

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: P188187

Luminaire Tested: **FMB-N-4-LD4-1STD/1STD-40-UNV-80/86**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188187
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27216)
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-LD4-1STD/1STD-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: 5028.0 lumens
Efficiency: N/A
Efficacy: 72.7 lumens/watt
Spacing Criteria (0/90/45): 1.07 / 1.19 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 3.67' x L: 0.29' x H: 0.67')
CIE Type: General Diffuse

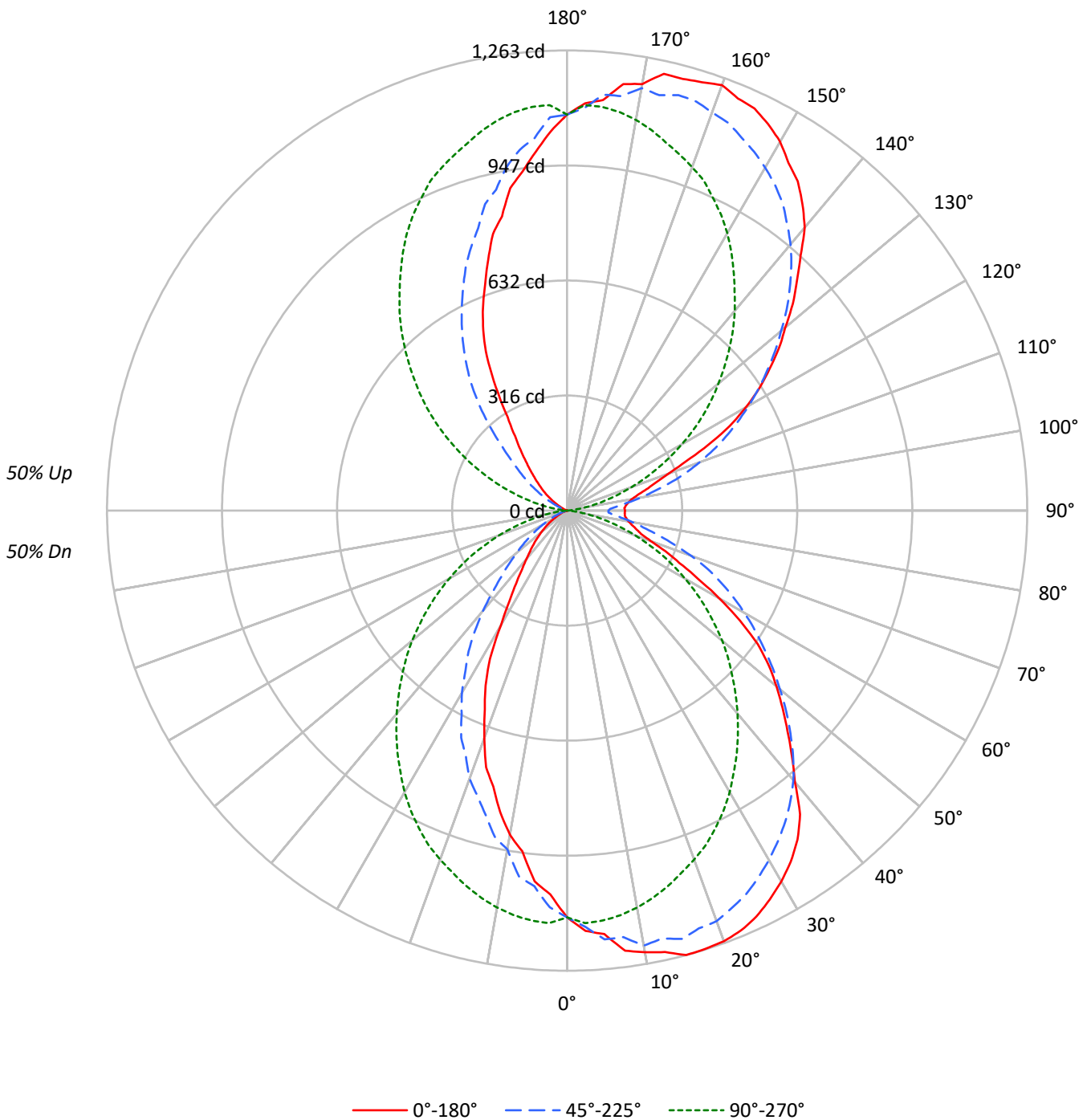
Input Watts (W): 69.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0		
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	107	107	107	107	99	99	99	99	83	83	83		69	69	69		56	56	56	50
1	98	94	90	86	90	87	83	80	73	71	69		61	59	58		50	49	48	42
2	89	82	76	71	82	76	71	66	65	61	57		54	51	49		44	42	41	36
3	82	72	65	60	75	67	61	56	57	53	49		48	45	42		39	37	35	31
4	75	64	57	51	69	60	53	48	51	46	42		43	39	36		35	33	30	27
5	69	58	50	44	63	53	46	41	46	40	36		39	35	31		32	29	27	23
6	64	52	44	38	59	48	41	36	41	36	32		35	31	28		29	26	24	21
7	59	47	39	33	54	44	37	32	38	32	28		32	28	25		27	24	21	19
8	55	43	35	30	50	40	33	28	34	29	25		29	25	22		25	21	19	17
9	51	39	32	27	47	36	30	25	32	26	23		27	23	20		23	20	17	15
10	48	36	29	24	44	33	27	23	29	24	20		25	21	18		21	18	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11236	11236	11236
5°	9824	11231	8603
10°	8969	10957	6582
15°	8161	10606	5065
20°	7355	10240	3888
25°	6609	9852	2847
30°	5891	9384	1821
35°	5209	8845	1155
40°	4381	8294	782
45°	3706	7723	561
50°	3152	7152	387
55°	2625	6469	255
60°	1961	5713	146
65°	1371	4901	79
70°	985	3901	10
75°	801	2736	3
80°	710	1512	3
85°	676	488	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.8	2.1
10°-20°	293.0	5.8
20°-30°	421.5	8.4
30°-40°	465.9	9.3
40°-50°	437.1	8.7
50°-60°	359.9	7.2
60°-70°	239.9	4.8
70°-80°	125.4	2.5
80°-90°	63.2	1.3
90°-100°	65.2	1.3
100°-110°	134.0	2.7
110°-120°	249.4	5.0
120°-130°	361.2	7.2
130°-140°	437.4	8.7
140°-150°	463.0	9.2
150°-160°	416.6	8.3
160°-170°	287.8	5.7
170°-180°	102.7	2.0
0°-30°	819.3	16.3
0°-40°	1285.2	25.6
0°-60°	2082.2	41.4
0°-90°	2510.8	49.9
90°-120°	448.6	8.9
90°-150°	1710.1	34.0
90°-180°	2517.0	50.1
0°-180°	5028.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1116	1116	1116	1116	1116	
5°	1167	1182	1129	1035	1022	114
15°	1263	1217	1067	864	784	355
25°	1230	1162	962	688	530	566
35°	1102	1044	812	471	244	684
45°	856	867	641	254	130	662
55°	638	660	464	123	62	562
65°	340	465	286	41	20	346
75°	196	257	118	4	1	211
85°	159	126	13	2	0	133
90°	159	113	2	2	0	87
95°	162	139	10	0	0	136
105°	225	291	111	0	0	241
115°	429	481	274	33	11	424
125°	678	671	455	120	53	606
135°	892	864	630	259	124	690
145°	1103	1031	797	479	249	687
155°	1217	1131	947	675	545	560
165°	1226	1181	1046	871	786	348
175°	1131	1146	1112	1027	988	111
180°	1087	1087	1087	1087	1087	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3
2.5°	1154.6	1152.1	1159.5	1160.3	1161.1	1157.8	1157.0	1154.6	1158.6	1155.4	1143.2
5°	1166.8	1166.0	1171.7	1173.3	1171.7	1171.7	1173.3	1175.8	1179.0	1182.3	1181.5
7.5°	1218.1	1218.1	1221.4	1223.8	1218.9	1214.9	1213.2	1210.0	1205.1	1194.5	1180.6
10°	1231.2	1227.9	1229.5	1228.7	1221.4	1216.5	1214.9	1214.0	1215.7	1217.3	1212.4
12.5°	1240.9	1242.6	1246.6	1249.1	1245.8	1244.2	1242.6	1240.9	1232.8	1217.3	1202.6
15°	1262.9	1262.1	1264.6	1263.7	1254.0	1245.0	1240.1	1233.6	1229.5	1227.1	1217.3
17.5°	1261.3	1258.0	1258.9	1260.5	1254.8	1252.3	1249.1	1245.0	1236.9	1220.6	1202.6
20°	1258.0	1257.2	1259.7	1261.3	1254.8	1249.1	1244.2	1232.8	1223.0	1213.2	1199.4
22.5°	1247.5	1248.3	1249.1	1249.1	1239.3	1232.0	1227.1	1217.3	1211.6	1198.6	1180.6
25°	1229.5	1230.3	1231.2	1230.3	1220.6	1214.0	1209.2	1200.2	1188.8	1174.9	1161.9
27.5°	1203.5	1202.6	1203.5	1205.1	1198.6	1193.7	1188.0	1177.4	1164.3	1154.6	1135.8
30°	1175.8	1174.9	1176.6	1179.8	1172.5	1166.0	1157.8	1151.3	1140.7	1126.9	1107.3
32.5°	1142.3	1143.2	1142.3	1143.2	1137.5	1135.0	1129.3	1118.7	1108.1	1095.9	1076.3
35°	1102.4	1100.0	1104.0	1110.6	1105.7	1102.4	1094.3	1083.7	1076.3	1064.1	1043.8
37.5°	1050.3	1051.1	1053.5	1059.2	1060.9	1057.6	1051.9	1048.6	1037.2	1026.6	1006.3
40°	972.9	975.3	976.9	987.5	997.3	997.3	996.5	994.9	992.4	983.5	966.3
42.5°	912.6	914.2	915.0	923.2	927.2	928.1	928.9	932.9	932.1	934.6	918.3
45°	855.5	858.8	859.6	864.5	866.1	872.6	872.6	871.8	872.6	877.5	866.9
47.5°	801.8	805.8	806.6	814.0	817.2	817.2	816.4	818.9	818.1	822.1	815.6
50°	749.6	756.9	757.8	761.0	764.3	764.3	766.7	770.0	765.1	769.2	761.8
52.5°	697.5	703.2	703.2	708.9	717.8	717.8	718.6	719.5	716.2	717.8	711.3
55°	638.0	642.9	645.3	655.1	660.8	664.9	665.7	670.6	667.3	665.7	660.0
57.5°	562.2	570.4	573.6	589.9	606.2	609.5	612.7	620.1	619.2	617.6	611.1
60°	483.2	492.1	496.2	513.3	529.6	539.4	548.4	566.3	567.9	567.9	562.2
62.5°	404.1	411.5	422.1	436.7	455.5	465.2	475.0	501.1	515.0	518.2	514.1
65°	339.8	346.3	349.5	364.2	382.1	392.7	409.0	432.7	452.2	465.2	465.2
67.5°	291.7	297.4	301.5	310.4	323.5	330.8	343.8	367.5	388.7	405.8	416.4
70°	243.6	247.7	254.2	263.2	276.2	281.9	290.1	309.6	329.2	348.7	361.0
72.5°	211.8	211.8	215.1	220.8	232.2	238.7	247.7	262.4	277.0	295.0	306.4
75°	196.4	194.7	196.4	198.8	203.7	208.6	213.5	224.9	234.7	246.1	256.7
77.5°	181.7	180.9	180.1	180.1	180.9	181.7	184.1	192.3	203.7	212.7	214.3
80°	171.1	171.1	169.5	167.8	166.2	165.4	164.6	165.4	170.3	177.6	181.7
82.5°	163.8	163.0	161.3	159.7	156.4	154.8	153.2	149.9	146.7	148.3	149.9
85°	158.9	158.1	156.4	153.2	149.1	147.5	145.0	140.1	134.4	128.7	125.5
87.5°	158.1	157.3	154.8	151.6	147.5	144.2	141.0	134.4	127.9	120.6	113.3
90°	158.9	158.1	155.6	152.4	148.3	145.0	141.8	135.3	127.9	120.6	113.3
92.5°	157.3	156.4	154.8	151.6	147.5	145.0	142.6	136.9	131.2	124.7	119.0
95°	162.1	161.3	159.7	157.3	154.0	152.4	150.7	147.5	145.0	142.6	139.3
97.5°	169.5	168.7	167.8	166.2	165.4	164.6	163.8	164.6	167.8	167.8	167.0
100°	180.1	179.3	180.1	180.1	181.7	183.3	184.1	190.7	198.0	200.4	204.5
102.5°	198.0	197.2	199.6	202.1	207.8	211.0	214.3	223.3	233.8	241.2	243.6
105°	224.9	223.3	228.1	232.2	240.4	244.4	248.5	258.3	273.0	284.4	290.9
107.5°	254.2	252.6	258.3	263.2	272.1	280.3	286.0	306.4	326.7	335.7	339.8
110°	295.0	293.3	302.3	309.6	325.9	336.5	343.8	365.0	382.1	387.0	386.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	352.0	350.4	363.4	374.8	391.9	402.5	408.2	425.3	435.9	438.4	433.5
115°	428.6	428.6	435.1	446.5	458.7	466.9	473.4	481.5	485.6	485.6	480.7
117.5°	502.7	501.1	505.2	513.3	520.7	526.4	526.4	534.5	535.3	534.5	527.2
120°	566.3	565.5	567.1	572.8	576.9	581.8	584.2	586.7	585.0	581.8	575.2
122.5°	625.8	622.5	621.7	628.2	629.0	633.9	635.5	637.2	633.1	629.8	623.3
125°	677.9	676.3	675.5	682.8	683.6	685.2	685.2	687.7	684.4	680.4	670.6
127.5°	733.3	731.7	729.2	731.7	730.9	734.9	737.4	737.4	734.1	727.6	719.5
130°	781.4	783.0	779.8	785.5	783.8	785.5	785.5	787.9	782.2	775.7	766.7
132.5°	840.1	836.8	833.5	834.4	834.4	838.4	839.2	836.8	833.5	825.4	817.2
135°	892.2	892.2	892.2	893.0	889.8	890.6	890.6	892.2	884.1	876.7	864.5
137.5°	948.4	948.4	944.3	947.6	947.6	951.7	951.7	947.6	938.6	927.2	910.9
140°	1014.4	1017.7	1012.0	1012.8	1006.3	1003.0	1001.4	998.1	981.8	970.4	954.1
142.5°	1060.9	1061.7	1056.0	1054.3	1050.3	1049.5	1044.6	1034.0	1020.9	1010.3	991.6
145°	1103.2	1103.2	1099.2	1091.8	1083.7	1080.4	1074.7	1071.5	1058.4	1045.4	1030.7
147.5°	1130.9	1129.3	1124.4	1124.4	1119.5	1117.1	1113.8	1102.4	1090.2	1079.6	1060.9
150°	1169.2	1170.9	1164.3	1155.4	1148.9	1145.6	1140.7	1131.8	1117.1	1104.0	1086.9
152.5°	1195.3	1194.5	1188.0	1180.6	1173.3	1170.9	1164.3	1152.9	1140.7	1127.7	1110.6
155°	1217.3	1215.7	1210.0	1202.6	1196.1	1192.0	1184.7	1172.5	1163.5	1153.8	1130.9
157.5°	1224.6	1223.8	1217.3	1212.4	1209.2	1208.3	1205.1	1196.9	1180.6	1165.2	1152.9
160°	1242.6	1240.9	1231.2	1219.7	1211.6	1207.5	1203.5	1195.3	1192.0	1183.9	1162.7
162.5°	1232.8	1232.0	1226.3	1223.8	1223.8	1223.0	1219.7	1207.5	1192.0	1182.3	1177.4
165°	1226.3	1227.1	1219.7	1208.3	1205.1	1204.3	1202.6	1201.0	1202.6	1199.4	1180.6
167.5°	1227.9	1227.9	1222.2	1216.5	1215.7	1213.2	1210.0	1196.1	1183.1	1174.1	1167.6
170°	1188.8	1188.0	1183.1	1174.9	1175.8	1176.6	1178.2	1183.1	1186.3	1185.5	1177.4
172.5°	1180.6	1181.5	1180.6	1172.5	1174.1	1173.3	1170.0	1163.5	1157.0	1156.2	1147.2
175°	1130.9	1131.8	1130.1	1129.3	1134.2	1135.8	1137.5	1138.3	1141.5	1145.6	1145.6
177.5°	1118.7	1121.2	1119.5	1110.6	1115.5	1114.6	1114.6	1111.4	1110.6	1110.6	1106.5
180°	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3
2.5°	1135.0	1135.0	1130.1	1122.8	1120.3	1118.7	1117.9	1122.8	1130.9	1133.4	1133.4
5°	1175.8	1174.9	1166.8	1149.7	1142.3	1135.8	1123.6	1121.2	1126.0	1129.3	1128.5
7.5°	1166.0	1164.3	1163.5	1161.9	1158.6	1152.9	1135.8	1120.3	1119.5	1120.3	1118.7
10°	1195.3	1179.0	1161.1	1150.5	1148.9	1148.9	1143.2	1126.9	1111.4	1106.5	1102.4
12.5°	1191.2	1193.7	1179.0	1150.5	1139.1	1132.6	1133.4	1126.0	1102.4	1088.6	1082.0
15°	1193.7	1176.6	1169.2	1157.8	1144.0	1127.7	1109.8	1113.0	1091.8	1067.4	1057.6
17.5°	1188.0	1179.0	1155.4	1139.1	1134.2	1126.0	1096.7	1089.4	1079.6	1042.9	1031.5
20°	1173.3	1158.6	1148.0	1119.5	1108.9	1103.2	1086.9	1062.5	1059.2	1019.3	1002.2
22.5°	1161.1	1144.8	1123.6	1107.3	1093.5	1078.8	1064.9	1039.7	1029.9	994.1	968.8
25°	1138.3	1120.3	1103.2	1078.8	1069.8	1056.8	1032.3	1013.6	996.5	962.3	932.9
27.5°	1113.8	1092.6	1077.2	1051.9	1037.2	1025.8	1000.6	984.3	958.2	928.9	895.5
30°	1086.1	1063.3	1047.0	1020.9	1007.9	992.4	968.8	946.8	922.3	892.2	854.7
32.5°	1055.2	1030.7	1012.8	987.5	972.1	959.8	931.3	908.5	883.2	851.5	814.8
35°	1020.1	994.9	979.4	951.7	934.6	920.7	890.6	870.2	844.1	811.5	773.2
37.5°	985.1	957.4	941.1	911.8	895.5	881.6	850.6	830.3	800.9	770.0	733.3
40°	944.3	918.3	899.5	871.0	855.5	840.9	810.7	788.7	760.2	727.6	691.8
42.5°	901.2	877.5	855.5	831.1	816.4	800.1	771.6	746.4	717.8	684.4	646.9
45°	853.1	832.7	813.2	789.5	774.9	758.6	730.1	704.0	674.7	641.2	603.8
47.5°	804.2	786.3	768.4	746.4	731.7	719.5	688.5	661.6	631.5	598.9	561.4
50°	755.3	739.0	722.7	699.9	688.5	676.3	646.1	617.6	586.7	555.7	516.6
52.5°	704.8	691.8	675.5	653.5	643.7	631.5	602.1	574.4	541.8	509.2	471.0
55°	655.1	643.7	627.4	606.2	596.4	584.2	557.3	529.6	496.2	464.4	424.5
57.5°	604.6	592.4	579.3	558.1	549.2	537.8	513.3	484.8	453.0	419.6	378.9
60°	555.7	542.7	531.2	510.1	501.9	490.5	466.1	439.2	407.4	373.2	334.1
62.5°	506.8	492.1	479.9	461.2	454.7	442.4	418.8	392.7	361.8	329.2	290.1
65°	457.9	444.1	429.4	414.7	404.1	394.4	371.5	346.3	317.0	286.0	244.4
67.5°	410.7	396.0	380.5	362.6	355.3	346.3	324.3	299.8	272.1	239.5	202.9
70°	361.8	347.9	332.4	314.5	306.4	296.6	277.0	254.2	225.7	198.8	163.0
72.5°	310.4	301.5	285.2	265.6	258.3	247.7	231.4	209.4	184.1	157.3	124.7
75°	259.9	255.0	239.5	220.0	212.7	204.5	185.8	165.4	142.6	118.1	90.4
77.5°	213.5	207.0	196.4	177.6	168.7	161.3	142.6	125.5	104.3	83.1	60.3
80°	179.3	167.8	153.2	138.5	128.7	120.6	104.3	88.8	70.9	53.0	36.7
82.5°	145.0	136.9	122.2	102.7	93.7	85.6	71.7	57.9	43.2	29.3	17.9
85°	119.0	109.2	94.5	76.6	68.4	60.3	44.8	33.4	22.8	13.0	7.3
87.5°	105.1	92.9	77.4	58.7	49.7	42.4	29.3	17.1	9.0	4.1	2.4
90°	103.5	88.8	71.7	53.8	44.8	36.7	22.8	12.2	4.9	1.6	1.6
92.5°	108.4	95.3	78.2	58.7	49.7	41.6	28.5	15.5	6.5	1.6	0.8
95°	129.6	116.5	98.6	79.0	69.3	61.9	44.8	31.8	20.4	9.8	4.1
97.5°	159.7	147.5	128.7	105.1	95.3	88.0	72.5	56.2	40.7	25.3	14.7
100°	198.0	180.9	161.3	141.0	130.4	122.2	104.3	88.0	68.4	48.1	32.6
102.5°	236.3	222.4	202.9	180.9	170.3	162.1	144.2	123.8	101.8	77.4	56.2
105°	281.9	268.9	246.1	224.9	213.5	206.1	186.6	163.8	139.3	110.8	85.6
107.5°	327.5	313.7	290.9	269.7	258.3	250.1	228.1	207.0	180.9	148.3	116.5
110°	375.6	359.3	336.5	316.1	304.7	295.8	273.8	251.0	223.3	188.2	155.6



TEST NUMBER: P188187

CATALOG NUMBER: FMB-N-4-LD4-1STD/1STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	422.1	406.6	384.6	361.8	350.4	341.4	318.6	295.8	267.3	229.8	193.1
115°	468.5	453.8	431.8	409.0	397.6	387.8	365.8	342.2	311.3	273.8	238.7
117.5°	516.6	502.7	479.9	455.5	444.9	436.7	413.1	388.7	356.9	317.8	280.3
120°	564.7	550.0	526.4	502.7	492.1	484.0	460.4	435.1	400.9	362.6	327.5
122.5°	611.9	594.0	572.8	549.2	538.6	529.6	505.2	479.9	444.9	409.0	369.1
125°	659.2	638.8	620.1	594.8	584.2	576.1	551.6	525.5	490.5	454.7	414.7
127.5°	704.8	684.4	664.9	640.4	631.5	620.9	596.4	569.5	534.5	499.5	459.5
130°	752.1	730.9	709.7	686.9	676.3	663.2	639.6	613.5	576.9	541.8	504.4
132.5°	799.3	776.5	754.5	728.4	720.3	706.4	682.0	655.9	620.9	585.8	549.2
135°	844.9	823.8	796.9	769.2	760.2	748.0	724.4	698.3	664.9	629.8	594.8
137.5°	888.9	862.9	838.4	809.9	800.9	789.5	766.7	742.3	707.2	673.8	639.6
140°	929.7	902.0	874.3	849.0	840.1	829.5	808.3	782.2	748.0	715.4	683.6
142.5°	968.0	941.9	913.4	888.9	878.3	869.4	849.8	820.5	789.5	755.3	721.9
145°	1006.3	979.4	951.7	927.2	918.3	910.1	889.8	863.7	831.1	796.9	764.3
147.5°	1038.0	1011.2	985.9	963.9	957.4	949.2	928.9	901.2	871.0	839.2	801.8
150°	1065.8	1039.7	1016.1	999.8	993.2	985.1	968.0	939.5	908.5	879.2	844.1
152.5°	1092.6	1063.3	1047.8	1028.3	1024.2	1018.5	998.1	973.7	943.5	915.0	879.2
155°	1112.2	1089.4	1070.6	1058.4	1056.0	1045.4	1031.5	1005.5	976.9	946.8	916.6
157.5°	1137.5	1106.5	1097.5	1086.1	1075.5	1068.2	1060.9	1030.7	1012.8	980.2	953.3
160°	1144.0	1127.7	1114.6	1096.7	1096.7	1095.9	1078.8	1051.1	1038.0	1003.0	985.1
162.5°	1167.6	1139.1	1118.7	1120.3	1119.5	1113.0	1089.4	1076.3	1059.2	1025.0	1014.4
165°	1157.8	1139.1	1139.9	1132.6	1122.0	1113.8	1105.7	1098.3	1072.3	1046.2	1038.0
167.5°	1167.6	1155.4	1139.9	1123.6	1120.3	1120.3	1124.4	1109.8	1082.0	1069.8	1058.4
170°	1154.6	1134.2	1125.2	1127.7	1132.6	1136.6	1131.8	1110.6	1089.4	1088.6	1074.7
172.5°	1135.0	1129.3	1135.8	1139.9	1139.1	1137.5	1126.0	1108.1	1098.3	1103.2	1091.8
175°	1139.9	1144.0	1134.2	1126.9	1124.4	1121.2	1116.3	1108.9	1105.7	1112.2	1108.9
177.5°	1095.9	1090.2	1091.8	1110.6	1113.8	1115.5	1114.6	1109.8	1107.3	1113.8	1115.5
180°	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9



TEST NUMBER: P188187

CATALOG NUMBER: FMB-N-4-LD4-1STD/1STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3
2.5°	1130.9	1124.4	1114.6	1109.8	1107.3	1097.5	1091.0	1089.4	1090.2	1089.4	1079.6
5°	1123.6	1106.5	1090.2	1080.4	1070.6	1051.1	1038.9	1034.0	1034.8	1038.0	1029.9
7.5°	1106.5	1078.8	1051.9	1038.9	1029.9	1016.1	1012.8	1014.4	1012.8	1004.6	981.8
10°	1082.9	1044.6	1016.9	1009.5	1007.1	1001.4	982.6	962.3	944.3	938.6	930.5
12.5°	1053.5	1012.0	992.4	990.0	985.1	955.8	924.8	914.2	917.5	916.6	888.9
15°	1021.8	982.6	969.6	959.8	943.5	906.1	894.6	888.1	864.5	845.8	835.2
17.5°	992.4	955.8	937.0	915.8	895.5	875.9	862.1	828.6	819.7	816.4	788.7
20°	958.2	924.8	894.6	870.2	858.0	844.1	805.8	795.2	783.0	753.7	739.0
22.5°	921.5	893.8	851.5	835.2	829.5	794.4	772.4	751.2	727.6	714.6	686.1
25°	886.5	858.0	812.4	802.6	792.8	752.1	734.1	701.5	687.7	649.4	627.4
27.5°	847.4	818.1	777.3	765.1	745.5	717.8	683.6	661.6	627.4	598.9	566.3
30°	809.9	774.9	741.5	721.9	704.0	673.8	644.5	607.0	577.7	537.8	513.3
32.5°	770.8	734.9	701.5	677.9	664.9	628.2	597.2	556.5	519.0	487.2	453.8
35°	730.9	693.4	659.2	637.2	625.8	587.5	546.7	505.2	471.0	430.2	387.0
37.5°	691.8	652.7	616.8	598.9	581.8	541.8	498.7	455.5	415.5	367.5	317.0
40°	651.0	613.5	575.2	557.3	538.6	495.4	451.4	411.5	359.3	305.5	264.8
42.5°	608.7	571.2	534.5	515.0	494.6	449.8	405.0	358.5	301.5	255.8	224.1
45°	567.9	528.8	493.0	471.8	453.8	405.8	361.0	308.0	254.2	218.4	189.8
47.5°	523.1	484.8	449.0	429.4	409.0	361.0	315.3	261.5	216.7	185.0	160.5
50°	479.1	440.0	404.1	385.4	362.6	317.0	270.5	220.0	180.9	154.8	135.3
52.5°	432.7	395.2	359.3	339.0	318.6	275.4	227.3	183.3	151.6	128.7	112.4
55°	387.0	349.5	312.9	295.0	273.8	233.0	187.4	153.2	123.0	105.1	91.3
57.5°	342.2	304.7	268.9	251.0	233.0	193.1	153.2	123.8	97.8	83.1	72.5
60°	297.4	259.9	225.7	208.6	190.7	155.6	122.2	97.0	76.6	64.4	55.4
62.5°	252.6	216.7	184.1	169.5	155.6	121.4	93.7	73.3	57.0	48.1	41.6
65°	210.2	176.0	146.7	132.8	120.6	90.4	69.3	52.1	40.7	34.2	30.1
67.5°	170.3	138.5	111.6	100.2	89.6	64.4	48.1	35.0	27.7	23.6	21.2
70°	132.8	103.5	79.8	70.9	61.9	42.4	31.0	22.8	18.7	16.3	14.7
72.5°	98.6	73.3	54.6	47.3	39.1	26.9	18.7	15.5	13.9	11.4	7.3
75°	68.4	47.3	34.2	28.5	22.8	15.5	12.2	9.8	4.1	1.6	0.8
77.5°	43.2	27.7	18.7	15.5	12.2	9.8	4.9	1.6	1.6	1.6	0.8
80°	23.6	14.7	9.0	8.1	6.5	1.6	1.6	1.6	1.6	1.6	0.8
82.5°	11.4	6.5	3.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8
85°	4.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
90°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
92.5°	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	7.3	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	19.6	12.2	5.7	4.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	38.3	25.3	14.7	11.4	9.0	5.7	0.0	0.0	0.0	0.0	0.0
105°	61.9	44.8	29.3	23.6	18.7	11.4	8.1	5.7	0.0	0.0	0.0
107.5°	90.4	67.6	49.7	41.6	34.2	22.0	14.7	10.6	9.0	6.5	0.0
110°	123.8	97.0	75.8	65.2	55.4	38.3	26.1	17.9	13.0	11.4	9.8



TEST NUMBER: P188187

CATALOG NUMBER: FMB-N-4-LD4-1STD/1STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	159.7	129.6	105.1	92.9	80.7	59.5	41.6	29.3	21.2	16.3	13.0
115°	199.6	167.0	138.5	125.5	111.6	85.6	61.9	45.6	32.6	26.1	21.2
117.5°	242.8	207.8	176.0	162.1	147.5	117.3	87.2	66.0	49.7	39.1	32.6
120°	286.8	251.0	215.9	200.4	185.0	153.2	115.7	90.4	70.1	56.2	46.4
122.5°	330.8	292.5	258.3	241.2	227.3	192.3	148.3	116.5	92.9	75.8	62.7
125°	378.1	339.0	303.1	284.4	269.7	234.7	186.6	146.7	119.8	99.4	83.1
127.5°	422.9	385.4	347.1	328.4	312.1	277.8	229.8	180.1	148.3	124.7	105.9
130°	468.5	431.0	392.7	371.5	354.4	320.2	274.6	218.4	178.4	150.7	130.4
132.5°	513.3	477.5	438.4	417.2	398.4	364.2	321.8	264.8	213.5	181.7	158.9
135°	558.9	522.3	484.0	464.4	444.1	408.2	368.3	317.0	259.1	215.9	188.2
137.5°	602.9	566.3	528.0	506.8	487.2	452.2	413.1	369.1	314.5	257.5	224.1
140°	645.3	607.8	570.4	550.0	530.4	493.8	455.5	417.2	372.4	313.7	265.6
142.5°	686.9	648.6	612.7	593.2	571.2	540.2	500.3	464.4	427.0	381.3	328.4
145°	728.4	689.3	655.1	637.2	616.0	585.0	546.7	511.7	479.1	441.6	401.7
147.5°	767.5	730.9	696.7	678.7	659.2	629.0	592.4	559.8	528.8	497.0	466.1
150°	807.5	770.8	737.4	721.1	701.5	672.2	638.8	606.2	577.7	546.7	520.7
152.5°	844.9	809.9	775.7	761.0	743.1	715.4	681.2	655.1	626.6	597.2	573.6
155°	883.2	846.6	814.0	797.7	783.8	755.3	726.8	699.9	674.7	649.4	624.1
157.5°	919.9	882.4	854.7	837.6	821.3	803.4	766.7	748.8	726.0	700.7	683.6
160°	953.3	912.6	892.2	876.7	857.2	840.1	814.8	784.6	770.0	752.1	728.4
162.5°	985.1	944.3	927.2	917.5	900.3	874.3	859.6	836.0	812.4	796.9	786.3
165°	1015.2	973.7	954.9	950.9	943.5	919.9	893.0	881.6	871.0	849.8	826.2
167.5°	1039.7	1003.8	978.6	974.5	971.2	965.5	938.6	915.8	902.0	896.3	888.1
170°	1062.5	1035.6	1009.5	1001.4	994.9	990.0	984.3	973.7	957.4	937.8	922.3
172.5°	1078.8	1060.0	1040.5	1033.2	1024.2	1013.6	1003.0	999.8	998.9	997.3	990.0
175°	1093.5	1080.4	1071.5	1068.2	1063.3	1058.4	1047.0	1035.6	1026.6	1020.9	1016.1
177.5°	1104.0	1089.4	1082.9	1081.2	1082.0	1086.1	1084.5	1082.0	1080.4	1078.0	1074.7
180°	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9



TEST NUMBER: P188187

CATALOG NUMBER: FMB-N-4-LD4-1STD/1STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3	1116.3
2.5°	1073.1	1073.1	1066.6	1064.9	1058.4	1054.3	1057.6	1054.3
5°	1029.1	1026.6	1026.6	1025.0	1021.8	1020.9	1021.8	1021.8
7.5°	969.6	958.2	954.9	950.9	945.2	943.5	944.3	943.5
10°	930.5	925.6	924.0	920.7	911.8	908.5	907.7	903.6
12.5°	870.2	855.5	850.6	849.0	848.2	848.2	847.4	848.2
15°	834.4	827.0	818.1	810.7	798.5	792.0	787.9	783.8
17.5°	770.8	761.8	758.6	756.1	751.2	744.7	743.1	739.0
20°	729.2	708.9	695.0	686.9	676.3	670.6	667.3	664.9
22.5°	658.4	646.9	637.2	628.2	616.8	602.1	595.6	590.7
25°	603.8	573.6	565.5	560.6	550.8	540.2	532.1	529.6
27.5°	540.2	518.2	506.0	497.8	484.0	471.0	461.2	458.7
30°	477.5	453.0	440.8	430.2	404.1	381.3	368.3	363.4
32.5°	416.4	373.2	354.4	339.8	323.5	308.0	299.8	294.1
35°	337.3	304.7	291.7	281.9	267.3	254.2	246.9	244.4
37.5°	279.5	254.2	243.6	234.7	221.6	211.8	206.1	203.7
40°	235.5	214.3	205.3	198.0	188.2	180.1	175.2	173.6
42.5°	198.8	182.5	175.2	169.5	161.3	154.8	152.4	149.9
45°	168.7	155.6	149.9	145.0	138.5	133.6	131.2	129.6
47.5°	143.4	132.0	127.9	123.8	118.1	114.1	111.6	110.8
50°	120.6	111.6	107.6	104.3	99.4	95.3	93.7	92.1
52.5°	100.2	92.1	88.8	85.6	82.3	79.0	77.4	75.8
55°	81.5	75.0	71.7	70.1	66.0	63.6	61.9	61.9
57.5°	64.4	58.7	57.0	55.4	52.1	49.7	48.1	48.1
60°	49.7	44.8	43.2	42.4	39.1	37.5	36.7	35.9
62.5°	36.7	33.4	31.8	31.0	28.5	27.7	26.9	26.1
65°	26.1	24.4	23.6	22.8	21.2	20.4	19.6	19.6
67.5°	18.7	17.1	17.1	16.3	15.5	15.5	14.7	14.7
70°	13.9	11.4	10.6	9.0	5.7	4.1	3.3	2.4
72.5°	2.4	0.8	0.8	0.8	0.8	0.8	0.8	0.0
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.8
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
90°	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
92.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110°	9.0	4.9	2.4	0.8	0.0	0.0	0.0	0.0



TEST NUMBER: P188187

CATALOG NUMBER: FMB-N-4-LD4-1STD/1STD-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	11.4	9.8	9.8	9.0	9.0	8.1	7.3	8.1
115°	17.9	15.5	13.9	13.9	12.2	11.4	10.6	11.4
117.5°	26.9	24.4	22.0	21.2	19.6	18.7	17.1	17.9
120°	39.9	35.9	33.4	31.8	29.3	27.7	26.9	26.9
122.5°	54.6	49.7	46.4	44.8	41.6	39.1	38.3	38.3
125°	72.5	66.0	61.9	60.3	57.0	55.4	53.0	53.0
127.5°	92.1	83.1	79.0	76.6	72.5	70.9	69.3	69.3
130°	114.1	103.5	97.8	94.5	90.4	88.0	85.6	85.6
132.5°	140.1	126.3	119.8	115.7	109.2	106.7	104.3	103.5
135°	168.7	153.2	145.0	139.3	132.0	127.1	124.7	123.8
137.5°	199.6	182.5	174.4	167.8	158.9	150.7	149.1	147.5
140°	235.5	215.1	207.8	198.8	189.0	180.1	178.4	176.0
142.5°	281.9	255.8	244.4	235.5	224.1	213.5	211.8	210.2
145°	353.6	312.9	298.2	283.5	267.3	257.5	250.1	249.3
147.5°	431.8	393.5	380.5	358.5	332.4	312.1	303.9	303.9
150°	494.6	466.9	457.9	445.7	425.3	409.8	394.4	391.1
152.5°	547.5	526.4	519.0	510.9	497.8	483.2	478.3	477.5
155°	602.9	584.2	579.3	569.5	557.3	545.9	543.5	545.1
157.5°	660.8	639.6	633.9	625.8	617.6	609.5	607.0	603.8
160°	709.7	698.3	695.0	687.7	677.9	669.8	661.6	659.2
162.5°	769.2	748.8	743.9	737.4	728.4	720.3	721.1	721.1
165°	809.9	800.9	800.9	797.7	795.2	792.0	784.6	786.3
167.5°	874.3	855.5	850.6	845.8	839.2	827.8	825.4	827.0
170°	909.3	901.2	900.3	900.3	901.2	897.9	895.5	898.7
172.5°	976.9	961.5	958.2	954.9	950.9	942.7	934.6	938.6
175°	1007.9	1001.4	1000.6	999.8	999.8	994.1	988.3	988.3
177.5°	1064.9	1055.2	1051.9	1054.3	1053.5	1047.0	1042.1	1041.3
180°	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9	1086.9

(END OF REPORT)