

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: P776553

Luminaire Tested: HCDJBS4050CSD-HCD41TRH-5000lm-4000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776553  
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-4000K  
Description: 4 INCH ROUND SHALLOW-WIDE HAZE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

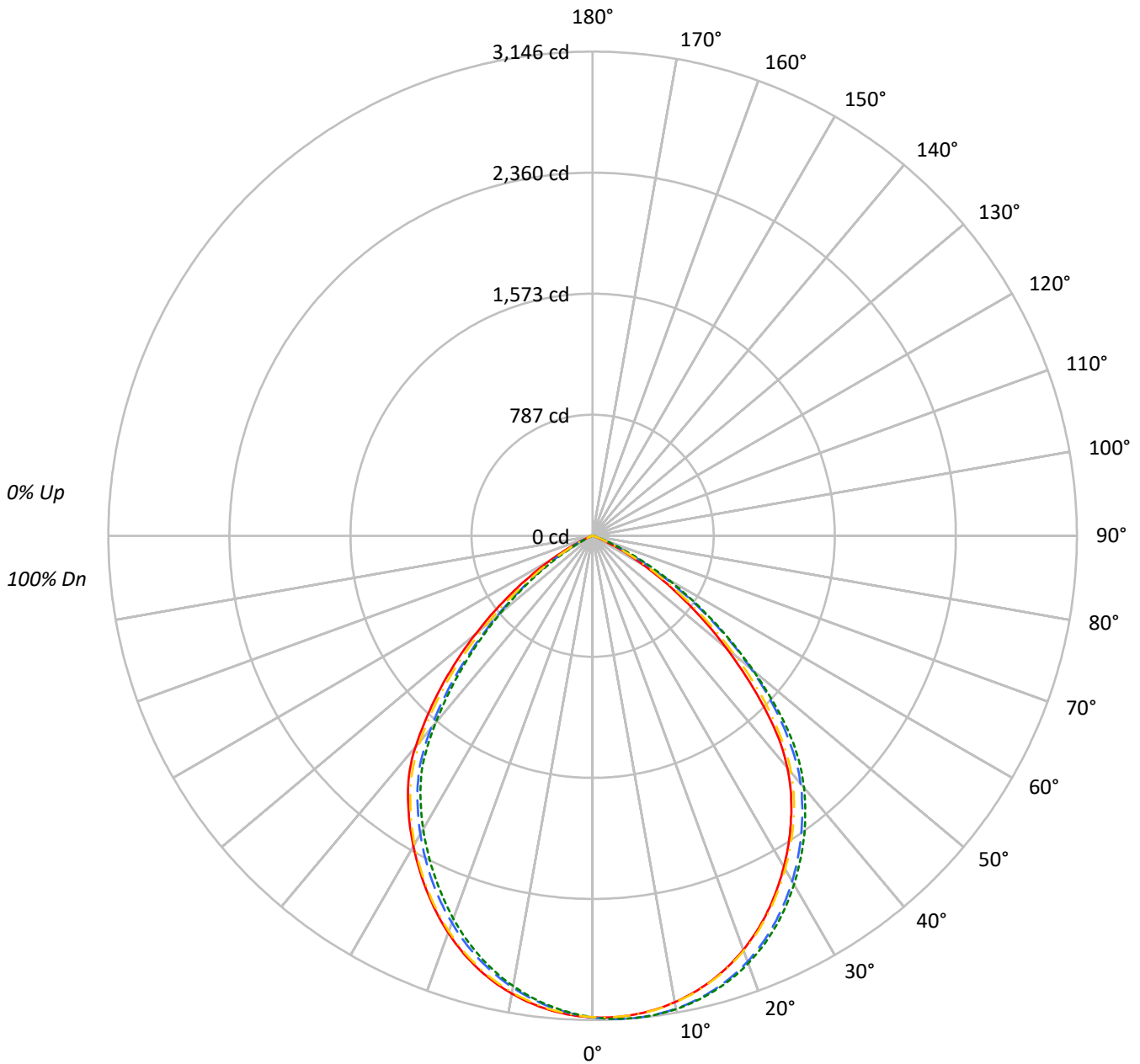
Lumens per Lamp: N/A  
Luminaire Lumens: 5597.2 lumens  
Efficiency: N/A  
Efficacy: 116.6 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.22  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 48  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	105	103	109	106	104	101	102	100	98	98	97	95	95	94	92	90					90			
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80					80			
3	97	89	83	77	95	87	82	77	85	80	76	82	78	74	80	76	73	71					71			
4	90	81	74	68	88	79	73	68	77	71	67	75	70	66	73	69	65	63					63			
5	84	73	66	60	82	72	65	60	70	64	60	69	63	59	67	62	58	57					57			
6	78	67	60	54	77	66	59	54	65	58	53	63	57	53	62	57	53	51					51			
7	73	62	54	49	72	61	54	49	59	53	48	58	52	48	57	52	48	46					46			
8	69	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42					42			
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38					38			
10	60	49	42	37	59	48	41	37	47	41	37	46	41	36	46	40	36	35					35			

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

	0°	90°	180°	270°
0°	393771	393771	393771	393771
5°	394555	397335	391107	387784
10°	393252	399118	386096	379617
15°	389773	398750	378425	368641
20°	383418	395914	367535	354463
25°	373700	389766	353759	337818
30°	360972	380227	338520	319890
35°	345016	367739	321280	299018
40°	323363	350782	293808	260556
45°	280476	320504	247710	209036
50°	221808	266780	193986	152969
55°	159359	206160	136255	97090
60°	97408	140524	78027	46615
65°	40886	75072	29213	13817
70°	9162	22004	8463	5998
75°	6273	8120	5835	3939
80°	4493	6233	4131	2754
85°	1444	5487	722	722

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 320504 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	294.8	5.3
10°-20°	829.7	14.8
20°-30°	1205.5	21.5
30°-40°	1350.4	24.1
40°-50°	1137.0	20.3
50°-60°	612.2	10.9
60°-70°	150.9	2.7
70°-80°	14.4	0.3
80°-90°	2.5	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°	2329.9	41.6
0°-40°	3680.3	65.8
0°-60°	5429.5	97.0
0°-90°	5597.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5597.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	3129	3129	3129	3129	3129	
5°	3123	3145	3096	3070	3123	297
15°	2992	3060	2904	2829	2992	843
25°	2691	2807	2548	2433	2691	1238
35°	2246	2394	2091	1946	2246	1401
45°	1576	1801	1392	1174	1576	1205
55°	726	940	621	442	726	655
65°	137	252	98	46	137	154
75°	13	17	12	8	13	15
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°	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9
0.5°	3130.8	3132.8	3133.7	3132.8	3131.8	3129.9	3128.9	3128.0	3128.0	3128.0	3127.0
1°	3131.3	3135.2	3136.6	3136.1	3134.7	3132.8	3129.9	3127.5	3126.1	3124.6	3122.7
1.5°	3131.8	3136.6	3139.5	3139.0	3137.5	3134.7	3130.8	3127.0	3123.7	3120.8	3118.4
2°	3131.8	3138.0	3141.4	3141.4	3139.9	3136.1	3130.8	3125.6	3121.3	3117.0	3113.6
2.5°	3131.3	3139.0	3143.3	3143.3	3141.8	3137.1	3130.8	3123.7	3117.9	3112.7	3107.9
3°	3130.4	3139.5	3144.2	3144.7	3143.3	3138.0	3129.9	3121.8	3114.6	3107.9	3102.6
3.5°	3128.9	3139.5	3145.2	3146.2	3144.2	3138.0	3128.9	3119.4	3110.3	3102.1	3096.4
4°	3127.5	3139.0	3145.7	3146.6	3145.2	3138.0	3128.0	3116.5	3106.0	3096.9	3090.2
4.5°	3125.6	3138.0	3145.7	3147.1	3145.7	3137.5	3126.1	3113.1	3101.2	3091.1	3083.0
5°	3123.2	3137.1	3145.2	3147.6	3145.2	3136.6	3123.7	3109.3	3095.9	3084.4	3075.8
5.5°	3120.3	3135.6	3144.2	3147.1	3145.2	3135.2	3121.3	3105.5	3090.2	3077.7	3068.6
6°	3117.0	3133.7	3143.8	3146.2	3144.2	3133.7	3117.9	3100.7	3084.4	3070.6	3060.5
6.5°	3113.1	3131.3	3141.8	3144.7	3142.8	3131.3	3114.6	3095.9	3077.7	3062.9	3051.9
7°	3109.8	3128.5	3139.9	3143.3	3141.4	3128.9	3110.8	3090.7	3071.0	3055.3	3042.8
7.5°	3105.0	3125.6	3137.5	3141.4	3139.0	3126.1	3106.9	3084.9	3063.9	3046.6	3033.7
8°	3100.2	3122.2	3134.7	3139.0	3136.6	3122.7	3102.1	3078.7	3056.2	3037.6	3024.2
8.5°	3095.0	3117.9	3131.8	3136.1	3133.7	3119.4	3096.9	3072.0	3047.6	3028.0	3014.1
9°	3089.7	3113.6	3128.5	3132.8	3130.4	3115.1	3091.6	3064.8	3039.5	3018.4	3003.6
9.5°	3083.5	3108.8	3124.1	3129.4	3127.0	3110.8	3085.9	3057.6	3030.4	3008.8	2993.1
10°	3077.3	3104.1	3119.8	3125.1	3123.2	3106.0	3079.7	3050.0	3021.3	2998.3	2982.1
10.5°	3070.6	3098.3	3115.1	3120.8	3118.4	3100.7	3073.0	3041.4	3011.2	2987.3	2970.1
11°	3063.4	3092.6	3109.8	3116.0	3113.6	3095.0	3065.8	3032.8	3001.2	2976.3	2958.1
11.5°	3055.7	3085.9	3104.5	3110.8	3108.4	3088.7	3058.6	3023.7	2990.7	2964.4	2946.2
12°	3048.1	3079.2	3098.3	3105.0	3103.1	3082.0	3050.9	3014.6	2979.7	2952.4	2933.3
12.5°	3039.5	3072.0	3091.6	3098.8	3096.9	3075.3	3042.3	3004.1	2968.2	2940.4	2919.9
13°	3030.9	3064.3	3084.9	3092.6	3090.7	3068.2	3033.7	2994.0	2956.2	2927.5	2906.9
13.5°	3021.3	3056.2	3077.3	3085.4	3083.5	3060.5	3024.6	2983.5	2944.3	2913.6	2892.6
14°	3011.7	3047.6	3070.1	3078.2	3076.3	3052.9	3015.5	2972.5	2930.9	2900.2	2878.2
14.5°	3001.7	3039.0	3062.0	3070.1	3068.6	3044.2	3005.5	2960.5	2917.9	2885.9	2863.9
15°	2991.6	3029.9	3053.3	3062.0	3060.5	3035.2	2995.4	2948.1	2904.5	2872.0	2849.0
15.5°	2980.6	3019.8	3044.2	3053.3	3051.9	3026.1	2984.4	2935.6	2890.2	2856.2	2832.8
16°	2969.1	3009.8	3035.2	3044.7	3042.8	3016.0	2973.9	2923.2	2875.8	2840.9	2817.0
16.5°	2957.2	2999.3	3025.1	3035.2	3033.7	3006.0	2962.0	2909.3	2860.5	2825.6	2800.7
17°	2945.2	2987.8	3015.1	3025.1	3024.2	2995.4	2950.0	2895.5	2845.7	2809.3	2784.5
17.5°	2932.3	2976.8	3004.1	3014.6	3013.6	2984.4	2937.6	2881.6	2829.4	2792.6	2766.8
18°	2919.4	2964.8	2993.1	3003.6	3003.1	2973.0	2924.6	2867.2	2813.2	2775.4	2749.5
18.5°	2906.0	2952.4	2981.6	2992.1	2992.1	2961.5	2911.7	2851.9	2796.4	2757.7	2731.4
19°	2892.1	2939.5	2969.1	2980.6	2980.6	2949.0	2897.8	2836.6	2779.2	2739.5	2713.7
19.5°	2877.8	2926.1	2956.7	2968.2	2968.7	2936.6	2884.0	2820.3	2762.0	2721.8	2694.5
20°	2862.9	2912.2	2943.8	2955.3	2956.2	2923.2	2869.1	2804.1	2744.3	2703.6	2675.9
20.5°	2847.6	2898.3	2929.9	2942.3	2943.3	2909.8	2854.8	2787.3	2726.1	2684.0	2656.7
21°	2831.8	2883.5	2916.0	2928.9	2929.9	2895.5	2839.5	2770.6	2707.0	2664.9	2637.1

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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°	2782.1	2837.1	2871.1	2884.9	2887.3	2851.0	2790.7	2717.0	2649.5	2604.6	2576.3
23°	2765.3	2820.3	2855.3	2869.1	2872.5	2835.2	2773.9	2698.8	2629.9	2584.5	2555.8
23.5°	2747.1	2803.6	2839.0	2853.8	2856.7	2819.4	2756.2	2679.7	2609.4	2563.4	2534.2
24°	2729.0	2786.4	2822.3	2837.1	2840.4	2802.6	2738.5	2661.0	2589.3	2542.4	2512.7
24.5°	2710.3	2768.2	2805.0	2820.3	2823.7	2785.4	2720.4	2640.9	2568.7	2521.3	2491.2
25°	2691.2	2750.5	2787.3	2803.1	2806.9	2768.2	2702.2	2621.8	2547.6	2500.3	2469.7
25.5°	2672.0	2732.3	2769.6	2785.9	2790.2	2751.0	2683.5	2601.7	2526.6	2477.8	2447.6
26°	2652.4	2713.2	2751.0	2767.7	2772.0	2732.3	2664.9	2581.6	2506.0	2455.8	2425.2
26.5°	2632.3	2694.0	2732.8	2749.5	2753.4	2713.7	2645.2	2560.6	2484.0	2433.3	2402.7
27°	2612.7	2674.4	2713.7	2730.9	2735.2	2694.5	2625.6	2540.5	2462.0	2411.3	2379.7
27.5°	2591.7	2654.3	2694.0	2712.2	2716.0	2675.4	2605.1	2519.4	2440.5	2388.8	2356.7
28°	2570.6	2634.2	2673.9	2692.6	2696.9	2655.3	2585.4	2498.4	2418.5	2365.8	2333.8
28.5°	2549.6	2614.1	2653.8	2672.5	2677.3	2636.1	2564.9	2476.4	2396.0	2343.3	2309.9
29°	2528.0	2593.1	2633.3	2652.4	2657.2	2616.1	2543.8	2454.8	2374.0	2320.4	2286.4
29.5°	2506.0	2572.0	2612.7	2632.3	2637.1	2595.5	2522.3	2433.3	2351.5	2296.5	2263.0
30°	2484.0	2550.0	2591.2	2610.8	2616.5	2574.0	2501.7	2411.8	2329.5	2273.5	2238.6
30.5°	2462.0	2528.5	2570.1	2590.7	2595.5	2552.9	2479.7	2389.3	2306.0	2250.1	2214.2
31°	2439.0	2507.0	2548.1	2569.2	2574.4	2531.9	2457.7	2366.8	2283.1	2226.1	2189.3
31.5°	2416.5	2484.0	2526.6	2547.2	2552.4	2509.8	2435.2	2344.3	2260.1	2202.2	2164.4
32°	2393.1	2461.5	2503.6	2524.7	2530.4	2487.4	2413.7	2322.3	2237.1	2177.8	2139.1
32.5°	2370.1	2438.6	2481.6	2503.1	2508.4	2465.3	2390.7	2299.3	2213.7	2152.9	2113.2
33°	2345.3	2415.1	2458.7	2480.7	2485.9	2443.3	2368.2	2276.8	2189.3	2128.1	2087.9
33.5°	2321.8	2392.1	2435.2	2457.7	2463.0	2419.9	2345.3	2252.4	2164.9	2102.7	2061.1
34°	2296.5	2368.2	2411.3	2434.7	2440.5	2397.4	2321.8	2229.0	2140.5	2077.8	2034.8
34.5°	2272.1	2343.3	2388.3	2411.3	2416.5	2374.0	2298.4	2204.6	2116.1	2051.5	2008.4
35°	2245.7	2318.0	2363.9	2387.8	2393.6	2350.0	2274.0	2180.2	2091.2	2025.7	1980.7
35.5°	2221.8	2293.6	2339.0	2363.0	2369.7	2325.6	2249.1	2155.8	2065.9	1999.4	1952.5
36°	2195.5	2268.2	2313.7	2339.0	2345.3	2301.2	2224.7	2130.9	2040.0	1972.6	1925.2
36.5°	2169.7	2242.4	2289.3	2313.7	2319.9	2276.4	2199.3	2106.0	2014.2	1944.8	1895.1
37°	2141.9	2216.1	2263.5	2287.9	2294.1	2250.5	2173.5	2079.7	1987.4	1915.2	1862.0
37.5°	2116.6	2189.8	2237.6	2262.5	2268.7	2225.2	2148.1	2053.4	1959.6	1882.6	1827.1
38°	2087.4	2163.5	2210.8	2236.7	2243.4	2199.3	2121.4	2026.6	1929.5	1848.7	1790.3
38.5°	2058.7	2136.7	2185.0	2209.9	2217.0	2172.5	2094.1	1998.4	1897.5	1813.7	1752.0
39°	2028.5	2108.0	2158.7	2183.6	2190.7	2145.8	2066.8	1967.8	1863.5	1777.4	1713.3
39.5°	1999.8	2078.8	2130.9	2156.8	2163.9	2117.5	2038.1	1934.8	1827.6	1739.1	1674.5
40°	1968.3	2049.6	2102.2	2128.1	2135.2	2089.8	2007.0	1901.3	1788.4	1700.3	1635.3
40.5°	1935.2	2019.0	2072.6	2099.3	2107.0	2059.6	1974.0	1865.4	1749.6	1660.6	1594.1
41°	1901.3	1986.9	2041.9	2070.2	2077.8	2030.0	1940.0	1829.0	1710.9	1620.0	1553.5
41.5°	1865.9	1952.5	2008.4	2038.1	2047.7	1998.4	1905.6	1792.7	1671.6	1580.7	1513.8
42°	1829.5	1917.5	1974.0	2005.1	2016.6	1965.4	1869.2	1755.4	1631.4	1537.2	1471.2
42.5°	1790.8	1881.2	1938.6	1971.1	1984.0	1930.5	1832.9	1716.6	1591.3	1495.6	1429.5
43°	1749.6	1843.4	1902.7	1935.2	1950.6	1894.1	1795.5	1675.9	1552.0	1454.4	1386.5
43.5°	1707.0	1804.6	1866.4	1898.9	1914.7	1857.3	1757.3	1636.2	1512.8	1413.3	1345.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1575.9	1685.0	1753.0	1786.5	1800.8	1738.6	1638.1	1515.7	1391.8	1288.4	1217.6
45.5°	1530.5	1644.4	1715.2	1748.2	1758.7	1697.5	1597.0	1475.5	1352.5	1247.7	1175.0
46°	1485.0	1602.3	1675.5	1709.0	1717.1	1654.9	1555.4	1434.8	1311.4	1206.6	1132.0
46.5°	1440.6	1558.2	1635.8	1668.8	1674.0	1612.3	1513.3	1394.1	1271.2	1165.9	1090.3
47°	1395.6	1515.7	1596.0	1628.6	1629.5	1568.3	1469.7	1352.5	1231.0	1125.3	1048.2
47.5°	1351.1	1472.1	1553.9	1587.4	1585.5	1523.8	1426.7	1311.9	1190.8	1087.0	1006.6
48°	1306.1	1428.6	1512.8	1545.8	1540.1	1479.3	1383.1	1271.2	1149.7	1045.8	965.9
48.5°	1262.1	1384.6	1471.2	1503.7	1495.6	1434.3	1339.6	1230.5	1110.0	1006.1	926.7
49°	1219.0	1341.0	1430.5	1461.6	1450.6	1389.4	1295.6	1188.4	1070.2	966.4	886.1
49.5°	1175.0	1296.1	1387.4	1419.0	1406.6	1344.4	1252.1	1148.2	1031.0	928.2	847.3
50°	1132.9	1252.1	1344.9	1375.0	1362.6	1298.9	1207.6	1106.1	990.8	889.9	808.5
50.5°	1088.9	1208.5	1301.8	1331.0	1320.5	1254.0	1163.5	1065.5	951.6	851.6	771.2
51°	1047.3	1165.5	1259.2	1287.9	1275.0	1209.9	1119.5	1023.4	913.3	814.3	734.4
51.5°	1005.2	1121.4	1215.2	1243.4	1232.0	1167.4	1076.9	984.1	875.5	777.4	699.5
52°	964.5	1079.8	1173.6	1201.3	1189.9	1124.3	1033.9	943.5	837.7	740.6	664.1
52.5°	922.9	1037.7	1129.6	1156.8	1148.7	1079.8	991.8	902.8	799.9	704.2	630.1
53°	882.7	995.6	1086.0	1113.8	1104.7	1037.2	949.2	862.6	763.1	668.8	595.6
53.5°	842.5	953.5	1042.0	1068.8	1062.1	995.6	908.5	824.3	726.7	634.4	563.1
54°	803.3	912.4	999.4	1026.7	1020.5	954.0	866.4	785.1	691.3	600.0	531.5
54.5°	764.1	872.7	956.9	983.7	981.3	912.8	827.2	745.9	655.4	566.5	500.4
55°	726.3	832.5	914.8	942.5	939.6	871.7	787.5	708.6	621.0	534.4	471.3
55.5°	688.0	792.8	872.7	899.4	898.5	832.5	749.2	671.7	586.6	502.4	444.0
56°	652.1	754.0	830.6	860.2	858.3	792.3	710.9	634.9	553.1	471.7	416.2
56.5°	615.3	716.2	789.9	819.1	820.0	753.5	673.2	598.5	520.1	443.0	388.5
57°	580.8	678.4	747.8	778.9	779.8	715.3	636.8	564.1	488.0	414.8	361.2
57.5°	545.9	641.1	708.6	738.2	741.1	678.4	601.4	530.1	456.4	386.1	333.5
58°	512.4	605.2	669.8	701.4	703.8	642.1	566.9	496.1	426.8	357.9	309.1
58.5°	479.9	570.3	631.5	662.6	665.5	606.6	533.4	464.1	397.1	329.2	285.6
59°	448.3	534.4	593.7	624.8	629.1	572.2	500.0	433.9	367.4	303.3	262.7
59.5°	417.7	500.4	556.9	587.0	593.7	538.2	467.9	403.3	337.8	278.9	240.7
60°	387.0	467.4	521.0	552.6	558.3	504.7	438.7	373.2	310.0	255.0	220.1
60.5°	357.9	434.4	486.1	517.2	523.9	473.2	409.5	343.0	283.7	232.5	199.5
61°	329.6	402.4	452.1	481.8	489.9	443.5	380.4	315.8	258.4	210.5	180.4
61.5°	302.8	372.2	420.1	448.8	458.3	414.3	351.2	289.9	234.0	190.4	162.7
62°	277.0	342.6	388.5	416.2	427.2	384.7	322.0	264.6	211.0	170.8	145.9
62.5°	251.2	313.8	357.4	384.2	396.1	355.5	295.7	240.7	188.0	152.6	129.7
63°	226.3	285.6	327.7	353.6	365.0	325.8	270.3	216.7	167.5	134.9	113.9
63.5°	201.9	258.8	299.5	322.9	333.9	299.5	246.4	195.2	147.8	119.1	100.0
64°	178.0	232.5	272.2	294.7	305.2	273.7	222.9	175.1	129.7	103.8	87.1
64.5°	157.4	207.2	246.4	267.0	278.0	248.3	201.9	156.0	113.4	89.9	74.6
65°	137.3	183.2	221.5	241.1	252.1	224.9	180.8	137.8	98.1	77.5	64.1
65.5°	117.2	162.7	197.6	216.3	226.8	201.9	161.7	121.0	83.2	66.0	56.5
66°	97.1	143.5	175.1	191.9	202.4	179.9	142.6	105.7	70.8	56.0	48.8





TEST NUMBER: P776553

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	50.2	87.1	120.1	133.0	138.3	121.5	95.2	66.0	46.4	36.8	25.8
68°	40.2	73.2	101.4	115.3	119.6	104.8	81.3	56.0	39.7	30.1	22.5
68.5°	33.0	60.8	83.2	97.1	102.4	89.5	68.9	49.8	33.0	23.9	20.6
69°	28.7	50.2	68.9	78.9	86.1	75.6	58.4	44.0	26.3	21.5	19.1
69.5°	26.3	41.6	56.5	65.5	71.8	63.2	51.2	37.8	24.4	20.1	17.7
70°	24.9	34.4	45.9	54.1	59.8	55.5	44.5	31.6	23.0	18.7	16.7
70.5°	23.4	28.7	36.8	44.0	52.6	47.8	37.8	25.8	21.5	17.7	15.8
71°	22.0	24.4	30.1	35.9	45.5	40.2	31.1	23.4	20.1	16.7	14.4
71.5°	20.6	22.5	25.4	29.7	38.3	32.5	24.4	22.0	18.7	15.3	13.4
72°	19.1	21.1	22.5	24.9	31.1	24.9	22.5	20.6	17.7	14.4	12.9
72.5°	18.2	19.6	20.6	22.5	23.9	22.5	21.1	19.1	16.3	13.4	12.0
73°	17.2	18.2	19.1	21.1	22.0	21.1	19.6	18.2	15.3	12.4	11.0
73.5°	15.8	17.2	18.2	19.6	20.6	19.6	18.2	16.7	14.4	12.0	10.5
74°	14.8	16.3	17.2	18.2	19.1	18.2	17.2	15.8	13.4	11.0	9.6
74.5°	13.9	14.8	15.8	17.2	18.2	17.2	15.8	14.8	12.4	10.0	9.1
75°	12.9	13.9	14.8	15.8	16.7	15.8	14.8	13.9	12.0	9.6	8.1
75.5°	12.0	12.9	13.9	14.8	15.8	14.8	13.9	12.9	11.0	9.1	7.7
76°	11.5	12.4	12.9	13.9	14.8	13.9	12.9	12.0	10.0	8.1	7.2
76.5°	10.5	11.5	12.0	12.9	13.9	12.9	12.0	11.0	9.6	7.7	6.7
77°	10.0	10.5	11.5	12.0	12.9	12.0	11.5	10.5	9.1	7.2	6.2
77.5°	9.1	10.0	10.5	11.5	12.0	11.5	10.5	9.6	8.1	6.7	5.7
78°	8.6	9.6	10.0	10.5	11.0	10.5	9.6	9.1	7.7	6.2	5.3
78.5°	8.1	8.6	9.1	10.0	10.5	10.0	9.1	8.1	7.2	5.7	4.8
79°	7.2	8.1	8.6	9.1	9.6	9.1	8.6	7.7	6.7	5.3	4.3
79.5°	6.7	7.7	8.1	8.6	9.1	8.6	7.7	7.2	6.2	4.8	4.3
80°	6.2	6.7	7.2	8.1	8.6	8.1	7.2	6.7	5.7	4.3	3.8
80.5°	5.7	6.2	6.7	7.7	7.7	7.7	6.7	6.2	5.3	3.8	3.3
81°	5.3	5.7	6.2	7.2	7.2	6.7	6.2	5.7	4.8	3.3	2.9
81.5°	4.8	5.3	5.7	6.7	6.7	6.2	5.7	5.3	4.3	2.9	2.9
82°	3.8	4.8	5.3	6.2	6.2	5.7	5.3	4.8	3.8	2.4	2.4
82.5°	3.3	4.3	5.3	5.7	5.7	5.7	4.8	4.3	2.9	1.9	2.4
83°	2.9	3.8	4.8	5.3	5.3	5.3	4.8	3.8	2.4	1.9	1.9
83.5°	1.9	3.3	4.3	4.8	4.8	4.8	4.3	3.3	1.9	1.4	1.9
84°	1.4	2.9	3.8	4.3	4.8	4.3	3.8	2.9	1.4	1.0	1.4
84.5°	1.0	2.4	3.3	3.8	4.3	3.8	3.3	2.4	1.0	1.0	1.0
85°	1.0	1.9	3.3	3.8	3.8	3.8	3.3	1.9	0.5	1.0	1.0
85.5°	0.5	1.9	2.9	3.3	3.3	3.3	2.9	1.9	0.5	0.5	0.5
86°	0.5	1.4	2.9	2.9	3.3	2.9	2.4	1.4	0.5	0.5	0.5
86.5°	0.5	1.4	2.4	2.9	2.9	2.9	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	1.0	0.0	0.0	0.0
87.5°	0.0	1.0	1.9	1.9	2.4	1.9	1.4	1.0	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	1.0	1.4	1.4	1.4	1.0	0.5	0.0	0.0	0.0



TEST NUMBER: P776553

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**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: P776553

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3128.9	3128.9	3128.9	3128.9	3128.9	3128.9
0.5°	3125.1	3123.7	3123.7	3125.6	3127.5	3130.8
1°	3120.8	3119.4	3120.3	3123.2	3127.0	3131.3
1.5°	3116.0	3114.6	3116.0	3120.3	3126.1	3131.8
2°	3110.8	3109.3	3111.7	3117.4	3124.1	3131.8
2.5°	3105.5	3104.1	3106.9	3113.6	3122.2	3131.3
3°	3099.3	3097.8	3102.1	3109.8	3119.8	3130.4
3.5°	3092.6	3091.6	3096.4	3105.5	3117.0	3128.9
4°	3085.9	3084.4	3090.7	3100.7	3113.6	3127.5
4.5°	3078.7	3077.3	3084.0	3095.4	3110.3	3125.6
5°	3071.0	3069.6	3077.3	3090.2	3106.4	3123.2
5.5°	3062.9	3061.5	3070.1	3084.4	3101.7	3120.3
6°	3054.3	3053.3	3062.4	3078.2	3096.9	3117.0
6.5°	3045.7	3044.7	3054.3	3071.5	3091.6	3113.1
7°	3036.6	3035.2	3045.7	3063.9	3086.4	3109.8
7.5°	3027.0	3025.6	3037.1	3056.2	3080.1	3105.0
8°	3017.0	3015.1	3027.5	3048.1	3074.4	3100.2
8.5°	3006.5	3005.0	3017.9	3039.9	3067.7	3095.0
9°	2995.9	2994.0	3007.4	3031.3	3060.5	3089.7
9.5°	2984.9	2982.5	2996.9	3021.8	3052.4	3083.5
10°	2973.4	2970.6	2985.9	3012.2	3044.7	3077.3
10.5°	2961.5	2958.6	2974.4	3002.6	3036.6	3070.6
11°	2949.0	2946.2	2962.9	2992.6	3028.0	3063.4
11.5°	2936.1	2933.3	2950.5	2981.6	3018.9	3055.7
12°	2923.2	2919.9	2938.0	2970.1	3009.3	3048.1
12.5°	2909.3	2905.5	2924.6	2958.1	2998.8	3039.5
13°	2895.5	2891.6	2910.8	2946.6	2988.8	3030.9
13.5°	2881.1	2876.8	2896.9	2933.7	2978.2	3021.3
14°	2866.3	2861.5	2882.5	2920.8	2967.2	3011.7
14.5°	2851.0	2846.2	2867.2	2907.4	2955.3	3001.7
15°	2835.2	2829.4	2851.9	2894.0	2943.3	2991.6
15.5°	2819.4	2812.7	2835.7	2879.7	2930.4	2980.6
16°	2802.6	2795.9	2819.9	2864.8	2917.5	2969.1
16.5°	2785.4	2778.7	2802.6	2850.0	2904.5	2957.2
17°	2768.2	2761.0	2785.9	2834.7	2891.2	2945.2
17.5°	2750.5	2742.8	2768.2	2818.9	2876.3	2932.3
18°	2732.8	2724.2	2750.5	2802.2	2862.0	2919.4
18.5°	2714.1	2705.0	2731.8	2785.4	2846.7	2906.0
19°	2695.5	2685.9	2713.2	2768.2	2831.3	2892.1
19.5°	2675.9	2666.8	2694.5	2751.0	2815.6	2877.8
20°	2656.2	2646.7	2675.4	2732.8	2799.3	2862.9
20.5°	2636.6	2626.1	2655.8	2714.6	2782.5	2847.6
21°	2616.5	2605.5	2635.2	2696.0	2765.3	2831.8

TEST NUMBER: P776553

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2554.3	2542.4	2574.4	2638.1	2712.2	2782.1
23°	2532.8	2520.8	2552.9	2618.4	2693.6	2765.3
23.5°	2511.8	2499.3	2532.3	2598.4	2674.9	2747.1
24°	2489.7	2477.3	2510.8	2577.3	2655.3	2729.0
24.5°	2467.7	2455.3	2489.3	2556.7	2636.1	2710.3
25°	2445.7	2432.8	2466.8	2535.7	2616.1	2691.2
25.5°	2422.8	2410.3	2445.3	2514.6	2596.0	2672.0
26°	2400.3	2388.3	2422.8	2493.1	2575.9	2652.4
26.5°	2377.3	2365.4	2400.8	2471.6	2555.3	2632.3
27°	2354.4	2342.9	2378.3	2449.6	2534.2	2612.7
27.5°	2331.4	2319.4	2355.8	2427.6	2513.2	2591.7
28°	2307.9	2296.0	2332.8	2405.1	2491.2	2570.6
28.5°	2284.0	2272.5	2309.4	2382.6	2469.7	2549.6
29°	2261.1	2249.6	2286.9	2359.6	2447.2	2528.0
29.5°	2237.1	2225.7	2263.5	2336.7	2425.2	2506.0
30°	2212.7	2201.3	2240.0	2313.7	2402.7	2484.0
30.5°	2187.9	2176.9	2216.1	2289.8	2379.2	2462.0
31°	2163.0	2152.5	2191.2	2266.3	2355.8	2439.0
31.5°	2138.1	2127.6	2166.8	2241.9	2332.8	2416.5
32°	2112.3	2102.7	2142.4	2217.5	2308.9	2393.1
32.5°	2087.4	2077.3	2117.5	2192.6	2285.0	2370.1
33°	2061.6	2051.5	2092.2	2168.2	2259.6	2345.3
33.5°	2035.7	2026.6	2067.3	2142.9	2234.7	2321.8
34°	2009.4	2000.3	2041.9	2117.5	2209.9	2296.5
34.5°	1982.6	1973.5	2015.1	2091.2	2183.6	2272.1
35°	1954.9	1946.3	1988.4	2065.9	2158.2	2245.7
35.5°	1927.6	1918.5	1961.6	2039.1	2131.9	2221.8
36°	1899.4	1888.4	1933.8	2012.3	2105.6	2195.5
36.5°	1867.3	1856.8	1903.7	1983.1	2078.8	2169.7
37°	1832.9	1821.9	1870.2	1954.4	2050.1	2141.9
37.5°	1797.5	1784.5	1835.3	1922.3	2020.9	2116.6
38°	1759.7	1746.3	1797.9	1888.4	1991.2	2087.4
38.5°	1721.4	1707.0	1759.7	1853.0	1960.6	2058.7
39°	1682.2	1667.8	1720.9	1817.1	1928.1	2028.5
39.5°	1642.0	1627.6	1681.2	1780.7	1893.6	1999.8
40°	1600.3	1586.0	1642.0	1742.4	1856.8	1968.3
40.5°	1560.2	1544.4	1601.3	1703.7	1820.4	1935.2
41°	1517.6	1503.2	1562.1	1664.5	1782.6	1901.3
41.5°	1476.0	1462.1	1521.4	1623.8	1744.4	1865.9
42°	1433.4	1421.4	1481.2	1583.1	1705.6	1829.5
42.5°	1391.8	1379.8	1441.0	1542.5	1664.5	1790.8
43°	1348.2	1338.2	1401.3	1500.4	1623.3	1749.6
43.5°	1306.6	1297.5	1360.7	1457.8	1580.7	1707.0

TEST NUMBER: P776553

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1180.8	1174.5	1237.2	1331.0	1451.1	1575.9
45.5°	1139.1	1133.9	1196.1	1287.0	1407.1	1530.5
46°	1098.0	1093.2	1153.5	1246.3	1362.6	1485.0
46.5°	1057.8	1052.5	1110.9	1203.3	1316.6	1440.6
47°	1016.2	1012.4	1070.7	1160.7	1271.7	1395.6
47.5°	976.5	972.6	1028.6	1117.1	1226.7	1351.1
48°	937.7	933.4	988.9	1076.0	1182.2	1306.1
48.5°	898.5	894.7	948.2	1032.5	1136.7	1262.1
49°	859.7	856.9	908.1	991.8	1093.2	1219.0
49.5°	821.0	818.6	869.3	949.7	1049.7	1175.0
50°	783.7	781.3	830.1	908.5	1005.7	1132.9
50.5°	746.4	744.0	791.3	865.0	962.6	1088.9
51°	710.5	708.1	752.6	827.2	921.0	1047.3
51.5°	675.5	672.7	715.7	786.5	879.8	1005.2
52°	639.7	637.7	678.9	747.3	839.6	964.5
52.5°	605.7	603.8	643.0	706.2	799.5	922.9
53°	572.2	569.8	607.1	670.3	760.2	882.7
53.5°	539.7	536.8	571.7	633.0	722.4	842.5
54°	508.1	504.7	537.3	595.2	684.6	803.3
54.5°	477.0	473.6	504.7	559.8	648.8	764.1
55°	449.2	442.5	472.2	525.3	612.9	726.3
55.5°	421.0	412.9	439.7	491.8	577.9	688.0
56°	393.3	383.2	409.1	459.3	544.0	652.1
56.5°	365.0	355.0	378.9	427.2	511.4	615.3
57°	336.8	327.7	350.2	396.6	478.9	580.8
57.5°	311.9	300.9	322.0	367.9	447.3	545.9
58°	288.0	275.6	294.7	339.7	416.7	512.4
58.5°	264.6	251.2	269.4	312.9	387.5	479.9
59°	243.0	228.2	244.5	286.6	358.8	448.3
59.5°	221.0	206.2	221.5	262.2	331.1	417.7
60°	200.5	185.2	199.5	239.2	304.3	387.0
60.5°	180.8	165.5	178.5	216.3	278.4	357.9
61°	163.1	148.8	161.2	194.7	253.6	329.6
61.5°	145.0	132.0	144.5	175.1	230.1	302.8
62°	128.7	115.8	127.7	158.8	208.1	277.0
62.5°	113.9	99.0	111.0	142.1	186.1	251.2
63°	100.0	85.6	94.3	125.8	165.5	226.3
63.5°	86.1	74.2	81.3	109.6	148.3	201.9
64°	74.2	63.2	69.9	93.3	131.6	178.0
64.5°	63.2	54.5	60.3	80.4	114.8	157.4
65°	56.5	46.4	51.7	68.9	98.1	137.3
65.5°	49.8	39.7	44.5	58.4	84.2	117.2
66°	43.1	33.5	37.8	49.3	71.3	97.1



TEST NUMBER: P776553

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	23.4	22.5	24.4	29.2	41.6	50.2
68°	21.1	21.1	22.0	25.4	34.9	40.2
68.5°	19.6	19.6	20.6	22.5	29.2	33.0
69°	18.7	18.2	19.1	21.1	25.4	28.7
69.5°	17.2	17.2	18.2	19.6	23.0	26.3
70°	16.3	16.3	17.2	18.7	21.5	24.9
70.5°	15.3	15.3	15.8	17.2	20.1	23.4
71°	13.9	13.9	14.8	16.3	18.7	22.0
71.5°	12.9	12.9	13.9	15.3	17.7	20.6
72°	12.4	12.4	12.9	14.4	16.7	19.1
72.5°	11.5	11.5	12.0	13.4	15.3	18.2
73°	10.5	10.5	11.0	12.4	14.4	17.2
73.5°	10.0	10.0	10.5	11.5	13.4	15.8
74°	9.1	9.1	9.6	10.5	12.4	14.8
74.5°	8.6	8.6	9.1	10.0	11.5	13.9
75°	8.1	8.1	8.6	9.6	11.0	12.9
75.5°	7.7	7.7	8.1	8.6	10.0	12.0
76°	7.2	7.2	7.2	8.1	9.6	11.5
76.5°	6.7	6.7	6.7	7.7	8.6	10.5
77°	6.2	6.2	6.2	7.2	8.1	10.0
77.5°	5.7	5.7	5.7	6.7	7.7	9.1
78°	5.3	5.3	5.7	6.2	7.2	8.6
78.5°	4.8	4.8	5.3	5.7	6.2	8.1
79°	4.3	4.3	4.8	5.3	5.7	7.2
79.5°	4.3	4.3	4.3	4.8	5.3	6.7
80°	3.8	3.8	3.8	4.3	4.8	6.2
80.5°	3.3	3.3	3.8	3.8	4.3	5.7
81°	3.3	3.3	3.3	3.3	3.8	5.3
81.5°	2.9	2.9	2.9	3.3	3.3	4.8
82°	2.4	2.4	2.9	2.9	2.9	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	2.9
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°	1.0	1.0	1.0	1.4	1.4	1.0
85°	1.0	0.5	1.0	1.0	1.0	1.0
85.5°	0.5	0.5	0.5	1.0	1.0	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: P776553  
CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-4000K

**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°	2815.6	2868.7	2901.7	2914.1	2916.5	2881.1	2823.2	2752.9	2688.3	2644.8	2617.0
22°	2799.3	2852.9	2886.8	2899.8	2901.7	2866.3	2806.9	2734.7	2669.2	2625.1	2596.9



44°	1664.0	1765.4	1829.5	1862.0	1877.8	1818.5	1718.5	1597.0	1472.1	1370.7	1301.8
44.5°	1620.9	1725.7	1791.7	1824.3	1840.5	1778.8	1678.3	1556.8	1431.9	1330.0	1259.2



66.5°	77.0	124.9	156.9	169.4	179.9	159.3	125.3	90.9	59.8	49.3	41.1
67°	62.2	105.7	138.3	151.2	158.4	139.7	109.6	77.5	53.1	43.1	33.5



89°	0.0	0.0	1.0	1.0	1.4	1.0	0.5	0.0	0.0	0.0	0.5
89.5°	0.0	0.0	0.5	0.5	1.0	0.5	0.5	0.0	0.0	0.0	0.5



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21.5°	2595.5	2585.0	2615.1	2677.3	2748.1	2815.6
22°	2574.9	2563.4	2595.0	2657.7	2729.9	2799.3



44°	1264.5	1256.8	1319.5	1415.7	1538.6	1664.0
44.5°	1222.9	1215.2	1277.4	1372.1	1496.0	1620.9



66.5°	36.8	29.2	32.1	41.1	60.3	77.0
67°	30.1	24.9	27.7	34.4	50.2	62.2

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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)