

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: P188258

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188258
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27379)
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-1LO-1LO-40
Description:
Light Source: (168) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5120.0 lumens
Efficiency: N/A
Efficacy: 100.8 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.19 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 4' x L: 0.42' x H: 0.29')
CIE Type: General Diffuse

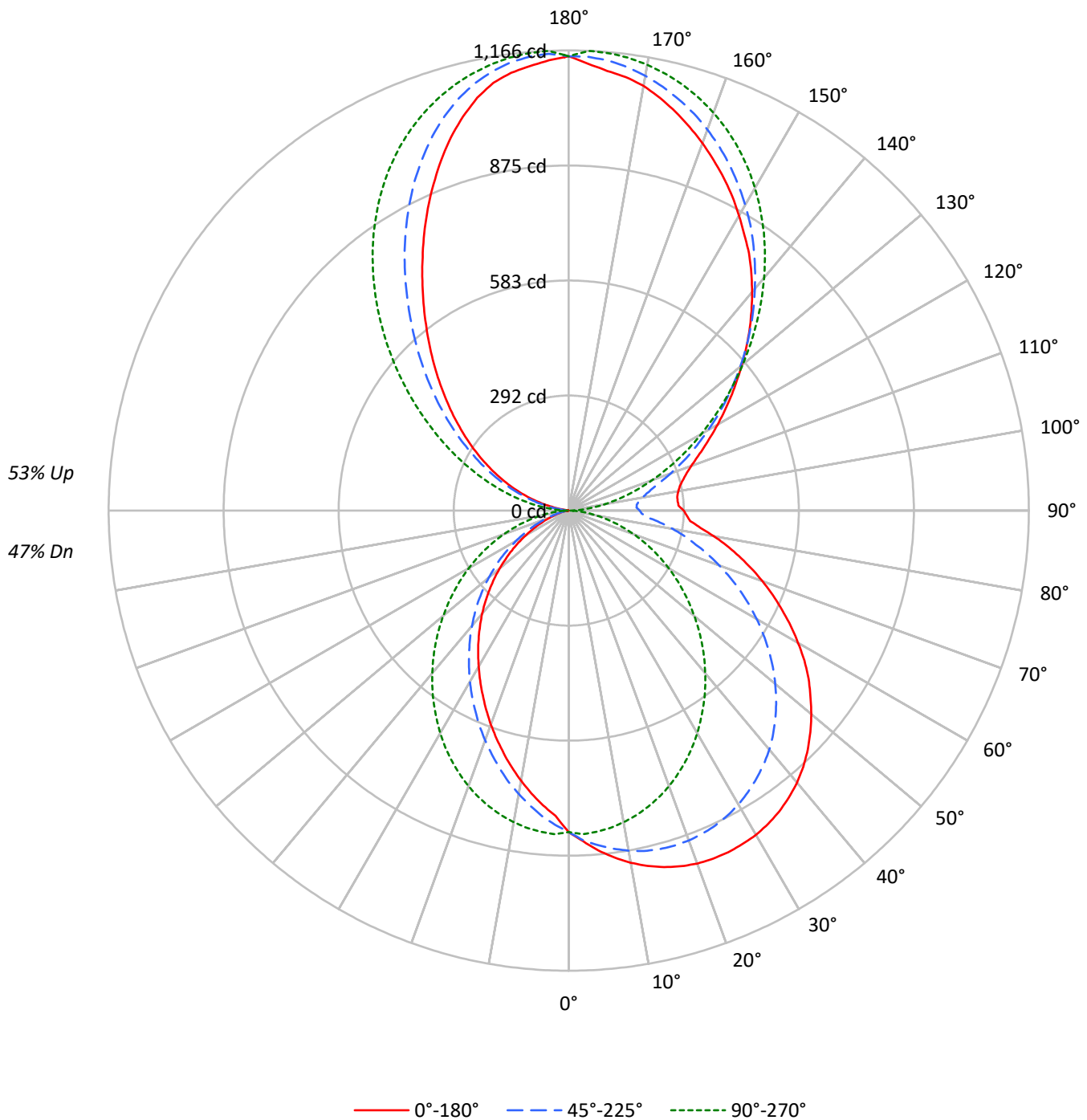
Input Watts (W): 50.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P188258

CATALOG NUMBER: MPBL-4-LD4-UNV-1LO-1LO-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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	106	106	106	106	98	98	98	98	81	81	81		67	67	67		47
1	96	92	88	84	88	84	81	77	70	68	65		58	56	54		38
2	87	80	73	68	80	73	68	63	61	57	54		50	47	45		31
3	80	70	62	56	73	64	58	52	54	49	45		44	41	37		26
4	73	62	54	47	66	57	50	44	48	42	38		39	35	32		22
5	67	55	47	41	61	51	43	38	43	37	33		35	31	28		19
6	61	49	41	35	56	45	38	33	38	33	28		32	27	24		17
7	57	44	36	31	52	41	34	29	35	29	25		29	24	21		15
8	53	40	32	27	48	37	30	25	32	26	22		26	22	19		13
9	49	37	29	24	45	34	27	23	29	23	20		24	20	17		12
10	46	34	26	21	42	31	25	20	27	21	18		22	18	15		11

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5261	5261	5261
5°	5282	5263	4578
10°	5289	5191	4058
15°	5266	5094	3584
20°	5213	4976	3159
25°	5133	4828	2771
30°	5039	4660	2422
35°	4923	4473	2107
40°	4780	4273	1814
45°	4603	4064	1526
50°	4395	3838	1253
55°	4179	3606	989
60°	3919	3357	737
65°	3647	3078	503
70°	3371	2753	311
75°	3083	2356	169
80°	2788	1860	68
85°	2545	1233	5



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.0	1.5
10°-20°	219.9	4.3
20°-30°	330.5	6.5
30°-40°	394.9	7.7
40°-50°	406.6	7.9
50°-60°	366.5	7.2
60°-70°	286.7	5.6
70°-80°	191.6	3.7
80°-90°	111.6	2.2
90°-100°	100.7	2.0
100°-110°	173.5	3.4
110°-120°	280.6	5.5
120°-130°	386.3	7.5
130°-140°	463.3	9.0
140°-150°	485.6	9.5
150°-160°	434.0	8.5
160°-170°	302.3	5.9
170°-180°	108.4	2.1
0°-30°	627.4	12.3
0°-40°	1022.3	20.0
0°-60°	1795.3	35.1
0°-90°	2385.3	46.6
90°-120°	554.8	10.8
90°-150°	1890.0	36.9
90°-180°	2735.0	53.4
0°-180°	5120.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	815	815	815	815	815	
5°	865	851	817	777	749	84
15°	935	888	777	676	637	265
25°	956	880	701	560	516	441
35°	930	829	596	440	398	582
45°	857	741	477	323	284	661
55°	742	619	354	209	176	663
65°	597	479	233	106	82	592
75°	446	334	120	31	24	472
85°	309	201	30	2	1	267
90°	292	180	2	2	4	159
95°	277	173	40	0	0	227
105°	299	221	154	90	71	319
115°	377	338	303	209	185	376
125°	501	486	479	355	315	449
135°	648	651	673	526	465	500
145°	796	816	862	722	641	497
155°	930	965	1015	923	845	428
165°	1046	1079	1117	1080	1034	295
175°	1118	1144	1163	1154	1130	106
180°	1151	1151	1151	1151	1151	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6
2.5°	839.0	835.9	837.2	839.0	838.4	837.2	836.6	837.2	840.2	838.4	835.9
5°	864.6	862.8	862.8	862.2	860.3	858.5	856.7	856.7	857.9	855.5	851.2
7.5°	886.6	884.7	884.1	882.9	879.2	878.6	876.2	873.8	874.4	870.1	864.0
10°	906.1	903.0	901.8	900.0	896.3	893.9	891.4	889.0	887.8	882.3	875.0
12.5°	922.5	920.1	918.3	915.2	910.9	909.1	906.1	901.2	898.8	892.0	883.5
15°	935.3	932.9	931.7	929.2	924.4	921.9	917.7	911.6	906.7	898.8	888.4
17.5°	945.1	943.3	941.4	938.4	933.5	929.8	925.6	918.3	911.6	903.0	890.2
20°	951.8	950.6	947.5	943.3	937.8	934.1	929.2	920.7	913.4	903.6	889.6
22.5°	954.8	953.6	951.2	946.3	939.6	935.3	930.5	920.1	911.6	901.2	885.9
25°	955.5	954.2	951.2	946.3	939.6	935.3	930.5	918.9	907.9	896.9	879.9
27.5°	953.0	951.8	948.8	943.9	936.6	931.7	926.8	914.0	902.4	890.2	871.3
30°	948.8	946.9	943.9	938.4	930.5	925.6	919.5	906.1	892.7	879.2	859.7
32.5°	940.8	939.6	935.9	930.5	921.3	916.4	909.7	895.7	881.1	865.8	845.7
35°	930.5	928.6	925.0	919.5	909.7	904.2	897.5	882.3	865.8	850.6	829.2
37.5°	916.4	915.8	910.9	905.5	895.1	889.6	882.9	867.0	850.0	832.3	811.0
40°	900.0	898.1	893.9	887.8	877.4	871.9	864.6	848.1	829.9	812.2	790.8
42.5°	879.9	878.0	873.8	867.7	856.7	850.6	843.3	826.8	809.1	789.0	767.0
45°	856.7	855.5	851.2	844.5	833.5	826.8	820.1	803.0	784.7	764.0	740.8
47.5°	830.5	829.9	825.0	818.3	807.9	800.6	793.9	775.6	758.5	737.2	712.8
50°	802.4	801.2	796.9	789.6	778.6	771.9	765.2	746.9	729.9	707.9	682.9
52.5°	771.9	771.3	767.0	759.1	748.8	743.3	734.7	716.4	699.4	676.8	651.8
55°	742.1	738.4	735.3	726.8	716.4	710.3	702.4	682.3	667.7	644.5	618.9
57.5°	707.9	703.6	700.0	692.1	681.7	676.2	667.1	649.4	632.3	610.3	584.7
60°	671.3	668.3	664.6	656.1	645.7	640.2	631.7	613.4	596.9	575.0	550.0
62.5°	634.7	631.1	628.0	619.5	609.1	603.6	595.1	577.4	561.0	539.0	514.6
65°	596.9	593.3	590.2	582.3	571.3	566.4	557.9	539.0	524.4	502.4	478.6
67.5°	559.7	556.1	553.0	544.5	533.5	529.3	520.7	503.6	487.8	465.2	442.1
70°	521.9	518.3	515.2	507.3	496.3	491.4	482.9	465.2	449.4	428.6	405.5
72.5°	484.1	480.5	476.8	468.9	458.5	454.3	445.7	429.3	414.0	392.1	370.1
75°	446.3	442.7	439.6	431.7	421.3	416.5	408.5	392.7	377.4	356.1	333.5
77.5°	409.7	405.5	402.4	395.1	384.7	379.9	371.9	357.9	341.5	321.3	301.2
80°	372.5	369.5	367.7	358.5	348.2	343.9	336.0	321.9	306.1	286.6	267.1
82.5°	337.2	333.5	331.1	323.2	312.8	308.5	300.6	287.2	271.3	254.3	233.5
85°	309.1	307.9	302.4	294.5	284.1	278.0	270.7	255.5	239.0	221.3	201.2
87.5°	299.4	298.2	293.3	285.4	274.4	268.3	261.0	245.7	227.4	207.3	185.4
90°	291.5	289.6	285.4	277.4	267.1	260.4	253.7	237.8	220.7	201.2	179.9
92.5°	278.6	277.4	273.2	265.8	255.5	249.4	242.7	227.4	210.4	192.1	171.9
95°	276.8	275.0	270.7	263.4	253.7	247.6	240.8	226.8	210.4	192.1	173.2
97.5°	277.4	276.2	271.9	264.6	254.9	249.4	243.3	229.3	214.0	196.3	179.3
100°	281.7	279.9	275.6	269.5	260.4	254.3	248.8	235.4	220.7	204.3	189.0
102.5°	288.4	287.2	282.9	277.4	268.3	262.8	257.9	245.1	231.7	215.8	203.0
105°	299.4	297.6	293.9	288.4	279.9	275.0	270.7	258.5	246.9	232.9	221.3
107.5°	312.8	310.4	307.9	303.0	295.1	290.2	286.6	276.2	264.6	254.3	246.3
110°	329.9	328.6	325.0	321.3	314.0	309.7	307.3	298.2	290.2	280.5	274.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	351.8	349.4	346.9	343.9	337.8	334.1	331.7	324.4	317.7	309.1	304.9
115°	377.4	377.4	373.8	370.1	364.6	361.6	359.7	353.0	347.6	340.8	338.4
117.5°	404.9	401.8	401.2	398.2	393.3	390.8	389.6	384.1	379.9	374.4	371.3
120°	435.4	432.3	431.7	428.6	424.4	422.5	423.2	417.1	414.0	409.7	407.9
122.5°	467.1	464.0	464.0	461.6	457.9	456.1	454.9	451.8	450.0	446.9	446.3
125°	501.2	497.5	497.5	495.7	492.1	490.8	490.8	488.4	487.8	486.0	486.0
127.5°	535.3	531.7	532.3	530.5	528.0	526.8	527.4	526.2	526.8	525.6	526.2
130°	571.9	568.3	568.9	567.7	565.8	565.2	566.4	565.8	567.1	566.4	567.7
132.5°	609.7	606.1	606.7	605.5	604.2	603.6	605.5	605.5	607.3	607.3	609.1
135°	647.5	643.3	644.5	643.9	642.7	642.1	644.5	645.1	646.9	648.2	650.6
137.5°	685.3	681.1	681.7	681.7	681.1	681.1	683.5	684.1	687.2	689.0	692.7
140°	722.5	718.9	719.5	719.5	719.5	719.5	722.5	723.8	726.8	728.6	733.5
142.5°	759.7	756.1	756.7	756.7	757.3	757.9	761.0	762.8	765.8	768.9	775.0
145°	796.3	792.0	792.7	793.3	794.5	795.1	798.1	801.2	804.9	806.7	816.4
147.5°	828.0	827.4	828.6	829.2	831.1	831.7	835.9	839.0	843.9	846.3	856.7
150°	862.8	862.2	863.4	864.6	866.4	868.3	872.5	875.6	880.5	885.3	894.5
152.5°	897.5	896.9	897.5	898.1	900.0	901.2	906.1	909.7	914.6	918.9	930.5
155°	929.8	929.8	930.5	931.7	933.5	935.3	940.2	943.9	948.8	953.6	965.2
157.5°	960.3	960.3	962.2	964.0	966.4	968.3	973.1	976.8	981.7	986.6	997.5
160°	990.8	990.8	992.7	994.5	996.9	998.7	1003.0	1007.3	1012.2	1016.4	1027.4
162.5°	1018.9	1018.3	1020.7	1020.7	1023.1	1025.6	1029.8	1034.1	1039.0	1044.5	1054.8
165°	1045.7	1045.1	1047.5	1046.9	1049.4	1051.8	1056.1	1060.3	1065.2	1070.7	1078.6
167.5°	1070.7	1069.5	1071.3	1071.9	1073.7	1076.2	1079.8	1084.1	1087.8	1092.6	1100.0
170°	1092.6	1092.6	1093.3	1092.6	1094.5	1096.3	1100.0	1104.2	1107.3	1112.8	1118.3
172.5°	1107.9	1106.7	1107.9	1109.1	1110.9	1113.4	1117.0	1121.3	1124.4	1129.2	1133.5
175°	1118.3	1118.3	1120.7	1123.1	1125.0	1127.4	1131.1	1135.3	1137.8	1142.0	1144.5
177.5°	1132.9	1131.7	1132.3	1133.5	1134.7	1137.2	1140.2	1144.5	1145.7	1150.6	1150.6
180°	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6
2.5°	832.3	825.6	823.1	822.5	823.1	823.8	823.8	823.8	823.8	820.7	815.2
5°	845.7	837.8	832.9	830.5	829.2	829.2	826.8	825.0	822.5	817.0	809.7
7.5°	856.7	846.9	839.6	835.3	833.5	831.7	827.4	823.1	818.3	811.0	800.6
10°	865.2	853.6	844.5	837.8	834.7	831.7	825.0	818.9	811.6	801.8	789.6
12.5°	871.3	857.9	846.3	837.2	833.5	829.2	820.7	812.2	802.4	790.8	776.8
15°	874.4	859.1	845.7	834.1	828.6	823.8	812.8	802.4	790.2	776.8	760.3
17.5°	875.0	857.9	841.4	828.0	821.9	816.4	803.0	790.2	776.2	761.0	742.1
20°	873.1	854.2	835.9	820.1	813.4	806.1	790.8	776.2	759.7	743.3	723.1
22.5°	868.3	846.9	826.8	809.1	801.2	793.3	775.6	759.1	740.8	722.5	701.2
25°	860.9	837.8	815.8	795.7	787.2	778.0	759.1	740.2	721.3	700.6	677.4
27.5°	850.6	826.2	802.4	780.5	770.7	760.3	739.6	719.5	699.4	676.8	652.4
30°	837.2	812.8	786.6	762.8	751.8	740.8	718.3	696.3	675.0	651.2	626.2
32.5°	822.5	796.3	768.9	743.3	731.7	720.1	695.1	671.9	649.4	623.8	598.2
35°	805.5	778.0	749.4	722.5	709.1	697.5	670.7	646.3	621.3	596.3	570.1
37.5°	786.6	757.9	728.0	700.0	686.0	673.2	645.7	619.5	593.9	567.7	541.4
40°	764.6	736.0	704.9	675.0	660.3	646.9	618.3	591.4	564.6	537.8	511.6
42.5°	740.2	711.6	679.9	649.4	634.1	619.5	590.2	562.2	534.7	507.9	481.1
45°	714.6	684.7	653.0	622.5	606.1	592.1	561.6	532.9	504.9	477.4	451.2
47.5°	686.6	656.7	625.0	592.1	576.8	562.8	531.1	502.4	473.8	446.3	419.5
50°	656.7	627.4	595.1	564.0	546.3	531.7	500.6	471.9	442.7	415.2	390.2
52.5°	625.0	595.1	564.6	532.3	517.7	501.2	470.7	439.6	411.6	384.1	360.4
55°	592.7	562.8	531.1	499.4	485.4	469.5	437.2	408.5	380.5	353.6	328.6
57.5°	558.5	528.6	498.8	467.7	452.4	436.6	406.7	378.0	348.8	323.2	300.6
60°	524.4	494.5	464.6	434.7	419.5	404.3	374.4	346.3	317.7	292.7	270.7
62.5°	489.0	460.4	431.1	400.6	386.0	371.3	342.7	314.6	287.2	262.8	241.5
65°	453.6	425.6	395.1	367.1	353.0	338.4	309.1	282.3	256.7	232.9	212.2
67.5°	417.7	390.8	362.8	333.5	319.5	306.1	278.6	251.8	226.8	203.7	183.5
70°	382.3	356.1	329.3	300.0	286.6	273.2	247.6	221.3	198.8	175.0	156.1
72.5°	346.3	321.9	295.7	267.1	254.3	240.8	217.1	192.1	169.5	146.9	128.7
75°	311.6	286.0	261.0	234.7	221.9	209.7	185.4	161.6	141.5	120.1	102.4
77.5°	276.8	254.3	229.9	203.0	190.8	178.7	157.3	134.1	114.0	93.9	78.7
80°	243.3	220.7	198.2	172.6	161.0	149.4	128.7	107.3	89.0	70.7	56.7
82.5°	211.6	189.6	167.7	144.5	132.3	121.3	102.4	83.5	65.9	49.4	36.6
85°	179.9	158.5	139.0	117.1	106.1	95.7	76.8	60.4	45.1	30.5	19.5
87.5°	162.2	137.8	115.2	93.3	82.3	71.9	56.1	40.9	26.2	14.0	4.3
90°	157.3	134.8	112.2	89.6	78.7	68.3	47.6	28.7	12.2	1.8	0.0
92.5°	151.2	129.9	109.1	89.0	79.9	70.1	51.8	34.8	23.2	17.1	11.0
95°	153.7	134.1	115.2	96.9	88.4	80.5	64.0	52.4	45.7	39.6	34.1
97.5°	161.0	143.3	126.2	109.1	101.8	95.7	84.8	76.2	71.9	64.6	59.8
100°	171.9	156.7	141.5	128.0	123.8	119.5	109.8	103.7	98.8	91.5	85.4
102.5°	187.2	175.0	164.0	153.0	150.0	146.3	138.4	132.9	128.7	121.3	114.6
105°	209.7	200.0	190.8	181.1	179.3	176.2	170.7	165.2	162.2	153.7	146.3
107.5°	236.0	228.0	218.9	212.2	211.6	207.9	204.3	199.4	196.3	187.8	181.7
110°	264.0	258.5	250.6	246.3	245.1	243.3	239.6	235.4	233.5	224.4	215.8



TEST NUMBER: P188258

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	296.9	292.1	287.2	282.3	281.7	279.9	276.8	273.2	271.3	262.8	256.1
115°	331.1	329.3	323.8	321.9	318.3	318.3	315.8	312.8	311.0	303.0	295.7
117.5°	367.1	366.5	360.4	359.1	357.3	357.3	355.5	355.5	352.4	344.5	337.8
120°	404.9	403.6	400.0	399.4	398.2	398.8	398.8	398.8	395.7	387.2	381.1
122.5°	443.9	445.7	441.4	443.3	440.2	441.4	442.1	440.8	440.2	432.3	426.2
125°	484.1	487.2	482.9	483.5	483.5	484.7	486.6	489.0	486.6	478.6	473.2
127.5°	525.0	528.6	525.0	526.8	526.2	528.6	532.3	534.7	534.1	526.2	521.3
130°	567.1	571.9	568.3	570.7	570.7	573.8	578.6	582.3	582.9	575.6	570.1
132.5°	608.5	614.6	612.2	614.0	615.2	619.5	625.0	629.9	626.8	624.4	617.1
135°	654.2	657.9	655.5	658.5	660.3	665.8	670.7	677.4	677.4	673.2	666.4
137.5°	695.7	700.0	700.0	702.4	705.5	711.6	717.1	723.8	726.2	722.5	716.4
140°	737.2	740.8	741.4	745.7	750.0	756.7	764.6	770.1	773.1	770.1	764.6
142.5°	778.0	782.3	781.1	789.0	793.9	800.0	806.1	814.6	816.4	816.4	811.6
145°	819.5	823.1	824.4	831.7	836.6	843.3	851.2	858.5	860.9	861.6	857.3
147.5°	857.9	862.2	864.0	871.9	876.8	884.1	891.4	900.0	903.0	903.6	900.6
150°	894.5	900.0	902.4	911.6	916.4	923.1	930.5	939.0	942.7	943.9	941.4
152.5°	929.8	935.9	939.0	948.8	953.6	960.3	967.0	975.6	979.8	981.1	979.2
155°	962.8	969.5	972.5	982.9	987.8	993.9	1000.6	1009.1	1013.4	1015.2	1014.0
157.5°	993.9	1000.6	1003.6	1014.6	1018.9	1024.4	1031.1	1039.6	1043.9	1045.7	1045.1
160°	1022.5	1028.0	1032.9	1043.3	1048.1	1052.4	1058.5	1067.0	1071.3	1072.5	1073.1
162.5°	1050.0	1054.8	1059.1	1068.3	1072.5	1076.2	1082.3	1090.2	1094.5	1096.3	1096.3
165°	1073.7	1079.2	1082.3	1091.4	1095.7	1098.7	1104.2	1112.2	1116.4	1117.0	1117.6
167.5°	1095.1	1098.7	1102.4	1110.9	1114.6	1117.6	1121.9	1128.6	1132.9	1133.5	1134.1
170°	1112.8	1116.4	1119.5	1127.4	1130.5	1133.5	1135.9	1142.6	1146.3	1146.9	1147.5
172.5°	1127.4	1130.5	1132.9	1140.2	1142.6	1145.1	1147.5	1153.0	1156.7	1157.3	1157.3
175°	1138.4	1140.2	1142.6	1148.7	1151.8	1153.0	1155.5	1160.3	1163.4	1163.4	1164.0
177.5°	1145.1	1146.3	1148.1	1153.6	1156.1	1156.7	1158.5	1163.4	1166.4	1165.8	1166.4
180°	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2



TEST NUMBER: P188258

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6
2.5°	809.7	803.6	801.2	800.6	800.6	799.4	796.9	796.3	796.9	796.3	793.3
5°	801.2	793.3	788.4	787.2	786.6	783.5	779.2	777.4	776.8	773.8	769.5
7.5°	791.4	781.1	774.4	771.9	770.7	765.8	759.7	756.1	753.6	750.0	744.5
10°	778.0	765.8	757.9	754.2	752.4	745.1	737.8	732.9	729.2	723.8	717.7
12.5°	762.8	748.8	739.0	734.7	731.7	723.1	714.6	708.5	704.2	697.5	690.8
15°	745.1	729.2	717.7	712.2	709.7	700.0	689.6	682.9	676.2	669.5	662.2
17.5°	725.6	707.9	695.1	689.6	685.3	673.8	662.8	655.5	647.5	640.8	633.5
20°	704.2	685.3	670.7	665.2	659.7	647.5	635.3	628.0	619.5	613.4	604.2
22.5°	680.5	660.3	645.1	639.0	633.5	620.1	607.3	598.8	590.2	582.9	573.8
25°	655.5	634.7	618.9	611.6	605.5	592.1	578.0	569.5	560.3	553.0	543.9
27.5°	629.2	607.3	590.8	583.5	577.4	562.2	548.8	540.2	530.5	523.2	514.0
30°	601.8	579.3	562.2	554.9	548.2	532.9	519.5	511.0	500.6	493.3	484.7
32.5°	573.2	550.0	533.5	525.6	517.7	503.0	490.8	479.3	470.1	463.4	454.3
35°	544.5	520.7	503.0	495.7	488.4	473.2	461.0	450.0	439.6	432.3	424.4
37.5°	515.2	491.4	473.8	466.4	459.1	443.9	431.7	420.7	411.6	402.4	395.1
40°	485.4	462.2	445.7	437.2	429.3	414.0	402.4	390.8	381.7	372.5	365.8
42.5°	455.5	432.3	415.8	407.3	399.4	384.7	372.5	361.0	351.8	343.3	336.0
45°	425.0	402.4	385.4	378.0	370.1	355.5	342.1	331.7	323.2	314.6	307.3
47.5°	395.1	373.8	356.1	349.4	340.8	326.2	312.8	302.4	293.3	286.0	278.0
50°	365.2	344.5	326.8	318.9	311.6	296.9	283.5	273.2	264.6	256.7	250.0
52.5°	336.6	315.2	297.6	290.8	282.3	267.1	255.5	244.5	236.0	228.0	220.7
55°	305.5	286.6	268.9	262.2	253.7	239.0	227.4	216.5	209.1	200.0	193.9
57.5°	277.4	256.7	240.8	232.9	224.4	211.6	198.8	188.4	181.1	172.6	167.7
60°	248.2	228.0	211.0	204.9	196.3	183.5	170.7	161.6	154.9	146.9	142.1
62.5°	219.5	200.0	184.8	176.8	168.9	156.7	144.5	135.4	129.3	122.6	117.1
65°	190.2	173.2	157.3	149.4	142.1	129.3	119.5	111.0	105.5	98.8	95.1
67.5°	164.0	146.3	132.3	123.8	116.5	104.9	96.3	88.4	83.5	78.0	74.4
70°	136.0	120.1	106.7	98.8	92.1	82.3	74.4	67.7	63.4	59.8	55.5
72.5°	111.0	95.7	82.9	75.6	70.1	62.2	55.5	48.8	45.7	42.7	40.2
75°	85.4	73.2	61.6	55.5	50.6	43.9	38.4	32.9	31.1	29.3	28.0
77.5°	65.2	51.8	42.1	37.2	34.1	27.4	24.4	21.3	20.7	19.5	18.3
80°	44.5	33.5	25.6	21.3	19.5	15.9	14.6	12.8	12.2	11.6	11.0
82.5°	26.2	17.7	12.8	11.0	9.8	8.5	7.3	6.7	6.1	6.1	5.5
85°	10.4	6.7	4.9	4.3	3.7	3.7	3.0	2.4	2.4	1.8	1.8
87.5°	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
90°	0.0	0.6	0.6	1.2	1.2	1.8	1.8	2.4	2.4	2.4	2.4
92.5°	6.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	29.9	23.8	18.3	15.2	12.8	7.3	1.8	0.0	0.0	0.0	0.0
97.5°	54.3	47.6	41.5	39.0	36.6	31.7	25.0	19.5	14.6	11.6	7.9
100°	79.3	73.2	66.5	63.4	61.0	55.5	49.4	43.9	39.0	36.6	32.3
102.5°	107.3	100.6	93.3	90.2	87.2	81.1	74.4	68.9	63.4	61.6	57.3
105°	137.8	130.5	121.9	118.9	115.2	108.5	100.6	94.5	89.6	86.6	82.9
107.5°	171.3	163.4	153.7	148.2	145.1	138.4	129.3	121.9	116.5	112.2	109.8
110°	206.7	197.6	187.2	181.1	178.0	169.5	159.8	151.8	145.7	142.1	137.8



TEST NUMBER: P188258

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	246.3	233.5	222.6	216.5	212.8	203.0	192.1	183.5	176.8	172.6	167.1
115°	286.0	274.4	259.7	253.7	249.4	237.8	226.2	216.5	209.1	203.7	200.0
117.5°	326.8	314.6	299.4	292.1	287.2	275.0	261.6	251.2	243.3	235.4	229.9
120°	370.7	357.3	340.8	332.9	327.4	314.6	299.4	287.8	278.0	271.9	266.5
122.5°	413.4	401.8	383.5	375.6	369.5	355.5	339.0	325.6	315.2	307.9	300.0
125°	459.7	447.5	428.0	419.5	413.4	397.5	379.9	365.8	354.9	346.3	336.6
127.5°	507.3	494.5	473.2	464.0	457.3	441.4	421.9	406.7	394.5	382.9	375.0
130°	556.7	543.3	520.7	510.4	503.0	487.2	467.7	450.6	437.2	426.8	415.2
132.5°	605.5	592.1	569.5	558.5	550.6	534.1	513.4	496.3	480.5	467.1	456.7
135°	654.9	640.8	618.9	607.9	598.8	581.7	560.3	542.7	526.2	513.4	501.8
137.5°	706.7	690.2	669.5	654.9	648.2	629.2	608.5	590.8	573.2	557.3	546.9
140°	755.5	739.0	718.9	704.2	696.9	677.4	656.1	639.0	620.7	604.2	593.3
142.5°	803.0	787.2	768.3	754.2	746.9	725.6	704.9	688.4	670.7	653.0	641.4
145°	849.4	834.1	816.4	803.0	796.3	774.4	755.5	739.6	722.5	703.6	690.8
147.5°	893.3	879.9	863.4	850.6	843.9	821.9	804.2	790.2	774.4	755.5	742.1
150°	935.3	922.5	907.9	895.7	890.2	868.9	851.8	839.0	825.0	805.5	792.0
152.5°	974.4	963.4	950.0	939.0	934.1	914.0	898.8	886.6	875.0	855.5	842.0
155°	1009.7	1000.0	989.0	978.6	974.4	956.1	942.0	931.7	923.1	904.9	891.4
157.5°	1042.0	1033.5	1023.7	1015.2	1010.9	994.5	982.3	973.8	967.7	951.8	940.2
160°	1070.1	1063.4	1055.5	1048.1	1045.1	1029.8	1020.1	1013.4	1010.3	995.7	984.7
162.5°	1094.5	1089.0	1081.7	1076.2	1073.7	1061.6	1053.0	1048.1	1047.5	1035.3	1024.4
165°	1115.8	1110.9	1105.5	1101.2	1098.7	1088.4	1082.3	1079.2	1080.5	1071.9	1060.9
167.5°	1132.9	1129.8	1124.4	1121.3	1119.5	1110.3	1105.5	1104.2	1107.3	1101.2	1092.0
170°	1146.3	1143.3	1139.0	1137.2	1135.9	1128.0	1124.4	1124.4	1128.6	1124.4	1115.8
172.5°	1156.7	1153.6	1150.6	1149.4	1147.5	1140.8	1138.4	1139.0	1144.5	1142.0	1134.7
175°	1162.8	1160.3	1157.3	1156.7	1154.8	1148.1	1146.9	1148.7	1154.2	1153.0	1146.9
177.5°	1165.2	1162.8	1160.3	1159.1	1157.3	1151.8	1150.6	1152.4	1158.5	1157.9	1151.8
180°	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2



TEST NUMBER: P188258

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	814.6	814.6	814.6	814.6	814.6	814.6	814.6	814.6
2.5°	790.8	789.6	787.2	786.6	784.7	781.1	777.4	774.4
5°	765.2	763.4	760.3	760.3	758.5	755.5	752.4	749.4
7.5°	739.6	737.2	734.7	734.1	732.3	729.2	726.8	723.1
10°	712.2	709.1	706.7	705.5	703.6	700.6	698.1	695.1
12.5°	684.1	680.5	677.4	676.2	673.8	671.3	669.5	666.4
15°	655.5	651.8	649.4	647.5	645.1	641.4	639.0	636.6
17.5°	628.6	623.2	621.3	618.9	615.8	612.8	610.3	606.7
20°	598.8	593.3	592.1	588.4	585.3	582.3	579.3	576.8
22.5°	568.3	562.2	561.0	557.3	554.3	551.8	548.8	546.3
25°	537.8	532.3	530.5	527.4	523.8	521.3	518.3	515.8
27.5°	507.9	502.4	500.6	497.5	495.1	490.8	488.4	486.0
30°	478.6	472.5	471.3	467.7	465.2	461.0	457.3	456.1
32.5°	448.8	442.1	441.4	440.2	436.0	432.3	428.6	427.4
35°	418.9	412.8	412.2	409.7	406.7	403.0	400.0	398.2
37.5°	389.6	383.5	382.9	382.3	377.4	374.4	371.9	369.5
40°	360.4	354.9	354.3	351.8	348.8	345.7	343.3	341.5
42.5°	331.1	325.6	325.0	323.8	320.1	317.1	314.0	312.8
45°	302.4	296.9	296.3	295.1	290.8	288.4	286.0	284.1
47.5°	273.8	268.9	267.1	267.1	262.2	260.4	258.5	256.1
50°	244.5	240.2	239.0	238.4	234.7	231.1	230.5	228.7
52.5°	217.1	212.8	211.6	211.0	207.9	204.3	203.7	201.8
55°	189.6	186.0	184.8	184.8	181.7	178.7	177.4	175.6
57.5°	163.4	159.8	158.5	158.5	156.1	153.0	151.8	150.6
60°	138.4	134.8	133.5	133.5	131.1	128.7	128.0	126.2
62.5°	114.6	111.0	109.8	110.4	107.9	105.5	104.9	103.7
65°	92.1	89.0	87.8	87.8	86.0	84.8	83.5	82.3
67.5°	71.9	68.9	68.3	68.3	67.1	65.2	64.6	63.4
70°	53.7	51.2	50.6	51.2	50.6	49.4	48.8	48.2
72.5°	39.0	37.8	37.8	37.2	37.2	36.6	36.0	35.4
75°	26.8	26.2	26.8	26.2	26.2	25.0	25.0	24.4
77.5°	18.3	17.7	17.1	17.1	16.5	16.5	15.9	16.5
80°	10.4	10.4	9.8	9.8	9.1	9.1	9.1	9.1
82.5°	4.9	4.9	4.9	4.3	4.3	4.3	3.7	4.3
85°	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
87.5°	1.8	1.8	1.8	2.4	2.4	2.4	2.4	2.4
90°	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.7
92.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	4.9	3.7	3.0	3.0	2.4	1.2	1.2	0.6
100°	27.4	24.4	23.8	23.2	22.0	19.5	18.3	17.1
102.5°	53.7	51.2	50.6	49.4	49.4	46.9	45.1	43.9
105°	79.3	78.0	76.8	76.8	75.6	73.2	73.2	71.3
107.5°	106.1	104.9	103.7	103.7	101.2	100.6	100.6	98.2
110°	133.5	132.9	131.7	131.1	130.5	128.7	128.7	126.2



TEST NUMBER: P188258

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	162.8	162.2	161.0	160.4	159.8	157.3	157.3	155.5
115°	194.5	192.1	191.5	190.2	189.6	187.2	187.2	184.8
117.5°	225.6	223.2	220.7	221.3	220.1	217.7	218.3	215.8
120°	259.1	255.5	254.9	253.7	252.4	250.0	250.0	247.6
122.5°	293.9	289.6	286.6	287.2	285.4	282.9	282.9	280.5
125°	329.9	325.0	321.3	321.9	320.1	317.1	317.7	314.6
127.5°	367.1	361.0	357.3	357.9	355.5	351.8	352.4	349.4
130°	406.7	399.4	395.7	395.7	392.7	389.6	389.0	386.6
132.5°	449.4	439.6	434.7	434.1	429.3	427.4	427.4	424.4
135°	491.4	481.1	475.6	475.0	471.3	467.1	467.1	464.6
137.5°	536.0	525.0	518.9	517.7	512.8	508.5	509.1	506.1
140°	581.7	570.1	563.4	562.2	556.7	551.8	552.4	549.4
142.5°	628.6	617.1	609.7	608.5	602.4	597.5	597.5	594.5
145°	678.0	663.4	657.9	656.7	650.6	644.5	645.1	641.4
147.5°	731.1	713.4	708.5	706.7	699.4	693.3	693.9	690.2
150°	781.7	764.6	758.5	756.7	749.4	743.3	745.1	740.8
152.5°	831.7	815.2	809.1	807.9	800.6	795.1	793.9	792.7
155°	882.9	866.4	860.9	859.1	851.8	846.9	847.5	845.1
157.5°	932.3	917.0	910.9	909.7	902.4	900.0	898.8	895.1
160°	978.0	964.0	959.7	957.9	951.2	948.8	947.5	945.1
162.5°	1018.9	1006.1	1001.8	1000.0	995.1	993.9	993.3	992.0
165°	1056.1	1045.1	1042.0	1040.2	1035.9	1035.3	1035.3	1034.1
167.5°	1088.4	1079.2	1076.8	1075.6	1071.9	1071.9	1071.9	1071.3
170°	1113.4	1106.1	1104.2	1103.0	1100.6	1101.2	1100.6	1100.6
172.5°	1132.9	1126.2	1123.7	1122.5	1120.1	1119.5	1118.9	1118.9
175°	1145.1	1139.6	1137.8	1135.9	1133.5	1132.3	1129.8	1130.5
177.5°	1150.6	1145.7	1144.5	1142.0	1141.4	1141.4	1140.8	1142.0
180°	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2	1151.2

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