

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: P188193

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188193
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27219)
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-LD4-2STD/2STD-40-UNV-80/86
Description:
Light Source: (336) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8525.0 lumens
Efficiency: N/A
Efficacy: 61.6 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 1.19 / 1.29
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')
CIE Type: General Diffuse

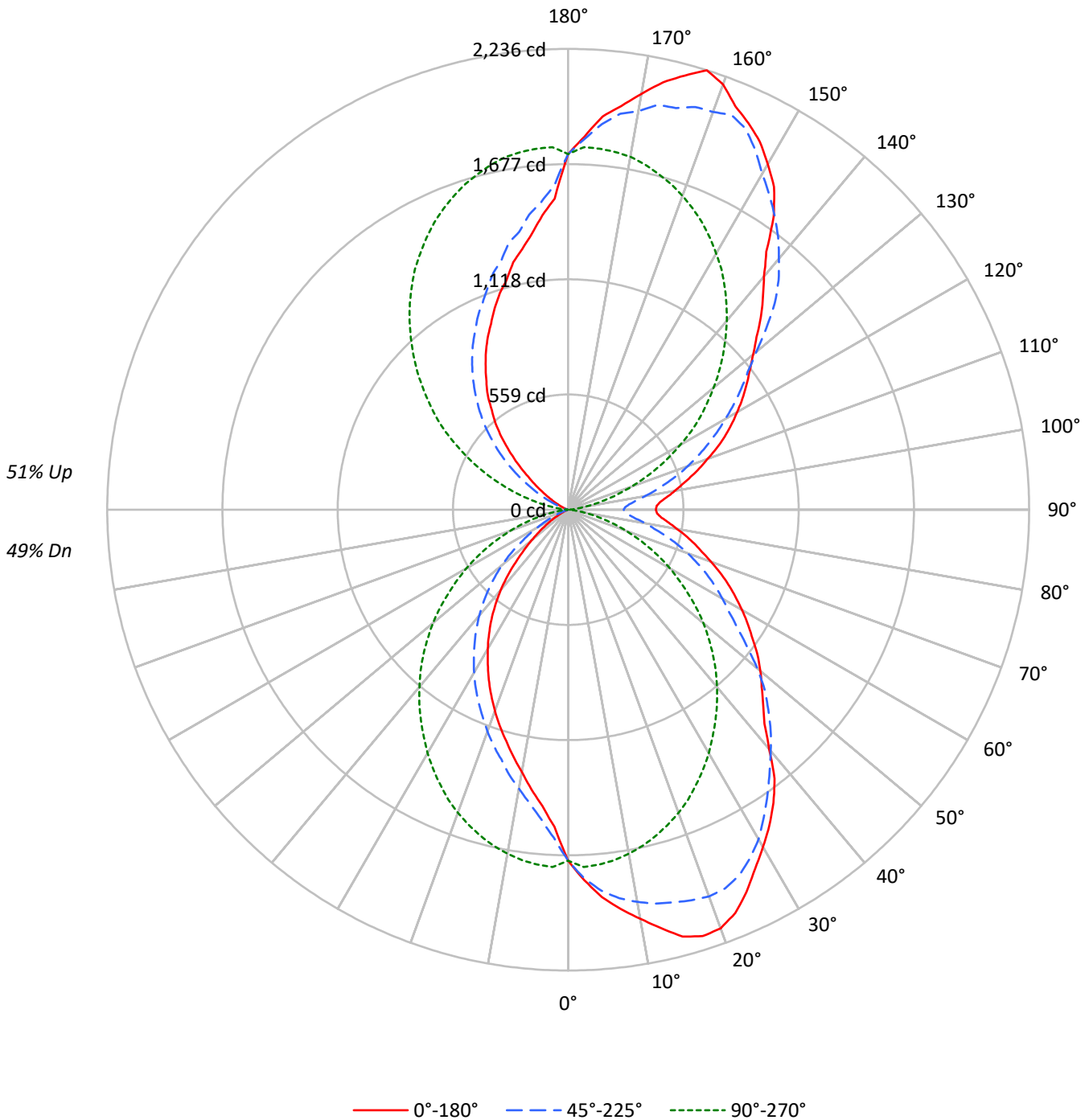
Input Watts (W): 138.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P188193

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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	49
1	97	93	89	85	90	86	82	79	72	70	68	60	58	57	49	48	46	41
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39	35
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	34	29
4	74	63	56	50	68	59	52	47	50	45	41	42	38	35	34	31	29	25
5	68	57	49	43	63	53	45	40	45	39	35	38	34	30	31	28	25	22
6	63	51	43	37	58	47	40	35	41	35	31	34	30	27	28	25	23	20
7	58	46	38	33	54	43	36	31	37	31	27	31	27	24	26	23	20	17
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	21	18	16
9	50	38	31	26	46	36	29	24	31	25	22	26	22	19	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	20	24	20	17	20	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9164	9164	9164
5°	10194	9336	7790
10°	11015	9261	7066
15°	11948	9133	6473
20°	12379	8964	5950
25°	12153	8732	5404
30°	11741	8475	4850
35°	11406	8184	4261
40°	10652	7882	3583
45°	10175	7553	2741
50°	10191	7170	1937
55°	10244	6658	1269
60°	10488	6139	693
65°	10905	5479	363
70°	11589	4680	13
75°	13146	3643	17
80°	16616	2424	25
85°	28121	1210	49



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	160.0	1.9
10°-20°	457.8	5.4
20°-30°	675.4	7.9
30°-40°	761.9	8.9
40°-50°	718.1	8.4
50°-60°	589.4	6.9
60°-70°	424.7	5.0
70°-80°	264.4	3.1
80°-90°	156.2	1.8
90°-100°	155.8	1.8
100°-110°	267.0	3.1
110°-120°	436.2	5.1
120°-130°	608.5	7.1
130°-140°	742.9	8.7
140°-150°	787.7	9.2
150°-160°	692.7	8.1
160°-170°	465.4	5.5
170°-180°	161.1	1.9
0°-30°	1293.2	15.2
0°-40°	2055.0	24.1
0°-60°	3362.5	39.4
0°-90°	4207.8	49.4
90°-120°	859.0	10.1
90°-150°	2998.0	35.2
90°-180°	4317.0	50.6
0°-180°	8525.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1703	1703	1703	1703	1703	
5°	1887	1856	1728	1506	1442	184
15°	2144	1972	1639	1254	1162	603
25°	2046	1959	1470	1030	910	940
35°	1736	1686	1246	792	648	1079
45°	1337	1372	992	545	360	1040
55°	1092	1003	710	287	135	980
65°	856	741	430	85	28	848
75°	632	488	175	6	1	669
85°	455	296	20	3	1	390
90°	425	269	3	3	1	235
95°	450	297	20	2	1	385
105°	615	489	192	10	0	653
115°	837	745	475	99	38	827
125°	1056	1025	780	311	158	946
135°	1322	1418	1062	568	405	1020
145°	1737	1745	1323	809	681	1075
155°	2069	2038	1537	1036	922	953
165°	2181	2017	1687	1252	1154	617
175°	1915	1878	1758	1499	1433	186
180°	1726	1726	1726	1726	1726	



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7
2.5°	1799.7	1800.5	1809.5	1809.5	1812.7	1808.7	1809.5	1806.2	1804.6	1807.0	1790.7
5°	1886.9	1887.7	1893.4	1889.3	1889.3	1883.6	1882.8	1874.6	1870.6	1869.8	1855.9
7.5°	1954.5	1956.1	1960.2	1956.9	1952.9	1946.3	1942.3	1933.3	1926.8	1923.5	1901.5
10°	2015.6	2015.6	2018.8	2013.1	2005.8	1997.7	1991.1	1978.9	1969.1	1960.2	1932.5
12.5°	2079.1	2077.5	2079.9	2069.4	2053.9	2044.9	2036.8	2018.8	2004.2	1987.9	1957.7
15°	2144.3	2143.5	2141.1	2133.7	2117.4	2104.4	2093.0	2063.7	2036.0	2008.3	1972.4
17.5°	2169.6	2169.6	2171.2	2166.3	2150.8	2141.9	2128.0	2100.3	2070.2	2035.1	1987.1
20°	2161.4	2162.2	2164.7	2162.2	2149.2	2141.1	2127.2	2101.9	2081.6	2043.3	1996.8
22.5°	2118.2	2119.9	2123.1	2122.3	2112.5	2103.6	2095.4	2078.3	2059.6	2029.4	1988.7
25°	2046.5	2045.7	2051.4	2056.3	2053.1	2046.5	2040.8	2024.5	2010.7	1992.8	1959.4
27.5°	1963.4	1959.4	1967.5	1969.1	1966.7	1965.1	1966.7	1954.5	1948.8	1930.0	1908.0
30°	1889.3	1884.4	1890.9	1891.8	1893.4	1890.1	1885.2	1873.0	1868.1	1864.1	1846.9
32.5°	1816.0	1813.5	1819.2	1824.1	1823.3	1818.4	1811.9	1797.2	1788.3	1780.1	1766.3
35°	1736.1	1736.1	1744.3	1750.0	1750.0	1747.5	1746.7	1726.4	1709.3	1701.1	1685.6
37.5°	1644.1	1640.8	1652.2	1663.6	1673.4	1669.3	1671.0	1653.9	1640.8	1625.3	1604.2
40°	1516.2	1513.7	1526.8	1548.8	1575.6	1580.5	1586.2	1576.5	1565.1	1550.4	1527.6
42.5°	1408.6	1409.4	1416.0	1428.2	1451.8	1457.5	1468.9	1482.8	1482.0	1473.0	1454.3
45°	1336.9	1331.2	1337.7	1343.5	1350.0	1354.0	1355.7	1364.6	1380.1	1387.4	1372.0
47.5°	1273.4	1275.0	1276.6	1274.2	1279.9	1275.0	1272.6	1264.4	1270.9	1284.8	1292.9
50°	1217.2	1212.3	1217.2	1213.9	1210.7	1207.4	1203.3	1187.0	1176.4	1177.3	1196.8
52.5°	1157.7	1152.8	1155.3	1152.8	1147.1	1143.8	1139.8	1123.5	1103.9	1086.8	1095.0
55°	1091.7	1090.9	1095.0	1091.7	1087.6	1082.7	1076.2	1058.3	1039.6	1015.1	1002.9
57.5°	1032.2	1034.7	1033.0	1032.2	1026.5	1022.5	1014.3	999.6	979.3	953.2	926.3
60°	974.4	976.8	973.6	970.3	966.2	957.3	954.0	939.4	919.8	892.9	863.6
62.5°	914.1	916.5	913.3	913.3	906.0	898.6	897.0	878.3	858.7	832.6	803.3
65°	856.3	856.3	853.0	847.3	844.0	835.9	835.1	816.3	797.6	771.5	741.4
67.5°	796.8	798.4	793.5	787.8	782.1	773.2	772.3	755.2	734.9	708.0	677.8
70°	736.5	738.1	734.1	730.0	721.0	712.9	710.4	692.5	671.3	648.5	615.9
72.5°	679.5	680.3	674.6	669.7	659.1	651.0	648.5	630.6	612.7	585.0	552.4
75°	632.2	633.8	628.1	624.1	611.8	602.9	597.2	575.2	547.5	521.4	488.0
77.5°	584.1	580.1	574.4	567.9	556.4	547.5	541.0	526.3	501.9	468.5	426.9
80°	536.1	533.6	527.1	521.4	506.7	497.8	491.3	473.3	447.3	414.7	379.7
82.5°	492.9	491.3	485.6	479.9	466.8	461.1	451.3	431.8	403.3	368.2	330.8
85°	455.4	453.0	449.7	444.0	433.4	428.5	419.6	400.0	372.3	335.7	295.7
87.5°	431.8	430.2	426.9	421.2	411.4	406.5	398.4	381.3	353.6	316.9	275.4
90°	425.3	425.3	421.2	414.7	405.7	399.2	391.9	372.3	346.3	310.4	268.9
92.5°	429.4	427.7	424.5	418.8	409.0	402.5	395.9	376.4	352.0	317.7	277.0
95°	449.7	448.1	445.6	440.8	431.0	423.6	416.3	394.3	368.2	335.7	296.6
97.5°	485.6	482.3	479.9	472.5	461.9	454.6	447.3	424.5	400.0	365.8	330.8
100°	524.7	523.0	517.3	509.2	498.6	492.1	484.8	464.4	441.6	409.8	378.8
102.5°	566.2	563.8	560.5	553.2	541.8	537.7	531.2	514.1	492.9	466.8	433.4
105°	615.1	613.5	611.0	603.7	595.6	592.3	586.6	569.5	545.0	517.3	488.8
107.5°	667.2	665.6	662.4	655.8	646.9	642.8	636.3	620.8	602.1	580.1	554.0
110°	718.6	718.6	716.1	708.0	703.1	699.0	694.9	680.3	663.2	642.8	617.5



TEST NUMBER: P188193

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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	778.9	778.0	776.4	767.5	764.2	757.7	752.8	740.6	724.3	704.7	680.3
115°	836.7	835.1	832.6	823.7	820.4	814.7	811.4	800.0	784.6	765.8	744.6
117.5°	892.1	890.5	886.4	879.1	874.2	870.9	868.5	857.1	844.0	826.1	812.3
120°	945.9	945.1	940.2	933.7	931.2	928.8	923.9	915.7	902.7	889.7	880.7
122.5°	1002.1	998.8	993.9	987.4	984.2	983.4	979.3	971.9	964.6	958.9	952.4
125°	1055.9	1053.4	1046.9	1042.8	1039.6	1037.9	1035.5	1033.9	1034.7	1029.8	1024.9
127.5°	1109.6	1109.6	1099.9	1097.4	1096.6	1098.2	1099.9	1104.7	1105.6	1103.1	1098.2
130°	1170.7	1170.7	1166.7	1161.8	1164.2	1165.8	1174.0	1178.9	1178.1	1178.1	1190.3
132.5°	1239.2	1238.4	1232.7	1238.4	1245.7	1246.5	1249.8	1253.8	1253.8	1264.4	1303.5
135°	1322.3	1323.1	1319.8	1316.6	1320.6	1323.1	1328.8	1332.0	1347.5	1391.5	1417.6
137.5°	1398.0	1398.0	1394.8	1398.0	1401.3	1400.5	1407.0	1433.1	1478.7	1505.6	1510.5
140°	1477.1	1475.4	1470.5	1473.8	1491.7	1503.9	1530.0	1571.6	1599.3	1604.2	1590.3
142.5°	1578.9	1584.6	1584.6	1609.9	1638.4	1649.8	1667.7	1688.9	1693.8	1684.8	1671.8
145°	1737.0	1745.1	1743.5	1750.0	1760.6	1765.5	1773.6	1775.2	1767.9	1761.4	1745.1
147.5°	1858.3	1857.5	1853.5	1850.2	1847.8	1846.1	1846.9	1847.8	1842.9	1828.2	1814.4
150°	1936.6	1934.1	1927.6	1919.5	1918.6	1917.0	1917.8	1912.1	1900.7	1890.9	1882.0
152.5°	2013.1	2009.1	2001.7	1987.9	1981.4	1977.3	1977.3	1972.4	1964.3	1958.6	1965.9
155°	2069.4	2063.7	2056.3	2044.1	2039.2	2036.8	2037.6	2036.0	2041.7	2048.2	2038.4
157.5°	2118.2	2114.2	2107.6	2101.9	2110.1	2111.7	2119.9	2124.8	2119.9	2101.1	2071.8
160°	2196.5	2193.2	2187.5	2179.3	2180.2	2176.9	2174.5	2167.1	2146.8	2107.6	2053.9
162.5°	2235.6	2230.7	2220.9	2207.0	2192.4	2185.0	2173.6	2141.1	2105.2	2075.1	2049.0
165°	2181.0	2174.5	2160.6	2145.9	2127.2	2121.5	2116.6	2101.9	2079.9	2051.4	2017.2
167.5°	2123.9	2123.1	2107.6	2095.4	2075.9	2071.0	2063.7	2045.7	2031.1	2022.1	2012.3
170°	2049.0	2046.5	2039.2	2035.1	2031.1	2031.1	2030.3	2022.9	2009.1	1990.3	1962.6
172.5°	1975.7	1979.7	1970.0	1966.7	1958.6	1955.3	1952.9	1945.5	1940.6	1944.7	1938.2
175°	1915.4	1916.2	1914.6	1914.6	1912.9	1911.3	1911.3	1906.4	1900.7	1895.0	1877.9
177.5°	1811.9	1814.4	1809.5	1809.5	1805.4	1803.8	1805.4	1804.6	1804.6	1806.2	1799.7
180°	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7
2.5°	1784.2	1773.6	1767.1	1763.0	1760.6	1753.3	1749.2	1748.4	1743.5	1735.3	1715.8
5°	1843.7	1832.3	1819.2	1807.0	1799.7	1789.9	1775.2	1763.0	1748.4	1728.0	1693.0
7.5°	1882.0	1862.4	1842.9	1824.1	1815.2	1806.2	1787.5	1772.0	1750.0	1715.0	1666.9
10°	1908.0	1883.6	1858.3	1831.5	1819.2	1806.2	1782.6	1766.3	1738.6	1694.6	1637.6
12.5°	1926.8	1897.5	1869.8	1839.6	1823.3	1807.0	1776.1	1750.8	1719.8	1670.2	1605.0
15°	1938.2	1902.3	1868.9	1833.1	1816.0	1798.1	1760.6	1728.8	1693.8	1639.2	1568.3
17.5°	1941.4	1897.5	1860.0	1820.1	1798.1	1778.5	1737.8	1700.3	1663.6	1603.3	1525.1
20°	1945.5	1888.5	1840.4	1794.0	1774.4	1754.1	1709.3	1669.3	1627.8	1565.1	1480.3
22.5°	1934.9	1877.1	1820.9	1770.4	1743.5	1720.7	1673.4	1630.2	1585.4	1521.1	1431.4
25°	1911.3	1858.3	1797.2	1735.3	1706.0	1680.7	1632.7	1584.6	1536.5	1470.5	1376.0
27.5°	1873.8	1821.7	1766.3	1699.5	1664.4	1636.7	1582.2	1534.9	1485.2	1418.4	1322.3
30°	1811.1	1776.1	1722.3	1658.7	1620.5	1588.7	1529.2	1479.5	1428.2	1363.8	1265.2
32.5°	1742.7	1710.1	1665.3	1605.8	1572.4	1534.9	1472.2	1424.1	1368.7	1304.3	1209.0
35°	1662.8	1640.0	1597.6	1544.7	1514.5	1479.5	1412.7	1363.0	1309.2	1245.7	1152.8
37.5°	1581.3	1562.6	1525.1	1478.7	1450.2	1418.4	1349.2	1297.8	1248.9	1185.4	1092.5
40°	1499.9	1477.9	1452.6	1407.0	1381.7	1350.8	1286.4	1231.8	1181.3	1121.9	1033.0
42.5°	1422.5	1395.6	1372.0	1339.4	1310.9	1284.0	1224.5	1165.0	1117.0	1059.1	972.8
45°	1349.2	1315.8	1291.3	1266.1	1243.2	1218.0	1160.1	1097.4	1049.3	992.3	910.0
47.5°	1275.0	1242.4	1210.7	1189.5	1173.2	1146.3	1095.8	1033.9	980.1	923.9	846.5
50°	1196.8	1172.4	1134.9	1109.6	1091.7	1075.4	1026.5	966.2	908.4	856.3	780.5
52.5°	1114.5	1099.0	1064.0	1033.9	1012.7	999.6	955.7	899.4	837.5	784.6	712.9
55°	1020.8	1022.5	989.9	958.9	936.9	921.4	882.3	829.4	764.2	709.6	644.4
57.5°	926.3	938.5	914.9	885.6	863.6	843.2	809.0	760.1	693.3	639.5	576.0
60°	845.7	850.6	840.8	811.4	791.1	766.6	732.4	687.6	623.3	570.3	506.7
62.5°	776.4	764.2	768.3	736.5	715.3	693.3	655.8	615.1	552.4	501.0	438.3
65°	710.4	687.6	675.4	661.5	643.6	620.0	579.3	542.6	483.1	430.2	372.3
67.5°	647.7	617.5	599.6	585.0	568.7	545.9	505.1	470.1	417.9	362.5	308.0
70°	583.3	551.6	523.9	506.7	496.2	472.5	432.6	397.6	349.5	297.4	245.2
72.5°	519.0	486.4	453.8	427.7	420.4	403.3	361.7	325.9	282.7	234.6	186.6
75°	454.6	421.2	388.6	354.4	346.3	333.2	294.1	259.9	219.2	175.2	134.4
77.5°	391.9	356.0	324.3	288.4	276.2	264.0	233.0	196.3	161.3	123.0	91.2
80°	341.4	298.2	262.3	228.1	214.3	201.2	173.5	141.8	107.5	78.2	54.6
82.5°	291.7	252.6	215.1	172.7	158.9	146.6	121.4	93.7	66.0	43.2	26.9
85°	253.4	213.5	172.7	136.1	120.6	106.7	77.4	55.4	35.0	19.6	11.4
87.5°	231.4	189.0	147.5	109.2	92.1	77.4	52.1	30.1	14.7	6.5	4.9
90°	224.9	181.7	140.1	101.0	83.9	68.4	41.6	21.2	9.8	3.3	3.3
92.5°	232.2	187.4	145.8	109.2	92.9	79.0	52.1	30.1	15.5	7.3	4.9
95°	255.0	213.5	172.7	136.9	121.4	109.2	79.0	55.4	38.3	20.4	13.9
97.5°	292.5	254.2	215.1	177.6	162.9	151.5	121.4	97.0	71.7	46.4	32.6
100°	346.3	303.9	261.5	231.4	220.8	209.4	176.0	149.1	116.5	84.7	62.7
102.5°	396.8	359.3	323.4	296.6	286.0	272.9	242.0	211.0	170.3	133.6	104.3
105°	459.5	423.6	392.7	365.8	356.0	342.2	315.3	278.6	233.0	191.5	154.0
107.5°	525.5	488.8	465.2	439.1	428.5	419.6	391.9	352.0	303.1	256.6	212.6
110°	590.7	563.8	538.5	514.9	507.6	501.9	470.1	428.5	377.2	325.9	276.2



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	658.3	636.3	614.3	593.9	591.5	585.8	551.6	506.7	454.6	400.0	343.0
115°	729.2	708.8	689.2	681.1	680.3	669.7	633.0	585.8	533.6	475.0	413.9
117.5°	799.2	783.7	773.2	771.5	765.0	752.0	713.7	666.4	611.8	550.7	485.6
120°	869.3	863.6	862.0	858.7	851.4	838.3	795.2	747.1	690.1	625.7	561.3
122.5°	942.6	945.1	955.7	942.6	932.8	914.9	875.0	826.1	766.6	706.4	628.1
125°	1024.1	1046.1	1047.7	1023.3	1011.1	994.8	954.8	903.5	844.0	779.7	699.8
127.5°	1117.8	1139.8	1130.0	1102.3	1086.8	1072.2	1032.2	978.5	918.2	848.9	772.3
130°	1224.5	1231.0	1211.5	1183.0	1165.0	1149.6	1109.6	1051.8	991.5	920.6	838.3
132.5°	1329.6	1314.1	1292.1	1260.4	1243.2	1227.8	1183.8	1125.1	1063.2	992.3	906.0
135°	1417.6	1394.8	1369.5	1335.3	1320.6	1306.0	1253.8	1196.8	1133.3	1061.6	973.6
137.5°	1497.4	1472.2	1443.7	1411.1	1399.7	1381.7	1323.9	1267.7	1204.1	1129.2	1039.6
140°	1574.8	1551.2	1517.8	1489.3	1473.0	1450.2	1390.7	1336.9	1270.9	1196.8	1104.7
142.5°	1652.2	1623.7	1596.0	1565.1	1542.2	1517.0	1457.5	1401.3	1337.7	1261.2	1165.8
145°	1724.7	1702.7	1677.5	1637.6	1612.3	1580.5	1521.9	1463.2	1399.7	1323.1	1225.3
147.5°	1795.6	1784.2	1750.8	1696.2	1669.3	1637.6	1580.5	1525.9	1459.1	1383.4	1283.2
150°	1877.9	1861.6	1807.8	1741.0	1714.1	1692.1	1632.7	1583.8	1517.0	1435.5	1339.4
152.5°	1953.7	1912.9	1843.7	1779.3	1759.8	1739.4	1685.6	1629.4	1575.6	1487.7	1389.9
155°	1997.7	1932.5	1862.4	1820.9	1796.4	1775.2	1734.5	1674.2	1622.9	1537.4	1441.2
157.5°	2004.2	1934.9	1890.1	1845.3	1827.4	1813.5	1766.3	1719.8	1658.7	1580.5	1487.7
160°	1997.7	1950.4	1900.7	1874.6	1864.1	1842.9	1788.3	1756.5	1690.5	1620.5	1526.8
162.5°	1999.3	1947.2	1917.8	1895.0	1877.1	1854.3	1817.6	1776.9	1712.5	1657.1	1567.5
165°	1983.8	1960.2	1926.0	1886.9	1873.8	1864.9	1842.1	1788.3	1733.7	1687.3	1600.9
167.5°	1981.4	1935.7	1904.0	1890.9	1887.7	1877.9	1839.6	1789.9	1757.3	1715.8	1631.9
170°	1932.5	1912.1	1903.2	1892.6	1881.2	1863.2	1821.7	1791.5	1773.6	1738.6	1668.5
172.5°	1919.5	1897.5	1877.1	1855.1	1842.9	1829.8	1808.7	1794.8	1781.0	1750.8	1698.7
175°	1865.7	1842.1	1827.4	1816.8	1812.7	1809.5	1800.5	1793.2	1781.0	1758.1	1725.6
177.5°	1790.7	1786.7	1794.0	1798.1	1798.1	1795.6	1789.9	1784.2	1774.4	1760.6	1746.7
180°	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7
2.5°	1688.9	1663.6	1646.5	1640.8	1635.1	1618.8	1609.9	1600.9	1593.6	1594.4	1582.2
5°	1653.9	1620.5	1592.8	1583.0	1571.6	1547.9	1532.5	1517.0	1506.4	1501.5	1485.2
7.5°	1618.0	1573.2	1537.4	1523.5	1510.5	1484.4	1465.7	1446.9	1435.5	1429.0	1411.1
10°	1579.7	1529.2	1488.5	1473.0	1458.3	1428.2	1407.0	1387.4	1373.6	1366.3	1343.5
12.5°	1539.8	1480.3	1437.1	1421.7	1405.4	1375.2	1353.2	1330.4	1319.0	1301.9	1279.9
15°	1493.4	1433.9	1386.6	1370.3	1352.4	1320.6	1295.4	1270.9	1253.8	1241.6	1220.4
17.5°	1443.7	1381.7	1336.1	1316.6	1300.3	1266.1	1237.5	1210.7	1200.9	1182.1	1159.3
20°	1393.1	1330.4	1284.0	1263.6	1244.1	1209.0	1183.0	1156.9	1144.7	1122.7	1102.3
22.5°	1339.4	1274.2	1227.8	1207.4	1188.7	1153.6	1125.9	1098.2	1086.0	1065.6	1044.5
25°	1280.7	1216.4	1170.7	1149.6	1130.8	1097.4	1069.7	1042.0	1029.8	1007.0	983.4
27.5°	1222.9	1159.3	1112.9	1093.3	1073.8	1040.4	1011.1	986.6	972.8	947.5	923.1
30°	1162.6	1101.5	1054.2	1034.7	1017.6	985.0	953.2	929.6	912.5	888.0	862.8
32.5°	1108.0	1043.6	998.8	980.1	963.8	928.8	897.8	871.7	852.2	826.9	800.9
35°	1051.0	985.8	943.4	923.9	907.6	870.9	839.1	813.1	791.9	766.6	738.9
37.5°	993.1	928.0	885.6	866.8	849.7	813.9	780.5	754.4	731.6	705.5	675.4
40°	933.7	870.1	828.6	808.2	791.9	758.5	721.8	695.8	671.3	643.6	611.0
42.5°	875.0	812.3	770.7	750.3	734.1	698.2	662.4	635.5	609.4	576.8	549.9
45°	814.7	752.0	709.6	690.1	671.3	635.5	600.4	571.1	545.0	513.3	480.7
47.5°	754.4	692.5	648.5	629.0	609.4	576.0	541.8	510.8	481.5	448.1	421.2
50°	692.5	631.4	586.6	567.0	546.7	512.5	479.0	443.2	417.9	383.7	354.4
52.5°	629.0	568.7	523.9	503.5	482.3	449.7	416.3	381.3	355.2	319.4	289.2
55°	564.6	505.1	459.5	440.8	418.8	387.0	352.8	321.8	286.8	256.6	227.3
57.5°	500.2	441.6	400.0	378.8	360.1	325.9	291.7	261.5	228.1	198.8	171.9
60°	435.9	378.8	334.8	312.8	296.6	266.4	233.8	204.5	174.3	146.6	123.8
62.5°	375.6	316.1	277.0	255.8	242.0	210.2	179.2	152.4	127.1	101.8	84.7
65°	313.7	256.6	220.0	199.6	187.4	158.1	130.4	106.7	84.7	67.6	54.6
67.5°	253.4	200.4	167.8	151.5	138.5	112.4	88.8	69.3	53.0	42.4	34.2
70°	196.3	152.4	120.6	105.9	95.3	74.1	55.4	41.6	31.8	26.1	22.8
72.5°	145.0	106.7	81.5	69.3	61.1	44.8	32.6	24.4	20.4	16.3	8.1
75°	100.2	70.1	50.5	40.7	35.8	26.1	19.6	14.7	5.7	2.4	2.4
77.5°	62.7	40.7	28.5	22.8	19.6	15.5	7.3	3.3	3.3	2.4	2.4
80°	34.2	21.2	14.7	13.0	9.8	3.3	3.3	3.3	3.3	2.4	2.4
82.5°	16.3	11.4	4.9	4.1	4.1	4.1	3.3	3.3	3.3	2.4	2.4
85°	8.1	4.1	4.1	4.1	4.1	4.1	3.3	3.3	3.3	2.4	2.4
87.5°	4.1	4.1	4.1	4.1	3.3	3.3	3.3	3.3	3.3	2.4	2.4
90°	3.3	4.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4
92.5°	4.1	4.1	4.1	4.1	4.1	3.3	3.3	3.3	3.3	2.4	2.4
95°	9.0	4.1	4.1	4.1	4.1	3.3	3.3	3.3	2.4	2.4	2.4
97.5°	18.7	13.0	4.1	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4
100°	39.1	25.3	17.1	16.3	13.0	3.3	3.3	3.3	2.4	2.4	2.4
102.5°	70.9	46.4	32.6	27.7	22.8	18.7	9.8	3.3	2.4	2.4	2.4
105°	110.8	78.2	56.2	48.9	41.6	30.1	24.4	20.4	9.8	2.4	1.6
107.5°	159.7	118.1	90.4	79.0	67.6	52.1	39.1	31.0	26.1	22.8	13.9
110°	215.1	165.4	131.2	118.1	105.9	83.1	65.2	50.5	39.1	32.6	29.3



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	275.4	219.2	179.2	163.8	147.5	123.0	101.0	81.5	64.4	51.3	42.4
115°	339.7	278.6	234.6	216.7	200.4	171.1	144.2	120.6	99.4	80.7	66.8
117.5°	405.7	341.4	294.1	274.6	254.2	224.9	195.5	168.6	143.4	119.8	101.0
120°	473.3	406.5	357.7	336.5	314.5	283.5	252.6	221.6	193.1	167.0	144.2
122.5°	541.8	473.3	423.6	403.3	381.3	345.4	312.8	280.3	248.5	220.8	195.5
125°	611.0	541.0	490.5	467.6	446.5	409.8	375.6	342.2	311.2	280.3	253.4
127.5°	677.8	608.6	557.3	532.0	511.6	474.2	438.3	404.9	375.6	342.2	315.3
130°	744.6	675.4	624.1	598.0	576.0	537.7	502.7	468.5	439.1	406.5	379.7
132.5°	809.8	742.2	690.9	664.0	642.0	602.1	567.0	532.0	501.0	471.7	444.8
135°	873.4	807.4	754.4	728.3	704.7	664.8	629.0	594.7	567.9	535.3	506.7
137.5°	936.9	870.9	813.1	787.8	765.0	722.6	688.4	655.8	628.1	598.0	571.1
140°	997.2	930.4	873.4	848.1	823.7	779.7	747.9	716.1	688.4	659.1	633.0
142.5°	1055.9	989.1	930.4	907.6	881.5	839.1	806.6	775.6	748.7	721.0	694.9
145°	1112.1	1046.1	991.5	963.0	940.2	894.5	861.1	831.0	809.0	779.7	755.2
147.5°	1168.3	1102.3	1049.3	1018.4	998.0	949.1	918.2	889.7	866.8	840.8	813.9
150°	1222.1	1157.7	1108.0	1077.9	1051.8	1005.3	974.4	943.4	924.7	896.2	871.7
152.5°	1276.6	1213.9	1161.0	1133.3	1105.6	1064.8	1024.9	1003.7	976.8	956.5	924.7
155°	1324.7	1270.1	1213.9	1192.7	1165.0	1115.3	1082.7	1054.2	1036.3	1006.2	985.8
157.5°	1375.2	1321.5	1259.5	1240.0	1222.1	1165.8	1139.0	1109.6	1085.2	1070.5	1037.1
160°	1419.2	1372.0	1313.3	1287.2	1271.8	1229.4	1185.4	1169.9	1143.8	1117.0	1099.0
162.5°	1462.4	1410.3	1365.4	1336.9	1315.8	1286.4	1248.9	1215.5	1205.8	1187.0	1151.2
165°	1503.9	1451.0	1417.6	1394.0	1367.1	1326.3	1306.8	1280.7	1252.2	1233.5	1218.0
167.5°	1540.6	1483.6	1457.5	1444.5	1425.7	1382.6	1351.6	1336.9	1327.2	1305.2	1267.7
170°	1585.4	1521.9	1490.1	1480.3	1469.7	1442.0	1411.1	1382.6	1368.7	1357.3	1340.2
172.5°	1630.2	1569.9	1530.8	1517.8	1505.6	1486.0	1471.4	1457.5	1444.5	1427.4	1397.2
175°	1679.9	1625.3	1587.1	1571.6	1556.9	1529.2	1511.3	1500.7	1499.1	1494.2	1480.3
177.5°	1723.9	1693.0	1662.0	1650.6	1640.0	1616.4	1598.5	1579.7	1571.6	1558.5	1545.5
180°	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7	1702.7
2.5°	1576.5	1570.8	1561.8	1556.9	1551.2	1549.6	1541.4	1539.8
5°	1477.1	1468.9	1460.8	1455.1	1451.8	1448.5	1442.0	1442.0
7.5°	1401.3	1393.1	1385.8	1380.9	1376.9	1374.4	1367.1	1367.9
10°	1332.9	1319.8	1312.5	1307.6	1304.3	1301.1	1293.8	1292.9
12.5°	1268.5	1256.3	1248.1	1242.4	1239.2	1236.7	1228.6	1227.8
15°	1208.2	1194.4	1187.0	1181.3	1175.6	1171.5	1163.4	1161.8
17.5°	1147.9	1134.9	1128.4	1122.7	1116.1	1110.4	1103.1	1101.5
20°	1089.3	1074.6	1066.5	1060.7	1055.9	1046.1	1039.6	1038.8
22.5°	1028.2	1011.9	1003.7	998.8	992.3	982.5	976.8	975.2
25°	967.1	949.1	941.8	936.9	928.0	919.0	911.7	910.0
27.5°	906.8	888.0	879.9	873.4	865.2	853.0	845.7	844.0
30°	844.0	825.3	816.3	809.0	800.0	788.6	782.1	780.5
32.5°	781.3	762.6	753.6	747.1	735.7	723.5	716.9	714.5
35°	717.8	699.0	690.1	682.7	668.9	655.8	651.0	648.5
37.5°	653.4	631.4	625.7	616.7	606.1	592.3	584.1	578.4
40°	587.4	567.0	558.1	549.9	536.1	519.8	511.6	510.0
42.5°	523.0	501.9	491.3	483.1	465.2	450.5	438.3	435.1
45°	455.4	433.4	421.2	410.6	390.2	374.8	363.4	360.1
47.5°	387.8	361.7	348.7	338.1	319.4	303.9	294.1	291.7
50°	319.4	294.1	281.9	272.1	254.2	241.2	233.0	231.4
52.5°	259.1	232.2	221.6	212.6	198.0	187.4	180.9	179.2
55°	196.3	176.8	168.6	161.3	149.1	140.9	136.1	135.2
57.5°	148.3	130.4	124.7	118.1	108.4	101.8	97.0	97.8
60°	105.9	91.2	86.4	82.3	75.0	69.3	66.8	64.4
62.5°	70.9	61.1	57.0	54.6	48.9	46.4	43.2	43.2
65°	45.6	39.1	36.7	35.0	31.8	30.1	28.5	28.5
67.5°	29.3	26.1	25.3	24.4	22.0	21.2	19.6	20.4
70°	19.6	13.9	11.4	9.0	4.9	2.4	1.6	0.8
72.5°	3.3	1.6	1.6	1.6	1.6	0.8	0.8	0.8
75°	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8
77.5°	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8
80°	2.4	1.6	1.6	1.6	1.6	0.8	0.8	0.8
82.5°	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8
85°	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8
87.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
90°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
92.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
95°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
97.5°	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8
100°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
102.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
105°	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.0
107.5°	6.5	3.3	1.6	0.8	0.8	0.8	0.8	0.0
110°	26.9	25.3	20.4	16.3	11.4	9.8	6.5	7.3



TEST NUMBER: P188193

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	36.7	35.0	32.6	31.0	30.1	29.3	28.5	27.7
115°	57.0	52.1	46.4	43.2	41.6	39.9	38.3	38.3
117.5°	87.2	79.0	70.1	66.0	62.7	57.8	55.4	55.4
120°	125.5	114.1	102.7	97.0	92.1	85.5	83.1	82.3
122.5°	172.7	157.2	142.6	136.1	129.5	121.4	118.9	116.5
125°	228.1	210.2	190.6	183.3	174.3	163.8	158.9	158.1
127.5°	289.2	271.3	253.4	239.5	228.1	215.1	207.8	205.3
130°	354.4	336.5	318.6	304.7	291.7	276.2	267.2	264.0
132.5°	419.6	403.3	387.0	372.3	360.9	346.3	338.1	334.0
135°	487.2	469.3	453.0	439.1	428.5	415.5	408.2	404.9
137.5°	548.3	536.1	519.0	506.7	496.2	483.9	476.6	479.0
140°	614.3	601.3	584.1	572.7	563.8	551.6	545.0	548.3
142.5°	677.8	664.8	649.3	637.9	629.8	619.2	611.8	608.6
145°	738.9	727.5	711.2	703.9	692.5	684.4	677.8	681.1
147.5°	800.0	784.6	772.3	765.8	756.0	747.1	741.4	738.1
150°	854.6	845.7	834.3	826.1	817.2	807.4	804.1	800.9
152.5°	912.5	901.9	890.5	881.5	874.2	868.5	866.0	864.4
155°	971.9	957.3	947.5	941.0	934.5	928.0	925.5	922.2
157.5°	1023.3	1018.4	1007.8	1002.9	992.3	984.2	980.1	977.6
160°	1088.4	1073.0	1059.9	1053.4	1046.9	1042.8	1042.8	1042.0
162.5°	1135.7	1126.7	1119.4	1117.0	1112.1	1106.4	1102.3	1101.5
165°	1206.6	1193.5	1179.7	1172.4	1166.7	1155.3	1152.0	1153.6
167.5°	1253.0	1243.2	1234.3	1232.7	1231.0	1227.8	1227.8	1230.2
170°	1332.9	1324.7	1308.4	1306.8	1301.9	1286.4	1281.5	1284.0
172.5°	1385.8	1376.9	1363.0	1361.4	1358.9	1350.8	1348.3	1349.2
175°	1472.2	1468.1	1454.3	1455.1	1451.8	1437.1	1432.3	1433.1
177.5°	1542.2	1542.2	1522.7	1525.9	1528.4	1512.9	1509.7	1510.5
180°	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6	1725.6

(END OF REPORT)