

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: P392707

Luminaire Tested: **MWL-4-66-45-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392707  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-1 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-4-66-45-UNV-L835-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

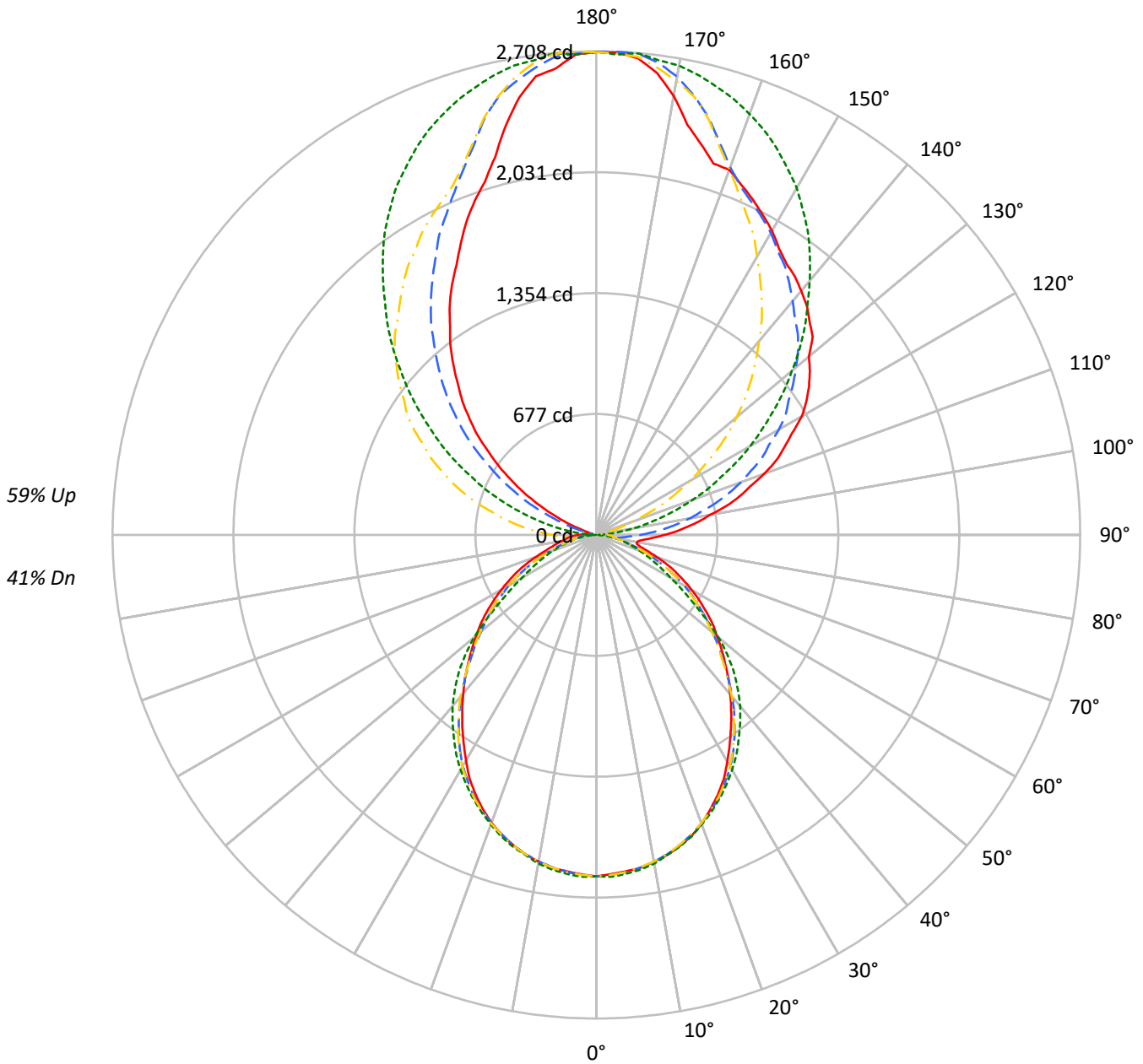
Lumens per Lamp: N/A  
Luminaire Lumens: 10932.0 lumens  
Efficiency: N/A  
Efficacy: 83.8 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 130.4  
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: P392707  
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### Luminous Intensity Polar Plot



— 0°-180°    - - 45°-225°    - - - 90°-270°    - - - 135°-315°



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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	50	30	10	0	
RCR																						
0	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41				
1	96	92	88	84	87	84	80	77	69	66	64	55	53	52	42	41	40	35				
2	87	80	74	69	79	73	68	64	60	57	54	49	46	44	38	36	34	29				
3	80	71	64	58	73	65	59	54	54	49	45	43	40	37	34	31	30	25				
4	73	63	55	49	66	58	51	46	48	43	39	39	35	32	30	28	26	22				
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	27	25	23	19				
6	62	50	42	37	56	46	39	34	39	33	29	31	28	25	25	22	20	17				
7	57	45	38	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15				
8	53	41	34	28	48	38	31	27	32	27	23	26	22	19	21	18	16	14				
9	49	38	30	25	45	35	28	24	29	24	21	24	20	18	19	17	14	12				
10	46	34	27	23	42	32	26	21	27	22	19	22	19	16	18	15	13	11				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	12350	12350	12350	12350
5°	12147	11358	12147	11358
10°	11967	10420	11967	10420
15°	11734	9524	11697	9524
20°	11399	8696	11361	8696
25°	10918	7923	10879	7923
30°	10312	7183	10258	7183
35°	9653	6443	9611	6443
40°	9042	5738	8983	5738
45°	8436	4976	8388	4976
50°	7877	4090	7825	4090
55°	7347	3057	7310	3057
60°	6741	2267	6720	2267
65°	6100	1724	6100	1724
70°	5237	1292	5263	1292
75°	4537	932	4639	932
80°	5389	597	4538	597
85°	9454	281	5253	281



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	180.1	1.6
10°-20°	507.8	4.6
20°-30°	744.6	6.8
30°-40°	843.4	7.7
40°-50°	794.7	7.3
50°-60°	635.0	5.8
60°-70°	417.9	3.8
70°-80°	215.5	2.0
80°-90°	139.6	1.3
90°-100°	216.4	2.0
100°-110°	418.6	3.8
110°-120°	718.2	6.6
120°-130°	975.8	8.9
130°-140°	1113.2	10.2
140°-150°	1110.4	10.2
150°-160°	967.0	8.8
160°-170°	680.3	6.2
170°-180°	253.4	2.3
0°-30°	1432.6	13.1
0°-40°	2276.0	20.8
0°-60°	3705.7	33.9
0°-90°	4478.6	41.0
90°-120°	1353.3	12.4
90°-150°	4552.7	41.6
90°-180°	6453.0	59.0
0°-180°	10932.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1912	1912	1912	1912	1912	
5°	1891	1905	1891	1905	1891	180
15°	1804	1806	1798	1806	1804	508
25°	1606	1630	1601	1630	1606	738
35°	1314	1390	1308	1390	1314	822
45°	1020	1090	1014	1090	1020	789
55°	750	659	746	659	750	672
65°	488	355	488	355	488	482
75°	252	177	258	177	252	284
85°	280	47	155	47	280	219
90°	380	3	94	3	380	210
95°	508	77	55	77	508	445
105°	827	377	23	377	827	871
115°	1160	772	266	772	1160	1152
125°	1453	1209	660	1209	1453	1297
135°	1688	1650	1061	1650	1688	1303
145°	1854	2066	1428	2066	1854	1169
155°	2072	2389	1797	2389	2072	956
165°	2265	2599	2190	2599	2265	642
175°	2678	2707	2621	2707	2678	250
180°	2704	2704	2704	2704	2704	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2
2.5°	1900.6	1908.4	1905.2	1917.0	1916.0	1915.1	1905.2	1908.4	1902.5	1908.4	1905.2
5°	1890.8	1898.6	1896.4	1904.3	1905.2	1904.3	1894.5	1898.6	1890.8	1898.6	1894.5
7.5°	1880.9	1883.7	1878.8	1890.5	1890.5	1888.6	1876.9	1881.8	1880.9	1881.8	1876.9
10°	1858.3	1863.1	1858.2	1869.0	1869.0	1867.1	1856.3	1859.2	1858.3	1859.2	1856.3
12.5°	1835.5	1835.6	1831.7	1840.6	1835.6	1840.6	1831.7	1831.7	1831.7	1831.7	1831.7
15°	1804.0	1801.2	1799.3	1809.1	1806.2	1807.1	1797.3	1797.3	1798.3	1797.3	1797.3
17.5°	1767.6	1764.8	1761.0	1769.8	1770.8	1769.8	1759.0	1762.9	1761.9	1762.9	1759.0
20°	1721.4	1719.5	1719.7	1726.6	1725.7	1724.7	1717.7	1715.7	1715.7	1715.7	1717.7
22.5°	1664.4	1670.3	1670.5	1681.3	1679.5	1679.5	1668.6	1666.6	1660.7	1666.6	1668.6
25°	1606.5	1613.3	1623.3	1631.2	1630.3	1629.4	1619.4	1607.6	1600.8	1607.6	1619.4
27.5°	1542.6	1550.4	1560.4	1580.1	1576.3	1578.1	1556.5	1544.7	1536.9	1544.7	1556.5
30°	1465.9	1477.7	1500.3	1521.0	1519.3	1517.2	1494.6	1472.0	1458.3	1472.0	1494.6
32.5°	1389.2	1401.0	1428.6	1456.2	1459.2	1452.3	1422.9	1393.5	1381.7	1393.5	1422.9
35°	1313.7	1321.5	1349.0	1389.3	1389.5	1383.6	1343.3	1315.8	1308.0	1315.8	1343.3
37.5°	1239.0	1240.9	1267.5	1315.6	1322.6	1309.9	1261.8	1235.2	1233.3	1235.2	1261.8
40°	1166.2	1161.3	1183.9	1232.2	1251.8	1228.4	1176.3	1153.7	1158.6	1153.7	1176.3
42.5°	1095.5	1084.7	1091.6	1150.6	1171.3	1146.8	1085.8	1077.0	1087.8	1077.0	1085.8
45°	1019.9	1007.1	1007.1	1060.2	1089.7	1056.4	999.4	1001.3	1014.1	1001.3	999.4
47.5°	951.1	935.4	928.5	971.7	996.3	969.9	920.8	929.6	945.3	929.6	920.8
50°	881.3	868.5	848.9	874.4	892.2	870.6	841.2	860.9	875.5	860.9	841.2
52.5°	821.4	803.7	776.1	785.0	772.3	781.2	770.4	796.0	815.6	796.0	770.4
55°	749.6	739.8	706.4	695.7	659.3	691.8	700.7	734.1	745.8	734.1	700.7
57.5°	684.7	678.8	636.6	599.3	564.9	595.5	630.9	673.1	680.9	673.1	630.9
60°	616.0	613.1	567.9	511.9	479.4	510.0	564.1	609.3	614.1	609.3	564.1
62.5°	550.2	546.3	496.1	429.3	414.7	427.4	492.3	542.4	548.2	542.4	492.3
65°	488.3	477.5	425.4	358.5	354.7	356.7	423.5	475.6	488.3	475.6	423.5
67.5°	422.4	405.7	356.6	298.7	303.6	298.7	354.7	403.8	422.4	403.8	354.7
70°	356.7	335.1	295.7	248.6	256.4	248.6	295.7	336.9	358.5	336.9	295.7
72.5°	298.7	274.1	238.7	203.3	214.2	201.4	238.7	276.0	302.5	276.0	238.7
75°	252.5	224.0	186.6	161.1	176.8	161.1	188.6	225.9	258.2	225.9	188.6
77.5°	232.3	189.4	143.4	124.7	142.4	124.7	145.4	183.6	224.8	183.6	145.4
80°	230.5	185.7	119.7	93.3	107.0	93.3	115.9	155.1	194.1	155.1	115.9
82.5°	245.8	200.1	122.0	66.7	75.6	66.7	99.1	131.4	173.3	131.4	99.1
85°	279.5	239.7	149.3	57.8	47.1	54.0	93.9	123.2	155.3	123.2	93.9
87.5°	325.6	292.7	189.9	75.6	15.7	48.8	81.0	109.4	128.9	109.4	81.0
90°	380.5	352.5	247.9	103.9	2.9	31.4	58.8	83.2	94.0	83.2	58.8
92.5°	446.8	421.0	308.7	152.3	31.5	20.5	47.0	67.6	72.4	67.6	47.0
95°	507.5	497.1	380.1	204.5	77.3	13.6	36.2	54.0	54.8	54.0	36.2
97.5°	579.9	571.2	452.3	268.4	136.6	23.9	30.2	46.0	45.0	46.0	30.2
100°	644.5	641.6	528.4	350.6	209.1	64.0	22.2	41.8	42.8	41.8	22.2
102.5°	744.5	718.7	600.8	428.8	287.5	119.4	31.6	31.0	33.9	31.0	31.6
105°	827.4	797.7	693.5	511.0	377.3	193.9	76.5	29.8	23.2	29.8	76.5
107.5°	903.6	883.6	777.5	596.0	472.7	280.9	141.4	73.6	47.9	73.6	141.4
110°	998.2	975.3	859.6	680.0	573.1	372.5	215.9	134.7	104.2	134.7	215.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	1089.9	1072.7	936.1	768.0	676.3	471.9	307.6	211.1	182.5	211.1	307.6
115°	1160.5	1151.0	1023.9	850.1	771.7	584.6	408.9	300.9	266.5	300.9	408.9
117.5°	1235.0	1233.1	1088.9	934.1	886.3	685.8	502.4	390.7	354.4	390.7	502.4
120°	1328.6	1313.4	1179.6	1018.2	995.2	792.8	606.6	493.9	457.6	493.9	606.6
122.5°	1393.6	1384.0	1256.0	1098.4	1098.4	901.7	705.9	593.1	555.0	593.1	705.9
125°	1452.7	1448.9	1313.4	1178.6	1209.2	1002.9	816.6	702.0	660.1	702.0	816.6
127.5°	1506.2	1512.0	1387.9	1267.5	1321.9	1107.1	925.5	799.4	755.5	799.4	925.5
130°	1552.1	1571.2	1458.5	1347.7	1428.9	1219.7	1022.9	896.9	868.2	896.9	1022.9
132.5°	1641.8	1630.4	1531.1	1429.8	1543.5	1322.9	1126.1	994.3	961.8	994.3	1126.1
135°	1687.7	1691.6	1594.2	1500.5	1650.5	1426.0	1223.5	1093.6	1061.2	1093.6	1223.5
137.5°	1743.1	1731.7	1643.8	1586.5	1749.7	1525.4	1319.1	1198.7	1147.2	1198.7	1319.1
140°	1783.3	1781.3	1708.8	1662.9	1856.8	1622.8	1416.5	1294.2	1246.4	1294.2	1416.5
142.5°	1825.2	1836.7	1773.6	1746.9	1963.7	1726.0	1521.5	1387.9	1342.0	1387.9	1521.5
145°	1853.9	1878.7	1838.6	1852.0	2065.9	1840.6	1613.2	1477.6	1428.0	1477.6	1613.2
147.5°	1901.7	1934.1	1886.4	1926.5	2152.8	1941.8	1704.9	1571.2	1527.2	1571.2	1704.9
150°	1966.6	1981.9	1953.2	2029.7	2243.5	2054.4	1798.5	1661.0	1617.1	1661.0	1798.5
152.5°	2018.2	2037.2	2004.8	2142.3	2314.3	2157.6	1901.7	1748.9	1697.3	1748.9	1901.7
155°	2071.6	2079.3	2056.4	2251.2	2388.8	2258.9	1983.8	1846.3	1796.6	1846.3	1983.8
157.5°	2121.4	2136.6	2109.9	2333.4	2453.7	2346.7	2077.4	1943.7	1899.7	1943.7	2077.4
160°	2174.8	2174.8	2190.1	2428.9	2507.2	2423.1	2176.7	2050.7	1989.6	2050.7	2176.7
162.5°	2180.5	2216.8	2299.0	2495.7	2558.7	2490.0	2283.7	2127.1	2073.6	2127.1	2283.7
165°	2264.6	2297.1	2421.2	2554.9	2598.8	2549.2	2415.5	2253.2	2190.1	2253.2	2415.5
167.5°	2352.4	2421.2	2520.6	2621.8	2637.1	2604.6	2516.8	2404.0	2346.7	2404.0	2516.8
170°	2494.7	2554.9	2604.6	2646.6	2667.6	2648.6	2579.8	2524.3	2487.1	2524.3	2579.8
172.5°	2607.5	2646.6	2665.8	2692.5	2680.1	2671.5	2637.1	2610.3	2590.3	2610.3	2637.1
175°	2678.1	2686.7	2703.9	2694.4	2706.8	2684.8	2686.7	2700.1	2620.8	2700.1	2686.7
177.5°	2702.9	2717.3	2707.7	2690.5	2692.5	2688.7	2696.3	2703.9	2691.5	2703.9	2696.3
180°	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1912.2	1912.2	1912.2	1912.2	1912.2	1912.2
2.5°	1915.1	1916.0	1917.0	1905.2	1908.4	1900.6
5°	1904.3	1905.2	1904.3	1896.4	1898.6	1890.8
7.5°	1888.6	1890.5	1890.5	1878.8	1883.7	1880.9
10°	1867.1	1869.0	1869.0	1858.2	1863.1	1858.3
12.5°	1840.6	1835.6	1840.6	1831.7	1835.6	1835.5
15°	1807.1	1806.2	1809.1	1799.3	1801.2	1804.0
17.5°	1769.8	1770.8	1769.8	1761.0	1764.8	1767.6
20°	1724.7	1725.7	1726.6	1719.7	1719.5	1721.4
22.5°	1679.5	1679.5	1681.3	1670.5	1670.3	1664.4
25°	1629.4	1630.3	1631.2	1623.3	1613.3	1606.5
27.5°	1578.1	1576.3	1580.1	1560.4	1550.4	1542.6
30°	1517.2	1519.3	1521.0	1500.3	1477.7	1465.9
32.5°	1452.3	1459.2	1456.2	1428.6	1401.0	1389.2
35°	1383.6	1389.5	1389.3	1349.0	1321.5	1313.7
37.5°	1309.9	1322.6	1315.6	1267.5	1240.9	1239.0
40°	1228.4	1251.8	1232.2	1183.9	1161.3	1166.2
42.5°	1146.8	1171.3	1150.6	1091.6	1084.7	1095.5
45°	1056.4	1089.7	1060.2	1007.1	1007.1	1019.9
47.5°	969.9	996.3	971.7	928.5	935.4	951.1
50°	870.6	892.2	874.4	848.9	868.5	881.3
52.5°	781.2	772.3	785.0	776.1	803.7	821.4
55°	691.8	659.3	695.7	706.4	739.8	749.6
57.5°	595.5	564.9	599.3	636.6	678.8	684.7
60°	510.0	479.4	511.9	567.9	613.1	616.0
62.5°	427.4	414.7	429.3	496.1	546.3	550.2
65°	356.7	354.7	358.5	425.4	477.5	488.3
67.5°	298.7	303.6	298.7	356.6	405.7	422.4
70°	248.6	256.4	248.6	295.7	335.1	356.7
72.5°	201.4	214.2	203.3	238.7	274.1	298.7
75°	161.1	176.8	161.1	186.6	224.0	252.5
77.5°	124.7	142.4	124.7	143.4	189.4	232.3
80°	93.3	107.0	93.3	119.7	185.7	230.5
82.5°	66.7	75.6	66.7	122.0	200.1	245.8
85°	54.0	47.1	57.8	149.3	239.7	279.5
87.5°	48.8	15.7	75.6	189.9	292.7	325.6
90°	31.4	2.9	103.9	247.9	352.5	380.5
92.5°	20.5	31.5	152.3	308.7	421.0	446.8
95°	13.6	77.3	204.5	380.1	497.1	507.5
97.5°	23.9	136.6	268.4	452.3	571.2	579.9
100°	64.0	209.1	350.6	528.4	641.6	644.5
102.5°	119.4	287.5	428.8	600.8	718.7	744.5
105°	193.9	377.3	511.0	693.5	797.7	827.4
107.5°	280.9	472.7	596.0	777.5	883.6	903.6
110°	372.5	573.1	680.0	859.6	975.3	998.2





TEST NUMBER: P392707

CATALOG NUMBER: MWL-4-66-45-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	471.9	676.3	768.0	936.1	1072.7	1089.9
115°	584.6	771.7	850.1	1023.9	1151.0	1160.5
117.5°	685.8	886.3	934.1	1088.9	1233.1	1235.0
120°	792.8	995.2	1018.2	1179.6	1313.4	1328.6
122.5°	901.7	1098.4	1098.4	1256.0	1384.0	1393.6
125°	1002.9	1209.2	1178.6	1313.4	1448.9	1452.7
127.5°	1107.1	1321.9	1267.5	1387.9	1512.0	1506.2
130°	1219.7	1428.9	1347.7	1458.5	1571.2	1552.1
132.5°	1322.9	1543.5	1429.8	1531.1	1630.4	1641.8
135°	1426.0	1650.5	1500.5	1594.2	1691.6	1687.7
137.5°	1525.4	1749.7	1586.5	1643.8	1731.7	1743.1
140°	1622.8	1856.8	1662.9	1708.8	1781.3	1783.3
142.5°	1726.0	1963.7	1746.9	1773.6	1836.7	1825.2
145°	1840.6	2065.9	1852.0	1838.6	1878.7	1853.9
147.5°	1941.8	2152.8	1926.5	1886.4	1934.1	1901.7
150°	2054.4	2243.5	2029.7	1953.2	1981.9	1966.6
152.5°	2157.6	2314.3	2142.3	2004.8	2037.2	2018.2
155°	2258.9	2388.8	2251.2	2056.4	2079.3	2071.6
157.5°	2346.7	2453.7	2333.4	2109.9	2136.6	2121.4
160°	2423.1	2507.2	2428.9	2190.1	2174.8	2174.8
162.5°	2490.0	2558.7	2495.7	2299.0	2216.8	2180.5
165°	2549.2	2598.8	2554.9	2421.2	2297.1	2264.6
167.5°	2604.6	2637.1	2621.8	2520.6	2421.2	2352.4
170°	2648.6	2667.6	2646.6	2604.6	2554.9	2494.7
172.5°	2671.5	2680.1	2692.5	2665.8	2646.6	2607.5
175°	2684.8	2706.8	2694.4	2703.9	2686.7	2678.1
177.5°	2688.7	2692.5	2690.5	2707.7	2717.3	2702.9
180°	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9

(END OF REPORT)