

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: P709128

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

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709128
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-32L850-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 5000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

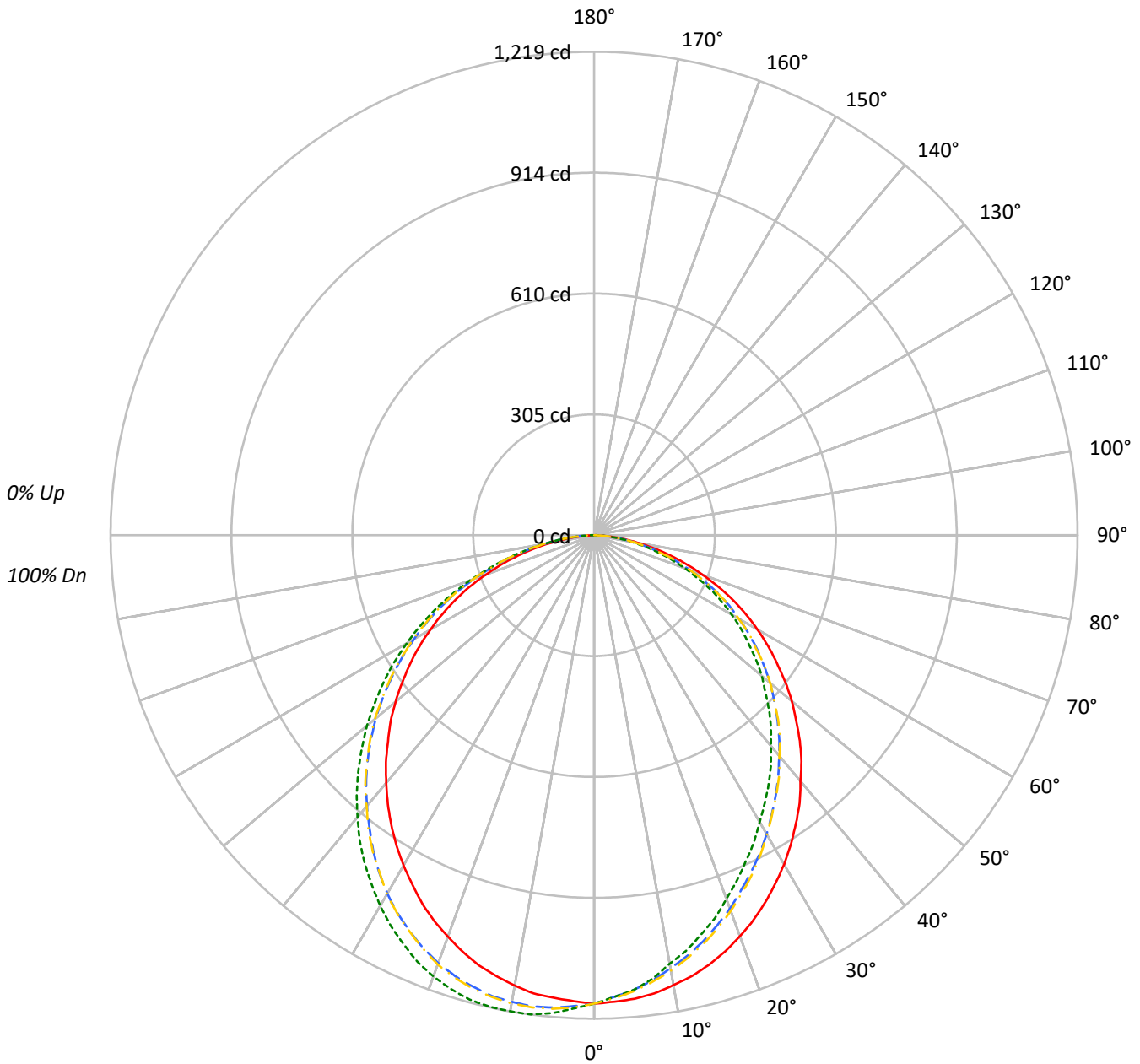
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3168.0 lumens
Efficiency: N/A
Efficacy: 87.0 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): 36.4
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				
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°	10898	10898	10898	10898
5°	10866	10655	10841	11200
10°	10791	10278	10804	11417
15°	10708	9956	10722	11577
20°	10562	9578	10574	11624
25°	10393	9223	10433	11576
30°	10207	8898	10236	11489
35°	9994	8639	10039	11363
40°	9753	8352	9817	11170
45°	9572	8142	9589	10967
50°	9341	7922	9379	10722
55°	9050	7631	9114	10425
60°	8778	7398	8802	10060
65°	8431	7089	8431	9627
70°	7858	6560	7823	8975
75°	7144	5953	7051	8049
80°	6179	5111	5961	6886
85°	4806	3822	4531	5663



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.6	3.5
10°-20°	316.8	10.0
20°-30°	470.9	14.9
30°-40°	555.0	17.5
40°-50°	565.1	17.8
50°-60°	503.5	15.9
60°-70°	379.3	12.0
70°-80°	210.9	6.7
80°-90°	54.8	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°	899.3	28.4
0°-40°	1454.4	45.9
0°-60°	2523.0	79.6
0°-90°	3168.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3168.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1181	1181	1181	1181	1181	
5°	1173	1150	1171	1209	1173	111
15°	1121	1042	1122	1212	1121	316
25°	1021	906	1025	1137	1021	470
35°	887	767	891	1009	887	555
45°	734	624	735	840	734	565
55°	563	474	567	648	563	504
65°	386	325	386	441	386	381
75°	200	167	198	226	200	213
85°	45	36	43	54	45	55
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°	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2
2.5°	1177.2	1177.2	1178.6	1173.2	1166.5	1163.9	1162.5	1161.2	1163.9	1165.2	1163.9
5°	1173.2	1170.6	1167.9	1161.2	1153.2	1147.8	1145.2	1143.8	1146.5	1150.5	1146.5
7.5°	1165.2	1159.9	1154.5	1145.2	1135.8	1127.8	1123.8	1121.1	1123.8	1127.8	1125.1
10°	1151.8	1145.2	1137.1	1126.5	1113.1	1103.7	1099.7	1095.7	1097.1	1097.1	1097.1
12.5°	1138.5	1129.1	1119.8	1106.4	1091.7	1081.0	1074.3	1069.0	1071.7	1073.0	1073.0
15°	1121.1	1109.1	1095.7	1081.0	1066.3	1054.3	1046.3	1040.9	1042.3	1042.3	1043.6
17.5°	1099.7	1086.4	1073.0	1055.6	1038.3	1024.9	1015.6	1008.9	1011.5	1012.9	1014.2
20°	1075.7	1061.0	1046.3	1027.6	1008.9	994.2	984.8	976.8	975.5	975.5	976.8
22.5°	1050.3	1034.3	1016.9	996.8	976.8	960.8	951.4	943.4	942.1	942.1	943.4
25°	1020.9	1003.5	986.2	966.1	944.7	928.7	916.7	908.7	907.3	906.0	908.7
27.5°	990.2	972.8	955.4	935.4	912.7	896.6	884.6	876.6	873.9	872.6	875.2
30°	958.1	938.0	919.3	898.0	877.9	861.9	849.9	840.5	837.8	835.2	837.8
32.5°	923.3	903.3	883.3	861.9	841.8	825.8	813.8	804.4	801.8	800.4	803.1
35°	887.3	867.2	848.5	827.1	807.1	791.1	779.0	771.0	768.3	767.0	768.3
37.5°	851.2	831.1	812.4	791.1	771.0	755.0	743.0	734.9	733.6	732.3	733.6
40°	809.8	792.4	773.7	753.6	733.6	717.6	708.2	698.9	696.2	693.5	697.5
42.5°	773.7	756.3	737.6	718.9	698.9	682.8	672.1	664.1	661.4	660.1	661.4
45°	733.6	714.9	696.2	678.8	660.1	645.4	634.7	626.7	625.4	624.0	625.4
47.5°	690.8	674.8	658.8	641.4	622.7	608.0	598.6	590.6	588.0	585.3	588.0
50°	650.8	634.7	618.7	602.6	585.3	571.9	562.6	554.5	553.2	551.9	553.2
52.5°	608.0	592.0	577.3	561.2	546.5	533.2	523.8	517.1	515.8	514.5	515.8
55°	562.6	549.2	535.8	522.5	507.8	495.7	487.7	479.7	477.0	474.4	477.0
57.5°	519.8	507.8	494.4	481.1	467.7	457.0	449.0	442.3	441.0	439.6	441.0
60°	475.7	465.0	453.0	441.0	427.6	416.9	410.2	404.9	402.2	400.9	402.2
62.5°	431.6	420.9	411.6	399.5	387.5	379.5	372.8	367.5	364.8	363.5	364.8
65°	386.2	376.8	367.5	356.8	347.4	339.4	332.7	327.4	326.0	324.7	324.7
67.5°	339.4	331.4	323.4	314.0	303.3	295.3	288.6	284.6	283.3	281.9	283.3
70°	291.3	284.6	276.6	268.6	260.6	253.9	249.9	245.9	244.5	243.2	243.2
72.5°	245.9	240.5	233.8	227.2	220.5	213.8	209.8	207.1	205.8	204.4	204.4
75°	200.4	195.1	191.1	185.7	179.1	175.0	171.0	168.4	167.0	167.0	167.0
77.5°	157.7	153.7	149.7	144.3	140.3	136.3	133.6	132.3	131.0	131.0	131.0
80°	116.3	113.6	110.9	108.2	104.2	100.2	98.9	97.5	96.2	96.2	96.2
82.5°	78.8	77.5	74.8	72.2	69.5	68.1	66.8	65.5	65.5	65.5	65.5
85°	45.4	44.1	42.8	41.4	40.1	40.1	38.8	37.4	36.1	36.1	36.1
87.5°	18.7	18.7	18.7	17.4	16.0	16.0	16.0	16.0	16.0	16.0	16.0
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°	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2
2.5°	1161.2	1163.9	1166.5	1170.6	1174.6	1178.6	1177.2	1175.9	1181.2	1187.9	1189.3
5°	1143.8	1146.5	1150.5	1157.2	1163.9	1169.2	1170.6	1170.6	1181.2	1190.6	1193.3
7.5°	1122.5	1126.5	1131.8	1138.5	1147.8	1155.9	1159.9	1165.2	1175.9	1187.9	1193.3
10°	1095.7	1102.4	1110.4	1119.8	1129.1	1138.5	1146.5	1153.2	1166.5	1179.9	1187.9
12.5°	1071.7	1078.4	1086.4	1097.1	1109.1	1121.1	1129.1	1138.5	1154.5	1170.6	1179.9
15°	1044.9	1051.6	1061.0	1071.7	1085.0	1098.4	1110.4	1122.5	1138.5	1155.9	1166.5
17.5°	1015.6	1022.2	1031.6	1044.9	1059.6	1074.3	1087.7	1101.1	1119.8	1138.5	1150.5
20°	979.5	988.8	1000.9	1014.2	1031.6	1049.0	1062.3	1077.0	1097.1	1117.1	1130.5
22.5°	944.7	954.1	967.4	983.5	1002.2	1020.9	1036.9	1053.0	1074.3	1094.4	1109.1
25°	911.3	922.0	935.4	951.4	968.8	987.5	1006.2	1024.9	1046.3	1067.7	1082.4
27.5°	877.9	887.3	900.6	916.7	936.7	955.4	974.1	992.8	1015.6	1038.3	1054.3
30°	840.5	851.2	863.2	879.3	900.6	922.0	940.7	960.8	983.5	1006.2	1022.2
32.5°	805.8	815.1	827.1	843.2	864.6	885.9	906.0	927.4	948.7	971.5	987.5
35°	771.0	780.4	792.4	808.4	829.8	851.2	871.2	891.3	912.7	934.0	950.1
37.5°	736.3	745.6	757.7	773.7	793.7	815.1	833.8	853.9	875.2	896.6	911.3
40°	700.2	709.5	718.9	734.9	755.0	776.4	795.1	815.1	836.5	857.9	872.6
42.5°	664.1	673.5	685.5	701.5	720.2	738.9	757.7	776.4	796.4	816.4	831.1
45°	628.0	636.1	648.1	662.8	681.5	698.9	717.6	734.9	755.0	773.7	788.4
47.5°	590.6	598.6	608.0	622.7	641.4	660.1	678.8	696.2	713.6	732.3	745.6
50°	554.5	562.6	573.3	586.6	604.0	621.4	637.4	653.4	670.8	688.2	700.2
52.5°	517.1	525.1	534.5	547.9	562.6	578.6	593.3	609.3	625.4	641.4	653.4
55°	479.7	485.1	493.1	505.1	521.1	537.2	551.9	566.6	581.3	594.6	606.7
57.5°	442.3	449.0	458.3	469.0	482.4	495.7	509.1	522.5	535.8	549.2	559.9
60°	404.9	410.2	416.9	426.3	439.6	451.7	465.0	477.0	489.1	501.1	510.4
62.5°	366.1	371.5	378.2	387.5	398.2	408.9	420.9	431.6	442.3	453.0	462.3
65°	326.0	331.4	338.1	346.1	355.4	364.8	375.5	386.2	394.2	402.2	411.6
67.5°	284.6	290.0	296.6	303.3	311.3	320.7	330.1	339.4	347.4	355.4	362.1
70°	244.5	248.5	255.2	260.6	267.3	273.9	281.9	290.0	295.3	302.0	310.0
72.5°	205.8	209.8	215.1	220.5	224.5	229.8	237.9	244.5	251.2	259.2	263.2
75°	168.4	171.0	175.0	179.1	183.1	187.1	192.4	197.8	203.1	207.1	212.5
77.5°	131.0	133.6	137.6	140.3	143.0	145.7	149.7	153.7	157.7	160.4	165.7
80°	96.2	98.9	101.6	104.2	106.9	109.6	110.9	112.2	117.6	121.6	124.3
82.5°	65.5	66.8	68.1	70.8	72.2	73.5	74.8	74.8	77.5	80.2	84.2
85°	37.4	38.8	40.1	40.1	40.1	40.1	41.4	42.8	44.1	46.8	49.4
87.5°	14.7	14.7	16.0	16.0	16.0	16.0	16.0	16.0	17.4	20.0	21.4
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°	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2	1181.2
2.5°	1187.9	1189.3	1191.9	1193.3	1194.6	1194.6	1195.9	1197.3	1194.6	1191.9	1190.6
5°	1194.6	1195.9	1200.0	1204.0	1206.6	1209.3	1208.0	1206.6	1204.0	1200.0	1197.3
7.5°	1195.9	1200.0	1204.0	1209.3	1213.3	1218.7	1216.0	1213.3	1208.0	1202.6	1198.6
10°	1191.9	1197.3	1204.0	1210.6	1214.7	1218.7	1216.0	1213.3	1208.0	1201.3	1195.9
12.5°	1186.6	1193.3	1201.3	1208.0	1212.0	1217.3	1213.3	1209.3	1202.6	1195.9	1189.3
15°	1174.6	1182.6	1191.9	1200.0	1206.6	1212.0	1208.0	1205.3	1197.3	1187.9	1178.6
17.5°	1159.9	1170.6	1179.9	1189.3	1194.6	1200.0	1197.3	1194.6	1185.3	1174.6	1163.9
20°	1142.5	1153.2	1162.5	1171.9	1178.6	1183.9	1179.9	1175.9	1166.5	1157.2	1146.5
22.5°	1121.1	1131.8	1142.5	1151.8	1158.5	1163.9	1158.5	1151.8	1142.5	1133.1	1122.5
25°	1094.4	1106.4	1118.4	1127.8	1131.8	1137.1	1131.8	1126.5	1117.1	1107.8	1095.7
27.5°	1067.7	1079.7	1091.7	1101.1	1105.1	1110.4	1105.1	1099.7	1090.4	1081.0	1069.0
30°	1036.9	1049.0	1061.0	1070.3	1074.3	1078.4	1073.0	1067.7	1059.6	1050.3	1038.3
32.5°	1002.2	1014.2	1023.6	1032.9	1038.3	1043.6	1038.3	1034.3	1024.9	1012.9	1000.9
35°	964.8	976.8	988.8	998.2	1003.5	1008.9	1002.2	995.5	987.5	978.1	967.4
37.5°	923.3	936.7	950.1	960.8	964.8	970.1	964.8	958.1	950.1	940.7	928.7
40°	884.6	896.6	908.7	919.3	923.3	927.4	922.0	916.7	907.3	898.0	885.9
42.5°	844.5	856.5	867.2	876.6	880.6	885.9	880.6	873.9	867.2	859.2	848.5
45°	801.8	813.8	823.1	832.5	836.5	840.5	835.2	828.5	821.8	815.1	804.4
47.5°	757.7	768.3	777.7	787.1	789.7	793.7	788.4	784.4	777.7	771.0	761.7
50°	712.2	722.9	732.3	740.3	743.0	747.0	741.6	736.3	730.9	725.6	717.6
52.5°	665.5	674.8	684.2	692.2	694.9	697.5	692.2	686.8	681.5	676.1	668.1
55°	617.3	626.7	636.1	642.7	645.4	648.1	642.7	638.7	633.4	629.4	621.4
57.5°	569.2	578.6	586.6	593.3	596.0	598.6	593.3	588.0	583.9	579.9	573.3
60°	519.8	529.2	535.8	541.2	543.9	545.2	539.8	535.8	533.2	530.5	523.8
62.5°	471.7	478.4	485.1	489.1	491.7	493.1	489.1	486.4	483.7	481.1	475.7
65°	420.9	428.9	434.3	438.3	439.6	441.0	437.0	434.3	431.6	428.9	424.9
67.5°	370.1	376.8	380.8	384.8	386.2	386.2	386.2	384.8	382.2	378.2	374.2
70°	319.4	324.7	328.7	331.4	332.7	332.7	330.1	327.4	327.4	326.0	323.4
72.5°	267.3	271.3	273.9	276.6	276.6	276.6	276.6	277.9	276.6	273.9	269.9
75°	217.8	221.8	224.5	225.8	225.8	225.8	225.8	227.2	225.8	224.5	221.8
77.5°	171.0	173.7	175.0	176.4	176.4	176.4	177.7	179.1	177.7	176.4	175.0
80°	126.9	128.3	129.6	131.0	129.6	129.6	131.0	133.6	132.3	131.0	129.6
82.5°	86.9	88.2	89.5	89.5	90.9	92.2	92.2	92.2	92.2	90.9	89.5
85°	52.1	53.5	53.5	53.5	53.5	53.5	54.8	56.1	56.1	54.8	54.8
87.5°	24.1	25.4	24.1	22.7	21.4	21.4	24.1	26.7	26.7	25.4	25.4
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: P709128

CATALOG NUMBER: 4APN-32L850-X-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	1181.2	1181.2	1181.2	1181.2
2.5°	1191.9	1190.6	1183.9	1177.2
5°	1195.9	1191.9	1182.6	1173.2
7.5°	1195.9	1190.6	1177.2	1165.2
10°	1189.3	1181.2	1166.5	1151.8
12.5°	1181.2	1171.9	1154.5	1138.5
15°	1169.2	1158.5	1139.8	1121.1
17.5°	1151.8	1138.5	1119.8	1099.7
20°	1134.5	1119.8	1097.1	1075.7
22.5°	1110.4	1097.1	1073.0	1050.3
25°	1083.7	1069.0	1044.9	1020.9
27.5°	1055.6	1038.3	1014.2	990.2
30°	1023.6	1006.2	982.1	958.1
32.5°	988.8	972.8	948.7	923.3
35°	954.1	936.7	912.7	887.3
37.5°	915.3	899.3	875.2	851.2
40°	873.9	857.9	833.8	809.8
42.5°	835.2	820.5	796.4	773.7
45°	792.4	777.7	755.0	733.6
47.5°	748.3	733.6	712.2	690.8
50°	705.5	690.8	670.8	650.8
52.5°	657.4	645.4	626.7	608.0
55°	610.7	598.6	579.9	562.6
57.5°	563.9	553.2	535.8	519.8
60°	514.5	503.8	490.4	475.7
62.5°	467.7	458.3	445.0	431.6
65°	418.2	410.2	398.2	386.2
67.5°	367.5	360.8	350.1	339.4
70°	316.7	308.7	300.7	291.3
72.5°	265.9	261.9	253.9	245.9
75°	217.8	213.8	207.1	200.4
77.5°	172.4	168.4	163.0	157.7
80°	126.9	124.3	120.3	116.3
82.5°	88.2	85.5	82.8	78.8
85°	53.5	50.8	48.1	45.4
87.5°	24.1	22.7	20.0	18.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)