

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: P709179

Luminaire Tested: **4APN-20-22L850-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709179  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-20-22L850-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

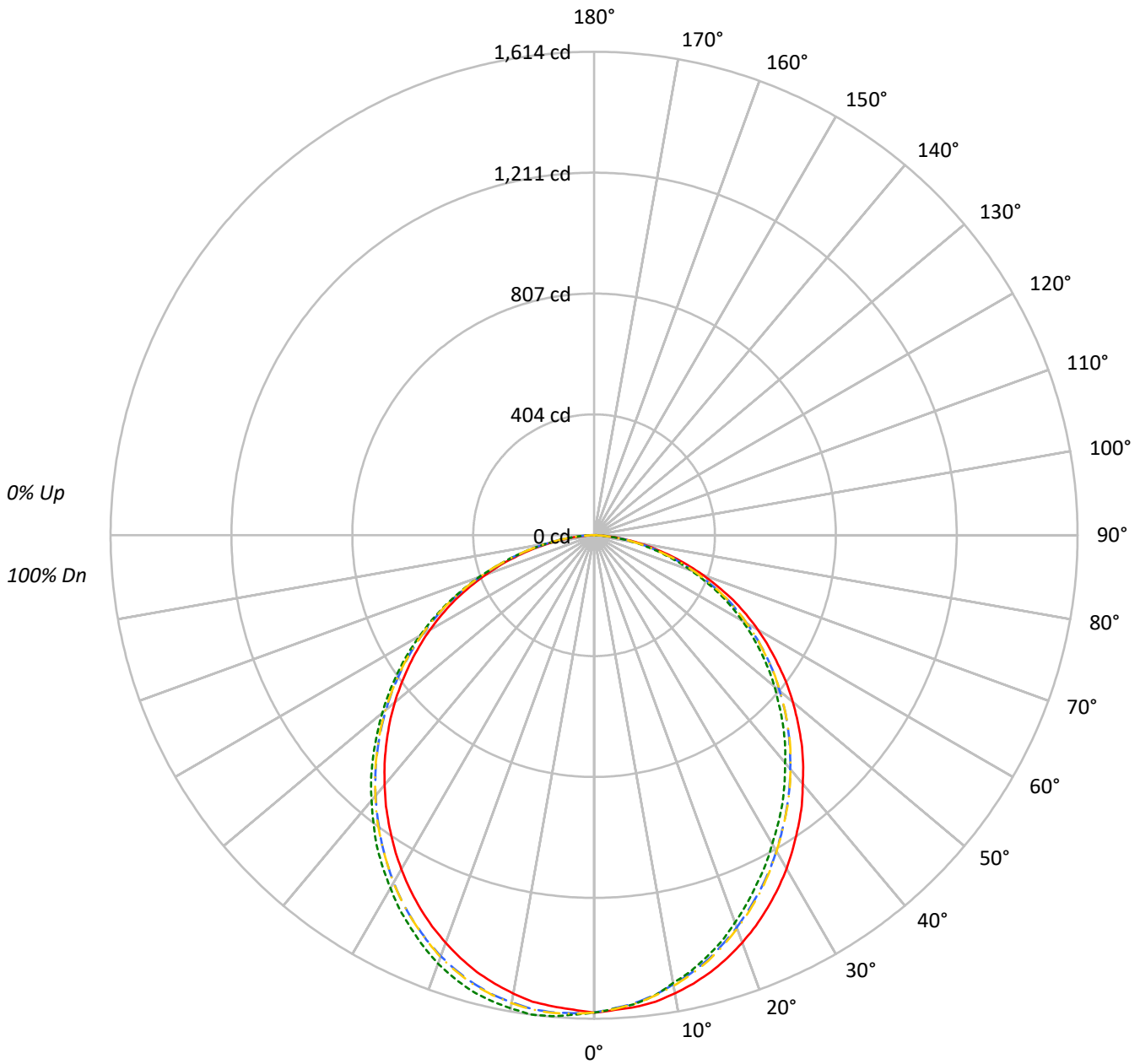
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4213.3 lumens  
Efficiency: N/A  
Efficacy: 87.8 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): 48  
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				
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°	14706	14706	14706	14706
5°	14640	14545	14623	14927
10°	14547	14222	14556	15021
15°	14411	13910	14420	15046
20°	14207	13508	14216	14942
25°	13959	13082	13987	14730
30°	13691	12673	13710	14488
35°	13377	12344	13409	14252
40°	13053	11949	13099	13922
45°	12774	11626	12786	13604
50°	12440	11285	12467	13245
55°	12045	10916	12090	12872
60°	11658	10534	11675	12400
65°	11177	10073	11177	11850
70°	10378	9317	10351	11009
75°	9407	8441	9343	9910
80°	8108	7258	7959	8501
85°	6246	5547	6045	6838



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	150.5	3.6
10°-20°	426.2	10.1
20°-30°	631.0	15.0
30°-40°	740.3	17.6
40°-50°	750.3	17.8
50°-60°	665.9	15.8
60°-70°	499.9	11.9
70°-80°	277.6	6.6
80°-90°	71.7	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°	1207.7	28.7
0°-40°	1948.0	46.2
0°-60°	3364.1	79.8
0°-90°	4213.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4213.3	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1594	1594	1594	1594	1594	
5°	1581	1570	1579	1612	1581	150
15°	1509	1456	1510	1575	1509	425
25°	1371	1285	1374	1447	1371	632
35°	1188	1096	1190	1265	1188	743
45°	979	891	980	1043	979	755
55°	749	679	752	800	749	670
65°	512	461	512	543	512	505
75°	264	237	262	278	264	281
85°	59	52	57	65	59	71
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°	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9
2.5°	1586.4	1590.2	1594.8	1590.2	1582.7	1578.9	1578.9	1578.0	1580.8	1581.7	1580.8
5°	1580.8	1582.7	1583.6	1578.0	1569.6	1564.9	1563.0	1562.1	1565.8	1570.5	1565.8
7.5°	1570.5	1569.6	1568.6	1561.2	1551.8	1545.2	1542.4	1541.5	1545.2	1549.9	1546.2
10°	1552.7	1551.8	1549.0	1539.6	1527.5	1519.0	1516.2	1513.4	1516.2	1518.1	1516.2
12.5°	1533.1	1529.3	1525.6	1515.3	1502.2	1492.8	1488.2	1484.4	1488.2	1491.0	1489.1
15°	1508.7	1503.1	1496.6	1485.3	1472.2	1461.9	1456.3	1452.6	1455.4	1456.3	1456.3
17.5°	1479.7	1473.2	1466.6	1452.6	1436.7	1425.4	1418.9	1414.2	1418.0	1419.8	1419.8
20°	1447.0	1439.5	1431.1	1416.1	1399.2	1387.1	1379.6	1374.0	1374.9	1375.8	1375.8
22.5°	1411.4	1402.0	1391.7	1375.8	1358.1	1345.0	1337.5	1330.9	1330.9	1331.8	1331.8
25°	1371.2	1360.9	1350.6	1334.7	1315.9	1301.9	1292.5	1286.0	1286.0	1285.1	1286.9
27.5°	1330.0	1318.7	1308.5	1291.6	1271.9	1257.9	1248.6	1242.0	1241.1	1240.1	1242.0
30°	1285.1	1271.9	1260.7	1242.9	1224.2	1210.2	1200.8	1193.3	1191.5	1189.6	1191.5
32.5°	1237.3	1225.2	1213.0	1194.3	1175.5	1161.5	1152.1	1144.7	1143.7	1142.8	1144.7
35°	1187.7	1174.6	1163.4	1145.6	1126.9	1112.8	1102.5	1096.0	1096.0	1096.0	1096.0
37.5°	1139.0	1125.9	1113.8	1096.0	1077.3	1063.2	1052.9	1046.4	1044.5	1043.6	1044.5
40°	1083.8	1072.6	1061.4	1044.5	1025.8	1011.8	1003.3	995.8	994.0	992.1	994.9
42.5°	1033.3	1022.1	1009.9	994.0	975.3	961.2	951.9	945.3	944.4	943.4	944.4
45°	979.0	965.9	953.7	938.8	921.9	908.8	899.4	892.9	892.0	891.0	892.0
47.5°	921.9	911.6	901.3	886.3	869.5	856.4	848.0	840.5	838.6	836.7	838.6
50°	866.7	855.5	845.2	831.1	815.2	803.0	795.6	789.0	787.1	786.2	787.1
52.5°	808.7	798.4	789.0	775.0	761.9	749.7	741.3	735.7	734.7	733.8	734.7
55°	748.8	739.4	731.0	719.7	706.6	695.4	687.9	681.4	680.4	678.6	680.4
57.5°	690.7	683.2	674.8	662.6	650.5	640.2	633.6	628.0	627.1	626.1	627.1
60°	631.8	624.3	616.8	606.5	594.3	584.0	578.4	573.7	571.9	570.9	571.9
62.5°	572.8	565.3	559.7	549.4	538.2	529.7	524.1	519.4	517.6	516.6	517.6
65°	512.0	505.4	498.9	489.5	481.1	474.5	468.9	464.2	462.4	461.4	461.4
67.5°	447.4	441.8	437.1	428.7	419.3	412.8	407.1	403.4	401.5	400.6	401.5
70°	384.7	380.0	375.3	368.8	361.3	355.7	351.9	348.2	346.3	345.4	345.4
72.5°	324.8	321.0	316.3	310.7	305.1	299.5	295.8	293.0	291.1	290.1	290.1
75°	263.9	260.2	258.3	253.6	248.0	244.3	240.5	238.7	236.8	236.8	236.8
77.5°	206.8	205.0	203.1	198.4	194.7	190.9	188.1	187.2	185.3	185.3	185.3
80°	152.6	151.6	150.7	147.9	144.1	140.4	138.5	137.6	136.6	136.6	136.6
82.5°	103.0	103.0	102.0	99.2	96.4	95.5	93.6	92.7	92.7	92.7	92.7
85°	59.0	59.0	59.0	58.0	56.2	56.2	54.3	53.3	52.4	52.4	52.4
87.5°	23.4	24.3	25.3	24.3	22.5	22.5	22.5	22.5	22.5	22.5	22.5
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):**

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9
2.5°	1578.0	1579.9	1580.8	1585.5	1591.1	1594.8	1590.2	1585.5	1593.0	1601.4	1601.4
5°	1562.1	1564.0	1566.8	1572.4	1579.9	1584.6	1582.7	1578.9	1590.2	1599.5	1600.5
7.5°	1542.4	1544.3	1548.1	1553.7	1563.0	1569.6	1569.6	1570.5	1580.8	1592.0	1594.8
10°	1513.4	1518.1	1523.7	1532.1	1541.5	1549.9	1552.7	1553.7	1566.8	1578.9	1582.7
12.5°	1486.3	1491.0	1496.6	1505.9	1517.2	1526.5	1529.3	1533.1	1547.1	1561.2	1566.8
15°	1455.4	1460.1	1466.6	1476.0	1488.2	1498.4	1504.1	1509.7	1523.7	1538.7	1545.2
17.5°	1418.9	1423.6	1430.1	1441.4	1455.4	1467.6	1474.1	1480.7	1496.6	1512.5	1519.0
20°	1375.8	1382.4	1391.7	1403.0	1418.9	1432.9	1440.4	1447.9	1464.8	1480.7	1488.2
22.5°	1331.8	1339.3	1349.6	1362.7	1379.6	1394.6	1403.9	1413.3	1430.1	1446.0	1454.5
25°	1287.9	1296.3	1306.6	1320.6	1336.5	1351.5	1362.7	1374.0	1390.8	1407.7	1416.1
27.5°	1242.9	1250.4	1260.7	1274.8	1292.5	1308.5	1319.7	1331.8	1348.7	1366.5	1374.9
30°	1193.3	1201.8	1211.1	1225.2	1244.8	1262.6	1273.8	1286.9	1303.8	1321.6	1330.0
32.5°	1145.6	1153.1	1162.4	1176.5	1196.1	1214.9	1227.0	1240.1	1257.0	1274.8	1282.2
35°	1096.0	1103.5	1113.8	1127.8	1147.5	1165.3	1177.4	1190.5	1206.4	1223.3	1231.7
37.5°	1047.3	1054.8	1065.1	1079.1	1097.9	1115.6	1127.8	1140.9	1156.8	1172.7	1180.2
40°	996.8	1004.3	1012.7	1026.7	1045.5	1063.2	1074.5	1087.6	1103.5	1120.3	1127.8
42.5°	945.3	952.8	963.1	977.1	994.9	1010.8	1023.0	1035.2	1050.1	1065.1	1072.6
45°	893.8	900.4	910.7	923.8	940.6	955.6	967.8	979.9	994.0	1008.0	1015.5
47.5°	840.5	848.0	856.4	869.5	886.3	902.3	914.4	925.6	938.8	952.8	959.3
50°	789.0	795.6	804.0	816.1	832.1	847.0	857.3	868.6	880.7	893.8	899.4
52.5°	735.7	742.2	750.6	762.8	775.9	789.9	799.3	809.6	821.8	833.9	839.5
55°	681.4	686.0	693.5	704.8	718.8	731.9	741.3	751.6	761.9	772.2	778.7
57.5°	628.0	633.6	641.1	651.4	663.6	675.8	684.2	692.6	702.9	713.2	717.9
60°	573.7	578.4	584.0	593.4	605.6	615.9	624.3	632.7	641.1	650.5	655.2
62.5°	518.5	523.2	528.8	538.2	548.5	557.8	565.3	572.8	580.3	588.7	593.4
65°	463.3	468.0	473.6	480.1	488.6	497.0	504.5	512.0	517.6	523.2	527.9
67.5°	403.4	408.1	413.7	419.3	426.8	435.2	440.8	447.4	453.0	459.5	462.4
70°	347.2	351.0	356.6	361.3	367.8	373.4	378.1	383.7	387.5	393.1	397.8
72.5°	292.0	295.8	300.4	305.1	308.9	313.5	319.2	323.8	328.5	334.1	336.0
75°	238.7	240.5	244.3	248.0	251.8	255.5	258.3	262.1	265.8	269.6	272.4
77.5°	186.3	188.1	191.9	194.7	197.5	200.3	202.2	204.0	207.8	210.6	213.4
80°	136.6	138.5	141.3	144.1	146.9	149.8	149.8	149.8	154.4	158.2	159.1
82.5°	92.7	93.6	95.5	97.3	99.2	101.1	101.1	100.1	103.0	105.8	107.6
85°	53.3	54.3	56.2	56.2	57.1	57.1	57.1	57.1	59.0	61.8	63.6
87.5°	21.5	21.5	22.5	22.5	23.4	23.4	22.5	21.5	23.4	26.2	27.1
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°	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9	1593.9
2.5°	1597.7	1596.7	1599.5	1600.5	1602.3	1602.3	1603.3	1603.3	1601.4	1598.6	1599.5
5°	1598.6	1598.6	1601.4	1604.2	1608.0	1611.7	1608.9	1606.1	1604.2	1601.4	1600.5
7.5°	1593.9	1595.8	1598.6	1603.3	1608.0	1613.6	1609.8	1606.1	1601.4	1597.7	1595.8
10°	1582.7	1584.6	1589.2	1593.9	1598.6	1603.3	1599.5	1595.8	1592.0	1587.4	1585.5
12.5°	1568.6	1571.5	1577.1	1581.7	1586.4	1592.0	1587.4	1582.7	1578.0	1573.3	1570.5
15°	1548.1	1551.8	1558.3	1564.0	1570.5	1575.2	1571.5	1567.7	1562.1	1555.5	1550.9
17.5°	1521.8	1527.5	1534.0	1540.6	1546.2	1550.9	1548.1	1544.3	1537.8	1530.3	1524.7
20°	1492.8	1498.4	1504.1	1510.6	1517.2	1521.8	1518.1	1513.4	1506.9	1501.3	1495.6
22.5°	1459.1	1464.8	1471.3	1476.9	1482.5	1487.2	1482.5	1476.9	1471.3	1465.7	1460.1
25°	1420.8	1426.4	1433.9	1439.5	1443.2	1447.0	1443.2	1438.5	1432.9	1427.3	1421.7
27.5°	1380.5	1386.1	1393.6	1399.2	1403.0	1406.7	1403.0	1398.3	1392.7	1387.1	1381.5
30°	1335.6	1341.2	1348.7	1354.3	1357.1	1359.9	1356.2	1352.4	1347.8	1342.1	1336.5
32.5°	1287.9	1293.5	1299.1	1304.7	1309.4	1313.1	1309.4	1305.6	1300.0	1292.5	1286.9
35°	1237.3	1242.9	1249.5	1255.1	1260.7	1265.4	1259.8	1253.2	1248.6	1243.9	1239.2
37.5°	1184.0	1190.5	1198.0	1204.6	1206.4	1210.2	1206.4	1202.7	1198.0	1193.3	1187.7
40°	1131.6	1137.2	1143.7	1150.3	1153.1	1155.9	1152.1	1148.4	1142.8	1138.1	1132.5
42.5°	1077.3	1082.9	1088.5	1094.1	1097.9	1101.6	1097.9	1092.2	1088.5	1084.8	1080.1
45°	1021.1	1026.7	1031.4	1037.0	1039.8	1042.6	1038.9	1034.2	1030.5	1027.7	1023.0
47.5°	964.0	968.7	973.4	978.1	979.9	982.7	979.0	976.2	973.4	970.6	966.8
50°	904.1	908.8	914.4	919.1	920.0	922.8	919.1	916.3	913.5	910.7	907.9
52.5°	845.2	848.9	853.6	858.3	860.1	862.0	858.3	854.5	851.7	849.8	847.0
55°	783.4	787.1	791.8	795.6	798.4	800.2	796.5	792.7	789.9	789.0	786.2
57.5°	721.6	725.4	730.0	733.8	735.7	737.5	733.8	730.0	728.2	726.3	724.4
60°	658.9	662.6	666.4	669.2	671.1	672.0	668.3	665.5	664.5	663.6	661.7
62.5°	597.1	599.0	602.7	604.6	606.5	607.4	604.6	602.7	601.8	600.9	599.9
65°	532.6	537.2	540.0	541.9	541.9	542.8	540.0	539.1	538.2	537.2	535.4
67.5°	466.1	469.8	471.7	473.6	473.6	473.6	473.6	473.6	472.7	470.8	468.9
70°	402.5	405.3	407.1	408.1	408.1	408.1	406.2	405.3	406.2	406.2	405.3
72.5°	337.9	339.7	340.7	341.6	340.7	340.7	340.7	342.6	342.6	341.6	339.7
75°	275.2	277.0	278.0	278.9	278.0	278.0	278.0	279.8	278.9	278.9	278.0
77.5°	216.2	217.1	217.1	218.1	217.1	217.1	218.1	219.9	219.0	219.0	219.0
80°	160.0	160.0	160.0	161.0	160.0	160.0	161.0	162.9	161.9	161.9	161.9
82.5°	108.6	109.5	109.5	109.5	110.4	111.4	111.4	111.4	111.4	111.4	110.4
85°	64.6	65.5	64.6	64.6	64.6	64.6	65.5	66.5	66.5	66.5	66.5
87.5°	28.1	29.0	28.1	27.1	26.2	26.2	28.1	30.0	30.0	29.0	29.0
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: P709179  
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**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	1593.9	1593.9	1593.9	1593.9
2.5°	1603.3	1603.3	1594.8	1586.4
5°	1602.3	1600.5	1591.1	1580.8
7.5°	1596.7	1593.9	1581.7	1570.5
10°	1583.6	1579.9	1566.8	1552.7
12.5°	1567.7	1562.1	1547.1	1533.1
15°	1547.1	1540.6	1524.7	1508.7
17.5°	1520.0	1512.5	1496.6	1479.7
20°	1491.0	1482.5	1464.8	1447.0
22.5°	1455.4	1447.9	1429.2	1411.4
25°	1417.0	1408.6	1389.9	1371.2
27.5°	1375.8	1366.5	1347.8	1330.0
30°	1330.9	1321.6	1302.8	1285.1
32.5°	1283.2	1275.7	1257.0	1237.3
35°	1234.5	1225.2	1206.4	1187.7
37.5°	1183.0	1174.6	1156.8	1139.0
40°	1128.7	1120.3	1101.6	1083.8
42.5°	1075.4	1067.9	1050.1	1033.3
45°	1018.3	1010.8	994.0	979.0
47.5°	961.2	953.7	937.8	921.9
50°	903.2	895.7	880.7	866.7
52.5°	842.4	836.7	822.7	808.7
55°	781.5	775.0	760.9	748.8
57.5°	720.7	716.0	702.9	690.7
60°	658.0	652.4	642.1	631.8
62.5°	597.1	592.5	582.2	572.8
65°	532.6	528.8	520.4	512.0
67.5°	466.1	463.3	454.9	447.4
70°	402.5	397.8	391.2	384.7
72.5°	337.9	336.0	330.4	324.8
75°	276.1	274.2	268.6	263.9
77.5°	218.1	216.2	211.5	206.8
80°	161.0	160.0	156.3	152.6
82.5°	110.4	109.5	106.7	103.0
85°	66.5	64.6	61.8	59.0
87.5°	29.0	28.1	25.3	23.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)