

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: P709122

Luminaire Tested: **4APN-32L840-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709122
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-32L840-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

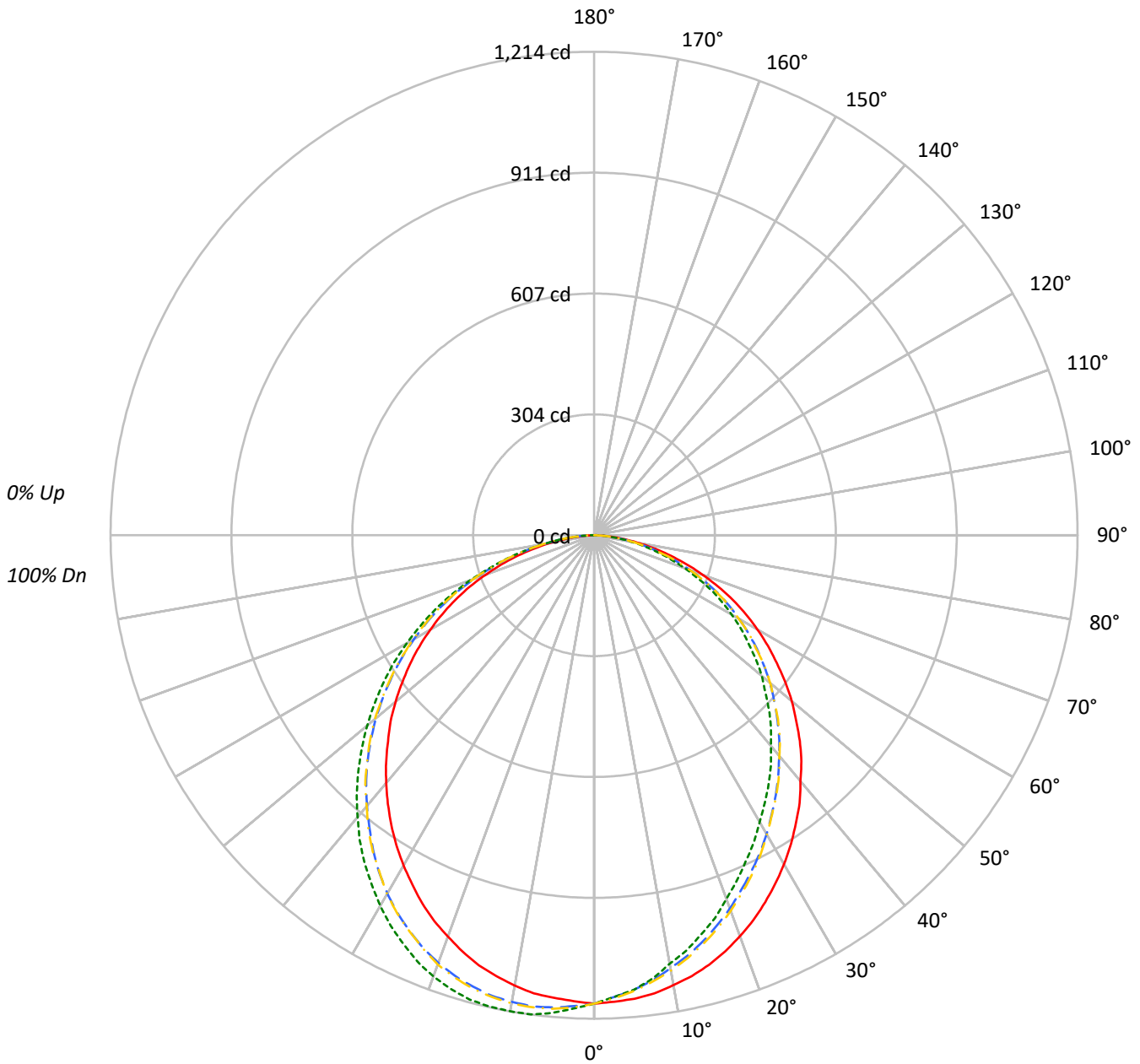
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3154.8 lumens
Efficiency: N/A
Efficacy: 86.7 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

TEST NUMBER: P709122
CATALOG NUMBER: 4APN-32L840-X-UNV

Luminous Intensity Polar Plot



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



TEST NUMBER: P709122
 CATALOG NUMBER: 4APN-32L840-X-UNV

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°	10853	10853	10853	10853
5°	10820	10611	10796	11153
10°	10746	10235	10759	11370
15°	10663	9914	10677	11528
20°	10517	9538	10530	11576
25°	10349	9184	10390	11528
30°	10165	8861	10192	11440
35°	9952	8603	9997	11315
40°	9712	8318	9776	11123
45°	9531	8108	9550	10921
50°	9301	7889	9340	10676
55°	9011	7599	9075	10382
60°	8741	7366	8765	10018
65°	8396	7060	8396	9586
70°	7826	6533	7791	8937
75°	7115	5928	7019	8017
80°	6153	5090	5940	6859
85°	4785	3800	4510	5632



TEST NUMBER: P709122
 CATALOG NUMBER: 4APN-32L840-X-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.2	3.5
10°-20°	315.4	10.0
20°-30°	469.0	14.9
30°-40°	552.7	17.5
40°-50°	562.8	17.8
50°-60°	501.4	15.9
60°-70°	377.7	12.0
70°-80°	210.1	6.7
80°-90°	54.6	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°	895.5	28.4
0°-40°	1448.3	45.9
0°-60°	2512.4	79.6
0°-90°	3154.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3154.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1176	1176	1176	1176	1176	
5°	1168	1146	1166	1204	1168	111
15°	1116	1038	1118	1207	1116	315
25°	1017	902	1021	1132	1017	468
35°	884	764	888	1005	884	553
45°	730	621	732	837	730	563
55°	560	472	564	645	560	502
65°	385	323	385	439	385	380
75°	200	166	197	225	200	212
85°	45	36	43	53	45	54
90°	0	0	0	0	0	



TEST NUMBER: P709122

CATALOG NUMBER: 4APN-32L840-X-UNV

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3
2.5°	1172.3	1172.3	1173.6	1168.3	1161.7	1159.0	1157.7	1156.3	1159.0	1160.3	1159.0
5°	1168.3	1165.7	1163.0	1156.3	1148.4	1143.0	1140.4	1139.0	1141.7	1145.7	1141.7
7.5°	1160.3	1155.0	1149.7	1140.4	1131.1	1123.1	1119.1	1116.4	1119.1	1123.1	1120.4
10°	1147.0	1140.4	1132.4	1121.7	1108.4	1099.1	1095.1	1091.1	1092.5	1092.5	1092.5
12.5°	1133.7	1124.4	1115.1	1101.8	1087.2	1076.5	1069.9	1064.5	1067.2	1068.5	1068.5
15°	1116.4	1104.4	1091.1	1076.5	1061.9	1049.9	1041.9	1036.6	1037.9	1037.9	1039.2
17.5°	1095.1	1081.8	1068.5	1051.2	1033.9	1020.6	1011.3	1004.6	1007.3	1008.6	1010.0
20°	1071.2	1056.5	1041.9	1023.3	1004.6	990.0	980.7	972.7	971.4	971.4	972.7
22.5°	1045.9	1029.9	1012.6	992.7	972.7	956.7	947.4	939.4	938.1	938.1	939.4
25°	1016.6	999.3	982.0	962.1	940.8	924.8	912.8	904.9	903.5	902.2	904.9
27.5°	986.0	968.7	951.4	931.5	908.8	892.9	880.9	872.9	870.3	868.9	871.6
30°	954.1	934.1	915.5	894.2	874.2	858.3	846.3	837.0	834.3	831.7	834.3
32.5°	919.5	899.5	879.6	858.3	838.3	822.3	810.4	801.1	798.4	797.1	799.7
35°	883.6	863.6	845.0	823.7	803.7	787.8	775.8	767.8	765.1	763.8	765.1
37.5°	847.6	827.7	809.0	787.8	767.8	751.8	739.8	731.9	730.5	729.2	730.5
40°	806.4	789.1	770.5	750.5	730.5	714.6	705.3	695.9	693.3	690.6	694.6
42.5°	770.5	753.2	734.5	715.9	695.9	680.0	669.3	661.3	658.7	657.3	658.7
45°	730.5	711.9	693.3	676.0	657.3	642.7	632.1	624.1	622.7	621.4	622.7
47.5°	688.0	672.0	656.0	638.7	620.1	605.5	596.1	588.2	585.5	582.8	585.5
50°	648.0	632.1	616.1	600.1	582.8	569.5	560.2	552.2	550.9	549.6	550.9
52.5°	605.5	589.5	574.8	558.9	544.2	530.9	521.6	515.0	513.6	512.3	513.6
55°	560.2	546.9	533.6	520.3	505.7	493.7	485.7	477.7	475.0	472.4	475.0
57.5°	517.6	505.7	492.3	479.0	465.7	455.1	447.1	440.4	439.1	437.8	439.1
60°	473.7	463.1	451.1	439.1	425.8	415.2	408.5	403.2	400.5	399.2	400.5
62.5°	429.8	419.2	409.8	397.9	385.9	377.9	371.3	365.9	363.3	361.9	363.3
65°	384.6	375.2	365.9	355.3	346.0	338.0	331.3	326.0	324.7	323.4	323.4
67.5°	338.0	330.0	322.0	312.7	302.1	294.1	287.4	283.4	282.1	280.8	282.1
70°	290.1	283.4	275.4	267.5	259.5	252.8	248.8	244.8	243.5	242.2	242.2
72.5°	244.8	239.5	232.9	226.2	219.6	212.9	208.9	206.3	204.9	203.6	203.6
75°	199.6	194.3	190.3	185.0	178.3	174.3	170.3	167.7	166.3	166.3	166.3
77.5°	157.0	153.0	149.0	143.7	139.7	135.7	133.1	131.7	130.4	130.4	130.4
80°	115.8	113.1	110.4	107.8	103.8	99.8	98.5	97.1	95.8	95.8	95.8
82.5°	78.5	77.2	74.5	71.9	69.2	67.9	66.5	65.2	65.2	65.2	65.2
85°	45.2	43.9	42.6	41.3	39.9	39.9	38.6	37.3	35.9	35.9	35.9
87.5°	18.6	18.6	18.6	17.3	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



TEST NUMBER: P709122

CATALOG NUMBER: 4APN-32L840-X-UNV

CANDELA DISTRIBUTION (continued):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3
2.5°	1156.3	1159.0	1161.7	1165.7	1169.7	1173.6	1172.3	1171.0	1176.3	1183.0	1184.3
5°	1139.0	1141.7	1145.7	1152.4	1159.0	1164.3	1165.7	1165.7	1176.3	1185.6	1188.3
7.5°	1117.8	1121.7	1127.1	1133.7	1143.0	1151.0	1155.0	1160.3	1171.0	1183.0	1188.3
10°	1091.1	1097.8	1105.8	1115.1	1124.4	1133.7	1141.7	1148.4	1161.7	1175.0	1183.0
12.5°	1067.2	1073.8	1081.8	1092.5	1104.4	1116.4	1124.4	1133.7	1149.7	1165.7	1175.0
15°	1040.6	1047.2	1056.5	1067.2	1080.5	1093.8	1105.8	1117.8	1133.7	1151.0	1161.7
17.5°	1011.3	1018.0	1027.3	1040.6	1055.2	1069.9	1083.2	1096.5	1115.1	1133.7	1145.7
20°	975.4	984.7	996.7	1010.0	1027.3	1044.6	1057.9	1072.5	1092.5	1112.4	1125.7
22.5°	940.8	950.1	963.4	979.4	998.0	1016.6	1032.6	1048.6	1069.9	1089.8	1104.4
25°	907.5	918.2	931.5	947.4	964.7	983.4	1002.0	1020.6	1041.9	1063.2	1077.8
27.5°	874.2	883.6	896.9	912.8	932.8	951.4	970.1	988.7	1011.3	1033.9	1049.9
30°	837.0	847.6	859.6	875.6	896.9	918.2	936.8	956.7	979.4	1002.0	1018.0
32.5°	802.4	811.7	823.7	839.6	860.9	882.2	902.2	923.5	944.8	967.4	983.4
35°	767.8	777.1	789.1	805.1	826.3	847.6	867.6	887.6	908.8	930.1	946.1
37.5°	733.2	742.5	754.5	770.5	790.4	811.7	830.3	850.3	871.6	892.9	907.5
40°	697.3	706.6	715.9	731.9	751.8	773.1	791.7	811.7	833.0	854.3	868.9
42.5°	661.3	670.7	682.6	698.6	717.2	735.9	754.5	773.1	793.1	813.0	827.7
45°	625.4	633.4	645.4	660.0	678.6	695.9	714.6	731.9	751.8	770.5	785.1
47.5°	588.2	596.1	605.5	620.1	638.7	657.3	676.0	693.3	710.6	729.2	742.5
50°	552.2	560.2	570.9	584.2	601.5	618.8	634.7	650.7	668.0	685.3	697.3
52.5°	515.0	523.0	532.3	545.6	560.2	576.2	590.8	606.8	622.7	638.7	650.7
55°	477.7	483.0	491.0	503.0	519.0	534.9	549.6	564.2	578.8	592.1	604.1
57.5°	440.4	447.1	456.4	467.1	480.4	493.7	507.0	520.3	533.6	546.9	557.5
60°	403.2	408.5	415.2	424.5	437.8	449.8	463.1	475.0	487.0	499.0	508.3
62.5°	364.6	369.9	376.6	385.9	396.5	407.2	419.2	429.8	440.4	451.1	460.4
65°	324.7	330.0	336.7	344.6	354.0	363.3	373.9	384.6	392.5	400.5	409.8
67.5°	283.4	288.8	295.4	302.1	310.0	319.4	328.7	338.0	346.0	354.0	360.6
70°	243.5	247.5	254.2	259.5	266.1	272.8	280.8	288.8	294.1	300.7	308.7
72.5°	204.9	208.9	214.2	219.6	223.6	228.9	236.9	243.5	250.2	258.1	262.1
75°	167.7	170.3	174.3	178.3	182.3	186.3	191.6	196.9	202.3	206.3	211.6
77.5°	130.4	133.1	137.1	139.7	142.4	145.0	149.0	153.0	157.0	159.7	165.0
80°	95.8	98.5	101.1	103.8	106.5	109.1	110.4	111.8	117.1	121.1	123.8
82.5°	65.2	66.5	67.9	70.5	71.9	73.2	74.5	74.5	77.2	79.8	83.8
85°	37.3	38.6	39.9	39.9	39.9	39.9	41.3	42.6	43.9	46.6	49.2
87.5°	14.6	14.6	16.0	16.0	16.0	16.0	16.0	16.0	17.3	20.0	21.3
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: P709122

CATALOG NUMBER: 4APN-32L840-X-UNV

CANDELA DISTRIBUTION (continued):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3	1176.3
2.5°	1183.0	1184.3	1187.0	1188.3	1189.6	1189.6	1190.9	1192.3	1189.6	1187.0	1185.6
5°	1189.6	1190.9	1194.9	1198.9	1201.6	1204.2	1202.9	1201.6	1198.9	1194.9	1192.3
7.5°	1190.9	1194.9	1198.9	1204.2	1208.2	1213.6	1210.9	1208.2	1202.9	1197.6	1193.6
10°	1187.0	1192.3	1198.9	1205.6	1209.6	1213.6	1210.9	1208.2	1202.9	1196.3	1190.9
12.5°	1181.6	1188.3	1196.3	1202.9	1206.9	1212.2	1208.2	1204.2	1197.6	1190.9	1184.3
15°	1169.7	1177.6	1187.0	1194.9	1201.6	1206.9	1202.9	1200.3	1192.3	1183.0	1173.6
17.5°	1155.0	1165.7	1175.0	1184.3	1189.6	1194.9	1192.3	1189.6	1180.3	1169.7	1159.0
20°	1137.7	1148.4	1157.7	1167.0	1173.6	1179.0	1175.0	1171.0	1161.7	1152.4	1141.7
22.5°	1116.4	1127.1	1137.7	1147.0	1153.7	1159.0	1153.7	1147.0	1137.7	1128.4	1117.8
25°	1089.8	1101.8	1113.8	1123.1	1127.1	1132.4	1127.1	1121.7	1112.4	1103.1	1091.1
27.5°	1063.2	1075.2	1087.2	1096.5	1100.5	1105.8	1100.5	1095.1	1085.8	1076.5	1064.5
30°	1032.6	1044.6	1056.5	1065.9	1069.9	1073.8	1068.5	1063.2	1055.2	1045.9	1033.9
32.5°	998.0	1010.0	1019.3	1028.6	1033.9	1039.2	1033.9	1029.9	1020.6	1008.6	996.7
35°	960.7	972.7	984.7	994.0	999.3	1004.6	998.0	991.3	983.4	974.0	963.4
37.5°	919.5	932.8	946.1	956.7	960.7	966.1	960.7	954.1	946.1	936.8	924.8
40°	880.9	892.9	904.9	915.5	919.5	923.5	918.2	912.8	903.5	894.2	882.2
42.5°	841.0	853.0	863.6	872.9	876.9	882.2	876.9	870.3	863.6	855.6	845.0
45°	798.4	810.4	819.7	829.0	833.0	837.0	831.7	825.0	818.4	811.7	801.1
47.5°	754.5	765.1	774.4	783.8	786.4	790.4	785.1	781.1	774.4	767.8	758.5
50°	709.2	719.9	729.2	737.2	739.8	743.8	738.5	733.2	727.9	722.5	714.6
52.5°	662.7	672.0	681.3	689.3	691.9	694.6	689.3	684.0	678.6	673.3	665.3
55°	614.8	624.1	633.4	640.0	642.7	645.4	640.0	636.1	630.7	626.7	618.8
57.5°	566.9	576.2	584.2	590.8	593.5	596.1	590.8	585.5	581.5	577.5	570.9
60°	517.6	526.9	533.6	538.9	541.6	542.9	537.6	533.6	530.9	528.3	521.6
62.5°	469.7	476.4	483.0	487.0	489.7	491.0	487.0	484.4	481.7	479.0	473.7
65°	419.2	427.1	432.5	436.5	437.8	439.1	435.1	432.5	429.8	427.1	423.2
67.5°	368.6	375.2	379.2	383.2	384.6	384.6	384.6	383.2	380.6	376.6	372.6
70°	318.0	323.4	327.3	330.0	331.3	331.3	328.7	326.0	326.0	324.7	322.0
72.5°	266.1	270.1	272.8	275.4	275.4	275.4	275.4	276.8	275.4	272.8	268.8
75°	216.9	220.9	223.6	224.9	224.9	224.9	224.9	226.2	224.9	223.6	220.9
77.5°	170.3	173.0	174.3	175.6	175.6	175.6	177.0	178.3	177.0	175.6	174.3
80°	126.4	127.7	129.1	130.4	129.1	129.1	130.4	133.1	131.7	130.4	129.1
82.5°	86.5	87.8	89.2	89.2	90.5	91.8	91.8	91.8	91.8	90.5	89.2
85°	51.9	53.2	53.2	53.2	53.2	53.2	54.6	55.9	55.9	54.6	54.6
87.5°	24.0	25.3	24.0	22.6	21.3	21.3	24.0	26.6	26.6	25.3	25.3
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: P709122
 CATALOG NUMBER: 4APN-32L840-X-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	1176.3	1176.3	1176.3	1176.3
2.5°	1187.0	1185.6	1179.0	1172.3
5°	1190.9	1187.0	1177.6	1168.3
7.5°	1190.9	1185.6	1172.3	1160.3
10°	1184.3	1176.3	1161.7	1147.0
12.5°	1176.3	1167.0	1149.7	1133.7
15°	1164.3	1153.7	1135.1	1116.4
17.5°	1147.0	1133.7	1115.1	1095.1
20°	1129.7	1115.1	1092.5	1071.2
22.5°	1105.8	1092.5	1068.5	1045.9
25°	1079.2	1064.5	1040.6	1016.6
27.5°	1051.2	1033.9	1010.0	986.0
30°	1019.3	1002.0	978.0	954.1
32.5°	984.7	968.7	944.8	919.5
35°	950.1	932.8	908.8	883.6
37.5°	911.5	895.5	871.6	847.6
40°	870.3	854.3	830.3	806.4
42.5°	831.7	817.0	793.1	770.5
45°	789.1	774.4	751.8	730.5
47.5°	745.2	730.5	709.2	688.0
50°	702.6	688.0	668.0	648.0
52.5°	654.7	642.7	624.1	605.5
55°	608.1	596.1	577.5	560.2
57.5°	561.5	550.9	533.6	517.6
60°	512.3	501.7	488.4	473.7
62.5°	465.7	456.4	443.1	429.8
65°	416.5	408.5	396.5	384.6
67.5°	365.9	359.3	348.6	338.0
70°	315.4	307.4	299.4	290.1
72.5°	264.8	260.8	252.8	244.8
75°	216.9	212.9	206.3	199.6
77.5°	171.7	167.7	162.3	157.0
80°	126.4	123.8	119.8	115.8
82.5°	87.8	85.2	82.5	78.5
85°	53.2	50.6	47.9	45.2
87.5°	24.0	22.6	20.0	18.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)