

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: P188218

Luminaire Tested: **MPBL-2-LD4-UNV-2DN-STD-40**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188218
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27359)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MPBL-2-LD4-UNV-2DN-STD-40
Description:
Light Source: (84) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3013.3 lumens
Efficiency: N/A
Efficacy: 87.1 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.19 / 1.34
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 0.42' x H: 0.29')
CIE Type: Direct

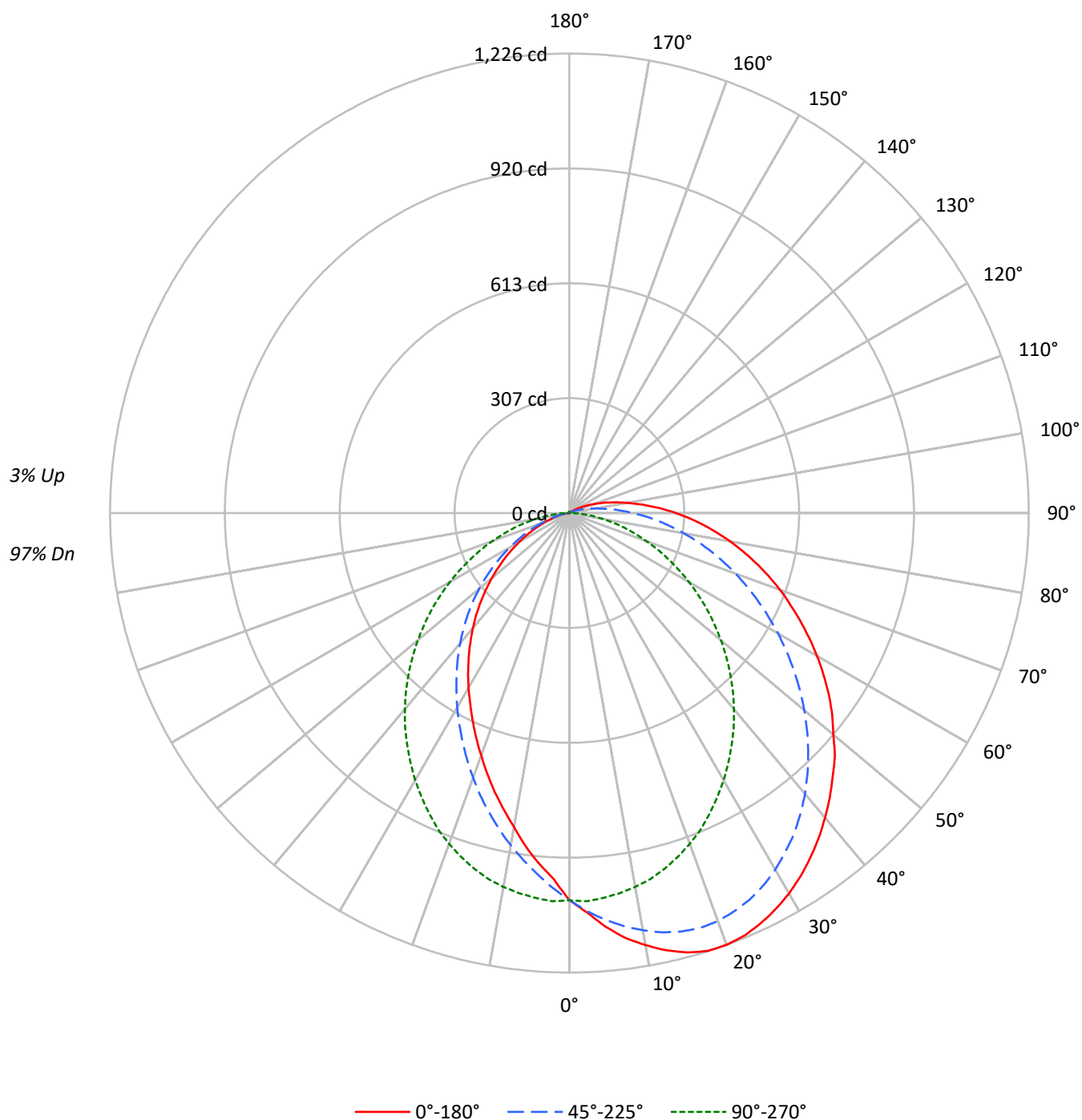
Input Watts (W): 34.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10
RCR																				
0	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	99	99	97
1	107	102	97	93	104	99	95	91	94	91	88	90	87	84	85	83	81	81	81	79
2	97	88	81	75	94	86	80	74	82	77	72	78	74	70	75	71	68	68	68	65
3	88	78	69	62	86	76	68	62	72	66	60	69	63	59	66	61	57	57	57	55
4	81	69	60	53	78	67	59	52	64	57	51	61	55	50	59	54	49	49	49	47
5	75	61	52	46	72	60	52	45	58	50	44	55	49	44	53	47	43	43	43	41
6	69	55	46	40	67	54	46	40	52	45	39	50	43	38	48	42	38	38	38	36
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	34	34	34	31
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	40	35	30	30	30	28
9	56	42	34	28	54	41	34	28	40	33	28	39	32	27	37	32	27	27	27	25
10	52	39	31	26	51	38	31	26	37	30	25	36	29	25	35	29	25	25	25	23

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13339	13339	13339
5°	13534	13200	11460
10°	13665	12955	9933
15°	13667	12639	8670
20°	13430	12254	7541
25°	12980	11810	6564
30°	12450	11322	5718
35°	11869	10795	4954
40°	11272	10256	4254
45°	10675	9675	3593
50°	10071	9034	2958
55°	9516	8361	2369
60°	8915	7604	1810
65°	8303	6780	1295
70°	7724	5872	864
75°	7122	4903	518
80°	6520	3721	232
85°	5896	2445	107



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	97.7	3.2
10°-20°	279.0	9.3
20°-30°	415.4	13.8
30°-40°	488.1	16.2
40°-50°	493.4	16.4
50°-60°	437.5	14.5
60°-70°	339.9	11.3
70°-80°	228.8	7.6
80°-90°	129.7	4.3
90°-100°	62.6	2.1
100°-110°	26.2	0.9
110°-120°	8.9	0.3
120°-130°	2.4	0.1
130°-140°	1.2	0.0
140°-150°	1.1	0.0
150°-160°	0.8	0.0
160°-170°	0.5	0.0
170°-180°	0.2	0.0
0°-30°	792.1	26.3
0°-40°	1280.2	42.5
0°-60°	2211.1	73.4
0°-90°	2909.5	96.6
90°-120°	97.6	3.2
90°-150°	102.3	3.4
90°-180°	104.0	3.5
0°-180°	3013.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1033	1033	1033	1033	1033	
5°	1108	1089	1031	968	938	108
15°	1214	1156	982	827	770	343
25°	1208	1138	885	674	611	557
35°	1122	1045	754	524	468	702
45°	994	901	607	383	334	768
55°	845	731	449	247	210	756
65°	680	556	291	129	106	674
75°	516	389	152	45	38	545
85°	358	236	44	6	6	308
90°	284	169	3	4	4	156
95°	215	113	2	2	2	164
105°	108	40	2	2	0	117
115°	42	8	2	2	0	44
125°	8	2	2	2	1	9
135°	0	2	2	2	1	0
145°	1	2	2	2	1	0
155°	1	2	2	2	1	0
165°	1	2	2	2	1	0
175°	1	2	3	2	1	0
180°	2	2	2	2	2	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7
2.5°	1066.1	1064.5	1066.9	1065.3	1066.1	1067.7	1068.5	1066.9	1066.9	1065.3	1062.8
5°	1107.7	1108.5	1107.7	1106.1	1104.4	1105.2	1104.4	1100.4	1097.9	1093.0	1088.9
7.5°	1143.6	1143.6	1142.0	1140.3	1137.9	1137.9	1136.2	1130.5	1125.6	1118.3	1111.8
10°	1170.5	1170.5	1168.9	1167.2	1164.0	1163.2	1159.9	1155.0	1148.5	1140.3	1130.5
12.5°	1195.0	1194.2	1192.5	1190.1	1186.8	1185.2	1181.9	1175.4	1167.2	1157.4	1146.0
15°	1213.7	1214.5	1212.1	1209.7	1204.8	1202.3	1199.0	1190.9	1181.1	1169.7	1155.8
17.5°	1225.2	1226.0	1223.5	1220.3	1214.5	1211.3	1208.0	1199.9	1188.4	1175.4	1160.7
20°	1226.0	1226.8	1225.2	1221.9	1215.4	1212.1	1208.8	1199.9	1187.6	1174.6	1158.3
22.5°	1220.3	1220.3	1219.4	1214.5	1208.8	1205.6	1201.5	1192.5	1181.1	1167.2	1150.1
25°	1208.0	1208.8	1207.2	1203.1	1197.4	1194.2	1190.1	1180.3	1168.9	1155.0	1137.9
27.5°	1191.7	1192.5	1191.7	1187.6	1181.1	1177.8	1173.8	1164.0	1151.7	1138.7	1120.7
30°	1172.1	1172.9	1171.3	1167.2	1160.7	1157.4	1153.4	1142.8	1130.5	1116.7	1098.7
32.5°	1148.5	1149.3	1147.7	1142.8	1136.2	1132.2	1128.9	1118.3	1104.4	1090.6	1072.6
35°	1121.6	1123.2	1120.7	1115.8	1109.3	1106.1	1101.2	1088.9	1075.9	1060.4	1044.9
37.5°	1093.0	1093.8	1092.2	1085.7	1079.1	1075.1	1071.0	1059.6	1044.1	1028.6	1012.3
40°	1061.2	1062.8	1060.4	1054.7	1046.5	1043.3	1037.5	1024.5	1010.6	994.3	978.0
42.5°	1028.6	1031.0	1027.8	1021.2	1013.1	1009.0	1003.3	991.9	974.7	957.6	940.5
45°	993.5	995.9	992.7	985.3	977.2	972.3	966.6	951.9	936.4	919.3	901.3
47.5°	960.9	959.2	956.0	948.6	940.5	934.8	929.1	913.6	897.2	878.5	860.5
50°	919.3	920.9	916.0	910.3	900.5	894.8	889.1	872.8	856.5	836.9	818.1
52.5°	884.2	881.7	877.7	871.1	860.5	854.8	848.3	832.8	817.3	794.5	774.9
55°	845.0	841.8	838.5	829.5	819.8	813.2	806.7	792.0	771.6	751.2	730.8
57.5°	804.3	801.0	796.9	788.8	778.2	772.4	765.1	748.8	730.8	709.6	686.8
60°	763.5	760.2	755.3	746.3	735.7	729.2	722.7	705.6	684.4	666.4	642.8
62.5°	721.1	717.8	713.7	704.7	693.3	688.4	679.5	663.1	643.6	622.4	598.7
65°	679.5	676.2	672.1	663.1	650.9	646.8	637.0	620.7	599.5	579.1	555.5
67.5°	637.9	634.6	630.5	621.5	610.9	604.4	595.4	579.1	557.1	536.7	513.1
70°	597.9	593.8	589.7	580.8	567.7	563.6	553.8	537.5	515.5	496.7	471.5
72.5°	556.3	553.0	549.8	540.0	528.6	522.0	513.1	497.6	475.5	456.0	429.9
75°	515.5	512.2	507.4	497.6	487.8	481.3	471.5	456.0	434.8	414.4	389.1
77.5°	474.7	471.5	469.0	459.2	447.0	440.5	430.7	416.0	396.4	374.4	349.1
80°	435.6	432.3	428.2	420.9	407.0	400.5	391.5	376.0	356.5	335.2	310.0
82.5°	395.6	393.2	387.4	380.1	367.9	361.3	352.4	336.9	318.1	296.9	272.4
85°	358.1	354.0	349.1	341.8	330.4	323.8	314.9	299.4	280.6	260.2	236.5
87.5°	320.6	317.3	311.6	305.9	295.3	286.3	278.1	262.6	244.7	225.1	203.1
90°	283.9	280.6	275.7	268.4	257.8	251.2	242.3	228.4	210.4	189.2	168.8
92.5°	248.8	246.3	240.6	234.1	224.3	217.0	209.6	194.9	177.8	159.1	140.3
95°	215.3	213.7	208.0	200.7	192.5	185.2	178.6	164.0	147.6	130.5	112.6
97.5°	184.3	182.7	177.0	170.5	162.3	155.8	149.3	136.2	121.5	105.2	88.1
100°	155.8	154.2	150.1	143.6	136.2	130.5	125.6	112.6	98.7	84.0	69.3
102.5°	131.3	129.7	126.4	121.5	112.6	107.7	103.6	91.4	79.1	66.1	53.8
105°	108.5	107.7	104.4	99.5	92.2	87.3	82.4	72.6	62.0	50.6	40.0
107.5°	88.9	88.1	84.0	79.9	73.4	69.3	66.1	56.3	47.3	37.5	28.5
110°	70.1	70.1	66.9	62.8	57.9	53.8	51.4	43.2	35.9	27.7	20.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	54.7	53.8	52.2	48.9	44.0	41.6	38.3	32.6	26.1	19.6	13.1
115°	42.4	41.6	39.2	36.7	33.4	30.2	27.7	22.8	17.9	13.1	8.2
117.5°	31.0	30.2	28.5	26.9	23.7	22.0	19.6	15.5	11.4	8.2	4.9
120°	22.0	21.2	20.4	18.8	16.3	14.7	13.1	9.8	7.3	4.9	2.4
122.5°	13.9	13.9	13.1	11.4	9.8	9.0	8.2	5.7	3.3	2.4	1.6
125°	8.2	8.2	7.3	6.5	5.7	4.9	4.1	2.4	1.6	1.6	1.6
127.5°	4.1	4.1	3.3	3.3	2.4	1.6	1.6	0.8	0.8	0.8	1.6
130°	0.8	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6
132.5°	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6
135°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6
137.5°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6
140°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6
142.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
145°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
147.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
150°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
152.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
155°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
157.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
160°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
162.5°	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6
165°	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6
167.5°	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6
170°	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6
172.5°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
175°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
177.5°	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6
180°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7
2.5°	1062.0	1059.6	1057.1	1053.0	1051.4	1049.8	1047.3	1044.9	1040.8	1036.7	1033.5
5°	1084.0	1079.1	1073.4	1066.1	1062.0	1059.6	1053.0	1046.5	1039.2	1031.0	1024.5
7.5°	1104.4	1095.5	1085.7	1075.9	1071.0	1066.9	1056.3	1045.7	1035.1	1022.9	1013.9
10°	1120.7	1109.3	1097.1	1084.0	1076.7	1070.2	1056.3	1043.3	1027.8	1013.1	999.2
12.5°	1133.8	1119.9	1104.4	1088.1	1080.0	1071.0	1053.9	1037.5	1018.8	1000.0	983.7
15°	1141.1	1124.0	1106.9	1086.5	1076.7	1066.9	1045.7	1026.1	1004.1	982.1	962.5
17.5°	1143.6	1124.8	1104.4	1082.4	1070.2	1058.8	1035.1	1012.3	987.0	961.7	939.7
20°	1139.5	1119.9	1097.9	1072.6	1060.4	1047.3	1021.2	995.1	967.4	938.8	914.4
22.5°	1131.3	1110.1	1086.5	1059.6	1045.7	1031.8	1003.3	974.7	944.6	914.4	887.5
25°	1117.5	1095.5	1071.0	1042.4	1026.9	1013.1	982.1	951.1	918.5	885.0	857.3
27.5°	1100.4	1077.5	1051.4	1022.0	1007.4	990.2	957.6	924.2	889.9	854.8	824.7
30°	1078.3	1055.5	1028.6	997.6	981.3	964.9	930.7	895.6	859.7	823.0	791.2
32.5°	1052.2	1028.6	1002.5	970.7	955.2	937.2	901.3	865.4	826.3	789.6	755.3
35°	1023.7	999.2	972.3	938.8	924.2	906.2	870.3	832.8	793.7	754.5	720.2
37.5°	991.9	967.4	939.7	906.2	891.5	872.8	836.1	797.7	757.8	720.2	683.5
40°	956.8	931.5	904.6	870.3	855.6	836.9	800.2	761.8	721.1	682.7	646.8
42.5°	919.3	894.8	867.1	832.8	818.1	800.2	762.7	724.3	683.5	646.0	609.3
45°	880.1	854.8	827.1	792.8	778.2	761.0	723.5	685.2	644.4	606.9	571.0
47.5°	839.3	813.2	785.5	752.1	736.6	719.4	682.7	645.2	605.2	567.7	532.6
50°	796.1	770.8	740.6	708.8	694.1	677.0	638.7	603.6	564.5	527.7	493.5
52.5°	752.1	726.8	696.6	667.2	650.1	633.0	597.1	559.6	523.7	487.8	454.3
55°	708.0	681.1	653.4	624.8	606.1	588.9	554.7	518.8	482.1	448.6	415.2
57.5°	663.1	636.2	607.7	579.9	561.2	544.9	511.4	476.4	441.3	407.8	376.8
60°	619.1	590.6	562.8	534.3	516.3	500.8	467.4	433.9	400.5	368.7	338.5
62.5°	574.2	547.3	518.8	490.2	473.1	457.6	425.8	393.2	359.7	329.5	300.2
65°	531.0	504.1	475.5	447.0	429.9	414.4	384.2	352.4	322.2	291.2	262.6
67.5°	488.6	460.9	433.1	404.6	388.3	372.8	344.2	313.2	283.9	254.5	227.6
70°	446.2	417.6	392.3	363.8	347.5	332.8	304.2	274.9	246.3	217.8	192.5
72.5°	405.4	377.7	349.9	323.0	307.5	292.8	266.7	236.5	209.6	184.3	160.7
75°	364.6	337.7	310.0	283.9	268.4	254.5	226.8	199.8	174.6	151.7	128.9
77.5°	325.5	298.5	271.6	246.3	232.5	217.8	192.5	165.6	141.9	119.9	99.5
80°	286.3	261.8	234.1	209.6	196.6	182.7	158.2	133.0	111.7	91.4	73.4
82.5°	249.6	225.9	199.0	175.4	163.1	149.3	125.6	105.2	84.0	66.9	49.8
85°	213.7	190.9	165.6	142.7	131.3	118.3	97.1	78.3	59.5	44.0	27.7
87.5°	180.3	158.2	133.8	113.4	102.0	90.5	71.0	53.8	37.5	22.8	9.8
90°	148.5	128.1	105.2	85.6	75.9	65.3	47.3	31.8	16.3	3.3	2.4
92.5°	118.3	100.3	79.1	60.4	52.2	44.0	28.5	15.5	4.9	2.4	2.4
95°	93.0	75.9	57.9	42.4	35.1	28.5	15.5	6.5	2.4	1.6	1.6
97.5°	72.6	57.1	41.6	28.5	22.8	17.1	8.2	2.4	2.4	2.4	1.6
100°	54.7	41.6	28.5	17.9	13.9	9.8	4.1	1.6	1.6	1.6	1.6
102.5°	40.8	29.4	18.8	11.4	8.2	5.7	2.4	1.6	1.6	2.4	2.4
105°	29.4	20.4	12.2	6.5	4.1	2.4	1.6	1.6	1.6	1.6	2.4
107.5°	20.4	13.1	7.3	3.3	2.4	1.6	1.6	1.6	1.6	2.4	1.6
110°	13.9	8.2	4.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6



TEST NUMBER: P188218

CATALOG NUMBER: MPBL-2-LD4-UNV-2DN-STD-40

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	8.2	4.9	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
115°	4.9	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	1.6
117.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4
120°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
122.5°	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4
125°	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4
127.5°	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4
130°	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4
132.5°	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4
135°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
137.5°	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
140°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
142.5°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
145°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
147.5°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
150°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
152.5°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
155°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
157.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
160°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
162.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
165°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
167.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
170°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
172.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3
175°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	2.4
177.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	2.4
180°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6



TEST NUMBER: P188218

CATALOG NUMBER: MPBL-2-LD4-UNV-2DN-STD-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7
2.5°	1030.2	1025.3	1021.2	1019.6	1017.2	1013.1	1010.6	1005.7	1001.7	998.4	993.5
5°	1018.0	1009.0	1002.5	999.2	995.1	987.0	982.9	973.9	968.2	962.5	957.6
7.5°	1003.3	991.1	981.3	976.4	970.7	960.1	952.7	942.1	934.8	927.4	920.9
10°	985.3	970.7	958.4	951.1	945.4	931.5	922.5	909.5	900.5	891.5	881.7
12.5°	966.6	949.5	933.1	925.0	917.6	902.1	890.7	875.2	864.6	854.0	843.4
15°	942.9	923.3	903.8	893.2	885.8	868.7	855.6	841.0	827.1	816.5	804.3
17.5°	916.8	894.8	873.6	863.8	854.0	834.4	820.6	804.3	790.4	778.2	768.4
20°	888.3	864.6	842.6	830.4	819.8	799.4	783.9	766.7	751.2	739.0	726.0
22.5°	858.1	832.8	808.3	796.1	784.7	762.7	746.3	727.6	712.9	699.0	688.4
25°	825.5	798.6	774.1	757.8	748.0	725.1	708.0	689.2	673.8	659.9	649.3
27.5°	792.0	762.7	737.4	723.5	711.3	687.6	670.5	651.7	636.2	622.4	611.8
30°	757.0	726.8	700.7	685.2	674.6	650.1	632.2	614.2	598.7	584.8	574.2
32.5°	723.5	690.9	664.0	651.7	637.9	612.6	595.4	576.7	561.2	548.1	537.5
35°	686.8	654.2	625.6	614.2	600.3	575.9	557.9	540.0	524.5	512.2	501.6
37.5°	649.3	618.3	588.1	575.9	562.8	540.0	521.2	504.1	489.4	476.4	465.8
40°	612.6	581.6	551.4	539.2	526.1	501.6	484.5	467.4	453.5	441.3	431.5
42.5°	575.1	544.1	514.7	502.5	490.2	465.8	448.6	432.3	418.4	406.2	396.4
45°	536.7	506.5	477.2	464.9	452.7	430.7	412.7	396.4	383.4	371.9	362.2
47.5°	500.0	469.8	440.5	429.0	416.8	395.6	377.7	362.2	349.1	337.7	328.7
50°	461.7	430.7	403.8	391.5	380.1	359.7	342.6	327.1	314.0	304.2	293.6
52.5°	423.3	393.2	367.1	355.6	344.2	324.6	306.7	292.8	280.6	270.0	261.0
55°	385.0	357.3	331.2	319.7	309.1	291.2	273.3	259.4	247.2	238.2	230.0
57.5°	346.7	320.6	295.3	284.7	274.1	256.9	239.8	226.8	215.3	206.4	199.0
60°	309.1	283.9	259.4	249.6	239.8	223.5	206.4	194.1	184.3	176.2	170.5
62.5°	273.3	248.8	226.8	216.2	206.4	190.9	175.4	164.8	155.8	148.5	143.6
65°	237.4	214.5	193.3	183.5	173.7	159.9	146.8	136.2	128.9	122.4	118.3
67.5°	203.1	179.4	162.3	151.7	143.6	131.3	119.1	110.1	103.6	98.7	95.4
70°	168.0	148.5	131.3	122.4	115.0	103.6	94.6	86.5	81.6	77.5	74.2
72.5°	137.0	119.1	103.6	95.4	88.9	79.9	71.8	66.1	62.0	58.7	57.1
75°	107.7	91.4	77.5	71.0	66.1	58.7	52.2	48.1	44.9	43.2	42.4
77.5°	80.8	66.1	54.7	49.8	45.7	40.8	35.9	34.3	31.8	30.2	30.2
80°	57.1	44.0	35.9	31.8	29.4	26.9	23.7	22.0	21.2	19.6	19.6
82.5°	35.9	26.1	21.2	19.6	17.9	16.3	13.9	13.1	12.2	10.6	10.6
85°	17.9	13.1	10.6	9.0	8.2	7.3	5.7	5.7	5.7	5.7	5.7
87.5°	5.7	4.1	4.1	3.3	4.1	4.1	4.1	4.1	4.9	4.9	4.9
90°	2.4	2.4	3.3	2.4	3.3	3.3	3.3	3.3	4.1	4.1	4.1
92.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3
95°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
97.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
100°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8
102.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
105°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
107.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
110°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8



TEST NUMBER: P188218

CATALOG NUMBER: MPBL-2-LD4-UNV-2DN-STD-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8
115°	1.6	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
117.5°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8
120°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
122.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
125°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	1.6
127.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
130°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
132.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
135°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
137.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
140°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
142.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
145°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
147.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
150°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
152.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
155°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
157.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
160°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
162.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
165°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
167.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
170°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
172.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
175°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
177.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
180°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6



TEST NUMBER: P188218

CATALOG NUMBER: MPBL-2-LD4-UNV-2DN-STD-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7	1032.7
2.5°	991.1	987.0	986.2	982.9	981.3	978.8	975.6	976.4
5°	953.5	947.0	947.8	943.7	942.1	939.7	936.4	938.0
7.5°	916.0	908.7	908.7	903.8	901.3	898.1	894.8	896.4
10°	875.2	867.9	866.3	861.4	857.3	853.2	849.9	850.8
12.5°	835.3	828.7	823.8	821.4	815.7	812.4	812.4	810.0
15°	796.1	787.9	784.7	782.2	775.7	772.4	770.0	770.0
17.5°	757.0	750.4	744.7	742.3	736.6	731.7	731.7	729.2
20°	717.0	709.6	704.7	701.5	695.8	690.9	690.9	688.4
22.5°	677.0	669.7	664.8	661.5	655.0	650.9	649.3	649.3
25°	637.9	628.9	625.6	623.2	616.7	612.6	610.9	610.9
27.5°	600.3	593.0	588.1	585.7	579.1	575.9	573.4	573.4
30°	563.6	554.7	551.4	549.0	543.2	539.2	537.5	538.3
32.5°	526.9	518.8	517.1	513.9	508.2	504.9	503.3	503.3
35°	491.0	483.7	482.1	479.6	473.1	469.8	469.0	468.2
37.5°	456.0	449.4	447.0	444.5	438.8	435.6	435.6	433.9
40°	421.7	415.2	412.7	410.3	405.4	402.1	401.3	400.5
42.5°	387.4	380.9	379.3	376.8	371.9	369.5	368.7	367.9
45°	353.2	347.5	345.8	341.8	338.5	336.1	335.2	334.4
47.5°	320.6	314.9	313.2	311.6	306.7	305.1	303.4	301.8
50°	287.1	281.4	279.8	278.1	274.1	271.6	271.6	270.0
52.5°	255.3	249.6	248.0	247.2	243.9	241.4	240.6	239.8
55°	225.1	219.4	218.6	217.0	213.7	212.9	211.3	210.4
57.5°	194.9	190.1	189.2	187.6	186.0	183.5	182.7	181.9
60°	166.4	162.3	161.5	159.9	158.2	156.6	155.8	155.0
62.5°	140.3	136.2	135.4	134.6	133.0	131.3	129.7	129.7
65°	115.8	111.7	110.9	110.1	107.7	106.9	106.0	106.0
67.5°	93.0	89.7	88.9	88.1	87.3	85.6	84.8	84.8
70°	72.6	70.1	69.3	69.3	68.5	67.7	66.9	66.9
72.5°	55.5	54.7	53.8	53.8	53.0	52.2	53.0	51.4
75°	41.6	40.8	40.0	40.0	39.2	39.2	38.3	37.5
77.5°	29.4	28.5	27.7	27.7	27.7	26.9	26.9	26.1
80°	18.8	17.9	17.1	17.1	17.1	16.3	16.3	15.5
82.5°	9.8	9.0	8.2	8.2	8.2	8.2	8.2	8.2
85°	5.7	6.5	6.5	6.5	6.5	6.5	6.5	6.5
87.5°	4.9	4.9	4.9	4.9	5.7	5.7	5.7	4.9
90°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
92.5°	3.3	2.4	2.4	2.4	2.4	3.3	3.3	3.3
95°	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4
97.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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	0.8	0.8	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: P188218

CATALOG NUMBER: MPBL-2-LD4-UNV-2DN-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	0.8	0.0
120°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
130°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
132.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
137.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
140°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
142.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
145°	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8
147.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
150°	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8
152.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
155°	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8
157.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
160°	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8
162.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
165°	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8
167.5°	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8
170°	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8
172.5°	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8
175°	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8
177.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6

(END OF REPORT)