

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: P392711

Luminaire Tested: **MWL-4-66-60-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392711  
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-4-66-60-UNV-L940-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

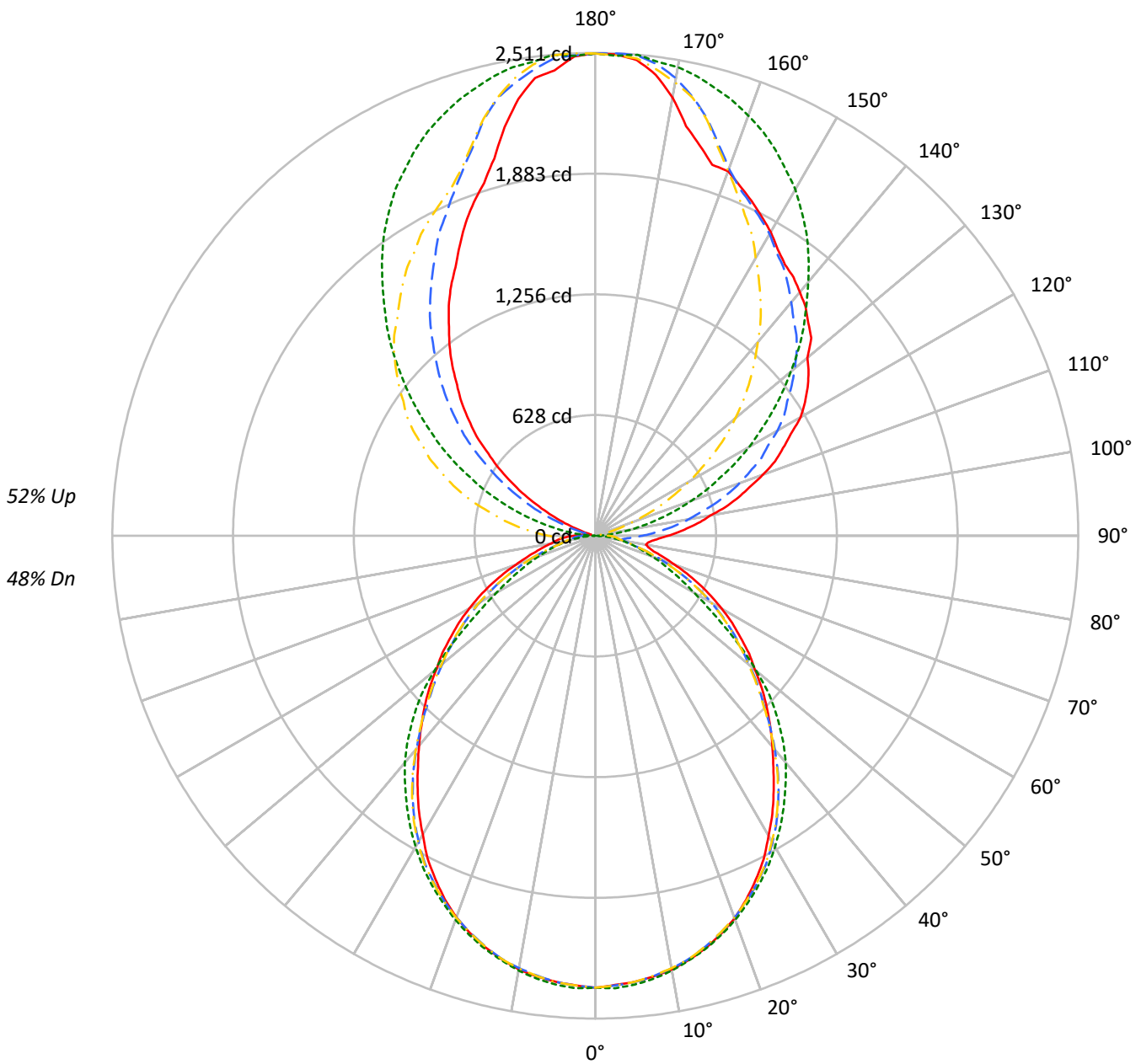
Lumens per Lamp: N/A  
Luminaire Lumens: 11491.6 lumens  
Efficiency: N/A  
Efficacy: 76.1 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 150.995  
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



— 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	0
RCR																		
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54	48
1	97	93	89	86	89	86	83	80	72	70	68	60	58	56	48	47	46	40
2	89	82	76	71	82	75	70	66	64	60	56	53	50	48	43	41	39	34
3	81	72	65	59	75	67	60	55	56	52	48	47	43	41	38	36	34	29
4	75	64	56	50	68	59	52	47	50	45	41	42	38	35	34	31	29	26
5	68	57	49	43	63	53	46	41	45	40	36	38	34	31	31	28	26	22
6	63	51	43	38	58	48	41	35	41	35	31	34	30	27	28	25	23	20
7	58	46	39	33	54	43	36	31	37	31	27	31	27	24	26	23	20	18
8	54	42	35	29	50	39	32	28	34	28	24	29	24	21	24	21	18	16
9	51	39	31	26	47	36	29	25	31	26	22	26	22	19	22	19	17	14
10	47	35	28	23	44	33	27	22	29	23	20	24	20	17	20	17	15	13

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

	0°	90°	180°	270°
0°	15179	15179	15179	15179
5°	14966	13967	14966	13967
10°	14748	12803	14748	12803
15°	14440	11721	14405	11721
20°	14018	10714	13983	10714
25°	13414	9754	13378	9754
30°	12668	8830	12618	8830
35°	11874	7925	11835	7925
40°	11109	7066	11054	7066
45°	10421	6107	10376	6107
50°	9680	5007	9631	5007
55°	9017	3772	8982	3772
60°	8293	2803	8272	2803
65°	7452	2125	7452	2125
70°	6405	1574	6432	1574
75°	5629	1143	5725	1143
80°	6252	741	5464	741
85°	10060	336	6163	336



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	221.5	1.9
10°-20°	624.7	5.4
20°-30°	916.1	8.0
30°-40°	1037.6	9.0
40°-50°	977.7	8.5
50°-60°	782.1	6.8
60°-70°	514.0	4.5
70°-80°	264.1	2.3
80°-90°	156.6	1.4
90°-100°	210.3	1.8
100°-110°	389.9	3.4
110°-120°	666.3	5.8
120°-130°	905.3	7.9
130°-140°	1032.6	9.0
140°-150°	1030.0	9.0
150°-160°	896.8	7.8
160°-170°	630.9	5.5
170°-180°	235.0	2.0
0°-30°	1762.4	15.3
0°-40°	2799.9	24.4
0°-60°	4559.7	39.7
0°-90°	5494.4	47.8
90°-120°	1266.6	11.0
90°-150°	4234.4	36.8
90°-180°	5997.0	52.2
0°-180°	11491.6	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2350	2350	2350	2350	2350	
5°	2330	2343	2330	2343	2330	221
15°	2220	2223	2215	2223	2220	625
25°	1974	2007	1969	2007	1974	907
35°	1616	1709	1611	1709	1616	1011
45°	1260	1337	1254	1337	1260	972
55°	920	813	916	813	920	825
65°	597	437	597	437	597	590
75°	313	217	319	217	313	349
85°	297	56	182	56	297	238
90°	377	3	112	3	377	208
95°	487	72	67	72	487	424
105°	770	351	24	351	770	811
115°	1077	715	248	715	1077	1068
125°	1348	1122	613	1122	1348	1203
135°	1566	1531	985	1531	1566	1208
145°	1720	1915	1326	1915	1720	1084
155°	1921	2215	1666	2215	1921	886
165°	2100	2410	2031	2410	2100	596
175°	2483	2510	2430	2510	2483	231
180°	2507	2507	2507	2507	2507	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3
2.5°	2338.6	2346.7	2341.1	2354.7	2355.6	2352.9	2341.1	2346.7	2340.3	2346.7	2341.1
5°	2329.5	2336.7	2331.0	2342.0	2342.9	2342.0	2329.3	2336.7	2329.5	2336.7	2329.3
7.5°	2312.1	2319.3	2310.2	2324.7	2323.8	2322.9	2308.5	2317.6	2312.1	2317.6	2308.5
10°	2290.2	2290.1	2284.7	2296.5	2296.5	2294.8	2282.9	2286.6	2290.2	2286.6	2282.9
12.5°	2258.2	2258.3	2253.8	2262.9	2260.2	2262.9	2253.8	2254.7	2254.7	2254.7	2253.8
15°	2219.9	2215.4	2211.9	2224.6	2222.8	2222.8	2210.1	2211.9	2214.6	2211.9	2210.1
17.5°	2171.6	2169.9	2165.4	2176.3	2177.3	2176.3	2163.6	2168.1	2166.3	2168.1	2163.6
20°	2116.9	2116.0	2114.4	2126.2	2126.3	2124.5	2112.6	2112.6	2111.7	2112.6	2112.6
22.5°	2048.6	2055.9	2056.1	2070.7	2068.0	2068.9	2054.3	2052.4	2045.1	2052.4	2054.3
25°	1973.9	1980.3	1992.2	2008.7	2007.0	2007.0	1988.7	1975.0	1968.6	1975.0	1988.7
27.5°	1895.5	1904.7	1923.0	1944.9	1942.3	1943.1	1919.4	1899.4	1890.3	1899.4	1919.4
30°	1800.8	1812.6	1841.8	1871.0	1867.6	1867.5	1836.5	1807.3	1793.8	1807.3	1836.5
32.5°	1713.3	1722.4	1756.1	1794.5	1791.9	1790.9	1750.9	1715.4	1706.3	1715.4	1750.9
35°	1615.9	1625.0	1659.7	1708.9	1709.0	1703.6	1654.4	1619.8	1610.6	1619.8	1654.4
37.5°	1520.3	1525.7	1560.3	1618.7	1625.1	1613.4	1555.1	1520.4	1515.0	1520.4	1555.1
40°	1432.8	1427.3	1451.0	1517.6	1541.3	1514.1	1443.9	1420.2	1425.7	1420.2	1443.9
42.5°	1345.3	1334.4	1344.5	1412.8	1442.9	1409.3	1339.1	1327.3	1338.2	1327.3	1339.1
45°	1259.8	1236.1	1237.0	1301.7	1337.2	1298.1	1229.9	1230.7	1254.4	1230.7	1229.9
47.5°	1174.1	1151.4	1142.2	1189.6	1229.7	1187.9	1135.1	1146.0	1168.8	1146.0	1135.1
50°	1083.0	1068.4	1044.8	1076.6	1092.2	1073.1	1037.7	1061.3	1077.6	1061.3	1037.7
52.5°	1007.4	989.2	953.6	966.4	957.4	962.9	948.4	982.1	1002.0	982.1	948.4
55°	919.9	909.9	870.7	850.8	813.4	847.2	865.5	904.6	916.4	904.6	865.5
57.5°	843.4	835.2	785.1	741.5	693.2	737.9	779.8	829.9	839.9	829.9	779.8
60°	757.9	757.9	697.7	628.5	592.9	626.7	694.2	754.3	756.0	754.3	694.2
62.5°	676.8	674.0	610.3	528.3	511.9	526.5	606.7	670.5	674.9	670.5	606.7
65°	596.6	583.8	521.9	442.6	437.2	440.9	520.1	582.1	596.6	582.1	520.1
67.5°	514.6	499.1	438.1	367.1	375.3	367.1	436.3	497.4	514.6	497.4	436.3
70°	436.3	414.5	364.3	303.3	312.4	303.3	364.3	416.2	438.1	416.2	364.3
72.5°	372.5	337.0	293.3	248.6	261.4	246.8	293.3	338.7	376.1	338.7	293.3
75°	313.3	273.2	226.8	198.5	216.8	198.5	228.6	275.0	318.6	275.0	228.6
77.5°	283.7	231.1	177.6	153.9	173.9	153.9	179.4	225.8	276.7	225.8	179.4
80°	267.4	215.8	146.5	114.7	132.9	114.7	143.0	187.5	233.7	187.5	143.0
82.5°	275.2	224.7	141.3	82.8	91.9	82.8	120.1	161.0	208.0	161.0	120.1
85°	297.4	253.2	162.1	69.1	56.4	65.5	110.7	145.2	182.2	145.2	110.7
87.5°	331.9	298.7	195.2	82.8	18.2	58.0	94.2	128.7	149.6	128.7	94.2
90°	377.3	348.7	245.3	105.4	2.6	38.2	70.0	99.0	111.7	99.0	70.0
92.5°	434.2	408.4	298.9	144.9	29.2	22.7	56.3	80.9	87.2	80.9	56.3
95°	486.9	476.3	361.4	190.5	71.7	13.5	42.6	65.5	67.2	65.5	42.6
97.5°	550.3	541.4	425.7	249.7	126.6	23.1	34.3	54.5	54.5	54.5	34.3
100°	606.6	603.0	492.5	325.9	194.8	60.2	23.3	46.9	48.7	46.9	23.3
102.5°	694.7	670.8	557.9	398.4	267.4	111.6	30.2	33.3	36.0	33.3	30.2
105°	769.7	741.3	643.8	474.6	350.7	180.7	71.8	29.4	24.2	29.4	71.8
107.5°	839.5	820.0	721.7	552.5	439.2	260.4	132.0	69.2	46.2	69.2	132.0
110°	926.2	905.0	797.8	630.4	531.3	345.3	201.1	125.8	97.5	125.8	201.1



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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°	1011.2	995.3	868.6	711.9	626.9	437.4	286.1	196.6	170.1	196.6	286.1
115°	1076.7	1067.0	950.1	788.0	715.4	541.9	379.9	279.0	248.0	279.0	379.9
117.5°	1145.8	1143.1	1010.3	866.8	822.5	636.7	466.7	362.2	329.5	362.2	466.7
120°	1232.5	1218.4	1093.5	944.8	923.5	735.8	562.3	458.7	425.1	458.7	562.3
122.5°	1292.8	1283.9	1164.3	1019.2	1019.2	836.8	654.4	550.8	515.4	550.8	654.4
125°	1347.6	1344.1	1218.4	1093.5	1121.8	930.6	757.9	651.7	612.8	651.7	757.9
127.5°	1397.2	1402.5	1287.5	1175.0	1226.3	1026.3	858.9	742.0	701.3	742.0	858.9
130°	1439.7	1457.4	1353.0	1249.3	1325.5	1130.7	949.2	832.4	805.8	832.4	949.2
132.5°	1522.9	1512.3	1420.2	1326.4	1431.7	1227.3	1044.8	922.7	892.5	922.7	1044.8
135°	1565.5	1569.0	1478.7	1391.9	1530.9	1322.8	1135.1	1014.7	984.6	1014.7	1135.1
137.5°	1616.7	1606.2	1524.7	1471.6	1622.9	1414.9	1223.7	1112.1	1064.3	1112.1	1223.7
140°	1654.0	1652.2	1584.9	1542.4	1722.2	1505.2	1314.0	1200.6	1156.4	1200.6	1314.0
142.5°	1692.9	1704.5	1645.1	1620.3	1821.3	1600.9	1411.4	1288.4	1244.9	1288.4	1411.4
145°	1720.4	1743.4	1705.3	1717.7	1915.1	1707.1	1496.4	1371.6	1325.6	1371.6	1496.4
147.5°	1764.7	1794.8	1749.6	1786.8	1996.6	1801.0	1581.4	1458.3	1417.6	1458.3	1581.4
150°	1823.9	1838.1	1811.5	1882.4	2079.8	1905.4	1668.1	1540.7	1499.9	1540.7	1668.1
152.5°	1871.8	1889.4	1859.4	1986.8	2145.4	2001.0	1763.8	1622.1	1574.3	1622.1	1763.8
155°	1921.3	1928.4	1907.2	2087.8	2215.3	2094.9	1839.9	1712.4	1666.4	1712.4	1839.9
157.5°	1967.4	1981.6	1956.8	2164.0	2275.5	2176.3	1926.7	1802.7	1762.0	1802.7	1926.7
160°	2017.0	2017.0	2031.1	2252.5	2325.1	2247.1	2018.7	1901.9	1845.3	1901.9	2018.7
162.5°	2022.3	2055.9	2132.1	2314.5	2372.9	2309.2	2117.9	1972.7	1923.1	1972.7	2117.9
165°	2100.2	2130.3	2245.4	2369.3	2410.0	2364.0	2240.1	2089.6	2031.1	2089.6	2240.1
167.5°	2181.6	2245.4	2337.5	2432.3	2446.4	2416.3	2334.0	2229.5	2176.3	2229.5	2334.0
170°	2313.6	2369.3	2415.4	2454.3	2474.7	2456.1	2392.4	2341.0	2306.4	2341.0	2392.4
172.5°	2417.1	2454.3	2472.1	2497.8	2485.4	2478.3	2445.5	2420.7	2401.2	2420.7	2445.5
175°	2482.7	2491.5	2507.4	2499.5	2510.2	2490.7	2491.5	2503.9	2429.5	2503.9	2491.5
177.5°	2505.6	2519.8	2511.0	2496.0	2497.8	2494.2	2500.4	2507.4	2495.0	2507.4	2500.4
180°	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2350.3	2350.3	2350.3	2350.3	2350.3	2350.3
2.5°	2352.9	2355.6	2354.7	2341.1	2346.7	2338.6
5°	2342.0	2342.9	2342.0	2331.0	2336.7	2329.5
7.5°	2322.9	2323.8	2324.7	2310.2	2319.3	2312.1
10°	2294.8	2296.5	2296.5	2284.7	2290.1	2290.2
12.5°	2262.9	2260.2	2262.9	2253.8	2258.3	2258.2
15°	2222.8	2222.8	2224.6	2211.9	2215.4	2219.9
17.5°	2176.3	2177.3	2176.3	2165.4	2169.9	2171.6
20°	2124.5	2126.3	2126.2	2114.4	2116.0	2116.9
22.5°	2068.9	2068.0	2070.7	2056.1	2055.9	2048.6
25°	2007.0	2007.0	2008.7	1992.2	1980.3	1973.9
27.5°	1943.1	1942.3	1944.9	1923.0	1904.7	1895.5
30°	1867.5	1867.6	1871.0	1841.8	1812.6	1800.8
32.5°	1790.9	1791.9	1794.5	1756.1	1722.4	1713.3
35°	1703.6	1709.0	1708.9	1659.7	1625.0	1615.9
37.5°	1613.4	1625.1	1618.7	1560.3	1525.7	1520.3
40°	1514.1	1541.3	1517.6	1451.0	1427.3	1432.8
42.5°	1409.3	1442.9	1412.8	1344.5	1334.4	1345.3
45°	1298.1	1337.2	1301.7	1237.0	1236.1	1259.8
47.5°	1187.9	1229.7	1189.6	1142.2	1151.4	1174.1
50°	1073.1	1092.2	1076.6	1044.8	1068.4	1083.0
52.5°	962.9	957.4	966.4	953.6	989.2	1007.4
55°	847.2	813.4	850.8	870.7	909.9	919.9
57.5°	737.9	693.2	741.5	785.1	835.2	843.4
60°	626.7	592.9	628.5	697.7	757.9	757.9
62.5°	526.5	511.9	528.3	610.3	674.0	676.8
65°	440.9	437.2	442.6	521.9	583.8	596.6
67.5°	367.1	375.3	367.1	438.1	499.1	514.6
70°	303.3	312.4	303.3	364.3	414.5	436.3
72.5°	246.8	261.4	248.6	293.3	337.0	372.5
75°	198.5	216.8	198.5	226.8	273.2	313.3
77.5°	153.9	173.9	153.9	177.6	231.1	283.7
80°	114.7	132.9	114.7	146.5	215.8	267.4
82.5°	82.8	91.9	82.8	141.3	224.7	275.2
85°	65.5	56.4	69.1	162.1	253.2	297.4
87.5°	58.0	18.2	82.8	195.2	298.7	331.9
90°	38.2	2.6	105.4	245.3	348.7	377.3
92.5°	22.7	29.2	144.9	298.9	408.4	434.2
95°	13.5	71.7	190.5	361.4	476.3	486.9
97.5°	23.1	126.6	249.7	425.7	541.4	550.3
100°	60.2	194.8	325.9	492.5	603.0	606.6
102.5°	111.6	267.4	398.4	557.9	670.8	694.7
105°	180.7	350.7	474.6	643.8	741.3	769.7
107.5°	260.4	439.2	552.5	721.7	820.0	839.5
110°	345.3	531.3	630.4	797.8	905.0	926.2





TEST NUMBER: P392711

CATALOG NUMBER: MWL-4-66-60-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	437.4	626.9	711.9	868.6	995.3	1011.2
115°	541.9	715.4	788.0	950.1	1067.0	1076.7
117.5°	636.7	822.5	866.8	1010.3	1143.1	1145.8
120°	735.8	923.5	944.8	1093.5	1218.4	1232.5
122.5°	836.8	1019.2	1019.2	1164.3	1283.9	1292.8
125°	930.6	1121.8	1093.5	1218.4	1344.1	1347.6
127.5°	1026.3	1226.3	1175.0	1287.5	1402.5	1397.2
130°	1130.7	1325.5	1249.3	1353.0	1457.4	1439.7
132.5°	1227.3	1431.7	1326.4	1420.2	1512.3	1522.9
135°	1322.8	1530.9	1391.9	1478.7	1569.0	1565.5
137.5°	1414.9	1622.9	1471.6	1524.7	1606.2	1616.7
140°	1505.2	1722.2	1542.4	1584.9	1652.2	1654.0
142.5°	1600.9	1821.3	1620.3	1645.1	1704.5	1692.9
145°	1707.1	1915.1	1717.7	1705.3	1743.4	1720.4
147.5°	1801.0	1996.6	1786.8	1749.6	1794.8	1764.7
150°	1905.4	2079.8	1882.4	1811.5	1838.1	1823.9
152.5°	2001.0	2145.4	1986.8	1859.4	1889.4	1871.8
155°	2094.9	2215.3	2087.8	1907.2	1928.4	1921.3
157.5°	2176.3	2275.5	2164.0	1956.8	1981.6	1967.4
160°	2247.1	2325.1	2252.5	2031.1	2017.0	2017.0
162.5°	2309.2	2372.9	2314.5	2132.1	2055.9	2022.3
165°	2364.0	2410.0	2369.3	2245.4	2130.3	2100.2
167.5°	2416.3	2446.4	2432.3	2337.5	2245.4	2181.6
170°	2456.1	2474.7	2454.3	2415.4	2369.3	2313.6
172.5°	2478.3	2485.4	2497.8	2472.1	2454.3	2417.1
175°	2490.7	2510.2	2499.5	2507.4	2491.5	2482.7
177.5°	2494.2	2497.8	2496.0	2511.0	2519.8	2505.6
180°	2507.4	2507.4	2507.4	2507.4	2507.4	2507.4

(END OF REPORT)