

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: P188231

Luminaire Tested: **MPBL-4-LD4-UNV-1UP-LO-40**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188231
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27377)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MPBL-4-LD4-UNV-1UP-LO-40
Description:
Light Source: (84) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2637.7 lumens
Efficiency: N/A
Efficacy: 106.8 lumens/watt
Spacing Criteria (0/90/45): - / - / -
Luminous Opening: Rectangular w/ Sides (W: 4' x L: 0.42' x H: 0.29')
CIE Type: Indirect

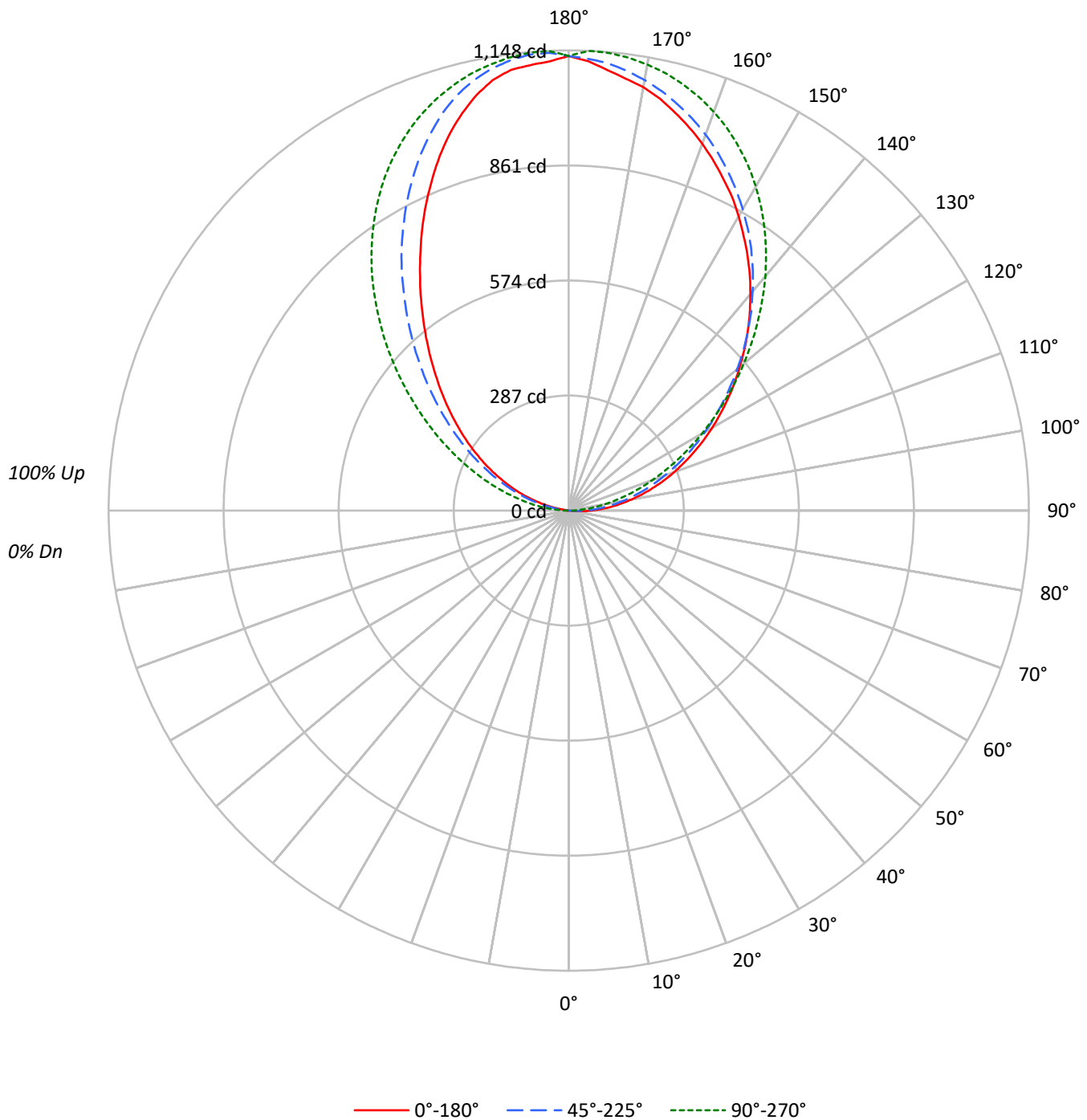
Input Watts (W): 24.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	95	95	95	95	81	81	81	81	56	56	56	32	32	32	10	10	10
1	87	83	79	76	74	71	68	65	48	47	45	28	27	26	9	9	8
2	79	72	66	62	67	62	57	53	42	40	37	24	23	22	8	7	7
3	72	63	56	51	61	54	49	44	37	34	31	21	20	18	7	6	6
4	65	56	48	43	56	48	42	37	33	29	26	19	17	16	6	6	5
5	60	49	42	36	51	42	36	32	29	25	22	17	15	13	5	5	4
6	55	44	36	31	47	38	31	27	26	22	19	15	13	11	5	4	4
7	50	39	32	27	43	34	28	23	23	19	17	14	11	10	4	4	3
8	47	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3
9	43	32	25	20	37	27	22	18	19	15	13	11	9	8	4	3	3
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	0	0	0
5°	0	0	0
10°	0	0	0
15°	0	0	0
20°	0	0	0
25°	0	0	0
30°	0	0	0
35°	0	0	0
40°	0	0	0
45°	0	0	0
50°	0	0	0
55°	0	0	0
60°	0	0	0
65°	0	0	0
70°	0	0	0
75°	0	0	0
80°	0	0	0
85°	85	0	5



TEST NUMBER: P188231

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	0.0	0.0
10°-20°	0.0	0.0
20°-30°	0.0	0.0
30°-40°	0.0	0.0
40°-50°	0.0	0.0
50°-60°	0.0	0.0
60°-70°	0.0	0.0
70°-80°	0.0	0.0
80°-90°	5.3	0.2
90°-100°	53.3	2.0
100°-110°	155.2	5.9
110°-120°	272.4	10.3
120°-130°	380.5	14.4
130°-140°	457.4	17.3
140°-150°	479.8	18.2
150°-160°	428.6	16.2
160°-170°	298.4	11.3
170°-180°	106.9	4.1
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	5.3	0.2
90°-120°	480.8	18.2
90°-150°	1798.6	68.2
90°-180°	2632.0	99.8
0°-180°	2637.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	0	0	0	0	0	
5°	0	0	0	0	0	0
15°	0	0	0	0	0	0
25°	0	0	0	0	0	0
35°	0	0	0	0	0	0
45°	0	0	0	0	0	0
55°	0	0	0	0	0	0
65°	0	0	0	0	0	0
75°	0	0	0	0	0	0
85°	10	1	0	1	1	7
90°	56	39	0	1	3	31
95°	105	86	42	1	2	97
105°	217	193	152	92	76	230
115°	344	321	299	211	187	342
125°	484	468	474	356	317	433
135°	631	632	667	530	466	487
145°	778	794	852	726	642	486
155°	913	936	1002	919	843	421
165°	1027	1049	1101	1074	1026	289
175°	1103	1120	1146	1141	1115	104
180°	1134	1134	1134	1134	1134	



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	10.3	10.3	10.9	8.5	6.6	6.0	4.8	3.0	2.4	0.6	0.6
87.5°	33.2	33.2	34.4	31.4	29.6	29.0	27.8	25.4	23.0	21.1	17.5
90°	56.2	56.2	56.8	55.0	52.0	51.4	50.1	47.7	45.9	42.9	39.3
92.5°	79.8	79.8	79.1	78.5	74.9	74.9	73.7	71.3	67.1	65.3	61.6
95°	105.1	105.1	104.5	102.7	99.7	99.7	97.9	95.5	90.6	89.4	85.8
97.5°	131.1	131.1	130.5	128.7	125.7	125.7	123.9	120.8	116.0	114.8	110.6
100°	158.9	159.5	158.9	156.5	153.5	152.9	151.0	148.6	143.2	141.4	137.1
102.5°	187.3	187.9	185.5	184.9	181.3	181.3	179.4	176.4	171.6	169.2	162.5
105°	216.9	216.9	216.3	214.5	210.9	210.3	208.4	205.4	200.0	198.2	193.3
107.5°	247.7	247.7	247.1	244.7	241.7	241.1	239.3	235.6	230.2	229.6	222.3
110°	279.1	279.1	278.5	276.1	273.1	272.5	270.1	267.0	261.6	261.6	254.4



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	311.1	311.1	312.4	308.1	304.5	303.9	302.1	299.1	295.4	293.6	287.0
115°	344.4	344.4	345.0	340.8	337.7	337.1	335.3	331.7	330.5	328.1	321.4
117.5°	378.2	376.4	378.2	374.0	371.6	371.0	369.1	366.1	363.1	361.3	356.5
120°	413.3	411.4	413.9	409.0	406.6	406.6	404.8	401.8	401.8	397.5	392.7
122.5°	448.3	446.5	448.9	444.1	441.7	439.8	440.4	438.0	438.0	434.4	430.2
125°	483.9	482.1	484.5	479.7	477.9	476.1	477.3	474.9	475.5	472.5	468.2
127.5°	520.2	519.0	520.8	516.0	514.8	513.5	514.2	512.3	513.5	508.7	508.1
130°	556.4	555.2	557.7	552.8	551.6	550.4	552.2	551.0	549.8	549.8	548.6
132.5°	593.9	592.7	595.1	590.3	589.7	588.5	590.3	590.3	589.1	587.9	590.3
135°	631.4	629.5	632.0	627.1	626.5	626.5	628.3	628.3	627.7	629.5	632.0
137.5°	668.2	666.4	669.4	665.2	664.6	664.6	667.0	667.0	667.6	670.0	673.7
140°	705.1	703.9	706.3	702.0	702.0	702.7	705.1	705.7	705.7	708.7	713.5
142.5°	741.9	740.1	742.5	738.3	739.5	740.1	742.5	744.9	744.3	749.2	754.0
145°	777.6	776.4	778.2	773.9	775.8	777.0	780.0	781.2	783.0	789.0	793.9
147.5°	812.0	811.4	813.8	809.6	812.0	813.8	816.8	818.7	821.1	827.7	831.9
150°	847.7	845.8	848.3	844.6	847.1	849.5	851.3	853.1	856.1	863.4	868.2
152.5°	882.1	880.3	880.3	877.9	880.3	882.7	885.1	887.5	891.2	899.6	903.2
155°	912.9	912.3	912.3	909.9	913.5	916.5	918.3	920.8	925.0	933.4	936.5
157.5°	944.3	943.1	943.1	942.5	946.1	949.2	951.0	953.4	957.6	965.5	968.5
160°	973.9	972.7	972.7	971.5	975.7	978.2	980.0	983.0	987.2	995.1	998.1
162.5°	1001.7	1000.5	999.9	997.5	1001.7	1004.7	1007.2	1009.6	1015.0	1022.9	1025.3
165°	1027.1	1026.5	1025.9	1024.1	1028.9	1030.7	1033.1	1035.6	1040.4	1047.6	1049.4
167.5°	1052.5	1051.3	1050.7	1048.8	1053.7	1054.9	1057.3	1058.5	1063.9	1070.0	1071.8
170°	1072.4	1072.4	1071.2	1068.8	1073.0	1075.4	1077.2	1078.4	1083.9	1089.9	1090.5
172.5°	1086.9	1086.9	1086.3	1085.1	1090.5	1093.6	1094.8	1096.0	1100.8	1106.2	1106.8
175°	1103.2	1103.2	1102.6	1102.0	1106.8	1109.3	1110.5	1111.1	1115.9	1119.5	1120.1
177.5°	1121.9	1120.1	1117.1	1113.5	1117.7	1118.9	1119.5	1120.1	1124.4	1128.0	1128.0
180°	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.6
87.5°	12.1	9.1	5.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	33.8	30.8	27.2	24.2	19.9	18.1	13.3	7.9	1.8	0.0	0.0
92.5°	57.4	52.6	48.9	45.9	41.7	39.9	35.0	30.2	24.2	18.7	12.7
95°	80.4	75.5	72.5	69.5	65.3	62.8	58.0	53.2	47.7	41.7	35.6
97.5°	105.7	100.3	97.3	94.3	89.4	87.6	82.2	77.3	71.9	65.9	59.8
100°	131.7	126.9	122.6	120.2	116.0	114.2	108.8	103.9	98.5	92.4	85.2
102.5°	160.1	154.7	151.0	148.6	144.4	142.6	137.8	132.9	127.5	120.8	113.6
105°	189.1	183.7	181.9	178.8	174.6	172.8	168.0	163.7	158.9	152.3	144.4
107.5°	218.7	216.3	212.7	210.9	206.6	204.8	202.4	197.0	192.7	186.1	177.6
110°	250.7	247.1	245.9	244.7	239.9	239.3	235.6	232.6	228.4	221.7	213.3



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	283.4	280.3	280.3	279.7	275.5	274.9	271.9	269.5	264.0	259.2	250.7
115°	318.4	317.2	315.4	316.6	312.4	313.0	311.1	309.3	303.3	299.1	289.4
117.5°	354.0	351.6	352.2	354.6	351.0	351.6	349.2	348.0	344.4	340.1	330.5
120°	392.1	392.1	391.5	394.5	391.5	392.7	393.3	393.9	387.9	383.6	374.6
122.5°	432.6	431.4	431.4	435.0	432.6	434.4	436.2	437.4	432.0	428.4	418.7
125°	471.9	473.1	471.9	476.7	474.3	477.3	477.9	480.3	477.3	473.7	465.2
127.5°	512.3	514.2	513.5	516.6	517.2	521.4	525.6	529.3	524.4	521.4	512.9
130°	554.0	554.0	555.8	557.0	560.7	565.5	569.1	577.0	571.5	569.7	561.9
132.5°	596.3	596.9	598.7	603.0	605.4	610.2	616.3	621.7	619.3	618.7	611.4
135°	638.0	639.8	640.4	645.9	648.9	654.9	662.2	668.2	667.0	667.0	659.8
137.5°	678.5	681.5	679.7	689.4	693.0	700.2	708.7	714.7	714.1	715.3	708.7
140°	718.4	722.6	720.8	731.7	736.5	743.7	754.0	760.7	763.1	763.1	756.4
142.5°	759.4	763.1	761.3	773.9	779.4	787.2	798.1	804.2	805.4	808.4	802.9
145°	800.5	802.3	802.3	815.6	821.7	828.9	840.4	847.1	848.3	852.5	848.3
147.5°	839.2	839.2	841.6	855.5	859.7	869.4	881.5	887.5	891.8	894.2	889.9
150°	876.1	875.4	879.1	893.6	900.8	908.1	920.2	925.6	929.8	933.4	930.4
152.5°	911.7	909.9	915.3	929.8	937.1	944.3	956.4	961.8	966.1	969.7	967.9
155°	944.3	941.9	948.6	963.1	968.5	976.9	989.6	994.5	998.1	1002.3	1001.1
157.5°	975.1	972.7	980.0	994.5	1001.1	1007.8	1020.4	1024.7	1027.7	1032.5	1031.9
160°	1005.9	1001.7	1009.6	1022.9	1028.9	1035.6	1047.0	1051.3	1054.3	1058.5	1059.7
162.5°	1031.9	1027.7	1034.9	1047.6	1053.7	1060.3	1071.2	1074.2	1076.6	1081.5	1082.7
165°	1054.3	1051.3	1058.5	1070.6	1076.0	1082.7	1092.3	1094.8	1096.6	1100.8	1102.6
167.5°	1075.4	1071.2	1079.1	1089.9	1095.4	1102.0	1110.5	1112.9	1114.1	1117.7	1118.9
170°	1092.9	1088.7	1096.0	1106.2	1110.5	1117.1	1125.0	1125.6	1126.8	1129.8	1131.0
172.5°	1106.8	1102.6	1109.3	1118.3	1123.2	1129.2	1135.8	1136.4	1136.4	1139.5	1140.7
175°	1118.3	1114.1	1120.1	1128.6	1132.2	1138.3	1144.3	1144.3	1143.7	1146.1	1146.7
177.5°	1124.4	1120.7	1125.6	1133.4	1137.1	1141.9	1147.9	1146.7	1146.1	1147.9	1148.5
180°	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	1.2	1.2	1.8	1.8
92.5°	7.9	4.2	0.0	0.0	0.0	0.0	0.6	0.6	1.2	1.2	1.8
95°	30.2	26.6	19.9	17.5	15.1	9.1	4.2	2.4	1.2	1.2	1.2
97.5°	53.8	50.1	42.9	39.3	38.1	32.6	27.2	23.6	18.7	13.9	10.9
100°	79.1	74.9	67.1	63.4	62.2	55.0	50.8	47.1	42.9	38.7	35.6
102.5°	106.9	102.1	93.6	89.4	87.6	80.4	75.5	71.9	67.1	62.8	60.4
105°	137.1	131.7	122.0	117.2	115.4	108.1	101.5	97.3	92.4	88.2	85.8
107.5°	169.8	163.7	153.5	148.0	145.6	136.5	128.7	125.1	119.6	114.8	111.8
110°	204.8	197.6	186.1	180.0	177.6	168.0	159.5	154.7	148.0	143.2	139.6



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	242.9	233.8	221.1	214.5	212.1	200.6	190.9	185.5	178.2	172.8	168.0
115°	280.3	271.3	258.6	251.3	248.3	235.6	226.0	218.7	210.9	203.6	198.2
117.5°	320.8	311.1	297.9	290.0	286.4	274.3	262.2	251.9	244.7	237.4	230.2
120°	363.7	353.4	339.5	331.1	327.5	311.8	300.3	288.8	280.9	271.9	264.0
122.5°	407.2	396.9	382.4	374.0	369.8	352.2	339.5	327.5	317.8	308.1	299.7
125°	452.5	441.0	427.2	418.1	413.3	396.9	380.0	367.3	356.5	346.2	335.9
127.5°	499.0	487.0	472.5	463.4	458.6	441.0	423.5	409.0	397.5	386.1	374.0
130°	547.4	534.7	519.0	509.9	505.1	486.4	467.6	452.5	439.8	427.2	414.5
132.5°	596.3	583.6	567.9	558.3	554.0	534.1	513.5	496.0	484.5	470.0	456.2
135°	645.3	631.4	615.7	606.6	602.4	582.4	561.3	545.0	529.9	514.8	499.7
137.5°	694.2	680.9	664.6	655.5	651.3	632.6	610.2	592.7	577.6	561.3	545.0
140°	743.1	729.2	712.9	704.5	700.2	679.1	659.2	641.0	625.3	608.4	592.1
142.5°	789.7	776.4	760.7	752.2	748.6	728.6	707.5	689.4	674.3	656.7	639.2
145°	836.2	823.5	808.4	799.9	796.9	778.8	758.2	740.1	725.6	707.5	690.0
147.5°	879.7	867.6	853.1	845.2	840.4	827.1	807.2	790.3	776.4	758.8	741.3
150°	920.8	909.3	896.0	889.3	884.5	873.6	855.5	839.2	824.1	809.0	792.1
152.5°	959.4	949.2	935.3	931.6	927.4	918.3	902.6	886.9	873.0	859.1	842.2
155°	993.9	984.8	974.5	969.1	966.1	959.4	945.5	931.6	918.9	906.9	890.6
157.5°	1025.3	1016.8	1007.8	1004.1	1001.1	997.5	986.6	973.3	963.7	953.4	939.5
160°	1053.1	1045.8	1038.6	1035.6	1033.1	1031.9	1022.9	1012.6	1004.1	996.3	984.8
162.5°	1077.2	1070.6	1064.6	1062.1	1060.9	1062.1	1056.1	1046.4	1042.2	1034.3	1024.7
165°	1097.2	1091.1	1086.3	1084.5	1083.9	1087.5	1083.3	1076.6	1073.6	1068.2	1060.3
167.5°	1114.1	1108.7	1103.8	1103.2	1103.8	1108.1	1106.2	1100.8	1099.0	1096.0	1091.1
170°	1127.4	1121.9	1118.9	1117.7	1118.3	1124.4	1123.8	1118.9	1118.3	1116.5	1113.5
172.5°	1136.4	1131.0	1128.6	1128.0	1128.6	1135.2	1135.8	1132.2	1132.2	1131.6	1129.8
175°	1143.1	1137.7	1134.6	1134.0	1135.2	1141.9	1143.1	1140.7	1141.3	1141.3	1140.7
177.5°	1144.3	1138.3	1136.4	1135.8	1137.1	1143.1	1144.9	1142.5	1143.1	1144.3	1143.7
180°	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6
87.5°	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8
90°	2.4	2.4	2.4	2.4	2.4	3.0	3.0	3.0
92.5°	1.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4
95°	1.2	1.8	1.8	1.8	2.4	2.4	2.4	2.4
97.5°	8.5	6.6	6.0	5.4	4.2	4.2	3.6	3.6
100°	32.0	29.0	28.4	26.6	25.4	23.6	23.0	21.8
102.5°	58.0	55.6	55.0	53.2	52.6	50.8	50.1	48.9
105°	82.8	81.0	81.0	79.1	77.9	76.7	76.7	75.5
107.5°	108.8	107.5	107.5	106.3	104.5	104.5	103.9	102.1
110°	136.5	135.3	134.7	133.5	132.3	131.1	131.7	129.9



TEST NUMBER: P188231

CATALOG NUMBER: MPBL-4-LD4-UNV-1UP-LO-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	164.9	163.7	163.7	161.9	161.9	160.7	160.1	158.3
115°	196.4	193.3	192.7	191.5	190.9	189.7	189.7	187.3
117.5°	227.2	224.8	224.8	222.9	221.7	219.9	219.9	218.7
120°	261.0	257.4	256.8	255.0	253.8	252.5	251.9	250.1
122.5°	294.8	291.2	290.6	288.8	286.4	284.6	284.6	282.8
125°	331.1	326.3	325.0	323.2	320.8	318.4	318.4	316.6
127.5°	368.5	363.1	361.9	359.5	356.5	354.0	353.4	351.6
130°	407.2	401.2	400.0	396.9	393.9	390.3	389.7	388.5
132.5°	446.5	441.7	439.8	436.8	433.2	427.2	428.4	426.5
135°	488.2	482.7	480.9	477.3	473.1	468.2	467.6	465.8
137.5°	532.3	526.2	521.4	520.2	516.0	508.1	508.7	506.9
140°	578.8	571.5	569.1	565.5	560.1	552.2	552.2	550.4
142.5°	625.3	617.5	613.2	611.4	606.0	597.5	597.5	595.1
145°	674.9	666.4	661.6	659.8	654.3	645.3	645.3	642.2
147.5°	725.6	715.9	711.7	709.3	703.9	694.2	693.0	690.6
150°	777.0	766.7	762.5	760.0	754.6	744.3	743.1	740.1
152.5°	826.5	816.8	812.6	810.8	806.0	796.3	794.5	792.1
155°	876.1	866.4	862.8	860.9	857.3	847.1	844.6	842.8
157.5°	926.2	916.5	912.9	911.7	908.7	897.8	894.8	892.4
160°	972.7	963.7	960.6	960.0	957.6	946.7	943.1	941.3
162.5°	1013.2	1005.3	1002.9	1002.9	1001.1	992.1	987.8	986.6
165°	1050.1	1042.8	1039.8	1040.4	1040.4	1031.3	1027.7	1026.5
167.5°	1081.5	1075.4	1074.8	1074.8	1075.4	1067.6	1063.9	1062.1
170°	1105.0	1100.2	1100.2	1100.8	1103.2	1096.0	1092.3	1090.5
172.5°	1122.6	1117.7	1117.7	1118.9	1120.7	1114.7	1110.5	1108.7
175°	1134.0	1129.2	1129.8	1130.4	1131.0	1123.8	1118.3	1115.3
177.5°	1137.1	1132.8	1132.2	1133.4	1135.2	1129.2	1124.4	1121.3
180°	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0	1134.0

(END OF REPORT)