

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: P776552

Luminaire Tested: HCDJBS4050CSD-HCD41TRH-5000lm-3500K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776552  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B029)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS4050CSD-HCD41TRH-5000lm-3500K  
Description: 4 INCH ROUND SHALLOW-WIDE HAZE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

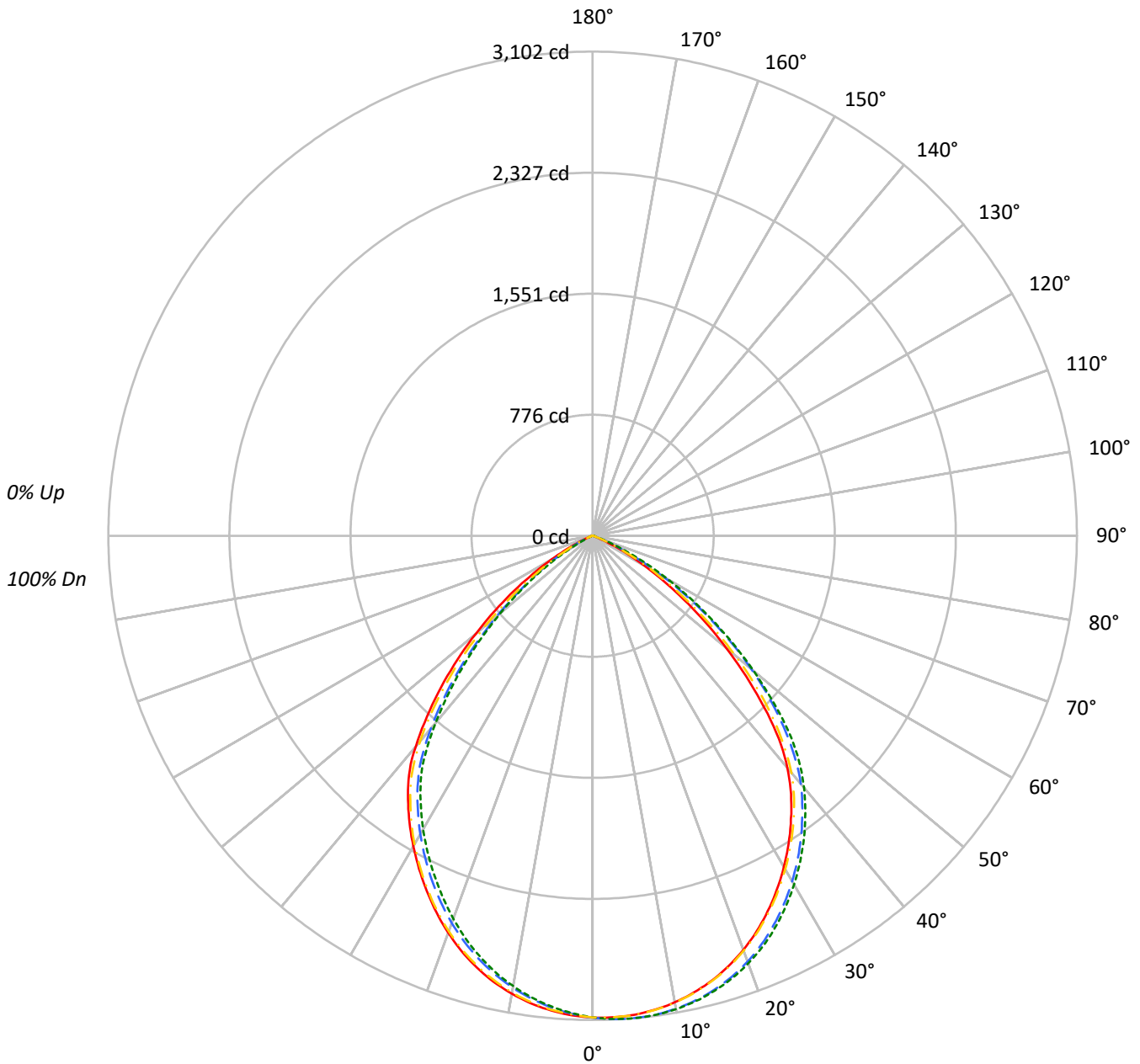
Lumens per Lamp: N/A  
Luminaire Lumens: 5519.9 lumens  
Efficiency: N/A  
Efficacy: 115.0 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.22  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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	105	103	109	106	104	101	102	100	98	98	97	95	95	94	92	90								
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80								
3	97	89	83	77	95	87	82	77	85	80	76	82	78	74	80	76	73	71								
4	90	81	74	68	88	79	73	68	77	71	67	75	70	66	73	69	65	63								
5	84	73	66	60	82	72	65	60	70	64	60	69	63	59	67	62	58	57								
6	78	67	60	54	77	66	59	54	65	58	53	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	44	40	38								
10	60	49	42	37	59	48	41	37	47	41	37	46	41	36	46	40	36	35								

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

	0°	90°	180°	270°
0°	388335	388335	388335	388335
5°	389098	391839	385700	382428
10°	387808	393597	380754	374364
15°	384392	393239	373201	363546
20°	378128	390449	362445	349562
25°	368534	384392	348872	333153
30°	355988	374981	333841	315458
35°	340254	362654	316840	294886
40°	318894	345935	289750	256959
45°	276614	316072	244275	206152
50°	218753	263080	191304	150854
55°	157143	203308	134368	95752
60°	96074	138586	76945	45960
65°	40320	74030	28796	13639
70°	9015	21710	8316	5887
75°	6175	8023	5738	3890
80°	4421	6160	4131	2754
85°	1300	5487	722	722

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 316072 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	290.7	5.3
10°-20°	818.2	14.8
20°-30°	1188.8	21.5
30°-40°	1331.7	24.1
40°-50°	1121.3	20.3
50°-60°	603.7	10.9
60°-70°	148.8	2.7
70°-80°	14.2	0.3
80°-90°	2.4	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°	2297.7	41.6
0°-40°	3629.5	65.8
0°-60°	5354.4	97.0
0°-90°	5519.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5519.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	3086	3086	3086	3086	3086	
5°	3080	3102	3053	3027	3080	293
15°	2950	3018	2864	2790	2950	831
25°	2654	2768	2512	2399	2654	1220
35°	2215	2360	2062	1919	2215	1381
45°	1554	1776	1372	1158	1554	1188
55°	716	927	612	436	716	646
65°	135	249	97	46	135	152
75°	13	16	12	8	13	14
85°	1	4	0	0	1	2
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°	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7
0.5°	3087.6	3089.5	3090.4	3089.5	3088.5	3086.6	3085.7	3084.7	3084.7	3084.7	3083.8
1°	3088.0	3091.8	3093.2	3092.8	3091.3	3089.5	3086.6	3084.3	3082.9	3081.4	3079.6
1.5°	3088.5	3093.2	3096.1	3095.6	3094.2	3091.3	3087.6	3083.8	3080.5	3077.7	3075.3
2°	3088.5	3094.7	3098.0	3098.0	3096.5	3092.8	3087.6	3082.4	3078.1	3073.9	3070.6
2.5°	3088.0	3095.6	3099.8	3099.8	3098.4	3093.7	3087.6	3080.5	3074.8	3069.6	3064.9
3°	3087.1	3096.1	3100.8	3101.3	3099.8	3094.7	3086.6	3078.6	3071.5	3064.9	3059.7
3.5°	3085.7	3096.1	3101.7	3102.7	3100.8	3094.7	3085.7	3076.3	3067.3	3059.3	3053.6
4°	3084.3	3095.6	3102.2	3103.1	3101.7	3094.7	3084.7	3073.4	3063.0	3054.1	3047.5
4.5°	3082.4	3094.7	3102.2	3103.6	3102.2	3094.2	3082.9	3070.1	3058.3	3048.4	3040.4
5°	3080.0	3093.7	3101.7	3104.1	3101.7	3093.2	3080.5	3066.3	3053.1	3041.8	3033.3
5.5°	3077.2	3092.3	3100.8	3103.6	3101.7	3091.8	3078.1	3062.6	3047.5	3035.2	3026.2
6°	3073.9	3090.4	3100.3	3102.7	3100.8	3090.4	3074.8	3057.9	3041.8	3028.1	3018.2
6.5°	3070.1	3088.0	3098.4	3101.3	3099.4	3088.0	3071.5	3053.1	3035.2	3020.6	3009.7
7°	3066.8	3085.2	3096.5	3099.8	3098.0	3085.7	3067.8	3047.9	3028.6	3013.0	3000.8
7.5°	3062.1	3082.4	3094.2	3098.0	3095.6	3082.9	3064.0	3042.3	3021.5	3004.5	2991.8
8°	3057.4	3079.1	3091.3	3095.6	3093.2	3079.6	3059.3	3036.1	3014.0	2995.6	2982.4
8.5°	3052.2	3074.8	3088.5	3092.8	3090.4	3076.3	3054.1	3029.5	3005.5	2986.1	2972.5
9°	3047.0	3070.6	3085.2	3089.5	3087.1	3072.0	3048.9	3022.5	2997.5	2976.7	2962.1
9.5°	3040.9	3065.9	3081.0	3086.2	3083.8	3067.8	3043.2	3015.4	2988.5	2967.3	2951.7
10°	3034.7	3061.2	3076.7	3081.9	3080.0	3063.0	3037.1	3007.8	2979.5	2956.9	2940.8
10.5°	3028.1	3055.5	3072.0	3077.7	3075.3	3057.9	3030.5	2999.3	2969.6	2946.0	2929.0
11°	3021.0	3049.8	3066.8	3072.9	3070.6	3052.2	3023.4	2990.9	2959.7	2935.2	2917.2
11.5°	3013.5	3043.2	3061.6	3067.8	3065.4	3046.1	3016.3	2981.9	2949.3	2923.4	2905.5
12°	3006.0	3036.6	3055.5	3062.1	3060.2	3039.4	3008.8	2972.9	2938.5	2911.6	2892.7
12.5°	2997.5	3029.5	3048.9	3056.0	3054.1	3032.8	3000.3	2962.5	2927.2	2899.8	2879.5
13°	2989.0	3022.0	3042.3	3049.8	3047.9	3025.8	2991.8	2952.6	2915.4	2887.1	2866.8
13.5°	2979.5	3014.0	3034.7	3042.8	3040.9	3018.2	2982.8	2942.3	2903.6	2873.4	2852.6
14°	2970.1	3005.5	3027.7	3035.7	3033.8	3010.7	2973.9	2931.4	2890.4	2860.2	2838.5
14.5°	2960.2	2997.0	3019.6	3027.7	3026.2	3002.2	2964.0	2919.6	2877.6	2846.0	2824.3
15°	2950.3	2988.0	3011.1	3019.6	3018.2	2993.2	2954.1	2907.3	2864.4	2832.3	2809.7
15.5°	2939.4	2978.1	3002.2	3011.1	3009.7	2984.2	2943.2	2895.1	2850.3	2816.8	2793.6
16°	2928.1	2968.2	2993.2	3002.6	3000.8	2974.3	2932.8	2882.8	2836.1	2801.7	2778.1
16.5°	2916.3	2957.8	2983.3	2993.2	2991.8	2964.4	2921.0	2869.1	2821.0	2786.6	2762.0
17°	2904.5	2946.5	2973.4	2983.3	2982.4	2954.1	2909.2	2855.4	2806.4	2770.5	2746.0
17.5°	2891.8	2935.6	2962.5	2972.9	2972.0	2943.2	2897.0	2841.8	2790.3	2754.0	2728.5
18°	2879.0	2923.9	2951.7	2962.1	2961.6	2931.9	2884.2	2827.6	2774.3	2737.0	2711.5
18.5°	2865.8	2911.6	2940.4	2950.7	2950.7	2920.6	2871.5	2812.5	2757.8	2719.6	2693.6
19°	2852.1	2898.8	2928.1	2939.4	2939.4	2908.3	2857.8	2797.4	2740.8	2701.6	2676.1
19.5°	2838.0	2885.6	2915.8	2927.2	2927.6	2896.0	2844.1	2781.4	2723.8	2684.2	2657.3
20°	2823.4	2872.0	2903.1	2914.4	2915.4	2882.8	2829.5	2765.3	2706.3	2666.2	2638.9
20.5°	2808.3	2858.3	2889.4	2901.7	2902.6	2869.6	2815.3	2748.8	2688.4	2646.9	2620.0
21°	2792.7	2843.6	2875.7	2888.5	2889.4	2855.4	2800.2	2732.3	2669.5	2628.0	2600.7



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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°	2743.6	2797.9	2831.4	2845.1	2847.4	2811.6	2752.1	2679.5	2612.9	2568.6	2540.7
23°	2727.1	2781.4	2815.8	2829.5	2832.8	2796.0	2735.6	2661.5	2593.6	2548.8	2520.5
23.5°	2709.2	2764.9	2799.8	2814.4	2817.2	2780.4	2718.1	2642.7	2573.3	2528.0	2499.2
24°	2691.2	2747.9	2783.3	2797.9	2801.2	2763.9	2700.7	2624.3	2553.5	2507.2	2478.0
24.5°	2672.8	2729.9	2766.3	2781.4	2784.7	2746.9	2682.8	2604.4	2533.2	2486.5	2456.8
25°	2654.0	2712.5	2748.8	2764.4	2768.2	2729.9	2664.8	2585.6	2512.4	2465.7	2435.5
25.5°	2635.1	2694.6	2731.4	2747.4	2751.6	2713.0	2646.4	2565.7	2491.7	2443.5	2413.8
26°	2615.8	2675.7	2713.0	2729.5	2733.7	2694.6	2628.0	2545.9	2471.4	2421.8	2391.6
26.5°	2595.9	2656.8	2695.0	2711.5	2715.3	2676.1	2608.7	2525.2	2449.7	2399.7	2369.5
27°	2576.6	2637.5	2676.1	2693.1	2697.4	2657.3	2589.3	2505.4	2428.0	2378.0	2346.8
27.5°	2555.8	2617.6	2656.8	2674.7	2678.5	2638.4	2569.0	2484.6	2406.7	2355.8	2324.2
28°	2535.1	2597.8	2637.0	2655.4	2659.6	2618.6	2549.7	2463.8	2385.0	2333.1	2301.5
28.5°	2514.3	2578.0	2617.2	2635.6	2640.3	2599.7	2529.4	2442.1	2362.9	2311.0	2277.9
29°	2493.1	2557.3	2596.9	2615.8	2620.5	2579.9	2508.7	2420.9	2341.2	2288.3	2254.8
29.5°	2471.4	2536.5	2576.6	2595.9	2600.7	2559.6	2487.4	2399.7	2319.0	2264.7	2231.7
30°	2449.7	2514.8	2555.4	2574.7	2580.4	2538.4	2467.1	2378.4	2297.3	2242.1	2207.6
30.5°	2428.0	2493.6	2534.6	2554.9	2559.6	2517.6	2445.4	2356.3	2274.2	2219.0	2183.6
31°	2405.3	2472.3	2512.9	2533.7	2538.9	2496.9	2423.7	2334.1	2251.5	2195.4	2159.0
31.5°	2383.2	2449.7	2491.7	2512.0	2517.1	2475.2	2401.6	2311.9	2228.9	2171.8	2134.5
32°	2360.0	2427.5	2469.0	2489.8	2495.4	2453.0	2380.3	2290.2	2206.2	2147.7	2109.5
32.5°	2337.4	2404.9	2447.3	2468.6	2473.7	2431.3	2357.7	2267.6	2183.1	2123.2	2084.0
33°	2312.9	2381.7	2424.7	2446.4	2451.6	2409.6	2335.5	2245.4	2159.0	2098.6	2059.0
33.5°	2289.7	2359.1	2401.6	2423.7	2428.9	2386.5	2312.9	2221.3	2135.0	2073.6	2032.6
34°	2264.7	2335.5	2378.0	2401.1	2406.7	2364.3	2289.7	2198.2	2110.9	2049.1	2006.6
34.5°	2240.7	2311.0	2355.3	2378.0	2383.2	2341.2	2266.6	2174.1	2086.8	2023.2	1980.7
35°	2214.7	2286.0	2331.3	2354.8	2360.5	2317.6	2242.5	2150.1	2062.3	1997.7	1953.3
35.5°	2191.1	2261.9	2306.7	2330.3	2336.9	2293.5	2218.0	2126.0	2037.3	1971.7	1925.5
36°	2165.2	2236.9	2281.7	2306.7	2312.9	2269.4	2194.0	2101.5	2011.8	1945.3	1898.6
36.5°	2139.7	2211.4	2257.6	2281.7	2287.8	2244.9	2168.9	2076.9	1986.4	1917.9	1868.9
37°	2112.3	2185.5	2232.2	2256.2	2262.4	2219.4	2143.5	2051.0	1959.9	1888.7	1836.3
37.5°	2087.3	2159.5	2206.7	2231.2	2237.4	2194.4	2118.5	2025.0	1932.6	1856.6	1801.9
38°	2058.5	2133.6	2180.3	2205.7	2212.4	2168.9	2092.0	1998.6	1902.8	1823.1	1765.5
38.5°	2030.2	2107.1	2154.8	2179.3	2186.4	2142.5	2065.1	1970.8	1871.2	1788.7	1727.8
39°	2000.5	2078.8	2128.8	2153.4	2160.5	2116.1	2038.3	1940.6	1837.7	1752.8	1689.6
39.5°	1972.2	2050.0	2101.5	2127.0	2134.0	2088.3	2009.9	1908.0	1802.3	1715.1	1651.4
40°	1941.1	2021.3	2073.2	2098.6	2105.7	2060.9	1979.3	1875.0	1763.7	1676.8	1612.7
40.5°	1908.5	1991.1	2043.9	2070.3	2077.9	2031.2	1946.7	1839.6	1725.4	1637.7	1572.1
41°	1875.0	1959.5	2013.7	2041.6	2049.1	2001.9	1913.2	1803.8	1687.2	1597.6	1532.0
41.5°	1840.1	1925.5	1980.7	2009.9	2019.4	1970.8	1879.2	1767.9	1648.5	1558.9	1492.8
42°	1804.2	1891.0	1946.7	1977.4	1988.7	1938.2	1843.4	1731.1	1608.9	1516.0	1450.8
42.5°	1766.0	1855.2	1911.8	1943.9	1956.6	1903.8	1807.5	1692.9	1569.3	1474.9	1409.8
43°	1725.4	1817.9	1876.4	1908.5	1923.6	1867.9	1770.7	1652.8	1530.6	1434.3	1367.3
43.5°	1683.4	1779.7	1840.6	1872.6	1888.2	1831.6	1733.0	1613.6	1491.9	1393.7	1326.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1554.2	1661.7	1728.7	1761.8	1775.9	1714.6	1615.5	1494.7	1372.5	1270.6	1200.8
45.5°	1509.3	1621.6	1691.5	1724.0	1734.4	1674.0	1574.9	1455.1	1333.8	1230.5	1158.8
46°	1464.5	1580.1	1652.3	1685.3	1693.4	1632.0	1533.9	1415.0	1293.3	1189.9	1116.3
46.5°	1420.6	1536.7	1613.1	1645.7	1650.9	1590.0	1492.4	1374.9	1253.6	1149.8	1075.3
47°	1376.3	1494.7	1574.0	1606.1	1607.0	1546.6	1449.4	1333.8	1214.0	1109.7	1033.8
47.5°	1332.4	1451.8	1532.5	1565.5	1563.6	1502.7	1407.0	1293.7	1174.4	1072.0	992.7
48°	1288.1	1408.8	1491.9	1524.4	1518.8	1458.9	1364.0	1253.6	1133.8	1031.4	952.6
48.5°	1244.7	1365.4	1450.8	1482.9	1474.9	1414.5	1321.1	1213.5	1094.6	992.2	913.9
49°	1202.2	1322.5	1410.7	1441.4	1430.6	1370.2	1277.7	1172.0	1055.5	953.1	873.8
49.5°	1158.8	1278.2	1368.3	1399.4	1387.1	1325.8	1234.7	1132.4	1016.8	915.3	835.6
50°	1117.3	1234.7	1326.3	1356.0	1343.7	1281.0	1190.9	1090.8	977.1	877.6	797.4
50.5°	1073.9	1191.8	1283.8	1312.6	1302.2	1236.6	1147.5	1050.7	938.4	839.8	760.6
51°	1032.8	1149.3	1241.8	1270.1	1257.4	1193.2	1104.1	1009.2	900.7	803.0	724.2
51.5°	991.3	1105.9	1198.4	1226.3	1214.9	1151.2	1062.1	970.5	863.4	766.7	689.8
52°	951.2	1064.9	1157.4	1184.7	1173.4	1108.8	1019.6	930.4	826.2	730.4	654.9
52.5°	910.1	1023.4	1114.0	1140.9	1132.8	1064.9	978.1	890.3	788.9	694.5	621.4
53°	870.5	981.9	1071.0	1098.4	1089.4	1022.9	936.1	850.7	752.5	659.6	587.4
53.5°	830.9	940.3	1027.6	1054.0	1047.4	981.9	896.0	812.9	716.7	625.6	555.3
54°	792.2	899.8	985.6	1012.5	1006.4	940.8	854.5	774.3	681.8	591.7	524.2
54.5°	753.5	860.6	943.6	970.1	967.7	900.2	815.8	735.6	646.4	558.6	493.5
55°	716.2	821.0	902.1	929.5	926.6	859.7	776.6	698.8	612.4	527.0	464.7
55.5°	678.5	781.8	860.6	887.0	886.1	821.0	738.9	662.4	578.4	495.4	437.8
56°	643.1	743.6	819.1	848.3	846.4	781.3	701.1	626.1	545.4	465.2	410.5
56.5°	606.8	706.3	779.0	807.8	808.7	743.1	663.8	590.2	512.9	436.9	383.1
57°	572.8	669.0	737.5	768.1	769.1	705.4	628.0	556.3	481.3	409.1	356.2
57.5°	538.3	632.2	698.8	728.0	730.8	669.0	593.1	522.8	450.1	380.8	328.9
58°	505.3	596.8	660.5	691.7	694.0	633.2	559.1	489.3	420.9	352.9	304.8
58.5°	473.2	562.4	622.8	653.5	656.3	598.3	526.1	457.7	391.6	324.6	281.7
59°	442.1	527.0	585.5	616.2	620.4	564.3	493.0	427.9	362.4	299.1	259.0
59.5°	411.9	493.5	549.2	578.9	585.5	530.8	461.4	397.7	333.1	275.1	237.3
60°	381.7	461.0	513.8	544.9	550.6	497.8	432.7	368.0	305.7	251.5	217.0
60.5°	352.9	428.4	479.4	510.0	516.6	466.6	403.9	338.3	279.8	229.3	196.7
61°	325.1	396.8	445.9	475.1	483.1	437.4	375.1	311.4	254.8	207.6	177.9
61.5°	298.7	367.1	414.3	442.6	452.0	408.6	346.3	285.9	230.7	187.8	160.4
62°	273.2	337.8	383.1	410.5	421.3	379.3	317.5	260.9	208.1	168.4	143.9
62.5°	247.7	309.5	352.4	378.9	390.7	350.6	291.6	237.3	185.4	150.5	127.9
63°	223.2	281.7	323.2	348.7	360.0	321.3	266.6	213.7	165.1	133.1	112.3
63.5°	199.1	255.3	295.4	318.5	329.3	295.4	243.0	192.5	145.8	117.5	98.6
64°	175.5	229.3	268.5	290.6	301.0	269.9	219.9	172.7	127.9	102.4	85.9
64.5°	155.2	204.3	243.0	263.3	274.1	244.9	199.1	153.8	111.8	88.7	73.6
65°	135.4	180.7	218.5	237.8	248.6	221.8	178.3	135.9	96.7	76.4	63.2
65.5°	115.6	160.4	194.9	213.3	223.6	199.1	159.5	119.4	82.1	65.1	55.7
66°	95.8	141.5	172.7	189.2	199.6	177.4	140.6	104.3	69.8	55.2	48.1





TEST NUMBER: P776552

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	49.5	85.9	118.4	131.2	136.4	119.8	93.9	65.1	45.8	36.3	25.5
68°	39.6	72.2	100.0	113.7	118.0	103.3	80.2	55.2	39.2	29.7	22.2
68.5°	32.6	59.9	82.1	95.8	101.0	88.2	67.9	49.1	32.6	23.6	20.3
69°	28.3	49.5	67.9	77.8	84.9	74.5	57.6	43.4	25.9	21.2	18.9
69.5°	25.9	41.0	55.7	64.6	70.8	62.3	50.5	37.3	24.1	19.8	17.5
70°	24.5	34.0	45.3	53.3	59.0	54.7	43.9	31.1	22.6	18.4	16.5
70.5°	23.1	28.3	36.3	43.4	51.9	47.2	37.3	25.5	21.2	17.5	15.6
71°	21.7	24.1	29.7	35.4	44.8	39.6	30.7	23.1	19.8	16.5	14.2
71.5°	20.3	22.2	25.0	29.3	37.7	32.1	24.1	21.7	18.4	15.1	13.2
72°	18.9	20.8	22.2	24.5	30.7	24.5	22.2	20.3	17.5	14.2	12.7
72.5°	17.9	19.3	20.3	22.2	23.6	22.2	20.8	18.9	16.0	13.2	11.8
73°	17.0	17.9	18.9	20.8	21.7	20.8	19.3	17.9	15.1	12.3	10.9
73.5°	15.6	17.0	17.9	19.3	20.3	19.3	17.9	16.5	14.2	11.8	10.4
74°	14.6	16.0	17.0	17.9	18.9	17.9	17.0	15.6	13.2	10.9	9.4
74.5°	13.7	14.6	15.6	17.0	17.9	17.0	15.6	14.6	12.3	9.9	9.0
75°	12.7	13.7	14.6	15.6	16.5	15.6	14.6	13.7	11.8	9.4	8.0
75.5°	11.8	12.7	13.7	14.6	15.6	14.6	13.7	12.7	10.9	9.0	7.5
76°	11.3	12.3	12.7	13.7	14.6	13.7	12.7	11.8	9.9	8.0	7.1
76.5°	10.4	11.3	11.8	12.7	13.7	12.7	11.8	10.9	9.4	7.5	6.6
77°	9.9	10.4	11.3	11.8	12.7	11.8	11.3	10.4	9.0	7.1	6.1
77.5°	9.0	9.9	10.4	11.3	11.8	11.3	10.4	9.4	8.0	6.6	5.7
78°	8.5	9.4	9.9	10.4	10.9	10.4	9.4	9.0	7.5	6.1	5.2
78.5°	8.0	8.5	9.0	9.9	10.4	9.9	9.0	8.0	7.1	5.7	4.7
79°	7.1	8.0	8.5	9.0	9.4	9.0	8.5	7.5	6.6	5.2	4.2
79.5°	6.6	7.5	8.0	8.5	9.0	8.5	7.5	7.1	6.1	4.7	4.2
80°	6.1	6.6	7.1	8.0	8.5	8.0	7.1	6.6	5.7	4.2	3.8
80.5°	5.7	6.1	6.6	7.5	7.5	7.5	6.6	6.1	5.2	3.8	3.3
81°	5.2	5.7	6.1	7.1	7.1	6.6	6.1	5.7	4.7	3.3	2.8
81.5°	4.7	5.2	5.7	6.6	6.6	6.1	5.7	5.2	4.2	2.8	2.8
82°	3.8	4.7	5.2	6.1	6.1	5.7	5.2	4.7	3.8	2.4	2.4
82.5°	3.3	4.2	5.2	5.7	5.7	5.7	4.7	4.2	2.8	1.9	2.4
83°	2.8	3.8	4.7	5.2	5.2	5.2	4.7	3.8	2.4	1.9	1.9
83.5°	1.9	3.3	4.2	4.7	4.7	4.7	4.2	3.3	1.9	1.4	1.9
84°	1.4	2.8	3.8	4.2	4.7	4.2	3.8	2.8	1.4	0.9	1.4
84.5°	0.9	2.4	3.3	3.8	4.2	3.8	3.3	2.4	0.9	0.9	0.9
85°	0.9	1.9	3.3	3.8	3.8	3.8	3.3	1.9	0.5	0.9	0.9
85.5°	0.5	1.9	2.8	3.3	3.3	3.3	2.8	1.9	0.5	0.5	0.5
86°	0.5	1.4	2.8	2.8	3.3	2.8	2.4	1.4	0.5	0.5	0.5
86.5°	0.5	1.4	2.4	2.8	2.8	2.8	2.4	1.4	0.5	0.5	0.0
87°	0.5	1.4	1.9	2.4	2.4	2.4	1.9	0.9	0.0	0.0	0.0
87.5°	0.0	0.9	1.9	1.9	2.4	1.9	1.4	0.9	0.0	0.0	0.0
88°	0.0	0.5	1.4	1.9	1.9	1.9	1.4	0.5	0.0	0.0	0.0
88.5°	0.0	0.5	0.9	1.4	1.4	1.4	0.9	0.5	0.0	0.0	0.0



TEST NUMBER: P776552

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-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	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5



TEST NUMBER: P776552

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3085.7	3085.7	3085.7	3085.7	3085.7	3085.7
0.5°	3081.9	3080.5	3080.5	3082.4	3084.3	3087.6
1°	3077.7	3076.3	3077.2	3080.0	3083.8	3088.0
1.5°	3072.9	3071.5	3072.9	3077.2	3082.9	3088.5
2°	3067.8	3066.3	3068.7	3074.4	3081.0	3088.5
2.5°	3062.6	3061.2	3064.0	3070.6	3079.1	3088.0
3°	3056.4	3055.0	3059.3	3066.8	3076.7	3087.1
3.5°	3049.8	3048.9	3053.6	3062.6	3073.9	3085.7
4°	3043.2	3041.8	3047.9	3057.9	3070.6	3084.3
4.5°	3036.1	3034.7	3041.3	3052.7	3067.3	3082.4
5°	3028.6	3027.2	3034.7	3047.5	3063.5	3080.0
5.5°	3020.6	3019.2	3027.7	3041.8	3058.8	3077.2
6°	3012.1	3011.1	3020.1	3035.7	3054.1	3073.9
6.5°	3003.6	3002.6	3012.1	3029.1	3048.9	3070.1
7°	2994.6	2993.2	3003.6	3021.5	3043.7	3066.8
7.5°	2985.2	2983.8	2995.1	3014.0	3037.6	3062.1
8°	2975.3	2973.4	2985.7	3006.0	3031.9	3057.4
8.5°	2964.9	2963.5	2976.2	2997.9	3025.3	3052.2
9°	2954.5	2952.6	2965.8	2989.4	3018.2	3047.0
9.5°	2943.7	2941.3	2955.5	2980.0	3010.2	3040.9
10°	2932.3	2929.5	2944.6	2970.6	3002.6	3034.7
10.5°	2920.6	2917.7	2933.3	2961.1	2994.6	3028.1
11°	2908.3	2905.5	2922.0	2951.2	2986.1	3021.0
11.5°	2895.5	2892.7	2909.7	2940.4	2977.2	3013.5
12°	2882.8	2879.5	2897.4	2929.0	2967.7	3006.0
12.5°	2869.1	2865.3	2884.2	2917.2	2957.4	2997.5
13°	2855.4	2851.7	2870.5	2905.9	2947.4	2989.0
13.5°	2841.3	2837.0	2856.9	2893.2	2937.1	2979.5
14°	2826.7	2821.9	2842.7	2880.4	2926.2	2970.1
14.5°	2811.6	2806.8	2827.6	2867.2	2914.4	2960.2
15°	2796.0	2790.3	2812.5	2854.0	2902.6	2950.3
15.5°	2780.4	2773.8	2796.5	2839.9	2889.9	2939.4
16°	2763.9	2757.3	2780.9	2825.2	2877.1	2928.1
16.5°	2746.9	2740.3	2763.9	2810.6	2864.4	2916.3
17°	2729.9	2722.9	2747.4	2795.5	2851.2	2904.5
17.5°	2712.5	2704.9	2729.9	2779.9	2836.6	2891.8
18°	2695.0	2686.5	2712.5	2763.4	2822.4	2879.0
18.5°	2676.6	2667.7	2694.1	2746.9	2807.3	2865.8
19°	2658.2	2648.8	2675.7	2729.9	2792.2	2852.1
19.5°	2638.9	2629.9	2657.3	2713.0	2776.6	2838.0
20°	2619.5	2610.1	2638.4	2695.0	2760.6	2823.4
20.5°	2600.2	2589.8	2619.1	2677.1	2744.1	2808.3
21°	2580.4	2569.5	2598.8	2658.7	2727.1	2792.7

TEST NUMBER: P776552

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2519.0	2507.2	2538.9	2601.6	2674.7	2743.6
23°	2497.8	2486.0	2517.6	2582.3	2656.3	2727.1
23.5°	2477.0	2464.8	2497.3	2562.4	2637.9	2709.2
24°	2455.3	2443.1	2476.1	2541.7	2618.6	2691.2
24.5°	2433.6	2421.4	2454.9	2521.4	2599.7	2672.8
25°	2411.9	2399.2	2432.7	2500.6	2579.9	2654.0
25.5°	2389.3	2377.0	2411.5	2479.9	2560.1	2635.1
26°	2367.1	2355.3	2389.3	2458.6	2540.3	2615.8
26.5°	2344.5	2332.7	2367.6	2437.4	2520.0	2595.9
27°	2321.8	2310.5	2345.4	2415.7	2499.2	2576.6
27.5°	2299.2	2287.4	2323.2	2394.0	2478.5	2555.8
28°	2276.0	2264.3	2300.6	2371.8	2456.8	2535.1
28.5°	2252.5	2241.1	2277.5	2349.7	2435.5	2514.3
29°	2229.8	2218.5	2255.3	2327.0	2413.3	2493.1
29.5°	2206.2	2194.9	2232.2	2304.4	2391.6	2471.4
30°	2182.2	2170.8	2209.1	2281.7	2369.5	2449.7
30.5°	2157.6	2146.8	2185.5	2258.1	2346.3	2428.0
31°	2133.1	2122.7	2160.9	2235.0	2323.2	2405.3
31.5°	2108.6	2098.2	2136.9	2210.9	2300.6	2383.2
32°	2083.1	2073.6	2112.8	2186.9	2277.0	2360.0
32.5°	2058.5	2048.6	2088.3	2162.3	2253.4	2337.4
33°	2033.1	2023.2	2063.3	2138.3	2228.4	2312.9
33.5°	2007.6	1998.6	2038.7	2113.3	2203.9	2289.7
34°	1981.6	1972.7	2013.7	2088.3	2179.3	2264.7
34.5°	1955.2	1946.2	1987.3	2062.3	2153.4	2240.7
35°	1927.8	1919.4	1960.9	2037.3	2128.4	2214.7
35.5°	1901.0	1892.0	1934.5	2010.9	2102.4	2191.1
36°	1873.1	1862.3	1907.1	1984.5	2076.5	2165.2
36.5°	1841.5	1831.1	1877.4	1955.7	2050.0	2139.7
37°	1807.5	1796.7	1844.3	1927.4	2021.7	2112.3
37.5°	1772.6	1759.9	1809.9	1895.8	1993.0	2087.3
38°	1735.3	1722.1	1773.1	1862.3	1963.7	2058.5
38.5°	1697.6	1683.4	1735.3	1827.3	1933.5	2030.2
39°	1658.9	1644.8	1697.1	1792.0	1901.4	2000.5
39.5°	1619.3	1605.1	1658.0	1756.1	1867.5	1972.2
40°	1578.2	1564.1	1619.3	1718.4	1831.1	1941.1
40.5°	1538.6	1523.0	1579.2	1680.1	1795.3	1908.5
41°	1496.6	1482.5	1540.5	1641.5	1758.0	1875.0
41.5°	1455.6	1441.9	1500.4	1601.3	1720.2	1840.1
42°	1413.6	1401.8	1460.7	1561.2	1682.0	1804.2
42.5°	1372.5	1360.7	1421.1	1521.1	1641.5	1766.0
43°	1329.6	1319.7	1382.0	1479.6	1600.9	1725.4
43.5°	1288.5	1279.6	1341.8	1437.6	1558.9	1683.4

TEST NUMBER: P776552

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1164.4	1158.3	1220.1	1312.6	1431.0	1554.2
45.5°	1123.4	1118.2	1179.5	1269.2	1387.6	1509.3
46°	1082.8	1078.1	1137.6	1229.1	1343.7	1464.5
46.5°	1043.2	1038.0	1095.6	1186.6	1298.4	1420.6
47°	1002.1	998.4	1055.9	1144.6	1254.1	1376.3
47.5°	963.0	959.2	1014.4	1101.7	1209.7	1332.4
48°	924.8	920.5	975.2	1061.1	1165.9	1288.1
48.5°	886.1	882.3	935.1	1018.2	1121.0	1244.7
49°	847.9	845.0	895.5	978.1	1078.1	1202.2
49.5°	809.6	807.3	857.3	936.6	1035.2	1158.8
50°	772.8	770.5	818.6	896.0	991.8	1117.3
50.5°	736.0	733.7	780.4	853.0	949.3	1073.9
51°	700.6	698.3	742.2	815.8	908.2	1032.8
51.5°	666.2	663.4	705.8	775.7	867.7	991.3
52°	630.8	628.9	669.5	737.0	828.0	951.2
52.5°	597.3	595.4	634.1	696.4	788.4	910.1
53°	564.3	561.9	598.7	661.0	749.7	870.5
53.5°	532.2	529.4	563.8	624.2	712.4	830.9
54°	501.1	497.8	529.9	586.9	675.2	792.2
54.5°	470.4	467.1	497.8	552.0	639.8	753.5
55°	443.0	436.4	465.7	518.1	604.4	716.2
55.5°	415.2	407.2	433.6	485.0	570.0	678.5
56°	387.8	377.9	403.4	452.9	536.5	643.1
56.5°	360.0	350.1	373.7	421.3	504.4	606.8
57°	332.2	323.2	345.4	391.1	472.3	572.8
57.5°	307.6	296.8	317.5	362.8	441.1	538.3
58°	284.0	271.8	290.6	335.0	411.0	505.3
58.5°	260.9	247.7	265.6	308.6	382.2	473.2
59°	239.7	225.1	241.1	282.6	353.9	442.1
59.5°	218.0	203.4	218.5	258.6	326.5	411.9
60°	197.7	182.6	196.7	235.9	300.1	381.7
60.5°	178.3	163.2	176.0	213.3	274.6	352.9
61°	160.9	146.7	159.0	192.0	250.1	325.1
61.5°	143.0	130.2	142.5	172.7	226.9	298.7
62°	126.9	114.2	126.0	156.6	205.2	273.2
62.5°	112.3	97.7	109.5	140.1	183.5	247.7
63°	98.6	84.5	92.9	124.1	163.2	223.2
63.5°	84.9	73.1	80.2	108.0	146.3	199.1
64°	73.1	62.3	68.9	92.0	129.7	175.5
64.5°	62.3	53.8	59.4	79.3	113.2	155.2
65°	55.7	45.8	51.0	67.9	96.7	135.4
65.5°	49.1	39.2	43.9	57.6	83.0	115.6
66°	42.5	33.0	37.3	48.6	70.3	95.8



TEST NUMBER: P776552

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	23.1	22.2	24.1	28.8	41.0	49.5
68°	20.8	20.8	21.7	25.0	34.4	39.6
68.5°	19.3	19.3	20.3	22.2	28.8	32.6
69°	18.4	17.9	18.9	20.8	25.0	28.3
69.5°	17.0	17.0	17.9	19.3	22.6	25.9
70°	16.0	16.0	17.0	18.4	21.2	24.5
70.5°	15.1	15.1	15.6	17.0	19.8	23.1
71°	13.7	13.7	14.6	16.0	18.4	21.7
71.5°	12.7	12.7	13.7	15.1	17.5	20.3
72°	12.3	12.3	12.7	14.2	16.5	18.9
72.5°	11.3	11.3	11.8	13.2	15.1	17.9
73°	10.4	10.4	10.9	12.3	14.2	17.0
73.5°	9.9	9.9	10.4	11.3	13.2	15.6
74°	9.0	9.0	9.4	10.4	12.3	14.6
74.5°	8.5	8.5	9.0	9.9	11.3	13.7
75°	8.0	8.0	8.5	9.4	10.9	12.7
75.5°	7.5	7.5	8.0	8.5	9.9	11.8
76°	7.1	7.1	7.1	8.0	9.4	11.3
76.5°	6.6	6.6	6.6	7.5	8.5	10.4
77°	6.1	6.1	6.1	7.1	8.0	9.9
77.5°	5.7	5.7	5.7	6.6	7.5	9.0
78°	5.2	5.2	5.7	6.1	7.1	8.5
78.5°	4.7	4.7	5.2	5.7	6.1	8.0
79°	4.2	4.2	4.7	5.2	5.7	7.1
79.5°	4.2	4.2	4.2	4.7	5.2	6.6
80°	3.8	3.8	3.8	4.2	4.7	6.1
80.5°	3.3	3.3	3.8	3.8	4.2	5.7
81°	3.3	3.3	3.3	3.3	3.8	5.2
81.5°	2.8	2.8	2.8	3.3	3.3	4.7
82°	2.4	2.4	2.8	2.8	2.8	3.8
82.5°	2.4	2.4	2.4	2.4	2.4	3.3
83°	1.9	1.9	1.9	2.4	1.9	2.8
83.5°	1.9	1.4	1.9	1.9	1.9	1.9
84°	1.4	1.4	1.4	1.9	1.4	1.4
84.5°	0.9	0.9	0.9	1.4	1.4	0.9
85°	0.9	0.5	0.9	0.9	0.9	0.9
85.5°	0.5	0.5	0.5	0.9	0.9	0.5
86°	0.0	0.0	0.0	0.5	0.5	0.5
86.5°	0.0	0.0	0.0	0.0	0.5	0.5
87°	0.0	0.0	0.0	0.0	0.0	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.5	0.0	0.0	0.0	0.0
88.5°	0.5	0.5	0.5	0.0	0.0	0.0



TEST NUMBER: P776552  
CATALOG NUMBER: HCDJBL4050CSD-HCD41TRH-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°	2776.6	2829.0	2861.6	2873.8	2876.2	2841.3	2784.2	2714.8	2651.1	2608.2	2580.8
22°	2760.6	2813.4	2846.9	2859.7	2861.6	2826.7	2768.2	2696.9	2632.3	2588.9	2561.0



44°	1641.0	1741.0	1804.2	1836.3	1851.9	1793.4	1694.8	1574.9	1451.8	1351.8	1283.8
44.5°	1598.5	1701.8	1767.0	1799.0	1815.1	1754.2	1655.1	1535.3	1412.2	1311.7	1241.8



66.5°	76.0	123.1	154.8	167.0	177.4	157.1	123.6	89.6	59.0	48.6	40.6
67°	61.3	104.3	136.4	149.1	156.2	137.8	108.0	76.4	52.4	42.5	33.0



89°	0.0	0.0	0.9	0.9	1.4	0.9	0.5	0.0	0.0	0.0	0.5
89.5°	0.0	0.0	0.5	0.5	0.9	0.5	0.5	0.0	0.0	0.0	0.5



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21.5°	2559.6	2549.2	2579.0	2640.3	2710.1	2776.6
22°	2539.3	2528.0	2559.1	2620.9	2692.2	2760.6



44°	1247.0	1239.5	1301.3	1396.1	1517.4	1641.0
44.5°	1206.0	1198.4	1259.8	1353.2	1475.4	1598.5

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66.5°	36.3	28.8	31.6	40.6	59.4	76.0
67°	29.7	24.5	27.4	34.0	49.5	61.3

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

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Scaled Data Report



(END OF REPORT)