

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: P709176

Luminaire Tested: **4APN-32-34L850-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709176
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-32-34L850-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 5000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

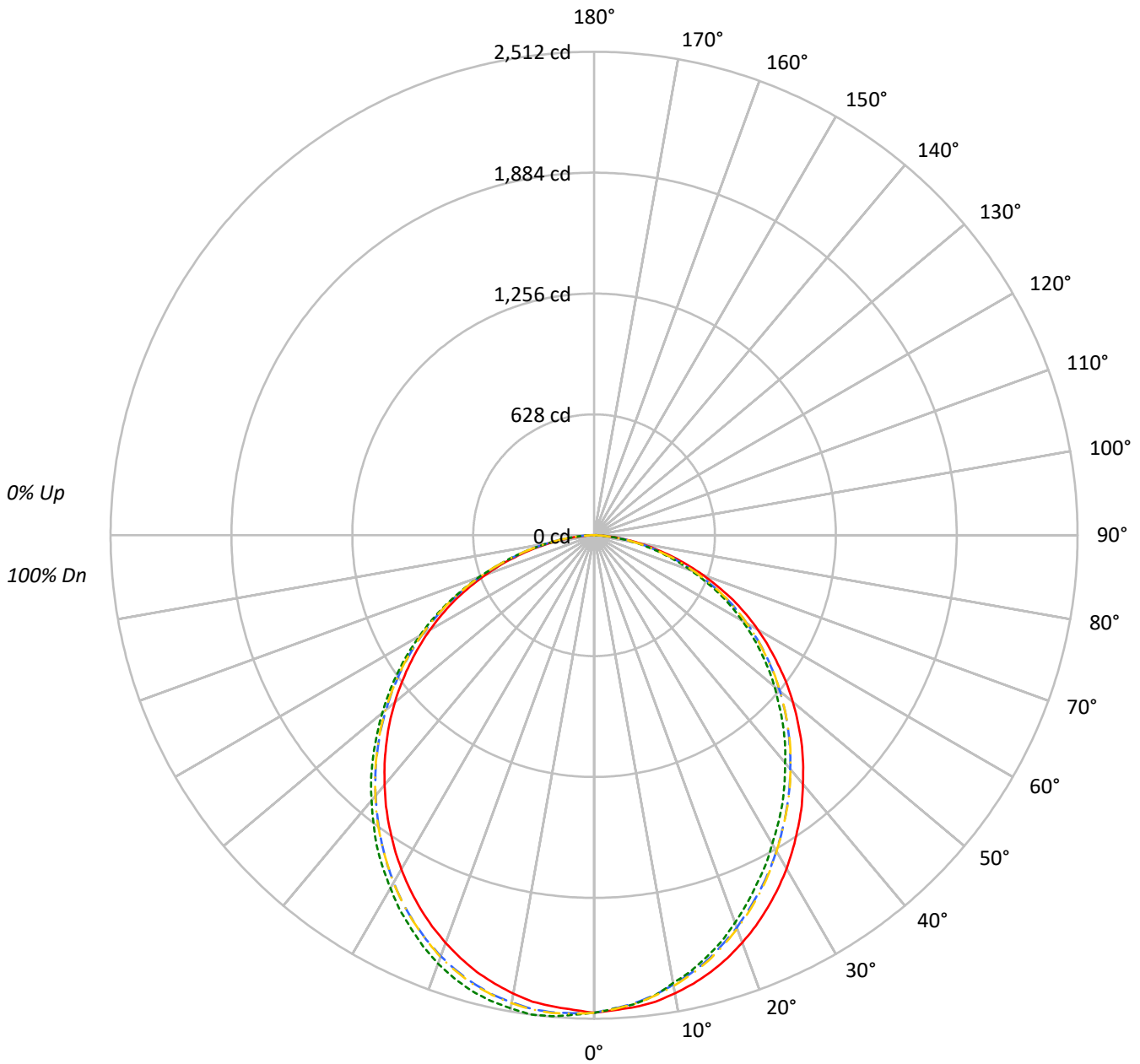
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6557.9 lumens
Efficiency: N/A
Efficacy: 89.8 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

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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°	22889	22889	22889	22889
5°	22788	22640	22761	23233
10°	22642	22137	22656	23379
15°	22430	21652	22445	23419
20°	22113	21026	22127	23257
25°	21726	20362	21771	22927
30°	21309	19726	21340	22550
35°	20822	19214	20871	22184
40°	20318	18598	20388	21668
45°	19882	18096	19902	21175
50°	19363	17564	19404	20617
55°	18746	16989	18817	20034
60°	18144	16397	18172	19301
65°	17397	15679	17397	18445
70°	16150	14502	16113	17135
75°	14644	13140	14541	15425
80°	12619	11301	12385	13235
85°	9718	8638	9411	10639



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.3	3.6
10°-20°	663.3	10.1
20°-30°	982.1	15.0
30°-40°	1152.3	17.6
40°-50°	1167.8	17.8
50°-60°	1036.4	15.8
60°-70°	778.1	11.9
70°-80°	432.1	6.6
80°-90°	111.6	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°	1879.7	28.7
0°-40°	3032.0	46.2
0°-60°	5236.2	79.8
0°-90°	6557.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6557.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2481	2481	2481	2481	2481	
5°	2460	2444	2458	2509	2460	234
15°	2348	2267	2350	2452	2348	662
25°	2134	2000	2139	2252	2134	983
35°	1849	1706	1853	1970	1849	1157
45°	1524	1387	1525	1623	1524	1175
55°	1165	1056	1170	1246	1165	1043
65°	797	718	797	845	797	786
75°	411	369	408	433	411	437
85°	92	82	89	100	92	111
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°	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9
2.5°	2469.2	2475.1	2482.4	2475.1	2463.4	2457.6	2457.6	2456.1	2460.5	2462.0	2460.5
5°	2460.5	2463.4	2464.9	2456.1	2443.0	2435.7	2432.8	2431.4	2437.2	2444.5	2437.2
7.5°	2444.5	2443.0	2441.6	2429.9	2415.3	2405.1	2400.8	2399.3	2405.1	2412.4	2406.6
10°	2416.8	2415.3	2411.0	2396.4	2377.5	2364.4	2360.0	2355.6	2360.0	2362.9	2360.0
12.5°	2386.2	2380.4	2374.6	2358.5	2338.1	2323.6	2316.3	2310.5	2316.3	2320.7	2317.7
15°	2348.3	2339.6	2329.4	2311.9	2291.5	2275.5	2266.8	2260.9	2265.3	2266.8	2266.8
17.5°	2303.2	2293.0	2282.8	2260.9	2236.2	2218.7	2208.5	2201.2	2207.0	2209.9	2209.9
20°	2252.2	2240.5	2227.4	2204.1	2177.9	2159.0	2147.3	2138.6	2140.0	2141.5	2141.5
22.5°	2196.8	2182.3	2166.2	2141.5	2113.8	2093.4	2081.7	2071.5	2071.5	2073.0	2073.0
25°	2134.2	2118.2	2102.1	2077.4	2048.2	2026.4	2011.8	2001.6	2001.6	2000.2	2003.1
27.5°	2070.1	2052.6	2036.6	2010.4	1979.8	1957.9	1943.3	1933.1	1931.7	1930.2	1933.1
30°	2000.2	1979.8	1962.3	1934.6	1905.5	1883.6	1869.1	1857.4	1854.5	1851.6	1854.5
32.5°	1925.9	1906.9	1888.0	1858.9	1829.7	1807.9	1793.3	1781.6	1780.2	1778.7	1781.6
35°	1848.7	1828.3	1810.8	1783.1	1754.0	1732.1	1716.1	1705.9	1705.9	1705.9	1705.9
37.5°	1772.9	1752.5	1733.6	1705.9	1676.8	1654.9	1638.9	1628.7	1625.8	1624.3	1625.8
40°	1687.0	1669.5	1652.0	1625.8	1596.6	1574.8	1561.7	1550.0	1547.1	1544.2	1548.6
42.5°	1608.3	1590.8	1571.9	1547.1	1518.0	1496.1	1481.5	1471.3	1469.9	1468.4	1469.9
45°	1523.8	1503.4	1484.5	1461.2	1434.9	1414.5	1400.0	1389.8	1388.3	1386.9	1388.3
47.5°	1434.9	1418.9	1402.9	1379.6	1353.3	1333.0	1319.8	1308.2	1305.3	1302.4	1305.3
50°	1349.0	1331.5	1315.5	1293.6	1268.9	1249.9	1238.3	1228.1	1225.2	1223.7	1225.2
52.5°	1258.7	1242.6	1228.1	1206.2	1185.8	1166.9	1153.8	1145.0	1143.6	1142.1	1143.6
55°	1165.4	1150.9	1137.7	1120.3	1099.9	1082.4	1070.7	1060.5	1059.1	1056.2	1059.1
57.5°	1075.1	1063.5	1050.3	1031.4	1012.5	996.4	986.2	977.5	976.0	974.6	976.0
60°	983.3	971.7	960.0	944.0	925.1	909.0	900.3	893.0	890.1	888.6	890.1
62.5°	891.6	879.9	871.2	855.1	837.6	824.5	815.8	808.5	805.6	804.1	805.6
65°	796.9	786.7	776.5	761.9	748.8	738.6	729.8	722.6	719.7	718.2	718.2
67.5°	696.3	687.6	680.3	667.2	652.6	642.4	633.7	627.9	625.0	623.5	625.0
70°	598.7	591.5	584.2	574.0	562.3	553.6	547.7	541.9	539.0	537.6	537.6
72.5°	505.5	499.7	492.4	483.7	474.9	466.2	460.3	456.0	453.1	451.6	451.6
75°	410.8	405.0	402.1	394.8	386.0	380.2	374.4	371.5	368.6	368.6	368.6
77.5°	321.9	319.0	316.1	308.8	303.0	297.2	292.8	291.4	288.4	288.4	288.4
80°	237.5	236.0	234.5	230.2	224.3	218.5	215.6	214.1	212.7	212.7	212.7
82.5°	160.2	160.2	158.8	154.4	150.0	148.6	145.7	144.2	144.2	144.2	144.2
85°	91.8	91.8	91.8	90.3	87.4	87.4	84.5	83.0	81.6	81.6	81.6
87.5°	36.4	37.9	39.3	37.9	35.0	35.0	35.0	35.0	35.0	35.0	35.0
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°	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9
2.5°	2456.1	2459.0	2460.5	2467.8	2476.5	2482.4	2475.1	2467.8	2479.4	2492.6	2492.6
5°	2431.4	2434.3	2438.7	2447.4	2459.0	2466.3	2463.4	2457.6	2475.1	2489.6	2491.1
7.5°	2400.8	2403.7	2409.5	2418.3	2432.8	2443.0	2443.0	2444.5	2460.5	2478.0	2482.4
10°	2355.6	2362.9	2371.6	2384.8	2399.3	2412.4	2416.8	2418.3	2438.7	2457.6	2463.4
12.5°	2313.4	2320.7	2329.4	2344.0	2361.4	2376.0	2380.4	2386.2	2408.1	2429.9	2438.7
15°	2265.3	2272.6	2282.8	2297.3	2316.3	2332.3	2341.0	2349.8	2371.6	2394.9	2405.1
17.5°	2208.5	2215.8	2226.0	2243.4	2265.3	2284.2	2294.4	2304.6	2329.4	2354.2	2364.4
20°	2141.5	2151.7	2166.2	2183.7	2208.5	2230.3	2242.0	2253.6	2279.9	2304.6	2316.3
22.5°	2073.0	2084.7	2100.7	2121.1	2147.3	2170.6	2185.2	2199.7	2226.0	2250.7	2263.8
25°	2004.5	2017.6	2033.7	2055.5	2080.3	2103.6	2121.1	2138.6	2164.8	2191.0	2204.1
27.5°	1934.6	1946.3	1962.3	1984.1	2011.8	2036.6	2054.1	2073.0	2099.2	2126.9	2140.0
30°	1857.4	1870.5	1885.1	1906.9	1937.5	1965.2	1982.7	2003.1	2029.3	2057.0	2070.1
32.5°	1783.1	1794.8	1809.3	1831.2	1861.8	1890.9	1909.8	1930.2	1956.5	1984.1	1995.8
35°	1705.9	1717.5	1733.6	1755.4	1786.0	1813.7	1832.6	1853.0	1877.8	1904.0	1917.1
37.5°	1630.1	1641.8	1657.8	1679.7	1708.8	1736.5	1755.4	1775.8	1800.6	1825.3	1837.0
40°	1551.5	1563.1	1576.2	1598.1	1627.2	1654.9	1672.4	1692.8	1717.5	1743.8	1755.4
42.5°	1471.3	1483.0	1499.0	1520.9	1548.6	1573.3	1592.3	1611.2	1634.5	1657.8	1669.5
45°	1391.2	1401.4	1417.4	1437.8	1464.1	1487.4	1506.3	1525.3	1547.1	1569.0	1580.6
47.5°	1308.2	1319.8	1333.0	1353.3	1379.6	1404.3	1423.3	1440.8	1461.2	1483.0	1493.2
50°	1228.1	1238.3	1251.4	1270.3	1295.1	1318.4	1334.4	1351.9	1370.8	1391.2	1400.0
52.5°	1145.0	1155.2	1168.3	1187.3	1207.7	1229.5	1244.1	1260.1	1279.1	1298.0	1306.7
55°	1060.5	1067.8	1079.5	1097.0	1118.8	1139.2	1153.8	1169.8	1185.8	1201.8	1212.0
57.5°	977.5	986.2	997.9	1013.9	1032.9	1051.8	1064.9	1078.0	1094.0	1110.1	1117.4
60°	893.0	900.3	909.0	923.6	942.5	958.6	971.7	984.8	997.9	1012.5	1019.7
62.5°	807.1	814.3	823.1	837.6	853.7	868.2	879.9	891.6	903.2	916.3	923.6
65°	721.1	728.4	737.1	747.3	760.4	773.6	785.2	796.9	805.6	814.3	821.6
67.5°	627.9	635.2	643.9	652.6	664.3	677.4	686.1	696.3	705.1	715.3	719.7
70°	540.5	546.3	555.0	562.3	572.5	581.3	588.5	597.3	603.1	611.8	619.1
72.5°	454.5	460.3	467.6	474.9	480.7	488.0	496.8	504.0	511.3	520.1	523.0
75°	371.5	374.4	380.2	386.0	391.9	397.7	402.1	407.9	413.7	419.6	423.9
77.5°	289.9	292.8	298.6	303.0	307.4	311.8	314.7	317.6	323.4	327.8	332.1
80°	212.7	215.6	220.0	224.3	228.7	233.1	233.1	233.1	240.4	246.2	247.7
82.5°	144.2	145.7	148.6	151.5	154.4	157.3	157.3	155.9	160.2	164.6	167.5
85°	83.0	84.5	87.4	87.4	88.9	88.9	88.9	88.9	91.8	96.1	99.1
87.5°	33.5	33.5	35.0	35.0	36.4	36.4	35.0	33.5	36.4	40.8	42.2
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°	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9	2480.9
2.5°	2486.7	2485.3	2489.6	2491.1	2494.0	2494.0	2495.5	2495.5	2492.6	2488.2	2489.6
5°	2488.2	2488.2	2492.6	2496.9	2502.8	2508.6	2504.2	2499.8	2496.9	2492.6	2491.1
7.5°	2480.9	2483.8	2488.2	2495.5	2502.8	2511.5	2505.7	2499.8	2492.6	2486.7	2483.8
10°	2463.4	2466.3	2473.6	2480.9	2488.2	2495.5	2489.6	2483.8	2478.0	2470.7	2467.8
12.5°	2441.6	2445.9	2454.7	2462.0	2469.2	2478.0	2470.7	2463.4	2456.1	2448.8	2444.5
15°	2409.5	2415.3	2425.5	2434.3	2444.5	2451.8	2445.9	2440.1	2431.4	2421.2	2413.9
17.5°	2368.7	2377.5	2387.7	2397.9	2406.6	2413.9	2409.5	2403.7	2393.5	2381.8	2373.1
20°	2323.6	2332.3	2341.0	2351.2	2361.4	2368.7	2362.9	2355.6	2345.4	2336.7	2327.9
22.5°	2271.1	2279.9	2290.1	2298.8	2307.5	2314.8	2307.5	2298.8	2290.1	2281.3	2272.6
25°	2211.4	2220.1	2231.8	2240.5	2246.4	2252.2	2246.4	2239.1	2230.3	2221.6	2212.9
27.5°	2148.8	2157.5	2169.1	2177.9	2183.7	2189.5	2183.7	2176.4	2167.7	2159.0	2150.2
30°	2078.8	2087.6	2099.2	2108.0	2112.3	2116.7	2110.9	2105.0	2097.8	2089.0	2080.3
32.5°	2004.5	2013.3	2022.0	2030.8	2038.0	2043.9	2038.0	2032.2	2023.5	2011.8	2003.1
35°	1925.9	1934.6	1944.8	1953.5	1962.3	1969.6	1960.8	1950.6	1943.3	1936.1	1928.8
37.5°	1842.8	1853.0	1864.7	1874.9	1877.8	1883.6	1877.8	1872.0	1864.7	1857.4	1848.7
40°	1761.2	1770.0	1780.2	1790.4	1794.8	1799.1	1793.3	1787.5	1778.7	1771.4	1762.7
42.5°	1676.8	1685.5	1694.2	1703.0	1708.8	1714.6	1708.8	1700.1	1694.2	1688.4	1681.1
45°	1589.3	1598.1	1605.4	1614.1	1618.5	1622.9	1617.0	1609.7	1603.9	1599.5	1592.3
47.5°	1500.5	1507.8	1515.1	1522.3	1525.3	1529.6	1523.8	1519.4	1515.1	1510.7	1504.9
50°	1407.3	1414.5	1423.3	1430.6	1432.0	1436.4	1430.6	1426.2	1421.8	1417.4	1413.1
52.5°	1315.5	1321.3	1328.6	1335.9	1338.8	1341.7	1335.9	1330.0	1325.7	1322.8	1318.4
55°	1219.3	1225.2	1232.4	1238.3	1242.6	1245.5	1239.7	1233.9	1229.5	1228.1	1223.7
57.5°	1123.2	1129.0	1136.3	1142.1	1145.0	1147.9	1142.1	1136.3	1133.4	1130.5	1127.5
60°	1025.6	1031.4	1037.2	1041.6	1044.5	1046.0	1040.1	1035.8	1034.3	1032.9	1029.9
62.5°	929.4	932.3	938.2	941.1	944.0	945.5	941.1	938.2	936.7	935.3	933.8
65°	828.9	836.2	840.6	843.5	843.5	844.9	840.6	839.1	837.6	836.2	833.3
67.5°	725.5	731.3	734.2	737.1	737.1	737.1	737.1	737.1	735.7	732.8	729.8
70°	626.4	630.8	633.7	635.2	635.2	635.2	632.2	630.8	632.2	632.2	630.8
72.5°	525.9	528.8	530.3	531.7	530.3	530.3	530.3	533.2	533.2	531.7	528.8
75°	428.3	431.2	432.7	434.1	432.7	432.7	432.7	435.6	434.1	434.1	432.7
77.5°	336.5	338.0	338.0	339.4	338.0	338.0	339.4	342.3	340.9	340.9	340.9
80°	249.1	249.1	249.1	250.6	249.1	249.1	250.6	253.5	252.0	252.0	252.0
82.5°	169.0	170.4	170.4	170.4	171.9	173.4	173.4	173.4	173.4	173.4	171.9
85°	100.5	102.0	100.5	100.5	100.5	100.5	102.0	103.4	103.4	103.4	103.4
87.5°	43.7	45.2	43.7	42.2	40.8	40.8	43.7	46.6	46.6	45.2	45.2
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: P709176
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CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	2480.9	2480.9	2480.9	2480.9
2.5°	2495.5	2495.5	2482.4	2469.2
5°	2494.0	2491.1	2476.5	2460.5
7.5°	2485.3	2480.9	2462.0	2444.5
10°	2464.9	2459.0	2438.7	2416.8
12.5°	2440.1	2431.4	2408.1	2386.2
15°	2408.1	2397.9	2373.1	2348.3
17.5°	2365.8	2354.2	2329.4	2303.2
20°	2320.7	2307.5	2279.9	2252.2
22.5°	2265.3	2253.6	2224.5	2196.8
25°	2205.6	2192.5	2163.3	2134.2
27.5°	2141.5	2126.9	2097.8	2070.1
30°	2071.5	2057.0	2027.8	2000.2
32.5°	1997.2	1985.6	1956.5	1925.9
35°	1921.5	1906.9	1877.8	1848.7
37.5°	1841.4	1828.3	1800.6	1772.9
40°	1756.9	1743.8	1714.6	1687.0
42.5°	1673.8	1662.2	1634.5	1608.3
45°	1585.0	1573.3	1547.1	1523.8
47.5°	1496.1	1484.5	1459.7	1434.9
50°	1405.8	1394.1	1370.8	1349.0
52.5°	1311.1	1302.4	1280.5	1258.7
55°	1216.4	1206.2	1184.4	1165.4
57.5°	1121.7	1114.4	1094.0	1075.1
60°	1024.1	1015.4	999.4	983.3
62.5°	929.4	922.1	906.1	891.6
65°	828.9	823.1	810.0	796.9
67.5°	725.5	721.1	708.0	696.3
70°	626.4	619.1	608.9	598.7
72.5°	525.9	523.0	514.2	505.5
75°	429.8	426.8	418.1	410.8
77.5°	339.4	336.5	329.2	321.9
80°	250.6	249.1	243.3	237.5
82.5°	171.9	170.4	166.1	160.2
85°	103.4	100.5	96.1	91.8
87.5°	45.2	43.7	39.3	36.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)