

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: P709109

Luminaire Tested: **4APN-35L830-X-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709109  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-35L830-X-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

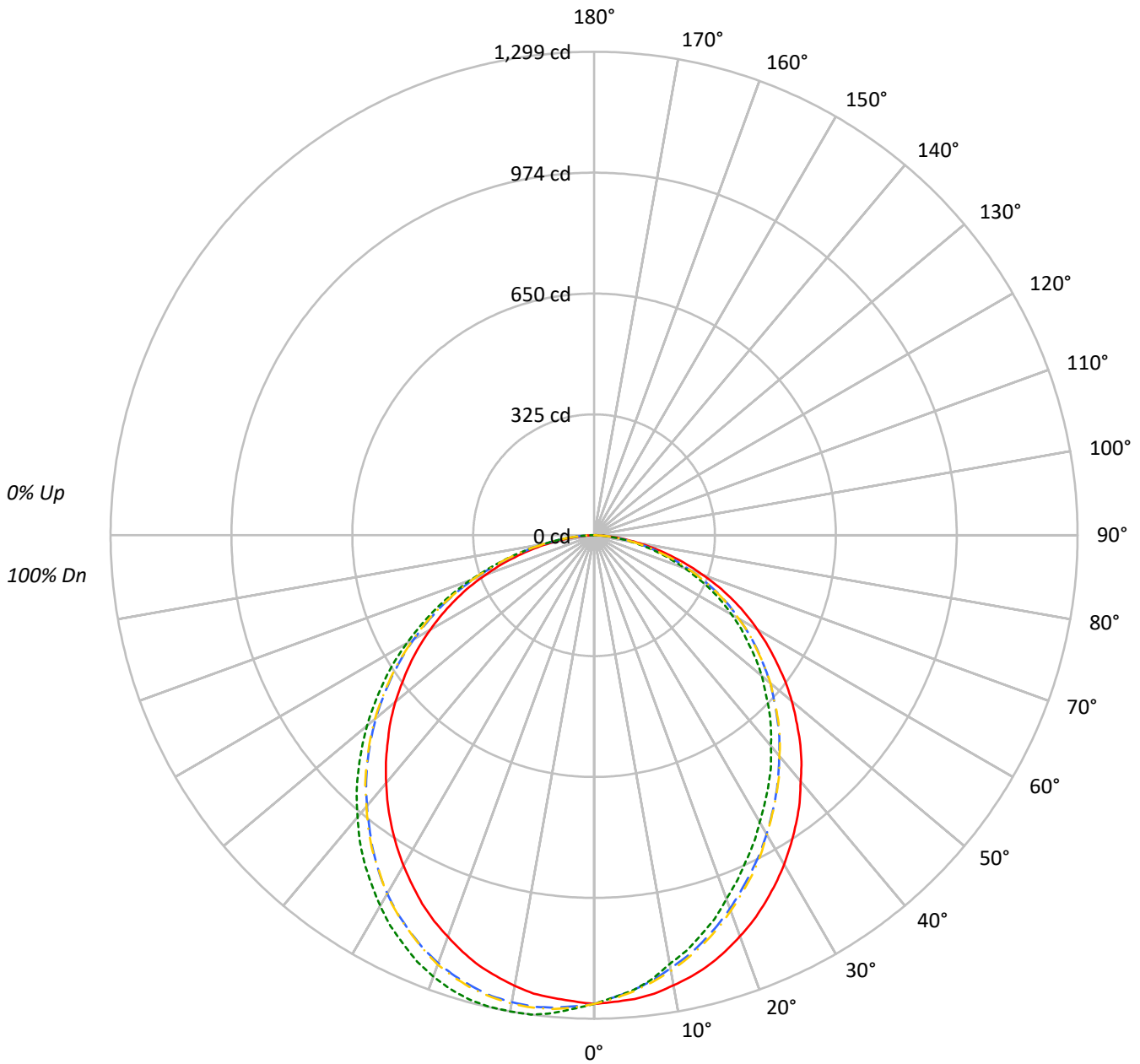
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3377.3 lumens  
Efficiency: N/A  
Efficacy: 83.6 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): 40.4  
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	94	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	72	72	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	61	61	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	53	53	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	46	46	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	41	41	41	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	36	36	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	32	32	32	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	29	29	29	27
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°	11619	11619	11619	11619
5°	11583	11359	11557	11940
10°	11504	10956	11517	12171
15°	11416	10613	11430	12341
20°	11259	10210	11273	12392
25°	11079	9832	11123	12341
30°	10881	9485	10911	12247
35°	10654	9210	10701	12113
40°	10396	8904	10465	11907
45°	10205	8679	10223	11691
50°	9957	8444	9999	11430
55°	9646	8134	9716	11113
60°	9357	7887	9383	10725
65°	8988	7558	8988	10263
70°	8376	6995	8338	9568
75°	7618	6349	7514	8580
80°	6583	5451	6360	7343
85°	5124	4076	4827	6034



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	119.0	3.5
10°-20°	337.7	10.0
20°-30°	502.0	14.9
30°-40°	591.7	17.5
40°-50°	602.5	17.8
50°-60°	536.7	15.9
60°-70°	404.4	12.0
70°-80°	224.9	6.7
80°-90°	58.4	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°	958.7	28.4
0°-40°	1550.4	45.9
0°-60°	2689.6	79.6
0°-90°	3377.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3377.3	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1259	1259	1259	1259	1259	
5°	1251	1226	1248	1289	1251	119
15°	1195	1111	1197	1292	1195	337
25°	1088	966	1093	1212	1088	501
35°	946	818	950	1076	946	592
45°	782	665	784	896	782	603
55°	600	506	604	691	600	537
65°	412	346	412	470	412	406
75°	214	178	211	241	214	227
85°	48	38	46	57	48	58
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°	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3
2.5°	1255.0	1255.0	1256.4	1250.7	1243.6	1240.7	1239.3	1237.9	1240.7	1242.2	1240.7
5°	1250.7	1247.9	1245.0	1237.9	1229.3	1223.6	1220.8	1219.4	1222.2	1226.5	1222.2
7.5°	1242.2	1236.5	1230.8	1220.8	1210.8	1202.3	1198.0	1195.2	1198.0	1202.3	1199.4
10°	1227.9	1220.8	1212.3	1200.9	1186.6	1176.6	1172.4	1168.1	1169.5	1169.5	1169.5
12.5°	1213.7	1203.7	1193.7	1179.5	1163.8	1152.4	1145.3	1139.6	1142.5	1143.9	1143.9
15°	1195.2	1182.3	1168.1	1152.4	1136.8	1123.9	1115.4	1109.7	1111.1	1111.1	1112.5
17.5°	1172.4	1158.1	1143.9	1125.4	1106.8	1092.6	1082.6	1075.5	1078.3	1079.8	1081.2
20°	1146.7	1131.1	1115.4	1095.4	1075.5	1059.8	1049.9	1041.3	1039.9	1039.9	1041.3
22.5°	1119.7	1102.6	1084.0	1062.7	1041.3	1024.2	1014.2	1005.7	1004.3	1004.3	1005.7
25°	1088.3	1069.8	1051.3	1029.9	1007.1	990.0	977.2	968.7	967.2	965.8	968.7
27.5°	1055.6	1037.0	1018.5	997.2	972.9	955.8	943.0	934.5	931.6	930.2	933.1
30°	1021.4	1000.0	980.1	957.3	935.9	918.8	906.0	896.0	893.2	890.3	893.2
32.5°	984.3	963.0	941.6	918.8	897.4	880.3	867.5	857.6	854.7	853.3	856.1
35°	945.9	924.5	904.6	881.8	860.4	843.3	830.5	821.9	819.1	817.7	819.1
37.5°	907.4	886.0	866.1	843.3	821.9	804.8	792.0	783.5	782.1	780.6	782.1
40°	863.2	844.7	824.8	803.4	782.1	765.0	755.0	745.0	742.2	739.3	743.6
42.5°	824.8	806.3	786.3	766.4	745.0	727.9	716.5	708.0	705.1	703.7	705.1
45°	782.1	762.1	742.2	723.6	703.7	688.0	676.6	668.1	666.7	665.2	666.7
47.5°	736.5	719.4	702.3	683.8	663.8	648.1	638.2	629.6	626.8	623.9	626.8
50°	693.7	676.6	659.5	642.5	623.9	609.7	599.7	591.2	589.7	588.3	589.7
52.5°	648.1	631.1	615.4	598.3	582.6	568.4	558.4	551.3	549.9	548.4	549.9
55°	599.7	585.5	571.2	557.0	541.3	528.5	519.9	511.4	508.5	505.7	508.5
57.5°	554.1	541.3	527.1	512.8	498.6	487.2	478.6	471.5	470.1	468.7	470.1
60°	507.1	495.7	482.9	470.1	455.8	444.4	437.3	431.6	428.8	427.4	428.8
62.5°	460.1	448.7	438.7	425.9	413.1	404.6	397.4	391.7	388.9	387.5	388.9
65°	411.7	401.7	391.7	380.3	370.4	361.8	354.7	349.0	347.6	346.2	346.2
67.5°	361.8	353.3	344.7	334.8	323.4	314.8	307.7	303.4	302.0	300.6	302.0
70°	310.5	303.4	294.9	286.3	277.8	270.7	266.4	262.1	260.7	259.3	259.3
72.5°	262.1	256.4	249.3	242.2	235.0	227.9	223.6	220.8	219.4	217.9	217.9
75°	213.7	208.0	203.7	198.0	190.9	186.6	182.3	179.5	178.1	178.1	178.1
77.5°	168.1	163.8	159.5	153.8	149.6	145.3	142.5	141.0	139.6	139.6	139.6
80°	123.9	121.1	118.2	115.4	111.1	106.8	105.4	104.0	102.6	102.6	102.6
82.5°	84.0	82.6	79.8	76.9	74.1	72.6	71.2	69.8	69.8	69.8	69.8
85°	48.4	47.0	45.6	44.2	42.7	42.7	41.3	39.9	38.5	38.5	38.5
87.5°	19.9	19.9	19.9	18.5	17.1	17.1	17.1	17.1	17.1	17.1	17.1
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°	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3
2.5°	1237.9	1240.7	1243.6	1247.9	1252.1	1256.4	1255.0	1253.6	1259.3	1266.4	1267.8
5°	1219.4	1222.2	1226.5	1233.6	1240.7	1246.4	1247.9	1247.9	1259.3	1269.2	1272.1
7.5°	1196.6	1200.9	1206.6	1213.7	1223.6	1232.2	1236.5	1242.2	1253.6	1266.4	1272.1
10°	1168.1	1175.2	1183.8	1193.7	1203.7	1213.7	1222.2	1229.3	1243.6	1257.8	1266.4
12.5°	1142.5	1149.6	1158.1	1169.5	1182.3	1195.2	1203.7	1213.7	1230.8	1247.9	1257.8
15°	1114.0	1121.1	1131.1	1142.5	1156.7	1170.9	1183.8	1196.6	1213.7	1232.2	1243.6
17.5°	1082.6	1089.7	1099.7	1114.0	1129.6	1145.3	1159.5	1173.8	1193.7	1213.7	1226.5
20°	1044.2	1054.1	1067.0	1081.2	1099.7	1118.2	1132.5	1148.2	1169.5	1190.9	1205.1
22.5°	1007.1	1017.1	1031.3	1048.4	1068.4	1088.3	1105.4	1122.5	1145.3	1166.7	1182.3
25°	971.5	982.9	997.2	1014.2	1032.8	1052.7	1072.7	1092.6	1115.4	1138.2	1153.8
27.5°	935.9	945.9	960.1	977.2	998.6	1018.5	1038.5	1058.4	1082.6	1106.8	1123.9
30°	896.0	907.4	920.2	937.3	960.1	982.9	1002.9	1024.2	1048.4	1072.7	1089.7
32.5°	859.0	868.9	881.8	898.9	921.7	944.4	965.8	988.6	1011.4	1035.6	1052.7
35°	821.9	831.9	844.7	861.8	884.6	907.4	928.8	950.1	972.9	995.7	1012.8
37.5°	784.9	794.9	807.7	824.8	846.2	868.9	888.9	910.3	933.1	955.8	971.5
40°	746.4	756.4	766.4	783.5	804.8	827.6	847.6	868.9	891.7	914.5	930.2
42.5°	708.0	718.0	730.8	747.9	767.8	787.8	807.7	827.6	849.0	870.4	886.0
45°	669.5	678.1	690.9	706.6	726.5	745.0	765.0	783.5	804.8	824.8	840.5
47.5°	629.6	638.2	648.1	663.8	683.8	703.7	723.6	742.2	760.7	780.6	794.9
50°	591.2	599.7	611.1	625.4	643.9	662.4	679.5	696.6	715.1	733.6	746.4
52.5°	551.3	559.8	569.8	584.0	599.7	616.8	632.5	649.6	666.7	683.8	696.6
55°	511.4	517.1	525.6	538.5	555.6	572.7	588.3	604.0	619.7	633.9	646.7
57.5°	471.5	478.6	488.6	500.0	514.2	528.5	542.7	557.0	571.2	585.5	596.9
60°	431.6	437.3	444.4	454.4	468.7	481.5	495.7	508.5	521.4	534.2	544.2
62.5°	390.3	396.0	403.1	413.1	424.5	435.9	448.7	460.1	471.5	482.9	492.9
65°	347.6	353.3	360.4	368.9	378.9	388.9	400.3	411.7	420.2	428.8	438.7
67.5°	303.4	309.1	316.2	323.4	331.9	341.9	351.9	361.8	370.4	378.9	386.0
70°	260.7	265.0	272.1	277.8	284.9	292.0	300.6	309.1	314.8	321.9	330.5
72.5°	219.4	223.6	229.3	235.0	239.3	245.0	253.6	260.7	267.8	276.4	280.6
75°	179.5	182.3	186.6	190.9	195.2	199.4	205.1	210.8	216.5	220.8	226.5
77.5°	139.6	142.5	146.7	149.6	152.4	155.3	159.5	163.8	168.1	170.9	176.6
80°	102.6	105.4	108.3	111.1	114.0	116.8	118.2	119.7	125.4	129.6	132.5
82.5°	69.8	71.2	72.6	75.5	76.9	78.3	79.8	79.8	82.6	85.5	89.7
85°	39.9	41.3	42.7	42.7	42.7	42.7	44.2	45.6	47.0	49.9	52.7
87.5°	15.7	15.7	17.1	17.1	17.1	17.1	17.1	17.1	18.5	21.4	22.8
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°	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3	1259.3
2.5°	1266.4	1267.8	1270.7	1272.1	1273.5	1273.5	1274.9	1276.4	1273.5	1270.7	1269.2
5°	1273.5	1274.9	1279.2	1283.5	1286.3	1289.2	1287.8	1286.3	1283.5	1279.2	1276.4
7.5°	1274.9	1279.2	1283.5	1289.2	1293.5	1299.1	1296.3	1293.5	1287.8	1282.1	1277.8
10°	1270.7	1276.4	1283.5	1290.6	1294.9	1299.1	1296.3	1293.5	1287.8	1280.6	1274.9
12.5°	1265.0	1272.1	1280.6	1287.8	1292.0	1297.7	1293.5	1289.2	1282.1	1274.9	1267.8
15°	1252.1	1260.7	1270.7	1279.2	1286.3	1292.0	1287.8	1284.9	1276.4	1266.4	1256.4
17.5°	1236.5	1247.9	1257.8	1267.8	1273.5	1279.2	1276.4	1273.5	1263.5	1252.1	1240.7
20°	1218.0	1229.3	1239.3	1249.3	1256.4	1262.1	1257.8	1253.6	1243.6	1233.6	1222.2
22.5°	1195.2	1206.6	1218.0	1227.9	1235.0	1240.7	1235.0	1227.9	1218.0	1208.0	1196.6
25°	1166.7	1179.5	1192.3	1202.3	1206.6	1212.3	1206.6	1200.9	1190.9	1180.9	1168.1
27.5°	1138.2	1151.0	1163.8	1173.8	1178.1	1183.8	1178.1	1172.4	1162.4	1152.4	1139.6
30°	1105.4	1118.2	1131.1	1141.0	1145.3	1149.6	1143.9	1138.2	1129.6	1119.7	1106.8
32.5°	1068.4	1081.2	1091.2	1101.1	1106.8	1112.5	1106.8	1102.6	1092.6	1079.8	1067.0
35°	1028.5	1041.3	1054.1	1064.1	1069.8	1075.5	1068.4	1061.3	1052.7	1042.7	1031.3
37.5°	984.3	998.6	1012.8	1024.2	1028.5	1034.2	1028.5	1021.4	1012.8	1002.9	990.0
40°	943.0	955.8	968.7	980.1	984.3	988.6	982.9	977.2	967.2	957.3	944.4
42.5°	900.3	913.1	924.5	934.5	938.7	944.4	938.7	931.6	924.5	916.0	904.6
45°	854.7	867.5	877.5	887.5	891.7	896.0	890.3	883.2	876.1	868.9	857.6
47.5°	807.7	819.1	829.1	839.0	841.9	846.2	840.5	836.2	829.1	821.9	812.0
50°	759.3	770.7	780.6	789.2	792.0	796.3	790.6	784.9	779.2	773.5	765.0
52.5°	709.4	719.4	729.3	737.9	740.7	743.6	737.9	732.2	726.5	720.8	712.3
55°	658.1	668.1	678.1	685.2	688.0	690.9	685.2	680.9	675.2	670.9	662.4
57.5°	606.8	616.8	625.4	632.5	635.3	638.2	632.5	626.8	622.5	618.2	611.1
60°	554.1	564.1	571.2	576.9	579.8	581.2	575.5	571.2	568.4	565.5	558.4
62.5°	502.9	510.0	517.1	521.4	524.2	525.6	521.4	518.5	515.7	512.8	507.1
65°	448.7	457.3	463.0	467.2	468.7	470.1	465.8	463.0	460.1	457.3	453.0
67.5°	394.6	401.7	406.0	410.3	411.7	411.7	411.7	410.3	407.4	403.1	398.9
70°	340.5	346.2	350.4	353.3	354.7	354.7	351.9	349.0	349.0	347.6	344.7
72.5°	284.9	289.2	292.0	294.9	294.9	294.9	294.9	296.3	294.9	292.0	287.7
75°	232.2	236.5	239.3	240.7	240.7	240.7	240.7	242.2	240.7	239.3	236.5
77.5°	182.3	185.2	186.6	188.0	188.0	188.0	189.5	190.9	189.5	188.0	186.6
80°	135.3	136.8	138.2	139.6	138.2	138.2	139.6	142.5	141.0	139.6	138.2
82.5°	92.6	94.0	95.4	95.4	96.9	98.3	98.3	98.3	98.3	96.9	95.4
85°	55.6	57.0	57.0	57.0	57.0	57.0	58.4	59.8	59.8	58.4	58.4
87.5°	25.6	27.1	25.6	24.2	22.8	22.8	25.6	28.5	28.5	27.1	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





TEST NUMBER: P709109

CATALOG NUMBER: 4APN-35L830-X-UNV

**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	1259.3	1259.3	1259.3	1259.3
2.5°	1270.7	1269.2	1262.1	1255.0
5°	1274.9	1270.7	1260.7	1250.7
7.5°	1274.9	1269.2	1255.0	1242.2
10°	1267.8	1259.3	1243.6	1227.9
12.5°	1259.3	1249.3	1230.8	1213.7
15°	1246.4	1235.0	1215.1	1195.2
17.5°	1227.9	1213.7	1193.7	1172.4
20°	1209.4	1193.7	1169.5	1146.7
22.5°	1183.8	1169.5	1143.9	1119.7
25°	1155.3	1139.6	1114.0	1088.3
27.5°	1125.4	1106.8	1081.2	1055.6
30°	1091.2	1072.7	1047.0	1021.4
32.5°	1054.1	1037.0	1011.4	984.3
35°	1017.1	998.6	972.9	945.9
37.5°	975.8	958.7	933.1	907.4
40°	931.6	914.5	888.9	863.2
42.5°	890.3	874.6	849.0	824.8
45°	844.7	829.1	804.8	782.1
47.5°	797.7	782.1	759.3	736.5
50°	752.1	736.5	715.1	693.7
52.5°	700.9	688.0	668.1	648.1
55°	651.0	638.2	618.2	599.7
57.5°	601.1	589.7	571.2	554.1
60°	548.4	537.0	522.8	507.1
62.5°	498.6	488.6	474.4	460.1
65°	445.9	437.3	424.5	411.7
67.5°	391.7	384.6	373.2	361.8
70°	337.6	329.1	320.5	310.5
72.5°	283.5	279.2	270.7	262.1
75°	232.2	227.9	220.8	213.7
77.5°	183.8	179.5	173.8	168.1
80°	135.3	132.5	128.2	123.9
82.5°	94.0	91.2	88.3	84.0
85°	57.0	54.1	51.3	48.4
87.5°	25.6	24.2	21.4	19.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)