

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: P776562

Luminaire Tested: HCDJBS4050CSD-HCD41TRMB-5000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776562
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B031)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD41TRMB-5000lm-3500K
Description: 4 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

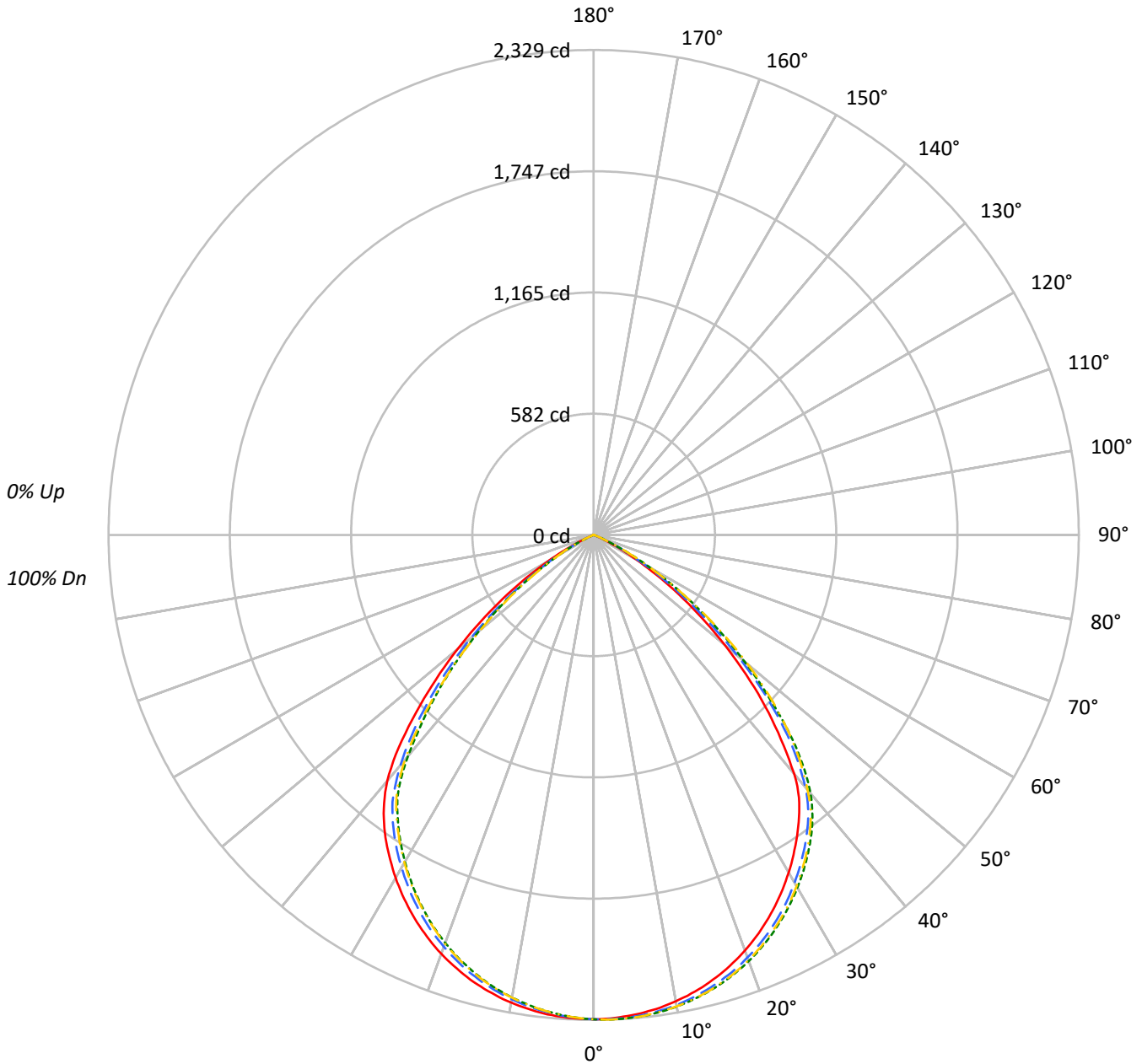
Lumens per Lamp: N/A
Luminaire Lumens: 4308.4 lumens
Efficiency: N/A
Efficacy: 89.8 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.26
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	112	109	106	103	109	106	104	101	102	100	98	99	97	95	95	94	92	90								
2	105	98	93	89	102	97	92	88	93	89	86	90	87	84	87	85	82	81								
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	76	73	72								
4	90	81	74	68	88	80	73	68	77	72	67	75	70	66	73	69	65	64								
5	84	74	66	61	82	73	66	60	71	64	60	69	63	59	67	62	59	57								
6	78	67	60	54	77	66	59	54	65	58	54	63	57	53	62	57	53	51								
7	73	62	54	49	72	61	54	49	59	53	48	58	52	48	57	52	48	46								
8	69	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42								
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	43	40	38								
10	60	49	42	37	59	48	41	37	47	41	37	46	41	36	45	40	36	35								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	292752	292752	292752	292752
5°	292076	293756	292443	290889
10°	290572	293894	291479	288220
15°	288135	293307	289620	284395
20°	284433	291692	286576	279183
25°	279053	288690	282260	272304
30°	272080	284287	276324	263303
35°	263006	278078	268430	252267
40°	245804	266044	253016	227519
45°	207345	232956	214482	186860
50°	160467	185137	167124	140889
55°	110145	132613	115652	93075
60°	59628	78153	64485	47043
65°	18254	28230	20101	12656
70°	1729	1913	1729	1729
75°	1848	1848	1848	1848
80°	1739	1739	1377	1739
85°	722	1300	722	1300

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 112.5°
 Vertical Angle: 45°
 Luminance: 234807 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.7	5.1
10°-20°	625.1	14.5
20°-30°	929.8	21.6
30°-40°	1074.6	24.9
40°-50°	906.8	21.0
50°-60°	461.3	10.7
60°-70°	86.3	2.0
70°-80°	3.8	0.1
80°-90°	1.0	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°	1774.5	41.2
0°-40°	2849.1	66.1
0°-60°	4217.2	97.9
0°-90°	4308.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4308.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2326	2326	2326	2326	2326	
5°	2312	2325	2315	2303	2312	219
15°	2212	2251	2223	2183	2212	623
25°	2010	2079	2033	1961	2010	925
35°	1712	1810	1747	1642	1712	1066
45°	1165	1309	1205	1050	1165	892
55°	502	604	527	424	502	453
65°	61	95	68	42	61	81
75°	4	4	4	4	4	4
85°	0	1	0	1	0	1
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°	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2
0.5°	2325.7	2325.7	2326.7	2327.1	2327.6	2327.6	2327.6	2325.7	2325.3	2325.7	2325.3
1°	2325.3	2326.2	2327.1	2327.6	2328.1	2328.1	2328.1	2326.2	2325.3	2325.3	2324.3
1.5°	2324.3	2325.7	2327.1	2328.1	2328.1	2329.0	2328.6	2326.7	2324.8	2323.8	2322.9
2°	2323.4	2325.3	2326.7	2328.6	2328.6	2329.5	2329.0	2326.7	2324.3	2322.9	2321.0
2.5°	2321.5	2323.8	2326.2	2328.6	2328.6	2329.0	2328.1	2326.2	2323.4	2321.5	2319.6
3°	2320.1	2322.9	2325.3	2327.6	2328.6	2329.0	2328.1	2324.8	2322.4	2320.1	2317.2
3.5°	2318.2	2321.5	2324.8	2327.1	2327.6	2328.6	2328.1	2324.3	2320.5	2317.7	2315.3
4°	2316.8	2320.1	2323.4	2326.2	2327.1	2328.1	2327.1	2323.8	2319.1	2315.8	2313.0
4.5°	2314.4	2318.2	2322.4	2324.8	2326.2	2327.1	2325.7	2322.9	2317.2	2313.0	2309.7
5°	2312.0	2316.3	2320.5	2323.8	2325.3	2325.7	2324.3	2321.0	2314.9	2310.6	2306.9
5.5°	2309.2	2313.9	2318.6	2322.4	2323.4	2324.8	2323.4	2319.1	2313.0	2308.3	2303.6
6°	2305.9	2311.6	2317.2	2320.5	2322.0	2322.9	2321.5	2317.2	2310.2	2305.0	2300.2
6.5°	2302.6	2308.7	2314.4	2318.6	2320.1	2321.0	2319.1	2315.3	2307.3	2302.1	2296.9
7°	2299.8	2305.9	2312.0	2316.8	2317.7	2318.6	2316.8	2313.0	2304.0	2297.9	2293.2
7.5°	2296.0	2302.6	2309.2	2313.9	2314.9	2316.8	2314.4	2310.2	2300.7	2294.6	2288.9
8°	2292.2	2299.3	2306.4	2311.6	2312.5	2313.9	2311.6	2306.9	2296.9	2290.3	2284.7
8.5°	2288.0	2295.5	2303.1	2308.3	2309.7	2311.1	2308.7	2303.6	2293.2	2286.1	2280.0
9°	2283.3	2291.8	2299.8	2305.0	2306.4	2308.3	2305.9	2300.2	2289.4	2281.8	2274.8
9.5°	2278.5	2287.5	2296.0	2301.7	2303.1	2305.0	2302.1	2296.9	2285.6	2277.1	2269.6
10°	2273.8	2283.3	2291.8	2298.4	2299.8	2301.7	2298.8	2293.2	2280.9	2272.4	2264.4
10.5°	2268.6	2278.5	2287.5	2294.1	2296.0	2297.9	2294.6	2288.9	2276.2	2267.2	2258.7
11°	2263.4	2273.4	2283.3	2289.9	2291.8	2293.6	2290.8	2284.7	2271.5	2261.6	2253.1
11.5°	2258.3	2268.2	2278.5	2285.6	2287.5	2289.4	2286.1	2280.0	2266.3	2255.9	2246.9
12°	2251.6	2263.0	2273.4	2280.9	2283.3	2284.7	2281.8	2274.8	2260.6	2250.2	2240.3
12.5°	2246.0	2257.3	2268.2	2276.2	2278.5	2280.0	2276.7	2269.6	2254.5	2244.1	2233.7
13°	2239.4	2251.6	2262.5	2271.5	2273.4	2275.2	2271.9	2264.9	2248.8	2237.5	2226.6
13.5°	2233.2	2245.5	2256.8	2265.8	2268.2	2269.6	2266.3	2259.2	2242.7	2230.9	2219.6
14°	2226.2	2238.9	2251.2	2260.1	2262.5	2264.9	2261.1	2253.1	2236.1	2224.3	2212.5
14.5°	2219.1	2232.3	2244.6	2254.5	2256.8	2258.7	2255.0	2246.9	2229.9	2217.2	2204.5
15°	2211.5	2225.2	2238.0	2248.3	2251.2	2253.1	2248.8	2240.8	2222.9	2209.7	2196.4
15.5°	2204.0	2217.2	2231.8	2241.7	2245.0	2246.5	2242.2	2233.7	2215.8	2202.1	2188.9
16°	2196.0	2210.6	2224.8	2235.1	2238.4	2240.3	2235.6	2227.1	2208.2	2194.1	2180.9
16.5°	2187.9	2203.0	2217.2	2228.5	2231.4	2233.2	2229.0	2220.0	2200.7	2186.1	2171.9
17°	2179.9	2195.0	2210.1	2221.4	2224.8	2226.2	2221.9	2213.0	2192.7	2178.0	2162.9
17.5°	2171.0	2186.5	2202.6	2213.9	2217.2	2218.6	2214.4	2205.4	2184.2	2169.1	2153.5
18°	2161.5	2178.0	2194.1	2206.3	2209.7	2211.1	2206.8	2196.9	2175.7	2160.1	2144.1
18.5°	2152.6	2169.5	2185.6	2198.8	2201.6	2204.0	2198.8	2188.9	2167.7	2151.1	2134.6
19°	2143.1	2160.1	2177.6	2190.3	2194.1	2196.0	2190.3	2180.9	2158.7	2141.7	2125.2
19.5°	2133.7	2151.1	2168.6	2182.3	2186.1	2187.5	2181.8	2172.4	2149.7	2132.3	2114.8
20°	2123.8	2141.7	2159.6	2173.8	2178.0	2179.0	2173.3	2163.4	2139.8	2122.4	2104.4
20.5°	2113.4	2132.3	2150.7	2164.8	2169.1	2170.5	2164.4	2154.4	2130.9	2112.5	2093.6
21°	2103.0	2121.9	2141.2	2155.9	2160.6	2162.0	2155.4	2145.0	2120.5	2101.6	2082.7



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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°	2070.0	2090.7	2111.0	2127.1	2131.3	2132.7	2126.1	2115.8	2089.3	2069.0	2048.8
23°	2058.7	2079.9	2100.7	2117.2	2121.4	2122.8	2116.2	2105.4	2078.5	2058.2	2037.0
23.5°	2046.9	2068.1	2090.3	2107.3	2111.5	2112.0	2105.8	2094.5	2067.6	2046.4	2024.2
24°	2034.6	2056.8	2079.4	2096.4	2100.7	2102.1	2095.0	2084.1	2056.3	2034.6	2012.4
24.5°	2022.3	2045.5	2068.1	2085.6	2090.3	2090.7	2084.1	2072.8	2045.0	2022.8	1999.7
25°	2009.6	2033.7	2056.3	2074.2	2079.0	2079.9	2072.8	2061.5	2032.7	2010.1	1986.9
25.5°	1996.9	2021.4	2045.0	2063.4	2068.1	2068.6	2061.5	2050.2	2020.4	1997.8	1973.3
26°	1984.1	2008.6	2032.7	2051.6	2056.8	2057.2	2050.2	2038.4	2008.2	1984.6	1960.0
26.5°	1971.4	1995.9	2020.9	2039.8	2045.0	2045.0	2037.9	2026.1	1995.4	1971.4	1946.4
27°	1957.7	1983.2	2008.2	2028.0	2032.7	2033.2	2025.6	2013.8	1982.7	1958.6	1932.7
27.5°	1944.0	1970.0	1995.9	2016.2	2020.4	2020.9	2013.4	2001.1	1970.0	1944.9	1918.5
28°	1929.8	1956.7	1983.2	2003.5	2008.6	2009.1	2001.1	1988.4	1957.2	1931.3	1903.9
28.5°	1915.7	1942.6	1969.5	1990.7	1995.9	1995.9	1988.4	1975.1	1943.5	1917.6	1889.7
29°	1901.5	1928.9	1955.8	1977.5	1983.2	1982.7	1974.7	1962.4	1929.4	1903.0	1875.6
29.5°	1886.9	1914.7	1942.6	1964.8	1970.0	1969.5	1961.5	1949.2	1915.7	1888.8	1860.0
30°	1872.3	1901.1	1928.9	1951.6	1956.3	1956.3	1947.8	1935.0	1901.5	1874.2	1844.4
30.5°	1857.2	1886.4	1914.7	1937.9	1943.1	1941.6	1934.1	1921.4	1887.4	1859.5	1829.8
31°	1842.1	1871.8	1900.6	1923.2	1928.9	1928.0	1919.5	1907.2	1872.3	1844.4	1814.2
31.5°	1826.0	1856.7	1886.0	1909.6	1914.7	1913.8	1905.3	1893.0	1857.2	1828.9	1798.2
32°	1810.5	1841.6	1871.3	1895.4	1900.6	1899.7	1891.2	1878.4	1842.1	1813.8	1782.6
32.5°	1794.4	1825.6	1856.2	1880.8	1885.5	1884.6	1876.5	1863.8	1827.0	1797.7	1765.6
33°	1778.4	1810.0	1841.1	1865.7	1871.3	1869.5	1861.9	1848.7	1811.9	1782.2	1749.6
33.5°	1762.3	1794.0	1825.6	1851.1	1856.2	1854.4	1846.8	1833.1	1795.8	1766.1	1732.6
34°	1745.8	1778.4	1810.5	1835.5	1841.1	1839.7	1830.8	1818.0	1779.8	1749.1	1716.6
34.5°	1728.8	1761.9	1794.4	1820.4	1825.6	1823.7	1814.7	1802.0	1763.8	1732.6	1698.6
35°	1711.9	1745.4	1777.9	1803.9	1810.0	1808.1	1798.7	1785.5	1747.2	1715.6	1681.2
35.5°	1693.9	1728.4	1761.4	1788.3	1793.5	1792.1	1782.6	1769.4	1730.3	1698.2	1662.3
36°	1676.9	1711.4	1744.9	1771.3	1777.4	1775.6	1765.6	1752.9	1712.3	1679.8	1643.9
36.5°	1658.5	1693.9	1727.9	1754.8	1760.9	1758.6	1748.7	1735.4	1693.9	1660.9	1624.6
37°	1640.1	1676.0	1710.4	1737.3	1743.0	1740.6	1730.7	1717.5	1675.5	1642.0	1604.3
37.5°	1620.3	1656.6	1691.6	1718.9	1724.6	1722.2	1712.8	1699.1	1655.7	1621.3	1579.7
38°	1600.5	1637.3	1672.2	1700.5	1705.7	1703.4	1693.9	1679.8	1634.5	1598.6	1554.3
38.5°	1577.9	1615.6	1652.4	1680.7	1685.9	1683.1	1672.2	1659.5	1612.8	1574.1	1527.4
39°	1553.3	1591.5	1630.7	1660.9	1664.7	1660.9	1648.6	1637.3	1589.6	1548.1	1500.0
39.5°	1526.4	1565.1	1606.2	1639.2	1643.0	1636.4	1623.6	1613.2	1565.1	1521.7	1471.2
40°	1496.2	1537.3	1579.7	1616.1	1619.4	1610.4	1598.1	1587.3	1540.1	1493.4	1442.0
40.5°	1462.7	1509.0	1552.8	1591.5	1593.9	1584.5	1571.2	1560.9	1512.3	1464.6	1411.3
41°	1430.2	1479.7	1525.0	1565.1	1567.5	1557.1	1544.4	1533.5	1483.0	1435.4	1380.6
41.5°	1397.1	1449.5	1495.8	1537.3	1539.2	1529.7	1517.5	1504.7	1450.9	1404.7	1349.0
42°	1363.6	1417.4	1467.0	1507.1	1509.0	1501.4	1490.1	1475.5	1419.3	1373.5	1316.4
42.5°	1330.6	1385.3	1436.3	1475.9	1478.8	1473.1	1461.8	1446.2	1384.9	1341.5	1282.5
43°	1298.0	1352.8	1405.2	1444.3	1447.2	1443.8	1432.5	1414.1	1349.5	1308.0	1248.5
43.5°	1264.5	1319.3	1373.1	1410.8	1414.1	1413.6	1402.3	1383.0	1313.6	1273.5	1214.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1165.0	1216.9	1270.7	1303.2	1308.9	1319.3	1309.4	1282.9	1205.1	1167.8	1110.7
45.5°	1131.5	1182.0	1234.3	1264.5	1272.1	1286.7	1276.3	1249.4	1169.2	1131.5	1076.3
46°	1097.5	1148.0	1199.0	1227.3	1235.3	1252.8	1243.8	1213.6	1133.4	1093.7	1041.8
46.5°	1063.1	1113.1	1162.2	1190.0	1198.5	1219.2	1211.2	1179.6	1097.0	1056.5	1006.9
47°	1027.7	1078.6	1125.8	1151.8	1160.7	1183.9	1176.8	1142.8	1062.6	1019.2	972.9
47.5°	992.3	1044.2	1089.0	1113.1	1124.4	1148.9	1143.3	1106.9	1027.7	982.4	938.0
48°	957.4	1009.3	1050.3	1075.8	1088.5	1113.6	1107.9	1071.1	992.8	945.6	904.1
48.5°	922.0	973.9	1012.6	1038.5	1052.7	1078.2	1073.9	1038.1	957.8	907.8	870.1
49°	887.5	939.9	974.4	1001.7	1016.4	1042.3	1038.1	1000.8	922.9	871.5	835.6
49.5°	853.1	905.0	937.1	964.9	980.5	1006.0	1003.6	965.4	888.0	835.2	801.2
50°	819.6	869.6	899.3	929.5	945.6	969.2	967.3	930.0	853.6	800.3	766.7
50.5°	785.6	834.2	862.1	892.3	910.2	932.8	931.4	895.6	819.1	764.4	731.8
51°	753.1	798.4	824.3	856.9	874.8	896.5	894.1	861.6	786.1	730.4	698.3
51.5°	719.6	763.9	788.5	821.0	839.9	860.6	859.7	827.6	751.7	696.4	664.8
52°	687.5	728.5	753.1	786.6	805.4	824.3	823.4	793.6	718.1	663.4	631.3
52.5°	655.9	694.6	718.6	750.2	770.5	788.9	787.5	759.2	685.6	630.9	598.3
53°	624.3	660.6	683.2	717.7	736.6	753.5	752.1	726.2	653.0	599.2	565.7
53.5°	592.6	627.1	649.3	683.7	703.0	718.6	717.2	693.1	620.5	567.6	534.1
54°	561.5	593.1	616.2	650.2	669.5	684.2	681.8	660.6	588.9	537.9	503.5
54.5°	531.3	560.1	583.7	615.8	636.0	649.7	647.4	628.0	558.2	509.6	473.7
55°	502.0	528.5	552.1	585.1	604.4	616.2	613.9	596.4	527.1	479.4	444.0
55.5°	472.8	496.4	520.4	553.9	572.8	583.2	579.4	564.3	496.9	450.1	417.1
56°	444.0	466.2	490.2	522.3	540.7	550.6	546.4	534.1	467.1	423.7	389.7
56.5°	415.7	436.5	460.5	490.7	509.6	518.1	514.3	502.5	439.3	397.3	362.8
57°	388.3	406.7	431.7	462.9	479.4	487.4	483.2	472.8	411.9	371.3	335.5
57.5°	361.4	378.4	403.4	433.6	450.1	456.7	452.5	444.0	384.6	344.9	310.5
58°	334.5	351.1	375.1	405.3	421.8	427.5	423.7	415.7	356.7	318.5	285.9
58.5°	309.5	324.6	348.2	377.9	393.5	398.2	394.5	386.9	329.3	294.9	262.8
59°	284.1	299.6	322.7	351.5	365.2	369.0	365.7	358.1	303.9	270.4	240.6
59.5°	260.5	275.1	297.7	326.0	337.4	339.7	336.9	329.8	280.3	248.2	219.4
60°	236.9	251.0	273.2	301.0	310.5	313.3	310.0	303.9	256.2	226.0	199.1
60.5°	215.2	228.8	249.6	277.4	285.5	287.4	284.5	278.4	233.1	205.3	178.8
61°	193.5	206.7	227.9	253.4	260.5	262.3	259.0	252.9	210.9	184.5	160.4
61.5°	173.2	186.4	206.2	230.7	236.4	237.8	235.0	229.3	190.6	165.6	143.4
62°	155.7	166.6	185.9	209.5	213.3	214.7	212.3	206.2	169.4	146.7	126.0
62.5°	138.7	150.5	166.6	188.3	190.6	192.5	190.2	183.1	150.0	129.3	110.4
63°	121.3	134.5	150.5	168.4	169.4	171.3	168.9	161.4	131.2	112.8	95.8
63.5°	104.3	118.4	134.5	151.0	149.1	151.0	148.6	141.6	113.7	97.7	82.6
64°	87.3	102.4	118.4	133.5	129.8	131.6	130.2	122.7	97.2	83.0	69.8
64.5°	73.6	86.8	102.4	116.5	111.4	113.7	112.3	104.7	82.1	69.8	58.5
65°	61.3	73.6	86.3	99.1	94.8	97.2	95.8	88.2	67.5	60.4	50.0
65.5°	51.0	61.8	73.1	82.1	79.3	81.2	80.2	73.6	56.6	50.5	42.0
66°	41.5	50.5	60.9	67.9	65.1	67.0	66.1	62.8	46.2	40.6	34.0



TEST NUMBER: P776562

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	20.3	25.0	31.6	33.5	35.4	36.8	35.9	31.1	14.2	15.6	12.7
68°	17.0	18.9	24.1	25.0	25.5	26.4	25.5	20.8	8.5	10.9	9.0
68.5°	14.2	15.1	17.5	18.4	16.0	16.5	15.6	14.2	5.7	7.1	6.6
69°	10.9	11.8	14.2	15.1	10.9	11.3	10.4	9.4	5.2	5.7	5.2
69.5°	8.0	8.5	11.3	11.8	7.5	7.5	7.1	6.6	5.2	5.2	5.2
70°	4.7	5.2	8.0	8.0	5.2	5.2	5.2	5.2	4.7	4.7	4.7
70.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
71°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
71.5°	4.2	4.2	4.2	4.7	4.2	4.2	4.7	4.7	4.7	4.7	4.7
72°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
72.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
73°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
73.5°	3.8	3.8	3.8	3.8	3.8	3.8	4.2	4.2	3.8	3.8	4.2
74°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
74.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
75°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
75.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.8	3.3	3.3	3.3
76°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
76.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
77°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	2.8	3.3
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
78°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
78.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.4	2.4	2.8
79°	2.4	2.4	2.8	2.8	2.8	2.8	2.8	2.8	2.4	2.4	2.4
79.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.9	1.9	2.4
80.5°	1.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.9	1.9	2.4
81°	1.9	1.9	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9
81.5°	1.9	1.9	1.9	2.4	1.9	1.9	1.9	1.9	1.4	1.4	1.9
82°	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.9
82.5°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.4	0.9	1.4	1.4
83°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.4	0.9	0.9	1.4
83.5°	0.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.9	0.9	1.4
84°	0.9	0.9	1.4	1.4	1.4	1.4	1.4	0.9	0.5	0.5	0.9
84.5°	0.5	0.9	1.4	1.4	1.4	1.4	1.4	0.9	0.5	0.5	0.9
85°	0.5	0.9	0.9	1.4	0.9	1.4	0.9	0.9	0.5	0.5	0.9
85.5°	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.5	0.0	0.5	0.9
86°	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.5	0.0	0.5	0.5
86.5°	0.0	0.5	0.9	0.9	0.5	0.9	0.9	0.5	0.0	0.5	0.5
87°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.5
87.5°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0
88°	0.0	0.0	0.5	0.5	0.0	0.5	0.5	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: P776562
CATALOG NUMBER: HCDJBL4050CSD-HCD41TRMB-5000lm-3500K

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: P776562

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2326.2	2326.2	2326.2	2326.2	2326.2	2326.2
0.5°	2324.8	2324.8	2325.7	2325.3	2324.3	2325.7
1°	2323.4	2323.4	2324.3	2323.8	2323.4	2325.3
1.5°	2321.5	2321.5	2322.4	2322.4	2322.0	2324.3
2°	2320.1	2319.6	2320.1	2320.5	2319.6	2323.4
2.5°	2318.2	2317.2	2318.2	2317.7	2317.7	2321.5
3°	2315.8	2314.9	2315.3	2315.3	2315.8	2320.1
3.5°	2313.0	2312.5	2312.5	2313.0	2313.5	2318.2
4°	2310.2	2309.7	2309.7	2310.2	2311.1	2316.8
4.5°	2306.9	2306.4	2306.4	2306.9	2308.3	2314.4
5°	2303.6	2302.6	2302.6	2303.6	2305.0	2312.0
5.5°	2300.2	2299.3	2298.8	2299.8	2302.1	2309.2
6°	2296.5	2295.1	2294.6	2296.5	2298.4	2305.9
6.5°	2292.7	2291.3	2290.3	2292.2	2294.6	2302.6
7°	2288.5	2287.0	2286.6	2288.0	2290.8	2299.8
7.5°	2283.7	2282.3	2281.8	2283.3	2287.0	2296.0
8°	2279.0	2277.1	2277.1	2278.1	2282.3	2292.2
8.5°	2273.8	2272.4	2271.9	2273.4	2277.1	2288.0
9°	2268.6	2266.7	2266.3	2268.2	2271.9	2283.3
9.5°	2263.4	2261.1	2260.6	2262.5	2266.7	2278.5
10°	2257.8	2255.4	2254.5	2256.8	2261.1	2273.8
10.5°	2251.6	2249.8	2248.8	2251.2	2255.9	2268.6
11°	2245.5	2243.6	2242.7	2245.0	2249.3	2263.4
11.5°	2238.9	2236.5	2236.1	2238.0	2243.2	2258.3
12°	2232.3	2229.9	2229.0	2231.4	2237.0	2251.6
12.5°	2225.7	2222.9	2221.9	2224.3	2229.9	2246.0
13°	2218.1	2215.3	2213.9	2217.2	2222.9	2239.4
13.5°	2210.6	2207.8	2206.3	2209.7	2215.8	2233.2
14°	2203.0	2199.7	2198.8	2202.1	2208.2	2226.2
14.5°	2195.0	2191.7	2190.3	2194.1	2200.7	2219.1
15°	2186.5	2182.8	2181.8	2185.1	2192.2	2211.5
15.5°	2178.0	2174.3	2173.3	2176.6	2183.7	2204.0
16°	2169.1	2165.3	2164.8	2168.1	2175.2	2196.0
16.5°	2160.6	2156.3	2155.4	2159.2	2166.2	2187.9
17°	2151.1	2146.4	2145.5	2149.7	2157.3	2179.9
17.5°	2141.7	2137.0	2136.0	2140.3	2147.8	2171.0
18°	2131.8	2127.1	2126.1	2129.9	2138.9	2161.5
18.5°	2121.4	2116.7	2115.8	2120.0	2129.0	2152.6
19°	2111.5	2106.3	2104.9	2109.6	2118.1	2143.1
19.5°	2100.7	2095.5	2094.5	2098.8	2108.2	2133.7
20°	2089.8	2084.6	2083.7	2087.9	2098.3	2123.8
20.5°	2079.0	2073.3	2071.9	2076.6	2087.0	2113.4
21°	2067.6	2061.5	2060.5	2065.3	2075.6	2103.0

TEST NUMBER: P776562

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2031.8	2026.1	2024.2	2028.9	2041.2	2070.0
23°	2019.5	2013.8	2011.9	2017.1	2028.5	2058.7
23.5°	2006.8	2000.6	1999.2	2004.4	2015.7	2046.9
24°	1994.0	1987.4	1985.5	1991.7	2003.5	2034.6
24.5°	1980.8	1974.2	1972.3	1978.0	1990.7	2022.3
25°	1967.6	1961.0	1959.1	1964.8	1978.0	2009.6
25.5°	1953.9	1946.8	1944.9	1950.6	1964.3	1996.9
26°	1940.2	1932.7	1930.8	1936.9	1950.6	1984.1
26.5°	1925.6	1918.5	1916.6	1923.2	1936.5	1971.4
27°	1911.9	1903.9	1902.5	1908.6	1922.3	1957.7
27.5°	1896.8	1889.3	1887.4	1894.0	1908.1	1944.0
28°	1882.2	1873.7	1872.3	1878.9	1893.5	1929.8
28.5°	1867.1	1859.1	1857.2	1864.3	1878.4	1915.7
29°	1852.0	1844.0	1841.6	1848.7	1863.8	1901.5
29.5°	1836.0	1828.4	1826.0	1833.6	1848.7	1886.9
30°	1820.9	1811.9	1810.5	1817.5	1833.6	1872.3
30.5°	1804.3	1796.3	1794.0	1802.0	1817.5	1857.2
31°	1788.3	1779.8	1777.4	1785.0	1801.5	1842.1
31.5°	1772.3	1763.8	1760.9	1769.4	1785.9	1826.0
32°	1755.7	1746.8	1743.9	1753.4	1769.9	1810.5
32.5°	1738.8	1730.3	1727.9	1736.4	1753.9	1794.4
33°	1721.3	1713.3	1710.9	1718.9	1736.9	1778.4
33.5°	1704.3	1695.8	1693.5	1702.4	1719.4	1762.3
34°	1686.8	1677.9	1676.0	1685.4	1702.4	1745.8
34.5°	1669.4	1660.4	1658.1	1667.5	1685.4	1728.8
35°	1651.0	1642.0	1640.1	1649.1	1667.0	1711.9
35.5°	1631.6	1623.6	1621.7	1631.2	1650.0	1693.9
36°	1612.8	1603.8	1602.4	1612.8	1631.6	1676.9
36.5°	1592.5	1583.5	1582.6	1593.4	1611.8	1658.5
37°	1570.3	1562.3	1561.8	1572.2	1592.0	1640.1
37.5°	1544.4	1537.7	1538.7	1551.4	1572.2	1620.3
38°	1516.5	1510.4	1511.8	1525.9	1547.2	1600.5
38.5°	1487.7	1480.2	1483.5	1498.1	1520.8	1577.9
39°	1456.6	1450.0	1453.8	1469.3	1493.4	1553.3
39.5°	1424.5	1417.9	1422.6	1438.7	1464.1	1526.4
40°	1391.9	1384.9	1390.1	1407.0	1433.5	1496.2
40.5°	1358.9	1350.9	1356.6	1375.0	1400.4	1462.7
41°	1326.8	1317.4	1323.5	1342.9	1366.9	1430.2
41.5°	1294.3	1282.5	1289.1	1308.9	1331.5	1397.1
42°	1261.7	1250.4	1255.1	1275.4	1297.1	1363.6
42.5°	1230.1	1216.4	1220.7	1241.4	1262.2	1330.6
43°	1198.0	1183.9	1185.3	1206.5	1225.9	1298.0
43.5°	1166.4	1148.9	1149.9	1171.1	1190.5	1264.5



TEST NUMBER: P776562

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1068.3	1049.9	1043.3	1062.1	1086.2	1165.0
45.5°	1034.8	1015.9	1007.9	1025.8	1050.8	1131.5
46°	1000.8	983.3	974.4	989.5	1016.8	1097.5
46.5°	965.9	948.4	939.4	953.1	982.4	1063.1
47°	931.9	916.3	905.0	916.8	948.4	1027.7
47.5°	897.9	881.4	870.1	880.9	913.5	992.3
48°	863.5	849.8	837.5	845.5	879.5	957.4
48.5°	830.0	815.8	803.1	809.7	845.5	922.0
49°	796.9	783.7	770.5	775.7	812.0	887.5
49.5°	763.4	751.7	737.0	741.7	778.5	853.1
50°	730.4	719.6	704.5	707.8	745.0	819.6
50.5°	699.3	688.0	671.9	674.7	712.5	785.6
51°	667.7	656.3	640.8	643.1	680.4	753.1
51.5°	636.0	626.1	609.2	611.5	647.8	719.6
52°	604.4	595.9	579.0	580.8	617.2	687.5
52.5°	574.7	566.2	548.3	550.2	586.0	655.9
53°	544.0	536.0	519.5	521.4	555.8	624.3
53.5°	513.8	507.2	489.8	493.1	525.6	592.6
54°	484.1	478.5	461.9	464.8	496.4	561.5
54.5°	456.3	451.1	435.0	437.9	467.6	531.3
55°	428.9	424.2	408.6	411.9	440.2	502.0
55.5°	402.0	396.8	383.1	386.4	412.4	472.8
56°	375.1	370.4	357.7	361.9	385.5	444.0
56.5°	348.2	344.9	333.1	337.8	359.1	415.7
57°	321.3	319.9	310.0	314.2	334.5	388.3
57.5°	296.8	295.8	287.4	291.6	309.5	361.4
58°	272.3	271.8	265.6	270.4	286.4	334.5
58.5°	248.7	249.1	244.9	249.6	262.8	309.5
59°	226.0	227.4	224.6	229.3	241.6	284.1
59.5°	204.3	206.7	205.7	210.0	220.8	260.5
60°	184.0	186.9	187.3	192.0	201.0	236.9
60.5°	164.7	166.6	169.4	173.6	181.2	215.2
61°	146.3	150.5	154.3	159.0	162.8	193.5
61.5°	128.3	134.9	139.2	143.9	147.2	173.2
62°	111.8	118.9	124.1	128.8	131.2	155.7
62.5°	97.2	102.9	109.0	113.7	115.1	138.7
63°	83.0	87.3	93.9	98.6	99.6	121.3
63.5°	70.3	74.1	81.2	85.9	85.9	104.3
64°	58.5	62.3	69.4	74.1	73.6	87.3
64.5°	50.5	51.9	58.5	62.8	61.3	73.6
65°	42.9	42.5	49.1	52.4	51.4	61.3
65.5°	34.9	34.4	40.1	42.9	42.0	51.0
66°	27.4	27.4	31.6	34.9	33.5	41.5



TEST NUMBER: P776562

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	10.9	13.7	15.1	15.1	15.1	20.3
68°	8.0	10.9	11.8	12.7	10.9	17.0
68.5°	6.1	8.0	8.5	9.9	9.9	14.2
69°	5.2	5.2	5.2	7.5	8.5	10.9
69.5°	5.2	5.2	4.7	5.2	7.1	8.0
70°	4.7	4.7	4.7	4.7	5.7	4.7
70.5°	4.7	4.7	4.7	4.7	4.7	4.7
71°	4.7	4.7	4.7	4.7	4.2	4.7
71.5°	4.2	4.2	4.2	4.2	4.2	4.2
72°	4.2	4.2	4.2	4.2	4.2	4.2
72.5°	4.2	4.2	4.2	4.2	4.2	4.2
73°	4.2	4.2	4.2	4.2	3.8	4.2
73.5°	3.8	3.8	3.8	3.8	3.8	3.8
74°	3.8	3.8	3.8	3.8	3.8	3.8
74.5°	3.8	3.8	3.8	3.8	3.8	3.8
75°	3.8	3.8	3.8	3.8	3.3	3.8
75.5°	3.3	3.3	3.3	3.3	3.3	3.3
76°	3.3	3.3	3.3	3.3	3.3	3.3
76.5°	3.3	3.3	3.3	3.3	3.3	3.3
77°	3.3	3.3	3.3	3.3	2.8	3.3
77.5°	2.8	2.8	2.8	2.8	2.8	2.8
78°	2.8	2.8	2.8	2.8	2.8	2.8
78.5°	2.8	2.8	2.8	2.8	2.4	2.8
79°	2.8	2.8	2.8	2.4	2.4	2.4
79.5°	2.4	2.4	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	1.9	2.4
80.5°	2.4	2.4	2.4	2.4	1.9	1.9
81°	1.9	2.4	2.4	1.9	1.9	1.9
81.5°	1.9	1.9	1.9	1.9	1.4	1.9
82°	1.9	1.9	1.9	1.9	1.4	1.4
82.5°	1.9	1.9	1.9	1.4	1.4	1.4
83°	1.4	1.4	1.4	1.4	0.9	1.4
83.5°	1.4	1.4	1.4	1.4	0.9	0.9
84°	1.4	1.4	1.4	1.4	0.9	0.9
84.5°	0.9	0.9	0.9	0.9	0.5	0.5
85°	0.9	0.9	0.9	0.9	0.5	0.5
85.5°	0.9	0.9	0.9	0.9	0.5	0.5
86°	0.5	0.5	0.5	0.5	0.5	0.5
86.5°	0.5	0.5	0.5	0.5	0.5	0.0
87°	0.5	0.5	0.5	0.5	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: P776562

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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Cooper Lighting Solutions Photometric Lab
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Scaled Data Report





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

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Scaled Data Report





21.5°	2092.2	2112.0	2131.8	2146.4	2150.7	2152.1	2145.5	2135.6	2110.6	2091.2	2071.9
22°	2081.3	2101.6	2121.4	2137.0	2141.2	2142.2	2136.5	2126.1	2099.7	2080.8	2060.5



44°	1232.0	1285.8	1339.6	1375.4	1380.6	1383.0	1372.1	1350.4	1277.8	1238.6	1180.1
44.5°	1198.5	1250.9	1304.7	1339.6	1344.3	1351.8	1341.9	1318.8	1241.0	1203.7	1145.6



66.5°	33.0	41.1	50.0	55.2	55.2	57.1	55.7	52.4	35.4	31.1	25.5
67°	26.4	32.6	40.1	43.4	45.3	46.7	45.8	41.5	25.0	21.2	17.5



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

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21.5°	2055.8	2050.2	2048.3	2053.5	2063.9	2092.2
22°	2044.0	2038.4	2036.5	2041.2	2052.5	2081.3



44°	1133.4	1116.4	1114.0	1134.8	1155.5	1232.0
44.5°	1101.3	1082.4	1078.6	1098.5	1121.1	1198.5

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66.5°	19.8	21.7	24.5	27.4	26.0	33.0
67°	15.1	16.5	18.4	20.8	20.3	26.4

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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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Scaled Data Report



(END OF REPORT)