

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: P776537

Luminaire Tested: HCDJBS4050CSD-HCD42TRMW-4000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776537
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156A001)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD42TRMW-4000lm-3500K
Description: 4 INCH ROUND NARROW MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

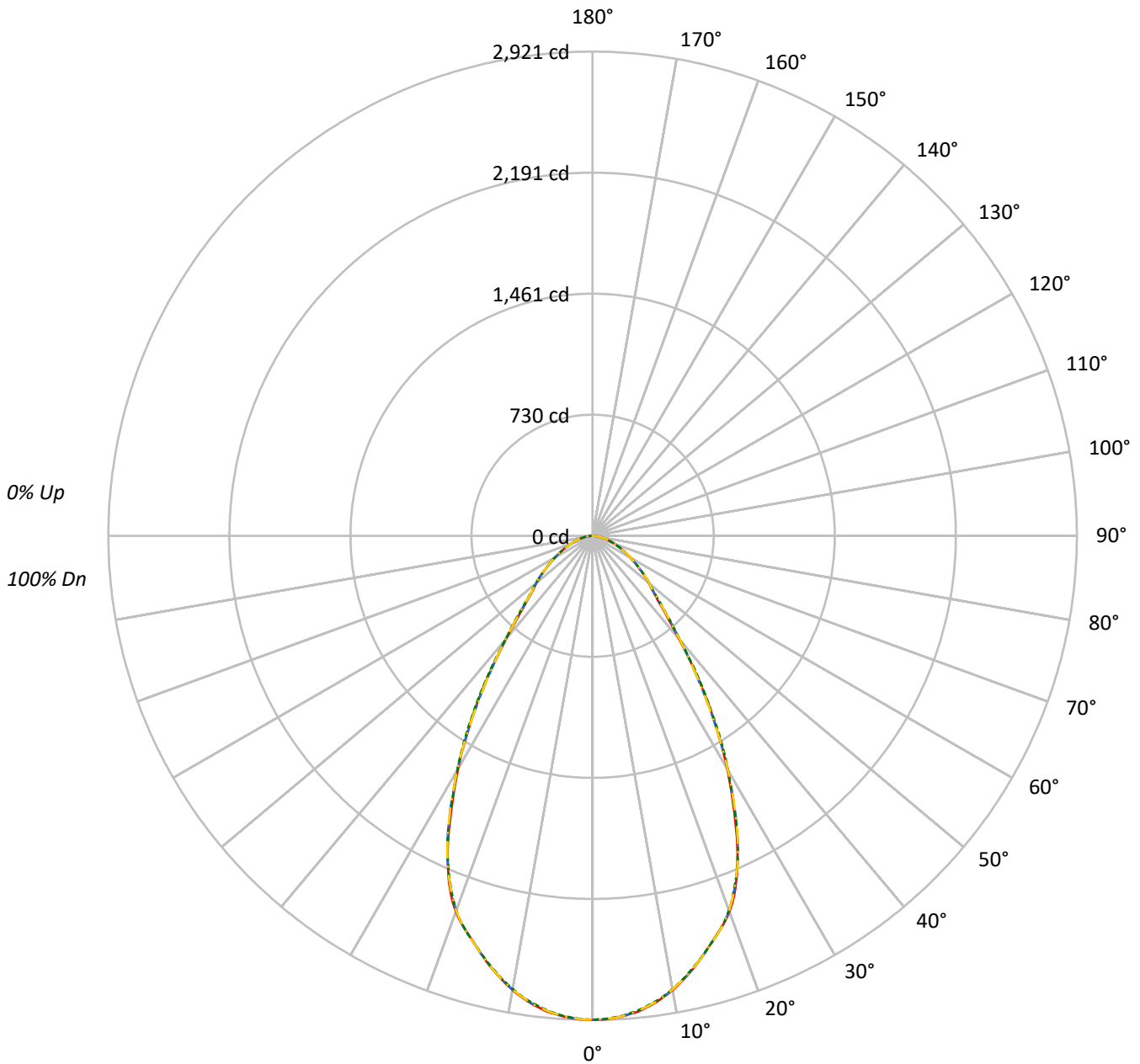
Lumens per Lamp: N/A
Luminaire Lumens: 3771.4 lumens
Efficiency: N/A
Efficacy: 99.2 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 0.97 / 0.95
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 38
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



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89								
2	104	98	93	88	102	96	91	87	93	89	85	90	86	83	87	84	82	80								
3	97	89	83	78	95	88	82	77	85	80	76	82	78	74	80	76	73	71								
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64								
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58								
6	80	69	62	57	78	68	61	56	67	60	56	65	60	55	64	59	55	53								
7	75	64	57	52	74	63	56	52	62	56	51	61	55	51	59	54	51	49								
8	71	60	52	48	70	59	52	47	58	52	47	57	51	47	56	51	47	45								
9	67	56	49	44	66	55	48	44	54	48	44	53	48	44	52	47	43	42								
10	63	52	45	41	62	52	45	41	51	45	41	50	44	41	49	44	40	39								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	367569	367569	367569	367569
5°	364969	364173	364969	364173
10°	355541	354748	355541	354748
15°	339821	339404	339821	339404
20°	323111	321959	323111	321959
25°	286773	287704	286773	287704
30°	235940	237189	235940	237189
35°	183040	185022	183040	185022
40°	132956	135272	132956	135272
45°	100665	103174	100665	103174
50°	86695	87380	86695	87380
55°	75346	76202	75346	76202
60°	65870	66449	65870	66449
65°	57890	58366	57890	58366
70°	51110	51367	51110	51367
75°	44881	44881	44881	44881
80°	38846	38556	38846	38556
85°	31045	31045	31045	31045

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 103174 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	272.1	7.2
10°-20°	732.6	19.4
20°-30°	938.2	24.9
30°-40°	743.5	19.7
40°-50°	455.2	12.1
50°-60°	311.2	8.3
60°-70°	194.8	5.2
70°-80°	98.7	2.6
80°-90°	24.9	0.7
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°	1943.0	51.5
0°-40°	2686.5	71.2
0°-60°	3452.9	91.6
0°-90°	3771.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3771.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2921	2921	2921	2921	2921	
5°	2889	2883	2889	2883	2889	272
15°	2608	2605	2608	2605	2608	733
25°	2065	2072	2065	2072	2065	936
35°	1191	1204	1191	1204	1191	743
45°	566	580	566	580	566	449
55°	343	347	343	347	343	309
65°	194	196	194	196	194	194
75°	92	92	92	92	92	99
85°	22	22	22	22	22	25
90°	0	1	0	1	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°	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7
0.5°	2921.1	2920.7	2919.9	2919.5	2918.3	2919.5	2919.9	2920.7	2921.1	2920.7	2919.9
1°	2919.9	2919.5	2919.1	2918.7	2917.2	2918.7	2919.1	2919.5	2919.9	2919.5	2919.1
1.5°	2918.3	2917.5	2917.5	2916.8	2915.6	2916.8	2917.5	2917.5	2918.3	2917.5	2917.5
2°	2916.0	2915.6	2914.8	2914.4	2912.9	2914.4	2914.8	2915.6	2916.0	2915.6	2914.8
2.5°	2913.2	2912.5	2911.7	2911.3	2909.3	2911.3	2911.7	2912.5	2913.2	2912.5	2911.7
3°	2909.3	2908.6	2907.8	2907.0	2905.0	2907.0	2907.8	2908.6	2909.3	2908.6	2907.8
3.5°	2905.0	2904.3	2903.1	2902.3	2901.1	2902.3	2903.1	2904.3	2905.0	2904.3	2903.1
4°	2899.9	2899.6	2898.0	2897.2	2895.3	2897.2	2898.0	2899.6	2899.9	2899.6	2898.0
4.5°	2894.5	2893.7	2892.1	2891.3	2889.0	2891.3	2892.1	2893.7	2894.5	2893.7	2892.1
5°	2889.0	2887.8	2886.3	2885.5	2882.7	2885.5	2886.3	2887.8	2889.0	2887.8	2886.3
5.5°	2883.1	2880.4	2878.4	2877.7	2875.3	2877.7	2878.4	2880.4	2883.1	2880.4	2878.4
6°	2874.1	2872.6	2870.6	2869.4	2866.3	2869.4	2870.6	2872.6	2874.1	2872.6	2870.6
6.5°	2865.1	2864.0	2861.6	2860.4	2857.3	2860.4	2861.6	2864.0	2865.1	2864.0	2861.6
7°	2855.7	2854.2	2853.0	2851.1	2848.3	2851.1	2853.0	2854.2	2855.7	2854.2	2853.0
7.5°	2845.2	2843.6	2842.1	2841.3	2838.5	2841.3	2842.1	2843.6	2845.2	2843.6	2842.1
8°	2833.8	2832.7	2831.1	2829.9	2828.4	2829.9	2831.1	2832.7	2833.8	2832.7	2831.1
8.5°	2822.1	2820.5	2819.0	2817.8	2816.2	2817.8	2819.0	2820.5	2822.1	2820.5	2819.0
9°	2809.6	2808.4	2806.5	2805.3	2803.7	2805.3	2806.5	2808.4	2809.6	2808.4	2806.5
9.5°	2795.9	2795.1	2793.2	2792.0	2790.4	2792.0	2793.2	2795.1	2795.9	2795.1	2793.2
10°	2782.2	2781.0	2779.5	2777.9	2776.0	2777.9	2779.5	2781.0	2782.2	2781.0	2779.5
10.5°	2767.0	2766.2	2764.2	2763.0	2761.5	2763.0	2764.2	2766.2	2767.0	2766.2	2764.2
11°	2751.7	2750.9	2749.4	2747.8	2745.8	2747.8	2749.4	2750.9	2751.7	2750.9	2749.4
11.5°	2735.7	2734.9	2733.3	2731.8	2730.2	2731.8	2733.3	2734.9	2735.7	2734.9	2733.3
12°	2719.2	2718.5	2717.3	2715.3	2713.8	2715.3	2717.3	2718.5	2719.2	2718.5	2717.3
12.5°	2702.0	2701.2	2700.1	2698.1	2696.2	2698.1	2700.1	2701.2	2702.0	2701.2	2700.1
13°	2684.4	2683.6	2682.5	2680.9	2679.0	2680.9	2682.5	2683.6	2684.4	2683.6	2682.5
13.5°	2666.0	2665.3	2664.5	2662.9	2661.3	2662.9	2664.5	2665.3	2666.0	2665.3	2664.5
14°	2647.3	2646.9	2646.1	2644.5	2643.0	2644.5	2646.1	2646.9	2647.3	2646.9	2646.1
14.5°	2627.7	2627.3	2626.9	2625.4	2623.8	2625.4	2626.9	2627.3	2627.7	2627.3	2626.9
15°	2608.2	2608.2	2607.4	2606.6	2605.0	2606.6	2607.4	2608.2	2608.2	2608.2	2607.4
15.5°	2587.8	2587.8	2588.6	2587.8	2587.0	2587.8	2588.6	2587.8	2587.8	2587.8	2588.6
16°	2568.3	2568.6	2569.8	2569.4	2568.6	2569.4	2569.8	2568.6	2568.3	2568.6	2569.8
16.5°	2548.7	2549.5	2551.0	2551.0	2550.7	2551.0	2551.0	2549.5	2548.7	2549.5	2551.0
17°	2530.3	2531.1	2532.7	2532.3	2532.7	2532.3	2532.7	2531.1	2530.3	2531.1	2532.7
17.5°	2512.3	2513.1	2514.3	2513.9	2513.5	2513.9	2514.3	2513.1	2512.3	2513.1	2514.3
18°	2494.7	2495.1	2495.9	2495.1	2494.3	2495.1	2495.9	2495.1	2494.7	2495.1	2495.9
18.5°	2475.9	2475.9	2475.9	2475.2	2474.0	2475.2	2475.9	2475.9	2475.9	2475.9	2475.9
19°	2456.8	2455.6	2454.8	2453.7	2452.5	2453.7	2454.8	2455.6	2456.8	2455.6	2454.8
19.5°	2435.7	2434.1	2431.7	2431.0	2429.8	2431.0	2431.7	2434.1	2435.7	2434.1	2431.7
20°	2412.6	2410.6	2406.3	2406.7	2404.0	2406.7	2406.3	2410.6	2412.6	2410.6	2406.3
20.5°	2387.2	2384.0	2378.9	2380.5	2377.4	2380.5	2378.9	2384.0	2387.2	2384.0	2378.9
21°	2360.6	2355.9	2350.0	2352.0	2348.0	2352.0	2350.0	2355.9	2360.6	2355.9	2350.0



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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°	2263.2	2258.5	2254.6	2254.2	2252.2	2254.2	2254.6	2258.5	2263.2	2258.5	2254.6
23°	2226.0	2222.1	2221.3	2218.6	2217.8	2218.6	2221.3	2222.1	2226.0	2222.1	2221.3
23.5°	2188.1	2184.5	2186.5	2181.8	2183.8	2181.8	2186.5	2184.5	2188.1	2184.5	2186.5
24°	2148.6	2145.8	2150.5	2144.3	2147.8	2144.3	2150.5	2145.8	2148.6	2145.8	2150.5
24.5°	2107.9	2106.7	2112.6	2106.3	2111.0	2106.3	2112.6	2106.7	2107.9	2106.7	2112.6
25°	2065.2	2066.0	2073.1	2068.4	2071.9	2068.4	2073.1	2066.0	2065.2	2066.0	2073.1
25.5°	2021.0	2026.1	2032.4	2030.4	2031.2	2030.4	2032.4	2026.1	2021.0	2026.1	2032.4
26°	1975.7	1984.7	1990.5	1990.9	1987.8	1990.9	1990.5	1984.7	1975.7	1984.7	1990.5
26.5°	1929.1	1942.4	1947.1	1949.9	1942.8	1949.9	1947.1	1942.4	1929.1	1942.4	1947.1
27°	1883.8	1898.6	1903.3	1907.6	1897.1	1907.6	1903.3	1898.6	1883.8	1898.6	1903.3
27.5°	1839.2	1853.2	1858.7	1864.2	1850.5	1864.2	1858.7	1853.2	1839.2	1853.2	1858.7
28°	1794.6	1807.9	1813.3	1818.8	1804.0	1818.8	1813.3	1807.9	1794.6	1807.9	1813.3
28.5°	1751.2	1761.7	1768.0	1772.7	1759.0	1772.7	1768.0	1761.7	1751.2	1761.7	1768.0
29°	1708.1	1715.2	1722.6	1725.7	1716.3	1725.7	1722.6	1715.2	1708.1	1715.2	1722.6
29.5°	1665.9	1669.4	1677.6	1678.8	1674.5	1678.8	1677.6	1669.4	1665.9	1669.4	1677.6
30°	1623.6	1622.5	1631.5	1631.9	1632.2	1631.9	1631.5	1622.5	1623.6	1622.5	1631.5
30.5°	1579.8	1577.1	1585.7	1586.5	1592.4	1586.5	1585.7	1577.1	1579.8	1577.1	1585.7
31°	1536.4	1530.5	1539.5	1541.1	1550.1	1541.1	1539.5	1530.5	1536.4	1530.5	1539.5
31.5°	1491.8	1486.0	1493.4	1496.1	1507.5	1496.1	1493.4	1486.0	1491.8	1486.0	1493.4
32°	1446.5	1441.0	1447.6	1451.9	1463.7	1451.9	1447.6	1441.0	1446.5	1441.0	1447.6
32.5°	1402.6	1398.0	1402.6	1408.1	1419.9	1408.1	1402.6	1398.0	1402.6	1398.0	1402.6
33°	1358.4	1354.9	1356.5	1364.3	1375.3	1364.3	1356.5	1354.9	1358.4	1354.9	1356.5
33.5°	1318.9	1311.9	1310.7	1320.5	1330.3	1320.5	1310.7	1311.9	1318.9	1311.9	1310.7
34°	1276.3	1268.9	1265.4	1277.5	1287.6	1277.5	1265.4	1268.9	1276.3	1268.9	1265.4
34.5°	1234.1	1226.2	1221.2	1234.1	1245.4	1234.1	1221.2	1226.2	1234.1	1226.2	1221.2
35°	1191.4	1184.8	1179.3	1192.2	1204.3	1192.2	1179.3	1184.8	1191.4	1184.8	1179.3
35.5°	1150.0	1143.7	1137.8	1150.7	1164.0	1150.7	1137.8	1143.7	1150.0	1143.7	1137.8
36°	1109.3	1102.6	1097.6	1110.9	1124.5	1110.9	1097.6	1102.6	1109.3	1102.6	1097.6
36.5°	1069.0	1063.1	1058.4	1071.3	1084.3	1071.3	1058.4	1063.1	1069.0	1063.1	1058.4
37°	1028.3	1024.0	1020.1	1033.0	1044.4	1033.0	1020.1	1024.0	1028.3	1024.0	1020.1
37.5°	988.8	986.1	983.3	996.2	1004.5	996.2	983.3	986.1	988.8	986.1	983.3
38°	949.7	949.3	948.1	960.3	965.0	960.3	948.1	949.3	949.7	949.3	948.1
38.5°	912.9	913.7	914.5	925.1	927.0	925.1	914.5	913.7	912.9	913.7	914.5
39°	877.3	879.3	880.9	891.0	890.6	891.0	880.9	879.3	877.3	879.3	880.9
39.5°	842.5	846.0	848.8	857.4	856.2	857.4	848.8	846.0	842.5	846.0	848.8
40°	809.3	813.2	817.9	824.9	823.4	824.9	817.9	813.2	809.3	813.2	817.9
40.5°	778.0	781.9	788.2	793.2	792.9	793.2	788.2	781.9	778.0	781.9	788.2
41°	747.9	751.8	760.0	763.5	764.7	763.5	760.0	751.8	747.9	751.8	760.0
41.5°	719.3	723.6	733.0	735.0	738.5	735.0	733.0	723.6	719.3	723.6	733.0
42°	692.7	697.0	707.2	708.4	713.1	708.4	707.2	697.0	692.7	697.0	707.2
42.5°	667.7	672.0	682.9	683.3	688.4	683.3	682.9	672.0	667.7	672.0	682.9
43°	643.8	648.5	659.1	659.9	664.6	659.9	659.1	648.5	643.8	648.5	659.1
43.5°	621.9	626.6	636.8	637.2	641.5	637.2	636.8	626.6	621.9	626.6	636.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	565.6	569.5	575.8	577.7	579.7	577.7	575.8	569.5	565.6	569.5	575.8
45.5°	549.2	552.3	558.2	560.1	561.7	560.1	558.2	552.3	549.2	552.3	558.2
46°	533.5	536.3	541.3	544.1	544.9	544.1	541.3	536.3	533.5	536.3	541.3
46.5°	519.0	521.4	525.3	528.4	529.2	528.4	525.3	521.4	519.0	521.4	525.3
47°	505.4	506.9	510.8	514.0	515.1	514.0	510.8	506.9	505.4	506.9	510.8
47.5°	492.5	493.6	497.1	500.7	502.2	500.7	497.1	493.6	492.5	493.6	497.1
48°	480.3	481.9	485.4	488.5	490.1	488.5	485.4	481.9	480.3	481.9	485.4
48.5°	470.5	471.3	474.1	477.2	478.4	477.2	474.1	471.3	470.5	471.3	474.1
49°	461.2	461.6	463.9	466.2	467.4	466.2	463.9	461.6	461.2	461.6	463.9
49.5°	452.2	452.6	454.1	456.1	456.5	456.1	454.1	452.6	452.2	452.6	454.1
50°	442.8	443.2	444.3	445.9	446.3	445.9	444.3	443.2	442.8	443.2	444.3
50.5°	433.4	433.8	434.6	436.1	436.1	436.1	434.6	433.8	433.4	433.8	434.6
51°	422.8	423.6	424.8	426.3	426.3	426.3	424.8	423.6	422.8	423.6	424.8
51.5°	412.7	413.0	414.6	416.6	417.0	416.6	414.6	413.0	412.7	413.0	414.6
52°	402.1	402.9	404.4	406.4	406.8	406.4	404.4	402.9	402.1	402.9	404.4
52.5°	391.5	392.3	394.3	395.8	396.6	395.8	394.3	392.3	391.5	392.3	394.3
53°	381.8	382.5	384.1	385.7	386.5	385.7	384.1	382.5	381.8	382.5	384.1
53.5°	371.6	372.4	373.9	375.9	376.7	375.9	373.9	372.4	371.6	372.4	373.9
54°	362.2	362.6	364.2	365.7	366.5	365.7	364.2	362.6	362.2	362.6	364.2
54.5°	352.8	353.2	354.8	356.3	357.1	356.3	354.8	353.2	352.8	353.2	354.8
55°	343.4	344.2	345.8	346.9	347.3	346.9	345.8	344.2	343.4	344.2	345.8
55.5°	334.4	335.2	336.8	337.9	338.3	337.9	336.8	335.2	334.4	335.2	336.8
56°	325.8	326.6	327.8	329.0	329.3	329.0	327.8	326.6	325.8	326.6	327.8
56.5°	317.2	318.0	319.2	320.3	320.7	320.3	319.2	318.0	317.2	318.0	319.2
57°	308.6	309.4	310.6	311.7	312.1	311.7	310.6	309.4	308.6	309.4	310.6
57.5°	300.0	301.2	302.4	303.1	303.9	303.1	302.4	301.2	300.0	301.2	302.4
58°	292.6	293.0	294.1	295.3	295.7	295.3	294.1	293.0	292.6	293.0	294.1
58.5°	284.8	285.1	286.3	287.1	287.5	287.1	286.3	285.1	284.8	285.1	286.3
59°	276.9	277.3	278.1	278.9	279.7	278.9	278.1	277.3	276.9	277.3	278.1
59.5°	269.1	269.5	270.3	271.5	271.8	271.5	270.3	269.5	269.1	269.5	270.3
60°	261.7	262.1	262.8	263.6	264.0	263.6	262.8	262.1	261.7	262.1	262.8
60.5°	254.2	254.6	255.4	256.2	256.6	256.2	255.4	254.6	254.2	254.6	255.4
61°	247.2	247.6	248.4	249.2	249.6	249.2	248.4	247.6	247.2	247.6	248.4
61.5°	240.2	240.6	241.3	242.1	242.5	242.1	241.3	240.6	240.2	240.6	241.3
62°	233.5	233.5	234.3	235.1	235.1	235.1	234.3	233.5	233.5	233.5	234.3
62.5°	226.5	226.9	227.3	228.0	228.4	228.0	227.3	226.9	226.5	226.9	227.3
63°	219.8	220.2	220.6	221.4	221.4	221.4	220.6	220.2	219.8	220.2	220.6
63.5°	213.2	213.6	214.0	214.7	215.1	214.7	214.0	213.6	213.2	213.6	214.0
64°	206.9	207.3	207.7	208.1	208.5	208.1	207.7	207.3	206.9	207.3	207.7
64.5°	200.7	201.0	201.4	201.8	202.2	201.8	201.4	201.0	200.7	201.0	201.4
65°	194.4	194.8	195.2	195.6	196.0	195.6	195.2	194.8	194.4	194.8	195.2
65.5°	188.5	188.5	188.9	189.7	189.7	189.7	188.9	188.5	188.5	188.5	188.9
66°	182.3	182.7	183.1	183.4	183.8	183.4	183.1	182.7	182.3	182.7	183.1



TEST NUMBER: P776537

CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	165.1	165.5	165.8	166.2	166.2	166.2	165.8	165.5	165.1	165.5	165.8
68°	159.6	160.0	160.4	160.8	160.8	160.8	160.4	160.0	159.6	160.0	160.4
68.5°	154.1	154.5	154.9	154.9	155.3	154.9	154.9	154.5	154.1	154.5	154.9
69°	149.0	149.0	149.0	149.8	149.8	149.8	149.0	149.0	149.0	149.0	149.0
69.5°	143.6	143.9	143.9	144.3	144.7	144.3	143.9	143.9	143.6	143.9	143.9
70°	138.9	139.2	138.9	139.2	139.6	139.2	138.9	139.2	138.9	139.2	138.9
70.5°	133.8	134.2	134.2	134.2	134.6	134.2	134.2	134.2	133.8	134.2	134.2
71°	129.1	129.1	129.1	129.1	129.5	129.1	129.1	129.1	129.1	129.1	129.1
71.5°	124.0	124.0	124.4	124.4	124.4	124.4	124.4	124.0	124.0	124.0	124.4
72°	119.3	119.3	119.3	119.7	119.7	119.7	119.3	119.3	119.3	119.3	119.3
72.5°	114.6	114.6	114.6	115.0	115.0	115.0	114.6	114.6	114.6	114.6	114.6
73°	109.9	109.9	109.9	110.3	110.3	110.3	109.9	109.9	109.9	109.9	109.9
73.5°	105.2	105.2	105.6	105.6	105.6	105.6	105.6	105.2	105.2	105.2	105.6
74°	100.9	100.9	100.9	101.3	101.3	101.3	100.9	100.9	100.9	100.9	100.9
74.5°	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6
75°	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3
75.5°	88.0	88.0	88.0	88.0	88.4	88.0	88.0	88.0	88.0	88.0	88.0
76°	84.1	83.7	83.7	84.1	84.1	84.1	83.7	83.7	84.1	83.7	83.7
76.5°	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8
77°	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9
77.5°	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
78°	68.1	68.1	68.1	68.1	68.1	68.1	68.1	68.1	68.1	68.1	68.1
78.5°	64.5	64.5	64.1	64.1	64.5	64.1	64.1	64.5	64.5	64.5	64.1
79°	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6
79.5°	57.1	57.1	56.7	57.1	57.1	57.1	56.7	57.1	57.1	57.1	56.7
80°	53.6	53.6	53.2	53.2	53.2	53.2	53.2	53.6	53.6	53.6	53.2
80.5°	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1
81°	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5
81.5°	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
82°	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9
82.5°	36.8	36.8	36.8	36.8	36.4	36.8	36.8	36.8	36.8	36.8	36.8
83°	33.6	33.6	33.6	33.2	33.2	33.2	33.6	33.6	33.6	33.6	33.6
83.5°	30.5	30.5	30.5	30.1	30.1	30.1	30.5	30.5	30.5	30.5	30.5
84°	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4
84.5°	24.6	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.6	24.3	24.3
85°	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
85.5°	18.8	18.4	18.8	18.4	18.8	18.4	18.8	18.4	18.8	18.4	18.8
86°	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
86.5°	13.3	12.9	12.9	12.9	13.3	12.9	12.9	12.9	13.3	12.9	12.9
87°	10.6	10.6	10.6	10.2	10.6	10.2	10.6	10.6	10.6	10.6	10.6
87.5°	7.8	7.8	7.8	7.8	8.2	7.8	7.8	7.8	7.8	7.8	7.8
88°	5.1	5.5	5.5	5.9	5.9	5.9	5.5	5.5	5.1	5.5	5.5
88.5°	3.1	3.1	3.5	3.9	4.7	3.9	3.5	3.1	3.1	3.1	3.5



TEST NUMBER: P776537
CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-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	0.4	0.8	1.2	0.8	0.4	0.0	0.0	0.0	0.4



TEST NUMBER: P776537

CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2920.7	2920.7	2920.7	2920.7	2920.7	2920.7
0.5°	2919.5	2918.3	2919.5	2919.9	2920.7	2921.1
1°	2918.7	2917.2	2918.7	2919.1	2919.5	2919.9
1.5°	2916.8	2915.6	2916.8	2917.5	2917.5	2918.3
2°	2914.4	2912.9	2914.4	2914.8	2915.6	2916.0
2.5°	2911.3	2909.3	2911.3	2911.7	2912.5	2913.2
3°	2907.0	2905.0	2907.0	2907.8	2908.6	2909.3
3.5°	2902.3	2901.1	2902.3	2903.1	2904.3	2905.0
4°	2897.2	2895.3	2897.2	2898.0	2899.6	2899.9
4.5°	2891.3	2889.0	2891.3	2892.1	2893.7	2894.5
5°	2885.5	2882.7	2885.5	2886.3	2887.8	2889.0
5.5°	2877.7	2875.3	2877.7	2878.4	2880.4	2883.1
6°	2869.4	2866.3	2869.4	2870.6	2872.6	2874.1
6.5°	2860.4	2857.3	2860.4	2861.6	2864.0	2865.1
7°	2851.1	2848.3	2851.1	2853.0	2854.2	2855.7
7.5°	2841.3	2838.5	2841.3	2842.1	2843.6	2845.2
8°	2829.9	2828.4	2829.9	2831.1	2832.7	2833.8
8.5°	2817.8	2816.2	2817.8	2819.0	2820.5	2822.1
9°	2805.3	2803.7	2805.3	2806.5	2808.4	2809.6
9.5°	2792.0	2790.4	2792.0	2793.2	2795.1	2795.9
10°	2777.9	2776.0	2777.9	2779.5	2781.0	2782.2
10.5°	2763.0	2761.5	2763.0	2764.2	2766.2	2767.0
11°	2747.8	2745.8	2747.8	2749.4	2750.9	2751.7
11.5°	2731.8	2730.2	2731.8	2733.3	2734.9	2735.7
12°	2715.3	2713.8	2715.3	2717.3	2718.5	2719.2
12.5°	2698.1	2696.2	2698.1	2700.1	2701.2	2702.0
13°	2680.9	2679.0	2680.9	2682.5	2683.6	2684.4
13.5°	2662.9	2661.3	2662.9	2664.5	2665.3	2666.0
14°	2644.5	2643.0	2644.5	2646.1	2646.9	2647.3
14.5°	2625.4	2623.8	2625.4	2626.9	2627.3	2627.7
15°	2606.6	2605.0	2606.6	2607.4	2608.2	2608.2
15.5°	2587.8	2587.0	2587.8	2588.6	2587.8	2587.8
16°	2569.4	2568.6	2569.4	2569.8	2568.6	2568.3
16.5°	2551.0	2550.7	2551.0	2551.0	2549.5	2548.7
17°	2532.3	2532.7	2532.3	2532.7	2531.1	2530.3
17.5°	2513.9	2513.5	2513.9	2514.3	2513.1	2512.3
18°	2495.1	2494.3	2495.1	2495.9	2495.1	2494.7
18.5°	2475.2	2474.0	2475.2	2475.9	2475.9	2475.9
19°	2453.7	2452.5	2453.7	2454.8	2455.6	2456.8
19.5°	2431.0	2429.8	2431.0	2431.7	2434.1	2435.7
20°	2406.7	2404.0	2406.7	2406.3	2410.6	2412.6
20.5°	2380.5	2377.4	2380.5	2378.9	2384.0	2387.2
21°	2352.0	2348.0	2352.0	2350.0	2355.9	2360.6



TEST NUMBER: P776537

CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2254.2	2252.2	2254.2	2254.6	2258.5	2263.2
23°	2218.6	2217.8	2218.6	2221.3	2222.1	2226.0
23.5°	2181.8	2183.8	2181.8	2186.5	2184.5	2188.1
24°	2144.3	2147.8	2144.3	2150.5	2145.8	2148.6
24.5°	2106.3	2111.0	2106.3	2112.6	2106.7	2107.9
25°	2068.4	2071.9	2068.4	2073.1	2066.0	2065.2
25.5°	2030.4	2031.2	2030.4	2032.4	2026.1	2021.0
26°	1990.9	1987.8	1990.9	1990.5	1984.7	1975.7
26.5°	1949.9	1942.8	1949.9	1947.1	1942.4	1929.1
27°	1907.6	1897.1	1907.6	1903.3	1898.6	1883.8
27.5°	1864.2	1850.5	1864.2	1858.7	1853.2	1839.2
28°	1818.8	1804.0	1818.8	1813.3	1807.9	1794.6
28.5°	1772.7	1759.0	1772.7	1768.0	1761.7	1751.2
29°	1725.7	1716.3	1725.7	1722.6	1715.2	1708.1
29.5°	1678.8	1674.5	1678.8	1677.6	1669.4	1665.9
30°	1631.9	1632.2	1631.9	1631.5	1622.5	1623.6
30.5°	1586.5	1592.4	1586.5	1585.7	1577.1	1579.8
31°	1541.1	1550.1	1541.1	1539.5	1530.5	1536.4
31.5°	1496.1	1507.5	1496.1	1493.4	1486.0	1491.8
32°	1451.9	1463.7	1451.9	1447.6	1441.0	1446.5
32.5°	1408.1	1419.9	1408.1	1402.6	1398.0	1402.6
33°	1364.3	1375.3	1364.3	1356.5	1354.9	1358.4
33.5°	1320.5	1330.3	1320.5	1310.7	1311.9	1318.9
34°	1277.5	1287.6	1277.5	1265.4	1268.9	1276.3
34.5°	1234.1	1245.4	1234.1	1221.2	1226.2	1234.1
35°	1192.2	1204.3	1192.2	1179.3	1184.8	1191.4
35.5°	1150.7	1164.0	1150.7	1137.8	1143.7	1150.0
36°	1110.9	1124.5	1110.9	1097.6	1102.6	1109.3
36.5°	1071.3	1084.3	1071.3	1058.4	1063.1	1069.0
37°	1033.0	1044.4	1033.0	1020.1	1024.0	1028.3
37.5°	996.2	1004.5	996.2	983.3	986.1	988.8
38°	960.3	965.0	960.3	948.1	949.3	949.7
38.5°	925.1	927.0	925.1	914.5	913.7	912.9
39°	891.0	890.6	891.0	880.9	879.3	877.3
39.5°	857.4	856.2	857.4	848.8	846.0	842.5
40°	824.9	823.4	824.9	817.9	813.2	809.3
40.5°	793.2	792.9	793.2	788.2	781.9	778.0
41°	763.5	764.7	763.5	760.0	751.8	747.9
41.5°	735.0	738.5	735.0	733.0	723.6	719.3
42°	708.4	713.1	708.4	707.2	697.0	692.7
42.5°	683.3	688.4	683.3	682.9	672.0	667.7
43°	659.9	664.6	659.9	659.1	648.5	643.8
43.5°	637.2	641.5	637.2	636.8	626.6	621.9



TEST NUMBER: P776537

CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	577.7	579.7	577.7	575.8	569.5	565.6
45.5°	560.1	561.7	560.1	558.2	552.3	549.2
46°	544.1	544.9	544.1	541.3	536.3	533.5
46.5°	528.4	529.2	528.4	525.3	521.4	519.0
47°	514.0	515.1	514.0	510.8	506.9	505.4
47.5°	500.7	502.2	500.7	497.1	493.6	492.5
48°	488.5	490.1	488.5	485.4	481.9	480.3
48.5°	477.2	478.4	477.2	474.1	471.3	470.5
49°	466.2	467.4	466.2	463.9	461.6	461.2
49.5°	456.1	456.5	456.1	454.1	452.6	452.2
50°	445.9	446.3	445.9	444.3	443.2	442.8
50.5°	436.1	436.1	436.1	434.6	433.8	433.4
51°	426.3	426.3	426.3	424.8	423.6	422.8
51.5°	416.6	417.0	416.6	414.6	413.0	412.7
52°	406.4	406.8	406.4	404.4	402.9	402.1
52.5°	395.8	396.6	395.8	394.3	392.3	391.5
53°	385.7	386.5	385.7	384.1	382.5	381.8
53.5°	375.9	376.7	375.9	373.9	372.4	371.6
54°	365.7	366.5	365.7	364.2	362.6	362.2
54.5°	356.3	357.1	356.3	354.8	353.2	352.8
55°	346.9	347.3	346.9	345.8	344.2	343.4
55.5°	337.9	338.3	337.9	336.8	335.2	334.4
56°	329.0	329.3	329.0	327.8	326.6	325.8
56.5°	320.3	320.7	320.3	319.2	318.0	317.2
57°	311.7	312.1	311.7	310.6	309.4	308.6
57.5°	303.1	303.9	303.1	302.4	301.2	300.0
58°	295.3	295.7	295.3	294.1	293.0	292.6
58.5°	287.1	287.5	287.1	286.3	285.1	284.8
59°	278.9	279.7	278.9	278.1	277.3	276.9
59.5°	271.5	271.8	271.5	270.3	269.5	269.1
60°	263.6	264.0	263.6	262.8	262.1	261.7
60.5°	256.2	256.6	256.2	255.4	254.6	254.2
61°	249.2	249.6	249.2	248.4	247.6	247.2
61.5°	242.1	242.5	242.1	241.3	240.6	240.2
62°	235.1	235.1	235.1	234.3	233.5	233.5
62.5°	228.0	228.4	228.0	227.3	226.9	226.5
63°	221.4	221.4	221.4	220.6	220.2	219.8
63.5°	214.7	215.1	214.7	214.0	213.6	213.2
64°	208.1	208.5	208.1	207.7	207.3	206.9
64.5°	201.8	202.2	201.8	201.4	201.0	200.7
65°	195.6	196.0	195.6	195.2	194.8	194.4
65.5°	189.7	189.7	189.7	188.9	188.5	188.5
66°	183.4	183.8	183.4	183.1	182.7	182.3



TEST NUMBER: P776537

CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	166.2	166.2	166.2	165.8	165.5	165.1
68°	160.8	160.8	160.8	160.4	160.0	159.6
68.5°	154.9	155.3	154.9	154.9	154.5	154.1
69°	149.8	149.8	149.8	149.0	149.0	149.0
69.5°	144.3	144.7	144.3	143.9	143.9	143.6
70°	139.2	139.6	139.2	138.9	139.2	138.9
70.5°	134.2	134.6	134.2	134.2	134.2	133.8
71°	129.1	129.5	129.1	129.1	129.1	129.1
71.5°	124.4	124.4	124.4	124.4	124.0	124.0
72°	119.7	119.7	119.7	119.3	119.3	119.3
72.5°	115.0	115.0	115.0	114.6	114.6	114.6
73°	110.3	110.3	110.3	109.9	109.9	109.9
73.5°	105.6	105.6	105.6	105.6	105.2	105.2
74°	101.3	101.3	101.3	100.9	100.9	100.9
74.5°	96.6	96.6	96.6	96.6	96.6	96.6
75°	92.3	92.3	92.3	92.3	92.3	92.3
75.5°	88.0	88.4	88.0	88.0	88.0	88.0
76°	84.1	84.1	84.1	83.7	83.7	84.1
76.5°	79.8	79.8	79.8	79.8	79.8	79.8
77°	75.9	75.9	75.9	75.9	75.9	75.9
77.5°	72.0	72.0	72.0	72.0	72.0	72.0
78°	68.1	68.1	68.1	68.1	68.1	68.1
78.5°	64.1	64.5	64.1	64.1	64.5	64.5
79°	60.6	60.6	60.6	60.6	60.6	60.6
79.5°	57.1	57.1	57.1	56.7	57.1	57.1
80°	53.2	53.2	53.2	53.2	53.6	53.6
80.5°	50.1	50.1	50.1	50.1	50.1	50.1
81°	46.5	46.5	46.5	46.5	46.5	46.5
81.5°	43.0	43.0	43.0	43.0	43.0	43.0
82°	39.9	39.9	39.9	39.9	39.9	39.9
82.5°	36.8	36.4	36.8	36.8	36.8	36.8
83°	33.2	33.2	33.2	33.6	33.6	33.6
83.5°	30.1	30.1	30.1	30.5	30.5	30.5
84°	27.4	27.4	27.4	27.4	27.4	27.4
84.5°	24.3	24.3	24.3	24.3	24.3	24.6
85°	21.5	21.5	21.5	21.5	21.5	21.5
85.5°	18.4	18.8	18.4	18.8	18.4	18.8
86°	15.6	15.6	15.6	15.6	15.6	15.6
86.5°	12.9	13.3	12.9	12.9	12.9	13.3
87°	10.2	10.6	10.2	10.6	10.6	10.6
87.5°	7.8	8.2	7.8	7.8	7.8	7.8
88°	5.9	5.9	5.9	5.5	5.5	5.1
88.5°	3.9	4.7	3.9	3.5	3.1	3.1



TEST NUMBER: P776537

CATALOG NUMBER: HCDJBL54050CSD-HCD42TRMW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.8	1.2	0.8	0.4	0.0	0.0



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

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21.5°	2329.7	2325.7	2319.1	2321.1	2317.1	2321.1	2319.1	2325.7	2329.7	2325.7	2319.1
22°	2297.2	2293.3	2287.4	2288.2	2284.3	2288.2	2287.4	2293.3	2297.2	2293.3	2287.4



44°	601.6	606.3	615.3	616.1	620.0	616.1	615.3	606.3	601.6	606.3	615.3
44.5°	582.8	587.5	595.3	596.5	599.2	596.5	595.3	587.5	582.8	587.5	595.3



66.5°	176.4	176.8	177.2	177.6	178.0	177.6	177.2	176.8	176.4	176.8	177.2
67°	170.9	170.9	171.3	171.7	172.1	171.7	171.3	170.9	170.9	170.9	171.3



89°	1.2	1.6	2.3	2.7	3.1	2.7	2.3	1.6	1.2	1.6	2.3
89.5°	0.0	0.4	1.2	1.6	2.0	1.6	1.2	0.4	0.0	0.4	1.2

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21.5°	2321.1	2317.1	2321.1	2319.1	2325.7	2329.7
22°	2288.2	2284.3	2288.2	2287.4	2293.3	2297.2



44°	616.1	620.0	616.1	615.3	606.3	601.6
44.5°	596.5	599.2	596.5	595.3	587.5	582.8



66.5°	177.6	178.0	177.6	177.2	176.8	176.4
67°	171.7	172.1	171.7	171.3	170.9	170.9

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89°	2.7	3.1	2.7	2.3	1.6	1.2
89.5°	1.6	2.0	1.6	1.2	0.4	0.0

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Peachtree City, GA 30269

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(END OF REPORT)