	15.5	21.9
69.5°	2.7	6.8	12.3	18.2	24.6	18.2	12.3	6.8	2.7	6.8	12.3
70°	1.4	3.2	6.8	10.5	15.0	10.5	6.8	3.2	1.4	3.2	6.8
70.5°	0.5	1.8	4.1	5.0	5.9	5.0	4.1	1.8	0.5	1.8	4.1
71°	0.5	0.9	2.3	2.7	2.3	2.7	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: P776760
CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

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: P776760

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2132.8	2132.8	2132.8	2132.8	2132.8	2132.8
0.5°	2132.8	2132.3	2132.8	2132.8	2132.8	2132.8
1°	2132.3	2131.9	2132.3	2132.8	2132.8	2132.8
1.5°	2132.3	2131.9	2132.3	2132.3	2132.3	2132.3
2°	2131.4	2130.9	2131.4	2131.9	2131.9	2131.9
2.5°	2130.9	2130.0	2130.9	2130.9	2130.9	2130.5
3°	2130.0	2129.1	2130.0	2130.0	2130.0	2129.6
3.5°	2128.7	2128.2	2128.7	2128.7	2128.7	2128.7
4°	2127.3	2126.4	2127.3	2127.3	2127.3	2127.3
4.5°	2125.9	2125.0	2125.9	2125.9	2125.9	2125.9
5°	2124.1	2123.2	2124.1	2124.1	2124.1	2124.1
5.5°	2122.3	2121.4	2122.3	2122.3	2122.3	2122.3
6°	2120.0	2119.6	2120.0	2120.0	2120.5	2120.0
6.5°	2117.7	2117.3	2117.7	2118.2	2118.2	2117.7
7°	2115.5	2115.0	2115.5	2115.5	2115.5	2115.5
7.5°	2113.2	2112.3	2113.2	2112.7	2112.7	2112.7
8°	2110.0	2109.5	2110.0	2110.0	2110.0	2110.0
8.5°	2107.3	2106.3	2107.3	2107.3	2107.3	2107.3
9°	2104.1	2103.6	2104.1	2104.1	2104.1	2104.1
9.5°	2100.9	2100.0	2100.9	2100.9	2100.9	2100.4
10°	2097.2	2096.8	2097.2	2097.2	2097.2	2097.2
10.5°	2093.6	2093.1	2093.6	2093.6	2093.6	2093.6
11°	2089.9	2089.0	2089.9	2089.5	2089.5	2089.5
11.5°	2085.8	2084.9	2085.8	2085.4	2085.4	2085.4
12°	2081.3	2080.8	2081.3	2081.3	2081.3	2081.3
12.5°	2077.2	2076.3	2077.2	2076.7	2076.7	2076.7
13°	2072.2	2071.7	2072.2	2072.2	2072.2	2072.2
13.5°	2067.6	2066.7	2067.6	2067.6	2067.6	2067.2
14°	2062.6	2061.7	2062.6	2062.6	2062.6	2062.2
14.5°	2057.1	2056.7	2057.1	2057.1	2057.1	2057.1
15°	2052.1	2051.2	2052.1	2051.7	2051.7	2051.7
15.5°	2046.2	2045.8	2046.2	2046.2	2046.2	2046.2
16°	2040.7	2039.8	2040.7	2040.7	2040.7	2040.3
16.5°	2034.8	2034.4	2034.8	2034.8	2034.4	2034.4
17°	2028.4	2028.0	2028.4	2028.9	2028.4	2028.4
17.5°	2022.5	2022.1	2022.5	2022.5	2022.1	2022.1
18°	2015.7	2015.2	2015.7	2015.7	2015.7	2015.7
18.5°	2009.3	2008.4	2009.3	2009.3	2008.9	2008.9
19°	2002.5	2001.6	2002.5	2002.5	2002.0	2002.0
19.5°	1995.2	1994.7	1995.2	1995.2	1995.2	1995.2
20°	1987.9	1987.5	1987.9	1987.9	1987.9	1987.9
20.5°	1980.6	1979.7	1980.6	1980.6	1980.6	1980.2
21°	1972.9	1972.4	1972.9	1972.9	1972.9	1972.9

TEST NUMBER: P776760

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1949.2	1948.3	1949.2	1949.2	1949.2	1948.7
23°	1940.5	1940.1	1940.5	1940.5	1940.5	1940.5
23.5°	1932.3	1931.4	1932.3	1932.3	1932.3	1931.9
24°	1923.2	1922.8	1923.2	1923.7	1923.2	1923.2
24.5°	1914.6	1913.7	1914.6	1915.0	1914.6	1914.1
25°	1905.5	1904.5	1905.5	1905.9	1905.5	1905.5
25.5°	1896.3	1895.4	1896.3	1896.8	1896.3	1895.9
26°	1886.8	1885.9	1886.8	1887.2	1886.8	1886.8
26.5°	1877.2	1876.3	1877.2	1877.7	1877.7	1877.2
27°	1867.6	1866.7	1867.6	1868.1	1867.6	1867.6
27.5°	1857.6	1856.7	1857.6	1858.1	1858.1	1857.6
28°	1847.6	1846.7	1847.6	1848.1	1848.1	1847.6
28.5°	1837.6	1836.7	1837.6	1838.0	1837.6	1837.6
29°	1827.1	1825.7	1827.1	1827.6	1827.6	1827.1
29.5°	1816.6	1815.3	1816.6	1817.1	1817.1	1816.6
30°	1805.7	1804.8	1805.7	1806.6	1806.6	1806.2
30.5°	1795.2	1793.9	1795.2	1795.7	1795.7	1795.7
31°	1783.8	1782.9	1783.8	1785.2	1784.7	1784.3
31.5°	1772.9	1771.5	1772.9	1773.8	1773.8	1773.4
32°	1762.0	1760.1	1762.0	1762.9	1762.9	1762.4
32.5°	1750.1	1748.8	1750.1	1751.5	1751.5	1751.0
33°	1739.2	1737.4	1739.2	1740.1	1740.1	1739.2
33.5°	1727.3	1725.5	1727.3	1728.7	1728.3	1727.8
34°	1715.5	1714.1	1715.5	1716.9	1716.4	1716.0
34.5°	1703.7	1702.3	1703.7	1705.0	1704.6	1704.1
35°	1691.8	1690.0	1691.8	1693.2	1692.7	1692.3
35.5°	1679.5	1677.7	1679.5	1680.9	1680.9	1680.0
36°	1667.2	1665.4	1667.2	1669.0	1668.6	1668.1
36.5°	1654.9	1653.1	1654.9	1656.7	1656.3	1655.8
37°	1642.2	1640.8	1642.2	1644.0	1643.5	1643.1
37.5°	1629.4	1627.6	1629.4	1631.7	1631.2	1630.3
38°	1616.7	1615.3	1616.7	1618.9	1618.0	1617.6
38.5°	1603.9	1602.1	1603.9	1605.7	1605.3	1604.4
39°	1590.7	1588.9	1590.7	1593.0	1592.5	1591.6
39.5°	1577.5	1575.2	1577.5	1579.3	1578.8	1578.4
40°	1563.8	1561.5	1563.8	1565.6	1565.6	1564.7
40.5°	1549.7	1547.9	1549.7	1552.0	1551.5	1551.1
41°	1536.0	1533.7	1536.0	1538.3	1537.8	1536.9
41.5°	1521.4	1519.6	1521.4	1523.7	1523.3	1522.8
42°	1506.9	1504.6	1506.9	1509.2	1508.7	1508.2
42.5°	1491.8	1489.6	1491.8	1494.1	1494.1	1493.2
43°	1476.4	1474.1	1476.4	1478.6	1478.6	1478.2
43.5°	1460.4	1458.1	1460.4	1462.7	1462.7	1462.2



TEST NUMBER: P776760

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1408.9	1406.7	1408.9	1411.2	1411.7	1411.7
45.5°	1390.3	1388.0	1390.3	1393.0	1393.4	1393.4
46°	1371.1	1368.4	1371.1	1373.9	1374.8	1374.8
46.5°	1350.6	1348.8	1350.6	1353.8	1354.7	1354.7
47°	1329.7	1327.4	1329.7	1332.4	1333.8	1333.8
47.5°	1307.8	1305.5	1307.8	1310.5	1311.9	1311.9
48°	1285.5	1283.7	1285.5	1288.2	1289.1	1289.1
48.5°	1262.7	1260.9	1262.7	1264.5	1265.4	1265.4
49°	1238.6	1237.7	1238.6	1239.9	1240.4	1240.4
49.5°	1214.0	1213.5	1214.0	1215.3	1214.9	1215.3
50°	1188.9	1188.5	1188.9	1189.8	1188.9	1188.5
50.5°	1163.4	1163.4	1163.4	1163.9	1162.5	1160.7
51°	1137.9	1138.8	1137.9	1136.5	1135.2	1134.3
51.5°	1111.9	1113.3	1111.9	1110.6	1108.7	1108.3
52°	1086.9	1089.2	1086.9	1085.1	1083.2	1082.3
52.5°	1063.2	1065.0	1063.2	1060.9	1058.6	1057.7
53°	1039.5	1041.3	1039.5	1037.7	1035.4	1034.5
53.5°	1015.4	1016.7	1015.4	1014.5	1013.5	1012.6
54°	990.8	990.8	990.8	991.2	991.2	992.1
54.5°	964.3	962.5	964.3	966.6	968.4	969.4
55°	936.1	933.4	936.1	939.3	942.0	943.8
55.5°	906.0	903.3	906.0	908.8	911.5	913.8
56°	873.2	870.1	873.2	876.0	878.7	880.1
56.5°	838.2	835.9	838.2	840.9	841.8	843.2
57°	800.8	798.1	800.8	803.1	803.5	804.5
57.5°	761.2	759.4	761.2	763.5	763.5	763.5
58°	721.5	719.7	721.5	722.9	722.5	722.0
58.5°	680.6	678.7	680.6	681.0	679.6	679.6
59°	639.1	638.6	639.1	638.6	637.3	636.4
59.5°	598.1	598.1	598.1	596.3	594.0	593.1
60°	557.6	557.1	557.6	553.9	551.2	549.4
60.5°	516.1	516.6	516.1	512.0	508.4	506.1
61°	475.1	476.5	475.1	470.6	466.9	464.2
61.5°	434.6	437.3	434.6	430.5	425.5	423.2
62°	395.9	399.5	395.9	390.8	385.4	382.2
62.5°	358.0	361.7	358.0	352.6	345.3	341.6
63°	321.1	325.2	321.1	315.2	307.0	302.9
63.5°	286.1	292.9	286.1	278.8	270.1	266.0
64°	253.3	261.0	253.3	243.7	235.1	230.5
64.5°	221.4	228.7	221.4	211.4	202.3	196.3
65°	190.4	196.8	190.4	180.8	172.2	164.4
65.5°	160.8	166.7	160.8	151.7	143.9	135.3
66°	133.9	139.4	133.9	124.8	118.9	108.4



TEST NUMBER: P776760

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	70.2	74.3	70.2	62.4	56.0	41.5
68°	52.8	57.9	52.8	47.4	38.7	24.1
68.5°	40.1	46.0	40.1	34.2	26.0	9.1
69°	27.8	34.2	27.8	21.9	15.5	4.6
69.5°	18.2	24.6	18.2	12.3	6.8	2.7
70°	10.5	15.0	10.5	6.8	3.2	1.4
70.5°	5.0	5.9	5.0	4.1	1.8	0.5
71°	2.7	2.3	2.7	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: P776760
CATALOG NUMBER: HCDJBL54050CSD-HCD81TRMB-5000lm-2700K

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

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21.5°	1965.1	1965.1	1965.1	1965.1	1964.2	1965.1	1965.1	1965.1	1965.1	1965.1	1965.1
22°	1956.9	1956.9	1957.4	1957.4	1956.5	1957.4	1957.4	1956.9	1956.9	1956.9	1957.4



44°	1445.8	1446.3	1445.8	1443.6	1441.7	1443.6	1445.8	1446.3	1445.8	1446.3	1445.8
44.5°	1429.0	1429.4	1429.4	1426.7	1424.0	1426.7	1429.4	1429.4	1429.0	1429.4	1429.4



66.5°	85.6	96.1	101.1	109.8	114.8	109.8	101.1	96.1	85.6	96.1	101.1
67°	63.3	73.8	81.1	88.4	92.5	88.4	81.1	73.8	63.3	73.8	81.1



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°	1965.1	1964.2	1965.1	1965.1	1965.1	1965.1
22°	1957.4	1956.5	1957.4	1957.4	1956.9	1956.9



44°	1443.6	1441.7	1443.6	1445.8	1446.3	1445.8
44.5°	1426.7	1424.0	1426.7	1429.4	1429.4	1429.0

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66.5°	109.8	114.8	109.8	101.1	96.1	85.6
67°	88.4	92.5	88.4	81.1	73.8	63.3

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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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(END OF REPORT)