

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: P776607

Luminaire Tested: HCDJBS4050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776607  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B004)  
Test Lab:  
Issue Date: 2/7/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS4050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K  
Description: 4 INCH ROUND MEDIUM LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

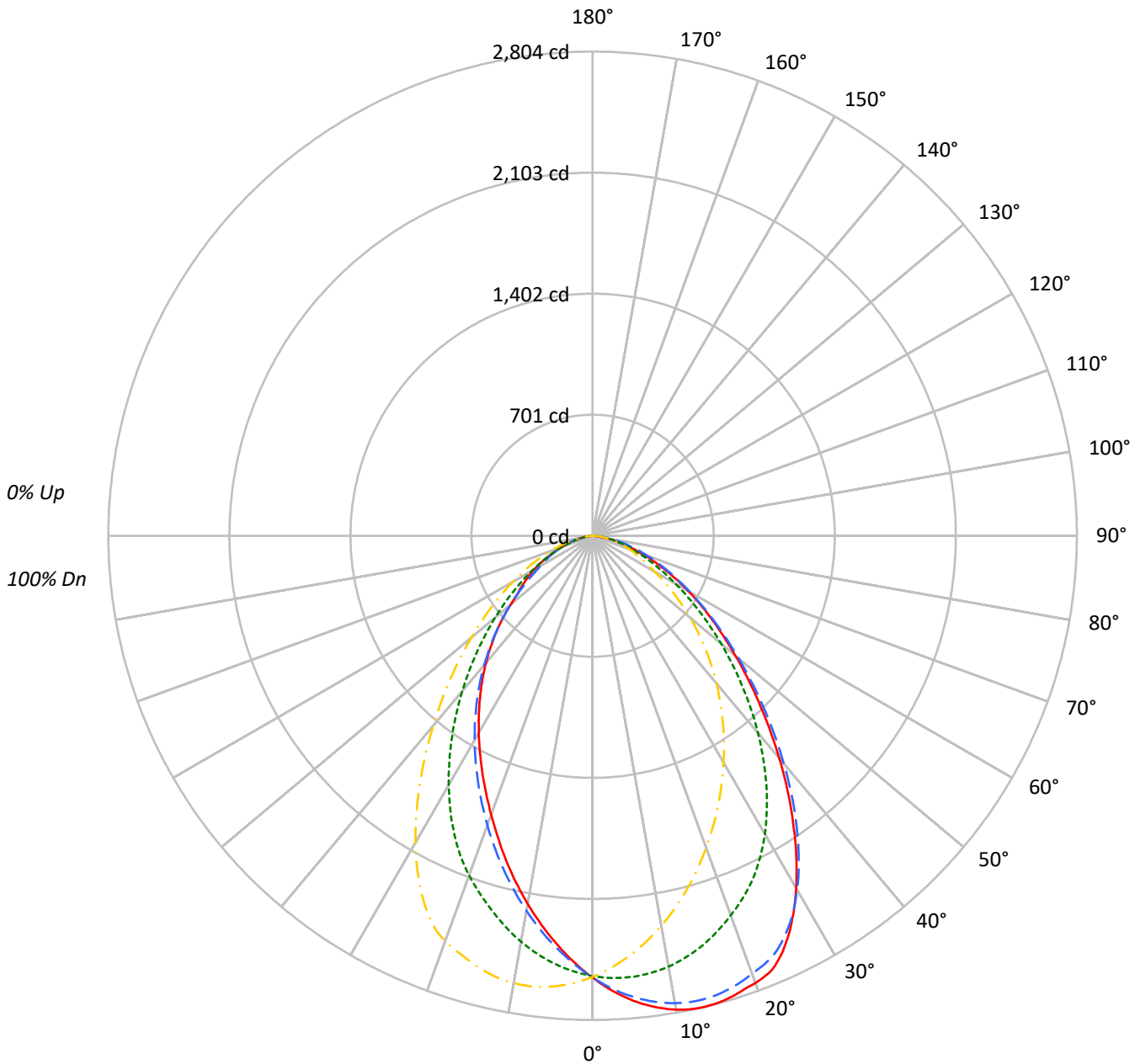
Lumens per Lamp: N/A  
Luminaire Lumens: 4798.6 lumens  
Efficiency: N/A  
Efficacy: 100.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1.09 / 1.15  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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									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	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88																			
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76																			
3	94	85	78	73	92	84	77	72	81	75	71	78	73	69	76	72	68	66																			
4	87	77	69	63	85	76	68	63	73	67	62	71	66	61	69	64	60	58																			
5	81	70	62	56	79	69	61	55	67	60	55	65	59	54	63	58	54	52																			
6	75	63	55	50	74	63	55	49	61	54	49	59	53	49	58	52	48	46																			
7	70	58	50	45	69	57	50	44	56	49	44	54	48	44	53	48	44	42																			
8	66	54	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38																			
9	62	49	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	35																			
10	58	46	39	34	57	45	38	34	45	38	34	44	38	33	43	37	33	32																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	321672	321672	321672	321672
5°	341433	323975	300010	314487
10°	356116	323734	276642	305050
15°	364862	320043	252918	292877
20°	369048	313241	230086	280255
25°	364952	304672	209859	263653
30°	342560	289838	191516	242116
35°	310910	269167	174482	217915
40°	276196	244571	157829	192854
45°	241944	217579	140407	167709
50°	210902	189933	121564	143923
55°	184482	163462	108609	122257
60°	160912	139190	98339	102266
65°	136446	117893	84571	84035
70°	112154	98797	69618	67705
75°	86260	82613	56453	53244
80°	55080	68705	40006	39353
85°	16317	59925	15739	18338

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 250167 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	239.8	5.0
10°-20°	664.5	13.8
20°-30°	941.5	19.6
30°-40°	983.7	20.5
40°-50°	828.0	17.3
50°-60°	588.0	12.3
60°-70°	356.7	7.4
70°-80°	163.6	3.4
80°-90°	32.9	0.7
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°	1845.8	38.5
0°-40°	2829.5	59.0
0°-60°	4245.5	88.5
0°-90°	4798.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4798.6	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2556	2556	2556	2556	2556	
5°	2703	2564	2375	2489	2703	261
15°	2800	2456	1941	2248	2800	790
25°	2628	2194	1511	1899	2628	1200
35°	2024	1752	1136	1418	2024	1262
45°	1359	1222	789	942	1359	1051
55°	841	745	495	557	841	756
65°	458	396	284	282	458	457
75°	177	170	116	110	177	192
85°	11	42	11	13	11	22
90°	0	2	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°	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0
0.5°	2575.8	2575.8	2573.0	2567.3	2553.6	2548.4	2545.1	2542.8	2542.8	2542.3	2544.2
1°	2592.3	2591.8	2586.2	2576.3	2556.4	2545.1	2535.7	2528.1	2525.3	2524.4	2529.1
1.5°	2607.9	2607.9	2599.9	2585.2	2559.3	2540.9	2524.8	2513.0	2507.8	2506.9	2513.5
2°	2623.0	2623.0	2613.1	2593.2	2561.6	2536.6	2514.0	2497.5	2489.4	2488.5	2497.5
2.5°	2637.6	2638.1	2625.3	2601.3	2563.5	2531.4	2503.1	2481.4	2471.0	2470.1	2480.9
3°	2651.3	2652.2	2637.6	2608.3	2564.5	2526.2	2491.8	2465.4	2452.6	2451.2	2464.9
3.5°	2665.0	2665.9	2648.9	2615.0	2565.4	2520.1	2479.5	2448.9	2433.8	2431.9	2448.4
4°	2678.2	2679.6	2659.8	2621.6	2565.4	2514.0	2467.3	2431.9	2413.9	2412.5	2430.9
4.5°	2690.4	2692.3	2670.2	2627.7	2565.4	2506.9	2454.5	2414.4	2394.1	2393.7	2413.5
5°	2702.7	2704.6	2680.1	2632.9	2564.5	2499.8	2441.3	2397.0	2374.8	2373.4	2396.0
5.5°	2713.6	2716.4	2689.5	2637.6	2564.0	2492.3	2428.1	2379.0	2354.5	2352.6	2378.1
6°	2724.4	2727.7	2698.5	2642.3	2562.1	2484.3	2413.9	2361.1	2334.2	2332.3	2359.7
6.5°	2734.3	2738.1	2706.5	2646.1	2560.2	2476.2	2400.3	2343.2	2313.9	2312.0	2341.3
7°	2743.8	2748.0	2714.5	2649.4	2557.9	2467.3	2386.1	2324.3	2292.7	2291.7	2322.9
7.5°	2752.7	2757.4	2721.6	2652.2	2554.6	2457.8	2371.0	2305.4	2271.9	2270.5	2303.5
8°	2760.8	2765.9	2728.2	2654.1	2551.3	2448.4	2355.9	2286.5	2250.7	2249.3	2284.2
8.5°	2767.8	2774.0	2734.3	2656.0	2547.5	2438.0	2340.3	2267.2	2229.5	2228.0	2264.8
9°	2774.9	2781.5	2740.0	2657.4	2543.2	2428.1	2325.2	2247.9	2207.8	2206.3	2245.5
9.5°	2781.0	2788.1	2744.7	2658.4	2538.5	2417.3	2308.7	2228.0	2186.0	2185.1	2225.7
10°	2786.7	2794.3	2749.0	2658.4	2533.3	2405.9	2292.7	2208.2	2164.8	2162.9	2205.4
10.5°	2791.4	2799.4	2752.3	2657.9	2527.7	2394.1	2275.7	2188.4	2142.6	2140.8	2185.1
11°	2795.2	2804.2	2755.6	2657.4	2521.5	2382.3	2260.1	2167.6	2120.5	2119.0	2164.8
11.5°	2798.5	2807.9	2757.4	2655.5	2514.9	2370.5	2242.2	2147.4	2098.8	2097.3	2144.5
12°	2800.9	2811.2	2759.3	2653.6	2507.8	2357.8	2224.7	2126.6	2076.1	2074.7	2123.8
12.5°	2802.7	2813.6	2760.3	2651.3	2500.3	2345.1	2206.8	2106.3	2053.9	2052.5	2102.5
13°	2803.7	2815.5	2760.8	2648.0	2492.3	2331.8	2189.8	2085.1	2031.8	2029.9	2082.2
13.5°	2804.2	2816.4	2760.3	2644.2	2483.8	2318.2	2171.9	2064.8	2009.1	2007.7	2061.0
14°	2803.2	2816.9	2759.3	2640.0	2475.3	2304.0	2153.5	2043.1	1986.5	1984.6	2039.8
14.5°	2802.3	2816.4	2757.4	2635.2	2465.4	2289.9	2135.1	2021.8	1964.3	1961.9	2018.5
15°	2800.4	2815.0	2755.1	2629.6	2456.4	2275.7	2116.2	2000.1	1941.2	1939.7	1996.8
15.5°	2797.6	2813.1	2752.3	2623.9	2446.0	2260.6	2097.8	1978.9	1918.5	1917.1	1975.6
16°	2794.7	2810.3	2748.5	2617.3	2435.2	2245.5	2078.9	1957.7	1895.9	1894.0	1954.4
16.5°	2790.5	2807.0	2744.2	2610.2	2424.3	2229.9	2059.6	1936.4	1873.7	1871.3	1933.1
17°	2786.2	2803.2	2739.0	2602.7	2413.0	2214.8	2040.7	1914.7	1850.6	1848.7	1911.4
17.5°	2781.0	2799.0	2733.9	2594.7	2400.7	2198.3	2020.9	1893.0	1827.9	1826.5	1890.2
18°	2775.9	2793.8	2727.7	2586.2	2388.9	2182.3	2001.6	1871.3	1805.7	1803.4	1868.5
18.5°	2769.7	2788.1	2721.1	2577.2	2376.7	2165.8	1981.7	1849.2	1783.6	1781.2	1846.8
19°	2764.5	2782.0	2714.0	2568.2	2364.4	2149.7	1962.9	1827.4	1761.4	1758.6	1825.6
19.5°	2760.3	2776.3	2707.0	2558.3	2351.7	2133.2	1942.1	1806.2	1740.2	1736.9	1803.9
20°	2755.6	2771.6	2699.4	2548.4	2338.9	2116.7	1922.3	1784.5	1718.0	1714.7	1782.6
20.5°	2750.4	2766.4	2692.3	2539.0	2325.7	2099.7	1902.5	1762.8	1697.2	1693.4	1760.9
21°	2744.2	2760.8	2685.7	2529.5	2312.5	2082.7	1882.7	1742.0	1675.5	1671.7	1739.7



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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°	2718.3	2738.6	2661.2	2498.4	2271.5	2031.3	1821.8	1679.3	1613.2	1608.5	1676.0
23°	2703.7	2727.7	2651.3	2487.1	2256.8	2013.8	1802.0	1659.0	1592.0	1587.8	1654.8
23.5°	2687.1	2715.0	2640.4	2474.8	2241.7	1995.9	1781.2	1638.2	1572.2	1567.9	1634.0
24°	2669.7	2699.4	2626.3	2461.1	2226.2	1978.0	1760.9	1617.9	1551.9	1546.7	1612.8
24.5°	2650.3	2681.5	2610.7	2447.0	2210.1	1959.1	1740.2	1598.1	1531.6	1525.9	1592.0
25°	2628.2	2663.6	2594.2	2430.9	2194.1	1940.2	1720.3	1577.4	1511.3	1506.1	1571.2
25.5°	2605.5	2644.7	2576.3	2413.9	2176.1	1921.3	1700.0	1558.0	1492.0	1486.3	1550.5
26°	2582.9	2623.4	2557.4	2396.0	2158.7	1902.0	1679.8	1537.7	1472.1	1466.5	1529.7
26.5°	2557.9	2599.9	2537.6	2376.7	2139.3	1882.2	1658.5	1518.4	1452.3	1446.2	1509.0
27°	2531.4	2577.2	2516.8	2356.4	2120.5	1862.8	1638.2	1498.1	1432.5	1426.9	1488.2
27.5°	2503.6	2552.7	2494.2	2335.6	2100.2	1842.5	1617.9	1478.8	1413.6	1407.5	1468.4
28°	2477.2	2526.2	2470.6	2313.4	2080.4	1822.3	1597.7	1458.9	1393.8	1388.2	1447.6
28.5°	2447.4	2499.4	2446.5	2291.3	2059.1	1802.0	1576.9	1440.1	1375.4	1368.8	1427.3
29°	2417.7	2472.0	2421.5	2267.7	2037.9	1780.7	1556.6	1420.7	1356.1	1349.5	1407.0
29.5°	2387.5	2443.2	2395.1	2244.1	2015.7	1760.4	1536.8	1401.4	1336.7	1330.6	1386.7
30°	2357.3	2413.9	2368.2	2219.5	1994.5	1738.7	1516.0	1382.5	1317.9	1311.7	1366.9
30.5°	2324.8	2383.7	2340.3	2194.1	1971.4	1717.0	1495.7	1363.6	1299.5	1292.8	1346.6
31°	2292.7	2352.6	2311.6	2168.6	1948.2	1695.8	1475.5	1344.3	1280.6	1274.0	1326.3
31.5°	2260.1	2320.5	2282.3	2141.7	1924.6	1673.6	1455.2	1324.9	1262.7	1254.6	1306.1
32°	2227.1	2288.9	2252.6	2114.8	1901.5	1651.9	1434.9	1306.1	1243.8	1236.2	1286.7
32.5°	2193.6	2256.4	2221.4	2087.9	1877.0	1630.2	1415.1	1287.7	1225.8	1217.8	1266.4
33°	2160.6	2223.3	2190.8	2060.5	1852.5	1607.6	1394.3	1268.8	1207.4	1199.4	1246.6
33.5°	2127.1	2189.4	2159.2	2031.8	1827.9	1585.4	1374.5	1250.4	1189.5	1181.0	1226.3
34°	2093.1	2156.3	2127.1	2003.0	1802.9	1562.7	1353.7	1232.0	1171.6	1162.6	1207.0
34.5°	2057.7	2120.9	2093.1	1974.2	1777.4	1540.1	1333.9	1213.1	1153.7	1144.2	1187.2
35°	2023.7	2087.0	2060.5	1944.5	1752.0	1517.4	1313.6	1194.7	1135.7	1126.3	1167.3
35.5°	1989.8	2052.0	2027.5	1914.7	1726.5	1495.3	1293.8	1176.3	1118.7	1108.4	1148.0
36°	1955.8	2018.5	1994.0	1884.5	1700.5	1472.6	1273.5	1158.4	1100.3	1090.0	1129.1
36.5°	1920.9	1983.6	1960.0	1854.3	1674.6	1449.0	1253.7	1140.0	1083.4	1072.0	1109.3
37°	1885.5	1947.8	1927.0	1823.7	1648.1	1426.4	1233.4	1121.6	1064.9	1054.1	1090.0
37.5°	1852.0	1912.9	1893.0	1793.0	1621.7	1404.2	1213.6	1103.6	1048.0	1036.2	1071.1
38°	1817.5	1877.9	1859.1	1761.9	1595.3	1380.6	1193.3	1085.7	1030.0	1018.7	1051.7
38.5°	1783.1	1842.5	1824.1	1730.7	1568.9	1358.0	1174.4	1067.8	1012.6	1000.8	1032.4
39°	1748.2	1808.6	1791.1	1699.6	1542.5	1334.8	1154.1	1049.4	995.6	983.3	1014.0
39.5°	1715.1	1773.7	1756.7	1668.4	1515.6	1312.2	1134.8	1031.4	978.6	965.4	994.6
40°	1681.2	1738.3	1723.2	1637.3	1488.7	1288.6	1115.0	1013.5	960.7	947.9	976.2
40.5°	1646.7	1703.4	1688.7	1606.2	1461.8	1266.0	1095.1	995.1	943.2	930.0	956.9
41°	1613.2	1669.9	1656.2	1574.5	1434.9	1242.8	1075.8	977.7	926.2	912.1	939.0
41.5°	1580.7	1635.9	1622.2	1543.9	1408.9	1220.2	1056.5	959.7	909.2	894.6	920.1
42°	1548.1	1601.4	1589.6	1513.2	1381.6	1197.1	1036.6	941.8	891.8	877.6	901.7
42.5°	1515.1	1567.5	1556.6	1482.1	1355.1	1174.9	1017.3	924.3	874.3	860.2	883.8
43°	1483.5	1535.4	1523.6	1452.3	1328.7	1152.2	998.4	906.9	857.3	842.7	865.4
43.5°	1452.3	1502.3	1491.0	1421.2	1301.8	1129.6	978.6	889.0	840.4	825.3	846.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1359.4	1405.6	1396.2	1332.0	1222.5	1062.1	922.0	836.1	788.9	773.8	793.2
45.5°	1329.7	1374.5	1365.0	1301.8	1196.6	1039.9	902.6	818.2	772.4	756.8	775.2
46°	1299.5	1343.3	1334.4	1273.0	1170.6	1017.8	883.8	801.2	755.4	739.8	757.3
46.5°	1269.3	1313.1	1304.6	1244.2	1145.2	996.1	864.9	783.7	738.4	722.4	739.8
47°	1241.4	1283.4	1274.0	1215.9	1118.7	973.9	846.0	766.3	721.4	705.9	723.3
47.5°	1213.1	1253.2	1244.2	1187.2	1093.3	952.2	827.6	749.3	704.0	688.9	704.9
48°	1184.3	1223.5	1215.5	1159.3	1068.3	930.9	808.7	732.3	687.9	672.4	687.9
48.5°	1157.0	1196.1	1187.2	1132.4	1043.7	909.7	790.8	714.8	671.0	655.4	671.0
49°	1131.0	1167.8	1159.3	1105.5	1018.7	888.0	772.4	698.3	654.0	639.3	654.9
49.5°	1104.1	1139.5	1131.5	1078.6	994.2	867.7	754.0	681.3	637.5	622.8	637.5
50°	1077.2	1112.1	1103.6	1052.7	970.1	846.5	736.1	664.4	620.9	606.8	621.4
50.5°	1052.7	1086.2	1076.7	1025.8	946.0	825.7	718.1	647.4	604.0	590.7	604.9
51°	1027.2	1060.2	1049.9	1000.8	922.9	805.4	700.2	630.9	587.9	574.2	588.9
51.5°	1001.7	1033.3	1024.4	975.3	899.8	785.1	682.8	614.3	572.3	559.1	572.8
52°	978.1	1008.8	999.4	950.8	876.2	765.3	665.3	598.3	555.8	544.0	557.2
52.5°	955.0	984.7	973.9	926.7	853.6	745.0	647.8	581.8	541.2	528.5	541.2
53°	930.5	959.3	949.3	902.2	831.4	725.7	630.9	565.7	533.2	513.4	526.1
53.5°	906.9	935.7	925.3	878.6	809.2	706.3	613.4	550.2	524.7	499.2	511.0
54°	885.6	912.5	901.2	855.5	787.0	687.0	596.9	534.6	515.3	490.7	496.4
54.5°	863.5	889.9	878.1	832.8	765.8	668.1	580.4	519.5	504.9	481.8	481.8
55°	840.8	867.2	855.5	810.2	745.0	649.7	564.3	504.9	495.0	472.3	467.6
55.5°	821.0	845.1	833.3	788.4	724.3	631.3	548.3	489.8	484.1	462.4	453.9
56°	799.8	823.4	811.1	766.3	703.5	613.4	532.2	478.9	473.7	452.5	440.2
56.5°	778.5	802.1	789.9	745.5	683.2	595.5	516.2	470.4	463.3	442.1	427.0
57°	758.3	780.9	768.6	724.8	663.9	578.0	501.1	461.0	452.5	432.2	414.3
57.5°	738.4	761.1	747.9	704.5	644.5	560.5	486.0	451.6	442.1	422.3	403.0
58°	717.2	740.8	727.6	684.2	625.7	544.0	471.4	441.6	432.2	412.4	391.6
58.5°	697.9	720.5	707.8	664.8	606.8	527.5	457.2	431.7	421.8	402.5	380.3
59°	677.6	701.2	687.9	645.5	588.4	511.0	443.1	421.4	411.4	393.0	369.0
59.5°	657.7	681.3	669.1	626.6	570.5	495.0	428.9	411.4	401.1	383.6	357.7
60°	639.3	662.0	650.2	607.7	553.0	479.4	415.2	402.0	390.7	373.7	349.2
60.5°	618.6	643.1	631.8	589.8	535.5	464.3	403.0	392.1	380.3	364.3	340.7
61°	600.7	622.8	612.9	571.9	519.0	449.2	390.7	382.2	369.9	354.4	332.2
61.5°	581.8	605.4	595.9	554.9	502.0	434.1	378.4	372.8	359.5	344.9	323.7
62°	563.9	587.0	578.5	537.4	486.0	420.4	366.1	362.8	348.7	335.5	315.2
62.5°	545.5	568.6	561.0	520.9	470.0	406.7	353.9	352.5	337.8	325.6	306.7
63°	527.0	551.1	544.0	503.9	454.4	393.5	342.1	342.6	327.0	315.7	298.2
63.5°	509.6	533.2	527.5	487.9	438.8	379.8	331.7	332.2	316.1	306.2	289.7
64°	491.7	516.2	511.5	471.8	423.7	366.6	321.8	322.3	305.3	296.3	282.2
64.5°	475.1	498.7	495.4	456.7	410.0	352.9	313.3	312.4	294.4	286.4	274.1
65°	458.2	482.7	479.9	441.6	395.9	341.1	305.3	302.9	284.0	277.0	266.1
65.5°	442.1	465.7	464.3	427.0	381.7	328.9	297.3	292.5	273.7	267.1	258.1
66°	425.1	450.1	449.2	412.4	368.0	316.1	288.8	283.1	263.3	257.6	250.5





TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	378.4	403.0	404.8	370.4	328.4	283.1	264.7	254.3	233.1	229.8	227.4
68°	362.8	387.9	390.7	357.2	315.2	272.3	256.7	244.9	223.7	220.4	219.9
68.5°	347.7	373.2	377.0	343.5	303.4	261.9	249.1	235.9	214.7	211.9	212.3
69°	333.6	358.6	363.3	330.8	291.6	252.0	241.1	226.5	205.7	202.9	204.8
69.5°	319.0	344.0	349.2	318.0	279.8	242.1	233.1	217.5	197.7	194.9	197.2
70°	304.8	330.3	336.4	306.2	268.5	232.6	225.5	208.6	189.2	186.8	189.7
70.5°	290.7	316.6	323.7	293.5	257.2	223.7	218.0	200.5	181.2	178.8	182.1
71°	277.0	302.9	310.9	282.2	246.8	214.7	210.4	192.0	173.6	171.3	175.1
71.5°	263.8	289.7	297.7	270.4	235.9	206.2	202.9	184.0	166.1	163.7	167.5
72°	251.0	276.5	285.9	259.0	226.0	197.7	195.3	176.5	158.5	156.2	160.4
72.5°	237.8	264.2	273.7	248.2	215.6	189.7	187.8	168.9	151.0	149.1	153.3
73°	225.1	252.0	261.9	236.9	206.2	182.1	180.7	161.4	143.9	142.0	146.3
73.5°	212.8	239.2	250.1	226.5	196.3	174.1	173.2	154.3	136.8	134.9	139.2
74°	200.5	227.9	238.8	216.6	187.3	166.6	166.1	147.2	129.8	127.9	132.6
74.5°	188.7	216.1	227.9	206.2	178.4	159.5	159.5	140.1	123.2	121.3	126.5
75°	177.4	204.8	216.6	196.3	169.9	152.4	151.9	133.5	116.1	114.2	119.8
75.5°	166.6	193.5	205.7	186.8	161.4	145.3	145.3	126.9	109.5	107.6	113.7
76°	155.7	183.1	195.3	177.4	153.3	138.7	138.2	119.8	103.3	101.0	107.6
76.5°	145.3	172.2	185.0	168.4	145.3	132.1	132.1	113.2	96.7	94.8	101.4
77°	134.5	162.3	175.1	160.0	137.8	126.0	125.5	107.1	90.6	88.2	95.3
77.5°	124.1	152.9	165.6	151.0	129.8	119.8	119.4	101.0	84.5	82.1	89.7
78°	114.2	143.0	156.7	142.5	122.7	113.7	112.8	94.4	78.3	76.0	83.5
78.5°	103.8	133.1	147.2	134.0	115.1	108.1	107.1	88.2	72.2	69.8	77.9
79°	94.4	123.6	137.8	126.0	108.5	102.9	101.0	82.1	66.5	64.2	72.2
79.5°	84.9	114.7	128.8	118.0	101.4	97.2	94.8	76.4	60.9	58.5	66.5
80°	76.0	105.7	119.8	110.4	94.8	92.0	89.2	70.3	55.2	52.8	61.3
80.5°	67.0	96.7	111.8	102.9	88.7	86.8	83.5	64.6	49.5	47.7	56.1
81°	58.5	88.7	103.8	95.8	82.6	81.6	77.9	59.0	44.4	42.9	51.4
81.5°	50.0	80.7	95.3	88.7	76.9	76.4	72.7	53.8	39.2	38.2	46.2
82°	41.5	73.1	87.8	82.1	71.2	71.2	67.0	48.1	34.0	33.5	42.0
82.5°	34.0	65.6	80.7	75.5	65.6	66.1	61.8	43.9	28.8	28.8	37.7
83°	26.4	58.5	73.6	69.4	60.4	61.3	56.6	39.2	23.6	24.1	33.5
83.5°	19.3	51.9	67.0	63.2	55.2	56.6	51.9	34.4	18.9	20.8	29.3
84°	17.0	45.8	60.4	57.1	50.5	51.4	47.2	30.2	15.1	17.9	25.0
84.5°	14.2	40.6	54.3	51.4	45.8	47.2	42.9	25.5	12.3	15.6	21.2
85°	11.3	35.9	48.1	45.8	41.5	42.5	38.2	22.6	10.9	13.2	17.5
85.5°	8.5	31.1	42.5	40.6	36.8	38.2	34.0	19.8	9.0	10.9	13.7
86°	6.1	26.9	36.8	35.4	32.6	33.5	29.7	17.0	7.5	8.5	10.4
86.5°	4.7	22.6	31.1	30.2	27.8	28.8	25.0	14.2	6.1	6.6	6.6
87°	3.3	18.4	26.0	25.5	23.6	24.5	21.2	11.8	4.7	4.2	3.3
87.5°	2.4	14.2	20.8	20.8	19.8	20.3	17.0	9.0	2.8	2.4	0.9
88°	0.9	10.4	16.0	16.5	16.0	16.5	13.2	6.6	1.4	0.9	0.5
88.5°	0.5	6.6	12.3	12.7	12.3	12.3	9.4	3.8	0.5	0.5	0.0



TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.5	0.5	1.4	2.4	1.9	0.9	0.5	0.0	0.5	0.0



TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2556.0	2556.0	2556.0	2556.0	2556.0	2556.0
0.5°	2547.5	2545.6	2554.1	2563.0	2570.6	2575.8
1°	2537.1	2541.3	2556.4	2571.5	2583.8	2592.3
1.5°	2526.2	2536.6	2557.9	2579.1	2596.6	2607.9
2°	2514.9	2530.5	2558.8	2586.6	2609.3	2623.0
2.5°	2503.1	2525.3	2559.7	2593.7	2620.6	2637.6
3°	2491.3	2519.2	2559.7	2599.9	2631.9	2651.3
3.5°	2478.6	2512.6	2559.7	2606.0	2642.8	2665.0
4°	2465.9	2505.5	2558.8	2611.2	2652.7	2678.2
4.5°	2453.1	2497.5	2557.4	2615.9	2662.6	2690.4
5°	2439.0	2489.4	2556.0	2620.1	2671.6	2702.7
5.5°	2425.3	2481.4	2553.6	2623.9	2680.5	2713.6
6°	2411.1	2472.5	2551.3	2626.7	2688.1	2724.4
6.5°	2397.0	2463.0	2547.5	2629.6	2695.6	2734.3
7°	2381.9	2453.6	2544.2	2631.5	2701.8	2743.8
7.5°	2366.8	2443.2	2539.9	2632.9	2707.9	2752.7
8°	2351.2	2432.8	2534.7	2633.8	2713.1	2760.8
8.5°	2335.1	2421.5	2529.5	2633.8	2717.8	2767.8
9°	2319.1	2410.6	2523.9	2633.8	2722.1	2774.9
9.5°	2303.1	2398.8	2517.8	2632.9	2725.4	2781.0
10°	2286.5	2387.1	2511.1	2631.0	2728.2	2786.7
10.5°	2269.6	2374.3	2504.1	2629.1	2730.6	2791.4
11°	2252.1	2362.0	2496.0	2626.3	2732.0	2795.2
11.5°	2234.6	2348.4	2487.6	2623.0	2732.4	2798.5
12°	2217.2	2335.1	2479.1	2618.7	2732.4	2800.9
12.5°	2199.3	2321.0	2469.6	2614.0	2731.5	2802.7
13°	2181.8	2306.8	2460.2	2608.8	2730.1	2803.7
13.5°	2163.9	2292.2	2450.3	2603.2	2727.7	2804.2
14°	2145.0	2278.1	2439.9	2597.0	2724.9	2803.2
14.5°	2126.1	2263.0	2429.0	2590.4	2721.6	2802.3
15°	2107.7	2247.9	2418.2	2582.9	2717.3	2800.4
15.5°	2089.3	2232.8	2406.9	2574.8	2712.6	2797.6
16°	2070.4	2218.1	2395.5	2566.8	2707.4	2794.7
16.5°	2051.6	2202.6	2383.7	2558.8	2701.8	2790.5
17°	2033.6	2187.5	2372.4	2549.8	2695.6	2786.2
17.5°	2014.3	2172.4	2361.1	2540.9	2689.0	2781.0
18°	1995.0	2156.8	2349.8	2533.3	2682.0	2775.9
18.5°	1975.6	2141.2	2337.5	2525.3	2676.3	2769.7
19°	1956.7	2125.2	2326.2	2516.8	2671.1	2764.5
19.5°	1937.9	2109.6	2313.0	2507.4	2665.4	2760.3
20°	1919.0	2092.6	2299.3	2497.5	2658.4	2755.6
20.5°	1899.6	2075.6	2285.6	2487.1	2650.8	2750.4
21°	1879.8	2057.7	2270.5	2475.3	2642.3	2744.2

TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1819.9	2002.5	2218.6	2428.6	2605.0	2718.3
23°	1799.1	1983.2	2199.3	2409.2	2588.1	2703.7
23.5°	1778.8	1962.9	2178.5	2389.4	2569.7	2687.1
24°	1758.1	1941.6	2157.3	2368.2	2549.8	2669.7
24.5°	1737.8	1920.4	2134.1	2345.1	2529.1	2650.3
25°	1716.6	1898.7	2112.0	2321.9	2506.4	2628.2
25.5°	1695.3	1876.5	2088.8	2298.8	2481.9	2605.5
26°	1673.6	1853.9	2064.8	2274.3	2457.4	2582.9
26.5°	1651.9	1831.7	2040.2	2248.3	2431.9	2557.9
27°	1630.7	1809.0	2015.7	2222.9	2404.5	2531.4
27.5°	1608.5	1785.5	1990.7	2195.5	2375.7	2503.6
28°	1586.3	1761.4	1965.2	2167.2	2346.9	2477.2
28.5°	1564.2	1738.7	1939.3	2139.3	2318.2	2447.4
29°	1542.0	1714.2	1912.9	2111.0	2288.4	2417.7
29.5°	1519.8	1690.6	1886.9	2080.8	2257.3	2387.5
30°	1497.2	1666.1	1860.5	2051.6	2227.1	2357.3
30.5°	1474.5	1642.0	1832.6	2020.9	2194.5	2324.8
31°	1451.9	1617.5	1805.7	1990.7	2162.9	2292.7
31.5°	1429.7	1592.9	1777.9	1960.5	2130.4	2260.1
32°	1407.5	1567.5	1749.6	1928.4	2097.8	2227.1
32.5°	1384.4	1543.4	1722.2	1897.8	2064.3	2193.6
33°	1362.2	1517.9	1693.9	1866.6	2032.2	2160.6
33.5°	1340.0	1493.9	1666.1	1835.5	1999.2	2127.1
34°	1318.3	1468.4	1636.8	1804.3	1966.2	2093.1
34.5°	1295.7	1443.8	1608.5	1772.2	1932.7	2057.7
35°	1273.0	1418.4	1579.7	1741.1	1899.6	2023.7
35.5°	1250.9	1394.3	1551.9	1710.0	1866.1	1989.8
36°	1229.2	1370.2	1523.1	1678.8	1834.1	1955.8
36.5°	1207.0	1344.8	1494.8	1648.1	1800.6	1920.9
37°	1185.3	1319.7	1467.0	1617.0	1768.0	1885.5
37.5°	1163.1	1295.7	1438.2	1586.3	1734.0	1852.0
38°	1141.9	1271.1	1410.3	1555.7	1701.5	1817.5
38.5°	1120.2	1246.6	1382.5	1525.9	1669.4	1783.1
39°	1099.4	1222.1	1354.7	1495.7	1636.4	1748.2
39.5°	1077.7	1198.0	1327.8	1466.0	1605.2	1715.1
40°	1056.0	1173.9	1299.5	1435.8	1572.7	1681.2
40.5°	1035.2	1149.9	1273.5	1407.0	1541.5	1646.7
41°	1014.5	1125.8	1246.6	1377.3	1508.5	1613.2
41.5°	993.7	1101.8	1220.2	1349.5	1478.8	1580.7
42°	972.9	1078.6	1193.8	1321.2	1448.6	1548.1
42.5°	952.7	1055.5	1168.3	1293.3	1417.9	1515.1
43°	931.9	1032.4	1142.8	1265.0	1386.7	1483.5
43.5°	912.1	1009.7	1117.3	1238.1	1358.0	1452.3

TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	852.1	942.3	1043.7	1158.4	1270.2	1359.4
45.5°	832.3	920.6	1020.1	1132.4	1243.3	1329.7
46°	813.5	898.9	996.5	1106.5	1215.9	1299.5
46.5°	794.1	877.2	972.9	1081.9	1188.6	1269.3
47°	774.3	856.4	950.3	1056.9	1160.3	1241.4
47.5°	755.9	835.2	927.6	1032.4	1134.3	1213.1
48°	737.5	814.4	905.5	1007.9	1108.8	1184.3
48.5°	719.1	794.1	883.3	984.7	1083.4	1157.0
49°	701.2	774.3	861.6	961.6	1057.4	1131.0
49.5°	682.8	754.9	840.4	939.0	1033.3	1104.1
50°	664.8	735.1	819.6	915.4	1008.3	1077.2
50.5°	647.4	716.3	798.4	893.7	984.3	1052.7
51°	629.9	697.4	778.5	871.5	960.2	1027.2
51.5°	613.4	679.0	758.3	850.3	938.0	1001.7
52°	596.4	661.1	738.9	829.5	914.9	978.1
52.5°	579.9	643.1	719.1	807.8	892.3	955.0
53°	563.4	625.2	700.7	787.5	870.5	930.5
53.5°	547.8	607.7	681.3	767.2	848.8	906.9
54°	532.2	590.7	662.9	747.4	827.1	885.6
54.5°	516.2	573.3	644.1	728.1	806.9	863.5
55°	501.1	557.2	627.1	708.7	786.1	840.8
55.5°	486.5	540.7	609.6	689.8	765.8	821.0
56°	471.8	524.7	592.2	671.4	745.5	799.8
56.5°	457.2	509.1	575.2	653.0	726.6	778.5
57°	443.1	493.5	558.7	635.1	707.3	758.3
57.5°	429.8	478.0	541.7	617.2	688.4	738.4
58°	416.2	463.8	525.6	600.2	670.5	717.2
58.5°	403.4	448.7	509.6	583.2	652.1	697.9
59°	391.2	434.6	494.0	566.7	634.2	677.6
59.5°	378.4	420.4	478.9	549.7	616.2	657.7
60°	365.7	406.3	463.8	533.2	598.3	639.3
60.5°	352.9	392.6	448.7	517.6	580.8	618.6
61°	341.1	379.4	434.6	502.0	563.4	600.7
61.5°	329.3	366.1	419.9	486.5	545.9	581.8
62°	318.5	353.4	406.3	471.4	528.9	563.9
62.5°	307.6	341.1	392.1	456.3	511.5	545.5
63°	296.3	328.9	378.9	441.6	495.0	527.0
63.5°	285.9	316.6	365.2	427.5	478.4	509.6
64°	276.0	304.8	352.5	413.3	462.4	491.7
64.5°	266.1	293.5	339.7	399.2	446.8	475.1
65°	256.7	282.2	327.5	386.0	430.8	458.2
65.5°	247.2	270.8	314.7	371.8	415.7	442.1
66°	237.8	260.5	302.9	358.6	400.1	425.1



TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	212.3	229.8	268.0	320.4	356.7	378.4
68°	204.3	220.4	257.2	308.1	342.6	362.8
68.5°	196.8	210.4	246.3	295.4	328.9	347.7
69°	189.2	201.5	235.9	283.6	315.2	333.6
69.5°	181.7	192.5	225.5	271.8	302.0	319.0
70°	175.1	184.0	215.6	260.5	288.3	304.8
70.5°	168.4	175.5	205.7	248.7	275.6	290.7
71°	162.3	169.9	196.3	237.8	262.8	277.0
71.5°	155.7	161.8	186.8	227.0	250.5	263.8
72°	149.6	153.8	177.9	216.1	238.8	251.0
72.5°	143.4	145.3	168.0	205.7	227.0	237.8
73°	137.8	137.3	160.0	195.3	215.2	225.1
73.5°	131.6	130.2	151.9	185.4	203.8	212.8
74°	126.0	123.2	143.9	175.5	193.0	200.5
74.5°	120.3	116.5	135.9	166.6	182.1	188.7
75°	114.2	109.5	128.3	157.1	172.2	177.4
75.5°	109.0	103.3	120.8	148.2	162.3	166.6
76°	103.3	97.2	113.2	138.7	152.9	155.7
76.5°	97.7	91.1	105.7	129.8	143.0	145.3
77°	92.0	85.4	99.1	121.3	133.5	134.5
77.5°	86.8	79.7	92.0	113.2	123.6	124.1
78°	81.6	74.6	85.9	105.2	115.1	114.2
78.5°	76.4	69.4	79.3	97.2	106.2	103.8
79°	71.2	64.2	73.1	90.1	97.7	94.4
79.5°	66.1	59.0	67.5	82.6	89.7	84.9
80°	60.9	54.3	61.3	75.5	81.6	76.0
80.5°	56.1	49.5	56.1	68.9	74.6	67.0
81°	51.4	44.8	51.0	62.3	67.5	58.5
81.5°	46.7	40.6	45.3	56.1	60.4	50.0
82°	42.0	36.3	40.6	50.0	53.8	41.5
82.5°	37.7	32.1	35.9	44.4	48.1	34.0
83°	33.0	27.8	31.1	39.2	42.0	26.4
83.5°	28.8	23.6	26.4	34.0	36.8	19.3
84°	24.1	19.8	22.2	28.8	32.1	17.0
84.5°	19.8	16.0	17.9	24.1	27.8	14.2
85°	15.6	12.7	14.2	19.3	23.6	11.3
85.5°	11.8	9.4	10.4	15.6	19.3	8.5
86°	8.0	6.1	7.1	11.8	15.6	6.1
86.5°	4.2	2.4	3.3	8.0	12.3	4.7
87°	1.4	0.5	0.9	4.2	8.5	3.3
87.5°	0.5	0.0	0.5	0.9	4.7	2.4
88°	0.0	0.0	0.0	0.0	0.9	0.9
88.5°	0.0	0.0	0.0	0.0	0.5	0.5



TEST NUMBER: P776607

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-HCD4TRLWW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.5	0.0



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Scaled Data Report





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

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Scaled Data Report



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Scaled Data Report





21.5°	2737.2	2754.1	2678.2	2519.6	2299.3	2065.7	1862.4	1720.8	1654.8	1650.5	1718.0
22°	2729.1	2747.1	2670.2	2509.3	2285.1	2048.3	1841.6	1700.0	1634.0	1629.3	1696.7



44°	1420.2	1469.3	1459.9	1391.0	1274.9	1106.5	959.7	871.0	822.9	808.3	828.6
44.5°	1389.1	1436.3	1427.8	1361.3	1248.5	1084.3	940.9	853.6	805.9	790.8	811.1



66.5°	409.6	434.1	434.1	398.2	353.9	304.8	280.7	273.7	252.9	248.2	242.5
67°	393.5	418.1	419.5	383.6	341.1	294.0	272.7	263.8	243.0	238.8	235.0



89°	0.0	2.8	8.5	9.0	8.5	8.5	5.7	1.9	0.0	0.5	0.0
89.5°	0.0	0.5	4.7	5.2	5.2	4.7	2.8	0.5	0.0	0.5	0.0



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21.5°	1860.0	2039.8	2254.9	2461.6	2632.4	2737.2
22°	1840.2	2021.8	2237.5	2446.5	2619.7	2729.1



44°	891.8	986.2	1092.3	1210.7	1329.2	1420.2
44.5°	872.0	964.0	1067.8	1184.8	1300.4	1389.1

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66.5°	229.3	250.1	291.1	345.9	385.5	409.6
67°	220.8	239.7	279.3	332.6	370.9	393.5

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Scaled Data Report



89°	0.0	0.0	0.0	0.0	0.5	0.0
89.5°	0.0	0.0	0.0	0.0	0.5	0.0

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Scaled Data Report



(END OF REPORT)