

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: P188219

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188219
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-LO-40
Description:
Light Source: (84) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2230.7 lumens
Efficiency: N/A
Efficacy: 90.3 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

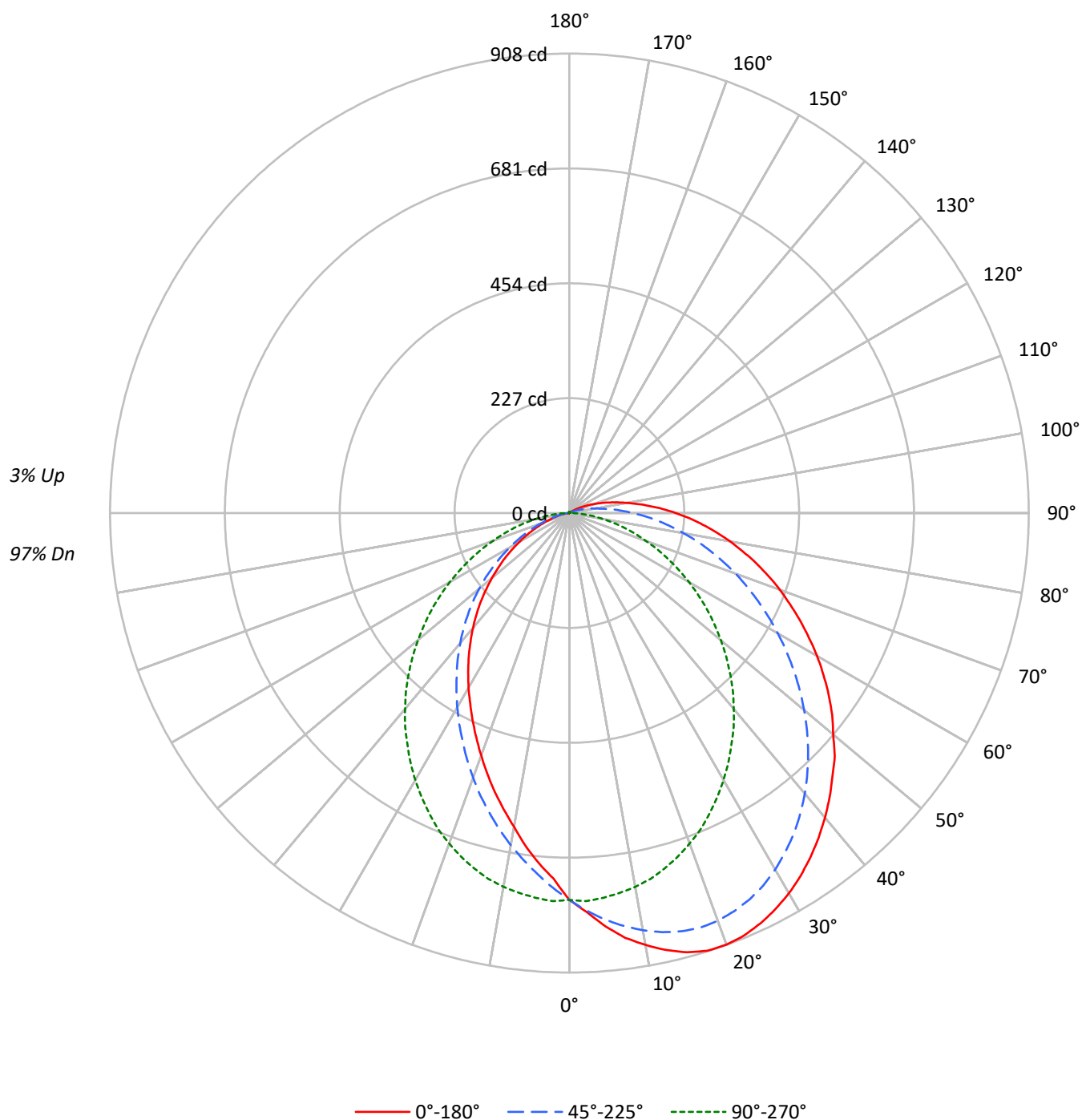
Input Watts (W): 24.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P188219

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9874	9874	9874
5°	10019	9771	8484
10°	10116	9590	7353
15°	10117	9356	6418
20°	9942	9072	5582
25°	9609	8743	4860
30°	9217	8382	4233
35°	8786	7991	3668
40°	8345	7593	3150
45°	7903	7161	2661
50°	7455	6689	2190
55°	7045	6190	1755
60°	6600	5628	1339
65°	6147	5020	959
70°	5718	4346	640
75°	5272	3629	384
80°	4825	2752	172
85°	4365	1812	79



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.3	3.2
10°-20°	206.5	9.3
20°-30°	307.5	13.8
30°-40°	361.3	16.2
40°-50°	365.3	16.4
50°-60°	323.9	14.5
60°-70°	251.6	11.3
70°-80°	169.4	7.6
80°-90°	96.0	4.3
90°-100°	46.3	2.1
100°-110°	19.4	0.9
110°-120°	6.6	0.3
120°-130°	1.8	0.1
130°-140°	0.9	0.0
140°-150°	0.8	0.0
150°-160°	0.6	0.0
160°-170°	0.4	0.0
170°-180°	0.1	0.0
0°-30°	586.4	26.3
0°-40°	947.7	42.5
0°-60°	1636.8	73.4
0°-90°	2153.8	96.6
90°-120°	72.3	3.2
90°-150°	75.8	3.4
90°-180°	77.0	3.5
0°-180°	2230.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	764	764	764	764	764	
5°	820	806	763	717	694	80
15°	898	856	727	612	570	254
25°	894	842	655	499	452	412
35°	830	774	558	388	347	520
45°	736	667	449	284	248	568
55°	626	541	332	183	156	559
65°	503	411	216	95	78	499
75°	382	288	112	33	28	403
85°	265	175	33	4	5	228
90°	210	125	2	3	3	115
95°	159	83	1	1	2	121
105°	80	30	1	1	0	87
115°	31	6	2	1	0	32
125°	6	1	2	1	1	6
135°	0	1	2	1	1	0
145°	1	1	2	1	1	0
155°	1	1	2	2	1	0
165°	1	1	2	1	1	0
175°	1	1	2	1	1	0
180°	1	1	1	1	1	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4
2.5°	789.2	788.0	789.8	788.6	789.2	790.4	791.0	789.8	789.8	788.6	786.8
5°	820.0	820.6	820.0	818.8	817.6	818.2	817.6	814.6	812.8	809.1	806.1
7.5°	846.6	846.6	845.4	844.2	842.3	842.3	841.1	836.9	833.3	827.8	823.0
10°	866.5	866.5	865.3	864.1	861.7	861.1	858.6	855.0	850.2	844.2	836.9
12.5°	884.6	884.0	882.8	881.0	878.6	877.4	874.9	870.1	864.1	856.8	848.4
15°	898.5	899.1	897.3	895.5	891.9	890.0	887.6	881.6	874.3	865.9	855.6
17.5°	906.9	907.6	905.7	903.3	899.1	896.7	894.3	888.2	879.8	870.1	859.2
20°	907.6	908.2	906.9	904.5	899.7	897.3	894.9	888.2	879.2	869.5	857.4
22.5°	903.3	903.3	902.7	899.1	894.9	892.5	889.4	882.8	874.3	864.1	851.4
25°	894.3	894.9	893.7	890.6	886.4	884.0	881.0	873.7	865.3	855.0	842.3
27.5°	882.2	882.8	882.2	879.2	874.3	871.9	868.9	861.7	852.6	842.9	829.7
30°	867.7	868.3	867.1	864.1	859.2	856.8	853.8	846.0	836.9	826.6	813.4
32.5°	850.2	850.8	849.6	846.0	841.1	838.1	835.7	827.8	817.6	807.3	794.0
35°	830.3	831.5	829.7	826.0	821.2	818.8	815.2	806.1	796.4	785.0	773.5
37.5°	809.1	809.7	808.5	803.7	798.9	795.8	792.8	784.4	772.9	761.4	749.4
40°	785.6	786.8	785.0	780.7	774.7	772.3	768.1	758.4	748.1	736.1	724.0
42.5°	761.4	763.2	760.8	756.0	750.0	746.9	742.7	734.3	721.6	708.9	696.2
45°	735.5	737.3	734.9	729.4	723.4	719.8	715.5	704.7	693.2	680.5	667.2
47.5°	711.3	710.1	707.7	702.3	696.2	692.0	687.8	676.3	664.2	650.3	637.0
50°	680.5	681.7	678.1	673.9	666.6	662.4	658.2	646.1	634.0	619.5	605.6
52.5°	654.5	652.7	649.7	644.9	637.0	632.8	628.0	616.5	605.0	588.1	573.6
55°	625.6	623.2	620.7	614.1	606.8	602.0	597.2	586.3	571.2	556.1	541.0
57.5°	595.4	593.0	589.9	583.9	576.1	571.8	566.4	554.3	541.0	525.3	508.4
60°	565.2	562.8	559.1	552.5	544.7	539.8	535.0	522.3	506.6	493.3	475.8
62.5°	533.8	531.4	528.3	521.7	513.3	509.6	503.0	490.9	476.4	460.7	443.2
65°	503.0	500.6	497.6	490.9	481.9	478.8	471.6	459.5	443.8	428.7	411.2
67.5°	472.2	469.8	466.8	460.1	452.3	447.4	440.8	428.7	412.4	397.3	379.8
70°	442.6	439.6	436.6	429.9	420.3	417.2	410.0	397.9	381.6	367.7	349.0
72.5°	411.8	409.4	407.0	399.7	391.3	386.5	379.8	368.3	352.0	337.5	318.2
75°	381.6	379.2	375.6	368.3	361.1	356.3	349.0	337.5	321.8	306.7	288.0
77.5°	351.4	349.0	347.2	340.0	330.9	326.1	318.8	308.0	293.5	277.2	258.4
80°	322.4	320.0	317.0	311.6	301.3	296.5	289.8	278.4	263.9	248.2	229.5
82.5°	292.9	291.0	286.8	281.4	272.3	267.5	260.9	249.4	235.5	219.8	201.7
85°	265.1	262.1	258.4	253.0	244.6	239.7	233.1	221.6	207.7	192.6	175.1
87.5°	237.3	234.9	230.7	226.4	218.6	211.9	205.9	194.4	181.1	166.7	150.4
90°	210.1	207.7	204.1	198.7	190.8	186.0	179.3	169.1	155.8	140.1	125.0
92.5°	184.2	182.4	178.1	173.3	166.1	160.6	155.2	144.3	131.6	117.7	103.9
95°	159.4	158.2	154.0	148.5	142.5	137.1	132.2	121.4	109.3	96.6	83.3
97.5°	136.5	135.3	131.0	126.2	120.2	115.3	110.5	100.8	90.0	77.9	65.2
100°	115.3	114.1	111.1	106.3	100.8	96.6	93.0	83.3	73.1	62.2	51.3
102.5°	97.2	96.0	93.6	90.0	83.3	79.7	76.7	67.6	58.6	48.9	39.9
105°	80.3	79.7	77.3	73.7	68.2	64.6	61.0	53.7	45.9	37.4	29.6
107.5°	65.8	65.2	62.2	59.2	54.3	51.3	48.9	41.7	35.0	27.8	21.1
110°	51.9	51.9	49.5	46.5	42.9	39.9	38.0	32.0	26.6	20.5	15.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	40.5	39.9	38.6	36.2	32.6	30.8	28.4	24.2	19.3	14.5	9.7
115°	31.4	30.8	29.0	27.2	24.8	22.3	20.5	16.9	13.3	9.7	6.0
117.5°	22.9	22.3	21.1	19.9	17.5	16.3	14.5	11.5	8.5	6.0	3.6
120°	16.3	15.7	15.1	13.9	12.1	10.9	9.7	7.2	5.4	3.6	1.8
122.5°	10.3	10.3	9.7	8.5	7.2	6.6	6.0	4.2	2.4	1.8	1.2
125°	6.0	6.0	5.4	4.8	4.2	3.6	3.0	1.8	1.2	1.2	1.2
127.5°	3.0	3.0	2.4	2.4	1.8	1.2	1.2	0.6	0.6	0.6	1.2
130°	0.6	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2
132.5°	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2
135°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2
137.5°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2
140°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2
142.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
145°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
147.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
150°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2
152.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2
155°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2
157.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2
160°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2
162.5°	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2	1.2
165°	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2
167.5°	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2
170°	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2
172.5°	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2
175°	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2
177.5°	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2	1.2	1.2
180°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4
2.5°	786.2	784.4	782.6	779.5	778.3	777.1	775.3	773.5	770.5	767.5	765.1
5°	802.5	798.9	794.6	789.2	786.2	784.4	779.5	774.7	769.3	763.2	758.4
7.5°	817.6	810.9	803.7	796.4	792.8	789.8	782.0	774.1	766.3	757.2	750.6
10°	829.7	821.2	812.1	802.5	797.1	792.2	782.0	772.3	760.8	750.0	739.7
12.5°	839.3	829.1	817.6	805.5	799.5	792.8	780.1	768.1	754.2	740.3	728.2
15°	844.8	832.1	819.4	804.3	797.1	789.8	774.1	759.6	743.3	727.0	712.5
17.5°	846.6	832.7	817.6	801.3	792.2	783.8	766.3	749.4	730.6	711.9	695.6
20°	843.5	829.1	812.8	794.0	785.0	775.3	756.0	736.7	716.1	695.0	676.9
22.5°	837.5	821.8	804.3	784.4	774.1	763.8	742.7	721.6	699.2	676.9	657.0
25°	827.2	810.9	792.8	771.7	760.2	750.0	727.0	704.1	679.9	655.2	634.6
27.5°	814.6	797.7	778.3	756.6	745.7	733.0	708.9	684.1	658.8	632.8	610.5
30°	798.3	781.4	761.4	738.5	726.4	714.3	689.0	663.0	636.4	609.3	585.7
32.5°	778.9	761.4	742.1	718.6	707.1	693.8	667.2	640.7	611.7	584.5	559.1
35°	757.8	739.7	719.8	695.0	684.1	670.9	644.3	616.5	587.5	558.5	533.2
37.5°	734.3	716.1	695.6	670.9	660.0	646.1	618.9	590.5	561.0	533.2	506.0
40°	708.3	689.6	669.6	644.3	633.4	619.5	592.4	564.0	533.8	505.4	478.8
42.5°	680.5	662.4	641.9	616.5	605.6	592.4	564.6	536.2	506.0	478.2	451.1
45°	651.5	632.8	612.3	586.9	576.1	563.4	535.6	507.2	477.0	449.2	422.7
47.5°	621.3	602.0	581.5	556.7	545.3	532.6	505.4	477.6	448.0	420.3	394.3
50°	589.3	570.6	548.3	524.7	513.9	501.2	472.8	446.8	417.8	390.7	365.3
52.5°	556.7	538.0	515.7	493.9	481.3	468.6	442.0	414.2	387.7	361.1	336.3
55°	524.1	504.2	483.7	462.5	448.6	436.0	410.6	384.0	356.9	332.1	307.3
57.5°	490.9	471.0	449.9	429.3	415.4	403.4	378.6	352.6	326.7	301.9	279.0
60°	458.3	437.2	416.6	395.5	382.2	370.8	346.0	321.2	296.5	272.9	250.6
62.5°	425.1	405.2	384.0	362.9	350.2	338.7	315.2	291.0	266.3	243.9	222.2
65°	393.1	373.2	352.0	330.9	318.2	306.7	284.4	260.9	238.5	215.6	194.4
67.5°	361.7	341.2	320.6	299.5	287.4	275.9	254.8	231.9	210.1	188.4	168.5
70°	330.3	309.2	290.4	269.3	257.2	246.4	225.2	203.5	182.4	161.2	142.5
72.5°	300.1	279.6	259.0	239.1	227.6	216.8	197.5	175.1	155.2	136.5	119.0
75°	269.9	250.0	229.5	210.1	198.7	188.4	167.9	147.9	129.2	112.3	95.4
77.5°	240.9	221.0	201.1	182.4	172.1	161.2	142.5	122.6	105.1	88.8	73.7
80°	211.9	193.8	173.3	155.2	145.5	135.3	117.1	98.4	82.7	67.6	54.3
82.5°	184.8	167.3	147.3	129.8	120.8	110.5	93.0	77.9	62.2	49.5	36.8
85°	158.2	141.3	122.6	105.7	97.2	87.6	71.9	58.0	44.1	32.6	20.5
87.5°	133.4	117.1	99.0	83.9	75.5	67.0	52.5	39.9	27.8	16.9	7.2
90°	109.9	94.8	77.9	63.4	56.2	48.3	35.0	23.5	12.1	2.4	1.8
92.5°	87.6	74.3	58.6	44.7	38.6	32.6	21.1	11.5	3.6	1.8	1.8
95°	68.8	56.2	42.9	31.4	26.0	21.1	11.5	4.8	1.8	1.2	1.2
97.5°	53.7	42.3	30.8	21.1	16.9	12.7	6.0	1.8	1.8	1.8	1.2
100°	40.5	30.8	21.1	13.3	10.3	7.2	3.0	1.2	1.2	1.2	1.2
102.5°	30.2	21.7	13.9	8.5	6.0	4.2	1.8	1.2	1.2	1.8	1.8
105°	21.7	15.1	9.1	4.8	3.0	1.8	1.2	1.2	1.2	1.2	1.8
107.5°	15.1	9.7	5.4	2.4	1.8	1.2	1.2	1.2	1.2	1.8	1.2
110°	10.3	6.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



TEST NUMBER: P188219

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	6.0	3.6	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
115°	3.6	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.2
117.5°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	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	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8
125°	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8
127.5°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8
130°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8
132.5°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8
135°	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8
137.5°	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
140°	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8
142.5°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
145°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
147.5°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
150°	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
152.5°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
155°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
157.5°	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
160°	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
162.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
165°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
167.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
170°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
172.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	2.4
175°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	1.8
177.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	2.4	1.8
180°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



TEST NUMBER: P188219

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4
2.5°	762.6	759.0	756.0	754.8	753.0	750.0	748.1	744.5	741.5	739.1	735.5
5°	753.6	746.9	742.1	739.7	736.7	730.6	727.6	721.0	716.7	712.5	708.9
7.5°	742.7	733.7	726.4	722.8	718.6	710.7	705.3	697.4	692.0	686.6	681.7
10°	729.4	718.6	709.5	704.1	699.8	689.6	682.9	673.3	666.6	660.0	652.7
12.5°	715.5	702.9	690.8	684.7	679.3	667.8	659.4	647.9	640.1	632.2	624.4
15°	698.0	683.5	669.0	661.2	655.8	643.1	633.4	622.5	612.3	604.4	595.4
17.5°	678.7	662.4	646.7	639.5	632.2	617.7	607.5	595.4	585.1	576.1	568.8
20°	657.6	640.1	623.8	614.7	606.8	591.8	580.3	567.6	556.1	547.1	537.4
22.5°	635.2	616.5	598.4	589.3	580.9	564.6	552.5	538.6	527.7	517.5	509.6
25°	611.1	591.1	573.0	561.0	553.7	536.8	524.1	510.2	498.8	488.5	480.6
27.5°	586.3	564.6	545.9	535.6	526.5	509.0	496.3	482.5	471.0	460.7	452.9
30°	560.4	538.0	518.7	507.2	499.4	481.3	468.0	454.7	443.2	432.9	425.1
32.5°	535.6	511.4	491.5	482.5	472.2	453.5	440.8	426.9	415.4	405.8	397.9
35°	508.4	484.3	463.1	454.7	444.4	426.3	413.0	399.7	388.3	379.2	371.4
37.5°	480.6	457.7	435.4	426.3	416.6	399.7	385.8	373.2	362.3	352.6	344.8
40°	453.5	430.5	408.2	399.1	389.5	371.4	358.7	346.0	335.7	326.7	319.4
42.5°	425.7	402.8	381.0	372.0	362.9	344.8	332.1	320.0	309.8	300.7	293.5
45°	397.3	375.0	353.2	344.2	335.1	318.8	305.5	293.5	283.8	275.3	268.1
47.5°	370.1	347.8	326.1	317.6	308.6	292.9	279.6	268.1	258.4	250.0	243.3
50°	341.8	318.8	298.9	289.8	281.4	266.3	253.6	242.1	232.5	225.2	217.4
52.5°	313.4	291.0	271.7	263.3	254.8	240.3	227.0	216.8	207.7	199.9	193.2
55°	285.0	264.5	245.2	236.7	228.9	215.6	202.3	192.0	183.0	176.3	170.3
57.5°	256.6	237.3	218.6	210.7	202.9	190.2	177.5	167.9	159.4	152.8	147.3
60°	228.9	210.1	192.0	184.8	177.5	165.4	152.8	143.7	136.5	130.4	126.2
62.5°	202.3	184.2	167.9	160.0	152.8	141.3	129.8	122.0	115.3	109.9	106.3
65°	175.7	158.8	143.1	135.9	128.6	118.4	108.7	100.8	95.4	90.6	87.6
67.5°	150.4	132.8	120.2	112.3	106.3	97.2	88.2	81.5	76.7	73.1	70.6
70°	124.4	109.9	97.2	90.6	85.1	76.7	70.0	64.0	60.4	57.4	54.9
72.5°	101.4	88.2	76.7	70.6	65.8	59.2	53.1	48.9	45.9	43.5	42.3
75°	79.7	67.6	57.4	52.5	48.9	43.5	38.6	35.6	33.2	32.0	31.4
77.5°	59.8	48.9	40.5	36.8	33.8	30.2	26.6	25.4	23.5	22.3	22.3
80°	42.3	32.6	26.6	23.5	21.7	19.9	17.5	16.3	15.7	14.5	14.5
82.5°	26.6	19.3	15.7	14.5	13.3	12.1	10.3	9.7	9.1	7.8	7.8
85°	13.3	9.7	7.8	6.6	6.0	5.4	4.2	4.2	4.2	4.2	4.2
87.5°	4.2	3.0	3.0	2.4	3.0	3.0	3.0	3.0	3.6	3.6	3.6
90°	1.8	1.8	2.4	1.8	2.4	2.4	2.4	2.4	3.0	3.0	3.0
92.5°	1.8	1.8	1.8	1.8	1.8	1.8	2.4	2.4	2.4	2.4	2.4
95°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
97.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
100°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6
102.5°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6
105°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6
107.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6
110°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6



TEST NUMBER: P188219

CATALOG NUMBER: MPBL-2-LD4-UNV-2DN-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	1.2	0.6	0.6	0.6
115°	1.2	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6
117.5°	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2	0.6
120°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2
122.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2
125°	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2	1.2
127.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2
130°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2
132.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2
135°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2
137.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2
140°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2
142.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2
145°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
147.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2
150°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2
152.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2
155°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2
157.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2
160°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
162.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
165°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
167.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
170°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
172.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
175°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
177.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
180°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



TEST NUMBER: P188219

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	764.4	764.4	764.4	764.4	764.4	764.4	764.4	764.4
2.5°	733.7	730.6	730.0	727.6	726.4	724.6	722.2	722.8
5°	705.9	701.0	701.6	698.6	697.4	695.6	693.2	694.4
7.5°	678.1	672.7	672.7	669.0	667.2	664.8	662.4	663.6
10°	647.9	642.5	641.3	637.6	634.6	631.6	629.2	629.8
12.5°	618.3	613.5	609.9	608.1	603.8	601.4	601.4	599.6
15°	589.3	583.3	580.9	579.1	574.2	571.8	570.0	570.0
17.5°	560.4	555.5	551.3	549.5	545.3	541.6	541.6	539.8
20°	530.8	525.3	521.7	519.3	515.1	511.4	511.4	509.6
22.5°	501.2	495.7	492.1	489.7	484.9	481.9	480.6	480.6
25°	472.2	465.6	463.1	461.3	456.5	453.5	452.3	452.3
27.5°	444.4	439.0	435.4	433.5	428.7	426.3	424.5	424.5
30°	417.2	410.6	408.2	406.4	402.1	399.1	397.9	398.5
32.5°	390.1	384.0	382.8	380.4	376.2	373.8	372.6	372.6
35°	363.5	358.1	356.9	355.1	350.2	347.8	347.2	346.6
37.5°	337.5	332.7	330.9	329.1	324.9	322.4	322.4	321.2
40°	312.2	307.3	305.5	303.7	300.1	297.7	297.1	296.5
42.5°	286.8	282.0	280.8	279.0	275.3	273.5	272.9	272.3
45°	261.5	257.2	256.0	253.0	250.6	248.8	248.2	247.6
47.5°	237.3	233.1	231.9	230.7	227.0	225.8	224.6	223.4
50°	212.5	208.3	207.1	205.9	202.9	201.1	201.1	199.9
52.5°	189.0	184.8	183.6	183.0	180.5	178.7	178.1	177.5
55°	166.7	162.4	161.8	160.6	158.2	157.6	156.4	155.8
57.5°	144.3	140.7	140.1	138.9	137.7	135.9	135.3	134.7
60°	123.2	120.2	119.6	118.4	117.1	115.9	115.3	114.7
62.5°	103.9	100.8	100.2	99.6	98.4	97.2	96.0	96.0
65°	85.7	82.7	82.1	81.5	79.7	79.1	78.5	78.5
67.5°	68.8	66.4	65.8	65.2	64.6	63.4	62.8	62.8
70°	53.7	51.9	51.3	51.3	50.7	50.1	49.5	49.5
72.5°	41.1	40.5	39.9	39.9	39.2	38.6	39.2	38.0
75°	30.8	30.2	29.6	29.6	29.0	29.0	28.4	27.8
77.5°	21.7	21.1	20.5	20.5	20.5	19.9	19.9	19.3
80°	13.9	13.3	12.7	12.7	12.7	12.1	12.1	11.5
82.5°	7.2	6.6	6.0	6.0	6.0	6.0	6.0	6.0
85°	4.2	4.8	4.8	4.8	4.8	4.8	4.8	4.8
87.5°	3.6	3.6	3.6	3.6	4.2	4.2	4.2	3.6
90°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
92.5°	2.4	1.8	1.8	1.8	1.8	2.4	2.4	2.4
95°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8
97.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
100°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0
102.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0
105°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0
107.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
110°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0



TEST NUMBER: P188219

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

CANDELA DISTRIBUTION (continued):

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

(END OF REPORT)