

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: P776842

Luminaire Tested: HCDJBL54050CSD-HCD8TSQMW-5000lm-3500K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776842  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2310613A001)  
Test Lab:  
Issue Date: 2/7/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS4050CSD-HCD8TSQMW-5000lm-3500K  
Description: 8 INCH SQUARE MEDIUM MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

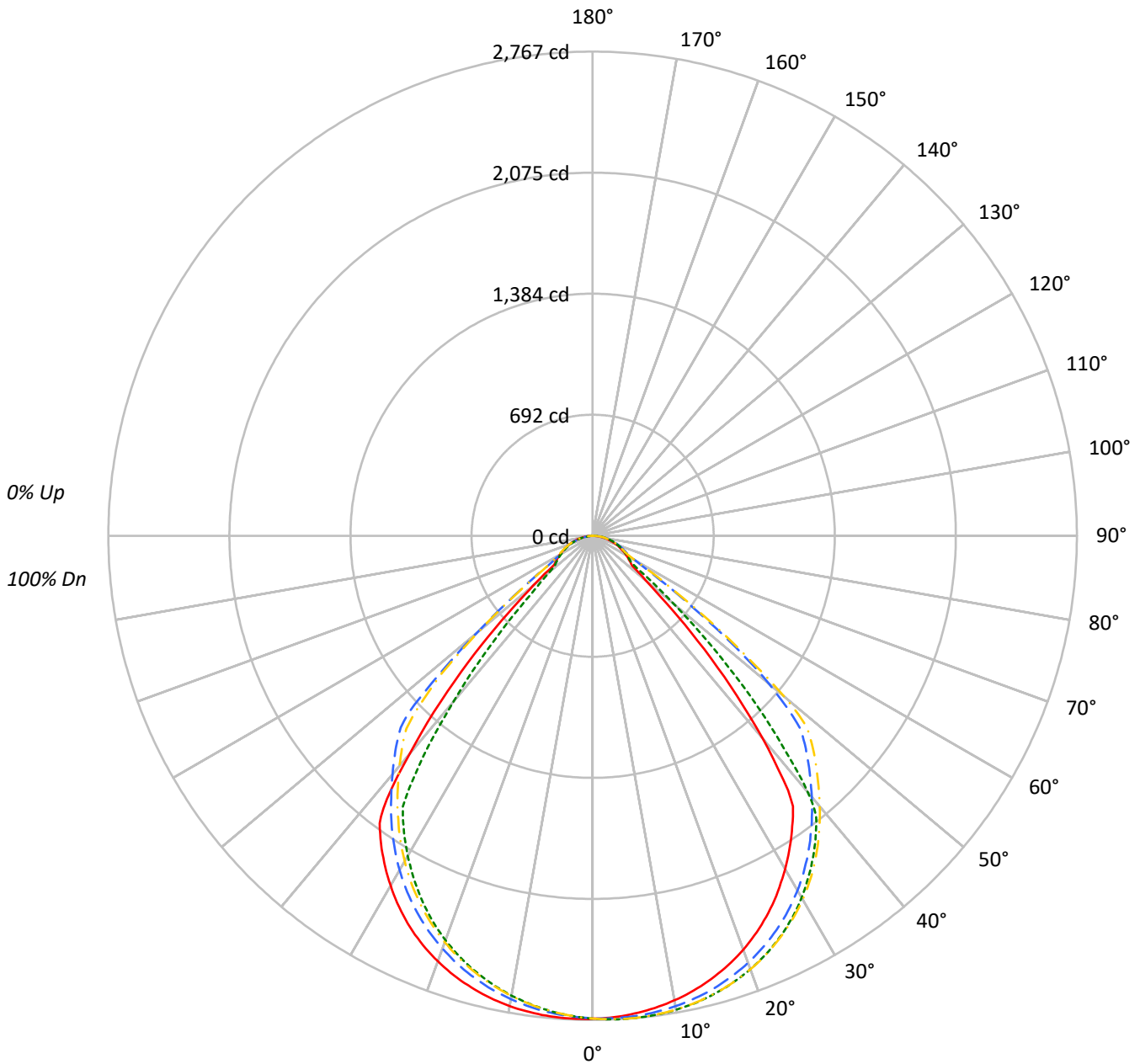
Lumens per Lamp: N/A  
Luminaire Lumens: 4996.6 lumens  
Efficiency: N/A  
Efficacy: 104.1 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.29  
Luminous Opening: Rectangular (W 0.67' x L: 0.67' x H: 0')  
CIE Type: Direct

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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	111	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89								
2	104	97	92	88	101	96	91	87	92	88	85	89	86	83	86	84	81	79								
3	97	88	82	77	94	87	81	76	84	79	75	81	77	73	79	75	72	70								
4	90	80	73	68	88	79	72	67	77	71	66	75	70	66	73	68	65	63								
5	84	73	66	60	82	72	65	60	70	64	59	68	63	59	67	62	58	56								
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	60	53	48	58	52	48	57	52	48	46								
8	69	57	50	44	67	56	49	44	55	49	44	54	48	44	53	48	44	42								
9	65	53	45	41	63	52	45	40	51	45	40	50	44	40	49	44	40	38								
10	61	49	42	37	60	49	42	37	48	41	37	47	41	37	46	41	37	35								

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

	0°	90°	180°	270°
0°	66152	66152	66152	66152
5°	65974	66597	66371	65644
10°	65633	66955	66449	64969
15°	65079	67209	66355	64027
20°	64237	67259	66018	62745
25°	62873	66953	65294	60915
30°	60902	66138	63906	58474
35°	58328	64566	61849	55307
40°	47259	59893	50950	38801
45°	28780	41205	32330	21330
50°	14757	22479	16499	12049
55°	11020	11513	10744	10309
60°	10651	10968	10359	9927
65°	10298	10780	10031	9577
70°	9983	10642	9689	9156
75°	9478	10654	9265	8514
80°	8534	10812	8534	7360
85°	6108	11555	6740	4292

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 135°  
 Vertical Angle: 45°  
 Luminance: 60887 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	261.1	5.2
10°-20°	746.1	14.9
20°-30°	1115.5	22.3
30°-40°	1279.9	25.6
40°-50°	929.4	18.6
50°-60°	340.6	6.8
60°-70°	182.7	3.7
70°-80°	110.4	2.2
80°-90°	30.9	0.6
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°	2122.6	42.5
0°-40°	3402.6	68.1
0°-60°	4672.6	93.5
0°-90°	4996.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4996.6	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2759	2759	2759	2759	2759	
5°	2741	2767	2757	2727	2741	260
15°	2622	2707	2673	2579	2622	739
25°	2376	2531	2468	2302	2376	1093
35°	1993	2206	2113	1889	1993	1216
45°	849	1215	953	629	849	669
55°	264	275	257	247	264	246
65°	182	190	177	169	182	180
75°	102	115	100	92	102	108
85°	22	42	24	16	22	27
90°	0	7	0	0	0	



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CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8
0.5°	2759.8	2760.2	2758.8	2758.4	2760.7	2760.7	2760.7	2761.7	2761.7	2760.2	2756.5
1°	2758.8	2759.8	2759.3	2759.8	2762.6	2762.1	2762.1	2762.6	2762.1	2759.8	2755.1
1.5°	2757.4	2759.3	2759.8	2760.7	2764.0	2763.5	2763.5	2763.5	2762.1	2759.3	2753.6
2°	2756.0	2758.4	2759.8	2761.2	2765.0	2765.0	2764.5	2764.0	2762.1	2758.8	2752.2
2.5°	2753.6	2757.4	2759.8	2762.1	2765.9	2765.9	2765.4	2764.0	2762.1	2757.9	2749.9
3°	2751.8	2756.0	2759.3	2762.6	2766.8	2766.8	2765.9	2764.0	2761.7	2756.9	2748.0
3.5°	2749.9	2754.6	2758.8	2762.6	2766.8	2767.3	2766.4	2764.5	2761.2	2755.5	2745.2
4°	2747.0	2752.7	2758.4	2762.6	2766.8	2767.3	2766.8	2764.0	2760.2	2753.6	2742.3
4.5°	2744.2	2750.8	2756.9	2761.7	2766.8	2767.3	2766.4	2763.5	2758.8	2751.8	2739.5
5°	2740.9	2748.5	2756.0	2761.2	2766.8	2767.3	2766.4	2762.6	2757.4	2749.4	2736.2
5.5°	2737.6	2746.1	2754.1	2760.2	2766.4	2766.4	2765.4	2761.7	2755.5	2746.6	2732.9
6°	2733.8	2743.3	2752.7	2759.3	2765.4	2765.9	2764.5	2760.2	2753.6	2744.2	2729.1
6.5°	2730.5	2740.0	2750.3	2757.9	2764.5	2765.0	2763.5	2758.8	2751.3	2741.4	2725.3
7°	2726.3	2736.7	2748.5	2756.5	2763.1	2764.0	2762.1	2756.9	2748.9	2738.1	2720.6
7.5°	2721.6	2733.4	2745.6	2754.6	2761.7	2763.1	2760.7	2755.1	2746.1	2734.8	2716.4
8°	2716.9	2729.6	2743.3	2752.7	2759.8	2761.2	2758.8	2752.7	2743.3	2731.0	2711.2
8.5°	2712.1	2725.3	2740.0	2749.9	2757.9	2759.3	2756.9	2750.3	2740.0	2726.8	2706.0
9°	2707.0	2721.1	2736.7	2747.5	2755.5	2757.4	2754.6	2747.5	2736.7	2722.5	2700.8
9.5°	2701.3	2716.4	2733.4	2744.7	2753.2	2754.6	2752.2	2744.7	2732.9	2717.8	2695.2
10°	2695.6	2711.2	2730.1	2741.9	2749.9	2752.2	2748.9	2740.9	2729.1	2713.1	2689.5
10.5°	2689.5	2706.0	2725.8	2738.6	2747.0	2749.4	2746.1	2737.1	2724.4	2708.4	2682.9
11°	2683.4	2700.8	2721.6	2734.8	2743.7	2746.6	2742.8	2733.4	2719.7	2702.7	2676.3
11.5°	2676.8	2695.2	2716.4	2731.0	2740.4	2742.8	2739.0	2729.1	2715.0	2697.5	2669.7
12°	2669.7	2689.0	2712.1	2726.8	2736.7	2739.0	2735.3	2724.9	2710.3	2691.4	2663.1
12.5°	2662.2	2682.9	2707.0	2722.5	2732.4	2735.3	2731.5	2720.6	2704.6	2684.8	2655.6
13°	2655.1	2675.8	2701.8	2717.8	2728.2	2731.0	2726.8	2715.4	2698.9	2678.2	2648.0
13.5°	2647.1	2669.2	2696.1	2713.1	2723.5	2726.8	2722.0	2710.3	2692.8	2671.6	2640.0
14°	2639.1	2661.7	2690.5	2707.9	2718.3	2721.6	2717.3	2704.6	2686.7	2664.5	2631.5
14.5°	2630.6	2654.6	2684.3	2702.7	2713.1	2716.9	2712.1	2698.9	2680.1	2657.5	2623.0
15°	2621.6	2646.6	2677.7	2696.6	2707.4	2711.7	2706.5	2692.8	2673.0	2649.4	2614.5
15.5°	2612.7	2638.6	2671.1	2690.5	2701.8	2705.5	2701.3	2686.7	2665.9	2641.9	2605.6
16°	2603.2	2629.6	2664.1	2684.3	2695.6	2699.9	2695.2	2680.1	2658.4	2633.4	2596.2
16.5°	2593.8	2621.6	2656.5	2677.7	2689.5	2693.8	2688.6	2673.0	2650.8	2624.9	2586.3
17°	2583.9	2612.7	2649.0	2670.7	2682.4	2687.2	2682.0	2665.9	2642.8	2616.4	2576.4
17.5°	2573.5	2603.2	2641.4	2663.6	2675.4	2680.6	2674.9	2658.4	2634.3	2607.5	2566.0
18°	2563.1	2593.8	2632.9	2656.0	2668.3	2673.5	2668.3	2649.9	2625.4	2598.0	2555.6
18.5°	2551.8	2583.9	2624.4	2648.5	2660.8	2665.9	2660.8	2642.4	2616.4	2588.1	2544.3
19°	2540.5	2573.5	2616.0	2640.0	2652.7	2658.4	2652.7	2633.4	2607.0	2578.2	2533.0
19.5°	2529.2	2562.7	2606.5	2631.5	2644.2	2650.4	2644.7	2625.4	2597.6	2567.9	2521.7
20°	2517.4	2551.8	2597.1	2623.0	2635.8	2642.4	2636.2	2615.5	2587.2	2557.5	2509.9
20.5°	2504.7	2540.5	2587.7	2614.1	2626.8	2633.4	2627.7	2606.5	2576.8	2546.6	2497.6
21°	2491.9	2529.2	2577.8	2604.6	2617.8	2624.9	2618.3	2596.6	2566.4	2534.9	2484.9



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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°	2451.4	2492.4	2545.2	2574.5	2587.7	2595.7	2589.6	2565.5	2532.5	2499.0	2446.2
23°	2437.3	2479.2	2533.9	2564.1	2577.3	2585.3	2579.7	2554.7	2520.2	2486.3	2432.5
23.5°	2422.6	2466.0	2522.6	2552.8	2566.0	2574.9	2568.8	2543.3	2507.5	2473.1	2418.4
24°	2407.5	2451.9	2510.3	2541.5	2555.1	2564.1	2557.5	2531.1	2495.3	2459.9	2404.2
24.5°	2392.5	2437.7	2498.1	2530.1	2543.3	2552.8	2546.6	2519.3	2481.6	2446.2	2389.2
25°	2376.4	2423.1	2485.3	2517.4	2530.6	2541.0	2534.9	2507.0	2467.9	2432.1	2374.5
25.5°	2360.4	2408.0	2472.6	2505.2	2518.8	2528.7	2523.1	2494.3	2454.2	2417.5	2359.0
26°	2344.4	2392.9	2458.9	2492.4	2505.6	2516.9	2510.8	2481.1	2439.6	2402.8	2343.4
26.5°	2327.4	2377.4	2445.7	2479.2	2492.4	2504.2	2498.1	2467.0	2424.5	2387.3	2327.4
27°	2310.4	2361.3	2432.1	2466.0	2478.7	2490.1	2485.3	2452.8	2409.0	2371.7	2310.9
27.5°	2292.0	2344.8	2417.5	2452.3	2464.6	2476.9	2472.1	2438.7	2393.4	2355.7	2294.4
28°	2274.6	2328.3	2402.4	2437.7	2450.0	2463.2	2458.5	2424.1	2377.4	2339.2	2277.9
28.5°	2255.2	2311.4	2387.7	2423.6	2434.9	2448.6	2444.3	2408.5	2360.9	2322.2	2260.0
29°	2237.8	2293.9	2372.2	2408.0	2420.8	2433.5	2430.2	2393.4	2343.4	2305.2	2242.5
29.5°	2218.0	2276.0	2356.6	2392.9	2403.8	2418.4	2415.6	2376.9	2326.4	2286.8	2224.1
30°	2199.6	2257.6	2340.6	2377.4	2388.7	2402.8	2400.0	2360.9	2308.1	2269.4	2206.2
30.5°	2179.3	2239.2	2324.6	2361.3	2370.8	2386.8	2384.9	2343.9	2290.6	2251.0	2186.9
31°	2160.5	2220.8	2307.6	2344.4	2355.2	2370.8	2368.9	2326.9	2272.2	2232.1	2168.0
31.5°	2140.2	2201.0	2290.1	2327.9	2336.3	2353.3	2352.9	2309.5	2253.8	2213.3	2148.7
32°	2120.4	2181.7	2272.7	2310.4	2318.4	2336.8	2335.9	2291.6	2235.0	2194.4	2128.9
32.5°	2099.2	2162.4	2254.8	2292.5	2300.5	2318.9	2318.9	2273.6	2215.6	2175.1	2108.1
33°	2079.4	2143.0	2235.9	2274.6	2282.6	2301.5	2301.5	2255.2	2195.8	2155.8	2087.9
33.5°	2058.2	2122.8	2218.0	2256.7	2263.3	2283.1	2283.5	2236.9	2176.0	2136.4	2067.1
34°	2036.9	2103.0	2198.7	2237.8	2243.9	2264.2	2265.2	2217.5	2155.8	2116.6	2045.9
34.5°	2013.8	2082.2	2179.3	2218.9	2224.6	2245.3	2246.8	2198.7	2134.1	2096.3	2024.7
35°	1992.6	2061.5	2159.5	2199.6	2205.7	2227.0	2227.9	2179.3	2112.9	2075.6	2003.0
35.5°	1970.5	2040.2	2139.7	2180.3	2184.5	2207.6	2208.1	2160.0	2091.2	2054.4	1981.3
36°	1947.4	2019.0	2119.0	2160.5	2164.2	2187.8	2188.3	2139.7	2069.0	2033.2	1959.1
36.5°	1923.3	1996.9	2098.7	2141.1	2142.6	2168.5	2168.0	2119.0	2044.5	2011.5	1936.5
37°	1882.8	1974.7	2078.0	2120.9	2120.9	2147.7	2147.7	2097.8	2008.6	1988.8	1914.3
37.5°	1834.2	1952.5	2056.7	2100.1	2098.7	2127.0	2126.5	2076.5	1963.9	1966.7	1891.2
38°	1769.1	1929.4	2035.5	2079.4	2076.1	2105.3	2105.8	2054.4	1908.2	1942.6	1868.6
38.5°	1704.1	1905.9	2013.4	2058.2	2050.6	2084.1	2084.1	2032.7	1842.7	1915.8	1846.4
39°	1640.9	1870.5	1991.7	2036.9	2014.3	2061.9	2062.9	2010.1	1773.4	1871.9	1823.8
39.5°	1576.7	1823.3	1970.0	2014.8	1969.5	2039.3	2040.7	1984.6	1700.7	1823.3	1801.2
40°	1509.8	1761.6	1947.8	1992.1	1913.4	2016.2	2018.1	1943.1	1627.7	1765.3	1779.0
40.5°	1440.0	1697.0	1925.7	1969.0	1849.7	1991.2	1995.4	1901.1	1558.4	1700.7	1757.3
41°	1368.8	1635.2	1903.0	1945.9	1777.6	1952.1	1973.8	1846.0	1491.9	1636.6	1735.2
41.5°	1298.5	1573.0	1880.9	1920.9	1704.5	1908.7	1951.1	1784.7	1424.0	1564.5	1713.0
42°	1231.6	1507.9	1858.2	1887.5	1631.0	1855.9	1929.0	1718.2	1355.6	1498.5	1690.4
42.5°	1167.9	1440.0	1835.6	1844.1	1561.2	1793.2	1906.8	1648.4	1284.9	1434.3	1668.2
43°	1102.4	1372.6	1813.4	1792.7	1493.3	1725.3	1884.2	1580.5	1215.1	1373.5	1645.6
43.5°	1037.3	1304.7	1790.3	1734.7	1424.9	1653.6	1862.5	1514.5	1145.8	1306.6	1622.5



TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL4050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	848.7	1108.1	1722.4	1535.2	1215.1	1448.0	1795.5	1317.9	953.4	1112.8	1549.9
45.5°	788.8	1045.8	1699.3	1468.8	1144.4	1382.5	1772.4	1250.5	889.7	1045.3	1511.7
46°	732.7	983.1	1675.8	1406.1	1078.8	1315.5	1749.3	1183.5	829.4	985.5	1466.4
46.5°	677.6	919.5	1652.2	1343.3	1014.7	1246.2	1726.2	1115.6	769.5	923.7	1403.2
47°	623.8	857.7	1627.7	1278.7	950.6	1176.9	1702.6	1051.5	712.5	868.1	1325.4
47.5°	575.2	798.7	1584.3	1213.7	887.4	1109.0	1678.1	989.2	657.3	807.2	1247.6
48°	528.6	741.7	1539.0	1148.6	824.7	1045.3	1652.7	928.9	608.3	752.5	1167.9
48.5°	487.1	687.0	1482.4	1083.1	765.3	982.6	1613.5	867.1	559.7	696.9	1091.1
49°	451.7	633.2	1426.8	1022.7	707.7	919.5	1559.3	807.2	515.4	643.1	1017.1
49.5°	421.5	583.3	1370.2	960.0	653.5	858.2	1499.4	749.2	473.4	594.6	944.0
50°	395.6	535.2	1315.5	903.4	602.6	796.9	1426.3	693.1	442.3	549.3	871.8
50.5°	373.9	491.3	1256.1	845.0	555.4	737.9	1348.5	640.3	411.6	504.5	803.5
51°	353.6	452.7	1187.3	787.0	510.2	681.8	1266.5	588.4	381.0	463.5	739.8
51.5°	333.4	421.5	1117.5	728.5	469.2	628.1	1184.0	541.8	350.3	431.0	680.4
52°	313.6	394.2	1044.4	675.7	436.6	577.6	1103.8	497.9	319.7	398.4	622.9
52.5°	296.1	371.1	969.4	623.3	403.6	530.5	1025.1	464.0	295.6	366.4	570.5
53°	283.4	349.9	896.8	575.2	371.1	486.1	952.5	430.0	278.7	333.8	522.9
53.5°	277.3	330.5	826.6	528.1	338.5	452.7	883.1	396.1	271.1	307.9	479.1
54°	272.1	310.7	760.1	486.6	314.0	419.2	815.2	362.1	265.9	284.8	446.1
54.5°	267.8	291.9	696.0	445.1	290.9	385.7	748.8	328.2	261.2	267.8	413.5
55°	263.6	276.8	639.4	409.3	275.4	352.2	685.1	304.1	257.0	260.3	381.5
55.5°	258.9	267.8	585.6	376.3	268.3	318.7	625.2	281.0	252.3	255.1	348.9
56°	254.6	262.6	533.3	346.6	263.6	293.8	569.6	263.1	248.0	250.8	316.9
56.5°	250.4	258.4	486.1	319.2	258.9	272.1	521.5	255.6	243.8	246.1	295.6
57°	246.1	253.7	444.2	294.2	254.1	258.9	481.9	250.4	239.5	241.9	277.7
57.5°	241.9	249.4	406.0	272.1	249.9	253.2	442.3	246.1	235.8	237.6	262.6
58°	238.1	245.2	372.0	257.9	245.7	249.0	402.2	241.4	231.5	233.4	250.4
58.5°	233.9	240.9	342.8	252.3	241.4	244.2	362.6	237.6	227.7	229.6	240.0
59°	230.1	236.7	316.9	247.5	237.2	240.0	323.5	233.4	223.5	225.4	231.0
59.5°	225.9	232.9	296.1	242.8	232.9	235.8	297.1	229.2	219.7	221.6	223.5
60°	222.1	228.7	278.7	238.6	228.7	231.5	276.3	225.4	216.0	217.8	216.9
60.5°	217.8	224.9	264.5	234.3	224.4	227.3	260.3	221.1	212.2	214.1	211.7
61°	214.1	221.1	252.7	230.1	220.7	223.0	246.1	217.4	208.4	210.3	207.5
61.5°	209.8	217.4	241.9	226.3	216.9	219.3	235.8	213.6	204.2	206.5	203.2
62°	206.1	213.1	232.9	222.1	213.1	215.5	226.3	209.8	200.4	202.8	198.5
62.5°	201.8	209.4	224.9	218.3	209.4	211.7	218.8	206.1	196.1	199.0	194.3
63°	197.6	205.6	218.8	214.1	205.1	207.9	211.7	202.3	192.4	194.7	190.0
63.5°	193.8	201.8	214.1	210.3	201.3	204.2	206.5	198.5	188.6	191.0	186.2
64°	189.5	198.0	209.4	206.5	197.6	200.4	201.8	194.7	184.4	186.7	182.0
64.5°	185.8	193.8	205.1	202.3	193.8	196.6	197.6	191.0	180.6	182.9	177.8
65°	181.5	190.0	200.9	198.5	190.0	192.8	193.3	187.2	176.8	179.2	173.5
65.5°	177.3	186.2	196.1	194.7	185.8	189.1	189.1	183.4	172.6	174.9	169.7
66°	173.5	182.0	191.9	191.0	182.0	185.3	184.8	179.2	168.8	171.2	165.5





TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	161.7	172.1	179.6	179.2	170.7	174.0	172.6	167.4	157.5	159.4	153.2
68°	158.0	167.9	175.4	174.9	166.9	170.2	168.3	163.6	153.7	155.1	149.0
68.5°	154.2	163.6	170.2	170.7	163.1	166.0	164.6	159.8	149.9	151.4	144.8
69°	150.4	158.9	166.4	166.9	159.4	162.2	160.3	155.6	146.2	147.1	141.0
69.5°	146.2	154.7	162.7	163.1	155.6	158.4	156.5	151.8	142.4	143.3	136.7
70°	142.4	150.9	158.4	159.8	151.8	154.7	152.3	148.1	138.2	139.6	132.5
70.5°	138.2	146.6	154.7	156.1	148.5	150.9	148.5	144.3	134.4	135.3	128.7
71°	134.4	142.9	150.4	151.8	144.8	147.1	144.3	140.0	130.6	131.6	124.5
71.5°	130.1	139.1	146.6	148.1	141.0	143.3	140.5	136.3	126.8	127.8	120.2
72°	126.4	134.9	142.4	144.3	137.2	139.6	136.3	132.5	123.1	123.5	116.5
72.5°	122.1	130.6	138.2	140.5	133.9	135.8	132.5	128.7	119.3	119.8	112.2
73°	118.3	126.8	133.9	136.3	130.1	132.0	128.3	124.5	115.5	116.0	108.4
73.5°	114.1	122.6	130.1	132.5	126.4	128.3	124.5	120.7	111.7	111.7	104.2
74°	110.3	118.8	125.9	128.7	122.6	124.5	120.7	116.9	108.0	108.0	100.0
74.5°	106.1	114.6	121.7	125.0	118.8	120.7	116.5	113.2	103.7	103.7	96.2
75°	102.3	110.8	117.9	121.2	115.0	116.9	112.7	108.9	100.0	100.0	91.9
75.5°	98.1	106.6	113.6	117.4	111.7	113.2	108.9	105.1	96.2	95.7	87.7
76°	93.8	102.3	109.4	113.2	108.0	109.4	104.7	100.9	92.4	91.5	83.9
76.5°	90.1	98.1	105.6	109.4	104.2	105.6	100.9	97.1	88.6	87.7	79.7
77°	85.8	94.3	101.4	105.6	100.4	101.8	97.1	93.4	84.4	83.9	75.9
77.5°	82.0	90.1	97.1	101.4	96.7	98.1	92.9	89.1	80.6	79.7	71.7
78°	77.8	85.8	93.4	97.6	92.9	94.3	89.1	85.3	76.9	75.9	67.9
78.5°	74.0	82.0	89.1	93.8	89.1	90.5	85.3	81.1	73.1	71.7	63.7
79°	69.8	77.8	85.3	89.6	85.8	86.8	81.1	77.3	69.3	67.9	59.9
79.5°	66.0	73.6	81.1	85.8	82.0	83.0	77.3	73.6	65.5	63.7	55.6
80°	61.8	69.8	76.9	82.0	78.3	78.7	73.6	69.3	61.8	59.9	51.9
80.5°	58.0	65.5	73.1	77.8	74.5	75.4	69.8	65.5	58.0	55.6	48.1
81°	54.2	61.3	69.3	74.0	71.2	71.7	66.0	61.8	54.2	51.9	43.9
81.5°	50.0	57.1	65.1	70.3	67.4	67.4	61.8	58.0	50.5	47.6	40.1
82°	46.2	53.3	60.8	66.0	63.7	64.1	58.0	53.8	46.7	43.9	36.3
82.5°	42.0	49.0	57.1	62.2	59.9	59.9	54.2	50.0	42.9	39.6	32.1
83°	38.2	45.3	53.3	58.5	56.6	56.1	50.5	46.2	39.1	35.8	28.3
83.5°	33.9	41.0	49.0	54.7	52.8	52.3	46.7	42.0	35.4	31.6	25.0
84°	30.2	36.8	45.3	50.9	49.0	48.6	42.9	38.2	31.6	27.8	21.7
84.5°	26.4	33.0	41.0	46.7	45.7	44.8	39.1	34.4	27.8	24.0	18.4
85°	22.2	28.8	37.2	42.9	42.0	41.5	35.4	30.2	24.5	19.8	15.1
85.5°	18.4	25.0	33.5	39.1	38.2	37.7	31.6	26.4	20.7	16.0	11.8
86°	15.6	20.7	29.2	35.4	34.9	33.9	27.8	22.6	17.4	12.7	9.0
86.5°	12.3	16.5	25.9	32.1	31.1	30.2	24.5	18.4	13.7	9.9	5.7
87°	9.4	13.7	22.6	28.3	27.3	26.4	21.2	15.1	10.4	7.5	2.8
87.5°	6.6	10.8	19.3	24.5	24.0	23.1	17.9	12.3	8.0	5.2	0.5
88°	3.8	8.0	16.5	21.2	20.3	19.3	15.1	9.4	5.7	2.8	0.0
88.5°	1.4	5.2	13.2	17.4	17.0	16.0	11.8	7.1	3.3	0.5	0.0



TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-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	3.8	7.1	6.6	5.7	2.8	0.5	0.0	0.0	0.0



TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2758.8	2758.8	2758.8	2758.8	2758.8	2758.8
0.5°	2755.1	2756.9	2756.5	2756.9	2758.4	2759.8
1°	2753.2	2754.6	2753.6	2754.6	2756.5	2758.8
1.5°	2750.8	2752.2	2750.8	2751.8	2754.6	2757.4
2°	2748.5	2749.4	2748.0	2749.4	2752.2	2756.0
2.5°	2745.6	2746.1	2745.2	2746.1	2749.4	2753.6
3°	2742.8	2743.3	2741.4	2743.3	2746.6	2751.8
3.5°	2739.5	2739.5	2738.1	2739.5	2743.7	2749.9
4°	2736.2	2735.7	2733.8	2735.7	2740.4	2747.0
4.5°	2732.4	2731.5	2730.1	2731.9	2737.1	2744.2
5°	2728.6	2727.2	2725.3	2727.2	2732.9	2740.9
5.5°	2724.4	2722.5	2720.6	2723.0	2729.1	2737.6
6°	2719.7	2717.8	2715.4	2718.3	2724.9	2733.8
6.5°	2715.0	2712.6	2710.3	2713.1	2720.6	2730.5
7°	2709.8	2707.0	2704.6	2707.9	2715.4	2726.3
7.5°	2704.6	2701.3	2698.5	2702.2	2710.7	2721.6
8°	2698.9	2695.2	2692.3	2696.6	2705.1	2716.9
8.5°	2692.8	2689.0	2686.2	2690.5	2699.4	2712.1
9°	2686.7	2682.0	2679.6	2683.9	2693.8	2707.0
9.5°	2680.1	2675.4	2672.5	2677.3	2687.6	2701.3
10°	2673.5	2668.3	2665.0	2670.2	2681.0	2695.6
10.5°	2665.9	2660.8	2657.5	2663.1	2674.4	2689.5
11°	2658.9	2652.7	2649.9	2655.6	2667.4	2683.4
11.5°	2650.8	2644.7	2641.9	2648.0	2660.3	2676.8
12°	2643.3	2636.2	2632.9	2639.5	2652.3	2669.7
12.5°	2634.8	2627.3	2624.4	2631.5	2644.2	2662.2
13°	2626.3	2618.3	2615.0	2622.6	2636.7	2655.1
13.5°	2617.4	2608.9	2606.1	2614.1	2628.2	2647.1
14°	2608.4	2599.5	2596.2	2604.6	2619.3	2639.1
14.5°	2599.0	2589.6	2586.3	2595.2	2610.3	2630.6
15°	2589.1	2579.2	2575.4	2585.3	2600.9	2621.6
15.5°	2579.2	2568.8	2565.5	2575.4	2591.0	2612.7
16°	2568.8	2557.5	2554.7	2564.6	2581.5	2603.2
16.5°	2558.4	2546.6	2543.3	2554.2	2571.2	2593.8
17°	2547.1	2535.3	2531.6	2542.9	2560.8	2583.9
17.5°	2535.8	2523.1	2519.8	2532.0	2549.9	2573.5
18°	2524.5	2510.8	2508.0	2520.2	2538.6	2563.1
18.5°	2512.2	2498.1	2495.7	2508.0	2527.3	2551.8
19°	2500.0	2485.3	2482.0	2496.2	2515.5	2540.5
19.5°	2487.7	2472.6	2469.3	2483.5	2503.7	2529.2
20°	2475.0	2458.9	2456.1	2470.7	2491.0	2517.4
20.5°	2461.3	2444.8	2442.4	2458.0	2478.3	2504.7
21°	2448.1	2430.7	2428.3	2443.9	2465.1	2491.9

TEST NUMBER: P776842

CATALOG NUMBER: HCDJBLS4050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2405.2	2385.4	2384.0	2401.9	2423.6	2451.4
23°	2390.6	2369.4	2368.4	2387.3	2409.4	2437.3
23.5°	2375.0	2353.8	2352.9	2372.7	2394.8	2422.6
24°	2359.5	2336.8	2336.8	2357.1	2379.7	2407.5
24.5°	2343.4	2319.8	2319.8	2341.5	2364.2	2392.5
25°	2326.9	2302.4	2302.9	2325.5	2348.6	2376.4
25.5°	2310.4	2285.0	2285.9	2309.5	2332.1	2360.4
26°	2293.0	2267.0	2268.5	2292.5	2316.1	2344.4
26.5°	2275.5	2249.1	2250.5	2275.5	2299.1	2327.4
27°	2258.1	2230.3	2232.1	2258.6	2282.1	2310.4
27.5°	2239.7	2210.9	2213.8	2241.1	2264.2	2292.0
28°	2221.3	2191.6	2194.4	2222.7	2246.3	2274.6
28.5°	2202.4	2171.8	2175.6	2204.8	2228.4	2255.2
29°	2183.6	2152.0	2156.2	2185.9	2210.5	2237.8
29.5°	2164.2	2132.2	2136.4	2167.1	2191.1	2218.0
30°	2144.4	2111.9	2116.2	2148.2	2172.3	2199.6
30.5°	2124.6	2091.2	2096.3	2128.4	2152.9	2179.3
31°	2104.8	2070.4	2076.1	2109.1	2133.1	2160.5
31.5°	2084.6	2049.2	2054.9	2088.8	2113.3	2140.2
32°	2064.3	2027.5	2034.1	2068.5	2093.0	2120.4
32.5°	2044.0	2005.8	2013.8	2047.3	2072.8	2099.2
33°	2022.8	1983.7	1992.6	2027.0	2052.5	2079.4
33.5°	2001.6	1961.0	1970.5	2005.8	2031.3	2058.2
34°	1979.9	1938.4	1949.2	1984.6	2011.5	2036.9
34.5°	1958.7	1914.3	1926.6	1962.0	1990.3	2013.8
35°	1936.5	1889.4	1904.4	1940.8	1969.0	1992.6
35.5°	1914.3	1839.4	1881.3	1919.1	1947.8	1970.5
36°	1891.7	1782.3	1858.7	1896.4	1926.1	1947.4
36.5°	1868.6	1718.2	1833.7	1874.3	1903.5	1923.3
37°	1844.1	1654.1	1798.8	1852.1	1881.3	1882.8
37.5°	1815.3	1588.1	1749.3	1829.5	1858.7	1834.2
38°	1766.8	1520.2	1688.5	1806.8	1835.6	1769.1
38.5°	1708.3	1450.4	1625.8	1784.2	1813.0	1704.1
39°	1646.5	1378.7	1566.8	1762.0	1788.5	1640.9
39.5°	1584.3	1306.6	1503.2	1739.4	1749.8	1576.7
40°	1522.0	1239.6	1438.1	1717.3	1703.1	1509.8
40.5°	1456.5	1173.1	1369.7	1694.1	1642.8	1440.0
41°	1389.1	1109.0	1303.3	1671.5	1582.4	1368.8
41.5°	1320.2	1043.0	1236.8	1648.9	1523.9	1298.5
42°	1253.3	979.8	1172.2	1626.7	1463.6	1231.6
42.5°	1187.3	914.7	1110.4	1604.1	1403.2	1167.9
43°	1123.1	853.0	1051.0	1581.5	1339.6	1102.4
43.5°	1061.4	793.6	989.2	1557.9	1275.0	1037.3

TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	876.5	629.0	808.2	1446.1	1087.8	848.7
45.5°	817.1	577.6	752.1	1393.3	1029.3	788.8
46°	759.6	530.9	698.8	1339.1	969.9	732.7
46.5°	704.4	489.4	646.0	1287.7	910.5	677.6
47°	651.2	455.0	594.6	1234.4	851.1	623.8
47.5°	600.2	425.8	547.4	1179.7	794.5	575.2
48°	550.3	401.7	503.6	1113.7	739.8	528.6
48.5°	506.4	380.5	465.9	1045.3	687.0	487.1
49°	465.9	361.2	433.8	973.2	635.1	451.7
49.5°	439.9	341.8	406.0	905.3	587.0	421.5
50°	414.9	323.0	382.9	840.7	538.9	395.6
50.5°	389.9	303.7	362.6	779.9	495.6	373.9
51°	364.5	288.6	343.7	720.0	456.0	353.6
51.5°	339.5	278.7	324.9	666.2	422.5	333.4
52°	320.2	273.0	306.0	614.4	393.2	313.6
52.5°	301.8	268.3	288.1	563.5	368.3	296.1
53°	283.4	264.0	274.4	517.7	346.6	283.4
53.5°	268.8	259.8	267.8	476.2	326.8	277.3
54°	260.7	255.1	262.6	436.6	307.0	272.1
54.5°	256.0	250.8	258.4	404.1	288.6	267.8
55°	251.3	246.6	253.7	372.5	273.0	263.6
55.5°	247.1	242.4	249.4	345.1	263.6	258.9
56°	242.8	238.6	245.2	320.2	258.9	254.6
56.5°	238.6	234.3	240.9	300.8	254.1	250.4
57°	234.8	230.6	236.7	283.4	249.9	246.1
57.5°	230.6	226.3	232.9	269.2	245.7	241.9
58°	226.8	222.6	229.2	257.0	241.4	238.1
58.5°	223.0	218.8	224.9	247.1	237.2	233.9
59°	218.8	215.0	221.1	237.6	233.4	230.1
59.5°	215.0	211.2	217.4	229.6	229.2	225.9
60°	211.2	207.0	213.1	223.5	224.9	222.1
60.5°	207.5	203.2	209.8	218.8	221.1	217.8
61°	203.7	199.5	206.1	214.5	216.9	214.1
61.5°	199.5	195.7	202.3	210.3	213.1	209.8
62°	195.7	191.4	198.0	205.6	208.9	206.1
62.5°	191.9	187.7	194.3	201.3	205.1	201.8
63°	187.7	183.9	190.5	197.1	200.9	197.6
63.5°	183.9	179.6	186.2	192.8	196.6	193.8
64°	180.1	175.9	182.5	188.6	192.4	189.5
64.5°	175.9	172.6	178.2	184.4	188.1	185.8
65°	172.1	168.8	174.5	180.1	184.4	181.5
65.5°	167.9	165.0	169.7	176.3	180.1	177.3
66°	164.1	161.3	166.4	172.1	175.9	173.5



TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-5000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	152.3	149.5	155.6	159.4	163.6	161.7
68°	148.5	145.7	151.4	155.6	159.4	158.0
68.5°	144.3	141.9	147.6	151.4	155.1	154.2
69°	140.5	138.2	143.8	147.1	151.4	150.4
69.5°	136.3	134.4	139.6	142.9	147.1	146.2
70°	132.5	130.6	135.8	138.6	142.9	142.4
70.5°	128.7	126.8	131.6	134.4	138.6	138.2
71°	125.0	123.1	127.8	130.1	134.9	134.4
71.5°	120.7	119.3	124.0	125.9	130.6	130.1
72°	116.9	115.0	119.8	121.7	126.4	126.4
72.5°	112.7	111.3	115.5	117.4	122.1	122.1
73°	108.9	107.5	111.7	113.6	117.9	118.3
73.5°	104.7	103.3	107.5	109.4	113.6	114.1
74°	100.9	99.5	103.7	105.1	109.9	110.3
74.5°	96.7	95.7	99.5	100.9	105.6	106.1
75°	92.9	91.9	95.2	96.7	101.4	102.3
75.5°	88.6	87.7	91.5	92.4	96.7	98.1
76°	84.9	83.9	87.2	88.2	92.9	93.8
76.5°	80.6	80.2	83.5	83.9	88.6	90.1
77°	76.9	76.4	79.2	80.2	84.4	85.8
77.5°	72.6	72.6	75.4	75.9	80.2	82.0
78°	68.8	68.8	71.2	71.7	75.9	77.8
78.5°	64.6	64.6	67.4	67.4	71.7	74.0
79°	60.8	60.8	63.2	63.2	67.4	69.8
79.5°	56.6	57.1	58.9	58.9	63.2	66.0
80°	52.8	53.3	55.2	55.2	58.9	61.8
80.5°	48.6	49.5	50.9	50.9	54.7	58.0
81°	44.8	45.7	47.2	46.7	50.5	54.2
81.5°	41.0	42.0	43.4	42.9	46.2	50.0
82°	37.2	38.2	39.1	39.1	42.0	46.2
82.5°	33.5	33.9	35.4	35.4	38.2	42.0
83°	29.2	30.2	31.6	31.6	33.9	38.2
83.5°	25.5	26.4	27.3	27.8	29.2	33.9
84°	21.7	22.6	23.6	24.5	25.5	30.2
84.5°	18.4	19.3	19.8	20.7	21.2	26.4
85°	14.6	15.6	16.0	17.4	17.9	22.2
85.5°	10.8	11.8	12.7	14.1	15.1	18.4
86°	7.1	8.5	9.0	10.8	12.3	15.6
86.5°	3.8	4.7	5.2	7.5	9.0	12.3
87°	0.9	1.4	1.9	3.8	6.1	9.4
87.5°	0.0	0.0	0.5	1.4	3.8	6.6
88°	0.0	0.0	0.0	0.0	1.4	3.8
88.5°	0.0	0.0	0.0	0.0	0.0	1.4



TEST NUMBER: P776842

CATALOG NUMBER: HCDJBL54050CSD-HCD8TSQMW-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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Scaled Data Report





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

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Scaled Data Report



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21.5°	2478.7	2517.4	2566.9	2595.2	2607.9	2615.5	2609.4	2586.7	2555.6	2523.1	2472.6
22°	2465.1	2505.2	2556.5	2584.8	2598.0	2606.1	2599.9	2576.4	2544.3	2510.8	2459.4



44°	973.2	1237.3	1767.2	1669.2	1355.1	1582.9	1840.3	1450.4	1079.3	1241.5	1599.4
44.5°	910.0	1171.7	1744.1	1602.2	1285.3	1513.6	1818.2	1383.4	1014.7	1173.1	1576.3



66.5°	169.7	178.2	187.7	186.7	178.2	181.5	180.6	175.4	165.0	166.9	161.3
67°	166.0	174.0	183.4	182.9	174.5	177.8	176.8	171.6	161.3	163.1	157.5



89°	0.0	2.8	9.9	14.1	13.2	12.3	9.0	4.2	1.4	0.0	0.0
89.5°	0.0	0.5	7.1	10.4	9.9	9.0	5.7	1.9	0.0	0.0	0.0



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21.5°	2434.0	2415.6	2414.1	2430.2	2451.9	2478.7
22°	2419.8	2400.5	2398.6	2416.5	2438.2	2465.1



44°	1000.6	737.4	927.5	1532.9	1211.3	973.2
44.5°	938.8	680.9	866.2	1490.9	1148.6	910.0

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66.5°	160.3	157.5	162.7	167.9	171.6	169.7
67°	156.5	153.7	158.9	163.6	167.4	166.0

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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)