

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: P776500

Luminaire Tested: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776500
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2310613A001)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K
Description: 8 INCH ROUND MEDIUM MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2831.2 lumens
Efficiency: N/A
Efficacy: 73.5 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.25 / 1.15
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

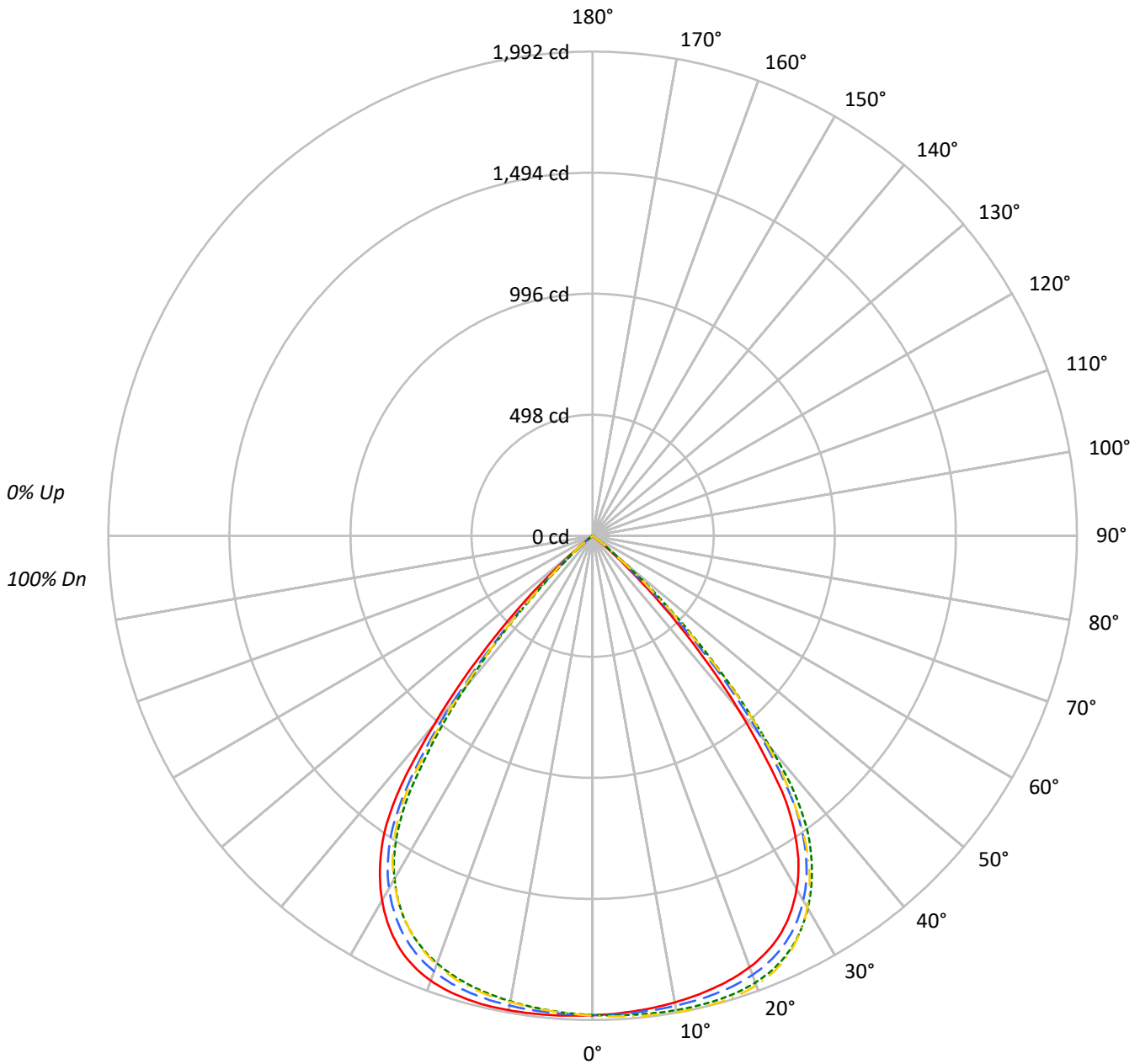
Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	113	110	107	105	111	108	106	103	104	102	100	100	99	97	97	95	94	93																			
2	107	102	97	94	105	100	96	92	97	93	90	94	91	89	91	89	87	85																			
3	101	94	88	84	99	92	87	83	90	85	82	87	84	81	85	82	79	78																			
4	95	87	81	76	93	85	80	76	83	78	75	81	77	74	79	76	73	71																			
5	89	80	74	69	88	79	73	69	77	72	68	76	71	67	74	70	67	65																			
6	84	74	68	63	83	74	67	63	72	66	62	70	66	62	69	65	61	60																			
7	79	69	62	58	78	68	62	58	67	61	57	66	61	57	65	60	57	55																			
8	75	64	58	53	73	64	57	53	63	57	53	61	56	53	60	56	52	51																			
9	71	60	53	49	69	59	53	49	58	53	49	57	52	49	57	52	48	47																			
10	67	56	50	45	66	56	49	45	55	49	45	54	49	45	53	48	45	43																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	60224	60224	60224	60224
5°	60172	60620	60653	60114
10°	60428	61438	61451	60297
15°	60904	62519	62446	60639
20°	61370	63566	63277	60808
25°	61175	63863	63165	60127
30°	59159	62395	61055	57481
35°	53215	58194	55675	49909
40°	37244	45231	40396	32422
45°	17737	25297	20656	13393
50°	3610	6783	3847	1715
55°	165	245	144	101
60°	49	49	49	49
65°	29	29	29	29
70°	36	36	36	36
75°	0	0	0	0
80°	0	0	0	0
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 25297 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	188.0	6.6
10°-20°	551.6	19.5
20°-30°	844.8	29.8
30°-40°	879.2	31.1
40°-50°	354.9	12.5
50°-60°	12.1	0.4
60°-70°	0.5	0.0
70°-80°	0.1	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°	1584.4	56.0
0°-40°	2463.6	87.0
0°-60°	2830.6	100.0
0°-90°	2831.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2831.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1973	1973	1973	1973	1973	
5°	1963	1978	1979	1962	1963	187
15°	1927	1978	1976	1918	1927	545
25°	1816	1896	1875	1785	1816	833
35°	1428	1561	1494	1339	1428	859
45°	411	586	478	310	411	330
55°	3	5	3	2	3	10
65°	0	0	0	0	0	1
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°	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6
0.5°	1971.8	1971.1	1971.8	1972.2	1972.6	1974.5	1975.3	1975.3	1973.4	1972.2	1971.8
1°	1971.1	1971.1	1971.8	1972.6	1973.4	1975.7	1976.4	1976.1	1974.1	1972.6	1971.4
1.5°	1970.3	1970.3	1971.8	1973.0	1974.1	1976.4	1977.6	1977.2	1974.9	1972.6	1971.4
2°	1969.5	1969.9	1971.4	1973.4	1974.9	1977.2	1978.4	1978.0	1975.3	1973.0	1971.4
2.5°	1968.8	1969.1	1971.4	1973.8	1975.3	1978.0	1979.5	1978.7	1976.1	1973.4	1971.1
3°	1967.6	1968.8	1971.1	1973.8	1975.7	1979.1	1980.3	1979.9	1976.8	1973.8	1970.7
3.5°	1966.8	1968.0	1971.1	1973.8	1976.4	1979.5	1981.0	1980.7	1977.6	1973.8	1970.3
4°	1965.7	1967.2	1970.3	1974.1	1976.8	1980.3	1982.2	1981.4	1978.4	1973.8	1970.3
4.5°	1964.5	1966.5	1969.9	1974.1	1977.2	1981.4	1983.0	1982.2	1978.7	1974.1	1969.5
5°	1963.4	1965.7	1969.5	1974.1	1978.0	1982.2	1983.7	1983.3	1979.1	1974.1	1969.1
5.5°	1962.2	1964.5	1969.1	1974.5	1978.4	1983.0	1984.9	1984.1	1979.9	1974.1	1968.8
6°	1961.1	1963.8	1968.8	1974.5	1978.7	1983.7	1985.7	1984.5	1980.3	1974.5	1968.4
6.5°	1959.9	1962.6	1968.0	1974.5	1979.5	1984.5	1986.4	1985.3	1980.7	1974.5	1968.0
7°	1958.8	1961.5	1967.6	1974.5	1979.9	1984.9	1987.2	1986.0	1981.0	1974.1	1967.2
7.5°	1957.2	1960.3	1967.2	1974.9	1980.3	1985.7	1988.0	1986.8	1981.4	1974.1	1966.8
8°	1955.7	1959.2	1966.5	1974.5	1980.7	1986.4	1988.7	1987.2	1981.8	1974.5	1966.1
8.5°	1954.2	1957.6	1965.7	1974.9	1981.0	1986.8	1989.1	1988.0	1981.8	1974.1	1965.3
9°	1952.6	1956.5	1964.9	1974.5	1981.4	1987.2	1989.9	1988.3	1982.2	1973.8	1964.9
9.5°	1950.7	1954.9	1964.2	1974.5	1981.4	1987.6	1990.3	1988.7	1982.2	1973.8	1963.8
10°	1949.2	1953.4	1963.4	1974.1	1981.8	1988.0	1990.6	1989.1	1982.2	1973.4	1963.0
10.5°	1947.3	1951.9	1962.6	1974.1	1981.8	1988.3	1991.0	1989.1	1982.2	1973.0	1961.8
11°	1945.3	1950.3	1961.5	1973.8	1981.8	1988.7	1991.4	1989.5	1981.8	1972.2	1960.7
11.5°	1943.4	1948.4	1960.3	1973.4	1981.8	1988.7	1991.4	1989.5	1981.8	1971.4	1959.5
12°	1941.5	1946.5	1959.5	1973.0	1981.8	1988.7	1991.8	1989.5	1981.4	1970.7	1958.0
12.5°	1939.2	1945.0	1958.4	1972.6	1981.4	1988.7	1991.8	1989.1	1980.7	1969.9	1956.9
13°	1936.9	1942.7	1956.9	1971.8	1981.0	1988.7	1991.4	1989.1	1980.3	1968.8	1954.9
13.5°	1934.6	1940.7	1955.7	1971.1	1980.3	1988.7	1991.0	1988.7	1979.5	1967.2	1953.4
14°	1931.9	1938.8	1954.2	1970.3	1979.5	1988.0	1990.6	1988.3	1978.4	1966.1	1951.1
14.5°	1929.6	1936.5	1952.6	1969.1	1979.1	1987.6	1990.3	1987.6	1977.2	1964.5	1949.2
15°	1926.9	1934.2	1950.7	1968.0	1978.0	1986.8	1989.5	1986.8	1975.7	1962.6	1946.9
15.5°	1923.8	1931.9	1948.8	1966.5	1977.2	1986.0	1988.3	1985.7	1974.1	1960.7	1944.2
16°	1920.8	1929.2	1946.9	1964.9	1975.7	1984.9	1987.2	1984.1	1972.2	1958.4	1941.5
16.5°	1917.7	1926.5	1944.6	1963.4	1974.1	1983.3	1986.0	1982.6	1970.3	1955.7	1938.4
17°	1914.2	1923.5	1942.3	1961.1	1972.6	1981.8	1984.1	1980.3	1968.0	1953.0	1935.0
17.5°	1910.4	1920.4	1939.6	1958.8	1970.7	1979.9	1982.2	1978.4	1965.7	1949.9	1931.1
18°	1906.6	1917.3	1936.5	1956.1	1968.4	1977.6	1980.3	1975.7	1962.6	1946.5	1926.9
18.5°	1902.7	1913.5	1933.8	1953.4	1966.1	1974.9	1977.6	1972.6	1959.5	1942.7	1922.7
19°	1898.1	1910.0	1930.4	1950.3	1963.0	1971.8	1974.9	1969.5	1955.7	1938.4	1918.1
19.5°	1893.5	1905.8	1926.5	1946.5	1959.9	1968.8	1971.8	1965.7	1951.9	1933.8	1912.7
20°	1888.9	1901.6	1922.7	1942.7	1956.5	1965.3	1968.0	1961.8	1947.6	1928.8	1906.9
20.5°	1883.5	1897.0	1918.1	1938.4	1952.6	1961.1	1964.2	1957.2	1942.7	1923.5	1900.8
21°	1877.8	1892.0	1913.5	1933.8	1948.0	1956.5	1959.5	1952.6	1937.7	1917.3	1894.7



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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°	1858.6	1875.1	1896.6	1917.3	1933.1	1940.0	1942.7	1934.6	1918.5	1897.0	1872.0
23°	1851.3	1868.6	1890.1	1910.8	1926.9	1933.4	1936.1	1927.7	1911.2	1888.9	1863.6
23.5°	1843.2	1861.6	1883.1	1903.5	1919.6	1926.1	1928.8	1919.6	1903.1	1880.1	1854.7
24°	1834.8	1854.0	1875.5	1896.2	1913.1	1918.5	1921.2	1911.6	1894.7	1871.2	1845.1
24.5°	1825.9	1846.3	1867.4	1887.8	1905.4	1910.0	1911.9	1902.7	1885.1	1861.3	1834.8
25°	1816.0	1837.5	1859.0	1878.9	1895.8	1901.2	1903.1	1893.1	1875.1	1850.9	1824.0
25.5°	1806.0	1828.2	1849.4	1869.7	1887.0	1891.2	1892.7	1882.8	1864.3	1839.8	1812.9
26°	1794.8	1817.9	1839.4	1859.7	1877.4	1880.8	1882.0	1871.6	1852.8	1827.9	1800.6
26.5°	1783.3	1807.5	1829.0	1849.0	1866.6	1868.9	1870.1	1859.7	1840.5	1815.2	1787.5
27°	1770.7	1795.6	1817.5	1837.8	1854.4	1857.0	1857.4	1847.1	1827.5	1802.1	1774.1
27.5°	1757.2	1783.7	1805.2	1825.9	1842.8	1844.4	1844.4	1833.6	1813.7	1787.9	1759.1
28°	1743.0	1770.3	1792.2	1812.9	1829.8	1830.2	1830.5	1819.0	1799.1	1773.0	1744.2
28.5°	1728.0	1756.1	1778.7	1799.8	1816.0	1815.6	1815.2	1803.7	1783.3	1756.8	1728.4
29°	1711.9	1741.1	1764.1	1785.6	1801.4	1800.2	1799.8	1787.5	1767.2	1740.7	1711.5
29.5°	1695.8	1725.7	1749.2	1770.7	1786.4	1783.7	1782.9	1770.7	1749.9	1723.4	1693.9
30°	1678.1	1708.8	1733.0	1755.3	1769.9	1766.4	1765.3	1753.0	1731.9	1705.8	1675.4
30.5°	1660.1	1691.2	1716.1	1738.8	1753.4	1748.4	1746.9	1734.2	1713.1	1687.0	1656.2
31°	1640.1	1672.0	1698.5	1721.1	1735.3	1728.8	1726.9	1714.2	1693.5	1667.0	1635.5
31.5°	1619.4	1652.4	1680.0	1703.1	1716.5	1709.2	1706.9	1693.5	1673.1	1646.3	1613.6
32°	1597.5	1630.9	1659.7	1684.7	1697.3	1688.5	1684.3	1671.6	1651.3	1624.8	1590.2
32.5°	1574.1	1607.9	1638.2	1664.3	1677.7	1665.8	1660.9	1648.2	1628.2	1602.1	1564.5
33°	1548.4	1583.7	1615.6	1643.6	1655.9	1642.4	1636.7	1623.2	1604.4	1577.9	1538.4
33.5°	1521.9	1557.2	1591.0	1621.7	1634.0	1618.2	1610.6	1597.5	1579.8	1552.6	1510.4
34°	1492.3	1530.3	1566.4	1598.7	1610.9	1592.9	1583.3	1569.9	1553.4	1525.3	1480.4
34.5°	1461.2	1500.8	1538.8	1574.5	1586.8	1565.3	1553.7	1540.7	1524.6	1495.4	1447.8
35°	1427.8	1468.5	1510.4	1548.0	1561.4	1535.7	1521.9	1509.2	1493.8	1462.0	1410.2
35.5°	1393.3	1433.6	1478.9	1519.6	1533.4	1502.7	1488.5	1475.0	1460.1	1424.7	1370.6
36°	1355.3	1396.3	1446.2	1488.5	1503.8	1468.9	1453.2	1438.6	1423.2	1385.6	1328.4
36.5°	1310.7	1356.0	1409.4	1453.2	1471.2	1430.9	1415.1	1400.6	1383.3	1342.2	1281.5
37°	1259.7	1309.2	1369.1	1416.7	1434.3	1393.3	1376.8	1360.6	1339.9	1295.4	1232.4
37.5°	1204.8	1257.0	1325.7	1376.0	1395.9	1351.4	1336.8	1319.5	1291.5	1242.4	1179.4
38°	1150.2	1204.0	1279.6	1335.7	1355.3	1308.4	1296.5	1276.2	1238.5	1185.9	1126.4
38.5°	1094.2	1152.2	1230.9	1288.4	1310.7	1261.6	1254.3	1231.6	1182.5	1128.4	1070.8
39°	1040.4	1103.0	1179.8	1241.6	1257.0	1214.0	1209.7	1184.4	1125.3	1068.1	1012.8
39.5°	987.5	1052.7	1126.0	1189.4	1195.9	1162.5	1159.8	1134.5	1068.1	1009.0	953.7
40°	934.5	1003.6	1070.8	1136.4	1134.9	1109.2	1110.7	1081.5	1013.6	950.6	894.9
40.5°	879.6	949.4	1015.9	1077.3	1076.5	1052.7	1062.7	1028.1	960.6	893.0	832.3
41°	823.9	893.0	960.6	1017.4	1023.2	997.4	1009.7	973.6	906.8	837.0	771.7
41.5°	769.8	834.7	903.8	957.1	970.2	939.8	955.6	916.8	852.3	779.7	712.6
42°	715.2	779.4	847.7	895.7	916.0	886.1	899.9	860.4	795.9	723.3	658.4
42.5°	662.7	724.8	791.3	833.9	861.5	832.0	842.7	804.3	741.4	666.9	600.1
43°	612.0	670.7	734.1	775.1	802.8	778.2	783.2	746.3	685.3	610.1	547.1
43.5°	560.1	617.7	675.3	715.2	745.6	723.3	726.0	690.3	632.7	556.3	494.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	410.8	457.6	500.3	550.5	585.9	559.4	550.9	528.3	478.4	415.0	355.9
45.5°	362.4	406.6	446.5	498.3	534.0	506.8	497.6	474.5	429.6	371.3	311.7
46°	318.3	357.8	396.2	450.7	483.0	455.3	443.0	423.5	383.5	327.9	267.6
46.5°	274.9	311.0	348.6	403.5	430.8	408.5	397.7	377.0	337.5	284.5	223.8
47°	233.8	266.8	303.7	358.2	386.2	361.3	352.4	330.9	291.4	240.7	189.7
47.5°	195.4	223.8	263.0	314.4	341.7	314.0	307.1	284.9	245.3	203.1	158.6
48°	161.6	185.4	224.6	271.4	297.2	266.8	261.8	238.4	205.8	168.5	130.9
48.5°	131.3	150.9	190.0	231.9	252.6	219.6	216.5	199.3	169.3	137.1	106.0
49°	112.9	122.9	159.3	195.8	214.2	179.3	181.2	162.0	135.9	108.7	84.8
49.5°	94.4	103.7	130.5	163.2	177.0	145.1	146.7	129.8	106.7	84.1	66.0
50°	76.0	84.5	111.3	133.2	142.8	115.2	115.2	101.4	81.0	69.9	54.5
50.5°	57.2	65.3	92.5	112.9	111.7	88.3	88.3	76.0	66.8	55.3	43.4
51°	39.2	46.5	73.7	92.9	84.5	72.9	72.6	62.6	52.6	41.1	31.9
51.5°	28.4	34.9	54.9	72.9	69.9	57.2	57.2	49.1	38.4	26.5	20.3
52°	19.6	25.0	36.1	53.0	55.3	41.8	41.5	35.7	24.2	11.9	9.2
52.5°	12.3	16.5	24.6	33.0	40.3	26.5	25.7	22.3	10.4	7.7	6.1
53°	10.4	14.2	15.4	21.1	25.7	11.5	10.4	8.4	6.9	5.8	5.0
53.5°	8.1	11.5	12.7	12.3	11.5	7.3	6.9	6.1	5.4	4.6	3.8
54°	5.8	8.8	9.6	10.0	7.3	5.8	5.4	5.0	4.2	3.5	3.1
54.5°	3.8	6.1	6.9	7.7	5.8	4.6	4.2	3.8	3.1	2.7	2.3
55°	3.1	3.5	4.2	5.8	4.6	3.5	3.5	3.1	2.7	2.3	1.9
55.5°	2.3	2.7	3.1	3.5	3.5	2.7	2.7	2.3	1.9	1.9	1.5
56°	1.9	2.3	2.7	2.7	2.7	1.9	1.9	1.9	1.5	1.5	1.5
56.5°	1.5	1.9	1.9	2.3	1.9	1.5	1.5	1.5	1.5	1.2	1.2
57°	1.5	1.5	1.5	1.9	1.5	1.5	1.5	1.5	1.2	1.2	1.2
57.5°	1.2	1.2	1.5	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.2
58°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.8
58.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.8	0.8	0.8
59°	0.8	1.2	1.2	1.2	1.2	0.8	0.8	0.8	0.8	0.8	0.8
59.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
60°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
60.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
61°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
61.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
62°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4
62.5°	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4
63°	0.4	0.8	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4
63.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
64°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
64.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
65°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
65.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
66°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
68°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
68.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
69°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
69.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
70°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
70.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
71°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
71.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
72°	0.0	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73°	0.0	0.0	0.0	0.0	0.0	0.0	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: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-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: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1972.6	1972.6	1972.6	1972.6	1972.6	1972.6
0.5°	1971.4	1971.1	1972.6	1973.4	1973.4	1971.8
1°	1971.1	1970.3	1971.4	1972.2	1972.2	1971.1
1.5°	1970.3	1969.1	1970.3	1971.1	1971.1	1970.3
2°	1969.5	1968.4	1969.1	1969.9	1969.9	1969.5
2.5°	1969.1	1967.2	1968.4	1968.8	1969.1	1968.8
3°	1968.4	1966.5	1967.2	1967.6	1967.6	1967.6
3.5°	1967.2	1965.3	1965.7	1966.5	1966.5	1966.8
4°	1966.8	1964.2	1964.5	1965.3	1965.3	1965.7
4.5°	1965.7	1962.6	1963.4	1964.2	1964.2	1964.5
5°	1964.9	1961.5	1961.8	1962.6	1963.4	1963.4
5.5°	1963.8	1960.3	1960.7	1961.5	1961.8	1962.2
6°	1963.0	1958.8	1959.2	1960.3	1960.7	1961.1
6.5°	1961.8	1957.2	1958.0	1958.8	1959.5	1959.9
7°	1960.3	1955.7	1956.5	1957.6	1958.4	1958.8
7.5°	1959.2	1954.2	1954.9	1956.1	1956.9	1957.2
8°	1958.0	1952.6	1953.4	1954.9	1955.7	1955.7
8.5°	1956.5	1950.7	1951.5	1953.4	1954.2	1954.2
9°	1954.9	1948.8	1949.9	1951.9	1952.6	1952.6
9.5°	1953.8	1946.9	1948.0	1950.3	1951.1	1950.7
10°	1951.9	1945.0	1946.1	1948.8	1949.6	1949.2
10.5°	1950.3	1942.7	1944.2	1946.9	1947.6	1947.3
11°	1948.4	1940.7	1942.3	1945.3	1946.1	1945.3
11.5°	1946.5	1938.0	1940.0	1943.4	1944.2	1943.4
12°	1944.6	1935.7	1937.7	1941.5	1942.3	1941.5
12.5°	1942.3	1933.4	1935.0	1939.2	1940.4	1939.2
13°	1940.0	1930.8	1932.3	1936.9	1938.0	1936.9
13.5°	1937.3	1928.1	1930.0	1934.6	1935.4	1934.6
14°	1935.0	1925.0	1926.9	1931.9	1933.1	1931.9
14.5°	1931.9	1921.9	1923.8	1928.8	1930.4	1929.6
15°	1929.2	1918.5	1920.8	1925.8	1927.3	1926.9
15.5°	1926.1	1915.0	1916.9	1922.7	1924.2	1923.8
16°	1922.3	1911.2	1913.5	1918.9	1920.8	1920.8
16.5°	1918.9	1907.3	1909.6	1915.0	1917.3	1917.7
17°	1915.0	1903.1	1905.0	1910.8	1913.5	1914.2
17.5°	1910.8	1898.5	1900.8	1906.2	1909.3	1910.4
18°	1906.2	1893.5	1895.8	1901.2	1904.6	1906.6
18.5°	1901.2	1888.9	1890.8	1895.8	1899.7	1902.7
19°	1896.2	1883.5	1885.4	1890.1	1894.7	1898.1
19.5°	1890.8	1877.4	1879.7	1883.9	1888.9	1893.5
20°	1884.7	1871.6	1873.5	1877.4	1882.8	1888.9
20.5°	1878.5	1865.1	1867.0	1870.5	1876.2	1883.5
21°	1871.6	1858.2	1860.1	1862.8	1869.7	1877.8



TEST NUMBER: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1849.0	1834.8	1836.3	1837.5	1845.9	1858.6
23°	1840.5	1825.9	1827.5	1827.9	1837.1	1851.3
23.5°	1830.9	1816.7	1817.9	1818.3	1827.5	1843.2
24°	1821.3	1806.7	1808.3	1807.9	1817.5	1834.8
24.5°	1811.0	1796.0	1797.5	1796.8	1807.1	1825.9
25°	1799.8	1784.9	1786.4	1784.9	1796.0	1816.0
25.5°	1788.3	1773.0	1774.1	1773.0	1784.1	1806.0
26°	1775.6	1760.7	1761.4	1759.9	1772.2	1794.8
26.5°	1762.6	1747.2	1748.4	1746.9	1759.1	1783.3
27°	1748.8	1732.6	1734.6	1732.6	1745.7	1770.7
27.5°	1733.8	1717.7	1720.0	1718.1	1731.1	1757.2
28°	1718.1	1701.9	1704.6	1701.9	1716.1	1743.0
28.5°	1701.5	1685.0	1688.5	1686.6	1700.0	1728.0
29°	1684.7	1667.8	1671.6	1669.3	1683.5	1711.9
29.5°	1666.6	1649.3	1654.3	1652.4	1667.0	1695.8
30°	1647.4	1630.5	1635.5	1634.0	1649.3	1678.1
30.5°	1626.7	1609.4	1616.7	1615.9	1630.9	1660.1
31°	1604.0	1587.9	1596.0	1595.6	1611.3	1640.1
31.5°	1580.2	1563.7	1574.1	1574.9	1590.2	1619.4
32°	1554.9	1538.8	1549.9	1551.1	1567.2	1597.5
32.5°	1527.2	1511.1	1524.9	1526.5	1542.6	1574.1
33°	1499.2	1482.3	1497.3	1499.6	1516.5	1548.4
33.5°	1467.7	1451.2	1470.0	1473.1	1490.4	1521.9
34°	1435.5	1416.7	1440.5	1444.3	1462.0	1492.3
34.5°	1400.2	1379.8	1408.6	1412.5	1431.3	1461.2
35°	1361.4	1339.1	1374.1	1377.5	1397.5	1427.8
35.5°	1317.6	1294.2	1334.5	1339.9	1360.6	1393.3
36°	1271.6	1244.3	1290.4	1297.3	1320.3	1355.3
36.5°	1219.7	1192.1	1240.8	1250.4	1274.6	1310.7
37°	1167.5	1141.4	1186.7	1199.4	1223.9	1259.7
37.5°	1112.6	1092.3	1128.4	1146.4	1169.0	1204.8
38°	1060.8	1041.6	1069.2	1089.6	1113.4	1150.2
38.5°	1007.4	991.3	1013.2	1032.8	1056.9	1094.2
39°	956.0	932.6	959.0	972.1	999.7	1040.4
39.5°	903.0	873.4	907.2	914.1	941.8	987.5
40°	848.5	813.5	853.1	855.8	882.3	934.5
40.5°	791.7	761.7	796.6	797.0	825.8	879.6
41°	733.3	710.3	741.0	738.7	770.9	823.9
41.5°	674.6	660.3	686.5	680.3	716.0	769.8
42°	618.1	607.8	633.5	625.4	661.5	715.2
42.5°	561.3	554.8	582.0	573.2	605.8	662.7
43°	505.6	502.6	532.1	522.5	552.9	612.0
43.5°	452.3	450.7	482.6	473.8	501.4	560.1



TEST NUMBER: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	314.4	310.2	341.3	340.2	362.4	410.8
45.5°	268.4	266.1	298.3	301.8	320.6	362.4
46°	222.3	222.3	258.8	265.7	282.2	318.3
46.5°	186.6	183.5	222.3	231.5	246.5	274.9
47°	155.5	147.8	188.1	200.0	212.7	233.8
47.5°	127.5	127.5	156.6	170.5	182.0	195.4
48°	103.7	107.5	128.6	144.7	154.0	161.6
48.5°	82.5	87.5	109.0	124.8	128.2	131.3
49°	65.3	67.6	89.8	105.2	109.0	112.9
49.5°	54.1	47.6	71.0	86.0	89.8	94.4
50°	43.4	36.1	51.8	66.4	70.3	76.0
50.5°	32.6	26.5	38.4	46.8	51.4	57.2
51°	21.9	18.4	28.0	34.2	37.6	39.2
51.5°	11.1	11.5	18.8	23.0	26.1	28.4
52°	7.3	9.2	11.9	14.2	16.9	19.6
52.5°	5.4	7.3	9.6	11.5	14.2	12.3
53°	4.6	5.8	7.7	8.8	11.5	10.4
53.5°	3.5	3.8	5.8	6.5	8.8	8.1
54°	2.7	3.1	3.8	3.8	6.1	5.8
54.5°	2.3	2.3	3.1	3.1	3.5	3.8
55°	1.9	1.9	2.3	2.3	2.7	3.1
55.5°	1.5	1.5	1.9	1.9	2.3	2.3
56°	1.5	1.5	1.5	1.5	1.9	1.9
56.5°	1.2	1.2	1.5	1.5	1.5	1.5
57°	1.2	1.2	1.2	1.2	1.2	1.5
57.5°	1.2	1.2	1.2	1.2	1.2	1.2
58°	0.8	0.8	1.2	1.2	1.2	1.2
58.5°	0.8	0.8	0.8	1.2	1.2	1.2
59°	0.8	0.8	0.8	0.8	0.8	0.8
59.5°	0.8	0.8	0.8	0.8	0.8	0.8
60°	0.8	0.8	0.8	0.8	0.8	0.8
60.5°	0.8	0.8	0.8	0.8	0.8	0.8
61°	0.8	0.8	0.8	0.8	0.8	0.8
61.5°	0.8	0.8	0.8	0.8	0.8	0.8
62°	0.4	0.8	0.8	0.8	0.8	0.8
62.5°	0.4	0.4	0.8	0.8	0.8	0.8
63°	0.4	0.4	0.4	0.4	0.4	0.4
63.5°	0.4	0.4	0.4	0.4	0.4	0.4
64°	0.4	0.4	0.4	0.4	0.4	0.4
64.5°	0.4	0.4	0.4	0.4	0.4	0.4
65°	0.4	0.4	0.4	0.4	0.4	0.4
65.5°	0.4	0.4	0.4	0.4	0.4	0.4
66°	0.4	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	0.4	0.4	0.4	0.4	0.4	0.4
68°	0.4	0.4	0.4	0.4	0.4	0.4
68.5°	0.4	0.4	0.4	0.4	0.4	0.4
69°	0.4	0.4	0.4	0.4	0.4	0.4
69.5°	0.4	0.4	0.4	0.4	0.4	0.4
70°	0.4	0.4	0.4	0.4	0.4	0.4
70.5°	0.4	0.4	0.4	0.4	0.4	0.4
71°	0.4	0.4	0.4	0.4	0.4	0.4
71.5°	0.0	0.4	0.4	0.4	0.4	0.4
72°	0.0	0.0	0.4	0.4	0.4	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0
73°	0.0	0.0	0.0	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: P776500

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRMB-4000lm-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°	1872.0	1887.0	1908.5	1928.8	1943.4	1951.5	1954.6	1946.9	1931.9	1911.2	1887.8
22°	1865.5	1881.2	1902.7	1923.1	1938.8	1946.1	1948.8	1941.1	1925.4	1904.3	1880.5



44°	509.1	565.1	615.4	658.8	690.3	668.4	665.3	636.5	580.9	505.6	443.8
44.5°	459.2	511.4	556.3	602.8	636.5	613.5	609.7	582.0	530.2	458.4	399.7



66.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
67°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



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°	1864.7	1850.9	1852.8	1855.1	1862.0	1872.0
22°	1857.0	1843.2	1844.8	1846.7	1854.4	1865.5



44°	406.2	401.6	434.6	425.8	452.3	509.1
44.5°	360.5	355.5	386.6	381.6	406.2	459.2

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66.5°	0.4	0.4	0.4	0.4	0.4	0.4
67°	0.4	0.4	0.4	0.4	0.4	0.4

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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)