

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: P776648

Luminaire Tested: HCDJBS4050CSD-HCD61TRC-5000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776648
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B035-HCD61TRC)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD61TRC-5000lm-4000K
Description: 6 INCH ROUND SHALLOW-WIDE SPECULAR CLEAR TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

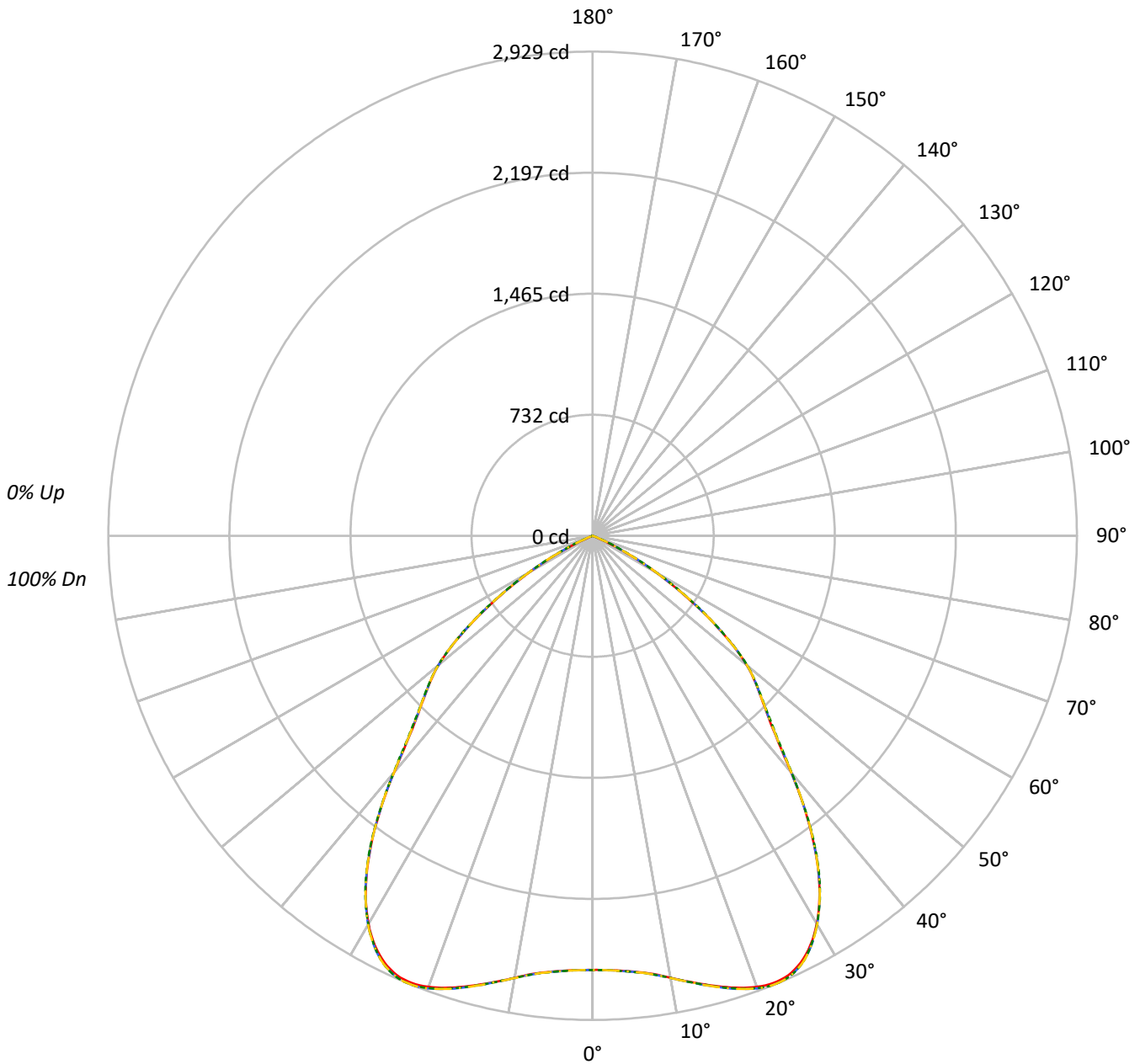
Lumens per Lamp: N/A
Luminaire Lumens: 5903.1 lumens
Efficiency: N/A
Efficacy: 123.0 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.39 / 1.3
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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: P776648
CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	100	100	100
1	112	108	105	103	109	106	103	101	102	100	98	98	97	95	95	93	92	90	90	90	90
2	104	98	93	88	102	96	91	87	93	89	85	90	86	84	87	84	82	80	80	80	80
3	97	88	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71	71	71	71
4	90	80	73	67	88	79	72	67	76	71	66	74	69	65	72	68	64	63	63	63	63
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56	56	56	56
6	78	66	59	53	76	65	58	53	64	57	52	62	56	52	61	56	52	50	50	50	50
7	72	61	53	48	71	60	53	47	58	52	47	57	51	47	56	51	47	45	45	45	45
8	68	56	48	43	66	55	48	43	54	47	43	53	47	42	52	46	42	40	40	40	40
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37	37	37	37
10	60	48	40	36	58	47	40	36	46	40	35	45	39	35	44	39	35	34	34	34	34

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	144013	144013	144013	144013
5°	145586	145696	145586	145696
10°	151161	151211	151161	151211
15°	159921	160086	159921	160086
20°	169409	169887	169409	169887
25°	175044	175770	175044	175770
30°	171621	171830	171621	171830
35°	157557	158072	157557	158072
40°	133565	134116	133565	134116
45°	114399	114996	114399	114996
50°	103783	104022	103783	104022
55°	79911	80733	79911	80733
60°	48143	49667	48143	49667
65°	15073	19237	15073	19237
70°	80	769	80	769
75°	0	106	0	106
80°	0	0	0	0
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 114996 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	254.8	4.3
10°-20°	802.2	13.6
20°-30°	1326.3	22.5
30°-40°	1455.8	24.7
40°-50°	1156.0	19.6
50°-60°	744.6	12.6
60°-70°	163.0	2.8
70°-80°	0.5	0.0
80°-90°	0.0	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°	2383.3	40.4
0°-40°	3839.0	65.0
0°-60°	5739.6	97.2
0°-90°	5903.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5903.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2627	2627	2627	2627	2627	
5°	2646	2648	2646	2648	2646	255
15°	2818	2821	2818	2821	2818	801
25°	2894	2906	2894	2906	2894	1323
35°	2354	2362	2354	2362	2354	1454
45°	1476	1483	1476	1483	1476	1153
55°	836	845	836	845	836	741
65°	116	148	116	148	116	148
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
90°	0	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°	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0
0.5°	2626.0	2627.0	2627.5	2627.9	2627.5	2627.9	2627.5	2627.0	2626.0	2627.0	2627.5
1°	2627.0	2627.5	2627.9	2628.4	2627.9	2628.4	2627.9	2627.5	2627.0	2627.5	2627.9
1.5°	2627.9	2628.4	2628.9	2629.4	2628.9	2629.4	2628.9	2628.4	2627.9	2628.4	2628.9
2°	2629.4	2629.9	2630.3	2630.3	2629.9	2630.3	2630.3	2629.9	2629.4	2629.9	2630.3
2.5°	2630.8	2631.3	2632.2	2632.2	2631.8	2632.2	2632.2	2631.3	2630.8	2631.3	2632.2
3°	2633.2	2633.7	2634.2	2634.2	2633.7	2634.2	2634.2	2633.7	2633.2	2633.7	2634.2
3.5°	2635.6	2636.1	2637.0	2637.0	2636.6	2637.0	2637.0	2636.1	2635.6	2636.1	2637.0
4°	2638.5	2638.9	2639.9	2640.4	2639.9	2640.4	2639.9	2638.9	2638.5	2638.9	2639.9
4.5°	2641.8	2642.3	2643.2	2643.7	2643.2	2643.7	2643.2	2642.3	2641.8	2642.3	2643.2
5°	2645.6	2646.1	2647.1	2647.6	2647.6	2647.6	2647.1	2646.1	2645.6	2646.1	2647.1
5.5°	2649.5	2650.4	2651.4	2652.3	2651.9	2652.3	2651.4	2650.4	2649.5	2650.4	2651.4
6°	2654.2	2654.7	2656.2	2657.1	2656.6	2657.1	2656.2	2654.7	2654.2	2654.7	2656.2
6.5°	2659.5	2660.0	2661.4	2661.9	2661.4	2661.9	2661.4	2660.0	2659.5	2660.0	2661.4
7°	2665.3	2665.7	2667.2	2667.6	2667.2	2667.6	2667.2	2665.7	2665.3	2665.7	2667.2
7.5°	2671.9	2672.4	2673.9	2673.9	2673.9	2673.9	2673.9	2672.4	2671.9	2672.4	2673.9
8°	2678.6	2679.6	2681.0	2681.5	2681.0	2681.5	2681.0	2679.6	2678.6	2679.6	2681.0
8.5°	2686.8	2687.7	2689.6	2689.6	2689.2	2689.6	2689.6	2687.7	2686.8	2687.7	2689.6
9°	2695.9	2696.8	2698.3	2698.7	2697.8	2698.7	2698.3	2696.8	2695.9	2696.8	2698.3
9.5°	2705.4	2706.4	2707.8	2708.3	2706.9	2708.3	2707.8	2706.4	2705.4	2706.4	2707.8
10°	2715.5	2716.4	2717.9	2717.9	2716.4	2717.9	2717.9	2716.4	2715.5	2716.4	2717.9
10.5°	2725.5	2726.5	2727.4	2727.4	2726.5	2727.4	2727.4	2726.5	2725.5	2726.5	2727.4
11°	2735.6	2737.0	2738.0	2737.5	2736.5	2737.5	2738.0	2737.0	2735.6	2737.0	2738.0
11.5°	2746.1	2747.0	2748.0	2747.5	2746.6	2747.5	2748.0	2747.0	2746.1	2747.0	2748.0
12°	2756.1	2757.1	2758.0	2758.0	2757.1	2758.0	2758.0	2757.1	2756.1	2757.1	2758.0
12.5°	2766.2	2767.6	2768.6	2768.6	2767.6	2768.6	2768.6	2767.6	2766.2	2767.6	2768.6
13°	2776.2	2778.1	2779.1	2779.1	2778.1	2779.1	2779.1	2778.1	2776.2	2778.1	2779.1
13.5°	2786.7	2788.7	2790.1	2789.6	2788.7	2789.6	2790.1	2788.7	2786.7	2788.7	2790.1
14°	2796.8	2799.2	2801.1	2801.1	2799.2	2801.1	2801.1	2799.2	2796.8	2799.2	2801.1
14.5°	2807.3	2809.7	2811.6	2812.1	2810.2	2812.1	2811.6	2809.7	2807.3	2809.7	2811.6
15°	2817.8	2820.2	2822.6	2823.1	2820.7	2823.1	2822.6	2820.2	2817.8	2820.2	2822.6
15.5°	2827.9	2830.8	2833.6	2833.6	2831.2	2833.6	2833.6	2830.8	2827.9	2830.8	2833.6
16°	2837.9	2841.3	2844.1	2844.1	2841.8	2844.1	2844.1	2841.3	2837.9	2841.3	2844.1
16.5°	2847.5	2850.8	2854.2	2854.2	2851.8	2854.2	2854.2	2850.8	2847.5	2850.8	2854.2
17°	2857.5	2860.9	2864.2	2864.2	2861.4	2864.2	2864.2	2860.9	2857.5	2860.9	2864.2
17.5°	2866.6	2870.5	2873.8	2873.8	2870.9	2873.8	2873.8	2870.5	2866.6	2870.5	2873.8
18°	2875.2	2879.5	2882.9	2882.9	2880.5	2882.9	2882.9	2879.5	2875.2	2879.5	2882.9
18.5°	2883.4	2888.2	2891.5	2891.5	2889.1	2891.5	2891.5	2888.2	2883.4	2888.2	2891.5
19°	2891.0	2895.8	2899.6	2899.2	2897.2	2899.2	2899.6	2895.8	2891.0	2895.8	2899.6
19.5°	2897.7	2902.5	2907.3	2906.3	2904.9	2906.3	2907.3	2902.5	2897.7	2902.5	2907.3
20°	2903.9	2908.7	2914.0	2912.5	2912.1	2912.5	2914.0	2908.7	2903.9	2908.7	2914.0
20.5°	2909.2	2914.0	2919.2	2917.8	2917.8	2917.8	2919.2	2914.0	2909.2	2914.0	2919.2
21°	2913.0	2917.8	2923.5	2921.6	2922.6	2921.6	2923.5	2917.8	2913.0	2917.8	2923.5



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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°	2917.8	2922.1	2928.8	2926.4	2929.3	2926.4	2928.8	2922.1	2917.8	2922.1	2928.8
23°	2916.9	2920.7	2927.9	2925.0	2928.3	2925.0	2927.9	2920.7	2916.9	2920.7	2927.9
23.5°	2914.0	2917.8	2925.0	2921.6	2925.9	2921.6	2925.0	2917.8	2914.0	2917.8	2925.0
24°	2909.2	2913.0	2920.2	2917.3	2921.2	2917.3	2920.2	2913.0	2909.2	2913.0	2920.2
24.5°	2902.5	2906.3	2913.5	2911.1	2914.5	2911.1	2913.5	2906.3	2902.5	2906.3	2913.5
25°	2893.9	2898.2	2904.9	2903.0	2905.9	2903.0	2904.9	2898.2	2893.9	2898.2	2904.9
25.5°	2884.3	2888.2	2894.8	2893.4	2894.8	2893.4	2894.8	2888.2	2884.3	2888.2	2894.8
26°	2872.4	2876.2	2882.4	2881.9	2882.4	2881.9	2882.4	2876.2	2872.4	2876.2	2882.4
26.5°	2857.5	2861.8	2868.1	2868.5	2867.6	2868.5	2868.1	2861.8	2857.5	2861.8	2868.1
27°	2842.2	2846.5	2851.8	2853.2	2850.8	2853.2	2851.8	2846.5	2842.2	2846.5	2851.8
27.5°	2824.5	2828.8	2833.6	2836.0	2832.2	2836.0	2833.6	2828.8	2824.5	2828.8	2833.6
28°	2804.9	2809.2	2813.1	2816.9	2811.6	2816.9	2813.1	2809.2	2804.9	2809.2	2813.1
28.5°	2784.4	2787.7	2791.5	2796.3	2789.6	2796.3	2791.5	2787.7	2784.4	2787.7	2791.5
29°	2761.4	2764.7	2767.6	2773.4	2766.2	2773.4	2767.6	2764.7	2761.4	2764.7	2767.6
29.5°	2737.0	2739.9	2743.2	2748.0	2741.3	2748.0	2743.2	2739.9	2737.0	2739.9	2743.2
30°	2711.2	2713.1	2715.5	2721.2	2714.5	2721.2	2715.5	2713.1	2711.2	2713.1	2715.5
30.5°	2683.4	2684.4	2687.3	2693.0	2686.3	2693.0	2687.3	2684.4	2683.4	2684.4	2687.3
31°	2653.3	2654.2	2657.1	2662.4	2656.6	2662.4	2657.1	2654.2	2653.3	2654.2	2657.1
31.5°	2622.2	2622.2	2625.5	2629.9	2625.5	2629.9	2625.5	2622.2	2622.2	2622.2	2625.5
32°	2589.2	2588.7	2591.6	2595.9	2593.0	2595.9	2591.6	2588.7	2589.2	2588.7	2591.6
32.5°	2554.3	2553.3	2557.1	2560.0	2559.1	2560.0	2557.1	2553.3	2554.3	2553.3	2557.1
33°	2517.9	2517.0	2520.3	2522.7	2523.2	2522.7	2520.3	2517.0	2517.9	2517.0	2520.3
33.5°	2479.7	2477.7	2482.1	2483.5	2484.9	2483.5	2482.1	2477.7	2479.7	2477.7	2482.1
34°	2440.0	2438.0	2441.9	2442.3	2446.2	2442.3	2441.9	2438.0	2440.0	2438.0	2441.9
34.5°	2397.4	2397.4	2399.8	2400.3	2404.6	2400.3	2399.8	2397.4	2397.4	2397.4	2399.8
35°	2354.3	2353.9	2356.3	2357.2	2362.0	2357.2	2356.3	2353.9	2354.3	2353.9	2356.3
35.5°	2310.3	2310.3	2312.2	2313.2	2318.0	2313.2	2312.2	2310.3	2310.3	2310.3	2312.2
36°	2265.4	2265.4	2266.8	2268.2	2271.6	2268.2	2266.8	2265.4	2265.4	2265.4	2266.8
36.5°	2219.0	2219.4	2220.4	2221.4	2225.2	2221.4	2220.4	2219.4	2219.0	2219.4	2220.4
37°	2170.7	2171.6	2172.1	2173.5	2176.4	2173.5	2172.1	2171.6	2170.7	2171.6	2172.1
37.5°	2122.3	2122.8	2123.8	2125.2	2126.7	2125.2	2123.8	2122.8	2122.3	2122.8	2123.8
38°	2073.1	2073.1	2074.5	2075.5	2076.9	2075.5	2074.5	2073.1	2073.1	2073.1	2074.5
38.5°	2022.9	2022.9	2024.3	2025.2	2026.2	2025.2	2024.3	2022.9	2022.9	2022.9	2024.3
39°	1971.7	1971.7	1973.6	1975.0	1975.5	1975.0	1973.6	1971.7	1971.7	1971.7	1973.6
39.5°	1919.1	1919.5	1921.4	1924.3	1924.8	1924.3	1921.4	1919.5	1919.1	1919.5	1921.4
40°	1866.4	1866.9	1870.3	1872.7	1874.1	1872.7	1870.3	1866.9	1866.4	1866.9	1870.3
40.5°	1814.8	1815.7	1820.0	1824.3	1825.3	1824.3	1820.0	1815.7	1814.8	1815.7	1820.0
41°	1766.0	1767.4	1771.7	1776.5	1778.4	1776.5	1771.7	1767.4	1766.0	1767.4	1771.7
41.5°	1720.1	1722.0	1725.8	1730.6	1732.0	1730.6	1725.8	1722.0	1720.1	1722.0	1725.8
42°	1678.0	1678.9	1682.8	1686.1	1689.0	1686.1	1682.8	1678.9	1678.0	1678.9	1682.8
42.5°	1638.8	1639.2	1644.0	1647.4	1649.3	1647.4	1644.0	1639.2	1638.8	1639.2	1644.0
43°	1600.5	1601.0	1606.2	1610.1	1614.4	1610.1	1606.2	1601.0	1600.5	1601.0	1606.2
43.5°	1565.1	1566.5	1570.4	1574.2	1577.5	1574.2	1570.4	1566.5	1565.1	1566.5	1570.4



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1475.6	1475.6	1479.0	1480.4	1483.3	1480.4	1479.0	1475.6	1475.6	1475.6	1479.0
45.5°	1448.4	1448.4	1451.7	1453.2	1454.6	1453.2	1451.7	1448.4	1448.4	1448.4	1451.7
46°	1422.1	1422.6	1424.9	1426.9	1427.8	1426.9	1424.9	1422.6	1422.1	1422.6	1424.9
46.5°	1396.7	1396.7	1399.1	1400.5	1402.5	1400.5	1399.1	1396.7	1396.7	1396.7	1399.1
47°	1371.8	1371.8	1373.8	1375.7	1377.1	1375.7	1373.8	1371.8	1371.8	1371.8	1373.8
47.5°	1347.0	1347.0	1349.4	1350.8	1351.3	1350.8	1349.4	1347.0	1347.0	1347.0	1349.4
48°	1323.1	1322.6	1325.0	1326.4	1327.4	1326.4	1325.0	1322.6	1323.1	1322.6	1325.0
48.5°	1298.2	1298.2	1300.1	1302.0	1302.5	1302.0	1300.1	1298.2	1298.2	1298.2	1300.1
49°	1272.4	1272.8	1274.7	1276.2	1277.1	1276.2	1274.7	1272.8	1272.4	1272.8	1274.7
49.5°	1246.0	1245.6	1248.0	1249.4	1249.9	1249.4	1248.0	1245.6	1246.0	1245.6	1248.0
50°	1216.9	1216.9	1218.3	1219.7	1219.7	1219.7	1218.3	1216.9	1216.9	1216.9	1218.3
50.5°	1184.8	1184.8	1185.8	1187.7	1187.7	1187.7	1185.8	1184.8	1184.8	1184.8	1185.8
51°	1150.9	1150.4	1151.8	1153.3	1154.7	1153.3	1151.8	1150.4	1150.9	1150.4	1151.8
51.5°	1115.0	1114.5	1116.4	1118.3	1118.8	1118.3	1116.4	1114.5	1115.0	1114.5	1116.4
52°	1077.7	1078.2	1079.6	1081.0	1082.0	1081.0	1079.6	1078.2	1077.7	1078.2	1079.6
52.5°	1039.4	1038.9	1041.3	1043.2	1043.7	1043.2	1041.3	1038.9	1039.4	1038.9	1041.3
53°	999.2	999.7	1002.1	1004.5	1004.0	1004.5	1002.1	999.7	999.2	999.7	1002.1
53.5°	959.1	959.5	962.4	964.3	965.3	964.3	962.4	959.5	959.1	959.5	962.4
54°	917.9	918.9	921.7	923.7	924.1	923.7	921.7	918.9	917.9	918.9	921.7
54.5°	877.3	877.3	881.1	883.5	884.4	883.5	881.1	877.3	877.3	877.3	881.1
55°	836.1	836.6	840.9	842.8	844.7	842.8	840.9	836.6	836.1	836.6	840.9
55.5°	794.0	795.0	799.3	802.2	804.1	802.2	799.3	795.0	794.0	795.0	799.3
56°	752.4	753.8	758.6	761.0	763.4	761.0	758.6	753.8	752.4	753.8	758.6
56.5°	711.3	712.7	717.5	720.4	722.8	720.4	717.5	712.7	711.3	712.7	717.5
57°	670.1	672.5	676.8	680.2	682.6	680.2	676.8	672.5	670.1	672.5	676.8
57.5°	630.0	632.4	636.7	640.5	642.9	640.5	636.7	632.4	630.0	632.4	636.7
58°	590.3	592.2	597.0	601.7	603.7	601.7	597.0	592.2	590.3	592.2	597.0
58.5°	550.6	553.4	558.2	564.0	565.4	564.0	558.2	553.4	550.6	553.4	558.2
59°	512.3	515.6	519.5	525.7	527.1	525.7	519.5	515.6	512.3	515.6	519.5
59.5°	475.5	477.9	482.2	488.4	489.8	488.4	482.2	477.9	475.5	477.9	482.2
60°	439.1	441.0	445.3	451.1	453.0	451.1	445.3	441.0	439.1	441.0	445.3
60.5°	402.8	404.7	409.0	414.7	417.6	414.7	409.0	404.7	402.8	404.7	409.0
61°	367.4	369.3	374.5	379.8	382.7	379.8	374.5	369.3	367.4	369.3	374.5
61.5°	331.5	335.3	340.6	345.8	350.1	345.8	340.6	335.3	331.5	335.3	340.6
62°	297.5	302.3	307.6	313.3	317.6	313.3	307.6	302.3	297.5	302.3	307.6
62.5°	263.6	269.8	275.5	281.3	286.0	281.3	275.5	269.8	263.6	269.8	275.5
63°	230.6	239.2	244.4	250.2	255.4	250.2	244.4	239.2	230.6	239.2	244.4
63.5°	199.0	210.0	215.7	221.0	226.7	221.0	215.7	210.0	199.0	210.0	215.7
64°	168.4	182.7	189.4	194.2	199.9	194.2	189.4	182.7	168.4	182.7	189.4
64.5°	141.1	157.8	164.1	168.4	174.1	168.4	164.1	157.8	141.1	157.8	164.1
65°	116.2	133.9	140.2	144.0	148.3	144.0	140.2	133.9	116.2	133.9	140.2
65.5°	92.8	112.9	118.1	120.1	123.9	120.1	118.1	112.9	92.8	112.9	118.1
66°	72.7	93.8	97.6	100.4	102.4	100.4	97.6	93.8	72.7	93.8	97.6



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	22.5	43.5	46.9	49.7	52.6	49.7	46.9	43.5	22.5	43.5	46.9
68°	13.4	30.6	33.5	37.3	43.0	37.3	33.5	30.6	13.4	30.6	33.5
68.5°	8.1	20.1	23.9	26.3	33.5	26.3	23.9	20.1	8.1	20.1	23.9
69°	4.8	12.0	14.8	16.7	23.9	16.7	14.8	12.0	4.8	12.0	14.8
69.5°	2.9	7.7	8.6	8.6	14.3	8.6	8.6	7.7	2.9	7.7	8.6
70°	0.5	3.8	4.8	4.8	4.8	4.8	4.8	3.8	0.5	3.8	4.8
70.5°	0.5	1.4	2.9	2.9	1.9	2.9	2.9	1.4	0.5	1.4	2.9
71°	0.5	0.5	1.4	1.4	0.5	1.4	1.4	0.5	0.5	0.5	1.4
71.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
72°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
73°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
73.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
74°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
74.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
75.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
76°	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
76.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776648
CATALOG NUMBER: HCDJBS4050CSD-HCD61TRC-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2627.0	2627.0	2627.0	2627.0	2627.0	2627.0
0.5°	2627.9	2627.5	2627.9	2627.5	2627.0	2626.0
1°	2628.4	2627.9	2628.4	2627.9	2627.5	2627.0
1.5°	2629.4	2628.9	2629.4	2628.9	2628.4	2627.9
2°	2630.3	2629.9	2630.3	2630.3	2629.9	2629.4
2.5°	2632.2	2631.8	2632.2	2632.2	2631.3	2630.8
3°	2634.2	2633.7	2634.2	2634.2	2633.7	2633.2
3.5°	2637.0	2636.6	2637.0	2637.0	2636.1	2635.6
4°	2640.4	2639.9	2640.4	2639.9	2638.9	2638.5
4.5°	2643.7	2643.2	2643.7	2643.2	2642.3	2641.8
5°	2647.6	2647.6	2647.6	2647.1	2646.1	2645.6
5.5°	2652.3	2651.9	2652.3	2651.4	2650.4	2649.5
6°	2657.1	2656.6	2657.1	2656.2	2654.7	2654.2
6.5°	2661.9	2661.4	2661.9	2661.4	2660.0	2659.5
7°	2667.6	2667.2	2667.6	2667.2	2665.7	2665.3
7.5°	2673.9	2673.4	2673.9	2673.9	2672.4	2671.9
8°	2681.5	2681.0	2681.5	2681.0	2679.6	2678.6
8.5°	2689.6	2689.2	2689.6	2689.6	2687.7	2686.8
9°	2698.7	2697.8	2698.7	2698.3	2696.8	2695.9
9.5°	2708.3	2706.9	2708.3	2707.8	2706.4	2705.4
10°	2717.9	2716.4	2717.9	2717.9	2716.4	2715.5
10.5°	2727.4	2726.5	2727.4	2727.4	2726.5	2725.5
11°	2737.5	2736.5	2737.5	2738.0	2737.0	2735.6
11.5°	2747.5	2746.6	2747.5	2748.0	2747.0	2746.1
12°	2758.0	2757.1	2758.0	2758.0	2757.1	2756.1
12.5°	2768.6	2767.6	2768.6	2768.6	2767.6	2766.2
13°	2779.1	2778.1	2779.1	2779.1	2778.1	2776.2
13.5°	2789.6	2788.7	2789.6	2790.1	2788.7	2786.7
14°	2801.1	2799.2	2801.1	2801.1	2799.2	2796.8
14.5°	2812.1	2810.2	2812.1	2811.6	2809.7	2807.3
15°	2823.1	2820.7	2823.1	2822.6	2820.2	2817.8
15.5°	2833.6	2831.2	2833.6	2833.6	2830.8	2827.9
16°	2844.1	2841.8	2844.1	2844.1	2841.3	2837.9
16.5°	2854.2	2851.8	2854.2	2854.2	2850.8	2847.5
17°	2864.2	2861.4	2864.2	2864.2	2860.9	2857.5
17.5°	2873.8	2870.9	2873.8	2873.8	2870.5	2866.6
18°	2882.9	2880.5	2882.9	2882.9	2879.5	2875.2
18.5°	2891.5	2889.1	2891.5	2891.5	2888.2	2883.4
19°	2899.2	2897.2	2899.2	2899.6	2895.8	2891.0
19.5°	2906.3	2904.9	2906.3	2907.3	2902.5	2897.7
20°	2912.5	2912.1	2912.5	2914.0	2908.7	2903.9
20.5°	2917.8	2917.8	2917.8	2919.2	2914.0	2909.2
21°	2921.6	2922.6	2921.6	2923.5	2917.8	2913.0



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2926.4	2929.3	2926.4	2928.8	2922.1	2917.8
23°	2925.0	2928.3	2925.0	2927.9	2920.7	2916.9
23.5°	2921.6	2925.9	2921.6	2925.0	2917.8	2914.0
24°	2917.3	2921.2	2917.3	2920.2	2913.0	2909.2
24.5°	2911.1	2914.5	2911.1	2913.5	2906.3	2902.5
25°	2903.0	2905.9	2903.0	2904.9	2898.2	2893.9
25.5°	2893.4	2894.8	2893.4	2894.8	2888.2	2884.3
26°	2881.9	2882.4	2881.9	2882.4	2876.2	2872.4
26.5°	2868.5	2867.6	2868.5	2868.1	2861.8	2857.5
27°	2853.2	2850.8	2853.2	2851.8	2846.5	2842.2
27.5°	2836.0	2832.2	2836.0	2833.6	2828.8	2824.5
28°	2816.9	2811.6	2816.9	2813.1	2809.2	2804.9
28.5°	2796.3	2789.6	2796.3	2791.5	2787.7	2784.4
29°	2773.4	2766.2	2773.4	2767.6	2764.7	2761.4
29.5°	2748.0	2741.3	2748.0	2743.2	2739.9	2737.0
30°	2721.2	2714.5	2721.2	2715.5	2713.1	2711.2
30.5°	2693.0	2686.3	2693.0	2687.3	2684.4	2683.4
31°	2662.4	2656.6	2662.4	2657.1	2654.2	2653.3
31.5°	2629.9	2625.5	2629.9	2625.5	2622.2	2622.2
32°	2595.9	2593.0	2595.9	2591.6	2588.7	2589.2
32.5°	2560.0	2559.1	2560.0	2557.1	2553.3	2554.3
33°	2522.7	2523.2	2522.7	2520.3	2517.0	2517.9
33.5°	2483.5	2484.9	2483.5	2482.1	2477.7	2479.7
34°	2442.3	2446.2	2442.3	2441.9	2438.0	2440.0
34.5°	2400.3	2404.6	2400.3	2399.8	2397.4	2397.4
35°	2357.2	2362.0	2357.2	2356.3	2353.9	2354.3
35.5°	2313.2	2318.0	2313.2	2312.2	2310.3	2310.3
36°	2268.2	2271.6	2268.2	2266.8	2265.4	2265.4
36.5°	2221.4	2225.2	2221.4	2220.4	2219.4	2219.0
37°	2173.5	2176.4	2173.5	2172.1	2171.6	2170.7
37.5°	2125.2	2126.7	2125.2	2123.8	2122.8	2122.3
38°	2075.5	2076.9	2075.5	2074.5	2073.1	2073.1
38.5°	2025.2	2026.2	2025.2	2024.3	2022.9	2022.9
39°	1975.0	1975.5	1975.0	1973.6	1971.7	1971.7
39.5°	1924.3	1924.8	1924.3	1921.4	1919.5	1919.1
40°	1872.7	1874.1	1872.7	1870.3	1866.9	1866.4
40.5°	1824.3	1825.3	1824.3	1820.0	1815.7	1814.8
41°	1776.5	1778.4	1776.5	1771.7	1767.4	1766.0
41.5°	1730.6	1732.0	1730.6	1725.8	1722.0	1720.1
42°	1686.1	1689.0	1686.1	1682.8	1678.9	1678.0
42.5°	1647.4	1649.3	1647.4	1644.0	1639.2	1638.8
43°	1610.1	1614.4	1610.1	1606.2	1601.0	1600.5
43.5°	1574.2	1577.5	1574.2	1570.4	1566.5	1565.1



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1480.4	1483.3	1480.4	1479.0	1475.6	1475.6
45.5°	1453.2	1454.6	1453.2	1451.7	1448.4	1448.4
46°	1426.9	1427.8	1426.9	1424.9	1422.6	1422.1
46.5°	1400.5	1402.5	1400.5	1399.1	1396.7	1396.7
47°	1375.7	1377.1	1375.7	1373.8	1371.8	1371.8
47.5°	1350.8	1351.3	1350.8	1349.4	1347.0	1347.0
48°	1326.4	1327.4	1326.4	1325.0	1322.6	1323.1
48.5°	1302.0	1302.5	1302.0	1300.1	1298.2	1298.2
49°	1276.2	1277.1	1276.2	1274.7	1272.8	1272.4
49.5°	1249.4	1249.9	1249.4	1248.0	1245.6	1246.0
50°	1219.7	1219.7	1219.7	1218.3	1216.9	1216.9
50.5°	1187.7	1187.7	1187.7	1185.8	1184.8	1184.8
51°	1153.3	1154.7	1153.3	1151.8	1150.4	1150.9
51.5°	1118.3	1118.8	1118.3	1116.4	1114.5	1115.0
52°	1081.0	1082.0	1081.0	1079.6	1078.2	1077.7
52.5°	1043.2	1043.7	1043.2	1041.3	1038.9	1039.4
53°	1004.5	1004.0	1004.5	1002.1	999.7	999.2
53.5°	964.3	965.3	964.3	962.4	959.5	959.1
54°	923.7	924.1	923.7	921.7	918.9	917.9
54.5°	883.5	884.4	883.5	881.1	877.3	877.3
55°	842.8	844.7	842.8	840.9	836.6	836.1
55.5°	802.2	804.1	802.2	799.3	795.0	794.0
56°	761.0	763.4	761.0	758.6	753.8	752.4
56.5°	720.4	722.8	720.4	717.5	712.7	711.3
57°	680.2	682.6	680.2	676.8	672.5	670.1
57.5°	640.5	642.9	640.5	636.7	632.4	630.0
58°	601.7	603.7	601.7	597.0	592.2	590.3
58.5°	564.0	565.4	564.0	558.2	553.4	550.6
59°	525.7	527.1	525.7	519.5	515.6	512.3
59.5°	488.4	489.8	488.4	482.2	477.9	475.5
60°	451.1	453.0	451.1	445.3	441.0	439.1
60.5°	414.7	417.6	414.7	409.0	404.7	402.8
61°	379.8	382.7	379.8	374.5	369.3	367.4
61.5°	345.8	350.1	345.8	340.6	335.3	331.5
62°	313.3	317.6	313.3	307.6	302.3	297.5
62.5°	281.3	286.0	281.3	275.5	269.8	263.6
63°	250.2	255.4	250.2	244.4	239.2	230.6
63.5°	221.0	226.7	221.0	215.7	210.0	199.0
64°	194.2	199.9	194.2	189.4	182.7	168.4
64.5°	168.4	174.1	168.4	164.1	157.8	141.1
65°	144.0	148.3	144.0	140.2	133.9	116.2
65.5°	120.1	123.9	120.1	118.1	112.9	92.8
66°	100.4	102.4	100.4	97.6	93.8	72.7



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBL54050CSD-HCD61TRC-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	49.7	52.6	49.7	46.9	43.5	22.5
68°	37.3	43.0	37.3	33.5	30.6	13.4
68.5°	26.3	33.5	26.3	23.9	20.1	8.1
69°	16.7	23.9	16.7	14.8	12.0	4.8
69.5°	8.6	14.3	8.6	8.6	7.7	2.9
70°	4.8	4.8	4.8	4.8	3.8	0.5
70.5°	2.9	1.9	2.9	2.9	1.4	0.5
71°	1.4	0.5	1.4	1.4	0.5	0.5
71.5°	0.5	0.5	0.5	0.5	0.5	0.5
72°	0.5	0.5	0.5	0.5	0.5	0.5
72.5°	0.5	0.5	0.5	0.5	0.5	0.5
73°	0.5	0.5	0.5	0.5	0.5	0.5
73.5°	0.5	0.5	0.5	0.5	0.5	0.5
74°	0.5	0.5	0.5	0.5	0.5	0.5
74.5°	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.5	0.5	0.5	0.5	0.0	0.0
75.5°	0.5	0.5	0.5	0.0	0.0	0.0
76°	0.0	0.5	0.0	0.0	0.0	0.0
76.5°	0.0	0.0	0.0	0.0	0.0	0.0
77°	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0
78°	0.0	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776648

CATALOG NUMBER: HCDJBS4050CSD-HCD61TRC-5000lm-4000K

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°	2916.4	2920.7	2926.9	2924.5	2926.4	2924.5	2926.9	2920.7	2916.4	2920.7	2926.9
22°	2917.8	2922.1	2928.8	2925.9	2928.3	2925.9	2928.8	2922.1	2917.8	2922.1	2928.8



44°	1533.0	1534.0	1537.8	1540.2	1544.0	1540.2	1537.8	1534.0	1533.0	1534.0	1537.8
44.5°	1503.9	1504.3	1507.7	1509.6	1512.0	1509.6	1507.7	1504.3	1503.9	1504.3	1507.7



66.5°	53.1	74.6	79.4	82.3	82.8	82.3	79.4	74.6	53.1	74.6	79.4
67°	36.8	58.8	61.7	64.6	65.1	64.6	61.7	58.8	36.8	58.8	61.7



89°	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0

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21.5°	2924.5	2926.4	2924.5	2926.9	2920.7	2916.4
22°	2925.9	2928.3	2925.9	2928.8	2922.1	2917.8



44°	1540.2	1544.0	1540.2	1537.8	1534.0	1533.0
44.5°	1509.6	1512.0	1509.6	1507.7	1504.3	1503.9

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66.5°	82.3	82.8	82.3	79.4	74.6	53.1
67°	64.6	65.1	64.6	61.7	58.8	36.8

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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)