

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: P188234

Luminaire Tested: **MPBL-4-LD4-UNV-2UP-STD-40**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188234
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27390)
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-2UP-STD-40
Description:
Light Source: (168) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6551.0 lumens
Efficiency: N/A
Efficacy: 94.7 lumens/watt
Spacing Criteria (0/90/45): - / - / -
Luminous Opening: Rectangular w/ Sides (W: 4' x L: 0.42' x H: 0.29')
CIE Type: Indirect

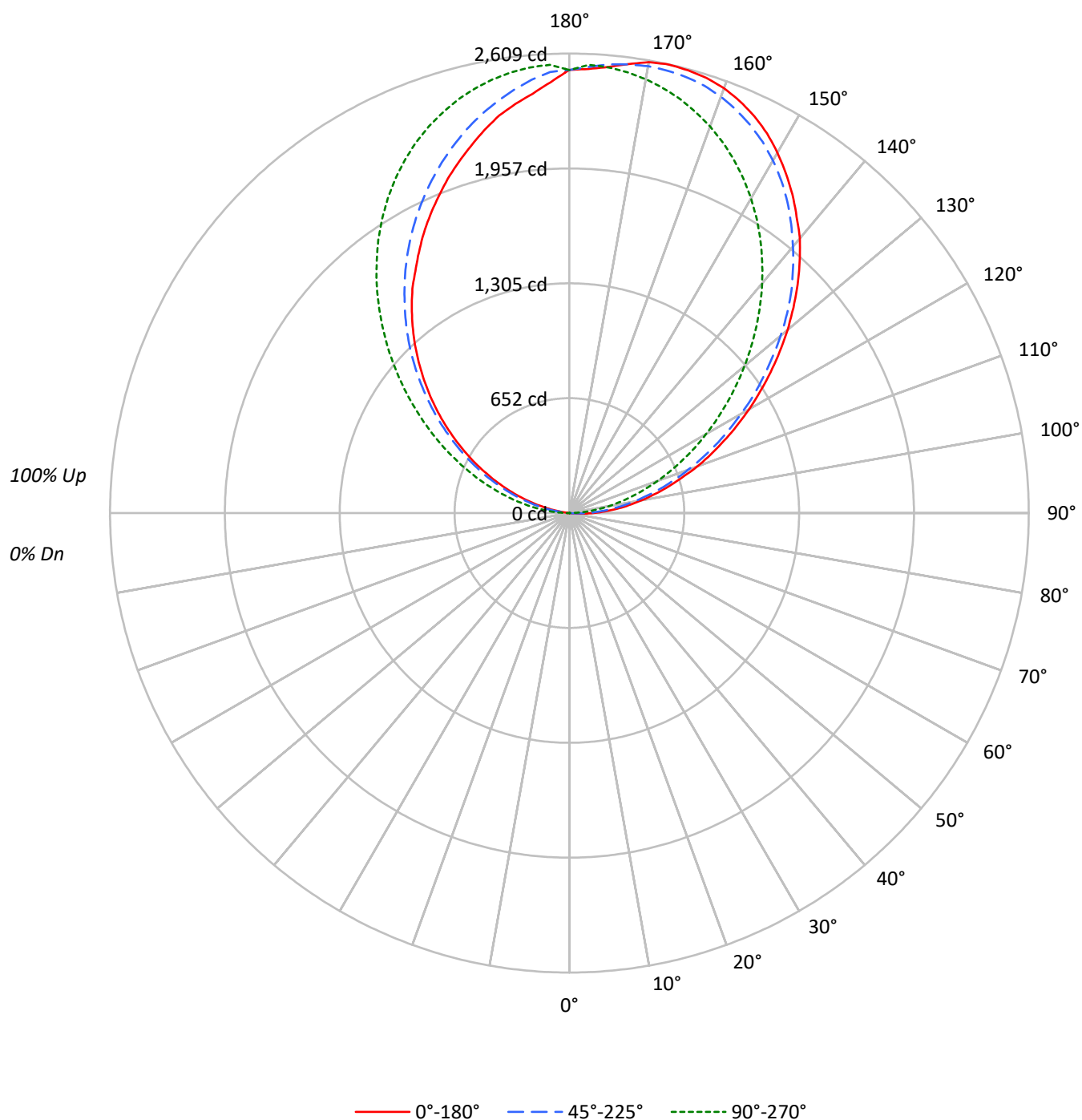
Input Watts (W): 69.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	134	32	13



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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°	12.5	0.2
90°-100°	140.4	2.1
100°-110°	410.6	6.3
110°-120°	721.1	11.0
120°-130°	996.2	15.2
130°-140°	1167.5	17.8
140°-150°	1178.4	18.0
150°-160°	1008.9	15.4
160°-170°	677.4	10.3
170°-180°	237.9	3.6
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	12.5	0.2
90°-120°	1272.1	19.4
90°-150°	4614.3	70.4
90°-180°	6538.0	99.8
0°-180°	6551.0	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°	16	1	1	1	2	15
90°	136	97	0	6	13	75
95°	268	221	104	7	11	250
105°	582	535	370	245	203	618
115°	968	919	707	551	506	960
125°	1394	1343	1094	895	851	1248
135°	1832	1783	1502	1265	1210	1413
145°	2208	2158	1892	1630	1554	1380
155°	2485	2430	2212	1966	1868	1144
165°	2602	2563	2432	2256	2158	735
175°	2542	2557	2540	2469	2390	245
180°	2516	2516	2516	2516	2516	



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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°	16.3	16.3	15.5	13.9	9.0	9.0	9.8	5.7	0.8	0.8	0.8
87.5°	74.4	74.4	73.6	71.1	66.2	65.4	66.2	61.3	49.9	44.1	39.2
90°	135.7	136.5	134.8	133.2	127.5	125.9	127.5	121.8	109.5	103.0	97.3
92.5°	199.4	200.2	199.4	197.8	191.2	192.1	191.2	185.5	172.4	165.1	157.7
95°	268.1	268.9	268.1	265.6	259.1	260.7	259.1	252.5	239.5	231.3	220.7
97.5°	340.8	341.6	340.0	339.2	331.8	332.6	331.8	325.3	310.6	302.4	293.4
100°	416.8	418.4	417.6	416.0	408.6	407.0	408.6	402.1	386.6	378.4	367.0
102.5°	496.9	499.3	498.5	496.9	488.7	487.9	489.5	478.9	466.7	458.5	447.9
105°	581.9	583.5	583.5	581.9	573.7	575.4	575.4	563.9	551.7	543.5	535.3
107.5°	670.2	673.4	673.4	671.8	662.8	662.8	659.5	653.0	641.6	633.4	623.6
110°	771.5	765.8	765.8	763.3	755.2	756.8	752.7	745.3	733.9	726.5	717.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	867.9	862.2	862.2	860.6	851.6	852.4	853.2	842.6	832.0	823.8	814.0
115°	967.6	966.8	962.7	955.4	956.2	951.3	948.0	943.9	933.3	929.2	918.6
117.5°	1070.6	1069.0	1066.5	1059.2	1059.2	1056.7	1052.6	1048.5	1037.9	1033.8	1019.1
120°	1177.7	1175.2	1173.6	1164.6	1165.4	1162.1	1165.4	1156.4	1145.0	1140.9	1124.6
122.5°	1284.7	1283.9	1281.5	1272.5	1273.3	1270.0	1267.6	1265.1	1254.5	1249.6	1238.2
125°	1394.3	1393.4	1391.0	1382.0	1382.8	1381.2	1377.1	1375.5	1364.0	1358.3	1342.8
127.5°	1505.4	1503.8	1501.3	1493.1	1494.0	1491.5	1489.1	1487.4	1475.2	1468.6	1453.9
130°	1616.5	1614.9	1611.6	1602.7	1604.3	1602.7	1600.2	1592.8	1585.5	1579.0	1565.9
132.5°	1725.2	1723.6	1720.3	1712.2	1713.0	1707.3	1708.9	1701.5	1694.2	1688.5	1676.2
135°	1832.3	1829.9	1826.6	1817.6	1819.2	1819.2	1815.1	1812.7	1799.6	1794.7	1783.3
137.5°	1936.1	1933.6	1929.6	1921.4	1923.0	1917.3	1918.9	1914.8	1906.7	1896.9	1879.7
140°	2035.8	2034.2	2029.3	2020.3	2021.9	2017.0	2017.8	2012.1	2002.3	1994.1	1975.3
142.5°	2120.0	2128.2	2123.3	2114.3	2115.1	2110.2	2111.0	2105.3	2090.6	2087.3	2068.5
145°	2208.2	2214.8	2209.9	2201.7	2202.5	2199.3	2198.4	2192.7	2180.5	2177.2	2158.4
147.5°	2288.3	2294.1	2289.2	2281.8	2284.3	2281.0	2281.0	2274.4	2266.3	2257.3	2239.3
150°	2362.7	2369.2	2363.5	2359.4	2357.0	2353.7	2352.1	2343.9	2336.6	2327.6	2311.2
152.5°	2430.5	2435.4	2428.9	2419.9	2419.1	2415.8	2414.2	2406.0	2400.3	2391.3	2375.8
155°	2485.3	2489.4	2482.8	2476.3	2476.3	2473.0	2471.4	2462.4	2457.5	2446.1	2430.5
157.5°	2531.1	2534.3	2530.2	2526.2	2524.5	2522.1	2520.4	2510.6	2504.9	2493.5	2477.1
160°	2567.0	2569.5	2564.6	2561.3	2558.0	2556.4	2553.9	2545.0	2540.9	2530.2	2515.5
162.5°	2589.9	2590.7	2585.8	2581.7	2579.3	2578.5	2576.8	2569.5	2567.8	2558.0	2545.0
165°	2602.2	2603.8	2599.7	2596.4	2594.8	2594.8	2592.4	2585.8	2583.4	2575.2	2562.9
167.5°	2608.7	2608.7	2605.4	2602.2	2599.7	2599.7	2598.1	2591.5	2589.9	2583.4	2572.7
170°	2599.7	2598.1	2595.6	2592.4	2589.9	2591.5	2589.9	2586.6	2587.5	2584.2	2576.0
172.5°	2571.1	2568.7	2570.3	2571.1	2572.7	2576.0	2576.0	2575.2	2576.8	2576.0	2569.5
175°	2542.5	2543.3	2545.8	2549.0	2551.5	2556.4	2556.4	2558.0	2561.3	2561.3	2557.2
177.5°	2523.7	2522.9	2520.4	2521.3	2520.4	2524.5	2525.3	2528.6	2533.5	2536.0	2535.2
180°	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5



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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°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	28.6	18.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	87.4	76.0	65.4	52.3	47.4	42.5	29.4	16.3	4.1	0.0	0.0
92.5°	147.9	135.7	121.8	110.3	104.6	99.7	86.6	73.6	63.7	49.9	36.0
95°	213.3	201.0	184.7	171.6	169.2	160.2	146.3	131.6	121.0	103.8	92.4
97.5°	283.6	269.7	252.5	238.6	234.6	225.6	210.0	193.7	182.2	162.6	151.2
100°	358.0	344.1	325.3	309.7	304.0	295.8	278.7	261.5	244.4	228.8	214.1
102.5°	438.1	422.5	402.9	385.7	375.1	371.0	352.2	333.4	312.2	297.5	282.0
105°	522.2	505.9	484.6	467.5	462.6	451.1	431.5	411.1	387.4	370.2	353.9
107.5°	611.3	595.0	572.1	553.3	547.6	536.1	515.7	493.6	468.3	448.7	431.5
110°	704.5	686.5	663.6	644.0	638.3	626.0	603.1	580.3	552.5	532.0	512.4



TEST NUMBER: P188234

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-STD-40

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	800.9	782.9	759.2	738.0	731.5	719.2	695.5	670.2	645.6	617.9	596.6
115°	900.6	883.5	858.9	841.0	828.7	814.8	791.1	765.0	735.5	706.9	683.2
117.5°	1003.6	988.1	961.9	943.1	930.0	919.4	890.8	857.3	830.3	801.7	775.6
120°	1110.7	1094.3	1067.3	1047.7	1033.0	1017.5	991.3	956.2	927.6	896.5	868.8
122.5°	1219.4	1202.2	1173.6	1152.3	1136.8	1122.1	1094.3	1056.7	1026.5	993.8	964.4
125°	1328.9	1311.7	1280.7	1257.8	1243.1	1225.9	1199.7	1159.7	1127.0	1094.3	1062.4
127.5°	1439.2	1421.2	1388.5	1363.2	1348.5	1331.3	1305.2	1264.3	1230.0	1194.8	1163.0
130°	1550.3	1530.7	1495.6	1468.6	1453.1	1431.0	1410.6	1368.9	1340.3	1297.8	1264.3
132.5°	1659.9	1638.6	1601.8	1571.6	1557.7	1535.6	1509.5	1472.7	1443.3	1400.8	1364.0
135°	1766.9	1742.4	1705.6	1672.9	1659.0	1641.9	1617.4	1574.0	1544.6	1502.1	1464.5
137.5°	1866.6	1841.3	1802.9	1771.8	1758.8	1741.6	1713.8	1680.3	1647.6	1603.5	1565.1
140°	1961.4	1934.5	1896.1	1866.6	1856.0	1839.7	1811.1	1778.4	1746.5	1703.2	1663.1
142.5°	2053.0	2025.2	1986.8	1958.2	1948.4	1932.0	1905.0	1873.2	1841.3	1798.0	1758.8
145°	2140.4	2111.0	2071.8	2045.6	2036.6	2020.3	1994.9	1963.1	1933.6	1892.0	1851.9
147.5°	2218.1	2187.8	2149.4	2127.3	2114.3	2104.5	2078.3	2048.9	2020.3	1979.4	1940.2
150°	2289.2	2260.6	2223.8	2203.3	2195.2	2182.1	2157.6	2128.2	2102.8	2062.8	2026.0
152.5°	2352.9	2325.9	2289.2	2272.0	2260.6	2249.9	2229.5	2203.3	2178.0	2140.4	2105.3
155°	2405.2	2379.9	2346.4	2331.7	2321.8	2315.3	2292.4	2269.5	2247.5	2211.5	2178.0
157.5°	2452.6	2428.1	2397.9	2384.8	2377.4	2371.7	2351.3	2330.0	2310.4	2276.9	2245.8
160°	2491.8	2469.0	2443.6	2430.5	2423.2	2417.5	2400.3	2382.3	2366.0	2335.7	2307.1
162.5°	2521.3	2499.2	2477.9	2466.5	2461.6	2457.5	2442.8	2427.3	2413.4	2386.4	2361.1
165°	2540.9	2522.9	2505.7	2497.6	2495.9	2491.8	2480.4	2466.5	2456.7	2432.2	2409.3
167.5°	2553.1	2537.6	2524.5	2519.6	2518.0	2518.0	2509.8	2498.4	2491.0	2469.8	2451.0
170°	2558.9	2545.8	2536.8	2533.5	2535.2	2535.2	2528.6	2521.3	2518.0	2500.8	2484.5
172.5°	2554.8	2544.1	2539.2	2538.4	2541.7	2544.1	2540.9	2537.6	2536.0	2523.7	2512.3
175°	2545.0	2537.6	2535.2	2538.4	2542.5	2547.4	2546.6	2546.6	2549.0	2540.1	2531.9
177.5°	2524.5	2520.4	2522.1	2527.8	2534.3	2540.1	2542.5	2546.6	2551.5	2547.4	2542.5
180°	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5



TEST NUMBER: P188234

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-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°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.6	3.3	4.9	6.5
90°	0.0	0.0	0.0	0.8	1.6	3.3	4.1	5.7	6.5	8.2	9.0
92.5°	24.5	9.0	1.6	0.8	0.0	1.6	3.3	4.1	5.7	6.5	8.2
95°	81.7	67.8	57.2	51.5	42.5	29.4	21.2	12.3	7.4	6.5	6.5
97.5°	138.9	124.2	114.4	107.9	100.5	88.3	80.1	67.8	56.4	48.2	39.2
100°	201.0	184.7	173.3	165.9	159.4	147.9	139.8	128.3	118.5	108.7	99.7
102.5°	263.2	249.3	237.8	229.7	223.1	210.9	202.7	191.2	181.4	171.6	162.6
105°	338.3	318.7	309.7	299.1	290.1	277.1	269.7	257.4	245.2	237.0	228.8
107.5°	410.3	393.1	382.5	370.2	362.0	349.0	340.8	328.5	315.5	307.3	298.3
110°	487.9	469.9	460.1	447.0	438.1	423.3	414.4	402.1	389.8	381.7	371.9



TEST NUMBER: P188234

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-STD-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	571.3	552.5	540.2	527.1	516.5	502.6	492.8	479.7	466.7	457.7	448.7
115°	656.3	636.6	623.6	609.7	599.1	584.3	575.4	560.6	550.8	541.8	529.6
117.5°	746.2	724.9	710.2	697.1	689.8	670.2	660.3	645.6	631.7	626.0	612.9
120°	836.9	814.8	800.9	787.0	774.8	758.4	747.8	732.3	717.6	712.7	698.8
122.5°	930.0	906.3	893.3	877.7	866.3	848.3	836.9	820.5	804.2	800.1	786.2
125°	1026.5	999.5	984.8	971.7	963.6	940.7	928.4	910.4	894.9	889.2	876.1
127.5°	1124.6	1095.1	1078.0	1064.9	1057.5	1033.8	1020.8	1002.8	986.4	979.1	966.0
130°	1224.3	1191.6	1173.6	1159.7	1152.3	1127.8	1114.7	1096.8	1078.8	1071.4	1056.7
132.5°	1324.0	1289.6	1269.2	1255.3	1247.1	1222.6	1208.7	1189.1	1172.8	1163.0	1147.4
135°	1422.9	1386.1	1364.8	1350.9	1341.1	1318.2	1303.5	1288.0	1265.1	1253.7	1238.2
137.5°	1527.5	1483.3	1460.4	1445.7	1435.9	1412.2	1396.7	1382.0	1358.3	1340.3	1328.1
140°	1624.7	1579.8	1555.3	1539.7	1528.3	1503.8	1488.2	1471.9	1448.2	1433.5	1416.3
142.5°	1720.3	1675.4	1648.4	1627.2	1619.8	1594.5	1578.1	1561.8	1538.1	1517.7	1503.8
145°	1813.5	1768.6	1740.0	1719.5	1710.5	1685.2	1668.9	1651.7	1629.6	1606.7	1592.8
147.5°	1901.8	1856.0	1827.4	1807.0	1798.0	1771.0	1754.7	1740.0	1717.9	1695.8	1679.5
150°	1986.8	1942.6	1913.2	1892.8	1883.8	1856.0	1839.7	1825.8	1803.7	1781.6	1763.7
152.5°	2067.7	2024.4	1994.9	1976.1	1966.3	1938.5	1922.2	1909.1	1887.1	1865.0	1844.6
155°	2141.2	2099.5	2070.9	2052.1	2043.2	2016.2	2000.7	1987.6	1966.3	1945.9	1924.7
157.5°	2210.7	2170.7	2142.9	2125.7	2115.9	2089.7	2075.0	2059.5	2044.0	2026.8	2004.7
160°	2274.4	2236.9	2211.5	2194.4	2186.2	2160.8	2146.1	2132.2	2118.3	2102.0	2079.1
162.5°	2330.8	2296.5	2272.8	2257.3	2249.9	2227.0	2213.1	2200.9	2188.6	2173.9	2150.2
165°	2381.5	2349.6	2328.4	2314.5	2308.0	2290.0	2275.3	2265.5	2255.6	2242.6	2218.1
167.5°	2426.5	2397.9	2379.1	2366.8	2361.1	2342.3	2331.7	2324.3	2316.1	2305.5	2282.6
170°	2464.0	2438.7	2422.4	2411.7	2408.5	2392.1	2384.0	2377.4	2371.7	2362.7	2340.6
172.5°	2494.3	2473.0	2458.3	2451.0	2447.7	2436.3	2428.9	2423.2	2422.4	2415.8	2394.6
175°	2518.0	2500.0	2489.4	2483.7	2482.0	2473.9	2469.8	2467.3	2469.0	2464.9	2446.9
177.5°	2532.7	2519.6	2510.6	2507.4	2507.4	2503.3	2501.6	2503.3	2506.5	2505.7	2490.2
180°	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5



TEST NUMBER: P188234

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-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	1.6	1.6	1.6
87.5°	8.2	9.0	9.8	9.8	9.8	10.6	10.6	10.6
90°	9.8	10.6	11.4	11.4	12.3	12.3	12.3	13.1
92.5°	9.0	9.8	10.6	10.6	11.4	11.4	12.3	12.3
95°	8.2	9.0	9.0	9.8	10.6	10.6	10.6	11.4
97.5°	35.1	28.6	24.5	26.2	21.2	21.2	20.4	21.2
100°	94.8	85.8	80.9	80.9	73.6	73.6	71.1	67.8
102.5°	158.5	149.6	143.8	144.7	137.3	133.2	134.8	130.8
105°	225.6	215.8	213.3	211.7	203.5	203.5	201.0	202.7
107.5°	291.8	286.9	282.8	282.0	274.6	272.1	273.0	273.0
110°	368.6	359.6	356.3	355.5	348.2	344.9	346.5	347.3



TEST NUMBER: P188234

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-STD-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	446.2	436.4	433.1	433.1	425.0	422.5	424.2	425.0
115°	526.3	516.5	517.3	513.2	505.9	507.5	504.3	505.9
117.5°	605.6	599.1	596.6	597.4	589.2	586.8	587.6	590.1
120°	690.6	684.0	685.7	682.4	675.1	671.8	673.4	675.1
122.5°	777.2	771.5	773.1	769.0	761.7	758.4	760.1	761.7
125°	866.3	858.9	862.2	857.3	850.8	847.5	848.3	850.8
127.5°	957.0	948.8	946.4	947.2	940.7	936.6	937.4	940.7
130°	1047.7	1039.6	1037.1	1037.9	1030.6	1027.3	1028.1	1030.6
132.5°	1137.6	1129.5	1127.0	1127.0	1121.3	1117.2	1117.2	1121.3
135°	1227.5	1218.5	1216.9	1216.1	1209.5	1206.3	1205.5	1209.5
137.5°	1321.5	1308.4	1306.8	1305.2	1299.4	1299.4	1293.7	1298.6
140°	1404.9	1397.5	1396.7	1393.4	1386.9	1386.9	1381.2	1385.3
142.5°	1493.1	1484.2	1478.4	1480.1	1474.3	1472.7	1467.0	1470.3
145°	1580.6	1570.0	1565.1	1566.7	1559.3	1557.7	1552.0	1554.4
147.5°	1666.4	1655.8	1650.1	1651.7	1642.7	1640.2	1634.5	1628.0
150°	1749.8	1739.1	1733.4	1734.2	1730.1	1722.8	1717.1	1709.7
152.5°	1828.2	1817.6	1813.5	1814.3	1807.0	1804.5	1798.8	1791.4
155°	1907.5	1897.7	1891.1	1893.6	1885.4	1882.2	1875.6	1868.3
157.5°	1987.6	1977.8	1972.1	1973.7	1968.0	1959.8	1951.6	1944.3
160°	2066.0	2053.0	2048.1	2049.7	2044.8	2035.8	2027.6	2019.5
162.5°	2135.5	2123.3	2117.5	2119.2	2114.3	2106.1	2098.7	2089.7
165°	2203.3	2191.1	2186.2	2187.8	2182.1	2174.7	2166.6	2158.4
167.5°	2267.9	2257.3	2252.4	2254.8	2249.9	2242.6	2236.0	2227.9
170°	2326.7	2316.9	2313.7	2316.9	2312.9	2307.1	2299.0	2292.4
172.5°	2381.5	2373.3	2370.1	2371.7	2367.6	2359.4	2350.4	2343.9
175°	2434.6	2427.3	2424.8	2427.3	2420.7	2410.1	2397.9	2389.7
177.5°	2478.8	2473.0	2471.4	2473.9	2471.4	2464.0	2451.8	2448.5
180°	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5	2515.5

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