

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: P188235

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188235
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-LO-40
Description:
Light Source: (168) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4843.0 lumens
Efficiency: N/A
Efficacy: 98.0 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

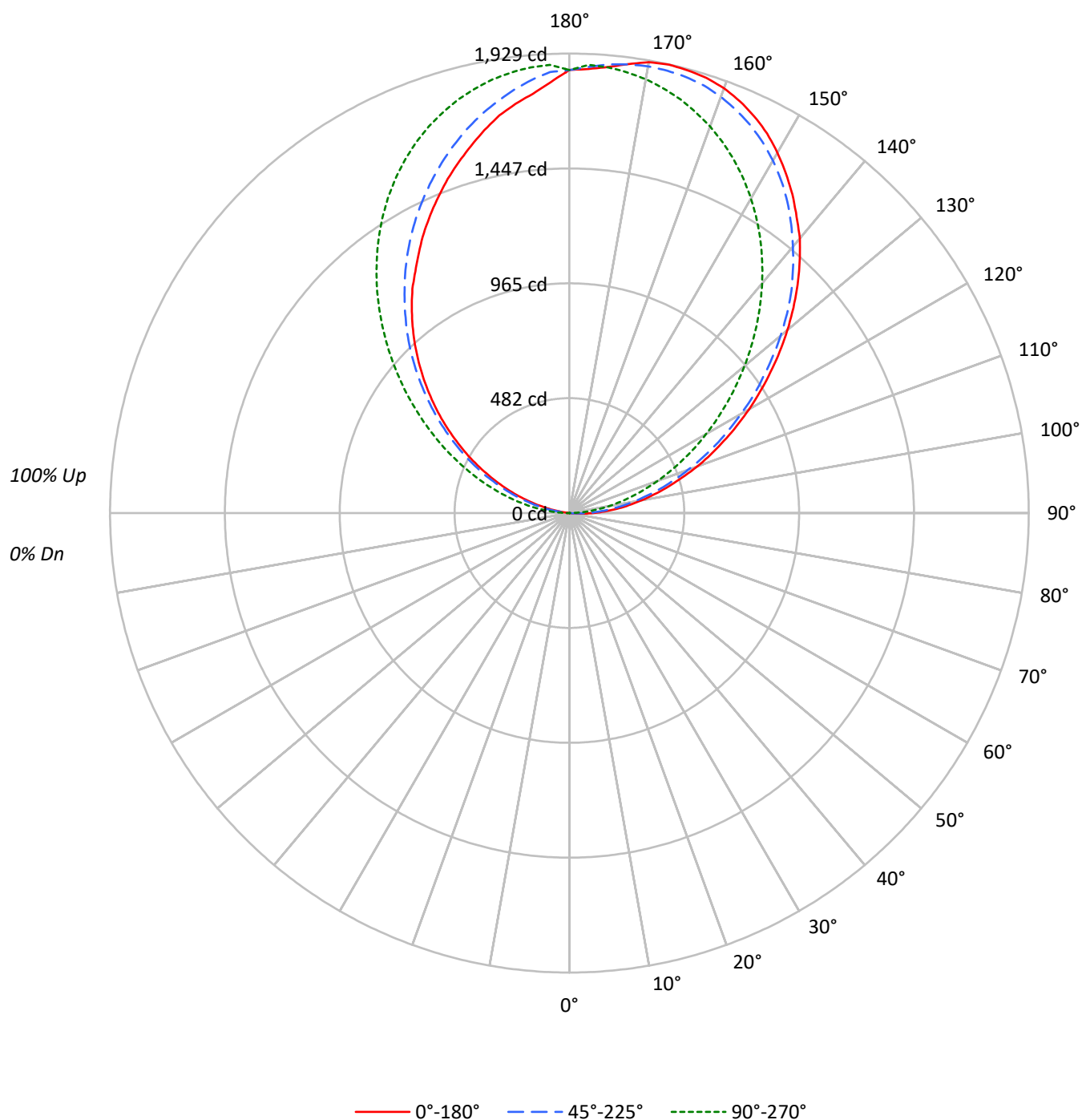
Input Watts (W): 49.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	100	24	10



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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°	9.3	0.2
90°-100°	103.8	2.1
100°-110°	303.5	6.3
110°-120°	533.1	11.0
120°-130°	736.5	15.2
130°-140°	863.1	17.8
140°-150°	871.2	18.0
150°-160°	745.8	15.4
160°-170°	500.8	10.3
170°-180°	175.9	3.6
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	9.3	0.2
90°-120°	940.5	19.4
90°-150°	3411.3	70.4
90°-180°	4834.0	99.8
0°-180°	4843.0	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°	12	1	1	1	1	11
90°	100	72	0	5	10	55
95°	198	163	77	5	8	184
105°	430	396	274	181	150	457
115°	715	679	523	407	374	710
125°	1031	993	809	662	629	923
135°	1355	1318	1110	935	894	1044
145°	1632	1596	1399	1205	1149	1021
155°	1837	1797	1635	1454	1381	846
165°	1924	1895	1798	1668	1596	544
175°	1880	1890	1878	1825	1767	181
180°	1860	1860	1860	1860	1860	



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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°	12.1	12.1	11.5	10.3	6.6	6.6	7.3	4.2	0.6	0.6	0.6
87.5°	55.0	55.0	54.4	52.6	48.9	48.3	48.9	45.3	36.9	32.6	29.0
90°	100.3	100.9	99.7	98.5	94.3	93.0	94.3	90.0	81.0	76.1	71.9
92.5°	147.4	148.0	147.4	146.2	141.4	142.0	141.4	137.1	127.5	122.0	116.6
95°	198.2	198.8	198.2	196.4	191.5	192.7	191.5	186.7	177.0	171.0	163.1
97.5°	251.9	252.5	251.3	250.7	245.3	245.9	245.3	240.5	229.6	223.5	216.9
100°	308.1	309.3	308.7	307.5	302.1	300.9	302.1	297.3	285.8	279.7	271.3
102.5°	367.3	369.2	368.6	367.3	361.3	360.7	361.9	354.1	345.0	338.9	331.1
105°	430.2	431.4	431.4	430.2	424.1	425.3	425.3	416.9	407.8	401.8	395.7
107.5°	495.4	497.8	497.8	496.6	490.0	490.0	487.6	482.7	474.3	468.2	461.0
110°	570.3	566.1	566.1	564.3	558.3	559.5	556.5	551.0	542.6	537.1	530.5



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	641.6	637.4	637.4	636.2	629.6	630.2	630.8	622.9	615.1	609.0	601.8
115°	715.4	714.7	711.7	706.3	706.9	703.3	700.9	697.8	690.0	687.0	679.1
117.5°	791.5	790.3	788.5	783.0	783.0	781.2	778.2	775.2	767.3	764.3	753.4
120°	870.6	868.8	867.6	861.0	861.6	859.1	861.6	854.9	846.5	843.4	831.4
122.5°	949.8	949.2	947.4	940.7	941.3	938.9	937.1	935.3	927.4	923.8	915.3
125°	1030.7	1030.1	1028.3	1021.7	1022.3	1021.1	1018.0	1016.8	1008.4	1004.2	992.7
127.5°	1112.9	1111.7	1109.9	1103.8	1104.4	1102.6	1100.8	1099.6	1090.6	1085.7	1074.8
130°	1195.1	1193.9	1191.5	1184.8	1186.0	1184.8	1183.0	1177.6	1172.1	1167.3	1157.6
132.5°	1275.4	1274.2	1271.8	1265.8	1266.4	1262.1	1263.3	1257.9	1252.5	1248.2	1239.2
135°	1354.6	1352.8	1350.4	1343.7	1344.9	1344.9	1341.9	1340.1	1330.4	1326.8	1318.3
137.5°	1431.3	1429.5	1426.5	1420.4	1421.6	1417.4	1418.6	1415.6	1409.6	1402.3	1389.6
140°	1505.0	1503.8	1500.2	1493.5	1494.8	1491.1	1491.7	1487.5	1480.2	1474.2	1460.3
142.5°	1567.3	1573.3	1569.7	1563.0	1563.6	1560.0	1560.6	1556.4	1545.5	1543.1	1529.2
145°	1632.5	1637.3	1633.7	1627.7	1628.3	1625.9	1625.3	1621.0	1612.0	1609.5	1595.6
147.5°	1691.7	1695.9	1692.3	1686.9	1688.7	1686.3	1686.3	1681.4	1675.4	1668.8	1655.5
150°	1746.7	1751.5	1747.3	1744.3	1742.5	1740.0	1738.8	1732.8	1727.4	1720.7	1708.6
152.5°	1796.8	1800.5	1795.6	1789.0	1788.4	1786.0	1784.8	1778.7	1774.5	1767.8	1756.4
155°	1837.3	1840.3	1835.5	1830.7	1830.7	1828.3	1827.1	1820.4	1816.8	1808.3	1796.8
157.5°	1871.2	1873.6	1870.6	1867.5	1866.3	1864.5	1863.3	1856.1	1851.8	1843.4	1831.3
160°	1897.7	1899.6	1895.9	1893.5	1891.1	1889.9	1888.1	1881.4	1878.4	1870.6	1859.7
162.5°	1914.7	1915.3	1911.6	1908.6	1906.8	1906.2	1905.0	1899.6	1898.3	1891.1	1881.4
165°	1923.7	1924.9	1921.9	1919.5	1918.3	1918.3	1916.5	1911.6	1909.8	1903.8	1894.7
167.5°	1928.6	1928.6	1926.1	1923.7	1921.9	1921.9	1920.7	1915.9	1914.7	1909.8	1902.0
170°	1921.9	1920.7	1918.9	1916.5	1914.7	1915.9	1914.7	1912.2	1912.8	1910.4	1904.4
172.5°	1900.8	1898.9	1900.2	1900.8	1902.0	1904.4	1904.4	1903.8	1905.0	1904.4	1899.6
175°	1879.6	1880.2	1882.0	1884.4	1886.3	1889.9	1889.9	1891.1	1893.5	1893.5	1890.5
177.5°	1865.7	1865.1	1863.3	1863.9	1863.3	1866.3	1866.9	1869.3	1873.0	1874.8	1874.2
180°	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7



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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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
87.5°	21.1	13.3	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	64.6	56.2	48.3	38.7	35.0	31.4	21.8	12.1	3.0	0.0	0.0
92.5°	109.4	100.3	90.0	81.6	77.3	73.7	64.0	54.4	47.1	36.9	26.6
95°	157.7	148.6	136.5	126.9	125.1	118.4	108.1	97.3	89.4	76.7	68.3
97.5°	209.7	199.4	186.7	176.4	173.4	166.8	155.3	143.2	134.7	120.2	111.8
100°	264.6	254.4	240.5	229.0	224.8	218.7	206.0	193.3	180.7	169.2	158.3
102.5°	323.8	312.4	297.9	285.2	277.3	274.3	260.4	246.5	230.8	219.9	208.4
105°	386.1	374.0	358.3	345.6	342.0	333.5	319.0	303.9	286.4	273.7	261.6
107.5°	451.9	439.8	422.9	409.0	404.8	396.3	381.2	364.9	346.2	331.7	319.0
110°	520.8	507.5	490.6	476.1	471.9	462.8	445.9	429.0	408.4	393.3	378.8



TEST NUMBER: P188235

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	592.1	578.8	561.3	545.6	540.7	531.7	514.2	495.4	477.3	456.8	441.1
115°	665.8	653.1	635.0	621.7	612.6	602.4	584.8	565.5	543.8	522.6	505.1
117.5°	741.9	730.5	711.1	697.2	687.6	679.7	658.6	633.8	613.9	592.7	573.4
120°	821.1	809.0	789.1	774.6	763.7	752.2	732.9	706.9	685.7	662.8	642.2
122.5°	901.4	888.8	867.6	851.9	840.4	829.5	809.0	781.2	758.9	734.7	712.9
125°	982.4	969.7	946.8	929.8	919.0	906.3	886.9	857.3	833.2	809.0	785.4
127.5°	1064.0	1050.7	1026.5	1007.8	996.9	984.2	964.9	934.7	909.3	883.3	859.8
130°	1146.1	1131.6	1105.7	1085.7	1074.2	1057.9	1042.8	1012.0	990.9	959.4	934.7
132.5°	1227.1	1211.4	1184.2	1161.8	1151.6	1135.3	1115.9	1088.7	1067.0	1035.6	1008.4
135°	1306.2	1288.1	1260.9	1236.8	1226.5	1213.8	1195.7	1163.7	1141.9	1110.5	1082.7
137.5°	1380.0	1361.2	1332.8	1309.9	1300.2	1287.5	1267.0	1242.2	1218.0	1185.4	1157.0
140°	1450.0	1430.1	1401.7	1380.0	1372.1	1360.0	1338.9	1314.7	1291.1	1259.1	1229.5
142.5°	1517.7	1497.2	1468.8	1447.6	1440.4	1428.3	1408.4	1384.8	1361.2	1329.2	1300.2
145°	1582.4	1560.6	1531.6	1512.3	1505.6	1493.5	1474.8	1451.2	1429.5	1398.7	1369.1
147.5°	1639.8	1617.4	1589.0	1572.7	1563.0	1555.8	1536.4	1514.7	1493.5	1463.3	1434.3
150°	1692.3	1671.2	1644.0	1628.9	1622.8	1613.2	1595.0	1573.3	1554.6	1525.0	1497.8
152.5°	1739.4	1719.5	1692.3	1679.6	1671.2	1663.3	1648.2	1628.9	1610.1	1582.4	1556.4
155°	1778.1	1759.4	1734.6	1723.7	1716.5	1711.7	1694.7	1677.8	1661.5	1634.9	1610.1
157.5°	1813.2	1795.0	1772.7	1763.0	1757.6	1753.3	1738.2	1722.5	1708.0	1683.3	1660.3
160°	1842.2	1825.2	1806.5	1796.8	1791.4	1787.2	1774.5	1761.2	1749.1	1726.8	1705.6
162.5°	1863.9	1847.6	1831.9	1823.4	1819.8	1816.8	1805.9	1794.4	1784.2	1764.2	1745.5
165°	1878.4	1865.1	1852.4	1846.4	1845.2	1842.2	1833.7	1823.4	1816.2	1798.1	1781.1
167.5°	1887.5	1876.0	1866.3	1862.7	1861.5	1861.5	1855.4	1847.0	1841.6	1825.8	1811.9
170°	1891.7	1882.0	1875.4	1873.0	1874.2	1874.2	1869.3	1863.9	1861.5	1848.8	1836.7
172.5°	1888.7	1880.8	1877.2	1876.6	1879.0	1880.8	1878.4	1876.0	1874.8	1865.7	1857.3
175°	1881.4	1876.0	1874.2	1876.6	1879.6	1883.2	1882.6	1882.6	1884.4	1877.8	1871.8
177.5°	1866.3	1863.3	1864.5	1868.7	1873.6	1877.8	1879.6	1882.6	1886.3	1883.2	1879.6
180°	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7



TEST NUMBER: P188235

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-LO-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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.2	2.4	3.6	4.8
90°	0.0	0.0	0.0	0.6	1.2	2.4	3.0	4.2	4.8	6.0	6.6
92.5°	18.1	6.6	1.2	0.6	0.0	1.2	2.4	3.0	4.2	4.8	6.0
95°	60.4	50.1	42.3	38.1	31.4	21.8	15.7	9.1	5.4	4.8	4.8
97.5°	102.7	91.8	84.6	79.8	74.3	65.3	59.2	50.1	41.7	35.6	29.0
100°	148.6	136.5	128.1	122.6	117.8	109.4	103.3	94.9	87.6	80.4	73.7
102.5°	194.5	184.3	175.8	169.8	164.9	155.9	149.8	141.4	134.1	126.9	120.2
105°	250.1	235.6	229.0	221.1	214.5	204.8	199.4	190.3	181.3	175.2	169.2
107.5°	303.3	290.6	282.8	273.7	267.7	258.0	251.9	242.9	233.2	227.2	220.5
110°	360.7	347.4	340.2	330.5	323.8	313.0	306.3	297.3	288.2	282.2	274.9



TEST NUMBER: P188235

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	422.3	408.4	399.4	389.7	381.8	371.6	364.3	354.7	345.0	338.3	331.7
115°	485.2	470.7	461.0	450.7	442.9	432.0	425.3	414.5	407.2	400.6	391.5
117.5°	551.6	535.9	525.0	515.4	509.9	495.4	488.2	477.3	467.0	462.8	453.1
120°	618.7	602.4	592.1	581.8	572.8	560.7	552.8	541.3	530.5	526.8	516.6
122.5°	687.6	670.0	660.4	648.9	640.4	627.1	618.7	606.6	594.5	591.5	581.2
125°	758.9	738.9	728.0	718.4	712.3	695.4	686.4	673.1	661.6	657.4	647.7
127.5°	831.4	809.6	796.9	787.3	781.8	764.3	754.6	741.3	729.2	723.8	714.1
130°	905.1	880.9	867.6	857.3	851.9	833.8	824.1	810.8	797.5	792.1	781.2
132.5°	978.8	953.4	938.3	928.0	922.0	903.9	893.6	879.1	867.0	859.8	848.3
135°	1051.9	1024.7	1009.0	998.7	991.5	974.5	963.7	952.2	935.3	926.8	915.3
137.5°	1129.2	1096.6	1079.7	1068.8	1061.6	1044.0	1032.5	1021.7	1004.2	990.9	981.8
140°	1201.1	1167.9	1149.8	1138.3	1129.8	1111.7	1100.2	1088.1	1070.6	1059.7	1047.1
142.5°	1271.8	1238.6	1218.6	1202.9	1197.5	1178.8	1166.7	1154.6	1137.1	1122.0	1111.7
145°	1340.7	1307.5	1286.3	1271.2	1264.6	1245.8	1233.7	1221.1	1204.7	1187.8	1177.6
147.5°	1405.9	1372.1	1351.0	1335.8	1329.2	1309.3	1297.2	1286.3	1270.0	1253.7	1241.6
150°	1468.8	1436.1	1414.4	1399.3	1392.6	1372.1	1360.0	1349.7	1333.4	1317.1	1303.8
152.5°	1528.6	1496.6	1474.8	1460.9	1453.7	1433.1	1421.0	1411.4	1395.1	1378.7	1363.6
155°	1583.0	1552.1	1531.0	1517.1	1510.5	1490.5	1479.0	1469.4	1453.7	1438.6	1422.9
157.5°	1634.3	1604.7	1584.2	1571.5	1564.2	1544.9	1534.0	1522.5	1511.1	1498.4	1482.1
160°	1681.4	1653.7	1634.9	1622.2	1616.2	1597.5	1586.6	1576.3	1566.0	1554.0	1537.0
162.5°	1723.1	1697.8	1680.2	1668.8	1663.3	1646.4	1636.1	1627.1	1618.0	1607.1	1589.6
165°	1760.6	1737.0	1721.3	1711.0	1706.2	1692.9	1682.0	1674.8	1667.5	1657.9	1639.8
167.5°	1793.8	1772.7	1758.8	1749.7	1745.5	1731.6	1723.7	1718.3	1712.3	1704.4	1687.5
170°	1821.6	1802.9	1790.8	1782.9	1780.5	1768.4	1762.4	1757.6	1753.3	1746.7	1730.4
172.5°	1844.0	1828.3	1817.4	1811.9	1809.5	1801.1	1795.6	1791.4	1790.8	1786.0	1770.3
175°	1861.5	1848.2	1840.3	1836.1	1834.9	1828.9	1825.8	1824.0	1825.2	1822.2	1808.9
177.5°	1872.4	1862.7	1856.1	1853.6	1853.6	1850.6	1849.4	1850.6	1853.0	1852.4	1840.9
180°	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7



TEST NUMBER: P188235

CATALOG NUMBER: MPBL-4-LD4-UNV-2UP-LO-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°	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
87.5°	6.0	6.6	7.3	7.3	7.3	7.9	7.9	7.9
90°	7.3	7.9	8.5	8.5	9.1	9.1	9.1	9.7
92.5°	6.6	7.3	7.9	7.9	8.5	8.5	9.1	9.1
95°	6.0	6.6	6.6	7.3	7.9	7.9	7.9	8.5
97.5°	26.0	21.1	18.1	19.3	15.7	15.7	15.1	15.7
100°	70.1	63.4	59.8	59.8	54.4	54.4	52.6	50.1
102.5°	117.2	110.6	106.3	106.9	101.5	98.5	99.7	96.7
105°	166.8	159.5	157.7	156.5	150.4	150.4	148.6	149.8
107.5°	215.7	212.1	209.0	208.4	203.0	201.2	201.8	201.8
110°	272.5	265.8	263.4	262.8	257.4	255.0	256.2	256.8



TEST NUMBER: P188235

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	329.9	322.6	320.2	320.2	314.2	312.4	313.6	314.2
115°	389.1	381.8	382.4	379.4	374.0	375.2	372.8	374.0
117.5°	447.7	442.9	441.1	441.7	435.6	433.8	434.4	436.2
120°	510.5	505.7	506.9	504.5	499.1	496.6	497.8	499.1
122.5°	574.6	570.3	571.6	568.5	563.1	560.7	561.9	563.1
125°	640.4	635.0	637.4	633.8	629.0	626.5	627.1	629.0
127.5°	707.5	701.5	699.6	700.2	695.4	692.4	693.0	695.4
130°	774.6	768.5	766.7	767.3	761.9	759.5	760.1	761.9
132.5°	841.0	835.0	833.2	833.2	828.9	825.9	825.9	828.9
135°	907.5	900.8	899.6	899.0	894.2	891.8	891.2	894.2
137.5°	977.0	967.3	966.1	964.9	960.7	960.7	956.4	960.0
140°	1038.6	1033.2	1032.5	1030.1	1025.3	1025.3	1021.1	1024.1
142.5°	1103.8	1097.2	1093.0	1094.2	1089.9	1088.7	1084.5	1086.9
145°	1168.5	1160.6	1157.0	1158.2	1152.8	1151.6	1147.3	1149.2
147.5°	1231.9	1224.1	1219.8	1221.1	1214.4	1212.6	1208.4	1203.5
150°	1293.6	1285.7	1281.5	1282.1	1279.1	1273.6	1269.4	1264.0
152.5°	1351.6	1343.7	1340.7	1341.3	1335.8	1334.0	1329.8	1324.4
155°	1410.2	1402.9	1398.1	1399.9	1393.9	1391.4	1386.6	1381.2
157.5°	1469.4	1462.1	1457.9	1459.1	1454.9	1448.8	1442.8	1437.4
160°	1527.4	1517.7	1514.1	1515.3	1511.7	1505.0	1499.0	1492.9
162.5°	1578.7	1569.7	1565.4	1566.6	1563.0	1557.0	1551.5	1544.9
165°	1628.9	1619.8	1616.2	1617.4	1613.2	1607.7	1601.7	1595.6
167.5°	1676.6	1668.8	1665.1	1666.9	1663.3	1657.9	1653.0	1647.0
170°	1720.1	1712.9	1710.4	1712.9	1709.8	1705.6	1699.6	1694.7
172.5°	1760.6	1754.5	1752.1	1753.3	1750.3	1744.3	1737.6	1732.8
175°	1799.9	1794.4	1792.6	1794.4	1789.6	1781.7	1772.7	1766.6
177.5°	1832.5	1828.3	1827.1	1828.9	1827.1	1821.6	1812.6	1810.1
180°	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7	1859.7

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