

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: P188191

Luminaire Tested: **FMB-N-4-LD4-2UP/STD-40-UNV-80/86**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188191
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27218)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMB-N-4-LD4-2UP/STD-40-UNV-80/86
Description:
Light Source: (168) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4392.9 lumens
Efficiency: N/A
Efficacy: 63.3 lumens/watt
Spacing Criteria (0/90/45): - / - / -
Luminous Opening: Rectangular w/ Sides (W: 3.67' x L: 0.29' x H: 0.04')
CIE Type: Indirect

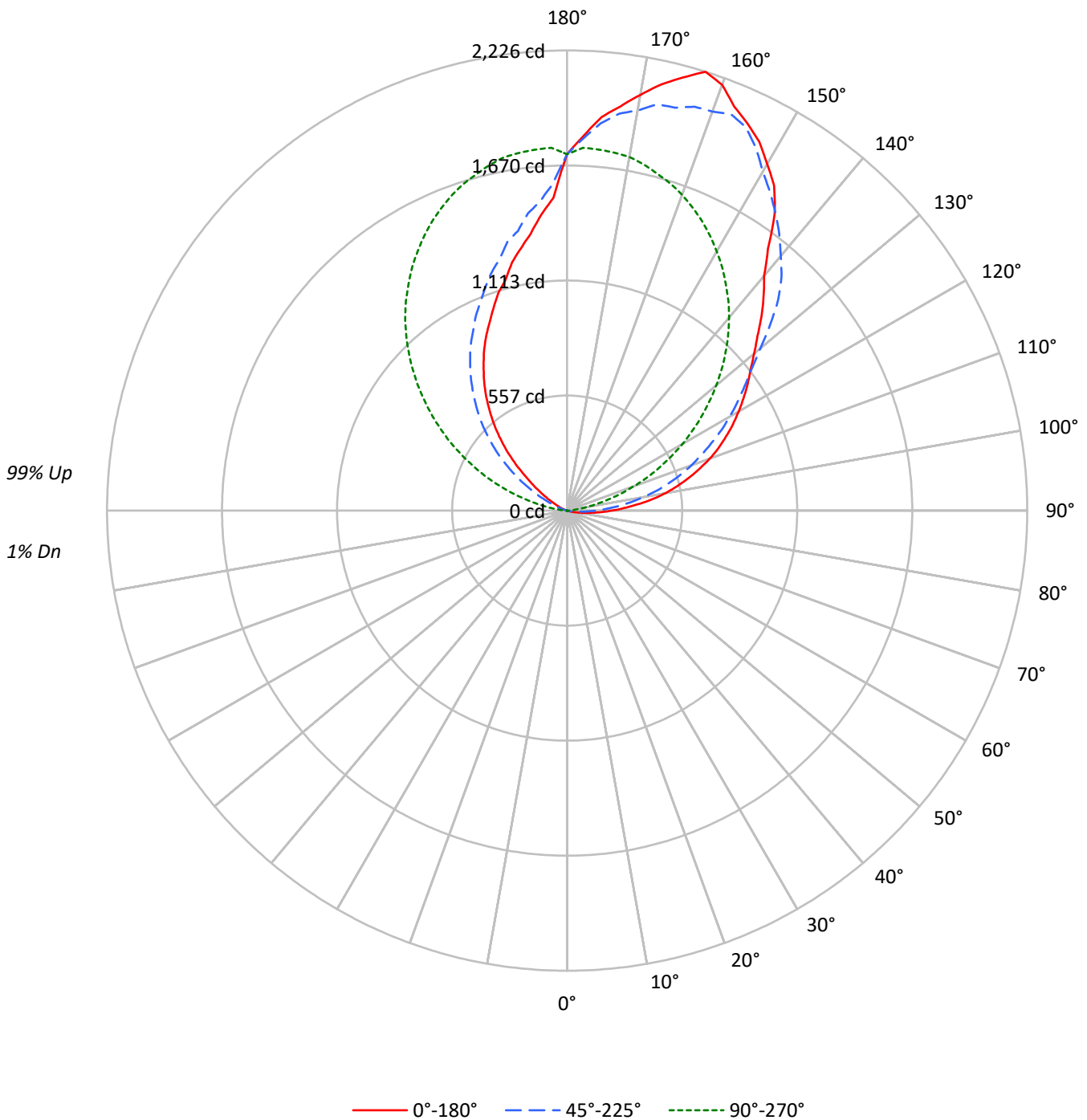
Input Watts (W): 69.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	95	95	95	95	82	82	82	82	56	56	56	33	33	33	11	11	11	1
1	87	82	79	75	74	71	68	65	48	47	45	28	27	26	9	9	9	0
2	79	72	66	61	67	61	57	53	42	39	37	24	23	22	8	8	7	0
3	72	63	56	51	61	54	48	44	37	34	31	22	20	18	7	6	6	0
4	65	55	48	43	56	48	42	37	33	29	26	19	17	15	6	6	5	0
5	60	49	42	36	51	42	36	31	29	25	22	17	15	13	6	5	4	0
6	55	44	36	31	47	38	31	27	26	22	19	15	13	11	5	4	4	0
7	50	39	32	27	43	34	28	23	23	19	16	14	11	10	5	4	3	0
8	46	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3	0
9	43	32	25	20	37	27	22	18	19	15	13	11	9	7	4	3	2	0
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2	0

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	68	34
75°	599	60	41
80°	1774	87	51
85°	5325	164	70



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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°	0.2	0.0
70°-80°	5.9	0.1
80°-90°	37.0	0.8
90°-100°	126.9	2.9
100°-110°	273.5	6.2
110°-120°	451.0	10.3
120°-130°	624.0	14.2
130°-140°	756.2	17.2
140°-150°	795.5	18.1
150°-160°	695.8	15.8
160°-170°	465.9	10.6
170°-180°	161.1	3.7
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	43.1	1.0
90°-120°	851.4	19.4
90°-150°	3027.0	68.9
90°-180°	4350.0	99.0
0°-180°	4392.9	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°	24	2	2	2	2	25
85°	121	60	2	2	2	86
90°	218	140	2	2	2	120
95°	340	248	24	2	2	308
105°	607	508	205	14	2	642
115°	849	769	491	106	41	840
125°	1066	1048	794	321	165	954
135°	1330	1444	1084	574	417	1026
145°	1751	1757	1338	816	685	1081
155°	2065	2046	1545	1044	929	952
165°	2169	2017	1686	1260	1154	614
175°	1910	1881	1753	1501	1437	186
180°	1724	1724	1724	1724	1724	



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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	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6
72.5°	6.5	6.5	4.1	3.3	1.6	1.6	0.8	0.8	0.8	1.6	1.6
75°	23.6	23.6	22.0	21.2	17.9	17.1	13.8	8.1	4.1	1.6	1.6
77.5°	35.0	35.0	33.4	32.6	29.3	27.7	26.1	22.8	19.6	15.5	5.7
80°	55.4	55.4	53.0	51.3	47.3	44.8	41.5	36.7	31.8	25.3	19.6
82.5°	83.9	85.5	81.5	80.7	74.1	72.5	67.6	61.9	53.0	44.0	34.2
85°	121.4	121.4	118.9	115.7	111.6	109.2	104.3	96.1	85.5	74.1	59.5
87.5°	165.4	166.2	163.8	163.8	157.2	155.6	149.9	141.8	128.7	114.1	95.3
90°	217.5	217.5	215.9	214.3	210.2	208.6	202.0	194.7	180.0	161.3	140.1
92.5°	274.5	275.4	274.5	273.7	270.5	268.8	262.3	254.2	234.6	216.7	191.5
95°	340.5	343.0	342.2	341.4	337.3	334.0	327.5	316.9	294.9	274.5	247.7
97.5°	413.9	418.7	413.9	407.3	404.1	400.0	392.7	380.5	356.8	335.7	308.8
100°	480.7	482.3	479.9	473.3	468.4	463.6	457.0	444.0	420.4	400.0	374.8
102.5°	545.0	545.8	543.4	537.7	532.8	531.2	520.6	509.2	485.6	465.2	442.4
105°	606.9	609.4	606.9	600.4	597.2	595.5	584.9	573.5	549.1	529.5	507.5
107.5°	670.5	672.9	672.1	666.4	661.5	657.5	649.3	634.6	611.8	593.9	574.4
110°	734.0	736.5	734.8	728.3	722.6	717.7	708.8	694.9	673.7	658.3	639.5



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	793.5	795.9	794.3	787.0	779.7	776.4	766.6	753.6	734.0	721.0	702.3
115°	848.9	851.3	849.7	842.4	836.7	832.6	823.6	813.1	795.1	782.9	769.1
117.5°	904.3	907.6	905.1	897.0	892.1	889.6	880.7	870.1	856.2	846.5	839.9
120°	957.3	960.5	958.1	951.6	945.0	941.8	935.3	928.7	915.7	913.3	907.6
122.5°	1011.8	1013.5	1010.2	1003.7	998.0	998.0	993.9	987.4	980.9	983.3	976.8
125°	1065.6	1067.2	1065.6	1059.1	1056.6	1055.0	1050.9	1051.8	1052.6	1052.6	1047.7
127.5°	1117.7	1121.8	1119.4	1114.5	1115.3	1116.1	1115.3	1124.3	1122.6	1125.1	1123.5
130°	1179.7	1185.4	1182.9	1182.1	1185.4	1190.3	1191.9	1197.6	1196.0	1199.2	1218.8
132.5°	1248.9	1252.2	1256.2	1261.1	1265.2	1263.6	1266.8	1274.2	1271.7	1295.4	1332.8
135°	1329.6	1333.6	1335.3	1336.1	1341.0	1345.9	1345.0	1351.6	1367.9	1417.6	1444.4
137.5°	1407.0	1412.7	1415.1	1415.9	1418.4	1419.2	1424.9	1459.9	1499.8	1534.1	1534.9
140°	1482.7	1486.8	1490.1	1495.8	1518.6	1537.3	1556.1	1597.6	1617.2	1625.3	1607.4
142.5°	1596.0	1607.4	1618.0	1640.8	1667.7	1672.6	1689.7	1708.4	1705.1	1701.1	1685.6
145°	1750.8	1761.4	1763.0	1772.8	1783.3	1784.2	1788.2	1789.1	1780.9	1776.0	1757.3
147.5°	1864.0	1866.4	1865.6	1864.0	1862.4	1857.5	1859.1	1860.7	1852.6	1842.8	1825.7
150°	1935.7	1939.0	1939.0	1932.4	1934.1	1930.0	1930.0	1924.3	1910.4	1905.6	1892.5
152.5°	2011.5	2013.1	2009.8	1996.8	1991.9	1986.2	1986.2	1981.3	1970.7	1974.8	1977.2
155°	2065.2	2063.6	2062.8	2051.4	2046.5	2041.6	2043.2	2042.4	2048.9	2063.6	2045.7
157.5°	2114.1	2113.3	2116.6	2111.7	2119.0	2120.6	2129.6	2132.0	2126.3	2111.7	2074.2
160°	2191.5	2192.3	2194.8	2187.4	2186.6	2182.5	2180.9	2172.0	2150.0	2109.2	2053.8
162.5°	2225.7	2225.7	2219.2	2207.8	2191.5	2184.2	2171.1	2142.6	2106.8	2077.4	2048.1
165°	2168.7	2165.4	2153.2	2139.4	2124.7	2120.6	2114.9	2102.7	2081.5	2053.0	2017.2
167.5°	2112.5	2111.7	2100.3	2088.0	2073.4	2069.3	2060.3	2048.1	2034.3	2025.3	2013.1
170°	2042.4	2040.8	2036.7	2034.3	2031.0	2031.0	2029.4	2023.7	2009.8	1991.1	1965.0
172.5°	1972.4	1974.0	1965.0	1959.3	1953.6	1956.1	1952.8	1947.9	1942.2	1943.0	1936.5
175°	1910.4	1912.1	1911.3	1909.6	1908.8	1911.3	1909.6	1908.0	1903.1	1895.0	1881.1
177.5°	1814.3	1815.1	1807.0	1803.7	1806.2	1806.2	1805.3	1807.0	1807.8	1807.8	1802.9
180°	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9



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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°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	15.5	7.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
82.5°	26.1	18.7	13.0	4.9	2.4	1.6	1.6	1.6	1.6	1.6	1.6
85°	45.6	34.2	23.6	15.5	13.0	9.8	2.4	1.6	1.6	1.6	1.6
87.5°	76.6	59.5	44.0	31.0	24.4	18.7	10.6	5.7	1.6	1.6	1.6
90°	119.8	95.3	75.8	55.4	47.3	39.1	24.4	13.0	5.7	1.6	1.6
92.5°	168.6	140.9	117.3	91.2	79.8	67.6	48.9	31.0	17.1	8.1	4.1
95°	223.2	193.9	167.0	136.1	121.4	108.4	84.7	61.1	42.4	24.4	13.0
97.5°	285.1	252.6	222.4	188.2	174.3	159.7	132.0	105.1	79.0	53.8	32.6
100°	348.7	315.3	282.7	250.1	234.6	222.4	189.0	162.9	127.1	93.7	64.4
102.5°	414.7	380.5	347.9	318.5	302.2	288.4	257.4	224.0	184.1	145.8	106.7
105°	481.5	446.4	419.6	389.4	378.0	360.9	333.2	294.9	250.1	205.3	158.0
107.5°	548.3	517.3	492.9	464.4	446.4	441.6	412.2	370.7	321.8	272.9	217.5
110°	611.8	589.8	567.0	542.6	532.0	527.9	497.8	448.9	397.6	343.8	282.7



TEST NUMBER: P188191

CATALOG NUMBER: FMB-N-4-LD4-2UP/STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	681.9	662.3	643.6	624.9	623.2	614.3	575.2	527.1	474.1	419.6	350.3
115°	753.6	734.8	723.4	715.3	712.9	698.2	658.3	605.3	555.6	491.3	421.2
117.5°	824.5	810.6	807.4	806.5	798.4	781.3	743.8	684.3	633.0	566.2	497.8
120°	893.7	888.8	897.8	891.3	879.0	863.6	820.4	768.2	709.6	645.2	570.3
122.5°	970.3	975.2	993.1	974.4	963.0	940.1	899.4	843.2	786.2	717.7	642.0
125°	1051.8	1072.1	1081.1	1054.2	1042.8	1019.2	978.4	920.6	864.4	793.5	714.5
127.5°	1145.4	1174.8	1160.9	1131.6	1120.2	1094.9	1055.8	998.8	938.5	867.6	784.5
130°	1252.2	1261.9	1240.8	1213.1	1196.8	1171.5	1130.8	1073.8	1013.5	942.6	856.2
132.5°	1353.2	1337.7	1318.2	1284.8	1265.2	1248.9	1204.1	1146.3	1086.8	1014.3	925.5
135°	1437.9	1422.4	1392.3	1358.1	1344.2	1323.9	1272.5	1218.0	1157.7	1084.3	993.1
137.5°	1517.8	1499.0	1465.6	1437.1	1416.7	1398.0	1342.6	1288.0	1222.8	1152.8	1057.5
140°	1592.7	1570.7	1537.3	1512.9	1488.4	1464.0	1407.8	1355.6	1292.9	1218.8	1120.2
142.5°	1666.0	1642.4	1613.9	1587.0	1557.7	1528.4	1472.1	1417.6	1354.0	1280.7	1178.9
145°	1738.5	1715.7	1695.4	1655.4	1623.7	1589.5	1535.7	1477.8	1414.3	1337.7	1236.7
147.5°	1810.2	1795.6	1767.1	1707.6	1676.6	1644.0	1591.9	1538.9	1472.1	1395.6	1292.9
150°	1892.5	1868.9	1820.0	1749.9	1722.2	1697.8	1644.9	1595.2	1529.2	1446.9	1347.5
152.5°	1965.8	1917.0	1853.4	1787.4	1767.1	1743.4	1697.8	1639.1	1585.4	1497.4	1396.4
155°	2005.8	1934.9	1872.1	1827.3	1802.1	1778.5	1743.4	1682.3	1630.2	1544.6	1447.7
157.5°	2009.8	1938.1	1897.4	1850.2	1831.4	1815.9	1771.9	1727.1	1666.8	1586.2	1493.3
160°	2002.5	1952.8	1905.6	1878.7	1866.4	1844.4	1793.9	1761.4	1695.4	1625.3	1530.8
162.5°	2001.7	1949.5	1923.5	1896.6	1877.9	1854.2	1820.8	1780.1	1715.7	1659.5	1570.7
165°	1986.2	1962.6	1929.2	1888.4	1875.4	1865.6	1842.8	1790.7	1736.9	1686.4	1604.1
167.5°	1981.3	1939.8	1906.4	1891.7	1887.6	1878.7	1839.6	1793.1	1758.1	1714.9	1634.3
170°	1932.4	1913.7	1904.7	1891.7	1881.1	1864.0	1822.5	1793.1	1773.6	1736.9	1668.5
172.5°	1917.8	1899.8	1877.9	1855.0	1844.4	1831.4	1808.6	1793.9	1778.5	1746.7	1697.0
175°	1860.7	1841.2	1824.9	1815.1	1811.9	1807.8	1798.0	1789.9	1776.8	1753.2	1723.1
177.5°	1789.1	1785.8	1789.1	1790.7	1791.5	1790.7	1783.3	1778.5	1771.1	1756.5	1741.8
180°	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9



TEST NUMBER: P188191

CATALOG NUMBER: FMB-N-4-LD4-2UP/STD-40-UNV-80/86

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°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
85°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6
87.5°	1.6	1.6	2.4	1.6	2.4	2.4	2.4	2.4	2.4	1.6	1.6
90°	1.6	1.6	1.6	1.6	1.6	2.4	2.4	2.4	1.6	1.6	1.6
92.5°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	1.6	1.6	1.6
95°	8.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
97.5°	20.4	13.0	7.3	2.4	2.4	1.6	2.4	1.6	1.6	1.6	1.6
100°	42.4	26.1	18.7	16.3	14.7	4.1	1.6	1.6	1.6	1.6	1.6
102.5°	75.8	50.5	35.8	29.3	25.3	19.6	13.0	2.4	1.6	1.6	1.6
105°	118.1	83.9	63.5	53.0	46.4	33.4	25.3	21.2	13.8	4.9	1.6
107.5°	168.6	127.1	100.2	87.2	77.4	57.0	43.2	32.6	26.9	24.4	17.9
110°	225.7	177.6	145.8	129.5	117.3	92.9	70.9	54.6	42.4	35.0	31.0



TEST NUMBER: P188191

CATALOG NUMBER: FMB-N-4-LD4-2UP/STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	287.6	234.6	198.8	178.4	165.4	136.1	109.2	87.2	69.2	56.2	45.6
115°	353.6	296.5	256.6	234.6	219.2	185.7	154.8	128.7	105.9	86.4	71.7
117.5°	422.0	361.7	316.1	294.9	275.4	242.0	206.1	177.6	151.5	127.9	106.7
120°	491.3	428.5	381.3	356.8	336.5	298.2	263.1	231.4	202.9	176.0	151.5
122.5°	560.5	497.0	450.5	422.8	400.8	360.1	324.2	290.0	259.9	231.4	203.7
125°	630.6	565.4	517.3	489.6	468.4	425.3	387.0	350.3	321.0	293.3	263.1
127.5°	698.2	635.5	582.5	555.6	532.0	488.0	448.9	415.5	383.7	355.2	324.2
130°	765.0	702.3	647.7	620.8	597.2	551.5	512.4	479.9	448.1	419.6	389.4
132.5°	829.4	766.6	712.0	683.5	659.9	614.3	576.0	538.5	510.8	484.7	454.6
135°	891.3	828.5	774.0	745.4	721.0	679.4	637.1	604.5	573.5	547.5	522.2
137.5°	952.4	888.8	832.6	804.9	779.7	734.8	697.4	665.6	635.5	609.4	585.8
140°	1011.0	946.7	890.5	863.6	836.7	791.9	755.2	725.9	694.9	669.7	644.4
142.5°	1068.1	1002.1	944.2	919.8	892.1	848.9	813.1	782.9	755.2	729.1	704.7
145°	1121.8	1056.6	1002.1	974.4	949.9	905.1	866.8	841.6	815.5	787.8	767.4
147.5°	1176.4	1110.4	1058.3	1028.1	1005.3	958.1	925.5	898.6	873.3	847.3	827.7
150°	1228.5	1164.2	1114.5	1086.0	1058.3	1016.7	980.9	950.7	932.0	901.0	886.4
152.5°	1280.7	1220.4	1166.6	1141.4	1111.2	1074.6	1032.2	1010.2	983.3	960.5	939.3
155°	1327.9	1275.0	1218.0	1198.4	1170.7	1124.3	1090.9	1059.9	1043.6	1010.2	997.2
157.5°	1377.6	1325.5	1264.4	1244.0	1226.9	1174.8	1145.4	1113.7	1092.5	1075.4	1047.7
160°	1420.8	1374.4	1317.3	1291.3	1275.0	1238.3	1191.1	1172.3	1153.6	1121.8	1109.6
162.5°	1463.2	1411.0	1369.5	1341.0	1318.2	1290.5	1254.6	1218.8	1210.6	1191.1	1164.2
165°	1504.7	1453.4	1420.8	1398.0	1371.9	1331.2	1310.8	1284.8	1260.3	1235.9	1223.7
167.5°	1541.4	1485.2	1459.1	1446.9	1429.8	1387.4	1354.8	1339.3	1332.0	1309.2	1282.3
170°	1586.2	1525.9	1490.9	1481.1	1471.3	1446.1	1415.1	1386.6	1372.7	1358.9	1348.3
172.5°	1629.4	1574.0	1531.6	1517.8	1506.4	1488.4	1473.8	1459.9	1450.1	1429.0	1409.4
175°	1679.1	1629.4	1587.8	1571.5	1556.9	1530.0	1511.2	1501.5	1500.7	1493.3	1483.5
177.5°	1719.0	1694.5	1662.0	1649.7	1635.1	1618.0	1596.8	1584.6	1582.1	1568.3	1556.9
180°	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9



TEST NUMBER: P188191

CATALOG NUMBER: FMB-N-4-LD4-2UP/STD-40-UNV-80/86

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°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
90°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
92.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
95°	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
100°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
102.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
105°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
107.5°	9.8	4.1	2.4	1.6	1.6	1.6	1.6	1.6
110°	27.7	26.1	24.4	22.8	17.1	13.8	12.2	10.6



TEST NUMBER: P188191

CATALOG NUMBER: FMB-N-4-LD4-2UP/STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	39.1	35.8	35.0	34.2	32.6	31.8	31.0	30.1
115°	60.3	53.8	51.3	48.9	44.8	42.4	41.5	40.7
117.5°	91.2	81.5	75.8	73.3	66.8	62.7	61.1	59.5
120°	131.2	116.5	111.6	105.9	97.8	92.1	88.8	86.4
122.5°	179.2	160.5	154.8	146.6	136.1	129.5	125.5	122.2
125°	236.3	213.4	206.9	195.5	182.5	173.5	167.8	164.6
127.5°	298.2	277.0	264.0	253.4	237.9	225.7	218.3	215.1
130°	363.4	343.0	330.8	320.2	303.1	289.2	279.4	276.2
132.5°	428.5	409.8	397.6	387.8	372.3	359.3	350.3	347.1
135°	497.8	475.0	463.6	454.6	439.1	427.7	420.4	417.1
137.5°	561.3	540.1	530.4	520.6	506.7	495.3	490.4	485.6
140°	624.9	604.5	592.3	585.8	573.5	562.1	554.8	554.0
142.5°	686.0	668.0	655.8	650.1	638.7	627.3	620.8	620.0
145°	746.3	729.1	718.6	712.0	700.6	692.5	686.0	685.2
147.5°	806.5	788.6	777.2	773.1	764.2	754.4	748.7	747.9
150°	862.8	847.3	838.3	833.4	823.6	813.1	809.0	808.2
152.5°	919.0	905.9	895.3	889.6	879.9	873.3	869.3	870.1
155°	976.8	958.9	948.3	945.9	939.3	932.8	930.4	928.7
157.5°	1027.3	1020.0	1011.8	1008.6	997.2	989.0	983.3	981.7
160°	1094.9	1077.8	1064.8	1059.9	1050.9	1044.4	1042.8	1042.0
162.5°	1139.7	1125.9	1121.8	1120.2	1116.1	1109.6	1106.3	1104.7
165°	1213.1	1192.7	1183.7	1178.0	1165.8	1156.9	1152.8	1153.6
167.5°	1256.2	1242.4	1237.5	1235.1	1231.8	1229.4	1228.5	1229.4
170°	1339.3	1323.9	1316.5	1312.5	1301.1	1291.3	1287.2	1288.0
172.5°	1393.1	1374.4	1367.9	1364.6	1358.9	1354.0	1350.7	1350.7
175°	1476.2	1464.0	1458.3	1452.6	1448.5	1441.2	1437.1	1437.1
177.5°	1538.9	1530.8	1525.1	1519.4	1518.6	1514.5	1513.7	1513.7
180°	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9	1723.9

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