

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: P188233

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188233
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27378)
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-1DN-LO-40
Description:
Light Source: (84) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2467.5 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.29 / 1.19 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 4' x L: 0.42' x H: 0.29')
CIE Type: Direct

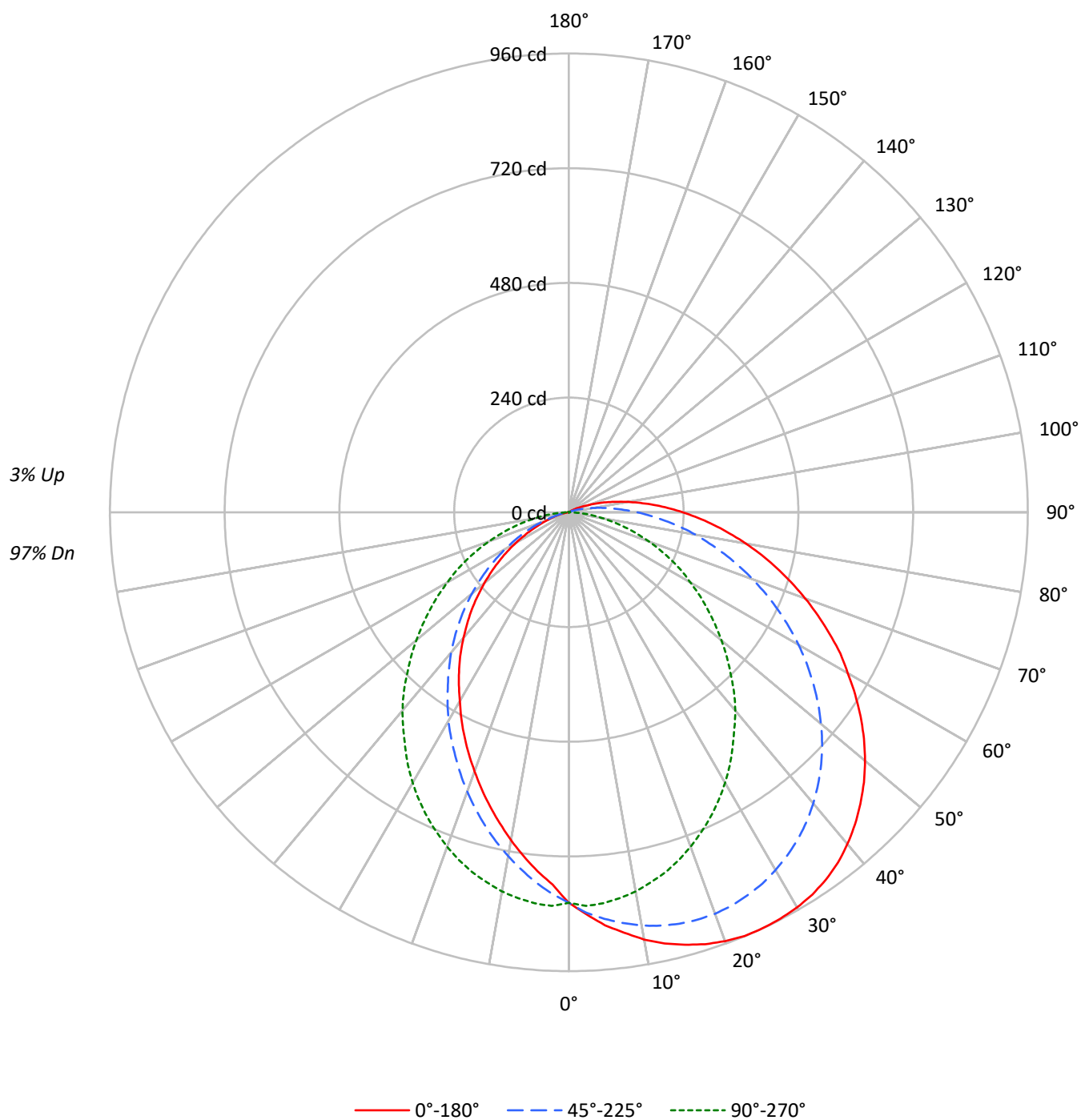
Input Watts (W): 24.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99
1	107	102	97	93	104	99	95	91	94	91	87	90	87	84	86	83	81
2	97	88	81	75	94	86	79	74	82	76	72	78	74	69	75	71	67
3	88	77	69	62	85	75	68	61	72	65	60	69	63	58	66	61	57
4	81	68	59	52	78	67	58	52	64	57	51	61	55	50	59	53	49
5	74	61	52	45	72	60	51	45	57	50	44	55	48	43	53	47	42
6	68	55	46	39	66	54	45	39	52	44	38	50	43	38	48	42	37
7	64	50	41	35	62	49	40	34	47	39	34	45	39	33	44	38	33
8	59	45	37	31	57	45	36	31	43	36	30	42	35	30	40	34	30
9	55	42	33	28	54	41	33	28	40	32	27	38	32	27	37	31	27
10	52	38	30	25	50	38	30	25	37	30	25	35	29	25	34	29	24

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5276	5276	5276
5°	5297	5290	4604
10°	5298	5215	4068
15°	5273	5113	3586
20°	5229	4985	3159
25°	5158	4840	2777
30°	5070	4676	2421
35°	4962	4480	2118
40°	4814	4303	1822
45°	4633	4076	1541
50°	4429	3851	1267
55°	4195	3615	999
60°	3934	3359	747
65°	3678	3120	513
70°	3397	2792	316
75°	3108	2393	175
80°	2811	1892	68
85°	2510	1245	5



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.3	3.1
10°-20°	220.5	8.9
20°-30°	331.7	13.4
30°-40°	397.0	16.1
40°-50°	409.2	16.6
50°-60°	368.7	14.9
60°-70°	288.5	11.7
70°-80°	192.7	7.8
80°-90°	107.2	4.3
90°-100°	50.0	2.0
100°-110°	18.3	0.7
110°-120°	5.2	0.2
120°-130°	1.1	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°	629.5	25.5
0°-40°	1026.5	41.6
0°-60°	1804.4	73.1
0°-90°	2392.8	97.0
90°-120°	73.5	3.0
90°-150°	74.6	3.0
90°-180°	75.0	3.0
0°-180°	2467.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	817	817	817	817	817	
5°	867	854	821	778	754	84
15°	937	891	780	678	637	266
25°	960	884	702	562	517	443
35°	938	835	597	441	400	587
45°	862	746	479	323	287	665
55°	745	624	354	208	178	666
65°	602	482	236	105	84	596
75°	450	336	122	31	25	476
85°	305	202	31	1	1	263
90°	238	143	1	0	0	131
95°	178	92	0	0	0	135
105°	81	25	1	0	0	88
115°	24	4	2	1	0	26
125°	4	1	2	1	0	4
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0
2.5°	841.7	840.5	841.1	840.5	840.5	839.9	839.3	839.3	843.0	840.5	838.7
5°	867.1	865.9	865.9	864.7	862.3	861.7	860.5	858.7	860.5	858.1	853.8
7.5°	887.0	887.0	886.4	885.2	882.8	881.0	879.2	876.8	876.8	872.5	866.5
10°	907.6	905.8	904.5	902.1	899.1	897.3	895.5	891.9	890.7	885.2	878.0
12.5°	923.9	922.7	920.9	918.4	914.2	912.4	909.4	903.9	900.9	894.9	885.8
15°	936.6	936.6	935.3	932.3	928.7	925.1	921.5	914.8	910.6	902.7	891.3
17.5°	947.4	947.4	945.6	942.0	937.2	933.5	929.9	922.1	915.4	906.4	893.7
20°	954.7	954.7	951.6	948.0	942.0	937.8	933.5	924.5	917.2	907.6	893.7
22.5°	959.5	958.3	955.9	951.0	944.4	940.2	935.3	924.5	916.0	905.2	890.7
25°	960.1	959.5	955.9	951.6	944.4	939.6	934.7	923.3	913.0	901.5	884.0
27.5°	958.3	957.7	954.7	949.2	942.0	937.2	931.7	919.0	907.6	894.3	876.2
30°	954.7	954.1	950.4	944.4	936.6	931.7	925.7	912.4	898.5	884.6	864.1
32.5°	948.0	946.8	943.2	937.2	928.1	922.7	916.0	902.1	887.0	871.3	850.8
35°	937.8	935.9	932.3	926.3	916.6	910.6	904.5	889.5	873.1	856.2	835.1
37.5°	924.5	922.7	919.0	911.8	901.5	896.1	889.5	873.1	856.2	838.1	816.4
40°	906.4	905.2	901.5	894.9	884.0	878.0	871.3	854.4	836.9	817.6	795.3
42.5°	885.8	886.4	881.6	874.4	862.9	857.4	850.2	833.3	815.2	794.6	771.7
45°	862.3	862.3	858.7	851.4	839.3	833.9	826.7	809.1	791.0	769.3	746.3
47.5°	836.9	836.3	832.7	824.8	813.4	807.9	800.1	782.0	764.5	742.1	718.6
50°	808.5	807.9	803.7	795.9	785.0	778.9	771.7	753.6	735.5	711.9	688.4
52.5°	777.7	776.5	772.9	765.1	754.2	748.2	739.7	722.2	704.1	681.1	657.0
55°	745.1	743.3	740.3	733.1	721.6	715.5	707.1	689.0	671.5	648.5	623.8
57.5°	710.1	710.1	705.3	697.4	688.4	680.5	673.3	654.0	637.0	615.3	589.9
60°	673.9	673.3	669.1	661.8	652.1	644.3	637.7	618.3	601.4	577.9	554.9
62.5°	640.1	634.6	632.2	625.0	615.3	607.5	599.0	582.1	564.6	544.1	518.7
65°	602.0	597.2	594.2	586.3	576.1	570.0	562.2	544.7	527.1	505.4	482.5
67.5°	563.4	559.2	556.1	548.9	540.4	531.4	523.5	507.2	490.3	469.8	445.6
70°	525.9	521.1	518.7	510.8	502.4	493.9	486.7	470.4	453.5	433.0	408.8
72.5°	487.3	483.7	481.3	473.4	464.4	457.7	448.7	433.6	415.4	396.7	372.6
75°	449.9	445.6	442.6	434.8	426.9	420.3	413.0	394.9	379.2	360.5	336.3
77.5°	412.4	408.2	406.4	399.1	390.1	382.8	376.2	359.9	342.4	324.9	301.3
80°	375.6	371.4	370.2	362.3	353.2	346.6	340.0	324.3	307.4	289.8	268.7
82.5°	339.4	336.9	333.9	326.7	315.8	311.0	304.3	288.6	272.3	255.4	234.9
85°	304.9	302.5	298.3	290.4	281.4	276.6	271.7	253.6	239.1	222.2	202.3
87.5°	270.5	268.7	263.9	259.0	248.2	243.3	238.5	222.2	207.1	190.2	171.5
90°	238.5	236.1	231.9	227.0	216.2	211.9	207.1	192.0	176.9	160.6	143.1
92.5°	207.1	205.3	201.7	195.0	186.0	181.2	176.9	161.2	147.9	132.8	115.9
95°	178.1	175.7	172.1	165.5	157.6	153.4	148.5	134.7	122.6	107.5	91.8
97.5°	150.4	147.9	144.3	138.9	131.0	127.4	123.2	109.9	99.0	85.1	71.3
100°	125.0	123.2	120.8	115.3	106.9	103.9	99.6	87.6	77.3	65.2	52.5
102.5°	102.0	100.2	97.8	93.0	85.7	82.1	79.1	68.8	58.6	47.7	36.8
105°	80.9	79.1	76.1	71.9	66.4	63.4	60.4	50.7	42.9	33.2	24.8
107.5°	62.2	60.4	58.6	55.6	49.5	47.1	44.1	36.2	29.6	22.9	16.9
110°	45.9	44.7	42.9	40.5	35.6	33.8	31.4	25.4	21.1	15.7	11.5



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

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	33.2	32.6	31.4	29.0	26.0	24.2	22.9	18.1	14.5	10.9	7.2
115°	24.2	23.5	22.9	21.1	18.1	16.9	15.7	12.7	9.7	7.2	4.2
117.5°	16.9	16.9	15.7	14.5	12.1	11.5	10.3	8.5	6.0	4.2	2.4
120°	11.5	10.9	10.9	9.7	8.5	7.2	6.6	4.8	3.6	2.4	1.2
122.5°	7.2	6.6	6.6	6.0	4.8	4.2	3.6	2.4	1.8	1.2	1.2
125°	3.6	3.6	3.6	3.0	2.4	2.4	1.8	1.2	1.2	1.2	1.2
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0
2.5°	833.9	829.1	825.4	825.4	825.4	826.7	826.7	827.3	827.3	824.2	819.4
5°	847.8	841.1	835.7	833.3	832.1	832.1	830.3	827.9	826.0	821.2	813.4
7.5°	858.7	849.6	842.4	837.5	836.3	834.5	830.3	826.0	821.2	814.0	804.3
10°	867.7	856.8	846.6	840.5	837.5	834.5	827.9	821.8	814.6	805.5	793.4
12.5°	873.8	860.5	849.0	839.3	835.7	831.5	823.0	814.0	804.9	792.8	779.6
15°	877.4	862.3	847.8	836.9	831.5	826.7	815.2	804.3	793.4	779.6	763.9
17.5°	878.6	861.1	844.8	830.9	824.8	818.8	805.5	792.2	779.6	763.2	745.7
20°	876.2	857.4	838.7	823.0	815.8	808.5	792.8	777.7	763.2	744.5	724.6
22.5°	871.9	851.4	830.3	812.8	804.3	795.9	778.3	760.8	744.5	724.0	702.9
25°	864.7	841.7	819.4	800.1	790.4	780.2	761.4	742.1	724.0	702.3	679.3
27.5°	855.0	830.9	806.1	784.4	774.1	763.2	742.1	722.2	701.7	678.7	654.0
30°	843.0	817.6	791.0	766.3	756.0	744.5	721.6	699.8	678.1	653.4	627.4
32.5°	827.9	800.7	772.9	748.2	736.1	722.8	699.8	675.7	652.1	626.8	599.6
35°	810.3	782.6	753.6	727.0	713.7	701.1	675.7	649.7	625.0	597.2	572.4
37.5°	791.6	762.6	733.7	704.1	690.2	675.1	649.7	622.6	597.2	568.8	543.5
40°	769.9	740.3	710.1	679.3	664.8	650.9	622.6	594.2	568.2	541.6	513.3
42.5°	745.7	716.2	685.4	654.0	638.3	623.8	594.8	565.8	538.6	511.4	483.7
45°	719.8	689.6	658.2	626.2	610.5	594.8	565.2	536.2	508.4	478.8	452.9
47.5°	691.4	661.2	629.8	597.8	580.3	565.2	535.0	506.6	477.6	448.0	422.7
50°	661.8	631.0	600.2	567.6	550.1	535.0	504.2	474.0	446.2	416.6	392.5
52.5°	628.6	599.6	568.8	535.6	520.5	504.2	472.8	444.4	413.6	385.2	360.5
55°	596.6	567.0	536.2	503.6	486.7	472.8	440.8	412.4	382.2	354.5	330.9
57.5°	562.2	532.6	502.4	471.6	455.3	439.6	408.8	380.4	350.2	324.9	301.9
60°	527.1	498.8	468.6	437.8	422.1	407.0	376.8	349.0	318.8	292.9	271.7
62.5°	492.1	463.7	434.2	402.8	388.9	373.8	343.6	317.0	288.6	266.3	240.9
65°	456.5	428.7	399.7	368.9	355.1	341.2	311.6	285.6	257.8	236.1	212.6
67.5°	420.3	393.1	365.3	335.1	321.2	308.0	279.6	254.8	227.6	206.5	183.0
70°	384.6	358.7	330.9	301.9	288.6	276.0	246.4	224.0	198.7	177.5	155.8
72.5°	349.0	322.4	297.7	268.7	257.2	243.3	215.6	192.6	169.1	149.1	128.6
75°	313.4	288.0	262.7	236.1	225.2	211.3	186.0	163.6	140.7	122.0	102.0
77.5°	278.4	255.4	231.3	204.1	193.2	180.5	157.0	134.7	113.5	95.4	77.9
80°	245.2	222.8	199.3	173.3	163.0	151.0	128.6	107.5	88.2	71.9	56.2
82.5°	212.6	190.8	168.5	145.5	134.1	123.2	102.0	82.7	64.6	50.1	36.2
85°	180.5	160.6	137.7	117.7	107.5	96.6	77.9	60.4	44.1	30.8	18.7
87.5°	151.0	132.2	112.3	91.8	82.1	72.5	55.6	39.9	26.0	13.3	3.6
90°	123.2	104.5	87.0	68.2	59.8	51.3	36.2	22.3	7.8	0.6	0.0
92.5°	97.8	80.9	64.0	48.3	40.5	33.2	19.3	7.8	1.2	0.0	0.0
95°	76.1	60.4	45.9	31.4	25.4	18.7	8.5	2.4	0.0	0.0	0.0
97.5°	56.8	43.5	30.8	18.7	13.3	9.1	3.6	0.6	0.0	0.0	0.0
100°	40.5	28.4	18.1	9.7	6.6	4.2	1.2	0.0	0.0	0.0	0.6
102.5°	26.6	17.5	10.9	5.4	3.6	2.4	0.6	0.6	0.6	0.6	0.6
105°	16.9	10.9	6.6	3.0	1.8	1.2	0.6	0.6	0.6	0.6	0.6
107.5°	11.5	7.2	3.6	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2
110°	7.2	4.2	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



TEST NUMBER: P188233

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	4.8	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
115°	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8
117.5°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8
120°	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8
122.5°	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
125°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P188233

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0
2.5°	813.4	807.3	803.7	803.1	803.1	801.9	800.1	797.7	798.9	798.3	794.0
5°	805.5	797.1	791.6	789.8	788.6	786.2	782.0	778.9	778.3	775.3	770.5
7.5°	794.0	784.4	776.5	774.1	771.7	767.5	762.0	756.6	754.8	750.6	745.1
10°	781.4	768.7	760.2	756.6	753.6	747.5	740.3	734.3	730.6	725.2	718.6
12.5°	765.7	751.8	740.9	736.1	732.5	724.6	716.8	709.5	705.3	698.6	690.8
15°	747.5	732.5	719.8	714.3	710.1	701.1	692.0	682.3	678.1	670.3	663.0
17.5°	727.6	710.7	696.2	691.4	686.6	675.7	664.8	655.2	650.3	642.5	635.8
20°	705.9	687.8	672.1	667.2	661.2	649.1	637.7	628.0	622.0	614.7	606.3
22.5°	682.9	663.0	646.7	640.1	634.6	622.0	609.3	599.6	592.4	584.5	575.5
25°	656.4	637.0	619.5	612.9	606.9	593.0	580.3	569.4	562.2	553.7	545.3
27.5°	629.8	609.9	591.8	584.5	578.5	564.0	550.7	540.4	533.2	524.1	515.7
30°	602.6	582.1	563.4	556.1	548.3	534.4	521.7	511.4	503.6	495.1	486.1
32.5°	574.2	553.1	536.2	527.8	520.5	504.8	493.3	481.3	472.2	464.4	455.9
35°	544.7	523.5	506.0	498.8	490.9	474.6	463.1	451.1	441.4	434.2	426.3
37.5°	515.7	493.9	477.0	469.2	460.7	445.0	433.6	420.9	411.8	404.6	396.7
40°	484.9	463.7	446.8	439.0	431.1	414.8	404.0	391.3	382.8	375.6	367.1
42.5°	455.3	434.8	417.9	410.0	401.6	385.9	374.4	361.7	353.8	346.0	338.1
45°	425.1	404.6	386.5	379.2	372.0	356.3	344.8	332.1	323.1	317.0	308.6
47.5°	394.9	376.8	356.9	350.2	342.4	326.7	315.8	302.5	294.7	286.2	280.2
50°	364.7	345.4	327.9	321.8	313.4	297.7	286.2	274.1	265.1	257.8	251.2
52.5°	335.1	317.0	300.1	292.3	284.4	268.1	257.2	245.8	236.1	228.9	222.2
55°	305.5	286.8	271.1	262.1	255.4	239.1	228.3	217.4	208.3	201.1	195.0
57.5°	276.0	258.4	242.1	234.3	225.8	210.7	199.9	189.0	179.9	173.9	167.9
60°	246.4	228.9	213.2	205.9	197.5	183.0	172.7	161.8	153.4	147.3	142.5
62.5°	217.4	201.7	185.4	177.5	170.3	157.0	145.5	135.9	129.2	122.6	118.4
65°	189.0	173.9	158.2	150.4	143.1	130.4	120.2	111.7	105.1	99.6	95.4
67.5°	163.0	146.7	131.6	123.8	117.1	105.7	96.6	89.4	83.3	78.5	74.9
70°	136.5	119.6	106.3	99.0	93.0	82.1	74.9	68.8	62.8	59.2	56.2
72.5°	109.9	94.8	82.1	76.1	70.6	61.6	54.3	50.1	44.7	41.7	39.9
75°	85.7	72.5	60.4	54.9	50.7	43.5	37.4	33.8	30.8	29.0	27.8
77.5°	64.0	50.7	41.1	36.8	33.2	27.2	23.5	21.7	19.9	18.7	18.1
80°	42.9	32.0	24.8	21.1	18.7	15.1	13.9	12.7	11.5	10.9	10.3
82.5°	25.4	16.3	11.5	10.3	9.1	7.2	6.6	6.0	5.4	5.4	4.8
85°	9.7	5.4	3.6	3.0	3.0	2.4	1.8	1.8	1.2	1.2	1.2
87.5°	0.6	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	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.0	0.0	0.0	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	0.0	0.0	0.0
97.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
107.5°	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0
110°	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.0	0.0



TEST NUMBER: P188233

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
115°	1.8	1.8	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6
117.5°	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	0.6	0.6
120°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	0.6
122.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	0.6
125°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P188233

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	817.0	817.0	817.0	817.0	817.0	817.0	817.0	817.0
2.5°	792.2	790.4	789.8	789.8	788.0	785.0	782.0	779.6
5°	767.5	764.5	763.9	763.2	760.8	757.8	754.2	753.6
7.5°	740.9	739.1	736.7	736.7	735.5	730.6	727.6	725.8
10°	713.7	710.7	708.9	707.7	704.7	701.7	696.8	696.8
12.5°	685.4	680.5	678.7	677.5	675.7	671.5	667.2	666.6
15°	657.0	652.7	650.3	649.1	645.5	641.9	638.3	637.0
17.5°	628.6	623.8	621.3	618.9	617.1	611.7	607.5	606.9
20°	597.8	593.6	591.2	588.7	586.3	580.9	577.9	576.7
22.5°	567.6	562.8	560.4	557.9	556.1	551.3	548.3	547.1
25°	536.8	532.6	530.2	527.8	525.3	520.5	518.1	516.9
27.5°	507.2	503.0	500.6	498.2	495.7	490.3	487.9	487.3
30°	478.2	473.4	471.6	468.6	466.2	461.9	459.5	455.9
32.5°	448.0	444.4	442.0	439.6	437.2	432.3	430.5	428.1
35°	419.7	414.8	413.6	410.6	408.2	404.0	401.6	400.3
37.5°	388.9	385.9	384.6	381.6	379.2	375.0	373.2	372.0
40°	361.1	356.9	355.1	352.6	350.2	346.0	344.8	343.0
42.5°	333.9	327.9	326.7	325.5	321.8	318.2	316.4	314.6
45°	304.9	298.9	298.3	296.5	292.9	289.2	288.0	286.8
47.5°	276.0	270.5	269.3	267.5	263.9	260.9	259.6	258.4
50°	247.6	242.1	240.9	239.1	236.1	232.5	231.9	231.3
52.5°	219.2	213.2	213.2	208.3	208.3	205.9	204.1	204.1
55°	192.0	186.6	186.0	181.2	181.8	179.3	178.1	177.5
57.5°	165.5	160.0	160.0	156.4	156.4	154.0	152.8	152.8
60°	140.1	135.3	134.7	131.6	131.6	129.2	128.0	128.0
62.5°	115.9	111.7	111.1	107.5	108.1	106.3	105.7	105.1
65°	93.6	89.4	88.8	85.7	86.3	84.5	83.9	83.9
67.5°	73.1	69.4	68.8	65.8	67.0	65.2	64.6	64.6
70°	53.7	51.3	51.3	50.1	50.1	49.5	48.9	48.9
72.5°	39.2	38.0	37.4	36.2	36.8	37.4	36.2	36.2
75°	27.8	26.6	26.6	25.4	26.0	25.4	25.4	25.4
77.5°	17.5	17.5	16.9	16.3	16.3	16.9	15.7	15.7
80°	10.3	9.7	9.7	9.1	9.1	9.7	9.1	9.1
82.5°	4.8	4.8	4.8	4.2	4.2	4.2	3.6	3.6
85°	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6
87.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P188233

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115°	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
120°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
122.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
125°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)