

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: P776494

Luminaire Tested: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776494  
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: HCDJBL3040CSD-HCD8TRH-4000lm-5000K  
Description: 8 INCH ROUND MEDIUM HAZE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

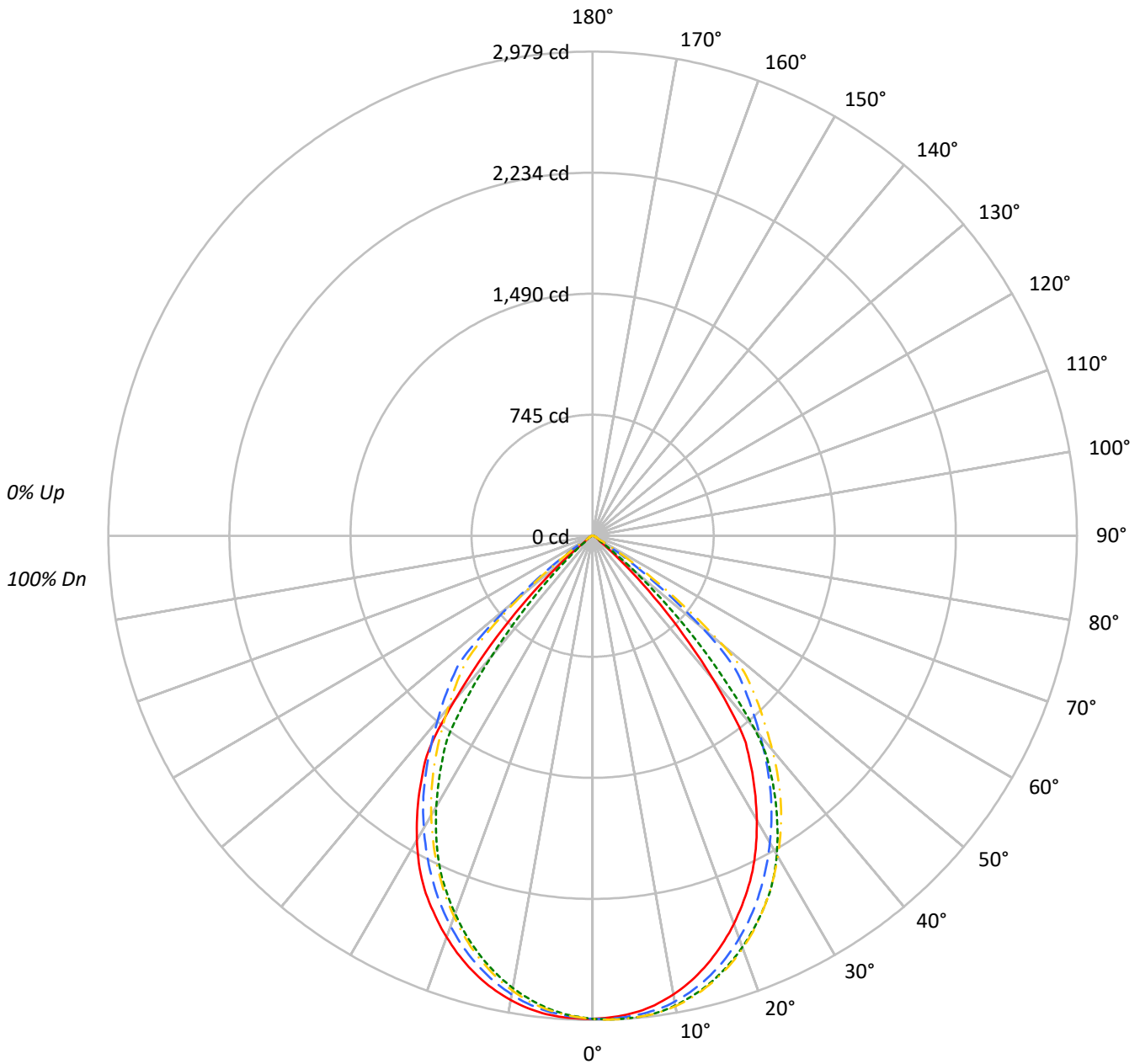
Lumens per Lamp: N/A  
Luminaire Lumens: 4119.4 lumens  
Efficiency: N/A  
Efficacy: 107.0 lumens/watt  
Spacing Criteria (0/90/45): 1.08 / 1.08 / 1.15  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

Input Watts (W): 38.5  
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									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				100															
1	113	110	107	104	110	107	105	103	103	101	99	100	98	97	96	95	94	92				92															
2	106	101	96	92	104	99	95	91	96	92	89	92	90	87	90	87	85	84				84															
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76				76															
4	94	85	79	74	92	84	78	73	82	76	72	79	75	72	78	74	71	69				69															
5	88	78	72	67	86	77	71	66	75	70	66	74	69	65	72	68	65	63				63															
6	83	72	66	61	81	72	65	60	70	64	60	68	63	60	67	63	59	57				57															
7	78	67	60	55	76	66	60	55	65	59	55	64	58	55	62	58	54	53				53															
8	73	62	55	51	72	62	55	51	60	55	50	59	54	50	58	54	50	48				48															
9	69	58	51	47	68	57	51	47	56	51	46	56	50	46	55	50	46	45				45															
10	65	54	48	43	64	54	47	43	53	47	43	52	47	43	51	46	43	41				41															

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

	0°	90°	180°	270°
0°	90739	90739	90739	90739
5°	90283	91187	90736	89694
10°	88819	90948	89922	87588
15°	86240	89701	88153	84496
20°	82550	87504	85367	80357
25°	77822	84449	81777	75165
30°	71198	79873	76197	67782
35°	62775	72879	68474	58966
40°	45980	61571	52464	38420
45°	23160	37490	28967	16947
50°	7068	15555	9514	4854
55°	2613	2938	2613	2262
60°	1997	2198	1997	1722
65°	1568	1683	1539	1329
70°	1241	1348	1205	1062
75°	1014	1109	967	814
80°	791	932	791	651
85°	560	876	560	420

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 135°  
 Vertical Angle: 45°  
 Luminance: 61621 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	279.8	6.8
10°-20°	776.5	18.9
20°-30°	1089.7	26.5
30°-40°	1119.0	27.2
40°-50°	684.2	16.6
50°-60°	132.9	3.2
60°-70°	24.2	0.6
70°-80°	10.8	0.3
80°-90°	2.3	0.1
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°	2146.0	52.1
0°-40°	3265.0	79.3
0°-60°	4082.1	99.1
0°-90°	4119.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4119.4	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2972	2972	2972	2972	2972	
5°	2946	2975	2961	2927	2946	279
15°	2728	2838	2789	2673	2728	766
25°	2310	2507	2428	2231	2310	1057
35°	1684	1955	1837	1582	1684	1029
45°	536	868	671	392	536	432
55°	49	55	49	42	49	54
65°	22	23	21	18	22	22
75°	9	9	8	7	9	9
85°	2	2	2	1	2	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°	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1
0.5°	2971.3	2970.9	2972.9	2974.6	2973.3	2974.6	2975.4	2975.4	2972.5	2970.5	2970.5
1°	2969.7	2970.5	2972.9	2975.8	2975.0	2976.2	2977.0	2976.2	2972.5	2969.2	2968.8
1.5°	2968.0	2969.7	2972.9	2976.6	2976.2	2977.8	2978.2	2976.6	2972.1	2968.0	2966.8
2°	2966.0	2968.4	2972.9	2977.0	2977.4	2978.6	2979.1	2976.6	2971.3	2966.4	2964.3
2.5°	2963.5	2966.8	2972.1	2977.0	2977.8	2979.5	2979.1	2976.6	2970.5	2964.3	2961.9
3°	2960.7	2964.7	2970.9	2976.2	2977.8	2979.5	2979.1	2976.2	2968.8	2962.3	2958.6
3.5°	2957.4	2962.3	2969.2	2975.0	2977.8	2979.5	2978.6	2975.0	2967.2	2959.4	2955.3
4°	2954.1	2959.8	2967.2	2973.7	2977.0	2978.6	2977.8	2974.2	2965.6	2957.0	2951.7
4.5°	2950.4	2957.0	2964.7	2972.1	2976.2	2977.8	2976.6	2972.9	2963.5	2954.1	2947.2
5°	2945.9	2953.7	2962.3	2970.5	2975.4	2976.6	2975.4	2970.9	2960.7	2950.4	2943.1
5.5°	2941.0	2949.6	2959.0	2968.4	2973.7	2975.4	2973.7	2968.4	2957.8	2946.8	2938.2
6°	2935.3	2945.1	2956.2	2966.0	2972.1	2973.7	2971.7	2966.0	2953.7	2942.3	2932.5
6.5°	2928.8	2939.4	2952.5	2963.1	2969.7	2971.7	2969.7	2962.3	2948.8	2936.9	2926.3
7°	2921.4	2933.7	2948.4	2959.4	2966.4	2968.8	2967.2	2958.2	2943.5	2931.2	2919.8
7.5°	2913.6	2926.7	2943.9	2954.9	2962.3	2965.6	2963.9	2952.9	2937.8	2924.3	2912.4
8°	2904.7	2919.4	2939.0	2950.0	2957.8	2961.5	2960.3	2948.0	2931.6	2917.7	2904.2
8.5°	2895.2	2910.8	2932.9	2944.7	2952.5	2956.6	2955.8	2942.3	2924.3	2910.0	2895.7
9°	2885.8	2902.6	2926.3	2938.6	2946.8	2951.7	2950.8	2935.7	2916.9	2901.4	2886.3
9.5°	2875.2	2893.2	2919.0	2932.0	2940.6	2945.5	2945.1	2928.8	2908.7	2892.8	2876.4
10°	2865.0	2884.2	2910.8	2925.1	2933.7	2939.4	2938.6	2921.4	2900.6	2883.8	2865.8
10.5°	2854.0	2874.0	2902.2	2917.3	2925.9	2932.9	2932.0	2914.1	2892.0	2874.0	2854.8
11°	2842.1	2863.8	2892.8	2909.1	2918.1	2925.1	2924.7	2905.9	2882.6	2864.2	2843.7
11.5°	2829.8	2852.7	2883.0	2900.2	2910.0	2916.9	2916.5	2897.3	2872.8	2853.1	2831.5
12°	2816.8	2841.7	2872.4	2891.2	2901.4	2908.7	2907.5	2888.3	2862.5	2842.1	2819.2
12.5°	2803.7	2829.8	2861.7	2881.3	2892.0	2900.2	2898.1	2878.9	2851.5	2830.2	2806.1
13°	2789.8	2817.6	2850.3	2871.5	2882.6	2891.2	2888.7	2868.7	2840.5	2818.0	2793.0
13.5°	2775.1	2804.9	2838.0	2860.9	2871.9	2881.3	2878.5	2858.5	2828.2	2805.3	2779.6
14°	2759.9	2791.4	2825.7	2849.9	2861.3	2871.1	2867.4	2847.4	2815.9	2792.2	2764.8
14.5°	2744.0	2776.7	2812.7	2838.0	2849.9	2860.1	2856.4	2835.6	2802.4	2777.9	2750.5
15°	2728.5	2762.4	2799.2	2825.3	2838.0	2848.6	2844.6	2823.7	2789.0	2763.6	2735.4
15.5°	2711.3	2747.3	2785.3	2812.3	2825.7	2836.4	2832.3	2811.0	2775.1	2748.9	2719.9
16°	2694.1	2731.3	2771.0	2799.2	2813.1	2824.1	2819.6	2797.5	2760.3	2733.4	2703.5
16.5°	2676.9	2715.4	2755.8	2785.7	2799.6	2811.4	2806.9	2783.2	2745.2	2717.4	2686.8
17°	2659.0	2699.0	2740.3	2771.4	2785.7	2798.0	2793.0	2769.7	2730.1	2700.7	2669.2
17.5°	2640.1	2681.8	2724.0	2755.8	2771.4	2783.6	2778.7	2754.6	2713.7	2683.9	2651.6
18°	2621.3	2663.9	2707.6	2740.3	2756.7	2769.3	2764.4	2739.1	2697.4	2666.7	2633.6
18.5°	2601.7	2645.5	2690.4	2724.4	2741.1	2754.2	2748.9	2723.5	2680.2	2648.7	2614.4
19°	2581.7	2627.1	2672.9	2708.0	2725.6	2738.3	2732.9	2707.2	2663.0	2630.7	2595.6
19.5°	2561.7	2607.8	2654.9	2690.8	2709.6	2722.3	2717.0	2690.4	2645.5	2611.9	2576.0
20°	2540.8	2588.2	2636.5	2674.1	2693.3	2705.6	2700.2	2673.3	2627.5	2593.1	2555.9
20.5°	2519.1	2567.4	2617.7	2656.1	2676.5	2689.2	2683.1	2655.3	2608.7	2573.1	2535.5
21°	2497.1	2546.5	2598.4	2638.1	2659.0	2671.6	2665.5	2637.3	2590.3	2553.5	2514.6



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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°	2429.2	2481.5	2537.5	2581.3	2605.4	2617.7	2609.9	2581.3	2530.6	2491.7	2449.2
23°	2405.9	2458.2	2516.7	2561.7	2586.2	2598.4	2590.7	2561.7	2510.6	2470.5	2426.7
23.5°	2382.6	2435.7	2495.4	2541.6	2566.6	2579.6	2570.6	2541.2	2490.5	2448.4	2403.8
24°	2358.9	2412.0	2472.9	2521.2	2547.3	2559.6	2550.2	2520.8	2470.1	2426.3	2381.0
24.5°	2334.8	2388.7	2450.5	2500.3	2527.3	2539.2	2529.4	2500.3	2449.2	2403.8	2357.2
25°	2310.2	2364.6	2427.6	2478.7	2506.9	2518.3	2508.9	2479.1	2427.6	2381.0	2332.7
25.5°	2284.1	2340.5	2404.7	2457.4	2486.8	2497.9	2487.2	2457.8	2405.1	2358.1	2308.6
26°	2257.1	2316.4	2381.4	2435.3	2466.4	2476.6	2465.6	2436.6	2381.4	2335.2	2284.1
26.5°	2229.7	2291.8	2357.2	2413.7	2444.7	2454.5	2443.1	2414.9	2356.4	2311.0	2259.1
27°	2201.5	2266.1	2333.1	2391.2	2421.8	2432.5	2421.0	2392.4	2330.7	2286.5	2233.8
27.5°	2172.5	2239.1	2308.2	2367.9	2398.1	2410.8	2398.1	2369.1	2304.1	2261.2	2207.6
28°	2143.0	2211.3	2283.2	2344.2	2373.2	2388.3	2374.8	2344.2	2277.1	2233.8	2181.9
28.5°	2113.2	2183.5	2258.3	2320.5	2347.4	2364.6	2351.1	2318.8	2249.3	2206.8	2156.1
29°	2081.7	2154.5	2232.1	2295.5	2321.3	2340.1	2327.8	2293.1	2221.1	2179.4	2129.9
29.5°	2051.0	2126.3	2206.8	2269.8	2293.9	2314.7	2303.3	2266.5	2191.3	2151.2	2103.4
30°	2019.6	2096.4	2180.6	2242.4	2265.7	2289.0	2278.8	2238.3	2161.4	2122.2	2076.0
30.5°	1987.3	2066.6	2154.9	2215.0	2236.6	2261.6	2253.8	2210.1	2131.2	2092.7	2049.4
31°	1955.0	2035.5	2127.9	2186.8	2207.2	2235.0	2229.3	2181.5	2100.5	2062.9	2022.4
31.5°	1922.3	2005.7	2101.7	2158.2	2177.0	2206.4	2203.5	2152.4	2069.4	2032.6	1995.0
32°	1890.0	1973.8	2074.3	2128.7	2146.7	2177.8	2178.2	2123.0	2037.5	2002.4	1967.2
32.5°	1856.9	1943.5	2047.4	2098.1	2116.0	2148.3	2152.4	2092.7	2006.1	1972.5	1939.4
33°	1822.9	1912.0	2020.0	2068.2	2084.6	2119.3	2126.7	2061.7	1973.4	1941.1	1910.8
33.5°	1789.0	1880.2	1992.6	2036.3	2052.3	2088.7	2100.5	2030.6	1940.3	1910.4	1881.4
34°	1755.1	1847.9	1962.7	2006.5	2020.8	2058.4	2073.9	1999.5	1906.7	1879.7	1851.9
34.5°	1719.9	1816.4	1934.9	1974.6	1988.1	2028.1	2047.0	1968.0	1871.6	1848.3	1820.9
35°	1684.3	1783.3	1905.5	1943.1	1955.4	1997.5	2019.6	1936.2	1837.2	1816.0	1790.6
35.5°	1650.8	1750.6	1876.9	1910.8	1921.0	1966.0	1991.4	1903.9	1802.9	1784.1	1759.6
36°	1614.8	1717.9	1846.6	1880.6	1887.1	1935.3	1962.3	1871.2	1769.0	1751.8	1728.9
36.5°	1583.4	1684.3	1816.8	1848.3	1852.8	1903.9	1932.9	1838.0	1733.0	1719.1	1698.2
37°	1531.8	1650.8	1786.1	1816.0	1817.6	1870.8	1903.0	1804.9	1693.7	1686.0	1666.3
37.5°	1479.9	1617.3	1756.3	1782.9	1782.9	1838.9	1872.8	1770.6	1644.7	1653.3	1635.3
38°	1412.1	1583.8	1725.2	1750.1	1745.7	1805.7	1842.5	1737.1	1589.1	1620.1	1604.6
38.5°	1349.5	1550.6	1695.0	1716.2	1708.0	1772.6	1811.9	1704.0	1526.1	1586.6	1574.8
39°	1286.1	1516.7	1663.5	1684.3	1658.6	1739.9	1780.8	1669.6	1458.3	1549.0	1543.7
39.5°	1222.0	1463.6	1633.2	1650.4	1606.7	1706.0	1749.7	1636.5	1386.3	1503.2	1513.4
40°	1153.7	1403.9	1602.6	1617.3	1544.9	1672.9	1718.7	1588.3	1316.4	1450.9	1484.0
40.5°	1086.6	1341.3	1572.3	1584.2	1476.2	1639.4	1688.0	1538.4	1249.3	1391.2	1455.8
41°	1018.4	1280.0	1542.1	1539.2	1406.3	1592.8	1656.5	1481.1	1181.9	1328.7	1427.6
41.5°	951.7	1219.1	1512.6	1496.3	1336.0	1549.0	1627.1	1418.6	1117.3	1264.1	1400.2
42°	888.4	1157.0	1483.6	1442.3	1266.5	1492.6	1596.8	1354.4	1049.4	1199.1	1372.0
42.5°	829.1	1092.0	1455.0	1384.7	1198.7	1432.5	1567.8	1286.1	984.4	1136.9	1345.0
43°	769.8	1026.5	1426.8	1322.9	1133.2	1367.9	1539.6	1223.2	916.6	1075.6	1316.8
43.5°	709.3	961.9	1397.7	1258.3	1067.0	1301.3	1511.0	1159.8	852.4	1015.1	1289.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	536.4	781.7	1314.3	1069.9	868.3	1107.9	1427.2	972.6	670.9	831.9	1206.8
45.5°	484.0	723.2	1286.6	1010.6	805.4	1045.3	1399.0	909.2	612.8	772.7	1179.0
46°	434.2	666.0	1258.3	950.9	744.9	983.2	1369.9	847.5	556.8	714.6	1152.5
46.5°	384.3	609.5	1231.0	890.4	685.2	919.8	1342.6	787.0	502.0	660.2	1108.3
47°	338.1	553.1	1197.8	829.5	626.7	855.7	1313.9	727.7	449.3	604.6	1056.0
47.5°	295.6	501.2	1155.7	770.2	569.1	795.2	1284.5	670.9	404.3	551.9	994.7
48°	256.7	450.9	1106.3	713.0	514.7	736.3	1255.1	615.7	359.8	499.6	926.8
48.5°	223.2	402.7	1052.3	657.8	462.0	678.6	1214.6	560.9	315.2	450.5	859.3
49°	194.2	356.5	1000.8	604.6	417.0	621.8	1162.7	506.9	270.6	406.0	790.2
49.5°	169.7	312.7	940.3	551.5	372.4	566.6	1108.7	455.8	233.4	361.4	723.2
50°	148.8	271.5	881.4	499.2	327.5	511.8	1044.9	412.1	200.3	316.4	657.4
50.5°	132.5	233.8	816.0	448.5	282.9	461.1	976.7	368.3	170.1	272.3	596.1
51°	115.7	202.0	747.7	400.2	238.7	416.2	905.9	325.0	143.5	235.9	535.6
51.5°	99.3	174.6	681.5	354.4	204.8	371.2	834.8	281.3	120.2	202.4	480.0
52°	83.0	151.7	617.3	312.3	172.5	326.2	765.7	237.9	98.1	171.3	433.3
52.5°	66.6	134.5	554.8	271.9	143.5	281.3	699.5	203.2	78.5	143.1	387.2
53°	58.1	117.7	498.3	234.3	118.6	236.7	636.5	171.7	63.0	118.6	341.0
53.5°	55.2	100.6	443.2	199.1	96.5	201.1	574.8	144.3	56.0	96.9	294.3
54°	53.1	83.8	391.6	168.0	75.6	168.4	516.7	119.8	53.6	77.3	248.2
54.5°	51.1	67.0	342.6	138.6	60.5	140.6	460.3	98.1	51.5	59.7	212.2
55°	49.1	54.8	299.3	117.3	55.2	114.9	411.3	78.1	49.1	47.8	181.1
55.5°	47.0	49.5	257.6	96.5	53.1	92.0	363.0	60.1	47.0	45.8	153.3
56°	45.0	47.4	220.4	75.2	50.7	71.5	314.4	48.6	45.4	44.2	129.2
56.5°	43.3	45.4	187.2	54.4	48.2	54.8	265.7	46.6	43.3	42.5	107.9
57°	41.7	43.7	157.8	46.6	46.2	47.0	227.3	44.6	41.7	40.9	90.3
57.5°	40.1	42.1	134.1	45.0	44.6	45.0	192.1	42.9	40.1	39.2	76.0
58°	38.4	40.5	116.9	43.3	42.5	43.3	160.3	41.3	38.4	38.0	64.6
58.5°	36.8	39.2	99.8	41.7	40.9	41.7	132.5	40.1	36.8	36.4	55.6
59°	35.2	37.6	82.6	40.1	39.2	40.1	107.9	38.4	35.2	35.2	48.2
59.5°	33.9	36.4	65.4	38.8	37.6	38.4	87.5	37.2	33.9	33.9	42.9
60°	32.7	35.2	56.8	37.2	36.0	37.2	72.0	36.0	32.7	32.7	38.8
60.5°	31.5	33.9	49.5	36.0	34.3	36.0	60.1	34.3	31.1	31.9	35.2
61°	30.3	32.7	43.7	34.7	33.1	34.3	51.1	33.5	29.8	30.7	33.1
61.5°	29.0	31.5	38.8	33.5	31.9	33.1	44.6	32.3	28.6	29.4	31.9
62°	27.8	30.3	35.6	32.3	30.7	32.3	39.7	31.1	27.4	28.6	30.7
62.5°	26.6	29.4	33.1	31.1	29.4	31.1	36.0	29.8	26.2	27.4	29.4
63°	25.3	28.2	31.9	30.3	27.8	29.8	33.1	29.0	24.9	26.6	28.2
63.5°	24.5	27.4	31.1	29.0	26.6	28.6	31.9	27.8	24.1	25.3	27.4
64°	23.3	26.2	29.8	27.8	25.8	27.8	30.7	27.0	22.9	24.5	26.2
64.5°	22.5	25.3	29.0	27.0	24.5	26.6	29.4	25.8	22.1	23.7	25.3
65°	21.7	24.5	27.8	26.2	23.3	25.8	28.2	24.9	21.3	22.9	24.5
65.5°	20.8	23.7	27.0	24.9	22.5	24.9	27.0	24.1	20.0	22.1	23.7
66°	19.6	22.5	25.8	24.1	21.7	23.7	26.2	22.9	19.2	21.3	22.9





TEST NUMBER: P776494

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	17.6	20.0	23.3	21.7	18.8	21.3	23.7	20.4	16.8	18.8	20.4
68°	16.8	19.2	22.5	20.8	18.0	20.4	22.5	19.6	16.4	18.0	19.6
68.5°	15.9	18.8	21.7	20.0	17.2	19.6	21.7	18.8	15.5	17.2	18.8
69°	15.1	18.0	20.8	19.2	16.4	18.8	20.8	18.4	14.7	16.8	18.0
69.5°	14.7	17.2	20.0	18.4	15.9	18.4	20.0	17.6	14.3	15.9	17.2
70°	13.9	16.4	19.2	17.6	15.1	17.6	19.2	16.8	13.5	15.1	16.4
70.5°	13.5	15.9	18.4	17.2	14.3	16.8	18.8	15.9	13.1	14.7	15.9
71°	12.7	15.1	17.6	16.4	13.9	16.4	18.0	15.5	12.3	13.9	15.1
71.5°	12.3	14.7	16.8	15.5	13.1	15.5	17.2	14.7	11.9	13.5	14.3
72°	11.4	13.9	16.4	15.1	12.7	14.7	16.4	14.3	11.0	12.7	13.9
72.5°	11.0	13.5	15.5	14.3	11.9	14.3	15.5	13.5	10.6	12.3	13.1
73°	10.6	12.7	14.7	13.9	11.4	13.5	15.1	13.1	10.2	11.9	12.7
73.5°	9.8	12.3	14.3	13.1	11.0	13.1	14.3	12.3	9.8	11.0	11.9
74°	9.4	11.4	13.5	12.7	10.6	12.7	13.9	11.9	9.0	10.6	11.4
74.5°	9.0	11.0	12.7	11.9	9.8	11.9	13.1	11.4	8.6	10.2	10.6
75°	8.6	10.6	12.3	11.4	9.4	11.4	12.7	10.6	8.2	9.4	10.2
75.5°	8.2	9.8	11.4	11.0	9.0	11.0	11.9	10.2	7.8	9.0	9.8
76°	7.8	9.4	11.0	10.6	8.6	10.6	11.4	9.8	7.4	8.6	9.0
76.5°	7.4	9.0	10.6	9.8	8.2	9.8	10.6	9.0	6.9	8.2	8.6
77°	6.9	8.6	9.8	9.4	7.8	9.4	10.2	8.6	6.5	7.8	8.2
77.5°	6.5	8.2	9.4	9.0	7.4	9.0	9.8	8.2	6.1	7.4	7.8
78°	6.1	7.8	9.0	8.6	6.9	8.6	9.0	7.8	5.7	6.9	6.9
78.5°	5.7	6.9	8.2	8.2	6.5	8.2	8.6	7.4	5.3	6.1	6.5
79°	5.3	6.5	7.8	7.4	6.1	7.8	8.2	6.9	5.3	5.7	6.1
79.5°	4.9	6.1	7.4	6.9	5.7	7.4	7.8	6.5	4.9	5.3	5.7
80°	4.5	5.7	6.9	6.5	5.3	6.5	6.9	6.1	4.5	4.9	5.3
80.5°	4.1	5.3	6.5	6.1	5.3	6.1	6.5	5.3	4.1	4.5	4.9
81°	3.7	4.9	6.1	5.7	4.9	5.7	6.1	4.9	3.7	4.1	4.5
81.5°	3.7	4.5	5.3	5.3	4.5	5.7	5.7	4.9	3.7	4.1	4.1
82°	3.3	4.1	4.9	4.9	4.1	5.3	5.3	4.5	3.3	3.7	3.7
82.5°	2.9	3.7	4.5	4.5	3.7	4.9	4.9	4.1	2.9	3.3	3.3
83°	2.5	3.3	4.1	4.1	3.7	4.5	4.5	3.7	2.5	2.9	2.9
83.5°	2.5	2.9	3.7	3.7	3.3	4.1	4.1	3.3	2.5	2.5	2.5
84°	2.0	2.9	3.3	3.7	2.9	3.7	3.7	2.9	2.0	2.0	2.0
84.5°	1.6	2.5	2.9	3.3	2.9	3.3	3.3	2.5	1.6	1.6	2.0
85°	1.6	2.0	2.5	2.9	2.5	2.9	2.9	2.0	1.6	1.6	1.6
85.5°	1.2	1.6	2.5	2.5	2.5	2.9	2.5	1.6	1.2	1.2	1.2
86°	0.8	1.2	2.0	2.0	2.0	2.5	2.0	1.6	1.2	0.8	0.8
86.5°	0.8	0.8	1.6	2.0	1.6	2.0	2.0	1.2	0.8	0.8	0.8
87°	0.4	0.8	1.2	1.6	1.6	1.6	1.6	0.8	0.8	0.4	0.4
87.5°	0.4	0.4	1.2	1.2	1.2	1.6	1.2	0.8	0.4	0.4	0.4
88°	0.4	0.4	0.8	1.2	1.2	1.2	1.2	0.4	0.4	0.0	0.0
88.5°	0.0	0.4	0.4	0.8	0.8	0.8	0.8	0.4	0.4	0.0	0.0



TEST NUMBER: P776494  
CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0



TEST NUMBER: P776494

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2972.1	2972.1	2972.1	2972.1	2972.1	2972.1
0.5°	2971.3	2968.4	2969.7	2971.3	2972.1	2971.3
1°	2968.8	2965.6	2966.8	2968.4	2970.1	2969.7
1.5°	2966.0	2962.3	2963.5	2965.6	2967.2	2968.0
2°	2963.1	2959.0	2959.8	2962.3	2964.3	2966.0
2.5°	2959.8	2955.3	2956.2	2958.6	2961.1	2963.5
3°	2956.6	2950.8	2952.1	2954.1	2957.8	2960.7
3.5°	2952.1	2945.9	2946.8	2950.0	2953.7	2957.4
4°	2947.6	2940.2	2941.4	2945.1	2950.0	2954.1
4.5°	2942.3	2933.7	2934.9	2939.4	2945.5	2950.4
5°	2936.1	2926.7	2928.0	2933.7	2940.2	2945.9
5.5°	2929.6	2918.6	2920.2	2927.5	2934.9	2941.0
6°	2922.2	2910.8	2912.4	2920.6	2928.8	2935.3
6.5°	2914.5	2901.4	2903.4	2912.8	2922.2	2928.8
7°	2906.3	2892.0	2894.0	2904.7	2914.5	2921.4
7.5°	2896.9	2881.8	2883.8	2895.7	2906.3	2913.6
8°	2887.5	2871.5	2873.6	2886.3	2897.3	2904.7
8.5°	2877.7	2860.5	2863.0	2876.0	2887.1	2895.2
9°	2867.4	2849.1	2851.9	2865.0	2876.9	2885.8
9.5°	2856.8	2837.2	2840.1	2853.5	2865.8	2875.2
10°	2846.2	2825.3	2828.2	2841.3	2854.8	2865.0
10.5°	2834.3	2812.3	2815.5	2828.6	2842.9	2854.0
11°	2822.5	2798.8	2802.4	2815.1	2830.7	2842.1
11.5°	2810.2	2785.3	2789.0	2801.6	2817.6	2829.8
12°	2797.1	2770.6	2774.6	2787.3	2804.1	2816.8
12.5°	2783.2	2755.4	2759.9	2772.2	2789.8	2803.7
13°	2769.3	2739.9	2744.8	2757.1	2775.5	2789.8
13.5°	2754.2	2723.5	2728.9	2741.9	2760.3	2775.1
14°	2739.1	2707.2	2712.1	2725.6	2744.8	2759.9
14.5°	2723.5	2690.8	2695.3	2708.8	2728.0	2744.0
15°	2707.2	2673.3	2677.8	2692.1	2711.7	2728.5
15.5°	2690.8	2654.9	2660.2	2674.1	2694.1	2711.3
16°	2673.7	2636.9	2641.8	2656.1	2676.1	2694.1
16.5°	2656.1	2618.5	2623.4	2637.7	2658.1	2676.9
17°	2637.7	2599.3	2603.8	2618.1	2639.7	2659.0
17.5°	2619.3	2579.6	2584.1	2598.4	2620.1	2640.1
18°	2600.1	2558.8	2563.7	2578.0	2600.9	2621.3
18.5°	2580.5	2538.4	2543.3	2557.6	2580.5	2601.7
19°	2560.8	2517.1	2522.0	2536.7	2560.0	2581.7
19.5°	2540.0	2495.4	2499.9	2515.5	2539.2	2561.7
20°	2519.5	2473.3	2478.3	2493.4	2517.9	2540.8
20.5°	2497.9	2451.3	2455.4	2471.3	2496.2	2519.1
21°	2475.8	2428.8	2432.5	2448.8	2473.3	2497.1

TEST NUMBER: P776494

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2408.3	2359.7	2361.7	2378.5	2404.3	2429.2
23°	2385.5	2335.6	2337.2	2354.8	2379.7	2405.9
23.5°	2362.2	2311.5	2313.9	2330.7	2355.6	2382.6
24°	2338.8	2285.7	2288.6	2305.7	2331.5	2358.9
24.5°	2314.3	2259.5	2264.0	2280.4	2306.6	2334.8
25°	2290.2	2231.3	2238.3	2254.6	2281.6	2310.2
25.5°	2265.3	2203.1	2212.1	2229.3	2255.9	2284.1
26°	2239.9	2174.1	2184.3	2203.5	2230.5	2257.1
26.5°	2212.1	2144.7	2156.9	2177.4	2204.8	2229.7
27°	2184.3	2114.0	2127.9	2150.0	2178.2	2201.5
27.5°	2156.1	2083.3	2098.5	2123.0	2150.8	2172.5
28°	2126.7	2051.4	2067.8	2096.0	2122.2	2143.0
28.5°	2096.8	2019.6	2038.0	2067.8	2093.1	2113.2
29°	2066.6	1986.9	2007.3	2041.2	2064.1	2081.7
29.5°	2036.7	1955.4	1976.2	2013.8	2034.7	2051.0
30°	2005.3	1922.7	1944.3	1985.6	2003.2	2019.6
30.5°	1973.8	1889.1	1912.9	1957.0	1973.0	1987.3
31°	1941.9	1855.2	1880.6	1929.6	1941.9	1955.0
31.5°	1909.6	1822.5	1848.3	1900.6	1910.8	1922.3
32°	1877.7	1788.6	1815.6	1871.6	1878.5	1890.0
32.5°	1846.2	1754.2	1783.7	1841.3	1847.9	1856.9
33°	1813.5	1719.9	1751.0	1812.7	1816.4	1822.9
33.5°	1780.4	1684.3	1718.3	1782.9	1784.1	1789.0
34°	1747.3	1650.4	1684.7	1752.6	1752.2	1755.1
34.5°	1714.2	1615.2	1650.8	1721.5	1720.3	1719.9
35°	1681.1	1582.1	1617.7	1690.5	1688.0	1684.3
35.5°	1648.4	1542.5	1584.2	1659.8	1656.5	1650.8
36°	1614.4	1489.7	1550.2	1628.7	1623.4	1614.8
36.5°	1581.3	1426.8	1517.1	1597.7	1590.7	1583.4
37°	1548.2	1361.8	1485.2	1566.2	1558.0	1531.8
37.5°	1515.1	1298.4	1450.1	1535.1	1525.3	1479.9
38°	1484.8	1231.8	1399.4	1504.5	1492.6	1412.1
38.5°	1433.7	1165.9	1340.1	1474.2	1458.7	1349.5
39°	1377.7	1097.7	1279.6	1444.8	1429.6	1286.1
39.5°	1316.8	1029.4	1219.9	1414.5	1378.5	1222.0
40°	1255.9	964.0	1159.8	1385.1	1326.2	1153.7
40.5°	1195.4	899.4	1098.5	1356.5	1265.7	1086.6
41°	1132.4	838.1	1034.3	1328.2	1206.4	1018.4
41.5°	1069.1	778.4	970.5	1300.0	1149.6	951.7
42°	1003.6	718.7	908.8	1271.8	1092.4	888.4
42.5°	941.1	658.6	850.3	1244.9	1032.7	829.1
43°	879.8	601.0	793.1	1217.5	970.9	769.8
43.5°	821.3	545.8	736.3	1190.5	909.2	709.3



TEST NUMBER: P776494

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	650.0	392.5	570.7	1108.7	738.7	536.4
45.5°	594.4	346.3	518.0	1067.8	683.5	484.0
46°	539.2	301.7	469.3	1024.1	629.2	434.2
46.5°	488.1	262.9	420.3	973.0	575.6	384.3
47°	439.5	227.7	373.7	926.4	523.3	338.1
47.5°	394.9	197.5	328.3	869.6	473.4	295.6
48°	350.8	172.1	287.0	811.9	425.2	256.7
48.5°	306.2	151.3	249.4	745.3	379.0	223.2
49°	262.1	134.9	215.4	683.5	334.8	194.2
49.5°	225.7	118.6	185.6	622.2	292.7	169.7
50°	194.6	102.2	161.5	565.8	253.9	148.8
50.5°	167.2	85.9	139.8	511.0	218.3	132.5
51°	145.1	69.5	123.9	461.1	188.1	115.7
51.5°	126.3	58.5	107.9	411.7	162.7	99.3
52°	110.0	54.8	92.0	367.1	140.2	83.0
52.5°	94.4	52.3	76.0	323.4	123.9	66.6
53°	78.9	50.3	61.7	283.7	107.1	58.1
53.5°	64.2	48.2	50.7	246.5	90.8	55.2
54°	52.7	46.2	47.0	214.2	74.0	53.1
54.5°	47.0	44.2	45.4	184.0	59.7	51.1
55°	45.4	42.5	43.7	157.8	49.5	49.1
55.5°	43.7	40.9	42.1	139.4	46.6	47.0
56°	42.1	39.2	40.5	121.4	45.0	45.0
56.5°	40.5	37.6	38.8	103.4	43.3	43.3
57°	39.2	36.0	37.6	85.0	41.7	41.7
57.5°	37.6	34.3	36.0	67.5	40.1	40.1
58°	36.4	33.1	34.7	58.1	38.8	38.4
58.5°	35.2	31.9	33.5	50.3	37.6	36.8
59°	33.9	30.7	32.3	44.2	36.4	35.2
59.5°	32.7	29.4	31.1	39.2	35.2	33.9
60°	31.5	28.2	30.3	35.6	33.9	32.7
60.5°	30.7	27.0	29.0	33.5	32.7	31.5
61°	29.4	25.8	28.2	32.3	31.5	30.3
61.5°	28.2	24.9	27.0	31.1	30.3	29.0
62°	27.4	23.7	26.2	29.8	29.4	27.8
62.5°	26.2	22.9	24.9	29.0	28.2	26.6
63°	25.3	21.7	24.1	27.8	27.4	25.3
63.5°	24.5	20.8	23.3	27.0	26.2	24.5
64°	23.3	20.0	22.5	26.2	25.3	23.3
64.5°	22.5	19.2	21.7	24.9	24.5	22.5
65°	21.7	18.4	20.8	24.1	23.7	21.7
65.5°	20.8	17.6	20.0	23.3	22.5	20.8
66°	20.0	16.8	19.2	22.5	21.7	19.6



TEST NUMBER: P776494

CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	18.0	14.7	17.2	20.0	19.2	17.6
68°	17.2	13.9	16.4	19.2	18.4	16.8
68.5°	16.4	13.5	15.9	18.4	18.0	15.9
69°	15.9	12.7	15.1	17.6	17.2	15.1
69.5°	15.1	12.3	14.7	17.2	16.4	14.7
70°	14.7	11.9	13.9	16.4	15.5	13.9
70.5°	13.9	11.0	13.5	15.5	15.1	13.5
71°	13.5	10.6	12.7	15.1	14.3	12.7
71.5°	12.7	10.2	12.3	14.3	13.9	12.3
72°	12.3	9.8	11.9	13.5	13.1	11.4
72.5°	11.9	9.0	11.0	13.1	12.7	11.0
73°	11.0	8.6	10.6	12.3	11.9	10.6
73.5°	10.6	8.2	10.2	11.9	11.4	9.8
74°	10.2	7.8	9.8	11.0	10.6	9.4
74.5°	9.4	7.4	9.0	10.6	10.2	9.0
75°	9.0	6.9	8.6	10.2	9.8	8.6
75.5°	8.6	6.5	8.2	9.4	9.4	8.2
76°	8.2	6.1	7.8	9.0	8.6	7.8
76.5°	7.8	6.1	7.4	8.6	8.2	7.4
77°	7.4	5.7	6.9	7.8	7.8	6.9
77.5°	6.9	5.3	6.5	7.4	7.4	6.5
78°	6.5	4.9	6.1	6.9	6.9	6.1
78.5°	6.1	4.5	5.7	6.5	6.1	5.7
79°	5.7	4.1	5.3	6.1	5.7	5.3
79.5°	5.3	4.1	4.9	5.7	5.3	4.9
80°	4.9	3.7	4.5	4.9	4.9	4.5
80.5°	4.5	3.3	4.1	4.5	4.5	4.1
81°	4.1	3.3	3.7	4.1	4.1	3.7
81.5°	3.7	2.9	3.3	3.7	3.7	3.7
82°	3.3	2.5	3.3	3.3	3.3	3.3
82.5°	2.9	2.5	2.9	3.3	2.9	2.9
83°	2.5	2.0	2.5	2.9	2.5	2.5
83.5°	2.5	1.6	2.0	2.5	2.0	2.5
84°	2.0	1.6	1.6	2.0	1.6	2.0
84.5°	1.6	1.2	1.6	1.6	1.6	1.6
85°	1.2	1.2	1.2	1.6	1.2	1.6
85.5°	1.2	0.8	0.8	1.2	0.8	1.2
86°	0.8	0.4	0.8	0.8	0.8	0.8
86.5°	0.4	0.4	0.4	0.8	0.4	0.8
87°	0.4	0.0	0.4	0.4	0.4	0.4
87.5°	0.0	0.0	0.0	0.0	0.4	0.4
88°	0.0	0.0	0.0	0.0	0.0	0.4
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776494  
CATALOG NUMBER: HCDJBL3040CSD-HCD8TRH-4000lm-5000K

**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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Scaled Data Report





21.5°	2474.6	2525.3	2578.4	2619.7	2641.4	2654.0	2647.1	2618.9	2570.6	2533.0	2493.4
22°	2452.1	2503.6	2558.0	2600.9	2623.4	2636.1	2629.1	2600.1	2551.0	2513.0	2471.7



44°	648.4	899.4	1369.5	1194.6	1001.2	1235.4	1482.8	1097.7	789.0	953.8	1260.8
44.5°	591.6	839.7	1341.7	1131.6	934.6	1170.0	1455.0	1033.5	730.1	892.9	1234.2



66.5°	18.8	21.7	24.9	23.3	20.4	22.9	25.3	22.1	18.4	20.4	21.7
67°	18.0	20.8	24.1	22.5	19.6	22.1	24.5	21.3	17.6	19.6	20.8



89°	0.0	0.0	0.4	0.4	0.8	0.8	0.4	0.4	0.0	0.0	0.0
89.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0



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21.5°	2453.3	2405.9	2409.2	2425.9	2450.5	2474.6
22°	2431.2	2382.6	2385.5	2402.6	2427.2	2452.1



44°	762.4	491.8	680.3	1163.5	849.1	648.4
44.5°	706.0	442.7	625.1	1136.1	793.9	591.6

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66.5°	19.2	15.9	18.4	21.7	20.8	18.8
67°	18.8	15.5	18.0	20.8	20.0	18.0

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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)