

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: P188190

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188190
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/LO-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: 3230.0 lumens
Efficiency: N/A
Efficacy: 65.4 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

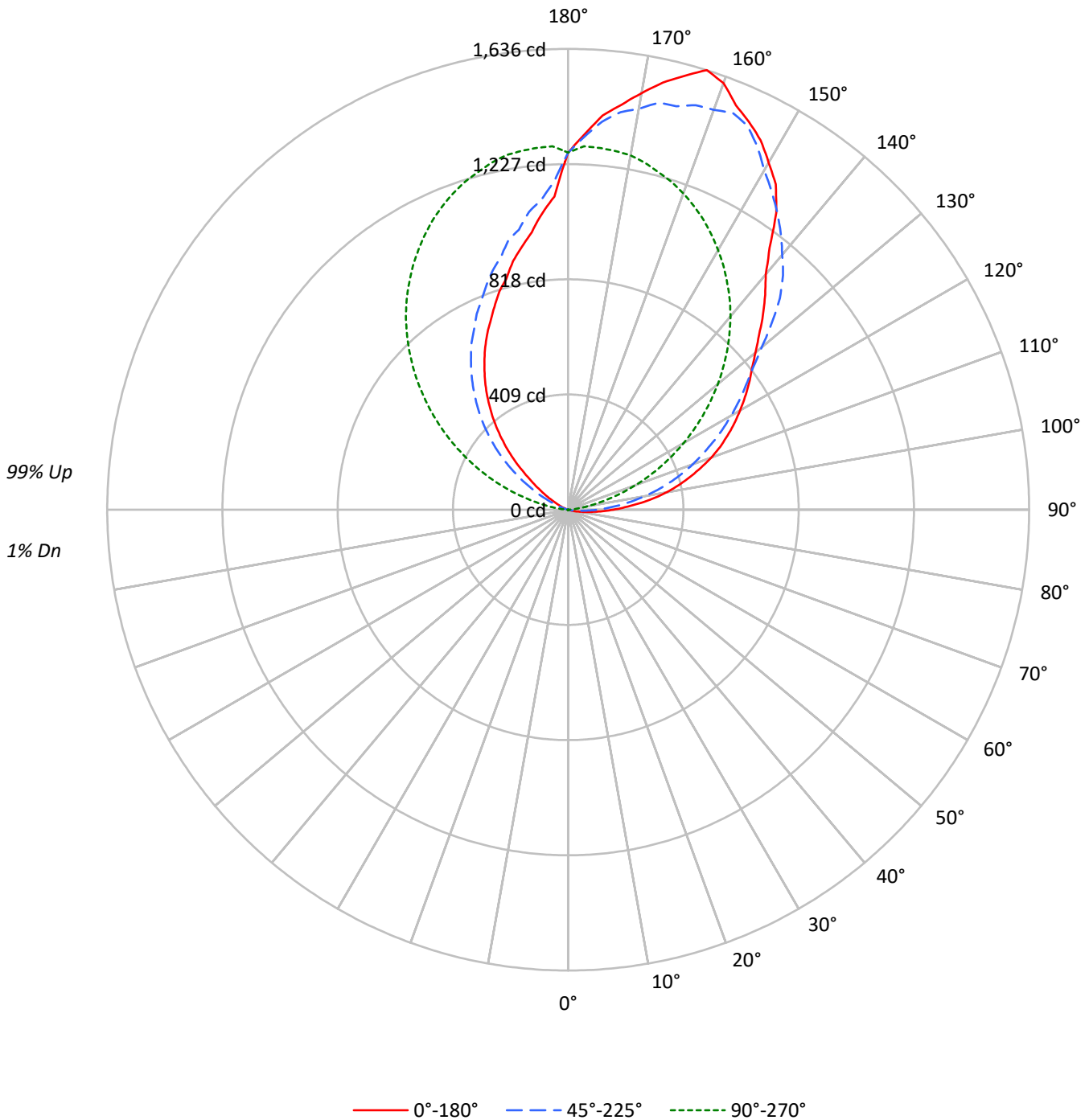
Input Watts (W): 49.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	51	25
75°	441	45	30
80°	1303	65	38
85°	3917	123	53



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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°	4.4	0.1
80°-90°	27.2	0.8
90°-100°	93.3	2.9
100°-110°	201.1	6.2
110°-120°	331.6	10.3
120°-130°	458.8	14.2
130°-140°	556.0	17.2
140°-150°	584.9	18.1
150°-160°	511.6	15.8
160°-170°	342.6	10.6
170°-180°	118.4	3.7
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	31.8	1.0
90°-120°	626.0	19.4
90°-150°	2225.6	68.9
90°-180°	3198.0	99.0
0°-180°	3230.0	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°	17	1	1	2	1	18
85°	89	44	1	2	1	63
90°	160	103	1	1	1	88
95°	250	182	18	1	1	227
105°	446	373	151	10	1	472
115°	624	566	361	78	30	618
125°	784	770	583	236	121	702
135°	978	1062	797	422	307	754
145°	1287	1292	984	600	504	795
155°	1518	1504	1136	767	683	700
165°	1595	1483	1240	927	848	451
175°	1405	1383	1289	1103	1057	136
180°	1268	1268	1268	1268	1268	



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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	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2
72.5°	4.8	4.8	3.0	2.4	1.2	1.2	0.6	0.6	0.6	1.2	1.2
75°	17.4	17.4	16.2	15.6	13.2	12.6	10.2	6.0	3.0	1.2	1.2
77.5°	25.8	25.8	24.6	24.0	21.6	20.4	19.2	16.8	14.4	11.4	4.2
80°	40.7	40.7	38.9	37.7	34.7	32.9	30.5	27.0	23.4	18.6	14.4
82.5°	61.7	62.9	59.9	59.3	54.5	53.3	49.7	45.5	38.9	32.3	25.2
85°	89.3	89.3	87.5	85.1	82.1	80.3	76.7	70.7	62.9	54.5	43.7
87.5°	121.6	122.2	120.4	120.4	115.6	114.4	110.2	104.2	94.6	83.9	70.1
90°	159.9	159.9	158.7	157.5	154.5	153.3	148.6	143.2	132.4	118.6	103.0
92.5°	201.9	202.5	201.9	201.3	198.9	197.7	192.9	186.9	172.5	159.3	140.8
95°	250.4	252.2	251.6	251.0	248.0	245.6	240.8	233.0	216.8	201.9	182.1
97.5°	304.3	307.9	304.3	299.5	297.1	294.1	288.7	279.7	262.4	246.8	227.0
100°	353.4	354.6	352.8	348.0	344.4	340.8	336.0	326.5	309.1	294.1	275.5
102.5°	400.7	401.3	399.5	395.3	391.8	390.6	382.8	374.4	357.0	342.0	325.3
105°	446.3	448.1	446.3	441.5	439.1	437.9	430.1	421.7	403.7	389.4	373.2
107.5°	493.0	494.8	494.2	490.0	486.4	483.4	477.4	466.6	449.9	436.7	422.3
110°	539.7	541.5	540.3	535.5	531.3	527.7	521.1	511.0	495.4	484.0	470.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	583.4	585.2	584.0	578.6	573.2	570.9	563.7	554.1	539.7	530.1	516.3
115°	624.2	626.0	624.8	619.4	615.2	612.2	605.6	597.8	584.6	575.6	565.5
117.5°	664.9	667.3	665.5	659.5	655.9	654.1	647.5	639.7	629.6	622.4	617.6
120°	703.8	706.2	704.4	699.6	694.8	692.5	687.7	682.9	673.3	671.5	667.3
122.5°	744.0	745.2	742.8	738.0	733.8	733.8	730.8	726.0	721.2	723.0	718.2
125°	783.5	784.7	783.5	778.7	776.9	775.7	772.7	773.3	773.9	773.9	770.3
127.5°	821.8	824.8	823.0	819.4	820.0	820.6	820.0	826.6	825.4	827.2	826.0
130°	867.4	871.6	869.8	869.2	871.6	875.1	876.3	880.5	879.3	881.7	896.1
132.5°	918.3	920.7	923.7	927.3	930.3	929.1	931.5	936.8	935.0	952.4	980.0
135°	977.6	980.6	981.8	982.4	986.0	989.6	989.0	993.8	1005.7	1042.3	1062.0
137.5°	1034.5	1038.7	1040.5	1041.1	1042.9	1043.5	1047.7	1073.4	1102.8	1127.9	1128.5
140°	1090.2	1093.2	1095.6	1099.8	1116.5	1130.3	1144.1	1174.7	1189.0	1195.0	1181.8
142.5°	1173.5	1181.8	1189.6	1206.4	1226.2	1229.8	1242.3	1256.1	1253.7	1250.7	1239.3
145°	1287.3	1295.1	1296.3	1303.4	1311.2	1311.8	1314.8	1315.4	1309.4	1305.8	1292.1
147.5°	1370.5	1372.3	1371.7	1370.5	1369.3	1365.7	1366.9	1368.1	1362.1	1355.0	1342.4
150°	1423.2	1425.6	1425.6	1420.8	1422.0	1419.0	1419.0	1414.9	1404.7	1401.1	1391.5
152.5°	1478.9	1480.1	1477.7	1468.2	1464.6	1460.4	1460.4	1456.8	1449.0	1452.0	1453.8
155°	1518.5	1517.3	1516.7	1508.3	1504.7	1501.1	1502.3	1501.7	1506.5	1517.3	1504.1
157.5°	1554.4	1553.8	1556.2	1552.6	1558.0	1559.2	1565.8	1567.6	1563.4	1552.6	1525.1
160°	1611.3	1611.9	1613.7	1608.3	1607.7	1604.7	1603.5	1597.0	1580.8	1550.8	1510.1
162.5°	1636.5	1636.5	1631.7	1623.3	1611.3	1605.9	1596.4	1575.4	1549.0	1527.5	1505.9
165°	1594.6	1592.2	1583.2	1573.0	1562.2	1559.2	1555.0	1546.0	1530.5	1509.5	1483.1
167.5°	1553.2	1552.6	1544.2	1535.3	1524.5	1521.5	1514.9	1505.9	1495.7	1489.1	1480.1
170°	1501.7	1500.5	1497.5	1495.7	1493.3	1493.3	1492.1	1487.9	1477.7	1464.0	1444.8
172.5°	1450.2	1451.4	1444.8	1440.6	1436.4	1438.2	1435.8	1432.2	1428.0	1428.6	1423.8
175°	1404.7	1405.9	1405.3	1404.1	1403.5	1405.3	1404.1	1402.9	1399.3	1393.3	1383.1
177.5°	1334.0	1334.6	1328.6	1326.2	1328.0	1328.0	1327.4	1328.6	1329.2	1329.2	1325.6
180°	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5



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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°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
80°	11.4	5.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8
82.5°	19.2	13.8	9.6	3.6	1.8	1.2	1.2	1.2	1.2	1.2	1.2
85°	33.5	25.2	17.4	11.4	9.6	7.2	1.8	1.2	1.2	1.2	1.2
87.5°	56.3	43.7	32.3	22.8	18.0	13.8	7.8	4.2	1.2	1.2	1.2
90°	88.1	70.1	55.7	40.7	34.7	28.8	18.0	9.6	4.2	1.2	1.2
92.5°	124.0	103.6	86.3	67.1	58.7	49.7	35.9	22.8	12.6	6.0	3.0
95°	164.1	142.6	122.8	100.0	89.3	79.7	62.3	44.9	31.1	18.0	9.6
97.5°	209.7	185.7	163.5	138.4	128.2	117.4	97.0	77.3	58.1	39.5	24.0
100°	256.4	231.8	207.9	183.9	172.5	163.5	139.0	119.8	93.4	68.9	47.3
102.5°	304.9	279.7	255.8	234.2	222.2	212.0	189.3	164.7	135.4	107.2	78.5
105°	354.0	328.3	308.5	286.3	277.9	265.4	245.0	216.8	183.9	150.9	116.2
107.5°	403.1	380.4	362.4	341.4	328.3	324.7	303.1	272.5	236.6	200.7	159.9
110°	449.9	433.7	416.9	398.9	391.2	388.2	366.0	330.1	292.3	252.8	207.9



TEST NUMBER: P188190

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	501.4	487.0	473.2	459.4	458.2	451.7	422.9	387.6	348.6	308.5	257.6
115°	554.1	540.3	531.9	525.9	524.1	513.3	484.0	445.1	408.5	361.2	309.7
117.5°	606.2	596.0	593.6	593.0	587.0	574.4	546.9	503.2	465.4	416.3	366.0
120°	657.1	653.5	660.1	655.3	646.3	634.9	603.2	564.9	521.7	474.4	419.3
122.5°	713.4	717.0	730.2	716.4	708.0	691.3	661.3	620.0	578.0	527.7	472.0
125°	773.3	788.3	794.9	775.1	766.7	749.4	719.4	676.9	635.5	583.4	525.3
127.5°	842.2	863.8	853.6	832.0	823.6	805.1	776.3	734.4	690.1	637.9	576.8
130°	920.7	927.9	912.3	891.9	879.9	861.4	831.4	789.5	745.2	693.1	629.6
132.5°	995.0	983.6	969.2	944.6	930.3	918.3	885.3	842.8	799.1	745.8	680.5
135°	1057.2	1045.9	1023.7	998.5	988.4	973.4	935.6	895.5	851.2	797.3	730.2
137.5°	1115.9	1102.2	1077.6	1056.6	1041.7	1027.9	987.2	947.0	899.1	847.6	777.5
140°	1171.1	1154.9	1130.3	1112.4	1094.4	1076.4	1035.1	996.7	950.6	896.1	823.6
142.5°	1225.0	1207.6	1186.6	1166.9	1145.3	1123.7	1082.4	1042.3	995.5	941.6	866.8
145°	1278.3	1261.5	1246.5	1217.2	1193.8	1168.7	1129.1	1086.6	1039.9	983.6	909.3
147.5°	1331.0	1320.2	1299.2	1255.5	1232.8	1208.8	1170.5	1131.5	1082.4	1026.1	950.6
150°	1391.5	1374.1	1338.2	1286.7	1266.3	1248.3	1209.4	1172.9	1124.3	1063.8	990.8
152.5°	1445.4	1409.5	1362.7	1314.2	1299.2	1281.9	1248.3	1205.2	1165.7	1101.0	1026.7
155°	1474.8	1422.6	1376.5	1343.6	1325.0	1307.6	1281.9	1236.9	1198.6	1135.7	1064.4
157.5°	1477.7	1425.0	1395.1	1360.3	1346.6	1335.2	1302.8	1269.9	1225.6	1166.3	1098.0
160°	1472.4	1435.8	1401.1	1381.3	1372.3	1356.2	1319.0	1295.1	1246.5	1195.0	1125.5
162.5°	1471.8	1433.4	1414.3	1394.5	1380.7	1363.3	1338.8	1308.8	1261.5	1220.2	1154.9
165°	1460.4	1443.0	1418.4	1388.5	1378.9	1371.7	1355.0	1316.6	1277.1	1239.9	1179.4
167.5°	1456.8	1426.2	1401.7	1390.9	1387.9	1381.3	1352.6	1318.4	1292.7	1260.9	1201.6
170°	1420.8	1407.1	1400.5	1390.9	1383.1	1370.5	1340.0	1318.4	1304.0	1277.1	1226.8
172.5°	1410.1	1396.9	1380.7	1363.9	1356.2	1346.6	1329.8	1319.0	1307.6	1284.3	1247.7
175°	1368.1	1353.8	1341.8	1334.6	1332.2	1329.2	1322.0	1316.0	1306.4	1289.1	1266.9
177.5°	1315.4	1313.0	1315.4	1316.6	1317.2	1316.6	1311.2	1307.6	1302.2	1291.5	1280.7
180°	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5



TEST NUMBER: P188190

CATALOG NUMBER: FMB-N-4-LD4-2UP/LO-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°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
85°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
87.5°	1.2	1.2	1.8	1.2	1.8	1.8	1.8	1.8	1.8	1.2	1.2
90°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.2	1.2	1.2
92.5°	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.2	1.2	1.2
95°	6.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
97.5°	15.0	9.6	5.4	1.8	1.8	1.2	1.8	1.2	1.2	1.2	1.2
100°	31.1	19.2	13.8	12.0	10.8	3.0	1.2	1.2	1.2	1.2	1.2
102.5°	55.7	37.1	26.4	21.6	18.6	14.4	9.6	1.8	1.2	1.2	1.2
105°	86.9	61.7	46.7	38.9	34.1	24.6	18.6	15.6	10.2	3.6	1.2
107.5°	124.0	93.4	73.7	64.1	56.9	41.9	31.7	24.0	19.8	18.0	13.2
110°	165.9	130.6	107.2	95.2	86.3	68.3	52.1	40.1	31.1	25.8	22.8



TEST NUMBER: P188190

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	211.4	172.5	146.2	131.2	121.6	100.0	80.3	64.1	50.9	41.3	33.5
115°	260.0	218.0	188.7	172.5	161.1	136.6	113.8	94.6	77.9	63.5	52.7
117.5°	310.3	266.0	232.4	216.8	202.5	177.9	151.5	130.6	111.4	94.0	78.5
120°	361.2	315.1	280.3	262.4	247.4	219.2	193.5	170.1	149.2	129.4	111.4
122.5°	412.1	365.4	331.3	310.9	294.7	264.8	238.4	213.2	191.1	170.1	149.8
125°	463.6	415.7	380.4	360.0	344.4	312.7	284.5	257.6	236.0	215.6	193.5
127.5°	513.3	467.2	428.3	408.5	391.2	358.8	330.1	305.5	282.1	261.2	238.4
130°	562.5	516.3	476.2	456.4	439.1	405.5	376.8	352.8	329.5	308.5	286.3
132.5°	609.8	563.7	523.5	502.6	485.2	451.7	423.5	395.9	375.6	356.4	334.2
135°	655.3	609.2	569.1	548.1	530.1	499.6	468.4	444.5	421.7	402.5	384.0
137.5°	700.2	653.5	612.2	591.8	573.2	540.3	512.7	489.4	467.2	448.1	430.7
140°	743.4	696.0	654.7	634.9	615.2	582.2	555.3	533.7	511.0	492.4	473.8
142.5°	785.3	736.8	694.2	676.3	655.9	624.2	597.8	575.6	555.3	536.1	518.1
145°	824.8	776.9	736.8	716.4	698.4	665.5	637.3	618.8	599.6	579.2	564.3
147.5°	865.0	816.4	778.1	755.9	739.2	704.4	680.5	660.7	642.1	623.0	608.6
150°	903.3	856.0	819.4	798.5	778.1	747.6	721.2	699.0	685.3	662.5	651.7
152.5°	941.6	897.3	857.8	839.2	817.0	790.1	758.9	742.8	723.0	706.2	690.7
155°	976.4	937.4	895.5	881.1	860.8	826.6	802.1	779.3	767.3	742.8	733.2
157.5°	1012.9	974.6	929.7	914.7	902.1	863.8	842.2	818.8	803.3	790.7	770.3
160°	1044.7	1010.5	968.6	949.4	937.4	910.5	875.7	862.0	848.2	824.8	815.8
162.5°	1075.8	1037.5	1006.9	986.0	969.2	948.8	922.5	896.1	890.1	875.7	856.0
165°	1106.4	1068.6	1044.7	1027.9	1008.7	978.8	963.8	944.6	926.7	908.7	899.7
167.5°	1133.3	1092.0	1072.8	1063.8	1051.3	1020.1	996.1	984.8	979.4	962.6	942.8
170°	1166.3	1121.9	1096.2	1089.0	1081.8	1063.2	1040.5	1019.5	1009.3	999.1	991.4
172.5°	1198.0	1157.3	1126.1	1115.9	1107.6	1094.4	1083.6	1073.4	1066.2	1050.7	1036.3
175°	1234.6	1198.0	1167.5	1155.5	1144.7	1124.9	1111.2	1104.0	1103.4	1098.0	1090.8
177.5°	1263.9	1245.9	1222.0	1213.0	1202.2	1189.6	1174.1	1165.1	1163.3	1153.1	1144.7
180°	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5



TEST NUMBER: P188190

CATALOG NUMBER: FMB-N-4-LD4-2UP/LO-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°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
90°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
92.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
95°	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
100°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
102.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
105°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
107.5°	7.2	3.0	1.8	1.2	1.2	1.2	1.2	1.2
110°	20.4	19.2	18.0	16.8	12.6	10.2	9.0	7.8



TEST NUMBER: P188190

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	28.8	26.4	25.8	25.2	24.0	23.4	22.8	22.2
115°	44.3	39.5	37.7	35.9	32.9	31.1	30.5	30.0
117.5°	67.1	59.9	55.7	53.9	49.1	46.1	44.9	43.7
120°	96.4	85.7	82.1	77.9	71.9	67.7	65.3	63.5
122.5°	131.8	118.0	113.8	107.8	100.0	95.2	92.2	89.9
125°	173.7	156.9	152.1	143.8	134.2	127.6	123.4	121.0
127.5°	219.2	203.7	194.1	186.3	174.9	165.9	160.5	158.1
130°	267.2	252.2	243.2	235.4	222.8	212.6	205.5	203.1
132.5°	315.1	301.3	292.3	285.1	273.7	264.2	257.6	255.2
135°	366.0	349.2	340.8	334.2	322.9	314.5	309.1	306.7
137.5°	412.7	397.1	390.0	382.8	372.6	364.2	360.6	357.0
140°	459.4	444.5	435.5	430.7	421.7	413.3	407.9	407.3
142.5°	504.4	491.2	482.2	478.0	469.6	461.2	456.4	455.8
145°	548.7	536.1	528.3	523.5	515.1	509.2	504.4	503.8
147.5°	593.0	579.8	571.5	568.5	561.9	554.7	550.5	549.9
150°	634.3	623.0	616.4	612.8	605.6	597.8	594.8	594.2
152.5°	675.7	666.1	658.3	654.1	646.9	642.1	639.1	639.7
155°	718.2	705.0	697.2	695.4	690.7	685.9	684.1	682.9
157.5°	755.3	750.0	744.0	741.6	733.2	727.2	723.0	721.8
160°	805.1	792.5	782.9	779.3	772.7	767.9	766.7	766.1
162.5°	838.0	827.8	824.8	823.6	820.6	815.8	813.5	812.3
165°	891.9	876.9	870.4	866.2	857.2	850.6	847.6	848.2
167.5°	923.7	913.5	909.9	908.1	905.7	903.9	903.3	903.9
170°	984.8	973.4	968.0	965.0	956.6	949.4	946.4	947.0
172.5°	1024.3	1010.5	1005.7	1003.3	999.1	995.5	993.2	993.2
175°	1085.4	1076.4	1072.2	1068.0	1065.0	1059.6	1056.6	1056.6
177.5°	1131.5	1125.5	1121.3	1117.1	1116.5	1113.6	1113.0	1113.0
180°	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5	1267.5

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