

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: P392709

Luminaire Tested: **MWL-4-66-60-UNV-L930-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392709  
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-L930-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10660.2 lumens  
Efficiency: N/A  
Efficacy: 70.6 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

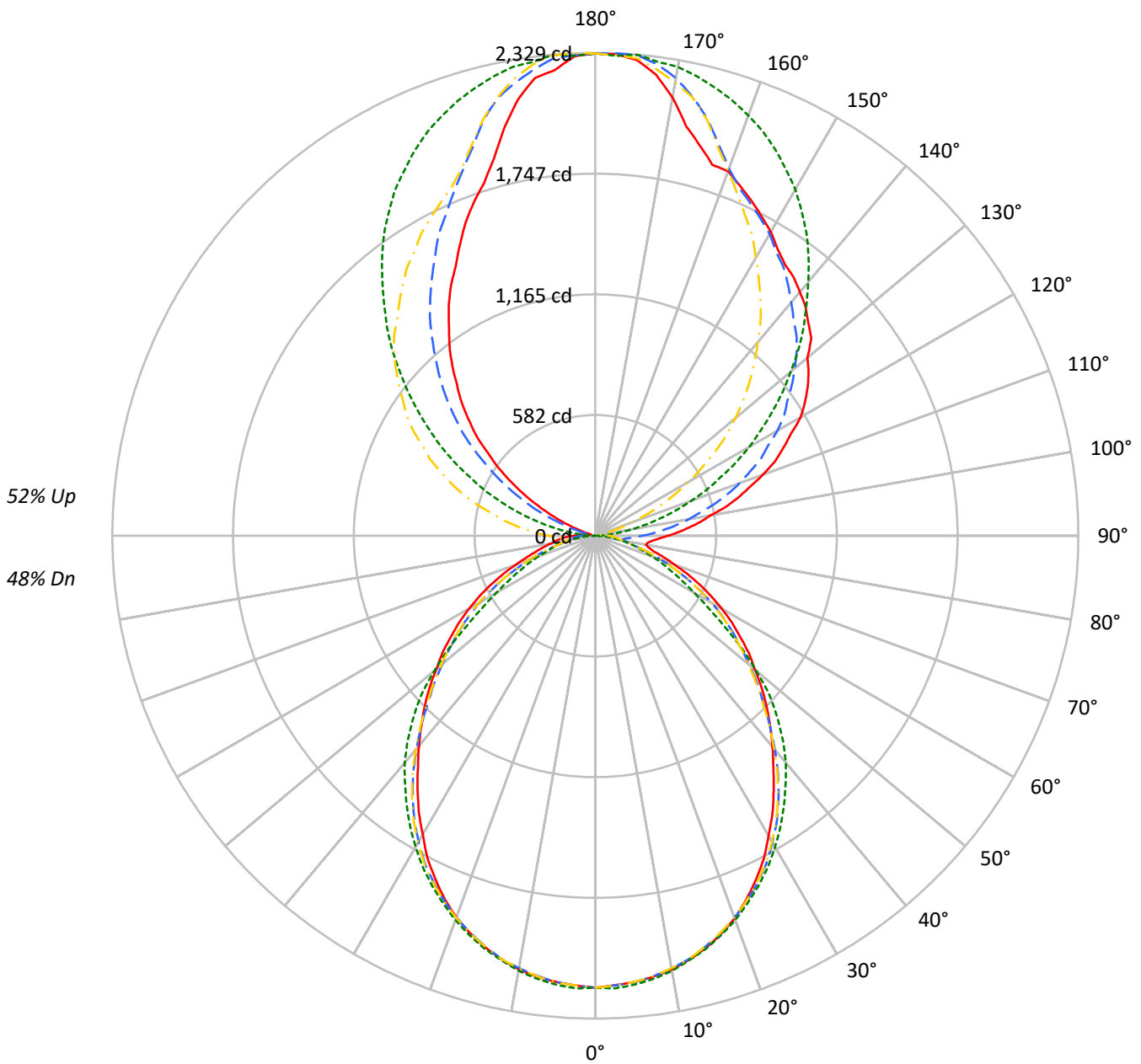
Input Watts (W): 150.995  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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									
RC	80									70									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	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°	14080	14080	14080	14080
5°	13883	12957	13883	12957
10°	13682	11877	13682	11877
15°	13395	10873	13363	10873
20°	13004	9939	12971	9939
25°	12444	9048	12411	9048
30°	11751	8191	11705	8191
35°	11016	7352	10979	7352
40°	10305	6554	10253	6554
45°	9666	5665	9626	5665
50°	8980	4645	8935	4645
55°	8365	3499	8332	3499
60°	7693	2600	7674	2600
65°	6913	1971	6913	1971
70°	5943	1460	5966	1460
75°	5223	1060	5311	1060
80°	5798	687	5069	687
85°	9333	312	5720	312



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	205.5	1.9
10°-20°	579.5	5.4
20°-30°	849.8	8.0
30°-40°	962.5	9.0
40°-50°	907.0	8.5
50°-60°	725.5	6.8
60°-70°	476.8	4.5
70°-80°	245.0	2.3
80°-90°	145.3	1.4
90°-100°	195.1	1.8
100°-110°	361.7	3.4
110°-120°	618.1	5.8
120°-130°	839.8	7.9
130°-140°	957.9	9.0
140°-150°	955.5	9.0
150°-160°	832.0	7.8
160°-170°	585.3	5.5
170°-180°	218.0	2.0
0°-30°	1634.8	15.3
0°-40°	2597.4	24.4
0°-60°	4229.8	39.7
0°-90°	5096.9	47.8
90°-120°	1174.9	11.0
90°-150°	3928.1	36.8
90°-180°	5563.0	52.2
0°-180°	10660.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2180	2180	2180	2180	2180	
5°	2161	2173	2161	2173	2161	205
15°	2059	2062	2054	2062	2059	580
25°	1831	1862	1826	1862	1831	842
35°	1499	1585	1494	1585	1499	938
45°	1169	1240	1164	1240	1169	901
55°	853	755	850	755	853	765
65°	553	406	553	406	553	547
75°	291	201	296	201	291	324
85°	276	52	169	52	276	220
90°	350	2	104	2	350	193
95°	452	66	62	66	452	393
105°	714	325	22	325	714	752
115°	999	664	230	664	999	991
125°	1250	1041	568	1041	1250	1116
135°	1452	1420	913	1420	1452	1121
145°	1596	1777	1230	1777	1596	1006
155°	1782	2055	1546	2055	1782	822
165°	1948	2236	1884	2236	1948	553
175°	2303	2329	2254	2329	2303	215
180°	2326	2326	2326	2326	2326	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2
2.5°	2169.4	2176.9	2171.7	2184.3	2185.2	2182.7	2171.7	2176.9	2171.0	2176.9	2171.7
5°	2160.9	2167.6	2162.4	2172.5	2173.4	2172.5	2160.7	2167.6	2160.9	2167.6	2160.7
7.5°	2144.8	2151.5	2143.0	2156.5	2155.6	2154.8	2141.5	2149.9	2144.8	2149.9	2141.5
10°	2124.6	2124.5	2119.4	2130.4	2130.4	2128.8	2117.8	2121.1	2124.6	2121.1	2117.8
12.5°	2094.8	2094.9	2090.7	2099.2	2096.6	2099.2	2090.7	2091.5	2091.5	2091.5	2090.7
15°	2059.3	2055.2	2051.8	2063.7	2062.0	2062.0	2050.2	2051.8	2054.4	2051.8	2050.2
17.5°	2014.5	2012.9	2008.8	2018.9	2019.7	2018.9	2007.0	2011.2	2009.6	2011.2	2007.0
20°	1963.8	1962.9	1961.4	1972.4	1972.5	1970.8	1959.7	1959.7	1958.8	1959.7	1959.7
22.5°	1900.4	1907.2	1907.3	1920.8	1918.4	1919.2	1905.7	1903.9	1897.2	1903.9	1905.7
25°	1831.1	1837.0	1848.1	1863.4	1861.7	1861.7	1844.7	1832.1	1826.2	1832.1	1844.7
27.5°	1758.4	1766.8	1783.8	1804.2	1801.8	1802.6	1780.5	1762.0	1753.5	1762.0	1780.5
30°	1670.5	1681.5	1708.5	1735.6	1732.5	1732.4	1703.6	1676.6	1664.0	1676.6	1703.6
32.5°	1589.4	1597.8	1629.1	1664.7	1662.2	1661.4	1624.2	1591.3	1582.9	1591.3	1624.2
35°	1499.1	1507.5	1539.6	1585.3	1585.4	1580.3	1534.7	1502.6	1494.1	1502.6	1534.7
37.5°	1410.3	1415.3	1447.5	1501.5	1507.6	1496.7	1442.5	1410.5	1405.4	1410.5	1442.5
40°	1329.1	1324.1	1346.0	1407.8	1429.8	1404.5	1339.4	1317.5	1322.5	1317.5	1339.4
42.5°	1248.0	1237.9	1247.2	1310.6	1338.5	1307.4	1242.2	1231.3	1241.4	1231.3	1242.2
45°	1168.6	1146.7	1147.5	1207.5	1240.4	1204.2	1141.0	1141.7	1163.7	1141.7	1141.0
47.5°	1089.2	1068.0	1059.6	1103.5	1140.8	1101.9	1053.0	1063.0	1084.2	1063.0	1053.0
50°	1004.7	991.2	969.2	998.8	1013.2	995.5	962.6	984.6	999.7	984.6	962.6
52.5°	934.5	917.6	884.6	896.5	888.1	893.2	879.7	911.1	929.5	911.1	879.7
55°	853.4	844.0	807.8	789.2	754.6	785.9	802.8	839.2	850.1	839.2	802.8
57.5°	782.4	774.8	728.3	687.8	643.0	684.5	723.4	769.9	779.1	769.9	723.4
60°	703.0	703.0	647.3	583.0	550.0	581.4	643.9	699.7	701.3	699.7	643.9
62.5°	627.8	625.2	566.1	490.0	474.9	488.4	562.8	622.0	626.1	622.0	562.8
65°	553.4	541.6	484.1	410.6	405.6	409.0	482.5	540.0	553.4	540.0	482.5
67.5°	477.3	463.0	406.4	340.5	348.1	340.5	404.8	461.4	477.3	461.4	404.8
70°	404.8	384.5	338.0	281.3	289.8	281.3	338.0	386.1	406.4	386.1	338.0
72.5°	345.6	312.7	272.1	230.7	242.5	228.9	272.1	314.3	348.9	314.3	272.1
75°	290.7	253.5	210.4	184.2	201.1	184.2	212.0	255.1	295.6	255.1	212.0
77.5°	263.2	214.4	164.7	142.7	161.3	142.7	166.4	209.5	256.7	209.5	166.4
80°	248.0	200.2	135.9	106.4	123.3	106.4	132.6	173.9	216.8	173.9	132.6
82.5°	255.3	208.4	131.1	76.9	85.3	76.9	111.4	149.3	192.9	149.3	111.4
85°	275.9	234.9	150.4	64.1	52.3	60.8	102.7	134.7	169.1	134.7	102.7
87.5°	307.9	277.1	181.0	76.9	16.9	53.8	87.4	119.4	138.8	119.4	87.4
90°	350.0	323.4	227.5	97.8	2.5	35.4	64.9	91.8	103.6	91.8	64.9
92.5°	402.8	378.9	277.3	134.4	27.1	21.0	52.2	75.0	80.9	75.0	52.2
95°	451.7	441.8	335.3	176.7	66.5	12.5	39.5	60.8	62.3	60.8	39.5
97.5°	510.5	502.2	394.9	231.7	117.5	21.4	31.9	50.5	50.5	50.5	31.9
100°	562.7	559.4	456.9	302.4	180.7	55.8	21.7	43.5	45.3	43.5	21.7
102.5°	644.4	622.2	517.5	369.6	248.0	103.5	28.1	30.8	33.4	30.8	28.1
105°	714.0	687.7	597.2	440.2	325.3	167.6	66.6	27.3	22.5	27.3	66.6
107.5°	778.7	760.7	669.4	512.5	407.4	241.5	122.5	64.2	42.9	64.2	122.5
110°	859.2	839.6	740.1	584.7	492.8	320.3	186.5	116.8	90.4	116.8	186.5



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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°	938.1	923.3	805.8	660.5	581.6	405.7	265.4	182.4	157.8	182.4	265.4
115°	998.8	989.8	881.4	731.0	663.6	502.7	352.5	258.8	230.1	258.8	352.5
117.5°	1062.9	1060.4	937.2	804.1	763.0	590.6	432.9	336.0	305.6	336.0	432.9
120°	1143.3	1130.3	1014.4	876.4	856.6	682.6	521.6	425.5	394.4	425.5	521.6
122.5°	1199.2	1191.1	1080.0	945.4	945.4	776.2	607.0	511.0	478.1	511.0	607.0
125°	1250.1	1246.8	1130.3	1014.4	1040.7	863.2	703.1	604.6	568.5	604.6	703.1
127.5°	1296.1	1301.1	1194.3	1090.0	1137.6	952.0	796.8	688.3	650.5	688.3	796.8
130°	1335.5	1351.9	1255.1	1158.9	1229.5	1048.9	880.5	772.2	747.5	772.2	880.5
132.5°	1412.8	1402.9	1317.5	1230.4	1328.1	1138.5	969.3	855.9	827.9	855.9	969.3
135°	1452.2	1455.5	1371.7	1291.2	1420.2	1227.2	1053.0	941.3	913.4	941.3	1053.0
137.5°	1499.8	1490.0	1414.4	1365.1	1505.5	1312.6	1135.1	1031.6	987.3	1031.6	1135.1
140°	1534.4	1532.7	1470.3	1430.8	1597.6	1396.3	1218.9	1113.7	1072.7	1113.7	1218.9
142.5°	1570.5	1581.2	1526.1	1503.1	1689.5	1485.1	1309.3	1195.2	1154.9	1195.2	1309.3
145°	1596.0	1617.2	1581.9	1593.4	1776.6	1583.6	1388.1	1272.3	1229.6	1272.3	1388.1
147.5°	1637.0	1664.9	1623.0	1657.5	1852.1	1670.7	1467.0	1352.8	1315.0	1352.8	1467.0
150°	1692.0	1705.2	1680.4	1746.2	1929.3	1767.5	1547.5	1429.2	1391.5	1429.2	1547.5
152.5°	1736.3	1752.7	1724.8	1843.1	1990.1	1856.3	1636.1	1504.8	1460.4	1504.8	1636.1
155°	1782.3	1788.9	1769.2	1936.7	2055.1	1943.4	1706.8	1588.5	1545.8	1588.5	1706.8
157.5°	1825.1	1838.2	1815.2	2007.4	2110.8	2018.9	1787.3	1672.2	1634.5	1672.2	1787.3
160°	1871.1	1871.1	1884.2	2089.5	2156.9	2084.6	1872.6	1764.3	1711.8	1764.3	1872.6
162.5°	1876.0	1907.2	1977.8	2147.0	2201.2	2142.1	1964.7	1829.9	1784.0	1829.9	1964.7
165°	1948.2	1976.2	2082.9	2197.9	2235.7	2193.0	2078.1	1938.4	1884.2	1938.4	2078.1
167.5°	2023.8	2082.9	2168.4	2256.3	2269.4	2241.5	2165.1	2068.1	2018.9	2068.1	2165.1
170°	2146.1	2197.9	2240.7	2276.7	2295.6	2278.5	2219.3	2171.6	2139.6	2171.6	2219.3
172.5°	2242.3	2276.7	2293.3	2317.0	2305.6	2299.0	2268.5	2245.5	2227.5	2245.5	2268.5
175°	2303.0	2311.2	2326.0	2318.7	2328.6	2310.4	2311.2	2322.8	2253.7	2322.8	2311.2
177.5°	2324.3	2337.6	2329.3	2315.4	2317.0	2313.8	2319.5	2326.0	2314.6	2326.0	2319.5
180°	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2180.2	2180.2	2180.2	2180.2	2180.2	2180.2
2.5°	2182.7	2185.2	2184.3	2171.7	2176.9	2169.4
5°	2172.5	2173.4	2172.5	2162.4	2167.6	2160.9
7.5°	2154.8	2155.6	2156.5	2143.0	2151.5	2144.8
10°	2128.8	2130.4	2130.4	2119.4	2124.5	2124.6
12.5°	2099.2	2096.6	2099.2	2090.7	2094.9	2094.8
15°	2062.0	2062.0	2063.7	2051.8	2055.2	2059.3
17.5°	2018.9	2019.7	2018.9	2008.8	2012.9	2014.5
20°	1970.8	1972.5	1972.4	1961.4	1962.9	1963.8
22.5°	1919.2	1918.4	1920.8	1907.3	1907.2	1900.4
25°	1861.7	1861.7	1863.4	1848.1	1837.0	1831.1
27.5°	1802.6	1801.8	1804.2	1783.8	1766.8	1758.4
30°	1732.4	1732.5	1735.6	1708.5	1681.5	1670.5
32.5°	1661.4	1662.2	1664.7	1629.1	1597.8	1589.4
35°	1580.3	1585.4	1585.3	1539.6	1507.5	1499.1
37.5°	1496.7	1507.6	1501.5	1447.5	1415.3	1410.3
40°	1404.5	1429.8	1407.8	1346.0	1324.1	1329.1
42.5°	1307.4	1338.5	1310.6	1247.2	1237.9	1248.0
45°	1204.2	1240.4	1207.5	1147.5	1146.7	1168.6
47.5°	1101.9	1140.8	1103.5	1059.6	1068.0	1089.2
50°	995.5	1013.2	998.8	969.2	991.2	1004.7
52.5°	893.2	888.1	896.5	884.6	917.6	934.5
55°	785.9	754.6	789.2	807.8	844.0	853.4
57.5°	684.5	643.0	687.8	728.3	774.8	782.4
60°	581.4	550.0	583.0	647.3	703.0	703.0
62.5°	488.4	474.9	490.0	566.1	625.2	627.8
65°	409.0	405.6	410.6	484.1	541.6	553.4
67.5°	340.5	348.1	340.5	406.4	463.0	477.3
70°	281.3	289.8	281.3	338.0	384.5	404.8
72.5°	228.9	242.5	230.7	272.1	312.7	345.6
75°	184.2	201.1	184.2	210.4	253.5	290.7
77.5°	142.7	161.3	142.7	164.7	214.4	263.2
80°	106.4	123.3	106.4	135.9	200.2	248.0
82.5°	76.9	85.3	76.9	131.1	208.4	255.3
85°	60.8	52.3	64.1	150.4	234.9	275.9
87.5°	53.8	16.9	76.9	181.0	277.1	307.9
90°	35.4	2.5	97.8	227.5	323.4	350.0
92.5°	21.0	27.1	134.4	277.3	378.9	402.8
95°	12.5	66.5	176.7	335.3	441.8	451.7
97.5°	21.4	117.5	231.7	394.9	502.2	510.5
100°	55.8	180.7	302.4	456.9	559.4	562.7
102.5°	103.5	248.0	369.6	517.5	622.2	644.4
105°	167.6	325.3	440.2	597.2	687.7	714.0
107.5°	241.5	407.4	512.5	669.4	760.7	778.7
110°	320.3	492.8	584.7	740.1	839.6	859.2





TEST NUMBER: P392709

CATALOG NUMBER: MWL-4-66-60-UNV-L930-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	405.7	581.6	660.5	805.8	923.3	938.1
115°	502.7	663.6	731.0	881.4	989.8	998.8
117.5°	590.6	763.0	804.1	937.2	1060.4	1062.9
120°	682.6	856.6	876.4	1014.4	1130.3	1143.3
122.5°	776.2	945.4	945.4	1080.0	1191.1	1199.2
125°	863.2	1040.7	1014.4	1130.3	1246.8	1250.1
127.5°	952.0	1137.6	1090.0	1194.3	1301.1	1296.1
130°	1048.9	1229.5	1158.9	1255.1	1351.9	1335.5
132.5°	1138.5	1328.1	1230.4	1317.5	1402.9	1412.8
135°	1227.2	1420.2	1291.2	1371.7	1455.5	1452.2
137.5°	1312.6	1505.5	1365.1	1414.4	1490.0	1499.8
140°	1396.3	1597.6	1430.8	1470.3	1532.7	1534.4
142.5°	1485.1	1689.5	1503.1	1526.1	1581.2	1570.5
145°	1583.6	1776.6	1593.4	1581.9	1617.2	1596.0
147.5°	1670.7	1852.1	1657.5	1623.0	1664.9	1637.0
150°	1767.5	1929.3	1746.2	1680.4	1705.2	1692.0
152.5°	1856.3	1990.1	1843.1	1724.8	1752.7	1736.3
155°	1943.4	2055.1	1936.7	1769.2	1788.9	1782.3
157.5°	2018.9	2110.8	2007.4	1815.2	1838.2	1825.1
160°	2084.6	2156.9	2089.5	1884.2	1871.1	1871.1
162.5°	2142.1	2201.2	2147.0	1977.8	1907.2	1876.0
165°	2193.0	2235.7	2197.9	2082.9	1976.2	1948.2
167.5°	2241.5	2269.4	2256.3	2168.4	2082.9	2023.8
170°	2278.5	2295.6	2276.7	2240.7	2197.9	2146.1
172.5°	2299.0	2305.6	2317.0	2293.3	2276.7	2242.3
175°	2310.4	2328.6	2318.7	2326.0	2311.2	2303.0
177.5°	2313.8	2317.0	2315.4	2329.3	2337.6	2324.3
180°	2326.0	2326.0	2326.0	2326.0	2326.0	2326.0

(END OF REPORT)