

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P709156

Luminaire Tested: **4APN-39-42L830-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709156
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-39-42L830-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

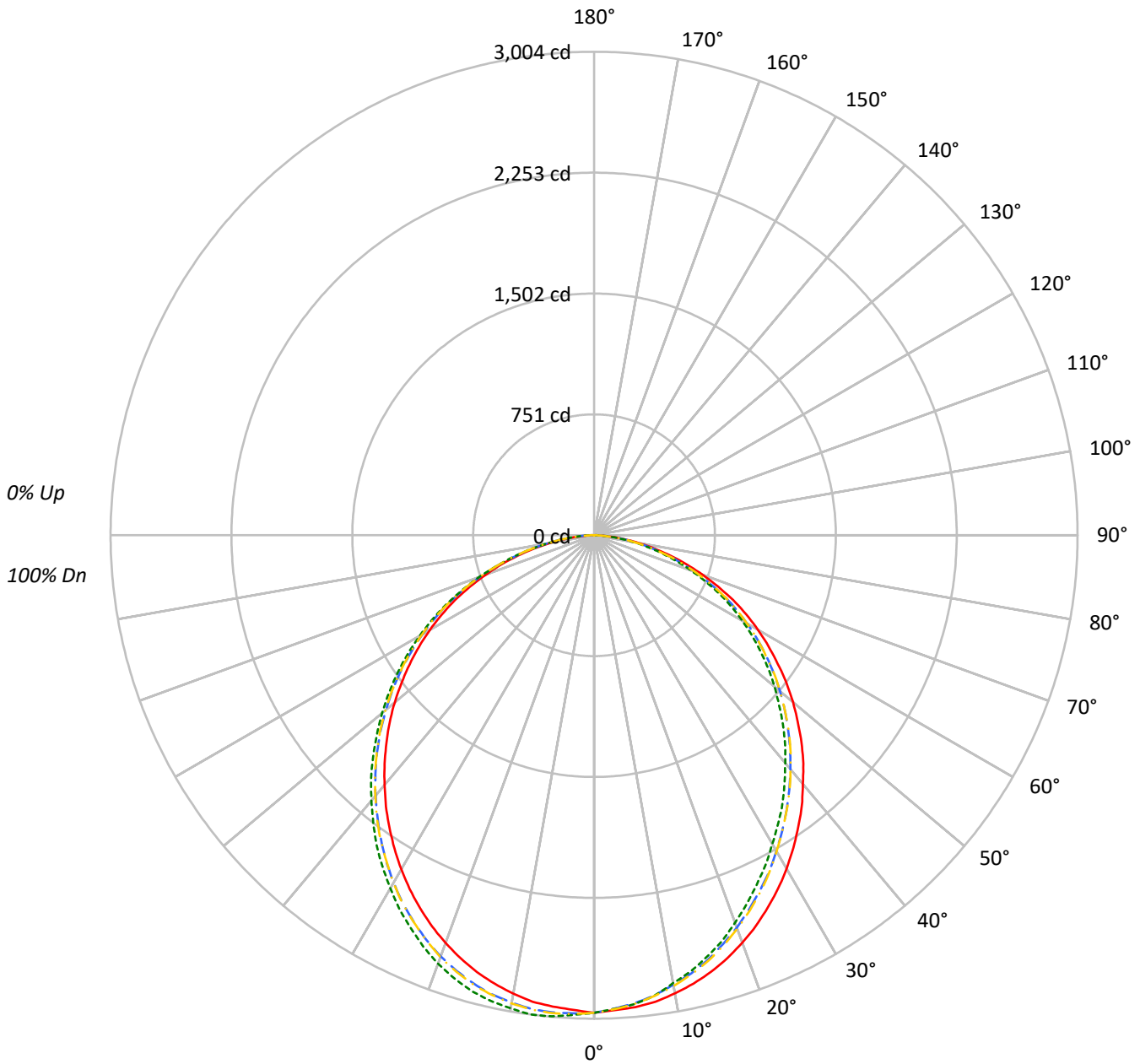
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7843.8 lumens
Efficiency: N/A
Efficacy: 85.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.19 / 1.32
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 92
Input Voltage (V): 120
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: 25 FT

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Luminous Intensity Polar Plot



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



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	72	72	72	72	70
3	90	80	72	66	88	78	71	65	75	69	64	73	67	63	70	66	62	62	62	62	59
4	83	71	62	56	81	70	62	55	67	60	54	65	59	54	63	57	53	53	53	53	51
5	76	64	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	46	46	46	44
6	71	57	48	42	69	56	48	42	55	47	41	53	46	41	51	45	41	41	41	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	36	36	36	34
8	61	48	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	32	32	32	31
9	57	44	35	30	56	43	35	30	42	35	30	41	34	30	40	34	29	29	29	29	28
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	27	27	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	27378	27378	27378	27378
5°	27256	27079	27224	27789
10°	27082	26477	27098	27963
15°	26829	25896	26846	28010
20°	26449	25149	26466	27817
25°	25986	24355	26039	27423
30°	25487	23593	25525	26973
35°	24905	22981	24964	26534
40°	24302	22245	24385	25917
45°	23781	21644	23803	25327
50°	23159	21009	23209	24661
55°	22423	20321	22507	23964
60°	21704	19613	21735	23086
65°	20807	18753	20807	22062
70°	19317	17345	19271	20493
75°	17517	15713	17392	18447
80°	15089	13517	14813	15833
85°	11623	10332	11253	12724



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	280.2	3.6
10°-20°	793.4	10.1
20°-30°	1174.7	15.0
30°-40°	1378.2	17.6
40°-50°	1396.8	17.8
50°-60°	1239.6	15.8
60°-70°	930.7	11.9
70°-80°	516.8	6.6
80°-90°	133.4	1.7
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°	2248.3	28.7
0°-40°	3626.5	46.2
0°-60°	6262.9	79.8
0°-90°	7843.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7843.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2967	2967	2967	2967	2967	
5°	2943	2924	2940	3000	2943	279
15°	2809	2711	2811	2932	2809	792
25°	2553	2392	2558	2694	2553	1176
35°	2211	2040	2216	2356	2211	1384
45°	1823	1659	1824	1941	1823	1405
55°	1394	1263	1399	1490	1394	1248
65°	953	859	953	1011	953	940
75°	491	441	488	518	491	522
85°	110	98	106	120	110	132
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4
2.5°	2953.4	2960.4	2969.1	2960.4	2946.5	2939.5	2939.5	2937.8	2943.0	2944.7	2943.0
5°	2943.0	2946.5	2948.2	2937.8	2922.1	2913.4	2909.9	2908.1	2915.1	2923.8	2915.1
7.5°	2923.8	2922.1	2920.3	2906.4	2889.0	2876.8	2871.5	2869.8	2876.8	2885.5	2878.5
10°	2890.7	2889.0	2883.7	2866.3	2843.7	2828.0	2822.8	2817.5	2822.8	2826.2	2822.8
12.5°	2854.1	2847.2	2840.2	2821.0	2796.6	2779.2	2770.5	2763.5	2770.5	2775.7	2772.2
15°	2808.8	2798.4	2786.2	2765.3	2740.9	2721.7	2711.2	2704.3	2709.5	2711.2	2711.2
17.5°	2754.8	2742.6	2730.4	2704.3	2674.7	2653.7	2641.5	2632.8	2639.8	2643.3	2643.3
20°	2693.8	2679.9	2664.2	2636.3	2605.0	2582.3	2568.4	2557.9	2559.7	2561.4	2561.4
22.5°	2627.6	2610.2	2591.0	2561.4	2528.3	2503.9	2490.0	2477.8	2477.8	2479.5	2479.5
25°	2552.7	2533.5	2514.3	2484.7	2449.9	2423.7	2406.3	2394.1	2394.1	2392.4	2395.9
27.5°	2476.0	2455.1	2435.9	2404.6	2368.0	2341.8	2324.4	2312.2	2310.5	2308.7	2312.2
30°	2392.4	2368.0	2347.1	2314.0	2279.1	2253.0	2235.6	2221.6	2218.1	2214.6	2218.1
32.5°	2303.5	2280.9	2258.2	2223.4	2188.5	2162.4	2144.9	2131.0	2129.3	2127.5	2131.0
35°	2211.2	2186.8	2165.9	2132.8	2097.9	2071.8	2052.6	2040.4	2040.4	2040.4	2040.4
37.5°	2120.6	2096.2	2073.5	2040.4	2005.6	1979.4	1960.3	1948.1	1944.6	1942.8	1944.6
40°	2017.8	1996.8	1975.9	1944.6	1909.7	1883.6	1867.9	1854.0	1850.5	1847.0	1852.2
42.5°	1923.7	1902.7	1880.1	1850.5	1815.6	1789.5	1772.1	1759.9	1758.1	1756.4	1758.1
45°	1822.6	1798.2	1775.6	1747.7	1716.3	1691.9	1674.5	1662.3	1660.5	1658.8	1660.5
47.5°	1716.3	1697.1	1678.0	1650.1	1618.7	1594.3	1578.7	1564.7	1561.2	1557.7	1561.2
50°	1613.5	1592.6	1573.4	1547.3	1517.7	1495.0	1481.1	1468.9	1465.4	1463.7	1465.4
52.5°	1505.5	1486.3	1468.9	1442.7	1418.3	1395.7	1380.0	1369.6	1367.8	1366.1	1367.8
55°	1394.0	1376.5	1360.8	1339.9	1315.5	1294.6	1280.7	1268.5	1266.8	1263.3	1266.8
57.5°	1285.9	1272.0	1256.3	1233.7	1211.0	1191.8	1179.6	1169.2	1167.4	1165.7	1167.4
60°	1176.2	1162.2	1148.3	1129.1	1106.5	1087.3	1076.8	1068.1	1064.6	1062.9	1064.6
62.5°	1066.4	1052.4	1042.0	1022.8	1001.9	986.2	975.8	967.1	963.6	961.8	963.6
65°	953.1	940.9	928.7	911.3	895.6	883.4	873.0	864.3	860.8	859.0	859.0
67.5°	832.9	822.4	813.7	798.0	780.6	768.4	758.0	751.0	747.5	745.8	747.5
70°	716.1	707.4	698.7	686.5	672.6	662.1	655.2	648.2	644.7	643.0	643.0
72.5°	604.6	597.7	588.9	578.5	568.0	557.6	550.6	545.4	541.9	540.2	540.2
75°	491.4	484.4	480.9	472.2	461.7	454.8	447.8	444.3	440.8	440.8	440.8
77.5°	385.1	381.6	378.1	369.4	362.4	355.5	350.2	348.5	345.0	345.0	345.0
80°	284.0	282.3	280.5	275.3	268.3	261.4	257.9	256.1	254.4	254.4	254.4
82.5°	191.7	191.7	189.9	184.7	179.5	177.7	174.2	172.5	172.5	172.5	172.5
85°	109.8	109.8	109.8	108.0	104.5	104.5	101.1	99.3	97.6	97.6	97.6
87.5°	43.6	45.3	47.0	45.3	41.8	41.8	41.8	41.8	41.8	41.8	41.8
90°	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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CANDELA DISTRIBUTION (continued):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4
2.5°	2937.8	2941.2	2943.0	2951.7	2962.2	2969.1	2960.4	2951.7	2965.6	2981.3	2981.3
5°	2908.1	2911.6	2916.9	2927.3	2941.2	2950.0	2946.5	2939.5	2960.4	2977.8	2979.6
7.5°	2871.5	2875.0	2882.0	2892.5	2909.9	2922.1	2922.1	2923.8	2943.0	2963.9	2969.1
10°	2817.5	2826.2	2836.7	2852.4	2869.8	2885.5	2890.7	2892.5	2916.9	2939.5	2946.5
12.5°	2767.0	2775.7	2786.2	2803.6	2824.5	2841.9	2847.2	2854.1	2880.3	2906.4	2916.9
15°	2709.5	2718.2	2730.4	2747.8	2770.5	2789.7	2800.1	2810.6	2836.7	2864.6	2876.8
17.5°	2641.5	2650.3	2662.5	2683.4	2709.5	2732.2	2744.4	2756.5	2786.2	2815.8	2828.0
20°	2561.4	2573.6	2591.0	2611.9	2641.5	2667.7	2681.6	2695.6	2726.9	2756.5	2770.5
22.5°	2479.5	2493.4	2512.6	2537.0	2568.4	2596.2	2613.7	2631.1	2662.5	2692.1	2707.8
25°	2397.6	2413.3	2432.5	2458.6	2488.2	2516.1	2537.0	2557.9	2589.3	2620.6	2636.3
27.5°	2314.0	2327.9	2347.1	2373.2	2406.3	2435.9	2456.8	2479.5	2510.9	2544.0	2559.7
30°	2221.6	2237.3	2254.7	2280.9	2317.5	2350.6	2371.5	2395.9	2427.2	2460.3	2476.0
32.5°	2132.8	2146.7	2164.1	2190.3	2226.8	2261.7	2284.3	2308.7	2340.1	2373.2	2387.1
35°	2040.4	2054.3	2073.5	2099.6	2136.2	2169.3	2192.0	2216.4	2246.0	2277.4	2293.1
37.5°	1949.8	1963.7	1982.9	2009.0	2043.9	2077.0	2099.6	2124.0	2153.7	2183.3	2197.2
40°	1855.7	1869.6	1885.3	1911.5	1946.3	1979.4	2000.3	2024.7	2054.3	2085.7	2099.6
42.5°	1759.9	1773.8	1793.0	1819.1	1852.2	1881.8	1904.5	1927.1	1955.0	1982.9	1996.8
45°	1664.0	1676.2	1695.4	1719.8	1751.2	1779.0	1801.7	1824.3	1850.5	1876.6	1890.6
47.5°	1564.7	1578.7	1594.3	1618.7	1650.1	1679.7	1702.4	1723.3	1747.7	1773.8	1786.0
50°	1468.9	1481.1	1496.8	1519.4	1549.0	1576.9	1596.1	1617.0	1639.6	1664.0	1674.5
52.5°	1369.6	1381.8	1397.4	1420.1	1444.5	1470.6	1488.0	1507.2	1529.9	1552.5	1563.0
55°	1268.5	1277.2	1291.2	1312.1	1338.2	1362.6	1380.0	1399.2	1418.3	1437.5	1449.7
57.5°	1169.2	1179.6	1193.6	1212.7	1235.4	1258.0	1273.7	1289.4	1308.6	1327.7	1336.5
60°	1068.1	1076.8	1087.3	1104.7	1127.4	1146.5	1162.2	1177.9	1193.6	1211.0	1219.7
62.5°	965.3	974.0	984.5	1001.9	1021.1	1038.5	1052.4	1066.4	1080.3	1096.0	1104.7
65°	862.5	871.2	881.7	893.9	909.6	925.2	939.2	953.1	963.6	974.0	982.7
67.5°	751.0	759.7	770.2	780.6	794.6	810.2	820.7	832.9	843.3	855.5	860.8
70°	646.4	653.4	663.9	672.6	684.8	695.2	703.9	714.4	721.4	731.8	740.5
72.5°	543.6	550.6	559.3	568.0	575.0	583.7	594.2	602.9	611.6	622.1	625.5
75°	444.3	447.8	454.8	461.7	468.7	475.7	480.9	487.9	494.9	501.8	507.1
77.5°	346.7	350.2	357.2	362.4	367.7	372.9	376.4	379.9	386.8	392.1	397.3
80°	254.4	257.9	263.1	268.3	273.6	278.8	278.8	278.8	287.5	294.5	296.2
82.5°	172.5	174.2	177.7	181.2	184.7	188.2	188.2	186.4	191.7	196.9	200.4
85°	99.3	101.1	104.5	104.5	106.3	106.3	106.3	106.3	109.8	115.0	118.5
87.5°	40.1	40.1	41.8	41.8	43.6	43.6	41.8	40.1	43.6	48.8	50.5
90°	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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CANDELA DISTRIBUTION (continued):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4	2967.4
2.5°	2974.4	2972.6	2977.8	2979.6	2983.1	2983.1	2984.8	2984.8	2981.3	2976.1	2977.8
5°	2976.1	2976.1	2981.3	2986.5	2993.5	3000.5	2995.3	2990.0	2986.5	2981.3	2979.6
7.5°	2967.4	2970.9	2976.1	2984.8	2993.5	3004.0	2997.0	2990.0	2981.3	2974.4	2970.9
10°	2946.5	2950.0	2958.7	2967.4	2976.1	2984.8	2977.8	2970.9	2963.9	2955.2	2951.7
12.5°	2920.3	2925.6	2936.0	2944.7	2953.4	2963.9	2955.2	2946.5	2937.8	2929.0	2923.8
15°	2882.0	2889.0	2901.2	2911.6	2923.8	2932.5	2925.6	2918.6	2908.1	2895.9	2887.2
17.5°	2833.2	2843.7	2855.9	2868.1	2878.5	2887.2	2882.0	2875.0	2862.8	2848.9	2838.4
20°	2779.2	2789.7	2800.1	2812.3	2824.5	2833.2	2826.2	2817.5	2805.3	2794.9	2784.4
22.5°	2716.5	2726.9	2739.1	2749.6	2760.0	2768.7	2760.0	2749.6	2739.1	2728.7	2718.2
25°	2645.0	2655.5	2669.4	2679.9	2686.8	2693.8	2686.8	2678.1	2667.7	2657.2	2646.8
27.5°	2570.1	2580.6	2594.5	2605.0	2611.9	2618.9	2611.9	2603.2	2592.8	2582.3	2571.8
30°	2486.5	2496.9	2510.9	2521.3	2526.5	2531.8	2524.8	2517.8	2509.1	2498.7	2488.2
32.5°	2397.6	2408.1	2418.5	2429.0	2437.7	2444.6	2437.7	2430.7	2420.3	2406.3	2395.9
35°	2303.5	2314.0	2326.2	2336.6	2347.1	2355.8	2345.3	2333.1	2324.4	2315.7	2307.0
37.5°	2204.2	2216.4	2230.3	2242.5	2246.0	2253.0	2246.0	2239.0	2230.3	2221.6	2211.2
40°	2106.6	2117.1	2129.3	2141.5	2146.7	2151.9	2144.9	2138.0	2127.5	2118.8	2108.4
42.5°	2005.6	2016.0	2026.5	2036.9	2043.9	2050.9	2043.9	2033.4	2026.5	2019.5	2010.8
45°	1901.0	1911.5	1920.2	1930.6	1935.9	1941.1	1934.1	1925.4	1918.4	1913.2	1904.5
47.5°	1794.7	1803.4	1812.1	1820.9	1824.3	1829.6	1822.6	1817.4	1812.1	1806.9	1799.9
50°	1683.2	1691.9	1702.4	1711.1	1712.8	1718.1	1711.1	1705.9	1700.6	1695.4	1690.2
52.5°	1573.4	1580.4	1589.1	1597.8	1601.3	1604.8	1597.8	1590.9	1585.6	1582.1	1576.9
55°	1458.4	1465.4	1474.1	1481.1	1486.3	1489.8	1482.8	1475.9	1470.6	1468.9	1463.7
57.5°	1343.4	1350.4	1359.1	1366.1	1369.6	1373.0	1366.1	1359.1	1355.6	1352.1	1348.7
60°	1226.7	1233.7	1240.6	1245.8	1249.3	1251.1	1244.1	1238.9	1237.1	1235.4	1231.9
62.5°	1111.7	1115.2	1122.1	1125.6	1129.1	1130.8	1125.6	1122.1	1120.4	1118.6	1116.9
65°	991.5	1000.2	1005.4	1008.9	1008.9	1010.6	1005.4	1003.6	1001.9	1000.2	996.7
67.5°	867.7	874.7	878.2	881.7	881.7	881.7	881.7	881.7	879.9	876.4	873.0
70°	749.3	754.5	758.0	759.7	759.7	759.7	756.2	754.5	756.2	756.2	754.5
72.5°	629.0	632.5	634.2	636.0	634.2	634.2	634.2	637.7	637.7	636.0	632.5
75°	512.3	515.8	517.5	519.2	517.5	517.5	517.5	521.0	519.2	519.2	517.5
77.5°	402.5	404.2	404.2	406.0	404.2	404.2	406.0	409.5	407.7	407.7	407.7
80°	298.0	298.0	298.0	299.7	298.0	298.0	299.7	303.2	301.4	301.4	301.4
82.5°	202.1	203.9	203.9	203.9	205.6	207.4	207.4	207.4	207.4	207.4	205.6
85°	120.2	122.0	120.2	120.2	120.2	120.2	122.0	123.7	123.7	123.7	123.7
87.5°	52.3	54.0	52.3	50.5	48.8	48.8	52.3	55.8	55.8	54.0	54.0
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: P709156

CATALOG NUMBER: 4APN-39-42L830-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	2967.4	2967.4	2967.4	2967.4
2.5°	2984.8	2984.8	2969.1	2953.4
5°	2983.1	2979.6	2962.2	2943.0
7.5°	2972.6	2967.4	2944.7	2923.8
10°	2948.2	2941.2	2916.9	2890.7
12.5°	2918.6	2908.1	2880.3	2854.1
15°	2880.3	2868.1	2838.4	2808.8
17.5°	2829.7	2815.8	2786.2	2754.8
20°	2775.7	2760.0	2726.9	2693.8
22.5°	2709.5	2695.6	2660.7	2627.6
25°	2638.1	2622.4	2587.5	2552.7
27.5°	2561.4	2544.0	2509.1	2476.0
30°	2477.8	2460.3	2425.5	2392.4
32.5°	2388.9	2375.0	2340.1	2303.5
35°	2298.3	2280.9	2246.0	2211.2
37.5°	2202.4	2186.8	2153.7	2120.6
40°	2101.4	2085.7	2050.9	2017.8
42.5°	2002.1	1988.1	1955.0	1923.7
45°	1895.8	1881.8	1850.5	1822.6
47.5°	1789.5	1775.6	1745.9	1716.3
50°	1681.5	1667.5	1639.6	1613.5
52.5°	1568.2	1557.7	1531.6	1505.5
55°	1454.9	1442.7	1416.6	1394.0
57.5°	1341.7	1333.0	1308.6	1285.9
60°	1224.9	1214.5	1195.3	1176.2
62.5°	1111.7	1103.0	1083.8	1066.4
65°	991.5	984.5	968.8	953.1
67.5°	867.7	862.5	846.8	832.9
70°	749.3	740.5	728.3	716.1
72.5°	629.0	625.5	615.1	604.6
75°	514.0	510.5	500.1	491.4
77.5°	406.0	402.5	393.8	385.1
80°	299.7	298.0	291.0	284.0
82.5°	205.6	203.9	198.6	191.7
85°	123.7	120.2	115.0	109.8
87.5°	54.0	52.3	47.0	43.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)