

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: P188224

Luminaire Tested: **MPBL-3-LD4-UNV-1DN-STD-40**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188224
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27362)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MPBL-3-LD4-UNV-1DN-STD-40
Description:
Light Source: (84) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2812.7 lumens
Efficiency: N/A
Efficacy: 94.9 lumens/watt
Spacing Criteria (0/90/45): 1.33 / 1.18 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 3' x L: 0.42' x H: 0.29')
CIE Type: Direct

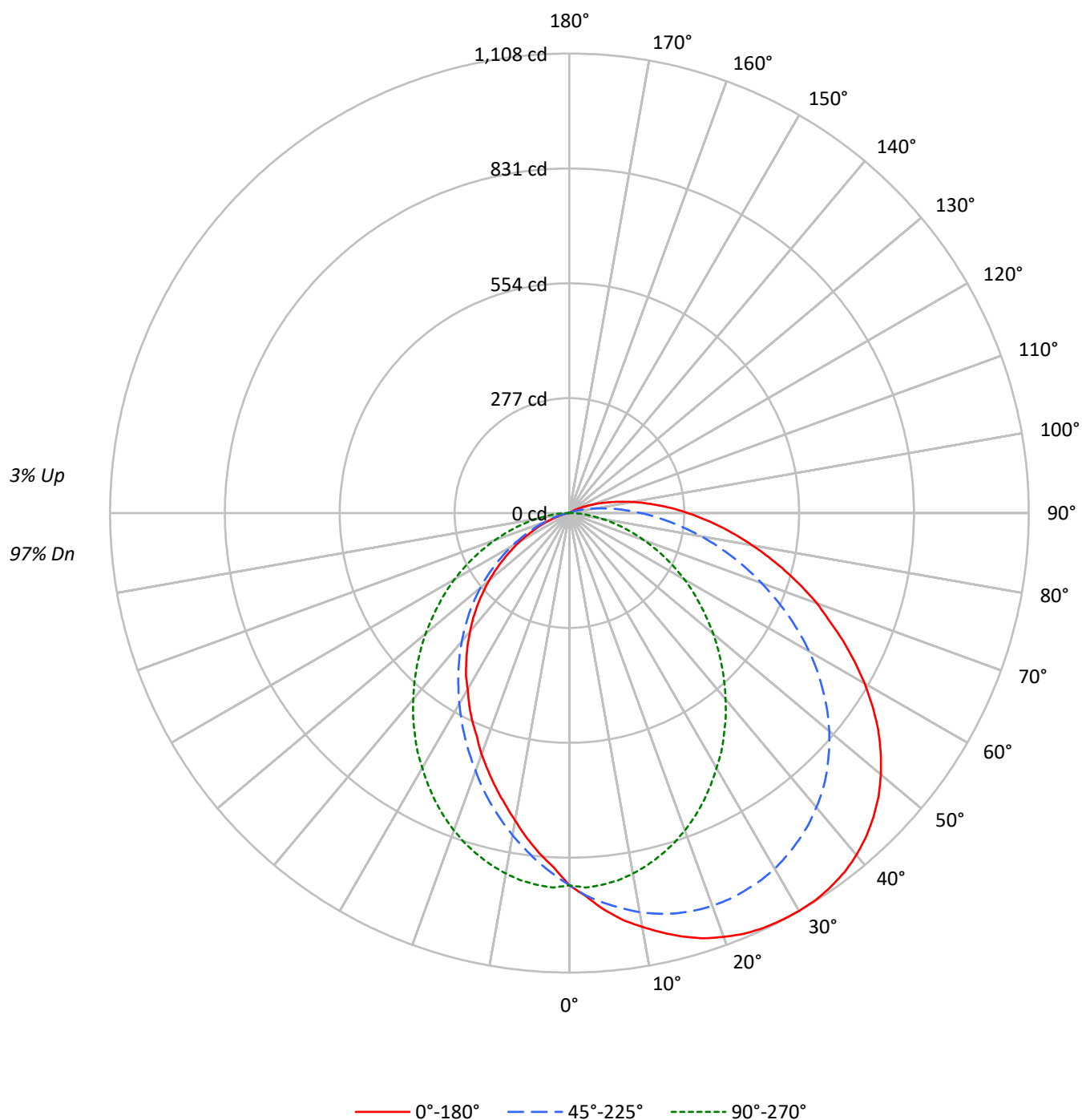
Input Watts (W): 29.64
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	101	97	92	104	99	94	90	94	90	87	89	86	84	85	83	81
2	97	88	80	74	94	86	79	73	81	76	71	78	73	69	74	70	67
3	88	77	68	61	85	75	67	61	71	65	59	68	62	58	65	60	56
4	80	68	59	52	78	66	58	51	63	56	50	61	54	49	58	53	48
5	74	61	51	44	71	59	51	44	57	49	43	54	48	42	52	46	42
6	68	54	45	39	66	53	45	38	51	43	38	49	42	37	47	41	37
7	63	49	40	34	61	48	40	34	46	39	33	45	38	33	43	37	32
8	59	45	36	30	57	44	36	30	42	35	30	41	34	29	40	34	29
9	55	41	33	27	53	40	33	27	39	32	27	38	31	26	37	31	26
10	51	38	30	25	50	37	30	25	36	29	24	35	29	24	34	28	24

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7728	7728	7728
5°	7821	7712	6712
10°	7886	7588	5861
15°	7937	7414	5144
20°	7942	7206	4522
25°	7912	6962	3968
30°	7845	6682	3472
35°	7758	6399	3056
40°	7625	6087	2640
45°	7428	5768	2238
50°	7162	5436	1841
55°	6823	5077	1451
60°	6401	4726	1080
65°	5928	4304	738
70°	5467	3809	436
75°	4966	3227	218
80°	4469	2528	82
85°	3985	1717	36



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	84.9	3.0
10°-20°	243.1	8.6
20°-30°	367.9	13.1
30°-40°	445.1	15.8
40°-50°	465.3	16.5
50°-60°	425.0	15.1
60°-70°	334.9	11.9
70°-80°	225.1	8.0
80°-90°	128.3	4.6
90°-100°	61.7	2.2
100°-110°	23.4	0.8
110°-120°	6.6	0.2
120°-130°	1.3	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°	696.0	24.7
0°-40°	1141.1	40.6
0°-60°	2031.4	72.2
0°-90°	2719.7	96.7
90°-120°	91.7	3.3
90°-150°	93.0	3.3
90°-180°	93.0	3.3
0°-180°	2812.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	897	897	897	897	897	
5°	960	943	900	846	824	93
15°	1057	999	853	728	685	300
25°	1105	1004	766	596	554	510
35°	1100	964	650	467	433	689
45°	1037	879	520	343	312	800
55°	909	746	385	219	193	811
65°	728	582	255	108	91	721
75°	539	406	132	31	24	570
85°	363	243	37	4	3	314
90°	286	172	2	2	2	157
95°	215	112	2	2	1	163
105°	101	31	2	2	0	109
115°	31	4	2	2	0	33
125°	3	2	2	2	1	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°	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4
2.5°	925.1	922.7	924.3	923.5	927.6	929.2	930.0	929.2	930.0	926.7	923.5
5°	960.2	956.1	956.9	956.1	956.1	955.3	956.1	954.5	953.7	948.0	943.1
7.5°	989.6	986.3	985.5	983.0	983.8	982.2	981.4	979.0	975.7	967.5	961.0
10°	1013.2	1010.8	1010.8	1007.5	1007.5	1005.9	1005.1	1000.2	996.1	986.3	977.3
12.5°	1036.1	1034.4	1032.0	1029.5	1027.9	1026.3	1023.8	1018.9	1012.4	1001.0	989.6
15°	1057.3	1055.6	1054.0	1049.9	1047.5	1044.2	1042.6	1035.2	1026.3	1012.4	999.3
17.5°	1075.2	1073.6	1072.0	1067.1	1062.2	1058.9	1055.6	1047.5	1036.9	1021.4	1005.1
20°	1087.5	1086.6	1084.2	1078.5	1072.8	1068.7	1065.4	1056.5	1043.4	1026.3	1008.3
22.5°	1098.1	1096.4	1093.2	1087.5	1079.3	1075.2	1071.1	1060.5	1045.8	1027.1	1007.5
25°	1104.6	1102.1	1098.9	1092.3	1083.4	1079.3	1074.4	1062.2	1045.8	1026.3	1004.2
27.5°	1107.0	1105.4	1101.3	1094.8	1085.8	1080.9	1075.2	1062.2	1044.2	1023.0	998.5
30°	1107.8	1106.2	1101.3	1094.0	1084.2	1078.5	1072.8	1058.1	1038.5	1015.7	990.4
32.5°	1106.2	1103.8	1098.9	1090.7	1079.3	1073.6	1067.1	1050.7	1028.7	1005.1	978.1
35°	1099.7	1098.1	1091.5	1083.4	1071.1	1064.6	1057.3	1040.1	1017.3	992.8	963.5
37.5°	1090.7	1088.3	1082.6	1073.6	1061.3	1053.2	1045.0	1027.1	1003.4	977.3	947.1
40°	1076.8	1074.4	1068.7	1058.9	1045.8	1037.7	1028.7	1010.0	985.5	958.6	926.7
42.5°	1058.9	1058.1	1050.7	1041.8	1027.1	1018.9	1010.0	990.4	963.5	937.3	904.7
45°	1036.9	1036.1	1027.9	1019.7	1005.1	996.1	986.3	965.9	939.0	912.1	878.6
47.5°	1011.6	1010.0	1001.8	992.8	979.0	969.2	960.2	939.0	912.1	883.5	849.2
50°	980.6	979.8	972.4	961.8	948.8	939.0	929.2	906.3	879.4	852.5	818.2
52.5°	946.3	946.3	937.3	928.4	914.5	904.7	894.9	872.1	846.8	818.2	784.0
55°	908.8	908.0	899.8	890.8	877.0	867.2	857.4	835.4	810.1	780.7	746.5
57.5°	866.4	866.4	857.4	849.2	836.2	826.4	816.6	794.6	767.7	741.6	708.9
60°	822.3	822.3	813.3	806.0	793.0	783.2	773.4	752.2	725.2	700.0	668.1
62.5°	775.0	775.0	766.8	759.5	747.3	736.7	728.5	707.3	682.8	655.9	624.9
65°	727.7	727.7	719.5	713.0	700.0	691.0	682.0	662.4	638.8	611.0	581.7
67.5°	677.9	678.7	670.6	664.1	651.8	642.8	634.7	615.1	589.8	565.3	536.8
70°	634.7	629.8	623.3	616.7	604.5	595.5	587.4	569.4	544.9	521.3	492.7
72.5°	586.6	581.7	573.5	570.2	557.2	551.5	542.5	524.6	500.1	475.6	449.5
75°	539.2	534.3	527.8	521.3	510.7	505.0	496.8	479.7	456.0	432.4	406.3
77.5°	492.7	488.7	481.3	477.2	464.2	459.3	451.1	434.0	411.2	388.3	363.8
80°	447.9	443.8	436.4	432.4	420.1	414.4	407.1	389.9	367.9	345.9	322.2
82.5°	404.6	400.6	393.2	389.1	376.9	371.2	363.8	347.5	325.5	304.3	281.4
85°	363.0	359.8	353.2	346.7	336.1	330.4	323.1	306.7	286.3	265.1	243.1
87.5°	323.1	319.0	312.4	308.4	296.1	290.4	283.9	267.6	247.2	229.2	206.4
90°	285.5	282.3	274.9	269.2	259.4	252.9	246.4	230.9	211.3	192.5	172.1
92.5°	249.6	246.4	239.8	234.1	224.3	220.3	212.1	196.6	177.8	159.9	140.3
95°	215.4	212.9	205.6	199.9	190.1	186.8	179.5	164.0	146.8	130.5	111.8
97.5°	182.7	181.1	174.6	168.9	159.1	155.8	149.3	134.6	118.3	103.6	86.5
100°	153.4	150.9	145.2	139.5	131.3	127.3	121.6	108.5	93.0	79.1	63.6
102.5°	125.6	124.0	119.1	113.4	106.9	102.0	96.3	84.0	71.0	58.7	45.7
105°	101.2	99.5	93.8	89.7	82.4	79.9	75.1	64.4	52.2	41.6	31.0
107.5°	79.1	77.5	73.4	68.5	62.8	60.4	55.5	47.3	36.7	28.6	20.4
110°	59.6	57.9	55.5	52.2	45.7	44.1	40.8	33.4	25.3	18.8	13.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	44.1	42.4	40.0	37.5	32.6	31.0	27.7	22.8	16.3	12.2	7.3
115°	31.0	29.4	27.7	26.1	22.0	20.4	18.8	14.7	10.6	7.3	4.1
117.5°	20.4	19.6	17.9	17.1	14.7	13.1	11.4	9.0	5.7	4.1	2.4
120°	13.1	12.2	11.4	9.8	8.2	7.3	6.5	4.9	2.4	1.6	1.6
122.5°	7.3	6.5	6.5	5.7	4.1	3.3	3.3	2.4	0.8	0.8	1.6
125°	3.3	3.3	2.4	2.4	1.6	0.8	0.8	0.8	0.8	1.6	1.6
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°	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4
2.5°	921.0	918.6	913.7	909.6	908.8	907.2	905.5	906.3	906.3	903.9	900.6
5°	939.0	934.1	926.7	919.4	917.8	914.5	910.4	908.0	904.7	899.8	894.1
7.5°	954.5	946.3	936.5	926.7	923.5	919.4	912.1	907.2	900.6	893.3	883.5
10°	967.5	957.7	944.7	931.6	926.7	921.0	910.4	902.3	893.3	882.7	871.3
12.5°	977.3	964.3	948.8	934.1	926.7	919.4	906.3	894.9	882.7	869.6	855.0
15°	984.7	969.2	950.4	932.5	924.3	915.3	899.0	885.1	870.5	853.3	837.0
17.5°	988.7	970.0	949.6	928.4	918.6	908.0	889.2	872.1	854.1	835.4	816.6
20°	989.6	969.2	945.5	921.8	910.4	898.2	877.0	856.6	836.2	814.2	793.0
22.5°	986.3	964.3	939.0	912.1	899.8	886.0	861.5	837.8	815.0	791.3	767.7
25°	981.4	956.1	928.4	899.8	886.0	870.5	845.2	819.1	793.0	766.0	740.7
27.5°	973.2	945.5	916.1	884.3	869.6	853.3	824.8	794.6	767.7	738.3	712.2
30°	962.6	932.5	900.6	868.0	851.7	833.7	802.7	771.7	741.6	709.7	682.0
32.5°	948.8	917.8	883.5	847.6	831.3	812.5	778.3	745.6	713.0	682.0	651.8
35°	931.6	898.2	863.1	825.6	807.6	788.9	753.0	717.9	682.8	650.2	618.4
37.5°	913.7	878.6	841.9	801.9	784.0	763.6	726.1	688.5	652.6	619.2	586.6
40°	893.3	855.8	817.4	776.6	757.1	735.8	696.7	658.3	620.0	585.7	553.1
42.5°	869.6	831.3	791.3	748.9	729.3	707.3	667.3	627.3	589.0	553.1	519.7
45°	841.1	802.7	762.0	718.7	699.1	676.3	635.5	594.7	554.7	519.7	487.0
47.5°	812.5	772.6	731.0	687.7	666.5	644.5	600.4	561.3	521.3	486.2	454.4
50°	780.7	741.6	699.1	654.3	633.1	611.0	567.8	527.8	487.8	452.8	420.9
52.5°	746.5	707.3	664.9	620.0	598.0	577.6	532.7	493.6	452.8	418.5	387.5
55°	708.9	671.4	627.3	583.3	561.3	541.7	497.6	456.8	418.5	385.1	354.9
57.5°	670.6	632.2	590.6	545.8	524.6	504.2	460.9	422.6	384.2	353.2	322.2
60°	630.6	593.1	552.3	507.4	486.2	467.4	424.2	387.5	350.8	320.6	290.4
62.5°	589.8	552.3	512.3	468.3	447.9	429.1	387.5	352.4	316.5	287.2	257.8
65°	547.4	511.5	469.9	429.1	409.5	390.8	351.6	315.7	284.7	255.3	226.8
67.5°	504.2	469.1	429.9	389.9	371.2	353.2	314.9	283.1	251.3	222.7	195.8
70°	460.9	425.8	389.9	350.8	332.8	315.7	279.8	247.2	218.6	191.7	167.2
72.5°	418.5	385.1	348.3	312.4	295.3	279.0	245.6	214.6	186.8	161.5	137.9
75°	376.9	344.3	310.0	274.9	258.6	243.1	212.1	182.7	155.8	132.2	110.9
77.5°	334.5	304.3	270.8	239.0	223.5	208.0	178.7	150.9	126.4	104.4	84.8
80°	294.5	265.1	234.1	203.1	188.4	174.6	146.8	121.6	98.7	79.1	62.0
82.5°	255.3	227.6	199.9	171.3	155.8	143.6	117.5	94.6	74.2	57.1	41.6
85°	217.8	192.5	165.6	139.5	124.8	113.4	90.6	70.2	52.2	36.7	22.8
87.5°	182.7	158.3	133.8	109.3	97.9	86.5	66.1	48.1	32.6	17.9	6.5
90°	150.1	127.3	105.2	83.2	71.8	62.8	44.1	28.6	13.9	2.4	2.4
92.5°	119.9	99.5	79.1	59.6	50.6	40.8	26.1	12.2	3.3	2.4	2.4
95°	93.8	74.2	56.3	40.0	31.8	24.5	12.2	4.1	2.4	2.4	2.4
97.5°	70.2	53.0	37.5	24.5	17.9	13.1	5.7	2.4	2.4	2.4	2.4
100°	49.8	35.9	23.7	13.9	9.8	6.5	2.4	2.4	2.4	2.4	2.4
102.5°	33.4	22.0	13.9	7.3	4.9	3.3	2.4	2.4	2.4	2.4	2.4
105°	22.0	13.9	8.2	4.1	2.4	2.4	2.4	2.4	2.4	2.4	2.4
107.5°	13.9	8.2	4.1	2.4	1.6	2.4	2.4	2.4	2.4	2.4	2.4
110°	8.2	4.9	2.4	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4



TEST NUMBER: P188224

CATALOG NUMBER: MPBL-3-LD4-UNV-1DN-STD-40

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	4.9	2.4	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4
115°	2.4	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
117.5°	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
120°	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
122.5°	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
125°	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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: P188224

CATALOG NUMBER: MPBL-3-LD4-UNV-1DN-STD-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4
2.5°	896.6	890.0	885.1	882.7	880.2	877.0	875.3	873.7	872.1	871.3	869.6
5°	886.0	877.0	869.6	866.4	862.3	856.6	853.3	849.2	846.0	841.9	839.5
7.5°	874.5	862.3	851.7	846.8	842.7	834.6	828.8	823.1	817.4	812.5	808.5
10°	858.2	844.3	832.1	825.6	820.7	810.9	802.7	795.4	788.9	782.3	777.5
12.5°	840.3	824.0	809.3	802.7	796.2	784.8	775.8	766.8	758.7	750.5	744.8
15°	819.9	801.1	784.8	776.6	770.1	757.1	746.5	735.8	727.7	717.9	712.2
17.5°	796.2	776.6	757.9	749.7	743.2	727.7	716.3	704.8	695.9	685.3	678.7
20°	771.7	749.7	730.1	721.2	713.0	697.5	684.5	672.2	661.6	654.3	645.3
22.5°	744.8	722.0	700.8	691.8	682.8	665.7	652.6	639.6	629.0	620.8	611.8
25°	716.3	691.8	669.8	660.0	651.0	633.9	620.0	606.1	596.3	585.7	579.2
27.5°	686.1	660.8	638.0	628.2	619.2	601.2	587.4	573.5	563.7	553.9	547.4
30°	655.1	629.0	606.1	596.3	586.6	568.6	554.7	540.9	531.1	522.1	514.8
32.5°	623.3	598.8	574.3	563.7	553.1	536.8	522.1	510.7	498.4	490.3	483.8
35°	590.6	565.3	541.7	531.1	520.5	503.3	489.5	478.1	466.6	458.5	451.9
37.5°	558.0	533.5	509.1	498.4	488.7	471.5	457.7	447.1	435.6	428.3	421.8
40°	524.6	500.1	476.4	465.8	455.2	438.9	425.0	414.4	403.8	396.5	389.9
42.5°	491.9	467.4	443.8	433.2	423.4	407.1	393.2	383.4	372.0	365.5	359.8
45°	458.5	433.2	411.2	400.6	390.8	375.3	361.4	351.6	342.6	333.7	327.9
47.5°	425.8	400.6	379.3	367.9	358.9	343.4	329.6	318.2	310.8	303.5	297.8
50°	394.0	368.7	347.5	336.1	327.9	312.4	299.4	288.0	279.8	272.5	266.8
52.5°	361.4	336.9	315.7	305.1	296.1	279.8	268.4	258.6	249.6	242.3	235.8
55°	329.6	305.1	283.9	273.3	265.1	249.6	236.6	226.8	219.4	212.1	205.6
57.5°	296.9	273.3	252.9	243.9	234.1	218.6	208.0	198.2	189.3	181.9	177.0
60°	265.1	242.3	222.7	212.1	203.9	189.3	178.7	169.7	160.7	154.2	149.3
62.5°	234.1	211.3	191.7	183.6	174.6	160.7	150.1	141.1	133.8	128.1	123.2
65°	203.9	181.9	163.2	155.0	146.8	133.0	122.4	115.0	108.5	102.8	99.5
67.5°	173.8	153.4	135.4	128.1	119.9	107.7	98.7	91.4	84.8	80.8	77.5
70°	146.0	126.4	109.3	102.0	94.6	84.0	76.7	69.3	64.4	60.4	57.9
72.5°	117.5	99.5	84.0	78.3	71.8	62.8	55.5	50.6	46.5	42.4	40.8
75°	92.2	75.9	62.0	57.1	51.4	44.9	38.3	34.3	31.0	28.6	27.7
77.5°	68.5	53.8	42.4	38.3	35.1	28.6	25.3	22.0	19.6	17.9	17.1
80°	47.3	35.1	26.1	22.8	20.4	16.3	14.7	13.1	11.4	10.6	10.6
82.5°	28.6	18.8	13.9	12.2	10.6	9.0	8.2	7.3	6.5	6.5	5.7
85°	12.2	8.2	5.7	5.7	4.9	4.9	4.1	4.1	4.1	3.3	3.3
87.5°	4.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4
90°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
92.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
95°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	1.6
97.5°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8
100°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8
102.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8
105°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8
107.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8
110°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8



TEST NUMBER: P188224

CATALOG NUMBER: MPBL-3-LD4-UNV-1DN-STD-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
115°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8
117.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
120°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	0.8
122.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	0.8
125°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
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: P188224

CATALOG NUMBER: MPBL-3-LD4-UNV-1DN-STD-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	897.4	897.4	897.4	897.4	897.4	897.4	897.4	897.4
2.5°	868.0	865.6	861.5	861.5	858.2	856.6	855.8	855.8
5°	836.2	832.9	828.8	828.0	825.6	824.0	824.0	824.0
7.5°	804.4	800.3	796.2	795.4	792.1	790.5	789.7	789.7
10°	771.7	767.7	762.0	761.1	756.2	753.8	753.0	753.0
12.5°	739.1	733.4	728.5	726.1	722.0	718.7	718.7	718.7
15°	705.7	700.0	695.9	693.4	688.5	685.3	684.5	685.3
17.5°	672.2	666.5	662.4	659.2	655.1	651.8	651.0	651.8
20°	638.8	632.2	629.0	625.7	621.6	618.4	617.6	619.2
22.5°	605.3	598.0	595.5	591.5	588.2	585.7	584.1	583.3
25°	572.7	565.3	562.9	559.6	556.4	553.9	552.3	553.9
27.5°	540.1	534.3	531.9	528.6	524.6	522.1	521.3	522.9
30°	509.1	503.3	500.9	497.6	494.4	491.9	491.1	490.3
32.5°	477.2	470.7	469.9	467.4	464.2	464.2	461.7	464.2
35°	446.2	440.5	438.9	435.6	434.8	434.0	432.4	433.2
37.5°	415.2	410.3	409.5	406.3	406.3	404.6	403.0	403.8
40°	384.2	379.3	378.5	376.9	374.4	373.6	372.0	372.8
42.5°	354.1	349.2	348.3	347.5	345.9	343.4	341.8	343.4
45°	323.1	318.2	317.3	314.9	314.1	311.6	311.6	312.4
47.5°	292.1	288.0	287.2	285.5	285.5	281.4	281.4	282.3
50°	261.9	257.8	257.0	255.3	252.1	252.1	251.3	252.1
52.5°	230.9	228.4	227.6	225.2	225.2	222.7	221.9	222.7
55°	201.5	199.1	198.2	196.6	195.0	194.2	193.3	193.3
57.5°	174.6	170.5	169.7	168.1	168.1	166.4	164.8	165.6
60°	146.8	143.6	142.8	141.1	139.5	139.5	138.7	138.7
62.5°	119.9	118.3	117.5	115.8	115.8	114.2	113.4	113.4
65°	96.3	93.8	93.8	92.2	91.4	90.6	89.7	90.6
67.5°	74.2	72.6	71.8	71.8	70.2	69.3	68.5	69.3
70°	55.5	53.8	53.0	53.0	52.2	51.4	50.6	50.6
72.5°	39.2	37.5	37.5	38.3	36.7	36.7	35.1	35.1
75°	26.1	25.3	25.3	25.3	24.5	23.7	23.7	23.7
77.5°	16.3	16.3	15.5	16.3	15.5	15.5	14.7	14.7
80°	9.8	9.0	9.0	9.0	9.0	9.0	8.2	8.2
82.5°	5.7	5.7	4.9	4.9	4.9	4.9	4.9	4.9
85°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
90°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
92.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
95°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
97.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
100°	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
102.5°	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0
105°	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
107.5°	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0
110°	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0



TEST NUMBER: P188224

CATALOG NUMBER: MPBL-3-LD4-UNV-1DN-STD-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0
115°	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0
117.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
120°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
122.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
125°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)