

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: P776547

Luminaire Tested: HCDJBS4050CSD-HCD41TRC-5000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776547
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B028)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD41TRC-5000lm-3500K
Description: 4 INCH ROUND SHALLOW-WIDE SPECULAR CLEAR TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

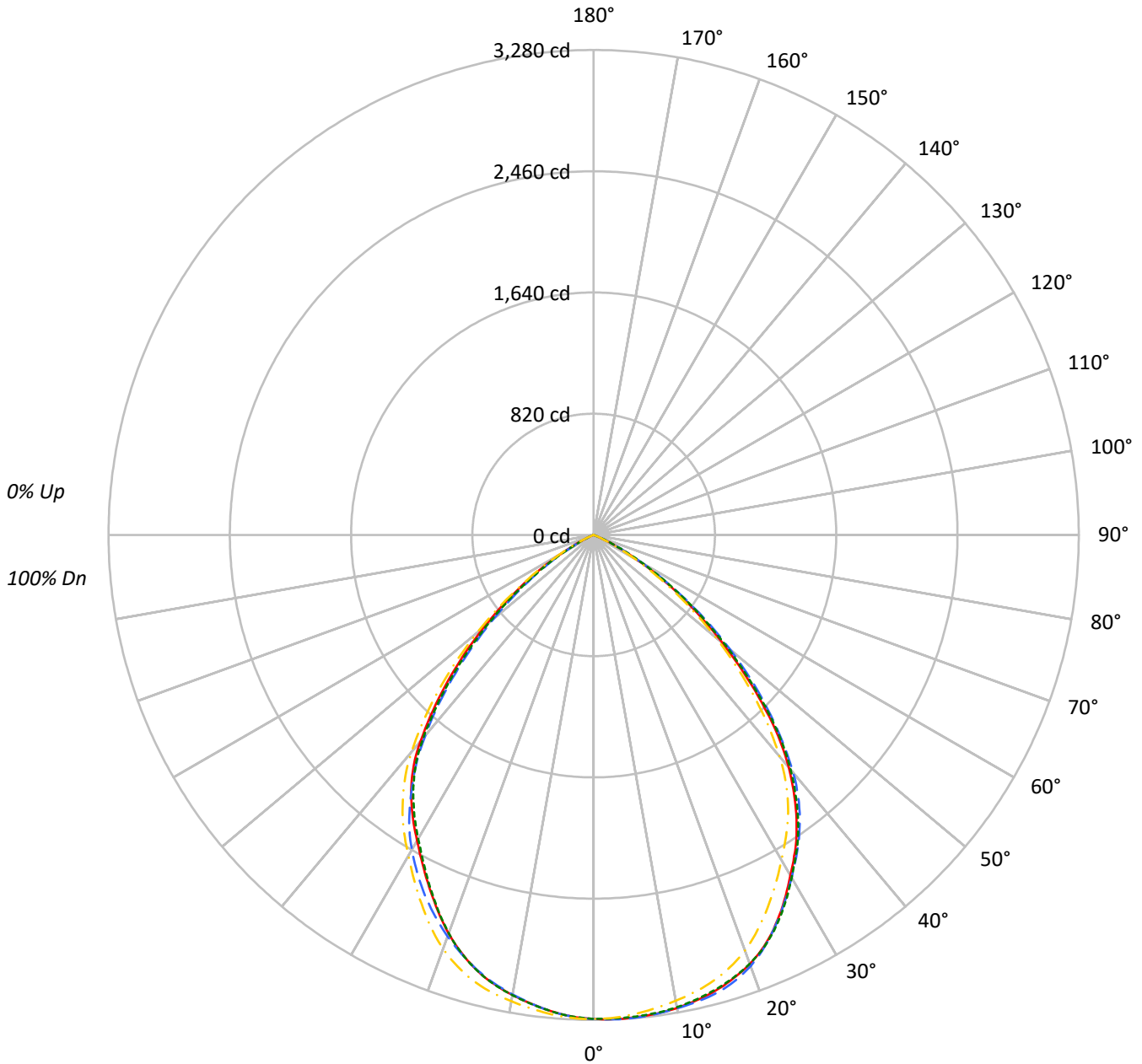
Lumens per Lamp: N/A
Luminaire Lumens: 5708.4 lumens
Efficiency: N/A
Efficacy: 118.9 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.16 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR	0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100	100	100	100		
	1	112	109	106	103	110	107	104	101	102	100	98	99	97	95	95	94	93	91	91	91	91	91	91		
	2	105	99	94	90	102	97	92	89	94	90	87	91	87	85	88	85	83	81	81	81	81	81	81		
	3	98	90	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72	72	72	72	72	72		
	4	91	81	75	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64	64	64	64	64	64		
	5	85	74	67	62	83	73	66	61	71	65	61	70	64	60	68	63	60	58	58	58	58	58	58		
	6	79	68	61	55	77	67	60	55	65	59	55	64	58	54	62	58	54	52	52	52	52	52	52		
	7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47	47	47	47	47	47		
	8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	53	48	44	43	43	43	43	43	43		
	9	65	53	46	41	64	53	46	41	52	45	41	51	45	41	50	44	41	39	39	39	39	39	39		
	10	61	49	42	38	60	49	42	38	48	42	38	47	42	37	46	41	37	36	36	36	36	36	36		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	412007	412007	412007	412007
5°	413758	413038	408755	408806
10°	415168	414440	403769	403948
15°	415662	414737	397213	397395
20°	413485	413351	384155	383780
25°	403943	405388	365146	363966
30°	386664	389062	347021	344754
35°	367447	370427	330406	326642
40°	336801	340366	299032	294613
45°	286919	291885	247354	240805
50°	222689	228602	188406	180262
55°	156244	162563	126118	117430
60°	90033	96225	65090	57488
65°	31327	35556	17718	14055
70°	1030	2245	1030	883
75°	924	1167	924	924
80°	652	1015	652	652
85°	0	722	0	722

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 295818 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	309.0	5.4
10°-20°	878.6	15.4
20°-30°	1274.9	22.3
30°-40°	1413.9	24.8
40°-50°	1148.1	20.1
50°-60°	576.4	10.1
60°-70°	104.8	1.8
70°-80°	2.1	0.0
80°-90°	0.5	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	2462.6	43.1
0°-40°	3876.5	67.9
0°-60°	5600.9	98.1
0°-90°	5708.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5708.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3274	3274	3274	3274	3274	
5°	3275	3270	3236	3236	3275	312
15°	3190	3183	3049	3050	3190	900
25°	2909	2919	2630	2621	2909	1335
35°	2392	2411	2151	2126	2392	1487
45°	1612	1640	1390	1353	1612	1233
55°	712	741	575	535	712	642
65°	105	119	60	47	105	125
75°	2	2	2	2	2	2
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°	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8
0.5°	3275.2	3275.2	3275.7	3276.6	3272.8	3273.8	3274.3	3274.3	3271.9	3271.4	3272.4
1°	3276.6	3276.6	3277.1	3277.6	3273.8	3273.3	3273.3	3273.3	3270.0	3269.1	3270.5
1.5°	3277.6	3277.6	3278.5	3278.5	3274.3	3272.8	3271.9	3270.5	3267.7	3266.7	3268.1
2°	3278.0	3278.5	3279.0	3279.0	3273.8	3271.9	3270.0	3267.2	3264.8	3263.4	3264.8
2.5°	3278.0	3279.5	3279.9	3279.0	3272.8	3269.5	3265.8	3260.6	3257.3	3255.9	3257.7
3°	3278.0	3279.5	3279.9	3278.5	3272.8	3267.7	3262.5	3256.3	3252.1	3250.7	3253.0
3.5°	3277.1	3279.0	3279.5	3278.5	3271.4	3266.2	3259.2	3252.1	3246.9	3245.9	3247.8
4°	3276.1	3278.5	3279.0	3277.6	3270.5	3263.9	3255.9	3247.4	3241.2	3239.8	3241.7
4.5°	3275.2	3277.1	3277.6	3276.6	3269.5	3262.0	3251.6	3241.7	3235.6	3233.7	3235.6
5°	3273.3	3276.1	3276.1	3274.7	3268.1	3259.2	3247.4	3236.0	3228.5	3227.1	3229.0
5.5°	3271.4	3274.3	3274.3	3273.3	3266.7	3256.3	3242.6	3229.9	3221.9	3220.5	3221.9
6°	3270.0	3272.4	3271.9	3271.0	3264.8	3253.5	3237.9	3223.8	3215.3	3213.4	3214.8
6.5°	3267.7	3270.0	3270.0	3268.6	3262.9	3249.7	3232.7	3217.2	3207.7	3205.8	3207.2
7°	3265.8	3267.2	3267.2	3266.2	3260.1	3246.4	3227.5	3210.6	3200.2	3198.3	3198.8
7.5°	3262.9	3263.9	3264.4	3263.4	3257.7	3242.6	3222.3	3203.9	3192.6	3190.3	3191.2
8°	3259.6	3260.6	3261.0	3260.1	3254.9	3238.4	3217.2	3197.3	3184.6	3182.2	3182.2
8.5°	3256.3	3257.3	3257.7	3256.3	3251.1	3234.1	3211.5	3189.8	3177.0	3174.2	3173.7
9°	3252.6	3253.0	3254.4	3252.1	3247.4	3229.9	3205.4	3182.7	3168.5	3165.7	3165.2
9.5°	3248.8	3248.8	3251.1	3247.8	3243.1	3224.7	3199.7	3175.2	3159.6	3157.7	3156.3
10°	3244.1	3244.5	3247.8	3244.1	3238.9	3219.0	3193.1	3167.6	3151.1	3149.7	3147.3
10.5°	3239.3	3239.8	3244.5	3239.3	3233.7	3212.9	3186.5	3159.6	3141.6	3140.7	3137.4
11°	3234.1	3234.6	3240.3	3234.1	3228.0	3206.3	3179.9	3151.6	3132.2	3131.7	3127.5
11.5°	3229.4	3229.9	3237.0	3229.0	3222.3	3200.2	3172.8	3143.5	3121.8	3122.3	3117.6
12°	3223.8	3224.7	3232.7	3222.8	3216.7	3193.1	3165.7	3135.0	3111.4	3112.9	3107.2
12.5°	3218.1	3219.5	3229.0	3216.7	3210.6	3186.0	3158.6	3126.5	3100.6	3102.5	3095.9
13°	3211.5	3213.4	3224.2	3210.1	3203.9	3178.0	3150.6	3117.6	3088.8	3092.1	3084.1
13.5°	3204.9	3206.8	3219.5	3203.5	3197.3	3170.4	3142.1	3107.7	3076.5	3081.2	3071.3
14°	3198.3	3199.7	3213.9	3196.4	3190.3	3161.9	3133.2	3096.8	3063.3	3069.0	3058.6
14.5°	3190.3	3192.6	3208.2	3188.4	3183.2	3153.0	3123.7	3086.0	3048.7	3056.7	3045.4
15°	3182.2	3184.1	3201.1	3179.9	3175.6	3144.0	3113.8	3073.7	3033.6	3043.5	3031.2
15.5°	3173.7	3174.7	3194.0	3170.4	3167.1	3134.1	3103.0	3061.4	3018.0	3028.9	3016.1
16°	3164.3	3164.8	3185.1	3160.5	3158.6	3123.2	3091.2	3047.7	3001.5	3014.2	3002.0
16.5°	3154.4	3154.4	3175.6	3149.7	3149.7	3112.4	3078.4	3034.0	2984.0	2999.1	2987.3
17°	3144.0	3143.5	3165.2	3138.8	3140.2	3100.1	3065.2	3018.9	2966.6	2982.6	2971.8
17.5°	3134.1	3132.2	3154.4	3127.0	3130.3	3088.3	3052.5	3002.4	2948.6	2965.6	2956.2
18°	3123.2	3120.4	3142.6	3114.7	3119.9	3075.1	3037.8	2986.4	2929.8	2946.7	2939.7
18.5°	3112.4	3108.1	3129.9	3102.5	3109.6	3062.4	3022.7	2968.9	2909.9	2928.3	2923.1
19°	3100.6	3095.4	3116.6	3089.7	3098.2	3048.7	3006.7	2950.5	2889.6	2909.0	2906.2
19.5°	3087.4	3081.7	3103.0	3076.1	3086.4	3034.0	2990.2	2931.6	2868.4	2888.7	2889.2
20°	3074.2	3067.6	3087.4	3061.4	3073.2	3018.9	2972.7	2910.9	2847.2	2866.5	2870.8
20.5°	3059.5	3052.5	3071.3	3046.8	3060.0	3002.9	2954.3	2889.6	2823.6	2844.3	2852.4



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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°	3010.9	3002.9	3017.5	2997.2	3014.7	2949.6	2894.4	2820.3	2752.3	2773.1	2794.8
23°	2993.0	2985.0	2997.2	2979.8	2997.2	2930.7	2872.6	2796.7	2727.8	2748.1	2775.0
23.5°	2973.2	2966.6	2976.9	2961.8	2978.8	2910.9	2850.9	2771.7	2703.2	2723.0	2755.6
24°	2952.9	2947.7	2955.7	2943.4	2960.0	2890.6	2827.8	2746.6	2678.2	2698.0	2735.8
24.5°	2931.6	2928.8	2934.5	2925.0	2940.1	2869.3	2805.2	2721.2	2654.1	2672.1	2715.5
25°	2909.0	2909.5	2912.8	2906.6	2919.4	2849.1	2782.0	2695.7	2629.6	2646.6	2694.3
25.5°	2886.8	2889.6	2890.6	2887.3	2897.7	2827.3	2758.9	2669.2	2605.1	2620.6	2672.5
26°	2863.7	2869.8	2867.5	2867.9	2876.0	2805.6	2735.3	2644.7	2581.0	2595.2	2650.4
26.5°	2840.1	2850.0	2844.8	2848.6	2853.3	2783.5	2711.2	2619.2	2556.5	2568.7	2627.7
27°	2815.5	2829.7	2821.7	2828.3	2829.2	2760.3	2687.7	2593.7	2531.9	2542.3	2604.6
27.5°	2790.1	2808.9	2798.1	2807.0	2805.2	2736.7	2663.6	2568.3	2506.9	2516.8	2580.5
28°	2764.6	2787.2	2774.0	2785.8	2780.1	2713.1	2639.0	2542.8	2482.4	2491.3	2556.9
28.5°	2738.6	2765.5	2749.5	2763.6	2754.2	2689.1	2614.5	2517.3	2458.8	2466.3	2532.4
29°	2712.7	2742.9	2724.5	2741.0	2728.7	2664.5	2589.0	2492.3	2434.7	2441.8	2507.8
29.5°	2687.2	2720.7	2700.9	2718.3	2703.2	2640.5	2564.5	2467.7	2411.1	2416.8	2483.3
30°	2660.8	2698.5	2676.8	2694.7	2677.3	2615.9	2539.9	2443.2	2388.0	2392.2	2458.3
30.5°	2635.3	2675.4	2652.3	2671.1	2650.4	2591.8	2515.4	2418.6	2365.3	2368.2	2433.8
31°	2609.8	2651.8	2627.2	2647.5	2624.9	2568.3	2491.3	2395.5	2342.7	2344.6	2407.8
31.5°	2585.2	2628.7	2604.1	2623.0	2599.9	2543.7	2467.3	2372.9	2319.5	2320.5	2380.4
32°	2558.8	2605.1	2580.0	2599.4	2574.9	2519.6	2443.7	2349.7	2296.9	2297.4	2351.6
32.5°	2534.7	2581.5	2556.9	2574.9	2549.4	2496.0	2420.1	2326.2	2274.7	2272.8	2321.9
33°	2508.8	2556.0	2531.9	2550.3	2524.8	2472.0	2396.0	2302.6	2250.6	2247.8	2289.8
33.5°	2481.4	2529.6	2507.8	2523.9	2497.9	2447.4	2370.5	2278.0	2226.1	2221.4	2256.8
34°	2451.7	2500.3	2481.9	2495.6	2470.6	2420.5	2345.0	2253.5	2201.6	2195.4	2223.7
34.5°	2422.0	2470.6	2454.5	2465.4	2441.3	2393.6	2318.6	2228.0	2176.1	2168.1	2189.3
35°	2391.7	2438.9	2426.7	2434.2	2411.1	2364.4	2291.7	2202.0	2150.6	2140.7	2154.8
35.5°	2360.6	2407.3	2399.3	2403.1	2380.4	2335.6	2263.9	2175.6	2124.2	2111.9	2120.4
36°	2329.5	2374.8	2371.0	2369.6	2350.2	2305.9	2234.1	2148.7	2096.8	2083.1	2085.0
36.5°	2297.8	2341.7	2341.3	2336.5	2316.2	2273.8	2203.9	2120.4	2068.5	2052.0	2049.1
37°	2263.9	2307.3	2309.6	2302.1	2283.7	2240.7	2172.3	2090.7	2038.7	2020.8	2013.3
37.5°	2230.3	2271.9	2279.0	2267.2	2249.2	2206.8	2140.2	2060.9	2008.1	1988.2	1976.9
38°	2194.5	2235.1	2245.5	2231.3	2214.3	2172.3	2107.2	2027.9	1975.5	1951.9	1939.6
38.5°	2159.1	2198.3	2210.5	2194.5	2179.4	2137.4	2070.8	1992.5	1940.6	1913.2	1899.5
39°	2124.6	2161.9	2175.6	2158.1	2144.9	2101.0	2033.1	1956.2	1902.4	1873.6	1856.1
39.5°	2087.4	2123.2	2137.9	2119.9	2108.6	2064.2	1994.9	1917.5	1862.2	1833.5	1813.6
40°	2050.1	2083.1	2096.8	2080.3	2071.8	2025.1	1955.2	1877.8	1820.2	1791.5	1770.7
40.5°	2010.4	2041.6	2055.3	2038.7	2033.1	1984.9	1914.2	1837.7	1778.2	1747.1	1726.8
41°	1972.7	1999.6	2013.3	1996.7	1994.9	1943.9	1872.2	1796.2	1735.8	1703.2	1683.4
41.5°	1931.6	1956.6	1969.8	1954.3	1954.7	1901.9	1830.6	1754.6	1692.3	1659.8	1638.5
42°	1890.1	1913.7	1926.9	1912.3	1914.2	1858.5	1788.6	1712.2	1649.9	1614.0	1593.7
42.5°	1845.3	1869.8	1884.0	1869.8	1870.7	1815.5	1745.7	1669.2	1606.5	1567.8	1547.9
43°	1802.3	1826.4	1840.5	1825.9	1827.3	1772.6	1702.7	1625.8	1563.5	1522.5	1503.1
43.5°	1756.1	1782.0	1796.2	1782.5	1780.6	1727.3	1658.4	1583.3	1520.1	1477.1	1457.3



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CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1612.1	1647.0	1662.1	1648.9	1640.0	1590.4	1523.9	1452.1	1389.8	1341.2	1320.9
45.5°	1563.5	1601.7	1616.8	1606.0	1590.9	1543.2	1479.0	1410.1	1346.4	1296.9	1276.6
46°	1514.9	1556.4	1571.5	1560.7	1542.3	1495.1	1433.3	1366.2	1302.5	1252.0	1230.8
46.5°	1465.3	1510.2	1526.2	1514.0	1494.1	1447.9	1388.4	1323.3	1260.1	1208.6	1186.0
47°	1417.2	1463.9	1480.0	1466.8	1446.0	1400.7	1342.2	1279.4	1216.2	1165.2	1140.7
47.5°	1369.5	1416.3	1433.7	1421.5	1397.9	1353.0	1296.9	1236.5	1173.2	1120.8	1096.8
48°	1321.9	1369.5	1388.4	1375.2	1351.6	1305.4	1251.1	1192.6	1130.7	1078.4	1052.4
48.5°	1274.2	1322.8	1341.7	1328.5	1305.4	1257.7	1207.2	1150.1	1088.3	1036.8	1009.0
49°	1229.4	1276.6	1296.4	1281.8	1259.1	1211.9	1161.9	1106.2	1045.3	993.9	966.0
49.5°	1182.7	1230.3	1250.6	1235.5	1212.9	1166.1	1117.5	1063.3	1003.8	952.4	924.0
50°	1137.4	1183.6	1204.4	1188.8	1167.6	1120.4	1073.2	1019.8	962.3	911.3	881.6
50.5°	1091.6	1136.4	1158.6	1143.0	1123.7	1074.1	1029.3	977.4	921.7	871.2	841.0
51°	1047.7	1091.1	1111.4	1096.3	1078.8	1029.8	985.4	935.4	880.2	830.1	800.9
51.5°	1003.3	1046.7	1066.6	1051.9	1034.9	986.8	942.4	893.8	840.5	791.0	762.2
52°	960.9	1001.9	1021.3	1007.6	991.5	942.9	900.0	852.8	801.3	752.3	723.5
52.5°	917.0	957.1	976.4	963.7	947.6	901.4	858.0	810.8	761.7	714.5	685.7
53°	875.4	913.2	931.6	919.8	905.2	858.4	815.5	770.7	723.0	675.8	648.9
53.5°	832.5	870.2	885.8	875.9	863.2	816.9	774.9	731.5	684.8	639.0	614.0
54°	792.4	827.8	841.5	832.5	821.6	775.9	734.8	692.3	647.0	602.7	578.6
54.5°	752.3	784.8	798.0	791.0	780.6	736.7	695.2	654.1	610.2	567.3	543.7
55°	712.1	744.7	756.0	749.4	740.9	697.5	656.9	615.9	574.8	532.3	510.6
55.5°	672.5	703.6	713.1	709.3	702.2	658.3	618.2	578.6	538.9	498.8	478.1
56°	634.7	663.5	672.0	669.2	662.1	620.6	580.5	542.7	504.5	465.8	447.9
56.5°	597.5	623.9	631.9	629.1	623.9	583.3	544.6	507.8	470.5	435.6	418.1
57°	559.7	586.1	592.3	591.3	586.1	547.4	508.7	472.4	439.4	405.4	388.4
57.5°	523.8	548.9	553.1	553.6	550.3	512.5	473.8	440.3	408.2	375.2	358.2
58°	488.9	511.6	515.3	517.2	513.9	478.1	442.2	408.7	377.1	345.0	328.5
58.5°	454.9	476.2	479.5	481.4	479.0	446.4	410.6	376.6	345.9	314.3	301.6
59°	421.9	441.7	444.1	446.0	446.9	415.3	379.0	344.5	314.8	287.4	275.6
59.5°	388.9	408.2	410.1	412.5	414.4	383.7	347.3	312.9	286.0	261.0	249.7
60°	357.7	375.2	377.5	379.9	382.3	352.1	316.2	284.1	258.6	235.5	226.1
60.5°	327.0	343.1	345.5	348.3	349.7	320.9	288.4	256.7	232.7	211.9	202.9
61°	297.3	312.9	314.8	316.7	317.6	292.6	260.0	230.8	207.2	188.8	181.7
61.5°	269.9	283.6	286.5	287.9	288.4	264.8	234.5	205.8	183.6	167.5	161.4
62°	242.1	255.8	259.1	259.6	260.5	238.8	210.0	181.7	160.9	147.2	142.1
62.5°	216.1	228.4	232.7	232.7	233.1	213.3	186.4	159.5	139.7	127.9	124.1
63°	192.1	202.9	207.2	206.7	207.6	188.8	163.8	139.2	118.9	110.4	107.6
63.5°	168.5	178.9	184.1	182.2	183.6	166.1	143.5	119.4	101.0	93.9	92.0
64°	147.2	158.6	161.4	160.5	160.9	144.4	124.1	101.9	84.5	79.3	78.8
64.5°	126.0	138.7	142.5	141.1	139.2	124.6	106.2	84.9	69.4	66.5	66.1
65°	105.2	118.5	123.6	121.8	119.4	106.2	89.7	70.3	59.5	57.1	57.1
65.5°	84.0	98.2	104.8	102.4	101.0	88.7	74.1	60.4	50.0	48.1	48.1
66°	62.8	78.3	85.9	83.1	84.0	73.1	63.2	50.0	40.1	39.2	39.6



TEST NUMBER: P776547

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	21.2	37.8	44.4	42.5	47.7	40.6	31.6	19.3	14.2	15.1	15.6
68°	17.5	27.8	33.0	32.1	36.8	29.7	20.8	14.2	9.0	10.4	10.4
68.5°	13.7	19.8	23.6	23.1	26.4	18.9	14.2	9.4	5.2	6.6	6.6
69°	9.9	16.5	16.0	16.0	15.6	12.7	9.4	6.1	3.3	4.2	4.2
69.5°	6.1	13.2	12.7	12.7	9.9	8.0	5.2	3.8	2.8	2.8	2.8
70°	2.8	9.9	9.4	9.4	6.1	4.2	3.3	2.8	2.8	2.8	2.8
70.5°	2.4	6.1	6.1	6.1	3.8	2.8	2.8	2.4	2.4	2.8	2.8
71°	2.4	2.8	3.3	3.3	2.8	2.8	2.4	2.4	2.4	2.4	2.8
71.5°	2.4	2.8	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.4	2.4
72°	2.4	2.4	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.4	2.4
72.5°	2.4	2.4	2.8	2.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4
73°	2.4	2.4	2.8	2.8	2.4	2.4	2.4	1.9	2.4	2.4	2.4
73.5°	1.9	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9	2.4	2.4
74°	1.9	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9	2.4
74.5°	1.9	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9	1.9	1.9
75°	1.9	1.9	2.4	2.4	2.4	1.9	1.9	1.9	1.9	1.9	1.9
75.5°	1.9	1.9	2.4	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9
76°	1.9	1.9	1.9	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9
76.5°	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.9	1.9
77°	1.4	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4	1.9
77.5°	1.4	1.4	1.9	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.4
78°	1.4	1.4	1.9	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.4
78.5°	1.4	1.4	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4
79°	1.4	1.4	1.4	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4
79.5°	0.9	1.4	1.4	1.4	1.4	1.4	1.4	0.9	0.9	0.9	1.4
80°	0.9	1.4	1.4	1.4	1.4	1.4	1.4	0.9	0.9	0.9	1.4
80.5°	0.9	0.9	1.4	1.4	1.4	1.4	0.9	0.9	0.9	0.9	0.9
81°	0.9	0.9	1.4	1.4	1.4	0.9	0.9	0.9	0.9	0.9	0.9
81.5°	0.9	0.9	0.9	1.4	1.4	0.9	0.9	0.9	0.9	0.9	0.9
82°	0.9	0.9	0.9	1.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.9
83°	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.5
83.5°	0.5	0.5	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.5	0.5
84°	0.5	0.5	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.5	0.5
84.5°	0.5	0.5	0.5	0.9	0.9	0.5	0.5	0.5	0.0	0.5	0.5
85°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5
85.5°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
86°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
86.5°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.5	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: P776547

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5



TEST NUMBER: P776547

CATALOG NUMBER: HCDJBL4050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3273.8	3273.8	3273.8	3273.8	3273.8	3273.8
0.5°	3273.3	3271.0	3272.8	3274.3	3275.7	3275.2
1°	3271.4	3269.1	3271.9	3274.3	3276.6	3276.6
1.5°	3269.1	3266.7	3270.5	3274.3	3276.6	3277.6
2°	3266.7	3263.9	3268.1	3272.8	3276.1	3278.0
2.5°	3263.4	3260.6	3265.8	3271.0	3275.7	3278.0
3°	3259.6	3256.8	3262.0	3268.6	3274.7	3278.0
3.5°	3255.4	3252.6	3258.2	3265.8	3273.3	3278.0
4°	3250.2	3247.4	3254.0	3262.9	3271.4	3277.1
4.5°	3244.5	3242.2	3248.8	3259.2	3269.5	3276.1
5°	3238.4	3236.0	3243.6	3254.9	3267.7	3275.2
5.5°	3231.8	3229.4	3237.9	3250.7	3265.3	3273.3
6°	3224.7	3222.8	3231.8	3245.9	3262.5	3271.4
6.5°	3217.6	3215.7	3225.7	3241.2	3259.2	3270.0
7°	3210.1	3208.7	3219.5	3236.5	3256.3	3267.7
7.5°	3202.5	3201.1	3212.4	3231.3	3252.6	3265.8
8°	3195.0	3193.6	3205.8	3226.1	3249.2	3262.9
8.5°	3187.0	3186.0	3198.8	3220.9	3245.0	3259.6
9°	3178.9	3178.0	3191.7	3215.3	3240.3	3256.3
9.5°	3170.9	3169.5	3184.1	3209.1	3235.1	3252.6
10°	3162.9	3161.0	3176.1	3203.0	3229.9	3248.8
10.5°	3154.4	3152.5	3168.5	3196.9	3224.2	3244.1
11°	3145.9	3143.5	3160.5	3190.7	3218.1	3239.3
11.5°	3136.9	3133.6	3151.6	3184.1	3212.0	3234.1
12°	3128.0	3124.2	3143.1	3177.5	3205.8	3229.4
12.5°	3118.5	3113.3	3133.6	3170.0	3198.8	3223.8
13°	3108.6	3102.5	3123.7	3162.9	3191.2	3218.1
13.5°	3098.7	3090.2	3113.8	3154.4	3183.7	3211.5
14°	3087.4	3077.5	3102.5	3145.4	3175.2	3204.9
14.5°	3075.6	3064.3	3090.2	3136.0	3166.2	3198.3
15°	3063.3	3050.1	3077.5	3125.1	3156.8	3190.3
15.5°	3049.6	3035.0	3063.8	3113.8	3145.9	3182.2
16°	3035.5	3018.9	3049.1	3102.0	3135.0	3173.7
16.5°	3020.4	3002.4	3033.6	3089.3	3122.8	3164.3
17°	3004.8	2985.0	3017.5	3075.6	3111.0	3154.4
17.5°	2988.7	2967.0	3000.5	3060.9	3098.2	3144.0
18°	2971.3	2948.2	2983.1	3046.3	3085.0	3134.1
18.5°	2953.3	2928.8	2965.6	3030.3	3071.3	3123.2
19°	2934.5	2909.0	2946.3	3013.8	3057.6	3112.4
19.5°	2914.6	2887.7	2926.4	2996.3	3043.0	3100.6
20°	2893.9	2865.6	2905.7	2977.9	3027.9	3087.4
20.5°	2872.2	2843.4	2884.4	2959.0	3011.4	3074.2
21°	2850.0	2819.8	2862.3	2938.7	2993.9	3059.5

TEST NUMBER: P776547

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2778.3	2747.6	2791.9	2874.1	2939.2	3010.9
23°	2753.2	2722.1	2766.9	2850.5	2919.4	2993.0
23.5°	2727.8	2697.1	2742.9	2826.9	2899.5	2973.2
24°	2702.3	2672.1	2717.9	2803.3	2878.3	2952.9
24.5°	2675.9	2646.6	2692.8	2778.7	2856.6	2931.6
25°	2649.9	2621.1	2667.8	2753.7	2834.4	2909.0
25.5°	2623.9	2595.6	2643.3	2729.7	2813.2	2886.8
26°	2597.0	2570.6	2617.3	2705.1	2790.5	2863.7
26.5°	2570.1	2544.7	2592.3	2680.6	2767.4	2840.1
27°	2543.7	2519.2	2566.8	2655.1	2744.3	2815.5
27.5°	2517.8	2493.7	2541.8	2630.1	2720.7	2790.1
28°	2491.8	2469.1	2515.9	2604.6	2696.1	2764.6
28.5°	2466.3	2444.6	2491.8	2579.6	2672.1	2738.6
29°	2440.4	2419.1	2467.3	2554.6	2647.1	2712.7
29.5°	2415.3	2395.5	2442.7	2530.5	2622.5	2687.2
30°	2391.3	2372.4	2418.2	2506.0	2598.0	2660.8
30.5°	2367.7	2348.8	2395.1	2481.9	2574.4	2635.3
31°	2343.6	2325.7	2371.9	2457.8	2550.8	2609.8
31.5°	2319.1	2301.6	2347.9	2434.7	2526.2	2585.2
32°	2295.5	2278.5	2324.3	2409.7	2501.7	2558.8
32.5°	2271.4	2254.9	2300.7	2386.1	2477.6	2534.7
33°	2245.5	2229.9	2276.1	2361.5	2453.1	2508.8
33.5°	2219.0	2204.9	2250.6	2335.1	2426.7	2481.4
34°	2192.6	2178.4	2225.2	2308.2	2398.4	2451.7
34.5°	2165.7	2152.5	2198.3	2280.8	2368.6	2422.0
35°	2137.4	2126.1	2171.4	2252.5	2338.9	2391.7
35.5°	2109.5	2099.2	2144.5	2224.2	2308.2	2360.6
36°	2079.3	2070.4	2117.1	2194.5	2277.1	2329.5
36.5°	2048.7	2041.1	2088.3	2165.2	2244.5	2297.8
37°	2015.6	2010.9	2057.6	2133.6	2211.0	2263.9
37.5°	1983.5	1980.2	2026.9	2100.1	2176.1	2230.3
38°	1948.6	1947.2	1994.9	2066.6	2140.7	2194.5
38.5°	1910.4	1911.8	1960.4	2032.1	2105.3	2159.1
39°	1870.7	1874.5	1923.6	1994.9	2068.5	2124.6
39.5°	1830.6	1834.9	1884.4	1955.2	2031.2	2087.4
40°	1786.7	1793.3	1843.8	1914.2	1992.0	2050.1
40.5°	1742.8	1750.4	1802.8	1873.1	1951.9	2010.4
41°	1698.0	1706.5	1760.8	1831.1	1909.4	1972.7
41.5°	1653.6	1661.7	1717.4	1789.1	1866.0	1931.6
42°	1607.9	1619.2	1675.4	1746.1	1824.5	1890.1
42.5°	1562.1	1574.4	1631.9	1702.3	1781.1	1845.3
43°	1516.3	1530.9	1589.0	1658.4	1737.2	1802.3
43.5°	1472.0	1484.7	1545.1	1614.0	1690.9	1756.1

TEST NUMBER: P776547

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1332.3	1353.0	1413.9	1479.0	1553.6	1612.1
45.5°	1288.4	1308.2	1370.5	1434.2	1506.9	1563.5
46°	1242.1	1264.8	1327.5	1389.4	1459.7	1514.9
46.5°	1197.3	1220.9	1283.2	1342.6	1411.5	1465.3
47°	1152.9	1177.5	1239.8	1297.8	1364.4	1417.2
47.5°	1110.0	1132.6	1195.4	1252.5	1317.2	1369.5
48°	1066.1	1090.2	1151.5	1207.7	1270.0	1321.9
48.5°	1023.6	1046.7	1107.2	1161.9	1222.3	1274.2
49°	980.7	1004.7	1063.7	1118.9	1176.5	1229.4
49.5°	941.0	962.7	1020.3	1073.6	1130.3	1182.7
50°	898.1	920.7	977.4	1029.3	1084.5	1137.4
50.5°	857.5	878.7	933.5	985.4	1038.2	1091.6
51°	816.9	838.2	892.0	942.4	993.9	1047.7
51.5°	777.3	798.0	849.9	899.0	950.0	1003.3
52°	739.0	758.9	808.9	857.5	907.5	960.9
52.5°	700.3	720.2	767.4	815.0	864.1	917.0
53°	662.6	681.0	727.7	773.5	822.6	875.4
53.5°	625.8	643.2	688.1	731.5	781.5	832.5
54°	589.9	606.4	648.9	691.9	740.9	792.4
54.5°	554.0	570.6	611.2	653.2	701.8	752.3
55°	520.1	535.2	573.9	613.5	662.6	712.1
55.5°	486.6	499.8	536.6	574.8	624.8	672.5
56°	454.0	466.3	500.7	538.9	587.6	634.7
56.5°	423.3	433.2	465.8	503.1	551.7	597.5
57°	393.1	401.1	431.8	467.7	516.3	559.7
57.5°	362.9	369.1	397.8	433.2	480.9	523.8
58°	332.7	339.8	367.2	400.2	447.9	488.9
58.5°	304.9	310.1	335.5	368.6	416.2	454.9
59°	278.0	281.7	305.8	337.9	384.6	421.9
59.5°	252.0	254.8	277.0	308.6	354.4	388.9
60°	227.5	228.4	249.7	279.4	325.2	357.7
60.5°	204.3	203.9	223.7	253.4	295.9	327.0
61°	181.7	179.8	198.7	227.5	268.1	297.3
61.5°	160.9	160.0	175.1	203.4	242.1	269.9
62°	141.1	141.1	156.7	179.8	216.6	242.1
62.5°	122.7	122.2	137.8	160.5	192.1	216.1
63°	106.2	103.4	119.4	142.1	169.4	192.1
63.5°	90.6	84.0	100.5	123.6	150.5	168.5
64°	76.9	69.8	82.1	105.2	132.1	147.2
64.5°	64.7	58.0	68.0	86.8	113.7	126.0
65°	56.2	47.2	55.7	72.7	94.9	105.2
65.5°	47.2	38.2	44.8	59.5	76.5	84.0
66°	38.2	30.2	35.4	47.7	61.8	62.8



TEST NUMBER: P776547

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	15.1	14.2	15.6	21.2	27.8	21.2
68°	10.4	10.9	12.3	15.1	19.8	17.5
68.5°	6.6	7.6	9.0	11.8	16.0	13.7
69°	4.2	3.8	6.1	8.5	12.7	9.9
69.5°	2.8	2.8	2.8	5.7	9.4	6.1
70°	2.8	2.4	2.4	2.4	5.7	2.8
70.5°	2.8	2.4	2.4	2.4	2.4	2.4
71°	2.4	2.4	2.4	2.4	2.4	2.4
71.5°	2.4	2.4	2.4	2.4	2.4	2.4
72°	2.4	2.4	1.9	1.9	2.4	2.4
72.5°	2.4	2.4	1.9	1.9	1.9	2.4
73°	2.4	1.9	1.9	1.9	1.9	2.4
73.5°	2.4	1.9	1.9	1.9	1.9	1.9
74°	1.9	1.9	1.9	1.9	1.9	1.9
74.5°	1.9	1.9	1.9	1.9	1.9	1.9
75°	1.9	1.9	1.9	1.9	1.9	1.9
75.5°	1.9	1.9	1.4	1.4	1.4	1.9
76°	1.9	1.9	1.4	1.4	1.4	1.9
76.5°	1.9	1.4	1.4	1.4	1.4	1.4
77°	1.9	1.4	1.4	1.4	1.4	1.4
77.5°	1.4	1.4	1.4	1.4	1.4	1.4
78°	1.4	1.4	1.4	1.4	1.4	1.4
78.5°	1.4	1.4	1.4	1.4	1.4	1.4
79°	1.4	1.4	1.4	0.9	0.9	1.4
79.5°	1.4	1.4	0.9	0.9	0.9	0.9
80°	1.4	0.9	0.9	0.9	0.9	0.9
80.5°	0.9	0.9	0.9	0.9	0.9	0.9
81°	0.9	0.9	0.9	0.9	0.9	0.9
81.5°	0.9	0.9	0.9	0.9	0.9	0.9
82°	0.9	0.9	0.9	0.9	0.5	0.9
82.5°	0.9	0.9	0.9	0.5	0.5	0.5
83°	0.9	0.9	0.5	0.5	0.5	0.5
83.5°	0.5	0.5	0.5	0.5	0.5	0.5
84°	0.5	0.5	0.5	0.5	0.5	0.5
84.5°	0.5	0.5	0.5	0.5	0.5	0.5
85°	0.5	0.5	0.5	0.5	0.5	0.0
85.5°	0.5	0.5	0.5	0.5	0.0	0.0
86°	0.5	0.5	0.5	0.5	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: P776547

CATALOG NUMBER: HCDJBL54050CSD-HCD41TRC-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.5	0.5	0.0	0.0	0.0	0.0



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Cooper Lighting Solutions Photometric Lab
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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°	3044.0	3036.4	3053.9	3030.7	3045.8	2985.9	2934.9	2867.5	2800.0	2820.7	2833.5
22°	3028.4	3019.9	3035.9	3014.7	3030.7	2968.4	2915.6	2844.3	2776.4	2797.1	2814.6



44°	1708.9	1737.7	1751.8	1738.6	1735.8	1681.0	1613.1	1539.0	1475.7	1431.4	1412.0
44.5°	1658.4	1692.8	1707.0	1694.7	1686.2	1635.2	1568.7	1496.0	1432.8	1385.6	1366.7



66.5°	46.7	62.8	70.3	68.0	68.9	62.3	52.9	39.6	30.2	29.7	30.7
67°	32.1	49.6	56.6	54.3	58.0	51.4	42.0	29.7	20.8	20.8	21.7



89°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
89.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5

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21.5°	2826.9	2796.7	2839.6	2917.5	2976.5	3044.0
22°	2802.3	2771.7	2816.0	2896.2	2958.1	3028.4



44°	1423.3	1440.8	1500.7	1569.6	1645.6	1708.9
44.5°	1377.6	1396.4	1457.3	1524.3	1600.3	1658.4

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66.5°	29.3	23.6	27.4	37.8	48.6	46.7
67°	20.8	17.9	20.8	28.8	37.3	32.1

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89°	0.5	0.5	0.0	0.0	0.0	0.0
89.5°	0.5	0.5	0.0	0.0	0.0	0.0

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Scaled Data Report



(END OF REPORT)