

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: P709158

Luminaire Tested: **4APN-32-34L830-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709158
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-32-34L830-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

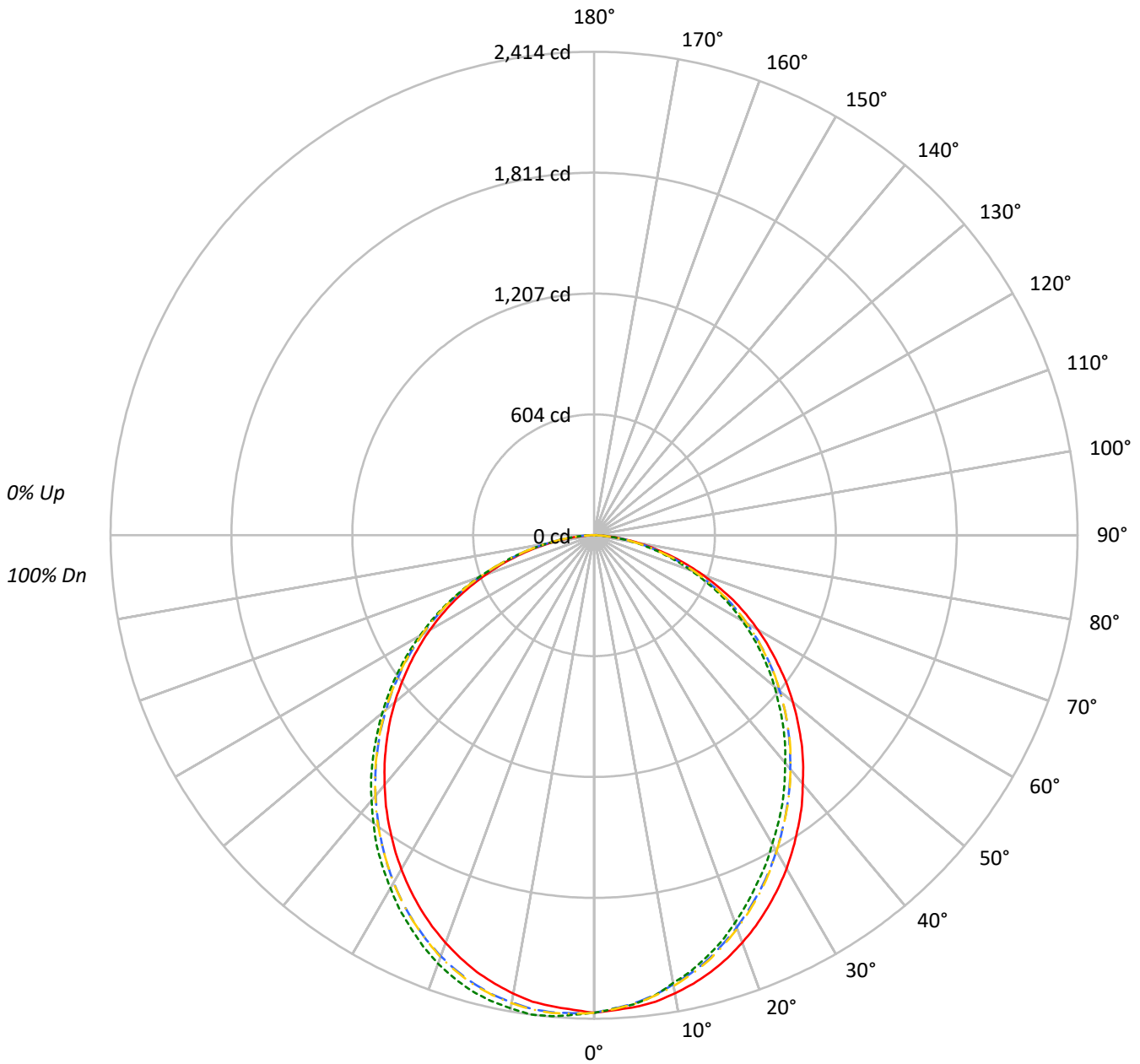
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6301.9 lumens
Efficiency: N/A
Efficacy: 86.3 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): 73
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

TEST NUMBER: P709158
CATALOG NUMBER: 4APN-32-34L830-UNV

Luminous Intensity Polar Plot



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



TEST NUMBER: P709158
 CATALOG NUMBER: 4APN-32-34L830-UNV

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°	21996	21996	21996	21996
5°	21899	21756	21873	22327
10°	21758	21273	21772	22467
15°	21555	20806	21569	22505
20°	21250	20205	21264	22349
25°	20878	19567	20921	22033
30°	20477	18956	20507	21670
35°	20009	18464	20056	21318
40°	19524	17872	19592	20823
45°	19106	17389	19124	20348
50°	18606	16878	18647	19812
55°	18014	16325	18082	19253
60°	17436	15757	17462	18547
65°	16718	15068	16718	17727
70°	15522	13936	15484	16466
75°	14074	12626	13974	14822
80°	12125	10860	11901	12720
85°	9337	8299	9040	10226



TEST NUMBER: P709158
 CATALOG NUMBER: 4APN-32-34L830-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	225.2	3.6
10°-20°	637.5	10.1
20°-30°	943.8	15.0
30°-40°	1107.3	17.6
40°-50°	1122.2	17.8
50°-60°	995.9	15.8
60°-70°	747.7	11.9
70°-80°	415.2	6.6
80°-90°	107.2	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°	1806.4	28.7
0°-40°	2913.7	46.2
0°-60°	5031.8	79.8
0°-90°	6301.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6301.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2384	2384	2384	2384	2384	
5°	2364	2349	2362	2411	2364	224
15°	2257	2178	2258	2356	2257	636
25°	2051	1922	2055	2164	2051	945
35°	1776	1639	1781	1893	1776	1112
45°	1464	1333	1466	1560	1464	1129
55°	1120	1015	1124	1197	1120	1002
65°	766	690	766	812	766	755
75°	395	354	392	416	395	420
85°	88	78	85	97	88	106
90°	0	0	0	0	0	



TEST NUMBER: P709158

CATALOG NUMBER: 4APN-32-34L830-UNV

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1
2.5°	2372.9	2378.5	2385.5	2378.5	2367.3	2361.7	2361.7	2360.3	2364.5	2365.9	2364.5
5°	2364.5	2367.3	2368.7	2360.3	2347.7	2340.7	2337.9	2336.5	2342.1	2349.1	2342.1
7.5°	2349.1	2347.7	2346.3	2335.1	2321.1	2311.3	2307.1	2305.7	2311.3	2318.3	2312.7
10°	2322.5	2321.1	2316.9	2302.9	2284.7	2272.1	2267.9	2263.7	2267.9	2270.7	2267.9
12.5°	2293.1	2287.5	2281.9	2266.5	2246.9	2232.9	2225.9	2220.3	2225.9	2230.1	2227.3
15°	2256.7	2248.3	2238.5	2221.7	2202.1	2186.7	2178.3	2172.7	2176.9	2178.3	2178.3
17.5°	2213.3	2203.5	2193.7	2172.7	2148.9	2132.1	2122.3	2115.3	2120.9	2123.7	2123.7
20°	2164.3	2153.1	2140.5	2118.1	2092.9	2074.7	2063.5	2055.1	2056.5	2057.9	2057.9
22.5°	2111.1	2097.1	2081.7	2057.9	2031.3	2011.7	2000.5	1990.7	1990.7	1992.1	1992.1
25°	2050.9	2035.5	2020.1	1996.3	1968.3	1947.3	1933.3	1923.5	1923.5	1922.1	1924.9
27.5°	1989.3	1972.5	1957.1	1931.9	1902.5	1881.5	1867.5	1857.7	1856.3	1854.9	1857.7
30°	1922.1	1902.5	1885.7	1859.1	1831.1	1810.1	1796.1	1784.9	1782.1	1779.3	1782.1
32.5°	1850.7	1832.5	1814.3	1786.3	1758.3	1737.3	1723.3	1712.1	1710.7	1709.3	1712.1
35°	1776.5	1756.9	1740.1	1713.5	1685.5	1664.5	1649.1	1639.3	1639.3	1639.3	1639.3
37.5°	1703.7	1684.1	1665.9	1639.3	1611.3	1590.3	1574.9	1565.1	1562.3	1560.9	1562.3
40°	1621.1	1604.3	1587.5	1562.3	1534.3	1513.3	1500.7	1489.5	1486.7	1483.9	1488.1
42.5°	1545.5	1528.7	1510.5	1486.7	1458.7	1437.7	1423.7	1413.9	1412.5	1411.1	1412.5
45°	1464.3	1444.7	1426.5	1404.1	1378.9	1359.3	1345.3	1335.5	1334.1	1332.7	1334.1
47.5°	1378.9	1363.5	1348.1	1325.7	1300.5	1280.9	1268.3	1257.1	1254.3	1251.5	1254.3
50°	1296.3	1279.5	1264.1	1243.1	1219.3	1201.1	1189.9	1180.1	1177.3	1175.9	1177.3
52.5°	1209.5	1194.1	1180.1	1159.1	1139.5	1121.3	1108.7	1100.3	1098.9	1097.5	1098.9
55°	1119.9	1105.9	1093.3	1076.5	1056.9	1040.1	1028.9	1019.1	1017.7	1014.9	1017.7
57.5°	1033.1	1021.9	1009.3	991.1	972.9	957.5	947.7	939.3	937.9	936.5	937.9
60°	944.9	933.7	922.5	907.1	888.9	873.5	865.1	858.1	855.3	853.9	855.3
62.5°	856.7	845.5	837.1	821.7	805.0	792.4	784.0	777.0	774.2	772.8	774.2
65°	765.8	756.0	746.2	732.2	719.6	709.8	701.4	694.4	691.6	690.2	690.2
67.5°	669.2	660.8	653.8	641.2	627.2	617.4	609.0	603.4	600.6	599.2	600.6
70°	575.4	568.4	561.4	551.6	540.4	532.0	526.4	520.8	518.0	516.6	516.6
72.5°	485.8	480.2	473.2	464.8	456.4	448.0	442.4	438.2	435.4	434.0	434.0
75°	394.8	389.2	386.4	379.4	371.0	365.4	359.8	357.0	354.2	354.2	354.2
77.5°	309.4	306.6	303.8	296.8	291.2	285.6	281.4	280.0	277.2	277.2	277.2
80°	228.2	226.8	225.4	221.2	215.6	210.0	207.2	205.8	204.4	204.4	204.4
82.5°	154.0	154.0	152.6	148.4	144.2	142.8	140.0	138.6	138.6	138.6	138.6
85°	88.2	88.2	88.2	86.8	84.0	84.0	81.2	79.8	78.4	78.4	78.4
87.5°	35.0	36.4	37.8	36.4	33.6	33.6	33.6	33.6	33.6	33.6	33.6
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: P709158

CATALOG NUMBER: 4APN-32-34L830-UNV

CANDELA DISTRIBUTION (continued):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1
2.5°	2360.3	2363.1	2364.5	2371.5	2379.9	2385.5	2378.5	2371.5	2382.7	2395.3	2395.3
5°	2336.5	2339.3	2343.5	2351.9	2363.1	2370.1	2367.3	2361.7	2378.5	2392.5	2393.9
7.5°	2307.1	2309.9	2315.5	2323.9	2337.9	2347.7	2347.7	2349.1	2364.5	2381.3	2385.5
10°	2263.7	2270.7	2279.1	2291.7	2305.7	2318.3	2322.5	2323.9	2343.5	2361.7	2367.3
12.5°	2223.1	2230.1	2238.5	2252.5	2269.3	2283.3	2287.5	2293.1	2314.1	2335.1	2343.5
15°	2176.9	2183.9	2193.7	2207.7	2225.9	2241.3	2249.7	2258.1	2279.1	2301.5	2311.3
17.5°	2122.3	2129.3	2139.1	2155.9	2176.9	2195.1	2204.9	2214.7	2238.5	2262.3	2272.1
20°	2057.9	2067.7	2081.7	2098.5	2122.3	2143.3	2154.5	2165.7	2190.9	2214.7	2225.9
22.5°	1992.1	2003.3	2018.7	2038.3	2063.5	2085.9	2099.9	2113.9	2139.1	2162.9	2175.5
25°	1926.3	1938.9	1954.3	1975.3	1999.1	2021.5	2038.3	2055.1	2080.3	2105.5	2118.1
27.5°	1859.1	1870.3	1885.7	1906.7	1933.3	1957.1	1973.9	1992.1	2017.3	2043.9	2056.5
30°	1784.9	1797.5	1811.5	1832.5	1861.9	1888.5	1905.3	1924.9	1950.1	1976.7	1989.3
32.5°	1713.5	1724.7	1738.7	1759.7	1789.1	1817.1	1835.3	1854.9	1880.1	1906.7	1917.9
35°	1639.3	1650.5	1665.9	1686.9	1716.3	1742.9	1761.1	1780.7	1804.5	1829.7	1842.3
37.5°	1566.5	1577.7	1593.1	1614.1	1642.1	1668.7	1686.9	1706.5	1730.3	1754.1	1765.3
40°	1490.9	1502.1	1514.7	1535.7	1563.7	1590.3	1607.1	1626.7	1650.5	1675.7	1686.9
42.5°	1413.9	1425.1	1440.5	1461.5	1488.1	1511.9	1530.1	1548.3	1570.7	1593.1	1604.3
45°	1336.9	1346.7	1362.1	1381.7	1406.9	1429.3	1447.5	1465.7	1486.7	1507.7	1518.9
47.5°	1257.1	1268.3	1280.9	1300.5	1325.7	1349.5	1367.7	1384.5	1404.1	1425.1	1434.9
50°	1180.1	1189.9	1202.5	1220.7	1244.5	1266.9	1282.3	1299.1	1317.3	1336.9	1345.3
52.5°	1100.3	1110.1	1122.7	1140.9	1160.5	1181.5	1195.5	1210.9	1229.1	1247.3	1255.7
55°	1019.1	1026.1	1037.3	1054.1	1075.1	1094.7	1108.7	1124.1	1139.5	1154.9	1164.7
57.5°	939.3	947.7	958.9	974.3	992.5	1010.7	1023.3	1035.9	1051.3	1066.7	1073.7
60°	858.1	865.1	873.5	887.5	905.7	921.1	933.7	946.3	958.9	972.9	979.9
62.5°	775.6	782.6	791.0	805.0	820.3	834.3	845.5	856.7	867.9	880.5	887.5
65°	693.0	700.0	708.4	718.2	730.8	743.4	754.6	765.8	774.2	782.6	789.6
67.5°	603.4	610.4	618.8	627.2	638.4	651.0	659.4	669.2	677.6	687.4	691.6
70°	519.4	525.0	533.4	540.4	550.2	558.6	565.6	574.0	579.6	588.0	595.0
72.5°	436.8	442.4	449.4	456.4	462.0	469.0	477.4	484.4	491.4	499.8	502.6
75°	357.0	359.8	365.4	371.0	376.6	382.2	386.4	392.0	397.6	403.2	407.4
77.5°	278.6	281.4	287.0	291.2	295.4	299.6	302.4	305.2	310.8	315.0	319.2
80°	204.4	207.2	211.4	215.6	219.8	224.0	224.0	224.0	231.0	236.6	238.0
82.5°	138.6	140.0	142.8	145.6	148.4	151.2	151.2	149.8	154.0	158.2	161.0
85°	79.8	81.2	84.0	84.0	85.4	85.4	85.4	85.4	88.2	92.4	95.2
87.5°	32.2	32.2	33.6	33.6	35.0	35.0	33.6	32.2	35.0	39.2	40.6
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: P709158

CATALOG NUMBER: 4APN-32-34L830-UNV

CANDELA DISTRIBUTION (continued):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1	2384.1
2.5°	2389.7	2388.3	2392.5	2393.9	2396.7	2396.7	2398.1	2398.1	2395.3	2391.1	2392.5
5°	2391.1	2391.1	2395.3	2399.5	2405.1	2410.7	2406.5	2402.3	2399.5	2395.3	2393.9
7.5°	2384.1	2386.9	2391.1	2398.1	2405.1	2413.5	2407.9	2402.3	2395.3	2389.7	2386.9
10°	2367.3	2370.1	2377.1	2384.1	2391.1	2398.1	2392.5	2386.9	2381.3	2374.3	2371.5
12.5°	2346.3	2350.5	2358.9	2365.9	2372.9	2381.3	2374.3	2367.3	2360.3	2353.3	2349.1
15°	2315.5	2321.1	2330.9	2339.3	2349.1	2356.1	2350.5	2344.9	2336.5	2326.7	2319.7
17.5°	2276.3	2284.7	2294.5	2304.3	2312.7	2319.7	2315.5	2309.9	2300.1	2288.9	2280.5
20°	2232.9	2241.3	2249.7	2259.5	2269.3	2276.3	2270.7	2263.7	2253.9	2245.5	2237.1
22.5°	2182.5	2190.9	2200.7	2209.1	2217.5	2224.5	2217.5	2209.1	2200.7	2192.3	2183.9
25°	2125.1	2133.5	2144.7	2153.1	2158.7	2164.3	2158.7	2151.7	2143.3	2134.9	2126.5
27.5°	2064.9	2073.3	2084.5	2092.9	2098.5	2104.1	2098.5	2091.5	2083.1	2074.7	2066.3
30°	1997.7	2006.1	2017.3	2025.7	2029.9	2034.1	2028.5	2022.9	2015.9	2007.5	1999.1
32.5°	1926.3	1934.7	1943.1	1951.5	1958.5	1964.1	1958.5	1952.9	1944.5	1933.3	1924.9
35°	1850.7	1859.1	1868.9	1877.3	1885.7	1892.7	1884.3	1874.5	1867.5	1860.5	1853.5
37.5°	1770.9	1780.7	1791.9	1801.7	1804.5	1810.1	1804.5	1798.9	1791.9	1784.9	1776.5
40°	1692.5	1700.9	1710.7	1720.5	1724.7	1728.9	1723.3	1717.7	1709.3	1702.3	1693.9
42.5°	1611.3	1619.7	1628.1	1636.5	1642.1	1647.7	1642.1	1633.7	1628.1	1622.5	1615.5
45°	1527.3	1535.7	1542.7	1551.1	1555.3	1559.5	1553.9	1546.9	1541.3	1537.1	1530.1
47.5°	1441.9	1448.9	1455.9	1462.9	1465.7	1469.9	1464.3	1460.1	1455.9	1451.7	1446.1
50°	1352.3	1359.3	1367.7	1374.7	1376.1	1380.3	1374.7	1370.5	1366.3	1362.1	1357.9
52.5°	1264.1	1269.7	1276.7	1283.7	1286.5	1289.3	1283.7	1278.1	1273.9	1271.1	1266.9
55°	1171.7	1177.3	1184.3	1189.9	1194.1	1196.9	1191.3	1185.7	1181.5	1180.1	1175.9
57.5°	1079.3	1084.9	1091.9	1097.5	1100.3	1103.1	1097.5	1091.9	1089.1	1086.3	1083.5
60°	985.5	991.1	996.7	1000.9	1003.7	1005.1	999.5	995.3	993.9	992.5	989.7
62.5°	893.1	895.9	901.5	904.3	907.1	908.5	904.3	901.5	900.1	898.7	897.3
65°	796.6	803.6	807.8	810.6	810.6	812.0	807.8	806.4	805.0	803.6	800.8
67.5°	697.2	702.8	705.6	708.4	708.4	708.4	708.4	708.4	707.0	704.2	701.4
70°	602.0	606.2	609.0	610.4	610.4	610.4	607.6	606.2	607.6	607.6	606.2
72.5°	505.4	508.2	509.6	511.0	509.6	509.6	509.6	512.4	512.4	511.0	508.2
75°	411.6	414.4	415.8	417.2	415.8	415.8	415.8	418.6	417.2	417.2	415.8
77.5°	323.4	324.8	324.8	326.2	324.8	324.8	326.2	329.0	327.6	327.6	327.6
80°	239.4	239.4	239.4	240.8	239.4	239.4	240.8	243.6	242.2	242.2	242.2
82.5°	162.4	163.8	163.8	163.8	165.2	166.6	166.6	166.6	166.6	166.6	165.2
85°	96.6	98.0	96.6	96.6	96.6	96.6	98.0	99.4	99.4	99.4	99.4
87.5°	42.0	43.4	42.0	40.6	39.2	39.2	42.0	44.8	44.8	43.4	43.4
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: P709158
 CATALOG NUMBER: 4APN-32-34L830-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	2384.1	2384.1	2384.1	2384.1
2.5°	2398.1	2398.1	2385.5	2372.9
5°	2396.7	2393.9	2379.9	2364.5
7.5°	2388.3	2384.1	2365.9	2349.1
10°	2368.7	2363.1	2343.5	2322.5
12.5°	2344.9	2336.5	2314.1	2293.1
15°	2314.1	2304.3	2280.5	2256.7
17.5°	2273.5	2262.3	2238.5	2213.3
20°	2230.1	2217.5	2190.9	2164.3
22.5°	2176.9	2165.7	2137.7	2111.1
25°	2119.5	2106.9	2078.9	2050.9
27.5°	2057.9	2043.9	2015.9	1989.3
30°	1990.7	1976.7	1948.7	1922.1
32.5°	1919.3	1908.1	1880.1	1850.7
35°	1846.5	1832.5	1804.5	1776.5
37.5°	1769.5	1756.9	1730.3	1703.7
40°	1688.3	1675.7	1647.7	1621.1
42.5°	1608.5	1597.3	1570.7	1545.5
45°	1523.1	1511.9	1486.7	1464.3
47.5°	1437.7	1426.5	1402.7	1378.9
50°	1350.9	1339.7	1317.3	1296.3
52.5°	1259.9	1251.5	1230.5	1209.5
55°	1168.9	1159.1	1138.1	1119.9
57.5°	1077.9	1070.9	1051.3	1033.1
60°	984.1	975.7	960.3	944.9
62.5°	893.1	886.1	870.7	856.7
65°	796.6	791.0	778.4	765.8
67.5°	697.2	693.0	680.4	669.2
70°	602.0	595.0	585.2	575.4
72.5°	505.4	502.6	494.2	485.8
75°	413.0	410.2	401.8	394.8
77.5°	326.2	323.4	316.4	309.4
80°	240.8	239.4	233.8	228.2
82.5°	165.2	163.8	159.6	154.0
85°	99.4	96.6	92.4	88.2
87.5°	43.4	42.0	37.8	35.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)