

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: P188222

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188222
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27361)
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-1UP-STD-40
Description:
Light Source: (84) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3123.3 lumens
Efficiency: N/A
Efficacy: 105.4 lumens/watt
Spacing Criteria (0/90/45): - / - / -
Luminous Opening: Rectangular w/ Sides (W: 3' x L: 0.42' x H: 0.29')
CIE Type: Indirect

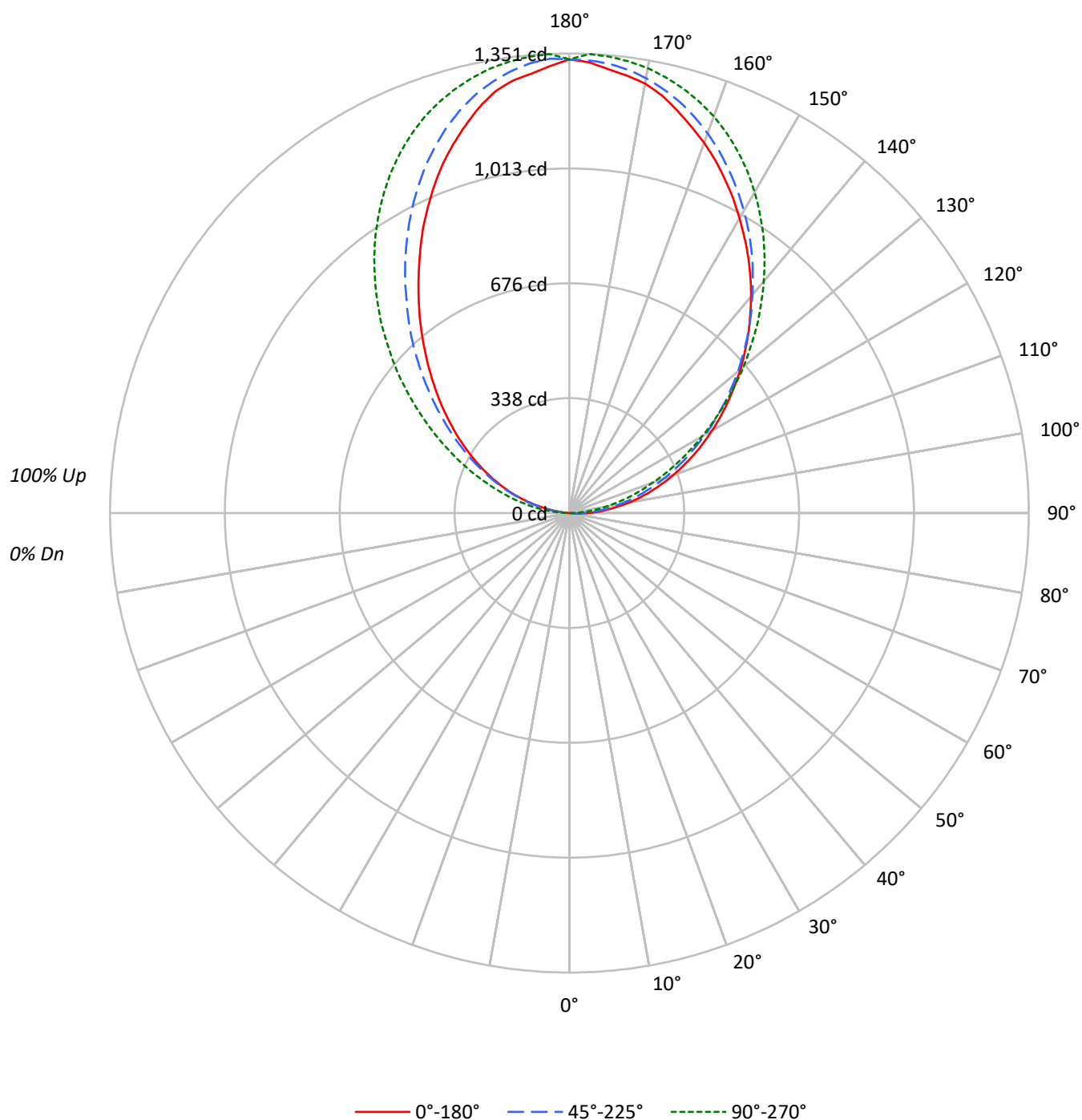
Input Watts (W): 29.64
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: MPBL-3-LD4-UNV-1UP-STD-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	32	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°	45	37	9



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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°	4.8	0.2
90°-100°	63.6	2.0
100°-110°	189.9	6.1
110°-120°	328.5	10.5
120°-130°	453.9	14.5
130°-140°	541.3	17.3
140°-150°	564.2	18.1
150°-160°	502.1	16.1
160°-170°	349.4	11.2
170°-180°	125.4	4.0
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	4.8	0.2
90°-120°	582.1	18.6
90°-150°	2141.5	68.6
90°-180°	3119.0	99.9
0°-180°	3123.3	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°	4	1	1	1	1	5
90°	57	36	1	3	5	31
95°	111	90	51	13	6	105
105°	249	220	181	131	123	264
115°	402	376	351	269	258	399
125°	569	552	556	435	407	509
135°	744	742	780	630	577	574
145°	917	935	995	843	773	574
155°	1082	1111	1173	1055	987	498
165°	1225	1252	1292	1230	1180	345
175°	1310	1326	1347	1327	1296	124
180°	1334	1334	1334	1334	1334	



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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°	4.1	4.9	5.7	4.1	3.3	2.5	2.5	1.6	0.8	0.8	0.8
87.5°	27.8	29.4	30.2	27.0	25.3	25.3	23.7	21.2	18.0	14.7	12.3
90°	57.2	55.6	57.2	53.1	52.3	50.7	49.0	46.6	43.3	39.2	36.0
92.5°	85.0	83.4	85.0	80.9	80.1	77.6	76.8	73.5	70.3	65.4	62.9
95°	111.1	113.6	114.4	111.1	109.5	107.1	105.4	102.2	98.9	94.0	89.9
97.5°	143.0	144.6	146.3	142.2	140.6	138.1	136.5	133.2	129.1	124.2	120.1
100°	179.0	178.2	179.0	174.9	173.3	170.8	169.2	165.1	161.8	156.1	152.0
102.5°	213.3	212.5	214.1	209.2	207.6	205.1	202.7	199.4	195.3	189.6	185.5
105°	249.3	248.4	250.1	245.2	243.5	240.3	238.6	234.5	231.3	224.7	219.8
107.5°	285.2	285.2	286.8	281.9	279.5	276.2	275.4	271.3	267.2	260.7	255.8
110°	323.6	323.6	325.3	320.3	317.9	314.6	313.8	309.7	305.6	299.1	294.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	362.0	364.5	364.5	358.8	357.1	353.9	352.2	349.0	344.0	338.3	333.4
115°	402.1	404.5	404.5	398.8	396.4	393.1	392.3	389.0	384.9	380.8	375.9
117.5°	442.9	444.6	444.6	437.2	434.8	433.9	432.3	429.9	425.8	420.0	416.0
120°	483.8	486.2	486.2	481.3	478.9	475.6	474.8	471.5	468.3	462.5	460.9
122.5°	526.3	528.7	528.7	523.0	521.4	518.1	517.3	514.8	511.6	509.1	506.7
125°	568.8	572.1	571.2	566.3	564.7	562.2	560.6	559.0	555.7	554.1	552.4
127.5°	612.1	614.5	614.5	607.2	608.0	605.6	605.6	603.1	601.5	599.8	599.0
130°	656.2	658.7	658.7	653.8	652.1	650.5	650.5	648.9	647.2	647.2	647.2
132.5°	699.5	702.0	699.5	695.5	696.3	695.5	694.6	694.6	693.8	693.8	693.0
135°	743.7	745.3	746.1	738.8	741.2	740.4	739.6	739.6	740.4	741.2	742.0
137.5°	787.0	789.4	789.4	782.9	786.2	785.3	784.5	785.3	787.0	788.6	790.2
140°	831.1	832.7	832.7	827.0	830.3	830.3	829.5	830.3	831.9	835.2	837.6
142.5°	874.4	876.1	876.1	870.3	874.4	873.6	873.6	875.2	878.5	881.8	885.9
145°	916.9	917.7	918.6	913.6	918.6	918.6	918.6	921.0	925.1	930.0	934.9
147.5°	958.6	959.4	960.2	956.1	961.9	962.7	962.7	966.0	970.0	975.8	981.5
150°	1000.3	1001.1	1001.9	997.8	1003.5	1004.4	1004.4	1007.6	1013.3	1019.1	1025.6
152.5°	1042.8	1042.8	1041.1	1038.7	1045.2	1045.2	1046.0	1047.7	1055.8	1062.4	1069.7
155°	1082.0	1082.8	1082.8	1079.5	1086.1	1086.9	1087.7	1091.0	1097.5	1104.9	1111.4
157.5°	1122.0	1122.0	1120.4	1119.6	1126.1	1126.9	1127.8	1131.8	1137.6	1144.9	1151.5
160°	1158.0	1158.8	1158.8	1158.0	1162.9	1163.7	1164.5	1169.4	1174.3	1181.7	1188.2
162.5°	1191.5	1191.5	1191.5	1191.5	1196.4	1198.0	1198.9	1203.8	1208.7	1214.4	1221.7
165°	1225.0	1225.0	1224.2	1224.2	1229.9	1230.7	1231.5	1235.6	1239.7	1246.3	1252.0
167.5°	1257.7	1257.7	1256.1	1255.2	1259.3	1260.1	1260.1	1262.6	1266.7	1270.0	1276.5
170°	1282.2	1282.2	1279.8	1280.6	1283.0	1283.0	1283.0	1284.7	1288.8	1292.0	1298.6
172.5°	1296.9	1296.1	1293.7	1296.9	1300.2	1301.0	1301.8	1303.5	1307.5	1310.0	1314.9
175°	1310.0	1309.2	1308.4	1310.8	1314.9	1314.9	1315.7	1316.5	1319.8	1322.3	1326.3
177.5°	1326.3	1325.5	1321.4	1321.4	1323.9	1323.9	1323.9	1322.3	1325.5	1328.0	1332.1
180°	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7



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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°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	7.4	4.9	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90°	31.9	28.6	24.5	19.6	18.0	15.5	10.6	7.4	1.6	0.8	0.8
92.5°	58.0	54.8	50.7	47.4	43.3	41.7	36.8	33.5	27.8	23.7	19.6
95°	85.0	82.5	77.6	72.7	71.1	68.6	64.6	60.5	54.8	50.7	46.6
97.5°	115.2	112.0	107.1	103.8	101.3	98.1	93.2	89.9	83.4	79.3	75.2
100°	146.3	143.0	138.1	134.8	131.6	128.3	124.2	119.3	114.4	110.3	105.4
102.5°	179.8	176.5	171.6	165.1	165.1	162.6	158.5	153.6	147.9	143.8	138.9
105°	214.9	211.7	206.8	201.9	201.0	197.8	194.5	192.0	184.7	181.4	174.1
107.5°	250.9	248.4	243.5	237.8	238.6	236.2	232.9	228.8	223.9	219.8	212.5
110°	290.1	286.8	282.8	277.0	277.0	276.2	273.8	270.5	265.6	259.9	253.3



TEST NUMBER: P188222

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	329.3	326.9	323.6	320.3	320.3	318.7	317.1	314.6	309.7	305.6	296.6
115°	370.2	369.4	366.1	363.7	364.5	362.8	362.8	360.4	356.3	351.4	342.4
117.5°	412.7	412.7	410.2	409.4	410.2	408.6	410.2	408.6	404.5	399.6	389.8
120°	456.8	457.6	456.8	456.8	458.5	457.6	459.3	458.5	455.2	450.3	440.5
122.5°	502.6	504.2	504.2	505.0	507.5	507.5	510.8	509.9	506.7	502.6	492.0
125°	551.6	552.4	553.3	554.9	558.2	559.0	563.1	563.1	563.1	556.5	545.1
127.5°	596.6	598.2	603.1	606.4	609.6	611.3	616.2	617.0	613.7	611.3	599.0
130°	648.1	650.5	654.6	658.7	663.6	665.2	670.9	673.4	673.4	668.5	656.2
132.5°	697.1	701.2	703.6	711.0	714.2	718.3	725.7	728.1	724.9	721.6	711.8
135°	747.8	751.8	757.6	764.1	770.6	772.3	780.4	782.9	782.1	780.4	770.6
137.5°	796.8	801.7	809.0	816.4	821.3	826.2	834.4	837.6	837.6	834.4	824.6
140°	845.0	850.7	858.1	867.9	873.6	878.5	888.3	894.0	891.6	889.1	880.1
142.5°	894.0	900.6	908.7	918.6	925.1	930.0	940.6	944.7	943.9	943.1	936.5
145°	943.1	949.6	958.6	969.2	974.9	980.7	990.5	995.4	994.6	994.6	985.6
147.5°	990.5	996.2	1005.2	1016.6	1023.2	1028.9	1038.7	1044.4	1042.8	1042.8	1035.4
150°	1035.4	1041.1	1050.9	1063.2	1069.7	1075.5	1085.3	1092.6	1089.4	1089.4	1084.4
152.5°	1079.5	1085.3	1094.3	1106.5	1113.9	1119.6	1128.6	1133.5	1132.7	1133.5	1126.9
155°	1120.4	1125.3	1134.3	1146.6	1153.9	1158.8	1168.6	1174.3	1169.4	1172.7	1167.0
157.5°	1159.6	1163.7	1171.9	1184.1	1190.7	1195.6	1206.2	1210.3	1206.2	1208.7	1204.6
160°	1195.6	1198.9	1206.2	1217.7	1224.2	1228.3	1238.1	1242.2	1237.3	1241.4	1236.5
162.5°	1228.3	1229.9	1236.5	1247.9	1253.6	1257.7	1265.9	1269.1	1265.1	1268.3	1263.4
165°	1256.9	1256.9	1261.8	1273.2	1278.1	1281.4	1289.6	1292.0	1288.8	1292.0	1288.8
167.5°	1280.6	1279.8	1283.8	1294.5	1299.4	1302.6	1310.0	1311.6	1308.4	1311.6	1308.4
170°	1300.2	1298.6	1301.8	1312.5	1316.5	1319.0	1325.5	1328.0	1324.7	1328.0	1324.7
172.5°	1315.7	1313.3	1315.7	1325.5	1329.6	1331.2	1337.0	1338.6	1336.2	1339.4	1337.0
175°	1325.5	1322.3	1324.7	1333.7	1337.0	1338.6	1344.3	1345.1	1342.7	1346.8	1344.3
177.5°	1330.4	1327.2	1328.8	1337.8	1341.1	1342.7	1347.6	1349.2	1346.8	1350.9	1349.2
180°	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7



TEST NUMBER: P188222

CATALOG NUMBER: MPBL-3-LD4-UNV-1UP-STD-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°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90°	0.8	1.6	1.6	1.6	1.6	2.5	2.5	2.5	3.3	3.3	4.1
92.5°	15.5	10.6	6.5	4.9	4.1	2.5	3.3	3.3	3.3	4.1	4.1
95°	42.5	37.6	32.7	30.2	27.8	22.9	19.6	16.3	13.1	10.6	9.0
97.5°	70.3	64.6	60.5	59.7	56.4	51.5	46.6	42.5	39.2	36.0	33.5
100°	100.5	94.0	89.1	85.8	85.0	80.1	76.8	72.7	68.6	65.4	62.1
102.5°	132.4	125.0	120.1	116.0	115.2	109.5	106.2	103.0	99.7	97.2	94.0
105°	167.5	159.4	152.8	151.2	147.1	141.4	137.3	134.0	130.8	128.3	125.9
107.5°	205.9	196.1	188.8	186.3	182.2	174.9	170.0	165.9	162.6	160.2	157.7
110°	246.0	236.2	227.2	222.3	219.0	210.8	205.1	200.2	196.9	193.7	190.4



TEST NUMBER: P188222

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	289.3	277.0	268.0	264.0	258.2	248.4	241.9	237.0	232.1	228.8	224.7
115°	334.2	321.2	310.5	305.6	299.9	289.3	281.1	274.6	268.9	264.8	261.5
117.5°	380.8	366.9	354.7	349.8	342.4	331.0	322.0	313.8	307.3	300.7	298.3
120°	429.9	415.1	402.1	396.4	389.0	375.1	364.5	356.3	348.1	342.4	337.5
122.5°	479.7	465.0	450.3	444.6	436.4	421.7	410.2	399.6	390.6	381.6	377.6
125°	532.0	516.5	501.0	495.2	485.4	469.9	456.8	444.6	434.8	426.6	420.0
127.5°	585.1	568.0	552.4	546.7	536.1	518.9	505.0	491.1	480.5	468.3	463.4
130°	640.7	621.9	605.6	599.8	589.2	571.2	555.7	541.0	528.7	518.1	509.1
132.5°	695.5	675.8	658.7	650.5	642.3	623.5	607.2	590.8	578.6	566.3	555.7
135°	750.2	730.6	713.4	708.5	697.9	679.1	660.3	644.0	630.1	616.2	604.7
137.5°	806.6	786.2	769.0	758.4	752.7	736.3	715.1	697.1	683.2	668.5	655.4
140°	861.3	840.1	822.9	812.3	807.4	791.1	769.0	749.4	735.5	720.0	706.9
142.5°	916.1	894.0	876.1	866.3	862.2	845.8	823.8	804.1	786.2	773.1	759.2
145°	969.2	947.2	929.2	920.2	916.1	901.4	879.3	859.7	842.6	827.8	814.8
147.5°	1019.1	997.0	979.8	970.9	967.6	955.3	934.1	915.3	897.3	883.4	869.5
150°	1066.5	1046.0	1028.9	1020.7	1018.3	1006.8	988.0	968.4	951.2	938.2	924.3
152.5°	1112.2	1091.8	1077.1	1069.7	1064.8	1058.3	1039.5	1021.5	1004.4	991.3	977.4
155°	1153.1	1135.1	1120.4	1113.9	1109.8	1104.9	1088.5	1071.4	1055.0	1042.8	1029.7
157.5°	1190.7	1173.5	1160.4	1154.7	1151.5	1148.2	1135.1	1119.6	1104.9	1093.4	1082.0
160°	1225.0	1208.7	1196.4	1191.5	1189.1	1188.2	1176.8	1163.7	1149.8	1140.8	1129.4
162.5°	1254.4	1238.9	1228.3	1224.2	1222.6	1224.2	1215.2	1205.4	1192.3	1184.1	1174.3
165°	1278.9	1265.9	1256.1	1253.6	1252.8	1255.2	1249.5	1241.4	1229.9	1223.4	1215.2
167.5°	1300.2	1287.9	1279.8	1277.3	1278.1	1281.4	1277.3	1271.6	1262.6	1257.7	1250.3
170°	1317.4	1306.7	1298.6	1296.9	1298.6	1303.5	1301.8	1296.9	1288.8	1284.7	1280.6
172.5°	1329.6	1319.8	1313.3	1312.5	1314.1	1320.6	1319.8	1316.5	1310.8	1308.4	1305.1
175°	1337.8	1328.8	1323.1	1322.3	1324.7	1332.1	1333.7	1331.2	1327.2	1325.5	1323.9
177.5°	1343.5	1334.5	1328.8	1329.6	1331.2	1339.4	1341.9	1340.2	1337.0	1335.3	1335.3
180°	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7



TEST NUMBER: P188222

CATALOG NUMBER: MPBL-3-LD4-UNV-1UP-STD-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°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.8	1.6	1.6	1.6	1.6	2.5	2.5	2.5
90°	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.9
92.5°	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9
95°	8.2	7.4	7.4	7.4	6.5	6.5	5.7	6.5
97.5°	31.9	31.1	29.4	30.2	28.6	27.0	26.2	27.8
100°	60.5	59.7	58.8	58.8	57.2	56.4	55.6	57.2
102.5°	93.2	92.3	90.7	89.1	89.1	88.3	86.6	89.1
105°	125.0	125.0	123.4	123.4	123.4	122.6	120.9	122.6
107.5°	157.7	157.7	156.1	156.1	156.9	156.1	155.3	156.9
110°	190.4	190.4	189.6	190.4	189.6	189.6	188.8	190.4



TEST NUMBER: P188222

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	224.7	224.7	223.1	224.7	223.9	223.1	222.3	223.9
115°	259.9	259.1	259.1	259.1	258.2	258.2	256.6	258.2
117.5°	295.8	295.0	293.4	295.0	294.2	293.4	291.7	294.2
120°	335.1	333.4	332.6	331.8	331.0	330.2	329.3	330.2
122.5°	374.3	371.8	369.4	370.2	368.6	367.7	366.1	367.7
125°	416.0	411.9	409.4	410.2	408.6	407.8	405.3	407.0
127.5°	458.5	454.4	450.3	451.1	449.5	447.0	445.4	446.2
130°	503.4	497.7	494.4	494.4	489.5	489.5	487.1	488.7
132.5°	549.2	542.6	539.4	536.1	532.8	532.8	532.8	532.0
135°	597.4	589.2	585.1	584.3	580.2	577.0	577.0	577.0
137.5°	647.2	638.2	634.2	629.3	625.2	624.4	621.9	623.5
140°	697.1	688.9	683.2	681.6	674.2	672.6	671.8	671.8
142.5°	749.4	740.4	734.7	732.2	724.1	723.2	721.6	722.4
145°	804.1	793.5	788.6	782.1	776.4	774.7	773.1	773.1
147.5°	858.9	848.3	840.1	836.0	828.7	827.0	825.4	825.4
150°	913.6	903.0	897.3	889.9	882.6	883.4	878.5	879.3
152.5°	966.8	956.1	948.0	943.9	937.3	934.9	930.0	934.9
155°	1019.9	1010.1	1001.1	997.8	989.7	988.8	983.1	987.2
157.5°	1072.2	1063.2	1055.0	1050.9	1042.8	1043.6	1036.2	1040.3
160°	1122.0	1113.1	1107.3	1101.6	1093.4	1095.1	1087.7	1091.0
162.5°	1167.8	1159.6	1151.5	1147.4	1140.0	1140.8	1135.1	1136.7
165°	1208.7	1201.3	1194.0	1190.7	1183.3	1184.1	1177.6	1180.1
167.5°	1246.3	1239.7	1233.2	1229.9	1224.2	1225.0	1220.1	1222.6
170°	1277.3	1272.4	1266.7	1264.2	1261.0	1261.0	1257.7	1258.5
172.5°	1302.6	1297.7	1292.8	1290.4	1286.3	1285.5	1283.0	1282.2
175°	1321.4	1317.4	1311.6	1309.2	1304.3	1301.8	1297.7	1296.1
177.5°	1333.7	1329.6	1325.5	1323.1	1319.0	1319.0	1316.5	1314.9
180°	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7	1333.7

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