

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: P776551

Luminaire Tested: HCDJBS4050CSD-HCD41TRH-5000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776551
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-3000K
Description: 4 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

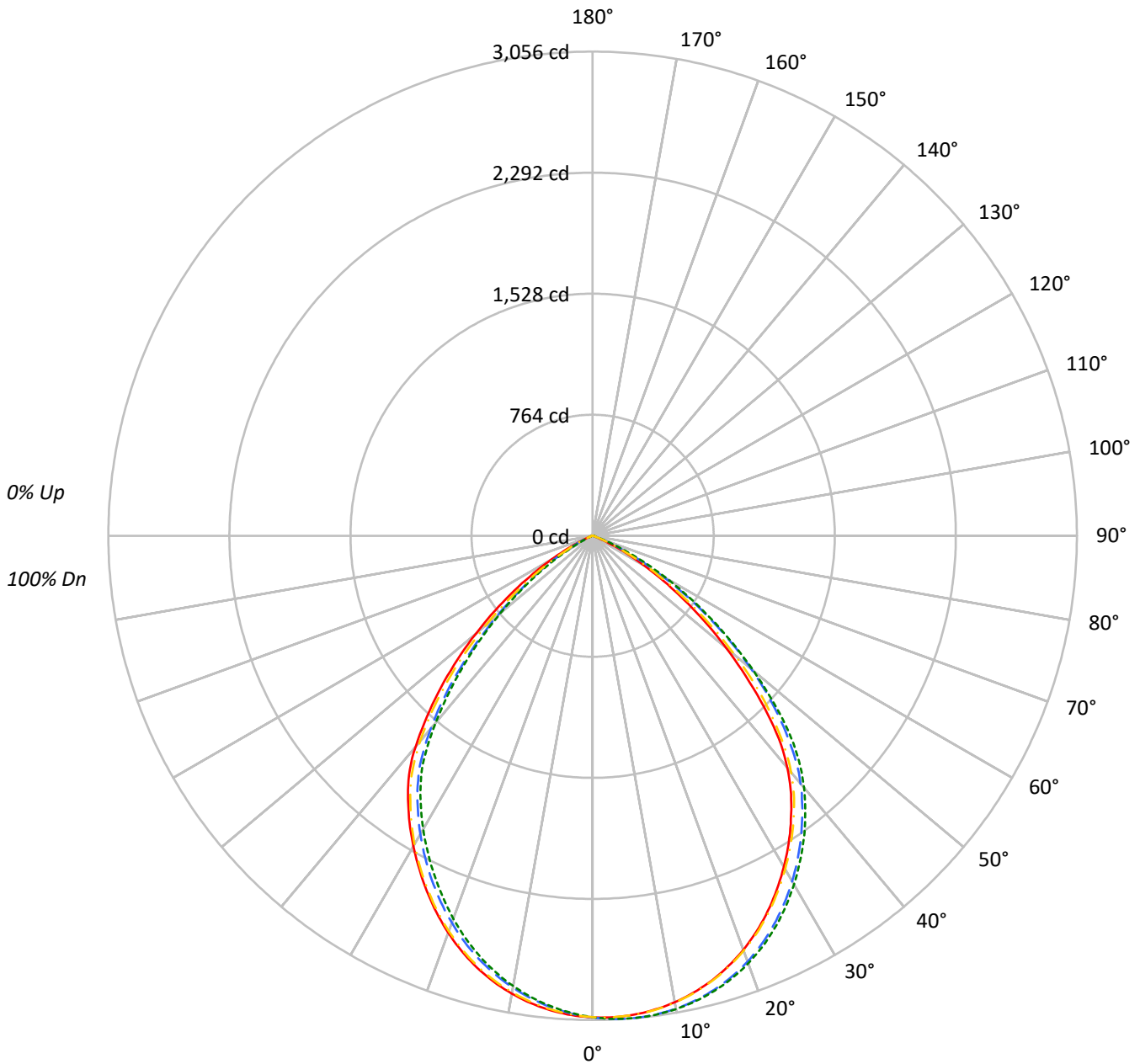
Lumens per Lamp: N/A
Luminaire Lumens: 5437.0 lumens
Efficiency: N/A
Efficacy: 113.3 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P776551
CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	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°	382508	382508	382508	382508
5°	383262	385965	379914	376680
10°	381994	387693	375042	368742
15°	378621	387337	367598	358087
20°	372450	384583	357008	344312
25°	362994	378615	343637	328154
30°	350640	369342	328827	310721
35°	335153	357215	312077	290446
40°	314097	340744	285396	253098
45°	272449	311338	240609	203056
50°	215464	259144	188445	148583
55°	154795	200258	132350	94325
60°	94639	136497	75787	45281
65°	39725	72928	28379	13430
70°	8905	21378	8206	5814
75°	6078	7926	5640	3841
80°	4348	6088	4059	2682
85°	1300	5343	722	722

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 311338 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	286.4	5.3
10°-20°	805.9	14.8
20°-30°	1171.0	21.5
30°-40°	1311.7	24.1
40°-50°	1104.4	20.3
50°-60°	594.6	10.9
60°-70°	146.6	2.7
70°-80°	14.0	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°	2263.2	41.6
0°-40°	3575.0	65.8
0°-60°	5274.0	97.0
0°-90°	5437.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5437.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3039	3039	3039	3039	3039	
5°	3034	3055	3007	2982	3034	288
15°	2906	2973	2821	2748	2906	819
25°	2614	2727	2475	2363	2614	1202
35°	2182	2325	2031	1890	2182	1361
45°	1531	1749	1352	1141	1531	1170
55°	706	913	603	430	706	636
65°	133	245	95	45	133	150
75°	12	16	12	8	12	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°	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4
0.5°	3041.2	3043.1	3044.0	3043.1	3042.1	3040.3	3039.4	3038.4	3038.4	3038.4	3037.5
1°	3041.7	3045.4	3046.8	3046.3	3044.9	3043.1	3040.3	3038.0	3036.6	3035.2	3033.3
1.5°	3042.1	3046.8	3049.6	3049.1	3047.7	3044.9	3041.2	3037.5	3034.2	3031.5	3029.1
2°	3042.1	3048.2	3051.4	3051.4	3050.0	3046.3	3041.2	3036.1	3031.9	3027.7	3024.5
2.5°	3041.7	3049.1	3053.3	3053.3	3051.9	3047.3	3041.2	3034.2	3028.7	3023.6	3018.9
3°	3040.8	3049.6	3054.2	3054.7	3053.3	3048.2	3040.3	3032.4	3025.4	3018.9	3013.8
3.5°	3039.4	3049.6	3055.2	3056.1	3054.2	3048.2	3039.4	3030.1	3021.2	3013.3	3007.8
4°	3038.0	3049.1	3055.6	3056.6	3055.2	3048.2	3038.4	3027.3	3017.0	3008.2	3001.7
4.5°	3036.1	3048.2	3055.6	3057.0	3055.6	3047.7	3036.6	3024.0	3012.4	3002.6	2994.7
5°	3033.8	3047.3	3055.2	3057.5	3055.2	3046.8	3034.2	3020.3	3007.3	2996.1	2987.8
5.5°	3031.0	3045.9	3054.2	3057.0	3055.2	3045.4	3031.9	3016.6	3001.7	2989.6	2980.8
6°	3027.7	3044.0	3053.8	3056.1	3054.2	3044.0	3028.7	3011.9	2996.1	2982.7	2972.9
6.5°	3024.0	3041.7	3051.9	3054.7	3052.8	3041.7	3025.4	3007.3	2989.6	2975.2	2964.5
7°	3020.8	3038.9	3050.0	3053.3	3051.4	3039.4	3021.7	3002.2	2983.1	2967.8	2955.7
7.5°	3016.1	3036.1	3047.7	3051.4	3049.1	3036.6	3018.0	2996.6	2976.2	2959.4	2946.9
8°	3011.5	3032.8	3044.9	3049.1	3046.8	3033.3	3013.3	2990.6	2968.7	2950.6	2937.6
8.5°	3006.4	3028.7	3042.1	3046.3	3044.0	3030.1	3008.2	2984.1	2960.4	2941.3	2927.8
9°	3001.2	3024.5	3038.9	3043.1	3040.8	3025.9	3003.1	2977.1	2952.5	2932.0	2917.6
9.5°	2995.2	3019.8	3034.7	3039.8	3037.5	3021.7	2997.5	2970.1	2943.6	2922.7	2907.4
10°	2989.2	3015.2	3030.5	3035.6	3033.8	3017.0	2991.5	2962.7	2934.8	2912.5	2896.7
10.5°	2982.7	3009.6	3025.9	3031.5	3029.1	3011.9	2985.0	2954.3	2925.0	2901.8	2885.1
11°	2975.7	3004.0	3020.8	3026.8	3024.5	3006.4	2978.0	2945.9	2915.3	2891.1	2873.4
11.5°	2968.3	2997.5	3015.7	3021.7	3019.4	3000.3	2971.0	2937.1	2905.0	2879.5	2861.8
12°	2960.8	2991.0	3009.6	3016.1	3014.3	2993.8	2963.6	2928.3	2894.4	2867.9	2849.3
12.5°	2952.5	2984.1	3003.1	3010.1	3008.2	2987.3	2955.2	2918.1	2883.2	2856.3	2836.3
13°	2944.1	2976.6	2996.6	3004.0	3002.2	2980.3	2946.9	2908.3	2871.6	2843.7	2823.7
13.5°	2934.8	2968.7	2989.2	2997.1	2995.2	2972.9	2938.0	2898.1	2860.0	2830.2	2809.8
14°	2925.5	2960.4	2982.2	2990.1	2988.2	2965.5	2929.2	2887.4	2847.0	2817.2	2795.8
14.5°	2915.7	2952.0	2974.3	2982.2	2980.8	2957.1	2919.5	2875.8	2834.4	2803.3	2781.9
15°	2906.0	2943.2	2965.9	2974.3	2972.9	2948.3	2909.7	2863.7	2821.4	2789.8	2767.5
15.5°	2895.3	2933.4	2957.1	2965.9	2964.5	2939.4	2899.0	2851.6	2807.5	2774.5	2751.7
16°	2884.1	2923.6	2948.3	2957.6	2955.7	2929.7	2888.8	2839.5	2793.5	2759.6	2736.3
16.5°	2872.5	2913.4	2938.5	2948.3	2946.9	2919.9	2877.2	2826.0	2778.6	2744.7	2720.5
17°	2860.9	2902.3	2928.7	2938.5	2937.6	2909.7	2865.5	2812.6	2764.2	2728.9	2704.7
17.5°	2848.4	2891.6	2918.1	2928.3	2927.4	2899.0	2853.5	2799.1	2748.4	2712.6	2687.6
18°	2835.8	2880.0	2907.4	2917.6	2917.1	2887.9	2840.9	2785.1	2732.6	2695.9	2670.8
18.5°	2822.8	2867.9	2896.2	2906.4	2906.4	2876.7	2828.4	2770.3	2716.4	2678.7	2653.2
19°	2809.3	2855.3	2884.1	2895.3	2895.3	2864.6	2814.9	2755.4	2699.6	2661.1	2636.0
19.5°	2795.4	2842.3	2872.1	2883.2	2883.7	2852.5	2801.4	2739.6	2682.9	2643.9	2617.4
20°	2781.0	2828.8	2859.5	2870.7	2871.6	2839.5	2787.0	2723.8	2665.7	2626.2	2599.3
20.5°	2766.1	2815.4	2846.0	2858.1	2859.0	2826.5	2773.1	2707.5	2648.1	2607.2	2580.7
21°	2750.8	2800.9	2832.5	2845.1	2846.0	2812.6	2758.2	2691.3	2629.5	2588.6	2561.6



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CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	2702.4	2755.9	2788.9	2802.3	2804.7	2769.3	2710.8	2639.2	2573.7	2530.0	2502.6
23°	2686.2	2739.6	2773.5	2787.0	2790.3	2754.0	2694.5	2621.6	2554.6	2510.5	2482.6
23.5°	2668.5	2723.3	2757.7	2772.1	2774.9	2738.7	2677.3	2603.0	2534.7	2490.0	2461.7
24°	2650.8	2706.6	2741.5	2755.9	2759.1	2722.4	2660.1	2584.8	2515.1	2469.6	2440.8
24.5°	2632.7	2688.9	2724.7	2739.6	2742.9	2705.7	2642.5	2565.3	2495.2	2449.1	2419.9
25°	2614.1	2671.8	2707.5	2722.9	2726.6	2688.9	2624.8	2546.7	2474.7	2428.7	2399.0
25.5°	2595.5	2654.1	2690.3	2706.1	2710.3	2672.2	2606.7	2527.2	2454.3	2406.9	2377.6
26°	2576.5	2635.5	2672.2	2688.5	2692.7	2654.1	2588.6	2507.7	2434.3	2385.5	2355.7
26.5°	2557.0	2616.9	2654.6	2670.8	2674.5	2636.0	2569.5	2487.3	2412.9	2363.6	2333.9
27°	2537.9	2597.9	2636.0	2652.7	2656.9	2617.4	2550.5	2467.7	2391.5	2342.3	2311.6
27.5°	2517.5	2578.3	2616.9	2634.6	2638.3	2598.8	2530.5	2447.3	2370.6	2320.4	2289.3
28°	2497.0	2558.8	2597.4	2615.5	2619.7	2579.3	2511.4	2426.8	2349.2	2298.1	2267.0
28.5°	2476.6	2539.3	2577.9	2596.0	2600.6	2560.7	2491.4	2405.5	2327.4	2276.3	2243.7
29°	2455.7	2518.9	2557.9	2576.5	2581.1	2541.2	2471.0	2384.5	2306.0	2254.0	2221.0
29.5°	2434.3	2498.4	2537.9	2557.0	2561.6	2521.2	2450.1	2363.6	2284.2	2230.7	2198.2
30°	2412.9	2477.0	2517.0	2536.0	2541.6	2500.3	2430.1	2342.7	2262.8	2208.4	2174.5
30.5°	2391.5	2456.1	2496.5	2516.5	2521.2	2479.8	2408.7	2320.9	2240.0	2185.6	2150.8
31°	2369.2	2435.2	2475.2	2495.6	2500.7	2459.4	2387.3	2299.0	2217.7	2162.4	2126.6
31.5°	2347.4	2412.9	2454.3	2474.2	2479.4	2438.0	2365.5	2277.2	2195.4	2139.2	2102.5
32°	2324.6	2391.1	2431.9	2452.4	2458.0	2416.1	2344.6	2255.8	2173.1	2115.5	2077.8
32.5°	2302.3	2368.7	2410.6	2431.5	2436.6	2394.8	2322.3	2233.5	2150.3	2091.3	2052.7
33°	2278.1	2346.0	2388.3	2409.6	2414.8	2373.4	2300.4	2211.7	2126.6	2067.1	2028.1
33.5°	2255.4	2323.7	2365.5	2387.3	2392.4	2350.6	2278.1	2188.0	2102.9	2042.5	2002.1
34°	2230.7	2300.4	2342.3	2365.0	2370.6	2328.8	2255.4	2165.2	2079.2	2018.3	1976.5
34.5°	2207.0	2276.3	2319.9	2342.3	2347.4	2306.0	2232.6	2141.5	2055.5	1992.8	1951.0
35°	2181.5	2251.6	2296.2	2319.5	2325.1	2282.8	2208.9	2117.8	2031.3	1967.7	1924.0
35.5°	2158.2	2227.9	2272.1	2295.3	2301.8	2259.1	2184.7	2094.1	2006.7	1942.1	1896.6
36°	2132.7	2203.3	2247.5	2272.1	2278.1	2235.4	2161.0	2069.9	1981.6	1916.1	1870.1
36.5°	2107.6	2178.2	2223.7	2247.5	2253.5	2211.2	2136.4	2045.8	1956.5	1889.1	1840.8
37°	2080.6	2152.6	2198.7	2222.4	2228.4	2186.1	2111.3	2020.2	1930.5	1860.3	1808.7
37.5°	2056.0	2127.1	2173.6	2197.7	2203.8	2161.5	2086.7	1994.6	1903.5	1828.7	1774.8
38°	2027.6	2101.5	2147.5	2172.6	2179.1	2136.4	2060.6	1968.6	1874.3	1795.7	1739.0
38.5°	1999.7	2075.5	2122.4	2146.6	2153.6	2110.4	2034.1	1941.2	1843.1	1761.8	1701.9
39°	1970.5	2047.6	2096.9	2121.0	2128.0	2084.3	2007.6	1911.4	1810.1	1726.5	1664.2
39.5°	1942.6	2019.3	2069.9	2095.0	2102.0	2056.9	1979.8	1879.4	1775.3	1689.3	1626.6
40°	1911.9	1990.9	2042.0	2067.1	2074.1	2030.0	1949.6	1846.9	1737.2	1651.7	1588.5
40.5°	1879.8	1961.2	2013.2	2039.2	2046.7	2000.7	1917.5	1812.0	1699.5	1613.1	1548.5
41°	1846.9	1930.0	1983.5	2010.9	2018.3	1971.9	1884.5	1776.7	1661.9	1573.6	1509.0
41.5°	1812.5	1896.6	1951.0	1979.8	1989.1	1941.2	1851.0	1741.4	1623.8	1535.5	1470.4
42°	1777.1	1862.7	1917.5	1947.7	1958.9	1909.1	1815.7	1705.1	1584.7	1493.2	1429.1
42.5°	1739.5	1827.3	1883.1	1914.7	1927.2	1875.2	1780.4	1667.5	1545.7	1452.8	1388.6
43°	1699.5	1790.6	1848.2	1879.8	1894.7	1839.9	1744.1	1628.0	1507.6	1412.8	1346.8
43.5°	1658.2	1753.0	1812.9	1844.5	1859.9	1804.1	1707.0	1589.4	1469.5	1372.8	1306.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1530.8	1636.8	1702.8	1735.3	1749.3	1688.8	1591.2	1472.3	1351.9	1251.5	1182.7
45.5°	1486.7	1597.3	1666.1	1698.1	1708.4	1648.9	1551.3	1433.2	1313.8	1212.0	1141.4
46°	1442.5	1556.4	1627.5	1660.0	1667.9	1607.5	1510.8	1393.7	1273.8	1172.1	1099.6
46.5°	1399.3	1513.6	1588.9	1621.0	1626.1	1566.2	1470.0	1354.2	1234.8	1132.6	1059.1
47°	1355.6	1472.3	1550.4	1582.0	1582.9	1523.4	1427.7	1313.8	1195.8	1093.1	1018.2
47.5°	1312.4	1430.0	1509.5	1542.0	1540.1	1480.2	1385.8	1274.3	1156.7	1055.9	977.8
48°	1268.7	1387.7	1469.5	1501.6	1496.0	1437.0	1343.5	1234.8	1116.8	1015.9	938.3
48.5°	1226.0	1344.9	1429.1	1460.7	1452.8	1393.3	1301.3	1195.3	1078.2	977.3	900.2
49°	1184.1	1302.6	1389.6	1419.8	1409.1	1349.6	1258.5	1154.4	1039.6	938.8	860.7
49.5°	1141.4	1259.0	1347.7	1378.4	1366.3	1305.9	1216.2	1115.4	1001.5	901.6	823.0
50°	1100.5	1216.2	1306.4	1335.6	1323.6	1261.8	1173.0	1074.5	962.5	864.4	785.4
50.5°	1057.7	1173.9	1264.5	1292.9	1282.7	1218.1	1130.2	1035.0	924.4	827.2	749.2
51°	1017.3	1132.1	1223.2	1251.1	1238.5	1175.3	1087.5	994.1	887.2	791.0	713.4
51.5°	976.4	1089.3	1180.4	1207.8	1196.7	1133.9	1046.1	956.0	850.5	755.2	679.4
52°	936.9	1048.9	1140.0	1166.9	1155.8	1092.1	1004.3	916.5	813.7	719.4	645.0
52.5°	896.5	1008.0	1097.2	1123.7	1115.8	1048.9	963.4	877.0	777.0	684.1	612.1
53°	857.4	967.1	1054.9	1081.9	1073.1	1007.5	922.0	837.9	741.2	649.7	578.6
53.5°	818.4	926.2	1012.2	1038.2	1031.7	967.1	882.5	800.7	705.9	616.2	547.0
54°	780.3	886.2	970.8	997.3	991.3	926.7	841.6	762.6	671.5	582.8	516.3
54.5°	742.2	847.7	929.5	955.5	953.2	886.7	803.5	724.5	636.7	550.2	486.1
55°	705.5	808.6	888.6	915.5	912.7	846.7	765.0	688.3	603.2	519.1	457.8
55.5°	668.3	770.1	847.7	873.7	872.8	808.6	727.8	652.5	569.8	488.0	431.3
56°	633.4	732.4	806.8	835.6	833.7	769.6	690.6	616.7	537.2	458.2	404.3
56.5°	597.6	695.7	767.3	795.6	796.6	732.0	653.9	581.4	505.2	430.3	377.4
57°	564.2	659.0	726.4	756.6	757.5	694.8	618.6	547.9	474.0	402.9	350.9
57.5°	530.3	622.7	688.3	717.1	719.9	659.0	584.2	514.9	443.4	375.0	323.9
58°	497.7	587.9	650.6	681.3	683.6	623.7	550.7	481.9	414.5	347.6	300.2
58.5°	466.1	554.0	613.4	643.7	646.4	589.3	518.2	450.8	385.7	319.7	277.4
59°	435.5	519.1	576.7	606.9	611.1	555.8	485.6	421.5	356.9	294.6	255.1
59.5°	405.7	486.1	540.9	570.2	576.7	522.8	454.5	391.8	328.1	270.9	233.8
60°	376.0	454.0	506.1	536.8	542.3	490.3	426.2	362.5	301.1	247.7	213.8
60.5°	347.6	422.0	472.2	502.4	508.9	459.6	397.8	333.2	275.6	225.9	193.8
61°	320.2	390.8	439.2	468.0	475.9	430.8	369.5	306.7	251.0	204.5	175.2
61.5°	294.2	361.6	408.0	435.9	445.2	402.5	341.1	281.6	227.3	185.0	158.0
62°	269.1	332.7	377.4	404.3	415.0	373.6	312.8	257.0	204.9	165.9	141.7
62.5°	244.0	304.9	347.2	373.2	384.8	345.3	287.2	233.8	182.6	148.2	125.9
63°	219.8	277.4	318.3	343.4	354.6	316.5	262.6	210.5	162.7	131.1	110.6
63.5°	196.1	251.4	290.9	313.7	324.4	290.9	239.3	189.6	143.6	115.7	97.1
64°	172.9	225.9	264.4	286.3	296.5	265.8	216.6	170.1	125.9	100.8	84.6
64.5°	152.9	201.2	239.3	259.3	270.0	241.2	196.1	151.5	110.1	87.4	72.5
65°	133.4	178.0	215.2	234.2	244.9	218.4	175.7	133.8	95.3	75.3	62.3
65.5°	113.9	158.0	191.9	210.1	220.3	196.1	157.1	117.6	80.9	64.1	54.8
66°	94.3	139.4	170.1	186.4	196.6	174.7	138.5	102.7	68.8	54.4	47.4



TEST NUMBER: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	48.8	84.6	116.6	129.2	134.3	118.0	92.5	64.1	45.1	35.8	25.1
68°	39.0	71.1	98.5	112.0	116.2	101.8	79.0	54.4	38.6	29.3	21.8
68.5°	32.1	59.0	80.9	94.3	99.5	86.9	66.9	48.3	32.1	23.2	20.0
69°	27.9	48.8	66.9	76.7	83.7	73.4	56.7	42.8	25.6	20.9	18.6
69.5°	25.6	40.4	54.8	63.7	69.7	61.3	49.7	36.7	23.7	19.5	17.2
70°	24.2	33.5	44.6	52.5	58.1	53.9	43.2	30.7	22.3	18.1	16.3
70.5°	22.8	27.9	35.8	42.8	51.1	46.5	36.7	25.1	20.9	17.2	15.3
71°	21.4	23.7	29.3	34.9	44.1	39.0	30.2	22.8	19.5	16.3	13.9
71.5°	20.0	21.8	24.6	28.8	37.2	31.6	23.7	21.4	18.1	14.9	13.0
72°	18.6	20.4	21.8	24.2	30.2	24.2	21.8	20.0	17.2	13.9	12.5
72.5°	17.7	19.1	20.0	21.8	23.2	21.8	20.4	18.6	15.8	13.0	11.6
73°	16.7	17.7	18.6	20.4	21.4	20.4	19.1	17.7	14.9	12.1	10.7
73.5°	15.3	16.7	17.7	19.1	20.0	19.1	17.7	16.3	13.9	11.6	10.2
74°	14.4	15.8	16.7	17.7	18.6	17.7	16.7	15.3	13.0	10.7	9.3
74.5°	13.5	14.4	15.3	16.7	17.7	16.7	15.3	14.4	12.1	9.8	8.8
75°	12.5	13.5	14.4	15.3	16.3	15.3	14.4	13.5	11.6	9.3	7.9
75.5°	11.6	12.5	13.5	14.4	15.3	14.4	13.5	12.5	10.7	8.8	7.4
76°	11.2	12.1	12.5	13.5	14.4	13.5	12.5	11.6	9.8	7.9	7.0
76.5°	10.2	11.2	11.6	12.5	13.5	12.5	11.6	10.7	9.3	7.4	6.5
77°	9.8	10.2	11.2	11.6	12.5	11.6	11.2	10.2	8.8	7.0	6.0
77.5°	8.8	9.8	10.2	11.2	11.6	11.2	10.2	9.3	7.9	6.5	5.6
78°	8.4	9.3	9.8	10.2	10.7	10.2	9.3	8.8	7.4	6.0	5.1
78.5°	7.9	8.4	8.8	9.8	10.2	9.8	8.8	7.9	7.0	5.6	4.6
79°	7.0	7.9	8.4	8.8	9.3	8.8	8.4	7.4	6.5	5.1	4.2
79.5°	6.5	7.4	7.9	8.4	8.8	8.4	7.4	7.0	6.0	4.6	4.2
80°	6.0	6.5	7.0	7.9	8.4	7.9	7.0	6.5	5.6	4.2	3.7
80.5°	5.6	6.0	6.5	7.4	7.4	7.4	6.5	6.0	5.1	3.7	3.3
81°	5.1	5.6	6.0	7.0	7.0	6.5	6.0	5.6	4.6	3.3	2.8
81.5°	4.6	5.1	5.6	6.5	6.5	6.0	5.6	5.1	4.2	2.8	2.8
82°	3.7	4.6	5.1	6.0	6.0	5.6	5.1	4.6	3.7	2.3	2.3
82.5°	3.3	4.2	5.1	5.6	5.6	5.6	4.6	4.2	2.8	1.9	2.3
83°	2.8	3.7	4.6	5.1	5.1	5.1	4.6	3.7	2.3	1.9	1.9
83.5°	1.9	3.3	4.2	4.6	4.6	4.6	4.2	3.3	1.9	1.4	1.9
84°	1.4	2.8	3.7	4.2	4.6	4.2	3.7	2.8	1.4	0.9	1.4
84.5°	0.9	2.3	3.3	3.7	4.2	3.7	3.3	2.3	0.9	0.9	0.9
85°	0.9	1.9	3.3	3.7	3.7	3.7	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	2.3	1.4	0.5	0.5	0.5
86.5°	0.5	1.4	2.3	2.8	2.8	2.8	2.3	1.4	0.5	0.5	0.0
87°	0.5	1.4	1.9	2.3	2.3	2.3	1.9	0.9	0.0	0.0	0.0
87.5°	0.0	0.9	1.9	1.9	2.3	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: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

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: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3039.4	3039.4	3039.4	3039.4	3039.4	3039.4
0.5°	3035.6	3034.2	3034.2	3036.1	3038.0	3041.2
1°	3031.5	3030.1	3031.0	3033.8	3037.5	3041.7
1.5°	3026.8	3025.4	3026.8	3031.0	3036.6	3042.1
2°	3021.7	3020.3	3022.6	3028.2	3034.7	3042.1
2.5°	3016.6	3015.2	3018.0	3024.5	3032.8	3041.7
3°	3010.5	3009.1	3013.3	3020.8	3030.5	3040.8
3.5°	3004.0	3003.1	3007.8	3016.6	3027.7	3039.4
4°	2997.5	2996.1	3002.2	3011.9	3024.5	3038.0
4.5°	2990.6	2989.2	2995.7	3006.8	3021.2	3036.1
5°	2983.1	2981.7	2989.2	3001.7	3017.5	3033.8
5.5°	2975.2	2973.8	2982.2	2996.1	3012.9	3031.0
6°	2966.9	2965.9	2974.8	2990.1	3008.2	3027.7
6.5°	2958.5	2957.6	2966.9	2983.6	3003.1	3024.0
7°	2949.7	2948.3	2958.5	2976.2	2998.0	3020.8
7.5°	2940.4	2939.0	2950.1	2968.7	2992.0	3016.1
8°	2930.6	2928.7	2940.8	2960.8	2986.4	3011.5
8.5°	2920.4	2919.0	2931.5	2952.9	2979.9	3006.4
9°	2910.2	2908.3	2921.3	2944.6	2972.9	3001.2
9.5°	2899.5	2897.1	2911.1	2935.3	2965.0	2995.2
10°	2888.3	2885.5	2900.4	2926.0	2957.6	2989.2
10.5°	2876.7	2873.9	2889.2	2916.7	2949.7	2982.7
11°	2864.6	2861.8	2878.1	2906.9	2941.3	2975.7
11.5°	2852.1	2849.3	2866.0	2896.2	2932.5	2968.3
12°	2839.5	2836.3	2853.9	2885.1	2923.2	2960.8
12.5°	2826.0	2822.3	2840.9	2873.4	2912.9	2952.5
13°	2812.6	2808.8	2827.4	2862.3	2903.2	2944.1
13.5°	2798.6	2794.4	2814.0	2849.7	2893.0	2934.8
14°	2784.2	2779.6	2800.0	2837.2	2882.3	2925.5
14.5°	2769.3	2764.7	2785.1	2824.2	2870.7	2915.7
15°	2754.0	2748.4	2770.3	2811.2	2859.0	2906.0
15.5°	2738.7	2732.2	2754.5	2797.2	2846.5	2895.3
16°	2722.4	2715.9	2739.1	2782.8	2833.9	2884.1
16.5°	2705.7	2699.2	2722.4	2768.4	2821.4	2872.5
17°	2688.9	2682.0	2706.1	2753.5	2808.4	2860.9
17.5°	2671.8	2664.3	2688.9	2738.2	2794.0	2848.4
18°	2654.6	2646.2	2671.8	2721.9	2780.0	2835.8
18.5°	2636.4	2627.6	2653.6	2705.7	2765.2	2822.8
19°	2618.3	2609.0	2635.5	2688.9	2750.3	2809.3
19.5°	2599.3	2590.4	2617.4	2672.2	2735.0	2795.4
20°	2580.2	2570.9	2598.8	2654.6	2719.2	2781.0
20.5°	2561.1	2550.9	2579.7	2636.9	2702.9	2766.1
21°	2541.6	2530.9	2559.8	2618.8	2686.2	2750.8

TEST NUMBER: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2481.2	2469.6	2500.7	2562.5	2634.6	2702.4
23°	2460.3	2448.7	2479.8	2543.5	2616.4	2686.2
23.5°	2439.9	2427.8	2459.8	2524.0	2598.3	2668.5
24°	2418.5	2406.4	2438.9	2503.5	2579.3	2650.8
24.5°	2397.1	2385.0	2418.0	2483.5	2560.7	2632.7
25°	2375.7	2363.2	2396.2	2463.1	2541.2	2614.1
25.5°	2353.4	2341.3	2375.3	2442.6	2521.6	2595.5
26°	2331.6	2319.9	2353.4	2421.7	2502.1	2576.5
26.5°	2309.3	2297.6	2332.0	2400.8	2482.1	2557.0
27°	2287.0	2275.8	2310.2	2379.4	2461.7	2537.9
27.5°	2264.6	2253.0	2288.3	2358.1	2441.2	2517.5
28°	2241.9	2230.3	2266.0	2336.2	2419.9	2497.0
28.5°	2218.6	2207.5	2243.3	2314.4	2399.0	2476.6
29°	2196.3	2185.2	2221.4	2292.1	2377.1	2455.7
29.5°	2173.1	2161.9	2198.7	2269.8	2355.7	2434.3
30°	2149.4	2138.2	2175.9	2247.5	2333.9	2412.9
30.5°	2125.2	2114.5	2152.6	2224.2	2311.1	2391.5
31°	2101.1	2090.8	2128.5	2201.4	2288.3	2369.2
31.5°	2076.9	2066.7	2104.8	2177.7	2266.0	2347.4
32°	2051.8	2042.5	2081.1	2154.0	2242.8	2324.6
32.5°	2027.6	2017.9	2056.9	2129.9	2219.6	2302.3
33°	2002.5	1992.8	2032.3	2106.2	2194.9	2278.1
33.5°	1977.4	1968.6	2008.1	2081.5	2170.8	2255.4
34°	1951.9	1943.1	1983.5	2056.9	2146.6	2230.7
34.5°	1925.9	1917.0	1957.5	2031.3	2121.0	2207.0
35°	1898.9	1890.5	1931.4	2006.7	2096.4	2181.5
35.5°	1872.4	1863.6	1905.4	1980.7	2070.9	2158.2
36°	1845.0	1834.3	1878.5	1954.7	2045.3	2132.7
36.5°	1813.9	1803.6	1849.2	1926.3	2019.3	2107.6
37°	1780.4	1769.7	1816.6	1898.4	1991.4	2080.6
37.5°	1746.0	1733.5	1782.7	1867.3	1963.0	2056.0
38°	1709.3	1696.3	1746.5	1834.3	1934.2	2027.6
38.5°	1672.1	1658.2	1709.3	1799.9	1904.5	1999.7
39°	1634.0	1620.1	1671.6	1765.1	1872.9	1970.5
39.5°	1595.0	1581.0	1633.1	1729.7	1839.4	1942.6
40°	1554.5	1540.6	1595.0	1692.6	1803.6	1911.9
40.5°	1515.5	1500.2	1555.5	1654.9	1768.3	1879.8
41°	1474.1	1460.2	1517.4	1616.8	1731.6	1846.9
41.5°	1433.7	1420.2	1477.9	1577.3	1694.4	1812.5
42°	1392.3	1380.7	1438.8	1537.8	1656.8	1777.1
42.5°	1351.9	1340.3	1399.8	1498.3	1616.8	1739.5
43°	1309.6	1299.9	1361.2	1457.4	1576.8	1699.5
43.5°	1269.2	1260.4	1321.7	1416.0	1535.5	1658.2



TEST NUMBER: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1147.0	1140.9	1201.8	1292.9	1409.5	1530.8
45.5°	1106.5	1101.4	1161.8	1250.1	1366.8	1486.7
46°	1066.6	1061.9	1120.5	1210.6	1323.6	1442.5
46.5°	1027.5	1022.4	1079.1	1168.8	1278.9	1399.3
47°	987.1	983.4	1040.1	1127.4	1235.3	1355.6
47.5°	948.5	944.8	999.2	1085.2	1191.6	1312.4
48°	910.9	906.7	960.6	1045.2	1148.4	1268.7
48.5°	872.8	869.1	921.1	1002.9	1104.2	1226.0
49°	835.1	832.3	882.1	963.4	1061.9	1184.1
49.5°	797.5	795.2	844.4	922.5	1019.6	1141.4
50°	761.2	758.9	806.3	882.5	976.9	1100.5
50.5°	725.0	722.7	768.7	840.2	935.0	1057.7
51°	690.1	687.8	731.0	803.5	894.6	1017.3
51.5°	656.2	653.4	695.2	764.0	854.6	976.4
52°	621.3	619.5	659.5	725.9	815.6	936.9
52.5°	588.4	586.5	624.6	685.9	776.6	896.5
53°	555.8	553.5	589.7	651.1	738.5	857.4
53.5°	524.2	521.4	555.4	614.8	701.7	818.4
54°	493.5	490.3	521.9	578.1	665.0	780.3
54.5°	463.3	460.1	490.3	543.7	630.2	742.2
55°	436.4	429.9	458.7	510.3	595.3	705.5
55.5°	409.0	401.1	427.1	477.7	561.4	668.3
56°	382.0	372.3	397.3	446.1	528.4	633.4
56.5°	354.6	344.8	368.1	415.0	496.8	597.6
57°	327.2	318.3	340.2	385.3	465.2	564.2
57.5°	303.0	292.3	312.8	357.4	434.5	530.3
58°	279.8	267.7	286.3	330.0	404.8	497.7
58.5°	257.0	244.0	261.6	303.9	376.4	466.1
59°	236.1	221.7	237.5	278.4	348.6	435.5
59.5°	214.7	200.3	215.2	254.7	321.6	405.7
60°	194.7	179.9	193.8	232.4	295.6	376.0
60.5°	175.7	160.8	173.3	210.1	270.5	347.6
61°	158.5	144.5	156.6	189.1	246.3	320.2
61.5°	140.8	128.3	140.3	170.1	223.5	294.2
62°	125.0	112.5	124.1	154.3	202.2	269.1
62.5°	110.6	96.2	107.8	138.0	180.8	244.0
63°	97.1	83.2	91.6	122.2	160.8	219.8
63.5°	83.7	72.0	79.0	106.4	144.1	196.1
64°	72.0	61.3	67.9	90.6	127.8	172.9
64.5°	61.3	53.0	58.6	78.1	111.5	152.9
65°	54.8	45.1	50.2	66.9	95.3	133.4
65.5°	48.3	38.6	43.2	56.7	81.8	113.9
66°	41.8	32.5	36.7	47.9	69.2	94.3



TEST NUMBER: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	22.8	21.8	23.7	28.3	40.4	48.8
68°	20.4	20.4	21.4	24.6	33.9	39.0
68.5°	19.1	19.1	20.0	21.8	28.3	32.1
69°	18.1	17.7	18.6	20.4	24.6	27.9
69.5°	16.7	16.7	17.7	19.1	22.3	25.6
70°	15.8	15.8	16.7	18.1	20.9	24.2
70.5°	14.9	14.9	15.3	16.7	19.5	22.8
71°	13.5	13.5	14.4	15.8	18.1	21.4
71.5°	12.5	12.5	13.5	14.9	17.2	20.0
72°	12.1	12.1	12.5	13.9	16.3	18.6
72.5°	11.2	11.2	11.6	13.0	14.9	17.7
73°	10.2	10.2	10.7	12.1	13.9	16.7
73.5°	9.8	9.8	10.2	11.2	13.0	15.3
74°	8.8	8.8	9.3	10.2	12.1	14.4
74.5°	8.4	8.4	8.8	9.8	11.2	13.5
75°	7.9	7.9	8.4	9.3	10.7	12.5
75.5°	7.4	7.4	7.9	8.4	9.8	11.6
76°	7.0	7.0	7.0	7.9	9.3	11.2
76.5°	6.5	6.5	6.5	7.4	8.4	10.2
77°	6.0	6.0	6.0	7.0	7.9	9.8
77.5°	5.6	5.6	5.6	6.5	7.4	8.8
78°	5.1	5.1	5.6	6.0	7.0	8.4
78.5°	4.6	4.6	5.1	5.6	6.0	7.9
79°	4.2	4.2	4.6	5.1	5.6	7.0
79.5°	4.2	4.2	4.2	4.6	5.1	6.5
80°	3.7	3.7	3.7	4.2	4.6	6.0
80.5°	3.3	3.3	3.7	3.7	4.2	5.6
81°	3.3	3.3	3.3	3.3	3.7	5.1
81.5°	2.8	2.8	2.8	3.3	3.3	4.6
82°	2.3	2.3	2.8	2.8	2.8	3.7
82.5°	2.3	2.3	2.3	2.3	2.3	3.3
83°	1.9	1.9	1.9	2.3	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: P776551

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRH-5000lm-3000K

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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Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report





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

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Scaled Data Report



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21.5°	2735.0	2786.5	2818.6	2830.7	2833.0	2798.6	2742.4	2674.1	2611.3	2569.0	2542.1
22°	2719.2	2771.2	2804.2	2816.7	2818.6	2784.2	2726.6	2656.4	2592.7	2550.0	2522.6



44°	1616.3	1714.9	1777.1	1808.7	1824.1	1766.5	1669.3	1551.3	1430.0	1331.5	1264.5
44.5°	1574.5	1676.3	1740.4	1772.0	1787.8	1727.9	1630.3	1512.2	1390.9	1292.0	1223.2



66.5°	74.8	121.3	152.4	164.5	174.7	154.8	121.8	88.3	58.1	47.9	40.0
67°	60.4	102.7	134.3	146.9	153.8	135.7	106.4	75.3	51.6	41.8	32.5



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°	2521.2	2511.0	2540.2	2600.6	2669.4	2735.0
22°	2501.2	2490.0	2520.7	2581.6	2651.8	2719.2



44°	1228.3	1220.9	1281.7	1375.1	1494.6	1616.3
44.5°	1187.9	1180.4	1240.8	1332.9	1453.2	1574.5



66.5°	35.8	28.3	31.1	40.0	58.6	74.8
67°	29.3	24.2	27.0	33.5	48.8	60.4

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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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(END OF REPORT)