

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: P709197

Luminaire Tested: **4APN-20-22L940-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709197  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-20-22L940-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

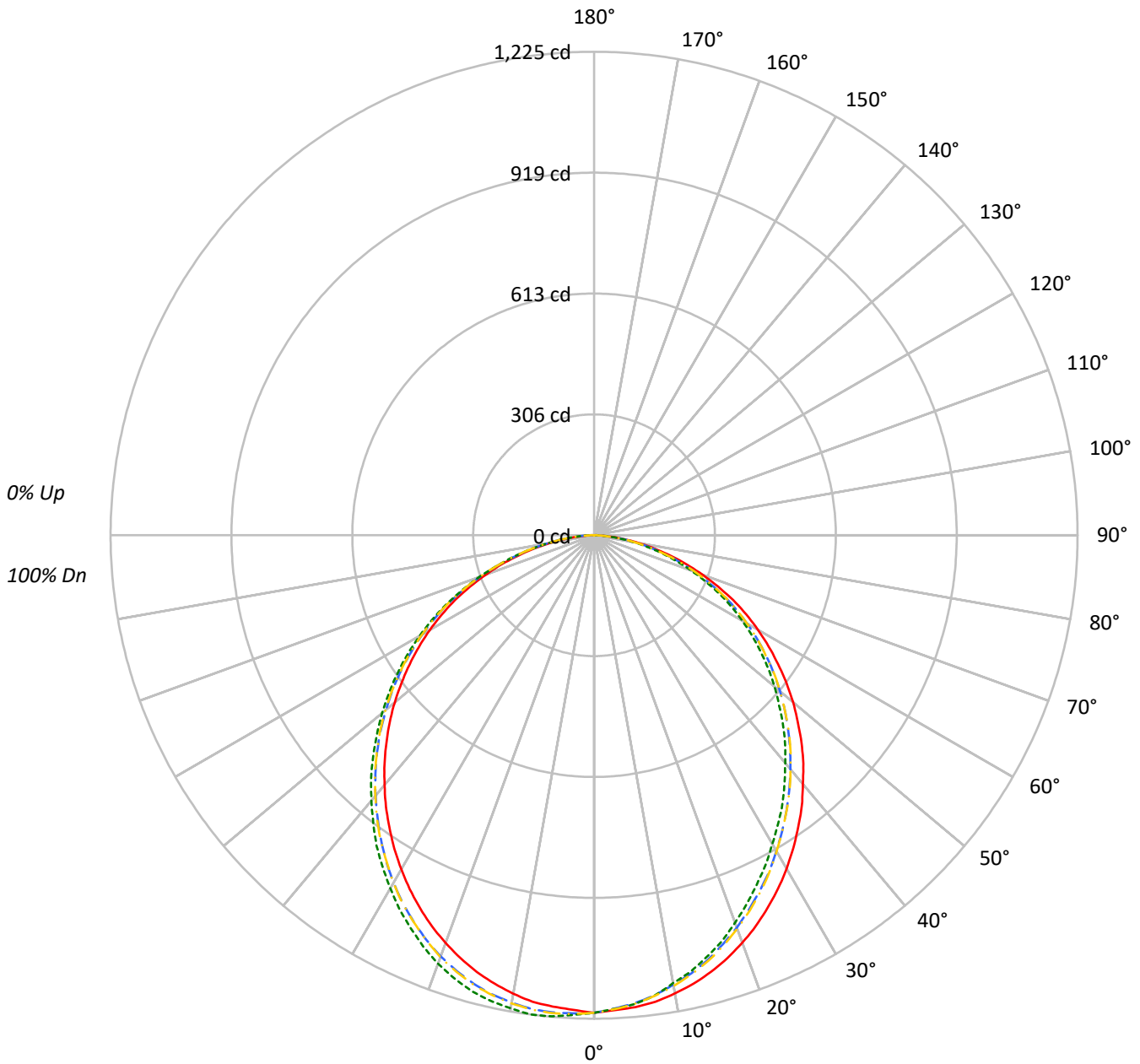
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3198.8 lumens  
Efficiency: N/A  
Efficacy: 66.6 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: P709197  
CATALOG NUMBER: 4APN-20-22L940-UNV

### Luminous Intensity Polar Plot



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



TEST NUMBER: P709197  
 CATALOG NUMBER: 4APN-20-22L940-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	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°	11165	11165	11165	11165
5°	11116	11043	11102	11332
10°	11045	10798	11051	11403
15°	10941	10561	10948	11423
20°	10786	10256	10793	11344
25°	10597	9932	10619	11184
30°	10394	9621	10408	11000
35°	10156	9372	10181	10820
40°	9911	9072	9945	10570
45°	9698	8827	9708	10329
50°	9445	8568	9465	10056
55°	9145	8287	9178	9772
60°	8850	7999	8865	9414
65°	8486	7647	8486	8997
70°	7877	7073	7858	8357
75°	7144	6409	7094	7522
80°	6153	5510	6041	6455
85°	4742	4213	4584	5187



TEST NUMBER: P709197  
 CATALOG NUMBER: 4APN-20-22L940-UNV

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	114.3	3.6
10°-20°	323.6	10.1
20°-30°	479.0	15.0
30°-40°	562.0	17.6
40°-50°	569.6	17.8
50°-60°	505.5	15.8
60°-70°	379.5	11.9
70°-80°	210.7	6.6
80°-90°	54.4	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°	916.9	28.7
0°-40°	1478.9	46.2
0°-60°	2554.1	79.8
0°-90°	3198.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3198.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1210	1210	1210	1210	1210	
5°	1200	1192	1199	1224	1200	114
15°	1146	1106	1146	1196	1146	323
25°	1041	976	1043	1099	1041	480
35°	902	832	904	961	902	564
45°	743	676	744	792	743	573
55°	568	515	571	608	568	509
65°	389	350	389	412	389	383
75°	200	180	199	211	200	213
85°	45	40	43	49	45	54
90°	0	0	0	0	0	



TEST NUMBER: P709197

CATALOG NUMBER: 4APN-20-22L940-UNV

**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1
2.5°	1204.4	1207.3	1210.8	1207.3	1201.6	1198.7	1198.7	1198.0	1200.2	1200.9	1200.2
5°	1200.2	1201.6	1202.3	1198.0	1191.6	1188.1	1186.7	1186.0	1188.8	1192.4	1188.8
7.5°	1192.4	1191.6	1190.9	1185.2	1178.1	1173.2	1171.0	1170.3	1173.2	1176.7	1173.9
10°	1178.9	1178.1	1176.0	1168.9	1159.7	1153.3	1151.1	1149.0	1151.1	1152.6	1151.1
12.5°	1163.9	1161.1	1158.2	1150.4	1140.5	1133.4	1129.8	1127.0	1129.8	1132.0	1130.5
15°	1145.5	1141.2	1136.2	1127.7	1117.7	1109.9	1105.7	1102.8	1105.0	1105.7	1105.7
17.5°	1123.4	1118.5	1113.5	1102.8	1090.7	1082.2	1077.2	1073.7	1076.5	1077.9	1077.9
20°	1098.6	1092.9	1086.5	1075.1	1062.3	1053.1	1047.4	1043.1	1043.8	1044.6	1044.6
22.5°	1071.6	1064.4	1056.6	1044.6	1031.1	1021.1	1015.4	1010.4	1010.4	1011.2	1011.2
25°	1041.0	1033.2	1025.4	1013.3	999.1	988.4	981.3	976.3	976.3	975.6	977.0
27.5°	1009.7	1001.2	993.4	980.6	965.7	955.0	947.9	942.9	942.2	941.5	942.9
30°	975.6	965.7	957.2	943.7	929.4	918.8	911.7	906.0	904.6	903.1	904.6
32.5°	939.4	930.1	920.9	906.7	892.5	881.8	874.7	869.0	868.3	867.6	869.0
35°	901.7	891.8	883.3	869.7	855.5	844.9	837.1	832.1	832.1	832.1	832.1
37.5°	864.8	854.8	845.6	832.1	817.9	807.2	799.4	794.4	793.0	792.3	793.0
40°	822.9	814.3	805.8	793.0	778.8	768.1	761.7	756.1	754.6	753.2	755.3
42.5°	784.5	776.0	766.7	754.6	740.4	729.8	722.7	717.7	717.0	716.3	717.0
45°	743.3	733.3	724.1	712.7	699.9	690.0	682.9	677.9	677.2	676.5	677.2
47.5°	699.9	692.1	684.3	672.9	660.1	650.2	643.8	638.1	636.7	635.3	636.7
50°	658.0	649.5	641.7	631.0	618.9	609.7	604.0	599.0	597.6	596.9	597.6
52.5°	613.9	606.1	599.0	588.4	578.4	569.2	562.8	558.5	557.8	557.1	557.8
55°	568.5	561.4	555.0	546.4	536.5	528.0	522.3	517.3	516.6	515.2	516.6
57.5°	524.4	518.7	512.3	503.1	493.9	486.0	481.1	476.8	476.1	475.4	476.1
60°	479.6	474.0	468.3	460.5	451.2	443.4	439.1	435.6	434.2	433.5	434.2
62.5°	434.9	429.2	424.9	417.1	408.6	402.2	397.9	394.4	393.0	392.2	393.0
65°	388.7	383.7	378.7	371.6	365.2	360.3	356.0	352.4	351.0	350.3	350.3
67.5°	339.7	335.4	331.8	325.4	318.3	313.4	309.1	306.3	304.8	304.1	304.8
70°	292.0	288.5	284.9	280.0	274.3	270.0	267.2	264.3	262.9	262.2	262.2
72.5°	246.6	243.7	240.2	235.9	231.6	227.4	224.5	222.4	221.0	220.3	220.3
75°	200.4	197.5	196.1	192.6	188.3	185.5	182.6	181.2	179.8	179.8	179.8
77.5°	157.0	155.6	154.2	150.6	147.8	145.0	142.8	142.1	140.7	140.7	140.7
80°	115.8	115.1	114.4	112.3	109.4	106.6	105.2	104.5	103.7	103.7	103.7
82.5°	78.2	78.2	77.5	75.3	73.2	72.5	71.1	70.3	70.3	70.3	70.3
85°	44.8	44.8	44.8	44.1	42.6	42.6	41.2	40.5	39.8	39.8	39.8
87.5°	17.8	18.5	19.2	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



TEST NUMBER: P709197

CATALOG NUMBER: 4APN-20-22L940-UNV

**CANDELA DISTRIBUTION (continued):**

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1
2.5°	1198.0	1199.5	1200.2	1203.7	1208.0	1210.8	1207.3	1203.7	1209.4	1215.8	1215.8
5°	1186.0	1187.4	1189.5	1193.8	1199.5	1203.0	1201.6	1198.7	1207.3	1214.4	1215.1
7.5°	1171.0	1172.5	1175.3	1179.6	1186.7	1191.6	1191.6	1192.4	1200.2	1208.7	1210.8
10°	1149.0	1152.6	1156.8	1163.2	1170.3	1176.7	1178.9	1179.6	1189.5	1198.7	1201.6
12.5°	1128.4	1132.0	1136.2	1143.3	1151.8	1159.0	1161.1	1163.9	1174.6	1185.2	1189.5
15°	1105.0	1108.5	1113.5	1120.6	1129.8	1137.6	1141.9	1146.2	1156.8	1168.2	1173.2
17.5°	1077.2	1080.8	1085.8	1094.3	1105.0	1114.2	1119.2	1124.1	1136.2	1148.3	1153.3
20°	1044.6	1049.5	1056.6	1065.2	1077.2	1087.9	1093.6	1099.3	1112.1	1124.1	1129.8
22.5°	1011.2	1016.8	1024.7	1034.6	1047.4	1058.8	1065.9	1073.0	1085.8	1097.8	1104.2
25°	977.8	984.2	992.0	1002.6	1014.7	1026.1	1034.6	1043.1	1055.9	1068.7	1075.1
27.5°	943.7	949.3	957.2	967.8	981.3	993.4	1001.9	1011.2	1023.9	1037.4	1043.8
30°	906.0	912.4	919.5	930.1	945.1	958.6	967.1	977.0	989.8	1003.3	1009.7
32.5°	869.7	875.4	882.5	893.2	908.1	922.3	931.6	941.5	954.3	967.8	973.5
35°	832.1	837.8	845.6	856.2	871.2	884.7	893.9	903.9	915.9	928.7	935.1
37.5°	795.1	800.8	808.6	819.3	833.5	847.0	856.2	866.2	878.3	890.4	896.0
40°	756.8	762.5	768.8	779.5	793.7	807.2	815.7	825.7	837.8	850.6	856.2
42.5°	717.7	723.4	731.2	741.8	755.3	767.4	776.7	785.9	797.3	808.6	814.3
45°	678.6	683.6	691.4	701.3	714.1	725.5	734.7	744.0	754.6	765.3	771.0
47.5°	638.1	643.8	650.2	660.1	672.9	685.0	694.2	702.8	712.7	723.4	728.3
50°	599.0	604.0	610.4	619.6	631.7	643.1	650.9	659.4	668.7	678.6	682.9
52.5°	558.5	563.5	569.9	579.1	589.1	599.7	606.8	614.7	623.9	633.1	637.4
55°	517.3	520.9	526.5	535.1	545.7	555.7	562.8	570.6	578.4	586.2	591.2
57.5°	476.8	481.1	486.7	494.6	503.8	513.0	519.4	525.8	533.6	541.5	545.0
60°	435.6	439.1	443.4	450.5	459.7	467.6	474.0	480.4	486.7	493.9	497.4
62.5°	393.7	397.2	401.5	408.6	416.4	423.5	429.2	434.9	440.6	447.0	450.5
65°	351.7	355.3	359.6	364.5	370.9	377.3	383.0	388.7	393.0	397.2	400.8
67.5°	306.3	309.8	314.1	318.3	324.0	330.4	334.7	339.7	343.9	348.9	351.0
70°	263.6	266.5	270.7	274.3	279.3	283.5	287.1	291.3	294.2	298.4	302.0
72.5°	221.7	224.5	228.1	231.6	234.5	238.0	242.3	245.9	249.4	253.7	255.1
75°	181.2	182.6	185.5	188.3	191.1	194.0	196.1	199.0	201.8	204.6	206.8
77.5°	141.4	142.8	145.7	147.8	149.9	152.1	153.5	154.9	157.7	159.9	162.0
80°	103.7	105.2	107.3	109.4	111.6	113.7	113.7	113.7	117.2	120.1	120.8
82.5°	70.3	71.1	72.5	73.9	75.3	76.7	76.7	76.0	78.2	80.3	81.7
85°	40.5	41.2	42.6	42.6	43.3	43.3	43.3	43.3	44.8	46.9	48.3
87.5°	16.3	16.3	17.1	17.1	17.8	17.8	17.1	16.3	17.8	19.9	20.6
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: P709197

CATALOG NUMBER: 4APN-20-22L940-UNV

**CANDELA DISTRIBUTION (continued):**

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1	1210.1
2.5°	1213.0	1212.2	1214.4	1215.1	1216.5	1216.5	1217.2	1217.2	1215.8	1213.7	1214.4
5°	1213.7	1213.7	1215.8	1217.9	1220.8	1223.6	1221.5	1219.4	1217.9	1215.8	1215.1
7.5°	1210.1	1211.5	1213.7	1217.2	1220.8	1225.0	1222.2	1219.4	1215.8	1213.0	1211.5
10°	1201.6	1203.0	1206.6	1210.1	1213.7	1217.2	1214.4	1211.5	1208.7	1205.1	1203.7
12.5°	1190.9	1193.1	1197.3	1200.9	1204.4	1208.7	1205.1	1201.6	1198.0	1194.5	1192.4
15°	1175.3	1178.1	1183.1	1187.4	1192.4	1195.9	1193.1	1190.2	1186.0	1181.0	1177.4
17.5°	1155.4	1159.7	1164.6	1169.6	1173.9	1177.4	1175.3	1172.5	1167.5	1161.8	1157.5
20°	1133.4	1137.6	1141.9	1146.9	1151.8	1155.4	1152.6	1149.0	1144.0	1139.8	1135.5
22.5°	1107.8	1112.1	1117.0	1121.3	1125.6	1129.1	1125.6	1121.3	1117.0	1112.8	1108.5
25°	1078.7	1082.9	1088.6	1092.9	1095.7	1098.6	1095.7	1092.2	1087.9	1083.6	1079.4
27.5°	1048.1	1052.4	1058.1	1062.3	1065.2	1068.0	1065.2	1061.6	1057.3	1053.1	1048.8
30°	1014.0	1018.3	1023.9	1028.2	1030.3	1032.5	1029.6	1026.8	1023.2	1019.0	1014.7
32.5°	977.8	982.0	986.3	990.5	994.1	996.9	994.1	991.3	987.0	981.3	977.0
35°	939.4	943.7	948.6	952.9	957.2	960.7	956.4	951.5	947.9	944.4	940.8
37.5°	898.9	903.9	909.5	914.5	915.9	918.8	915.9	913.1	909.5	906.0	901.7
40°	859.1	863.4	868.3	873.3	875.4	877.6	874.7	871.9	867.6	864.1	859.8
42.5°	817.9	822.1	826.4	830.7	833.5	836.4	833.5	829.2	826.4	823.6	820.0
45°	775.2	779.5	783.1	787.3	789.5	791.6	788.7	785.2	782.3	780.2	776.7
47.5°	731.9	735.5	739.0	742.6	744.0	746.1	743.3	741.1	739.0	736.9	734.0
50°	686.4	690.0	694.2	697.8	698.5	700.6	697.8	695.7	693.5	691.4	689.3
52.5°	641.7	644.5	648.0	651.6	653.0	654.4	651.6	648.8	646.6	645.2	643.1
55°	594.8	597.6	601.2	604.0	606.1	607.5	604.7	601.9	599.7	599.0	596.9
57.5°	547.9	550.7	554.3	557.1	558.5	559.9	557.1	554.3	552.8	551.4	550.0
60°	500.2	503.1	505.9	508.1	509.5	510.2	507.4	505.2	504.5	503.8	502.4
62.5°	453.3	454.8	457.6	459.0	460.5	461.2	459.0	457.6	456.9	456.2	455.5
65°	404.3	407.9	410.0	411.4	411.4	412.1	410.0	409.3	408.6	407.9	406.5
67.5°	353.9	356.7	358.1	359.6	359.6	359.6	359.6	359.6	358.8	357.4	356.0
70°	305.5	307.7	309.1	309.8	309.8	309.8	308.4	307.7	308.4	308.4	307.7
72.5°	256.5	257.9	258.7	259.4	258.7	258.7	258.7	260.1	260.1	259.4	257.9
75°	208.9	210.3	211.0	211.8	211.0	211.0	211.0	212.5	211.8	211.8	211.0
77.5°	164.1	164.9	164.9	165.6	164.9	164.9	165.6	167.0	166.3	166.3	166.3
80°	121.5	121.5	121.5	122.2	121.5	121.5	122.2	123.6	122.9	122.9	122.9
82.5°	82.4	83.1	83.1	83.1	83.8	84.6	84.6	84.6	84.6	84.6	83.8
85°	49.0	49.7	49.0	49.0	49.0	49.0	49.7	50.5	50.5	50.5	50.5
87.5°	21.3	22.0	21.3	20.6	19.9	19.9	21.3	22.7	22.7	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: P709197  
 CATALOG NUMBER: 4APN-20-22L940-UNV

**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	1210.1	1210.1	1210.1	1210.1
2.5°	1217.2	1217.2	1210.8	1204.4
5°	1216.5	1215.1	1208.0	1200.2
7.5°	1212.2	1210.1	1200.9	1192.4
10°	1202.3	1199.5	1189.5	1178.9
12.5°	1190.2	1186.0	1174.6	1163.9
15°	1174.6	1169.6	1157.5	1145.5
17.5°	1154.0	1148.3	1136.2	1123.4
20°	1132.0	1125.6	1112.1	1098.6
22.5°	1105.0	1099.3	1085.1	1071.6
25°	1075.8	1069.4	1055.2	1041.0
27.5°	1044.6	1037.4	1023.2	1009.7
30°	1010.4	1003.3	989.1	975.6
32.5°	974.2	968.5	954.3	939.4
35°	937.3	930.1	915.9	901.7
37.5°	898.2	891.8	878.3	864.8
40°	857.0	850.6	836.4	822.9
42.5°	816.5	810.8	797.3	784.5
45°	773.1	767.4	754.6	743.3
47.5°	729.8	724.1	712.0	699.9
50°	685.7	680.0	668.7	658.0
52.5°	639.5	635.3	624.6	613.9
55°	593.3	588.4	577.7	568.5
57.5°	547.1	543.6	533.6	524.4
60°	499.5	495.3	487.5	479.6
62.5°	453.3	449.8	442.0	434.9
65°	404.3	401.5	395.1	388.7
67.5°	353.9	351.7	345.3	339.7
70°	305.5	302.0	297.0	292.0
72.5°	256.5	255.1	250.8	246.6
75°	209.6	208.2	203.9	200.4
77.5°	165.6	164.1	160.6	157.0
80°	122.2	121.5	118.7	115.8
82.5°	83.8	83.1	81.0	78.2
85°	50.5	49.0	46.9	44.8
87.5°	22.0	21.3	19.2	17.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)