

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: P392710

Luminaire Tested: **MWL-4-66-60-UNV-L935-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392710  
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-L935-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

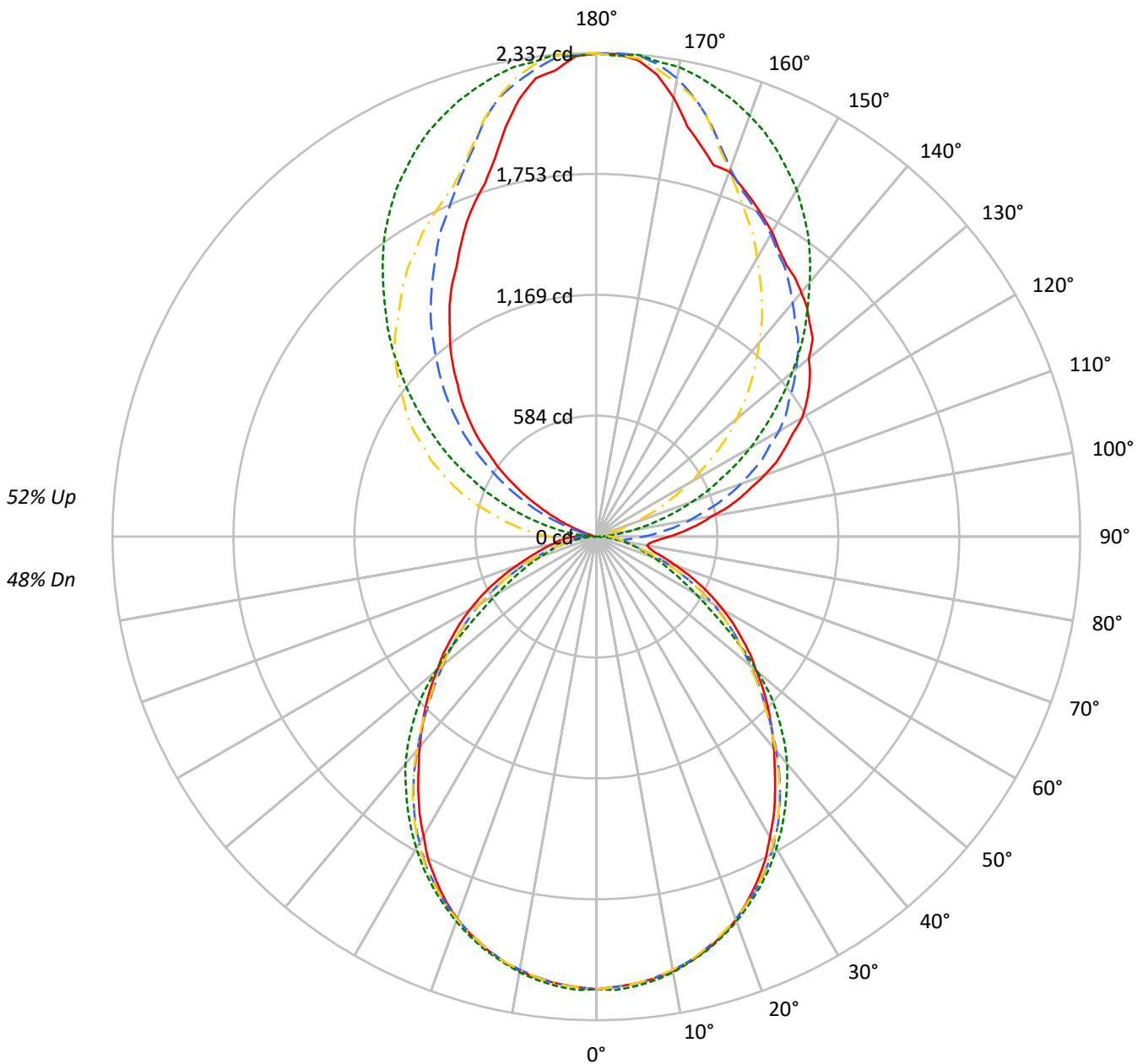
Lumens per Lamp: N/A  
Luminaire Lumens: 10696.5 lumens  
Efficiency: N/A  
Efficacy: 70.8 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 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°	14128	14128	14128	14128
5°	13930	13001	13930	13001
10°	13728	11917	13728	11917
15°	13440	10910	13409	10910
20°	13048	9973	13015	9973
25°	12486	9079	12453	9079
30°	11791	8218	11745	8218
35°	11052	7377	11016	7377
40°	10340	6577	10289	6577
45°	9700	5684	9658	5684
50°	9010	4661	8966	4661
55°	8393	3511	8361	3511
60°	7719	2609	7700	2609
65°	6936	1977	6936	1977
70°	5964	1465	5986	1465
75°	5241	1064	5329	1064
80°	5819	690	5085	690
85°	9363	313	5737	313



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	206.2	1.9
10°-20°	581.5	5.4
20°-30°	852.7	8.0
30°-40°	965.8	9.0
40°-50°	910.0	8.5
50°-60°	728.0	6.8
60°-70°	478.4	4.5
70°-80°	245.8	2.3
80°-90°	145.8	1.4
90°-100°	195.8	1.8
100°-110°	362.9	3.4
110°-120°	620.2	5.8
120°-130°	842.6	7.9
130°-140°	961.1	9.0
140°-150°	958.7	9.0
150°-160°	834.8	7.8
160°-170°	587.3	5.5
170°-180°	218.7	2.0
0°-30°	1640.4	15.3
0°-40°	2606.2	24.4
0°-60°	4244.2	39.7
0°-90°	5114.3	47.8
90°-120°	1178.9	11.0
90°-150°	3941.5	36.8
90°-180°	5582.0	52.2
0°-180°	10696.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2188	2188	2188	2188	2188	
5°	2168	2181	2168	2181	2168	206
15°	2066	2069	2061	2069	2066	582
25°	1837	1868	1832	1868	1837	844
35°	1504	1591	1499	1591	1504	941
45°	1173	1245	1168	1245	1173	904
55°	856	757	853	757	856	768
65°	555	407	555	407	555	549
75°	292	202	297	202	292	325
85°	277	52	170	52	277	221
90°	351	2	104	2	351	194
95°	453	67	63	67	453	395
105°	716	326	22	326	716	755
115°	1002	666	231	666	1002	995
125°	1254	1044	570	1044	1254	1120
135°	1457	1425	916	1425	1457	1125
145°	1601	1783	1234	1783	1601	1009
155°	1788	2062	1551	2062	1788	825
165°	1955	2243	1891	2243	1955	555
175°	2311	2336	2261	2336	2311	215
180°	2334	2334	2334	2334	2334	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6
2.5°	2176.8	2184.3	2179.1	2191.8	2192.6	2190.1	2179.1	2184.3	2178.4	2184.3	2179.1
5°	2168.3	2175.0	2169.8	2179.9	2180.8	2179.9	2168.1	2175.0	2168.3	2175.0	2168.1
7.5°	2152.2	2158.8	2150.3	2163.8	2162.9	2162.2	2148.7	2157.2	2152.2	2157.2	2148.7
10°	2131.8	2131.7	2126.6	2137.6	2137.6	2136.0	2125.0	2128.3	2131.8	2128.3	2125.0
12.5°	2101.9	2102.0	2097.9	2106.3	2103.8	2106.3	2097.9	2098.7	2098.7	2098.7	2097.9
15°	2066.3	2062.2	2058.8	2070.7	2069.0	2069.0	2057.2	2058.8	2061.4	2058.8	2057.2
17.5°	2021.3	2019.7	2015.6	2025.7	2026.6	2025.7	2013.9	2018.2	2016.4	2018.2	2013.9
20°	1970.4	1969.7	1968.1	1979.1	1979.2	1977.5	1966.4	1966.4	1965.5	1966.4	1966.4
22.5°	1906.8	1913.7	1913.8	1927.4	1925.0	1925.7	1912.1	1910.5	1903.6	1910.5	1912.1
25°	1837.3	1843.2	1854.4	1869.7	1868.1	1868.1	1851.1	1838.3	1832.4	1838.3	1851.1
27.5°	1764.4	1772.8	1789.9	1810.4	1807.9	1808.6	1786.6	1767.9	1759.5	1767.9	1786.6
30°	1676.2	1687.2	1714.3	1741.6	1738.3	1738.2	1709.4	1682.3	1669.6	1682.3	1709.4
32.5°	1594.8	1603.3	1634.6	1670.3	1667.9	1667.0	1629.7	1596.7	1588.3	1596.7	1629.7
35°	1504.1	1512.6	1544.8	1590.6	1590.8	1585.7	1539.9	1507.7	1499.2	1507.7	1539.9
37.5°	1415.1	1420.2	1452.3	1506.6	1512.7	1501.7	1447.4	1415.2	1410.2	1415.2	1447.4
40°	1333.7	1328.6	1350.6	1412.7	1434.7	1409.3	1344.0	1322.0	1327.1	1322.0	1344.0
42.5°	1252.2	1242.1	1251.5	1315.1	1343.1	1311.8	1246.5	1235.4	1245.6	1235.4	1246.5
45°	1172.6	1150.6	1151.4	1211.6	1244.7	1208.3	1144.8	1145.6	1167.6	1145.6	1144.8
47.5°	1092.9	1071.7	1063.2	1107.3	1144.6	1105.7	1056.6	1066.7	1087.9	1066.7	1056.6
50°	1008.1	994.5	972.5	1002.2	1016.7	998.8	965.8	987.9	1003.1	987.9	965.8
52.5°	937.7	920.7	887.7	899.6	891.1	896.2	882.7	914.2	932.7	914.2	882.7
55°	856.3	846.9	810.5	791.9	757.1	788.6	805.6	842.0	853.0	842.0	805.6
57.5°	785.1	777.4	730.8	690.1	645.2	686.9	725.9	772.5	781.7	772.5	725.9
60°	705.4	705.4	649.4	585.0	551.9	583.4	646.1	702.1	703.7	702.1	646.1
62.5°	629.9	627.4	568.0	491.7	476.5	490.1	564.7	624.0	628.3	624.0	564.7
65°	555.3	543.5	485.7	411.9	406.9	410.4	484.2	541.8	555.3	541.8	484.2
67.5°	479.0	464.6	407.7	341.7	349.3	341.7	406.2	462.9	479.0	462.9	406.2
70°	406.2	385.8	339.1	282.3	290.8	282.3	339.1	387.4	407.7	387.4	339.1
72.5°	346.8	313.7	273.0	231.4	243.3	229.7	273.0	315.3	350.1	315.3	273.0
75°	291.7	254.3	211.1	184.8	201.7	184.8	212.8	255.9	296.6	255.9	212.8
77.5°	264.0	215.1	165.2	143.2	161.9	143.2	167.0	210.1	257.6	210.1	167.0
80°	248.9	200.9	136.3	106.7	123.7	106.7	133.1	174.6	217.5	174.6	133.1
82.5°	256.2	209.2	131.5	77.1	85.6	77.1	111.7	149.9	193.6	149.9	111.7
85°	276.8	235.7	150.8	64.3	52.5	61.0	103.0	135.2	169.6	135.2	103.0
87.5°	308.9	278.0	181.6	77.1	17.0	54.0	87.7	119.9	139.3	119.9	87.7
90°	351.2	324.5	228.3	98.1	2.5	35.6	65.1	92.2	104.0	92.2	65.1
92.5°	404.2	380.2	278.3	134.9	27.2	21.1	52.4	75.3	81.2	75.3	52.4
95°	453.2	443.4	336.4	177.3	66.7	12.5	39.7	61.0	62.6	61.0	39.7
97.5°	512.2	503.9	396.2	232.5	117.9	21.5	32.0	50.7	50.7	50.7	32.0
100°	564.6	561.2	458.5	303.3	181.3	56.1	21.7	43.7	45.4	43.7	21.7
102.5°	646.7	624.3	519.3	370.9	248.9	103.9	28.1	31.0	33.5	31.0	28.1
105°	716.5	690.0	599.2	441.7	326.4	168.2	66.8	27.4	22.5	27.4	66.8
107.5°	781.4	763.2	671.8	514.3	408.8	242.4	122.9	64.4	43.0	64.4	122.9
110°	862.1	842.4	742.5	586.8	494.5	321.4	187.2	117.1	90.8	117.1	187.2



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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°	941.3	926.4	808.5	662.7	583.6	407.1	266.3	183.0	158.3	183.0	266.3
115°	1002.3	993.2	884.4	733.5	665.9	504.5	353.6	259.6	230.8	259.6	353.6
117.5°	1066.5	1064.0	940.4	806.8	765.7	592.6	434.4	337.1	306.7	337.1	434.4
120°	1147.2	1134.1	1017.9	879.5	859.6	684.9	523.4	427.0	395.7	427.0	523.4
122.5°	1203.3	1195.1	1083.7	948.7	948.7	778.9	609.0	512.6	479.8	512.6	609.0
125°	1254.4	1251.0	1134.1	1017.9	1044.2	866.2	705.5	606.6	570.4	606.6	705.5
127.5°	1300.5	1305.5	1198.4	1093.6	1141.4	955.2	799.5	690.7	652.8	690.7	799.5
130°	1340.1	1356.6	1259.4	1162.8	1233.8	1052.5	883.5	774.8	750.0	774.8	883.5
132.5°	1417.6	1407.7	1322.0	1234.6	1332.7	1142.3	972.6	858.8	830.8	858.8	972.6
135°	1457.1	1460.5	1376.4	1295.6	1425.0	1231.3	1056.6	944.4	916.5	944.4	1056.6
137.5°	1504.9	1495.1	1419.2	1369.8	1510.7	1317.0	1139.0	1035.1	990.7	1035.1	1139.0
140°	1539.6	1537.9	1475.3	1435.7	1603.0	1401.1	1223.1	1117.5	1076.4	1117.5	1223.1
142.5°	1575.7	1586.5	1531.2	1508.2	1695.3	1490.1	1313.8	1199.3	1158.8	1199.3	1313.8
145°	1601.4	1622.8	1587.3	1598.9	1782.6	1589.0	1392.9	1276.7	1233.9	1276.7	1392.9
147.5°	1642.6	1670.6	1628.6	1663.2	1858.4	1676.4	1471.9	1357.4	1319.5	1357.4	1471.9
150°	1697.8	1711.0	1686.2	1752.2	1935.8	1773.5	1552.7	1434.1	1396.2	1434.1	1552.7
152.5°	1742.3	1758.7	1730.7	1849.4	1996.9	1862.6	1641.8	1509.9	1465.4	1509.9	1641.8
155°	1788.4	1795.0	1775.2	1943.3	2062.1	1950.0	1712.6	1593.9	1551.1	1593.9	1712.6
157.5°	1831.3	1844.4	1821.4	2014.2	2118.0	2025.7	1793.4	1678.0	1640.0	1678.0	1793.4
160°	1877.4	1877.4	1890.6	2096.7	2164.2	2091.7	1879.1	1770.3	1717.6	1770.3	1879.1
162.5°	1882.3	1913.7	1984.6	2154.3	2208.7	2149.4	1971.4	1836.3	1790.1	1836.3	1971.4
165°	1954.9	1982.9	2090.0	2205.4	2243.3	2200.5	2085.1	1945.1	1890.6	1945.1	2085.1
167.5°	2030.7	2090.0	2175.8	2264.0	2277.1	2249.1	2172.4	2075.2	2025.7	2075.2	2172.4
170°	2153.5	2205.4	2248.3	2284.5	2303.5	2286.2	2226.8	2179.0	2146.9	2179.0	2226.8
172.5°	2249.9	2284.5	2301.0	2324.9	2313.4	2306.8	2276.2	2253.2	2235.1	2253.2	2276.2
175°	2310.8	2319.1	2334.0	2326.6	2336.5	2318.4	2319.1	2330.6	2261.4	2330.6	2319.1
177.5°	2332.2	2345.4	2337.3	2323.3	2324.9	2321.6	2327.4	2334.0	2322.4	2334.0	2327.4
180°	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2187.6	2187.6	2187.6	2187.6	2187.6	2187.6
2.5°	2190.1	2192.6	2191.8	2179.1	2184.3	2176.8
5°	2179.9	2180.8	2179.9	2169.8	2175.0	2168.3
7.5°	2162.2	2162.9	2163.8	2150.3	2158.8	2152.2
10°	2136.0	2137.6	2137.6	2126.6	2131.7	2131.8
12.5°	2106.3	2103.8	2106.3	2097.9	2102.0	2101.9
15°	2069.0	2069.0	2070.7	2058.8	2062.2	2066.3
17.5°	2025.7	2026.6	2025.7	2015.6	2019.7	2021.3
20°	1977.5	1979.2	1979.1	1968.1	1969.7	1970.4
22.5°	1925.7	1925.0	1927.4	1913.8	1913.7	1906.8
25°	1868.1	1868.1	1869.7	1854.4	1843.2	1837.3
27.5°	1808.6	1807.9	1810.4	1789.9	1772.8	1764.4
30°	1738.2	1738.3	1741.6	1714.3	1687.2	1676.2
32.5°	1667.0	1667.9	1670.3	1634.6	1603.3	1594.8
35°	1585.7	1590.8	1590.6	1544.8	1512.6	1504.1
37.5°	1501.7	1512.7	1506.6	1452.3	1420.2	1415.1
40°	1409.3	1434.7	1412.7	1350.6	1328.6	1333.7
42.5°	1311.8	1343.1	1315.1	1251.5	1242.1	1252.2
45°	1208.3	1244.7	1211.6	1151.4	1150.6	1172.6
47.5°	1105.7	1144.6	1107.3	1063.2	1071.7	1092.9
50°	998.8	1016.7	1002.2	972.5	994.5	1008.1
52.5°	896.2	891.1	899.6	887.7	920.7	937.7
55°	788.6	757.1	791.9	810.5	846.9	856.3
57.5°	686.9	645.2	690.1	730.8	777.4	785.1
60°	583.4	551.9	585.0	649.4	705.4	705.4
62.5°	490.1	476.5	491.7	568.0	627.4	629.9
65°	410.4	406.9	411.9	485.7	543.5	555.3
67.5°	341.7	349.3	341.7	407.7	464.6	479.0
70°	282.3	290.8	282.3	339.1	385.8	406.2
72.5°	229.7	243.3	231.4	273.0	313.7	346.8
75°	184.8	201.7	184.8	211.1	254.3	291.7
77.5°	143.2	161.9	143.2	165.2	215.1	264.0
80°	106.7	123.7	106.7	136.3	200.9	248.9
82.5°	77.1	85.6	77.1	131.5	209.2	256.2
85°	61.0	52.5	64.3	150.8	235.7	276.8
87.5°	54.0	17.0	77.1	181.6	278.0	308.9
90°	35.6	2.5	98.1	228.3	324.5	351.2
92.5°	21.1	27.2	134.9	278.3	380.2	404.2
95°	12.5	66.7	177.3	336.4	443.4	453.2
97.5°	21.5	117.9	232.5	396.2	503.9	512.2
100°	56.1	181.3	303.3	458.5	561.2	564.6
102.5°	103.9	248.9	370.9	519.3	624.3	646.7
105°	168.2	326.4	441.7	599.2	690.0	716.5
107.5°	242.4	408.8	514.3	671.8	763.2	781.4
110°	321.4	494.5	586.8	742.5	842.4	862.1





TEST NUMBER: P392710

CATALOG NUMBER: MWL-4-66-60-UNV-L935-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	407.1	583.6	662.7	808.5	926.4	941.3
115°	504.5	665.9	733.5	884.4	993.2	1002.3
117.5°	592.6	765.7	806.8	940.4	1064.0	1066.5
120°	684.9	859.6	879.5	1017.9	1134.1	1147.2
122.5°	778.9	948.7	948.7	1083.7	1195.1	1203.3
125°	866.2	1044.2	1017.9	1134.1	1251.0	1254.4
127.5°	955.2	1141.4	1093.6	1198.4	1305.5	1300.5
130°	1052.5	1233.8	1162.8	1259.4	1356.6	1340.1
132.5°	1142.3	1332.7	1234.6	1322.0	1407.7	1417.6
135°	1231.3	1425.0	1295.6	1376.4	1460.5	1457.1
137.5°	1317.0	1510.7	1369.8	1419.2	1495.1	1504.9
140°	1401.1	1603.0	1435.7	1475.3	1537.9	1539.6
142.5°	1490.1	1695.3	1508.2	1531.2	1586.5	1575.7
145°	1589.0	1782.6	1598.9	1587.3	1622.8	1601.4
147.5°	1676.4	1858.4	1663.2	1628.6	1670.6	1642.6
150°	1773.5	1935.8	1752.2	1686.2	1711.0	1697.8
152.5°	1862.6	1996.9	1849.4	1730.7	1758.7	1742.3
155°	1950.0	2062.1	1943.3	1775.2	1795.0	1788.4
157.5°	2025.7	2118.0	2014.2	1821.4	1844.4	1831.3
160°	2091.7	2164.2	2096.7	1890.6	1877.4	1877.4
162.5°	2149.4	2208.7	2154.3	1984.6	1913.7	1882.3
165°	2200.5	2243.3	2205.4	2090.0	1982.9	1954.9
167.5°	2249.1	2277.1	2264.0	2175.8	2090.0	2030.7
170°	2286.2	2303.5	2284.5	2248.3	2205.4	2153.5
172.5°	2306.8	2313.4	2324.9	2301.0	2284.5	2249.9
175°	2318.4	2336.5	2326.6	2334.0	2319.1	2310.8
177.5°	2321.6	2324.9	2323.3	2337.3	2345.4	2332.2
180°	2334.0	2334.0	2334.0	2334.0	2334.0	2334.0

(END OF REPORT)