

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: P709167

Luminaire Tested: **4APN-20-22L835-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709167  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-20-22L835-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

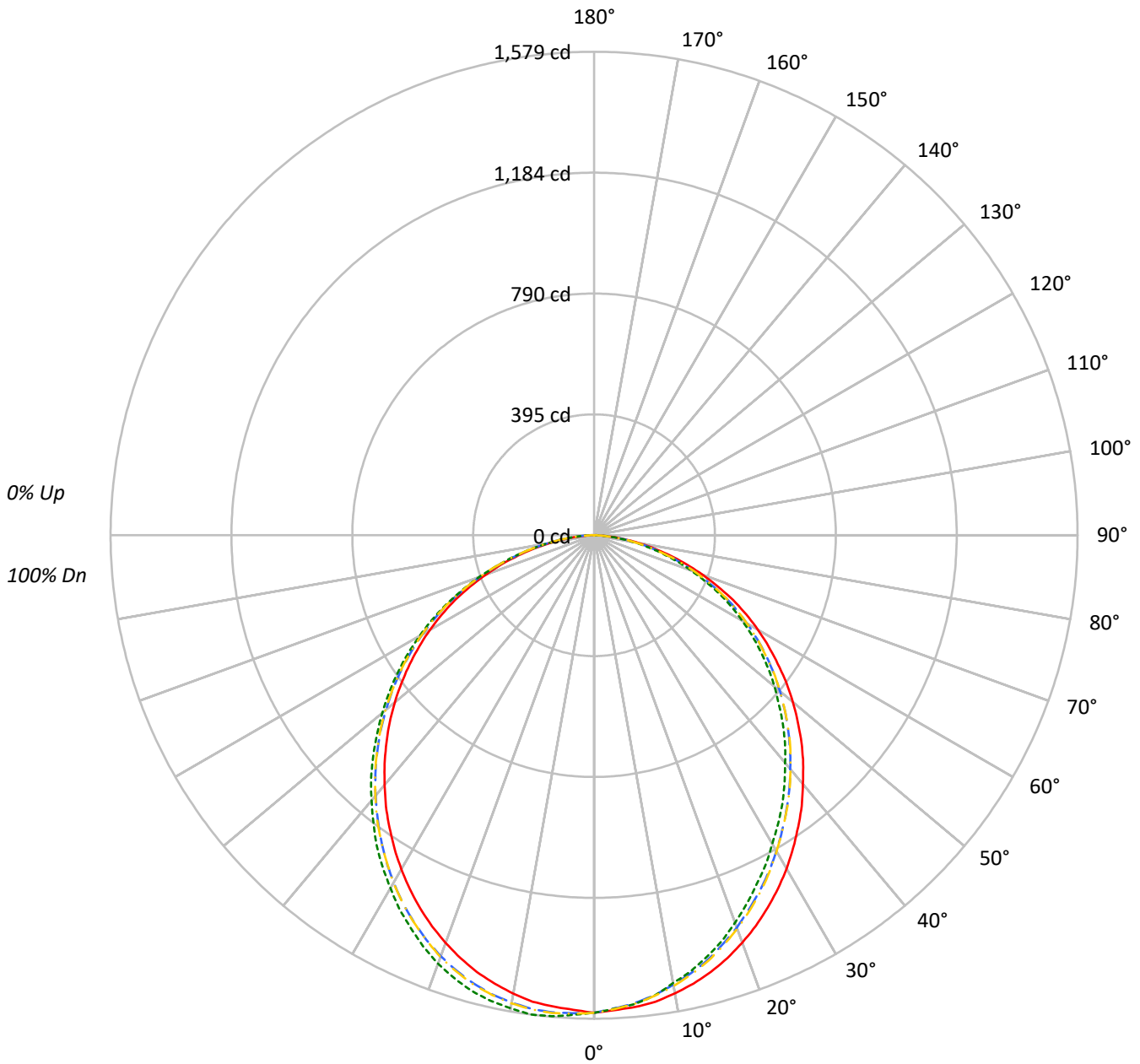
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4122.2 lumens  
Efficiency: N/A  
Efficacy: 85.9 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

TEST NUMBER: P709167  
CATALOG NUMBER: 4APN-20-22L835-UNV

### Luminous Intensity Polar Plot



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



TEST NUMBER: P709167  
 CATALOG NUMBER: 4APN-20-22L835-UNV

**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°	14388	14388	14388	14388
5°	14325	14231	14307	14604
10°	14233	13915	14241	14695
15°	14099	13610	14109	14721
20°	13900	13216	13909	14619
25°	13656	12799	13685	14412
30°	13395	12400	13414	14174
35°	13088	12077	13119	13945
40°	12771	11691	12816	13621
45°	12497	11375	12510	13310
50°	12172	11041	12198	12960
55°	11784	10679	11828	12593
60°	11405	10308	11422	12132
65°	10935	9855	10935	11594
70°	10154	9115	10127	10771
75°	9204	8259	9140	9696
80°	7933	7104	7784	8320
85°	6108	5431	5918	6690



TEST NUMBER: P709167  
 CATALOG NUMBER: 4APN-20-22L835-UNV

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	147.3	3.6
10°-20°	417.0	10.1
20°-30°	617.3	15.0
30°-40°	724.3	17.6
40°-50°	734.0	17.8
50°-60°	651.5	15.8
60°-70°	489.1	11.9
70°-80°	271.6	6.6
80°-90°	70.1	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°	1181.6	28.7
0°-40°	1905.9	46.2
0°-60°	3291.4	79.8
0°-90°	4122.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4122.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1560	1560	1560	1560	1560	
5°	1547	1537	1545	1577	1547	147
15°	1476	1425	1477	1541	1476	416
25°	1342	1257	1344	1416	1342	618
35°	1162	1072	1165	1238	1162	727
45°	958	872	959	1020	958	738
55°	733	664	735	783	733	656
65°	501	451	501	531	501	494
75°	258	232	256	272	258	275
85°	58	51	56	63	58	70
90°	0	0	0	0	0	



TEST NUMBER: P709167

CATALOG NUMBER: 4APN-20-22L835-UNV

**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5
2.5°	1552.1	1555.8	1560.4	1555.8	1548.5	1544.8	1544.8	1543.9	1546.7	1547.6	1546.7
5°	1546.7	1548.5	1549.4	1543.9	1535.7	1531.1	1529.3	1528.3	1532.0	1536.6	1532.0
7.5°	1536.6	1535.7	1534.7	1527.4	1518.3	1511.9	1509.1	1508.2	1511.9	1516.4	1512.8
10°	1519.2	1518.3	1515.5	1506.4	1494.5	1486.2	1483.5	1480.7	1483.5	1485.3	1483.5
12.5°	1499.9	1496.3	1492.6	1482.6	1469.7	1460.6	1456.0	1452.3	1456.0	1458.7	1456.9
15°	1476.1	1470.6	1464.2	1453.2	1440.4	1430.4	1424.9	1421.2	1423.9	1424.9	1424.9
17.5°	1447.8	1441.3	1434.9	1421.2	1405.6	1394.6	1388.2	1383.7	1387.3	1389.1	1389.1
20°	1415.7	1408.4	1400.1	1385.5	1369.0	1357.1	1349.8	1344.3	1345.2	1346.1	1346.1
22.5°	1380.9	1371.7	1361.7	1346.1	1328.7	1315.9	1308.6	1302.2	1302.2	1303.1	1303.1
25°	1341.5	1331.5	1321.4	1305.8	1287.5	1273.8	1264.6	1258.2	1258.2	1257.3	1259.1
27.5°	1301.2	1290.2	1280.2	1263.7	1244.5	1230.7	1221.6	1215.2	1214.2	1213.3	1215.2
30°	1257.3	1244.5	1233.5	1216.1	1197.8	1184.0	1174.9	1167.5	1165.7	1163.9	1165.7
32.5°	1210.6	1198.7	1186.8	1168.5	1150.1	1136.4	1127.3	1119.9	1119.0	1118.1	1119.9
35°	1162.0	1149.2	1138.2	1120.8	1102.5	1088.8	1078.7	1072.3	1072.3	1072.3	1072.3
37.5°	1114.4	1101.6	1089.7	1072.3	1054.0	1040.3	1030.2	1023.8	1021.9	1021.0	1021.9
40°	1060.4	1049.4	1038.4	1021.9	1003.6	989.9	981.7	974.3	972.5	970.7	973.4
42.5°	1011.0	1000.0	988.1	972.5	954.2	940.4	931.3	924.9	924.0	923.0	924.0
45°	957.8	945.0	933.1	918.5	902.0	889.2	880.0	873.6	872.7	871.8	872.7
47.5°	902.0	891.9	881.8	867.2	850.7	837.9	829.6	822.3	820.5	818.7	820.5
50°	848.0	837.0	826.9	813.2	797.6	785.7	778.4	772.0	770.1	769.2	770.1
52.5°	791.2	781.1	772.0	758.2	745.4	733.5	725.2	719.8	718.8	717.9	718.8
55°	732.6	723.4	715.2	704.2	691.4	680.4	673.1	666.6	665.7	663.9	665.7
57.5°	675.8	668.5	660.2	648.3	636.4	626.4	619.9	614.4	613.5	612.6	613.5
60°	618.1	610.8	603.5	593.4	581.5	571.4	565.9	561.3	559.5	558.6	559.5
62.5°	560.4	553.1	547.6	537.5	526.5	518.3	512.8	508.2	506.4	505.5	506.4
65°	500.9	494.5	488.1	478.9	470.7	464.3	458.8	454.2	452.4	451.4	451.4
67.5°	437.7	432.2	427.6	419.4	410.2	403.8	398.3	394.7	392.8	391.9	392.8
70°	376.4	371.8	367.2	360.8	353.5	348.0	344.3	340.6	338.8	337.9	337.9
72.5°	317.8	314.1	309.5	304.0	298.5	293.0	289.4	286.6	284.8	283.9	283.9
75°	258.2	254.6	252.7	248.2	242.7	239.0	235.3	233.5	231.7	231.7	231.7
77.5°	202.4	200.5	198.7	194.1	190.5	186.8	184.1	183.1	181.3	181.3	181.3
80°	149.3	148.3	147.4	144.7	141.0	137.4	135.5	134.6	133.7	133.7	133.7
82.5°	100.7	100.7	99.8	97.1	94.3	93.4	91.6	90.7	90.7	90.7	90.7
85°	57.7	57.7	57.7	56.8	54.9	54.9	53.1	52.2	51.3	51.3	51.3
87.5°	22.9	23.8	24.7	23.8	22.0	22.0	22.0	22.0	22.0	22.0	22.0
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: P709167

CATALOG NUMBER: 4APN-20-22L835-UNV

**CANDELA DISTRIBUTION (continued):**

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5
2.5°	1543.9	1545.7	1546.7	1551.2	1556.7	1560.4	1555.8	1551.2	1558.6	1566.8	1566.8
5°	1528.3	1530.2	1532.9	1538.4	1545.7	1550.3	1548.5	1544.8	1555.8	1565.0	1565.9
7.5°	1509.1	1510.9	1514.6	1520.1	1529.3	1535.7	1535.7	1536.6	1546.7	1557.6	1560.4
10°	1480.7	1485.3	1490.8	1499.0	1508.2	1516.4	1519.2	1520.1	1532.9	1544.8	1548.5
12.5°	1454.2	1458.7	1464.2	1473.4	1484.4	1493.5	1496.3	1499.9	1513.7	1527.4	1532.9
15°	1423.9	1428.5	1434.9	1444.1	1456.0	1466.1	1471.6	1477.1	1490.8	1505.4	1511.9
17.5°	1388.2	1392.8	1399.2	1410.2	1423.9	1435.8	1442.3	1448.7	1464.2	1479.8	1486.2
20°	1346.1	1352.5	1361.7	1372.7	1388.2	1402.0	1409.3	1416.6	1433.1	1448.7	1456.0
22.5°	1303.1	1310.4	1320.5	1333.3	1349.8	1364.4	1373.6	1382.7	1399.2	1414.8	1423.0
25°	1260.0	1268.3	1278.3	1292.1	1307.6	1322.3	1333.3	1344.3	1360.8	1377.2	1385.5
27.5°	1216.1	1223.4	1233.5	1247.2	1264.6	1280.2	1291.2	1303.1	1319.6	1337.0	1345.2
30°	1167.5	1175.8	1184.9	1198.7	1217.9	1235.3	1246.3	1259.1	1275.6	1293.0	1301.2
32.5°	1120.8	1128.2	1137.3	1151.1	1170.3	1188.6	1200.5	1213.3	1229.8	1247.2	1254.5
35°	1072.3	1079.6	1089.7	1103.4	1122.7	1140.1	1152.0	1164.8	1180.4	1196.8	1205.1
37.5°	1024.7	1032.0	1042.1	1055.8	1074.1	1091.5	1103.4	1116.3	1131.8	1147.4	1154.7
40°	975.2	982.6	990.8	1004.5	1022.9	1040.3	1051.2	1064.1	1079.6	1096.1	1103.4
42.5°	924.9	932.2	942.3	956.0	973.4	989.0	1000.9	1012.8	1027.4	1042.1	1049.4
45°	874.5	880.9	891.0	903.8	920.3	934.9	946.9	958.8	972.5	986.2	993.6
47.5°	822.3	829.6	837.9	850.7	867.2	882.8	894.7	905.6	918.5	932.2	938.6
50°	772.0	778.4	786.6	798.5	814.1	828.7	838.8	849.8	861.7	874.5	880.0
52.5°	719.8	726.2	734.4	746.3	759.1	772.9	782.0	792.1	804.0	815.9	821.4
55°	666.6	671.2	678.5	689.5	703.3	716.1	725.2	735.3	745.4	755.5	761.9
57.5°	614.4	619.9	627.3	637.3	649.2	661.1	669.4	677.6	687.7	697.8	702.4
60°	561.3	565.9	571.4	580.6	592.5	602.5	610.8	619.0	627.3	636.4	641.0
62.5°	507.3	511.9	517.4	526.5	536.6	545.8	553.1	560.4	567.7	576.0	580.6
65°	453.3	457.9	463.4	469.8	478.0	486.2	493.6	500.9	506.4	511.9	516.5
67.5°	394.7	399.3	404.7	410.2	417.6	425.8	431.3	437.7	443.2	449.6	452.4
70°	339.7	343.4	348.9	353.5	359.9	365.4	370.0	375.4	379.1	384.6	389.2
72.5°	285.7	289.4	293.9	298.5	302.2	306.8	312.3	316.8	321.4	326.9	328.7
75°	233.5	235.3	239.0	242.7	246.3	250.0	252.7	256.4	260.1	263.7	266.5
77.5°	182.2	184.1	187.7	190.5	193.2	196.0	197.8	199.6	203.3	206.0	208.8
80°	133.7	135.5	138.3	141.0	143.8	146.5	146.5	146.5	151.1	154.8	155.7
82.5°	90.7	91.6	93.4	95.2	97.1	98.9	98.9	98.0	100.7	103.5	105.3
85°	52.2	53.1	54.9	54.9	55.9	55.9	55.9	55.9	57.7	60.4	62.3
87.5°	21.1	21.1	22.0	22.0	22.9	22.9	22.0	21.1	22.9	25.6	26.6
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: P709167

CATALOG NUMBER: 4APN-20-22L835-UNV

**CANDELA DISTRIBUTION (continued):**

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5	1559.5
2.5°	1563.1	1562.2	1565.0	1565.9	1567.7	1567.7	1568.6	1568.6	1566.8	1564.0	1565.0
5°	1564.0	1564.0	1566.8	1569.5	1573.2	1576.9	1574.1	1571.4	1569.5	1566.8	1565.9
7.5°	1559.5	1561.3	1564.0	1568.6	1573.2	1578.7	1575.0	1571.4	1566.8	1563.1	1561.3
10°	1548.5	1550.3	1554.9	1559.5	1564.0	1568.6	1565.0	1561.3	1557.6	1553.1	1551.2
12.5°	1534.7	1537.5	1543.0	1547.6	1552.1	1557.6	1553.1	1548.5	1543.9	1539.3	1536.6
15°	1514.6	1518.3	1524.7	1530.2	1536.6	1541.2	1537.5	1533.8	1528.3	1521.9	1517.3
17.5°	1489.0	1494.5	1500.9	1507.3	1512.8	1517.3	1514.6	1510.9	1504.5	1497.2	1491.7
20°	1460.6	1466.1	1471.6	1478.0	1484.4	1489.0	1485.3	1480.7	1474.3	1468.8	1463.3
22.5°	1427.6	1433.1	1439.5	1445.0	1450.5	1455.1	1450.5	1445.0	1439.5	1434.0	1428.5
25°	1390.1	1395.6	1402.9	1408.4	1412.0	1415.7	1412.0	1407.5	1402.0	1396.5	1391.0
27.5°	1350.7	1356.2	1363.5	1369.0	1372.7	1376.3	1372.7	1368.1	1362.6	1357.1	1351.6
30°	1306.7	1312.2	1319.6	1325.0	1327.8	1330.5	1326.9	1323.2	1318.6	1313.1	1307.6
32.5°	1260.0	1265.5	1271.0	1276.5	1281.1	1284.8	1281.1	1277.4	1271.9	1264.6	1259.1
35°	1210.6	1216.1	1222.5	1228.0	1233.5	1238.1	1232.6	1226.1	1221.6	1217.0	1212.4
37.5°	1158.4	1164.8	1172.1	1178.5	1180.4	1184.0	1180.4	1176.7	1172.1	1167.5	1162.0
40°	1107.1	1112.6	1119.0	1125.4	1128.2	1130.9	1127.3	1123.6	1118.1	1113.5	1108.0
42.5°	1054.0	1059.5	1065.0	1070.5	1074.1	1077.8	1074.1	1068.6	1065.0	1061.3	1056.7
45°	999.1	1004.5	1009.1	1014.6	1017.4	1020.1	1016.4	1011.9	1008.2	1005.5	1000.9
47.5°	943.2	947.8	952.3	956.9	958.8	961.5	957.8	955.1	952.3	949.6	945.9
50°	884.6	889.2	894.7	899.2	900.2	902.9	899.2	896.5	893.7	891.0	888.2
52.5°	826.9	830.6	835.1	839.7	841.5	843.4	839.7	836.1	833.3	831.5	828.7
55°	766.5	770.1	774.7	778.4	781.1	782.9	779.3	775.6	772.9	772.0	769.2
57.5°	706.0	709.7	714.3	717.9	719.8	721.6	717.9	714.3	712.4	710.6	708.8
60°	644.7	648.3	652.0	654.7	656.6	657.5	653.8	651.1	650.2	649.2	647.4
62.5°	584.2	586.1	589.7	591.6	593.4	594.3	591.6	589.7	588.8	587.9	587.0
65°	521.0	525.6	528.4	530.2	530.2	531.1	528.4	527.5	526.5	525.6	523.8
67.5°	456.0	459.7	461.5	463.4	463.4	463.4	463.4	463.4	462.4	460.6	458.8
70°	393.8	396.5	398.3	399.3	399.3	399.3	397.4	396.5	397.4	397.4	396.5
72.5°	330.6	332.4	333.3	334.2	333.3	333.3	333.3	335.2	335.2	334.2	332.4
75°	269.2	271.1	272.0	272.9	272.0	272.0	272.0	273.8	272.9	272.9	272.0
77.5°	211.5	212.4	212.4	213.4	212.4	212.4	213.4	215.2	214.3	214.3	214.3
80°	156.6	156.6	156.6	157.5	156.6	156.6	157.5	159.3	158.4	158.4	158.4
82.5°	106.2	107.1	107.1	107.1	108.1	109.0	109.0	109.0	109.0	109.0	108.1
85°	63.2	64.1	63.2	63.2	63.2	63.2	64.1	65.0	65.0	65.0	65.0
87.5°	27.5	28.4	27.5	26.6	25.6	25.6	27.5	29.3	29.3	28.4	28.4
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: P709167  
 CATALOG NUMBER: 4APN-20-22L835-UNV

**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	1559.5	1559.5	1559.5	1559.5
2.5°	1568.6	1568.6	1560.4	1552.1
5°	1567.7	1565.9	1556.7	1546.7
7.5°	1562.2	1559.5	1547.6	1536.6
10°	1549.4	1545.7	1532.9	1519.2
12.5°	1533.8	1528.3	1513.7	1499.9
15°	1513.7	1507.3	1491.7	1476.1
17.5°	1487.1	1479.8	1464.2	1447.8
20°	1458.7	1450.5	1433.1	1415.7
22.5°	1423.9	1416.6	1398.3	1380.9
25°	1386.4	1378.2	1359.8	1341.5
27.5°	1346.1	1337.0	1318.6	1301.2
30°	1302.2	1293.0	1274.7	1257.3
32.5°	1255.5	1248.1	1229.8	1210.6
35°	1207.8	1198.7	1180.4	1162.0
37.5°	1157.5	1149.2	1131.8	1114.4
40°	1104.4	1096.1	1077.8	1060.4
42.5°	1052.2	1044.8	1027.4	1011.0
45°	996.3	989.0	972.5	957.8
47.5°	940.4	933.1	917.6	902.0
50°	883.7	876.3	861.7	848.0
52.5°	824.1	818.7	804.9	791.2
55°	764.6	758.2	744.5	732.6
57.5°	705.1	700.5	687.7	675.8
60°	643.8	638.3	628.2	618.1
62.5°	584.2	579.7	569.6	560.4
65°	521.0	517.4	509.1	500.9
67.5°	456.0	453.3	445.0	437.7
70°	393.8	389.2	382.8	376.4
72.5°	330.6	328.7	323.2	317.8
75°	270.1	268.3	262.8	258.2
77.5°	213.4	211.5	207.0	202.4
80°	157.5	156.6	152.9	149.3
82.5°	108.1	107.1	104.4	100.7
85°	65.0	63.2	60.4	57.7
87.5°	28.4	27.5	24.7	22.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)