

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: P709108

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

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709108  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-39L830-X-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

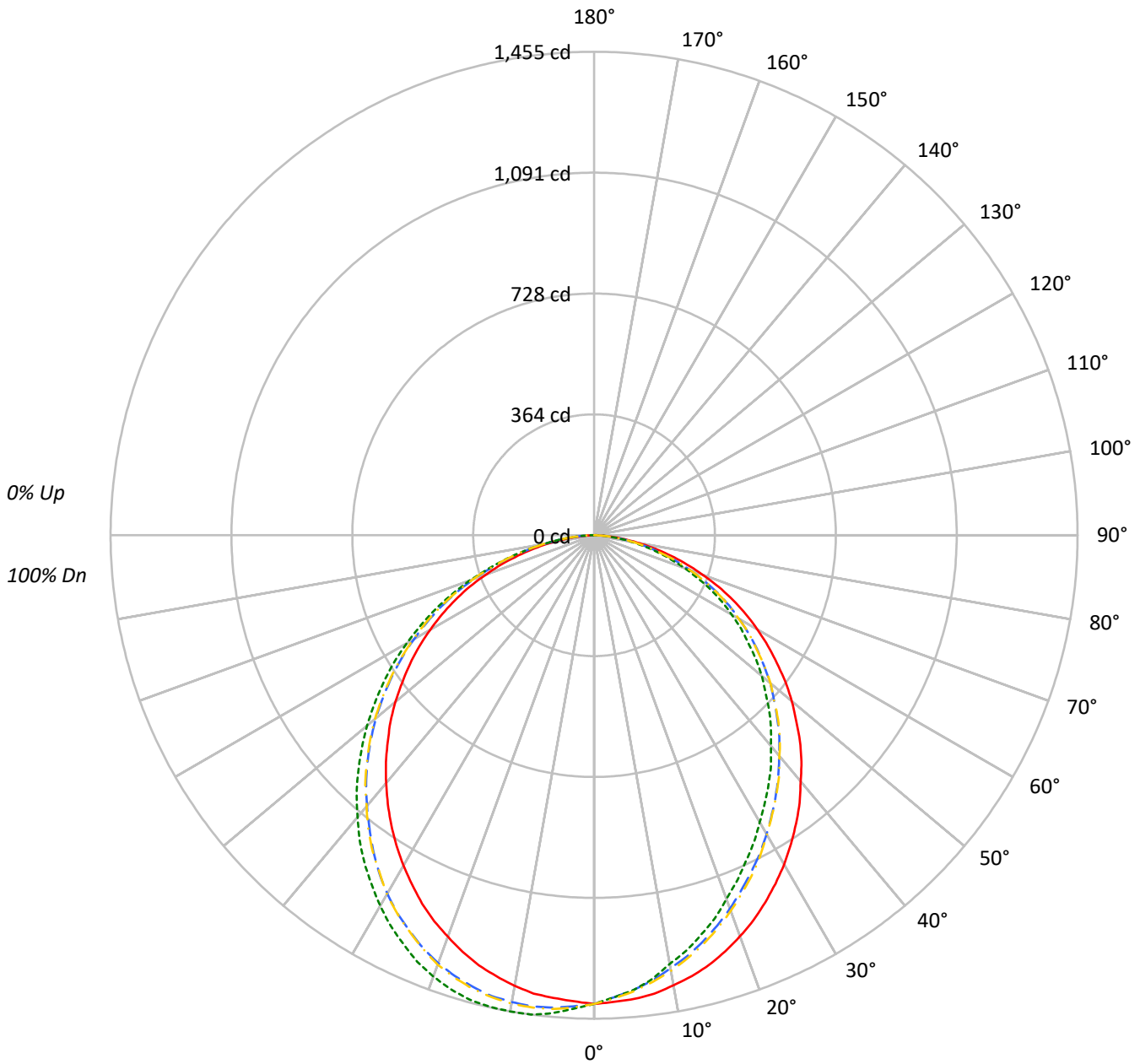
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3782.5 lumens  
Efficiency: N/A  
Efficacy: 82.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.33  
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 45.8  
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	100	100	100	100
1	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	84	84	84	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	70	70	70	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	59	59	59	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	51	51	51	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44	44	44	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	38	38	38	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	34	34	34	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30	30	30	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	27	27	27	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25	25	25	25

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	13013	13013	13013	13013
5°	12973	12722	12944	13373
10°	12885	12272	12900	13631
15°	12786	11886	12801	13822
20°	12610	11435	12625	13879
25°	12408	11012	12457	13821
30°	12187	10624	12221	13716
35°	11932	10315	11986	13568
40°	11644	9972	11721	13335
45°	11429	9722	11449	13093
50°	11153	9457	11199	12802
55°	10805	9111	10882	12447
60°	10481	8831	10510	12011
65°	10066	8464	10066	11494
70°	9382	7834	9339	10717
75°	8530	7108	8416	9611
80°	7375	6105	7120	8225
85°	5738	4563	5409	6754



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	133.3	3.5
10°-20°	378.2	10.0
20°-30°	562.3	14.9
30°-40°	662.7	17.5
40°-50°	674.8	17.8
50°-60°	601.1	15.9
60°-70°	452.9	12.0
70°-80°	251.9	6.7
80°-90°	65.4	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°	1073.7	28.4
0°-40°	1736.5	45.9
0°-60°	3012.4	79.6
0°-90°	3782.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3782.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1410	1410	1410	1410	1410	
5°	1401	1374	1398	1444	1401	133
15°	1339	1244	1340	1447	1339	377
25°	1219	1082	1224	1358	1219	562
35°	1059	916	1064	1205	1059	663
45°	876	745	878	1004	876	675
55°	672	566	676	774	672	602
65°	461	388	461	526	461	455
75°	239	199	236	270	239	254
85°	54	43	51	64	54	65
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°	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4
2.5°	1405.6	1405.6	1407.2	1400.8	1392.8	1389.6	1388.0	1386.4	1389.6	1391.2	1389.6
5°	1400.8	1397.6	1394.4	1386.4	1376.9	1370.5	1367.3	1365.7	1368.9	1373.7	1368.9
7.5°	1391.2	1384.8	1378.5	1367.3	1356.1	1346.6	1341.8	1338.6	1341.8	1346.6	1343.4
10°	1375.3	1367.3	1357.7	1345.0	1329.0	1317.8	1313.1	1308.3	1309.9	1309.9	1309.9
12.5°	1359.3	1348.2	1337.0	1321.0	1303.5	1290.7	1282.7	1276.4	1279.5	1281.1	1281.1
15°	1338.6	1324.2	1308.3	1290.7	1273.2	1258.8	1249.2	1242.9	1244.4	1244.4	1246.0
17.5°	1313.1	1297.1	1281.1	1260.4	1239.7	1223.7	1212.5	1204.6	1207.8	1209.3	1210.9
20°	1284.3	1266.8	1249.2	1226.9	1204.6	1187.0	1175.8	1166.3	1164.7	1164.7	1166.3
22.5°	1254.0	1234.9	1214.1	1190.2	1166.3	1147.1	1136.0	1126.4	1124.8	1124.8	1126.4
25°	1218.9	1198.2	1177.4	1153.5	1128.0	1108.8	1094.5	1084.9	1083.3	1081.7	1084.9
27.5°	1182.2	1161.5	1140.7	1116.8	1089.7	1070.5	1056.2	1046.6	1043.4	1041.8	1045.0
30°	1143.9	1120.0	1097.7	1072.1	1048.2	1029.1	1014.7	1003.5	1000.3	997.2	1000.3
32.5°	1102.5	1078.5	1054.6	1029.1	1005.1	986.0	971.6	960.5	957.3	955.7	958.9
35°	1059.4	1035.4	1013.1	987.6	963.6	944.5	930.1	920.6	917.4	915.8	917.4
37.5°	1016.3	992.4	970.0	944.5	920.6	901.4	887.1	877.5	875.9	874.3	875.9
40°	966.8	946.1	923.8	899.8	875.9	856.8	845.6	834.4	831.2	828.0	832.8
42.5°	923.8	903.0	880.7	858.3	834.4	815.3	802.5	792.9	789.7	788.1	789.7
45°	875.9	853.6	831.2	810.5	788.1	770.6	757.8	748.3	746.7	745.1	746.7
47.5°	824.8	805.7	786.6	765.8	743.5	725.9	714.8	705.2	702.0	698.8	702.0
50°	777.0	757.8	738.7	719.5	698.8	682.9	671.7	662.1	660.5	658.9	660.5
52.5°	725.9	706.8	689.2	670.1	652.5	636.6	625.4	617.4	615.8	614.2	615.8
55°	671.7	655.7	639.8	623.8	606.3	591.9	582.3	572.8	569.6	566.4	569.6
57.5°	620.6	606.3	590.3	574.4	558.4	545.6	536.1	528.1	526.5	524.9	526.5
60°	568.0	555.2	540.9	526.5	510.5	497.8	489.8	483.4	480.2	478.6	480.2
62.5°	515.3	502.6	491.4	477.0	462.7	453.1	445.1	438.7	435.6	434.0	435.6
65°	461.1	449.9	438.7	426.0	414.8	405.2	397.3	390.9	389.3	387.7	387.7
67.5°	405.2	395.7	386.1	374.9	362.2	352.6	344.6	339.8	338.2	336.6	338.2
70°	347.8	339.8	330.3	320.7	311.1	303.1	298.3	293.6	292.0	290.4	290.4
72.5°	293.6	287.2	279.2	271.2	263.2	255.3	250.5	247.3	245.7	244.1	244.1
75°	239.3	232.9	228.1	221.8	213.8	209.0	204.2	201.0	199.4	199.4	199.4
77.5°	188.3	183.5	178.7	172.3	167.5	162.7	159.5	157.9	156.4	156.4	156.4
80°	138.8	135.6	132.4	129.2	124.4	119.7	118.1	116.5	114.9	114.9	114.9
82.5°	94.1	92.5	89.3	86.2	83.0	81.4	79.8	78.2	78.2	78.2	78.2
85°	54.2	52.6	51.1	49.5	47.9	47.9	46.3	44.7	43.1	43.1	43.1
87.5°	22.3	22.3	22.3	20.7	19.1	19.1	19.1	19.1	19.1	19.1	19.1
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):**

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4
2.5°	1386.4	1389.6	1392.8	1397.6	1402.4	1407.2	1405.6	1404.0	1410.4	1418.4	1419.9
5°	1365.7	1368.9	1373.7	1381.7	1389.6	1396.0	1397.6	1397.6	1410.4	1421.5	1424.7
7.5°	1340.2	1345.0	1351.3	1359.3	1370.5	1380.1	1384.8	1391.2	1404.0	1418.4	1424.7
10°	1308.3	1316.2	1325.8	1337.0	1348.2	1359.3	1368.9	1376.9	1392.8	1408.8	1418.4
12.5°	1279.5	1287.5	1297.1	1309.9	1324.2	1338.6	1348.2	1359.3	1378.5	1397.6	1408.8
15°	1247.6	1255.6	1266.8	1279.5	1295.5	1311.5	1325.8	1340.2	1359.3	1380.1	1392.8
17.5°	1212.5	1220.5	1231.7	1247.6	1265.2	1282.7	1298.7	1314.6	1337.0	1359.3	1373.7
20°	1169.5	1180.6	1195.0	1210.9	1231.7	1252.4	1268.4	1285.9	1309.9	1333.8	1349.7
22.5°	1128.0	1139.1	1155.1	1174.2	1196.6	1218.9	1238.1	1257.2	1282.7	1306.7	1324.2
25°	1088.1	1100.9	1116.8	1136.0	1156.7	1179.0	1201.4	1223.7	1249.2	1274.8	1292.3
27.5°	1048.2	1059.4	1075.3	1094.5	1118.4	1140.7	1163.1	1185.4	1212.5	1239.7	1258.8
30°	1003.5	1016.3	1030.7	1049.8	1075.3	1100.9	1123.2	1147.1	1174.2	1201.4	1220.5
32.5°	962.1	973.2	987.6	1006.7	1032.3	1057.8	1081.7	1107.2	1132.8	1159.9	1179.0
35°	920.6	931.7	946.1	965.2	990.8	1016.3	1040.2	1064.2	1089.7	1115.2	1134.4
37.5°	879.1	890.3	904.6	923.8	947.7	973.2	995.6	1019.5	1045.0	1070.5	1088.1
40°	836.0	847.2	858.3	877.5	901.4	927.0	949.3	973.2	998.7	1024.3	1041.8
42.5°	792.9	804.1	818.5	837.6	859.9	882.3	904.6	927.0	950.9	974.8	992.4
45°	749.9	759.4	773.8	791.3	813.7	834.4	856.8	877.5	901.4	923.8	941.3
47.5°	705.2	714.8	725.9	743.5	765.8	788.1	810.5	831.2	852.0	874.3	890.3
50°	662.1	671.7	684.4	700.4	721.1	741.9	761.0	780.2	800.9	821.7	836.0
52.5°	617.4	627.0	638.2	654.1	671.7	690.8	708.4	727.5	746.7	765.8	780.2
55°	572.8	579.1	588.7	603.1	622.2	641.4	658.9	676.5	694.0	710.0	724.3
57.5°	528.1	536.1	547.2	560.0	576.0	591.9	607.9	623.8	639.8	655.7	668.5
60°	483.4	489.8	497.8	508.9	524.9	539.3	555.2	569.6	583.9	598.3	609.5
62.5°	437.2	443.5	451.5	462.7	475.4	488.2	502.6	515.3	528.1	540.9	552.0
65°	389.3	395.7	403.6	413.2	424.4	435.6	448.3	461.1	470.7	480.2	491.4
67.5°	339.8	346.2	354.2	362.2	371.7	382.9	394.1	405.2	414.8	424.4	432.4
70°	292.0	296.8	304.7	311.1	319.1	327.1	336.6	346.2	352.6	360.6	370.1
72.5°	245.7	250.5	256.9	263.2	268.0	274.4	284.0	292.0	299.9	309.5	314.3
75°	201.0	204.2	209.0	213.8	218.6	223.4	229.7	236.1	242.5	247.3	253.7
77.5°	156.4	159.5	164.3	167.5	170.7	173.9	178.7	183.5	188.3	191.5	197.8
80°	114.9	118.1	121.3	124.4	127.6	130.8	132.4	134.0	140.4	145.2	148.4
82.5°	78.2	79.8	81.4	84.6	86.2	87.7	89.3	89.3	92.5	95.7	100.5
85°	44.7	46.3	47.9	47.9	47.9	47.9	49.5	51.1	52.6	55.8	59.0
87.5°	17.5	17.5	19.1	19.1	19.1	19.1	19.1	19.1	20.7	23.9	25.5
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°	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4	1410.4
2.5°	1418.4	1419.9	1423.1	1424.7	1426.3	1426.3	1427.9	1429.5	1426.3	1423.1	1421.5
5°	1426.3	1427.9	1432.7	1437.5	1440.7	1443.9	1442.3	1440.7	1437.5	1432.7	1429.5
7.5°	1427.9	1432.7	1437.5	1443.9	1448.7	1455.0	1451.9	1448.7	1442.3	1435.9	1431.1
10°	1423.1	1429.5	1437.5	1445.5	1450.3	1455.0	1451.9	1448.7	1442.3	1434.3	1427.9
12.5°	1416.8	1424.7	1434.3	1442.3	1447.1	1453.5	1448.7	1443.9	1435.9	1427.9	1419.9
15°	1402.4	1412.0	1423.1	1432.7	1440.7	1447.1	1442.3	1439.1	1429.5	1418.4	1407.2
17.5°	1384.8	1397.6	1408.8	1419.9	1426.3	1432.7	1429.5	1426.3	1415.2	1402.4	1389.6
20°	1364.1	1376.9	1388.0	1399.2	1407.2	1413.6	1408.8	1404.0	1392.8	1381.7	1368.9
22.5°	1338.6	1351.3	1364.1	1375.3	1383.3	1389.6	1383.3	1375.3	1364.1	1352.9	1340.2
25°	1306.7	1321.0	1335.4	1346.6	1351.3	1357.7	1351.3	1345.0	1333.8	1322.6	1308.3
27.5°	1274.8	1289.1	1303.5	1314.6	1319.4	1325.8	1319.4	1313.1	1301.9	1290.7	1276.4
30°	1238.1	1252.4	1266.8	1278.0	1282.7	1287.5	1281.1	1274.8	1265.2	1254.0	1239.7
32.5°	1196.6	1210.9	1222.1	1233.3	1239.7	1246.0	1239.7	1234.9	1223.7	1209.3	1195.0
35°	1151.9	1166.3	1180.6	1191.8	1198.2	1204.6	1196.6	1188.6	1179.0	1167.9	1155.1
37.5°	1102.5	1118.4	1134.4	1147.1	1151.9	1158.3	1151.9	1143.9	1134.4	1123.2	1108.8
40°	1056.2	1070.5	1084.9	1097.7	1102.5	1107.2	1100.9	1094.5	1083.3	1072.1	1057.8
42.5°	1008.3	1022.7	1035.4	1046.6	1051.4	1057.8	1051.4	1043.4	1035.4	1025.9	1013.1
45°	957.3	971.6	982.8	994.0	998.7	1003.5	997.2	989.2	981.2	973.2	960.5
47.5°	904.6	917.4	928.5	939.7	942.9	947.7	941.3	936.5	928.5	920.6	909.4
50°	850.4	863.1	874.3	883.9	887.1	891.9	885.5	879.1	872.7	866.3	856.8
52.5°	794.5	805.7	816.9	826.4	829.6	832.8	826.4	820.1	813.7	807.3	797.7
55°	737.1	748.3	759.4	767.4	770.6	773.8	767.4	762.6	756.2	751.5	741.9
57.5°	679.7	690.8	700.4	708.4	711.6	714.8	708.4	702.0	697.2	692.4	684.4
60°	620.6	631.8	639.8	646.2	649.3	650.9	644.6	639.8	636.6	633.4	625.4
62.5°	563.2	571.2	579.1	583.9	587.1	588.7	583.9	580.7	577.6	574.4	568.0
65°	502.6	512.1	518.5	523.3	524.9	526.5	521.7	518.5	515.3	512.1	507.4
67.5°	441.9	449.9	454.7	459.5	461.1	461.1	461.1	459.5	456.3	451.5	446.7
70°	381.3	387.7	392.5	395.7	397.3	397.3	394.1	390.9	390.9	389.3	386.1
72.5°	319.1	323.9	327.1	330.3	330.3	330.3	330.3	331.9	330.3	327.1	322.3
75°	260.1	264.8	268.0	269.6	269.6	269.6	269.6	271.2	269.6	268.0	264.8
77.5°	204.2	207.4	209.0	210.6	210.6	210.6	212.2	213.8	212.2	210.6	209.0
80°	151.6	153.2	154.8	156.4	154.8	154.8	156.4	159.5	157.9	156.4	154.8
82.5°	103.7	105.3	106.9	106.9	108.5	110.1	110.1	110.1	110.1	108.5	106.9
85°	62.2	63.8	63.8	63.8	63.8	63.8	65.4	67.0	67.0	65.4	65.4
87.5°	28.7	30.3	28.7	27.1	25.5	25.5	28.7	31.9	31.9	30.3	30.3
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: P709108

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

**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	1410.4	1410.4	1410.4	1410.4
2.5°	1423.1	1421.5	1413.6	1405.6
5°	1427.9	1423.1	1412.0	1400.8
7.5°	1427.9	1421.5	1405.6	1391.2
10°	1419.9	1410.4	1392.8	1375.3
12.5°	1410.4	1399.2	1378.5	1359.3
15°	1396.0	1383.3	1360.9	1338.6
17.5°	1375.3	1359.3	1337.0	1313.1
20°	1354.5	1337.0	1309.9	1284.3
22.5°	1325.8	1309.9	1281.1	1254.0
25°	1293.9	1276.4	1247.6	1218.9
27.5°	1260.4	1239.7	1210.9	1182.2
30°	1222.1	1201.4	1172.7	1143.9
32.5°	1180.6	1161.5	1132.8	1102.5
35°	1139.1	1118.4	1089.7	1059.4
37.5°	1092.9	1073.7	1045.0	1016.3
40°	1043.4	1024.3	995.6	966.8
42.5°	997.2	979.6	950.9	923.8
45°	946.1	928.5	901.4	875.9
47.5°	893.4	875.9	850.4	824.8
50°	842.4	824.8	800.9	777.0
52.5°	785.0	770.6	748.3	725.9
55°	729.1	714.8	692.4	671.7
57.5°	673.3	660.5	639.8	620.6
60°	614.2	601.5	585.5	568.0
62.5°	558.4	547.2	531.3	515.3
65°	499.4	489.8	475.4	461.1
67.5°	438.7	430.8	418.0	405.2
70°	378.1	368.5	359.0	347.8
72.5°	317.5	312.7	303.1	293.6
75°	260.1	255.3	247.3	239.3
77.5°	205.8	201.0	194.6	188.3
80°	151.6	148.4	143.6	138.8
82.5°	105.3	102.1	98.9	94.1
85°	63.8	60.6	57.4	54.2
87.5°	28.7	27.1	23.9	22.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)