

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: P392693

Luminaire Tested: **MWL-4-55-45-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392693  
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-4-55-45-UNV-L840-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9988.9 lumens  
Efficiency: N/A  
Efficacy: 90.7 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

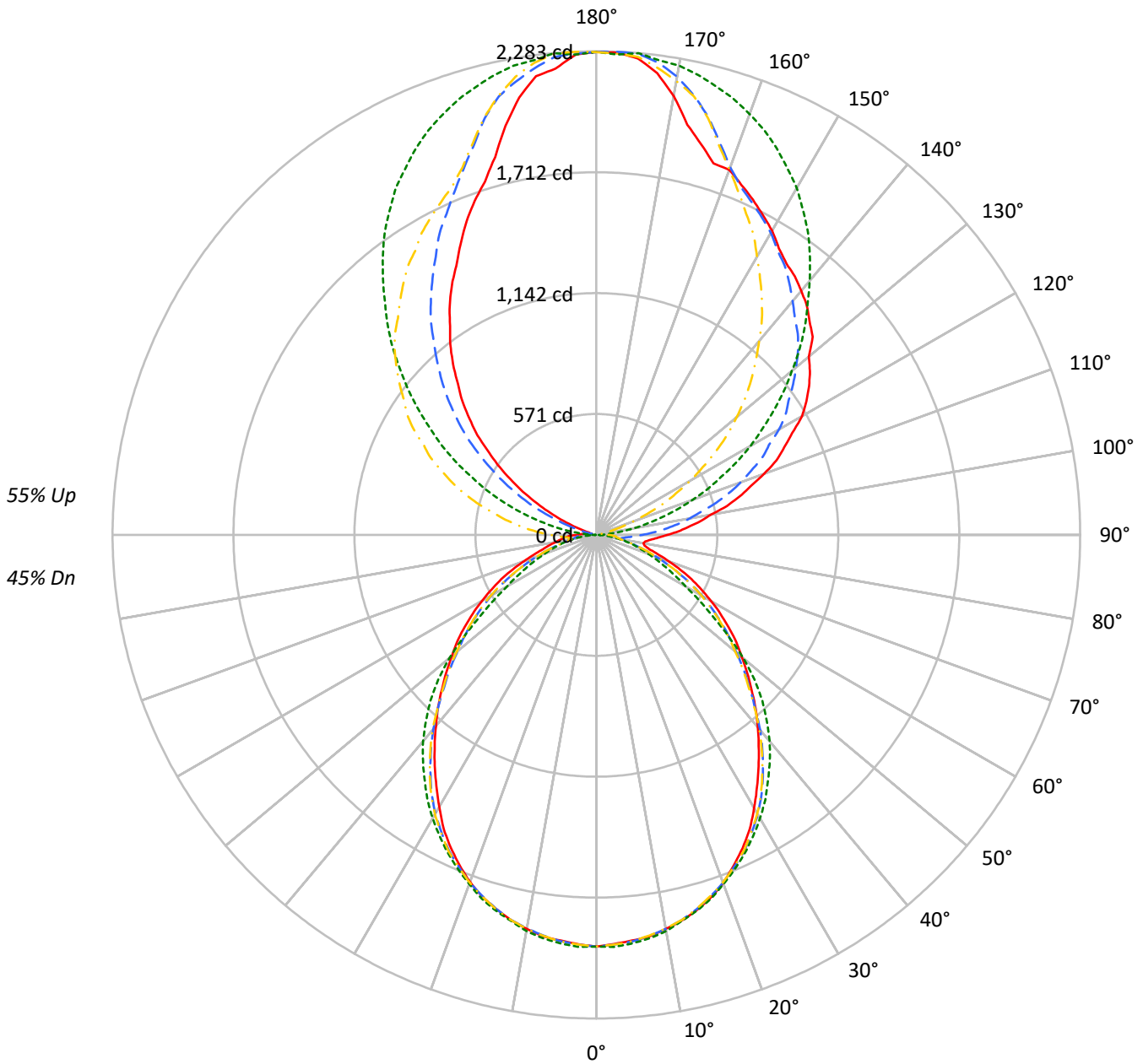
Input Watts (W): 110.1  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

### Luminous Intensity Polar Plot



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



TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

**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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45				
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	38				
2	88	81	75	70	81	75	69	65	62	59	55	51	49	46	41	39	37	33				
3	81	72	64	59	74	66	60	55	55	51	47	46	42	39	36	34	32	28				
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	33	30	28	24				
5	68	57	49	43	62	52	45	40	44	39	35	37	33	30	30	27	25	21				
6	63	51	43	37	57	47	40	35	40	35	31	33	29	26	27	24	22	19				
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	25	22	19	17				
8	54	42	34	29	49	39	32	27	33	28	24	28	24	21	23	20	17	15				
9	50	38	31	26	46	36	29	24	30	25	22	26	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	14	12				

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

	0°	90°	180°	270°
0°	12550	12550	12550	12550
5°	12350	11541	12350	11541
10°	12163	10589	12163	10589
15°	11920	9682	11888	9682
20°	11578	8840	11546	8840
25°	11090	8055	11058	8055
30°	10474	7302	10428	7302
35°	9805	6550	9769	6550
40°	9182	5832	9132	5832
45°	8567	5056	8527	5056
50°	7997	4155	7953	4155
55°	7460	3106	7428	3106
60°	6843	2302	6826	2302
65°	6193	1751	6193	1751
70°	5318	1311	5341	1311
75°	4603	947	4691	947
80°	5272	605	4557	605
85°	8693	284	5155	284



TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	183.1	1.8
10°-20°	516.1	5.2
20°-30°	756.8	7.6
30°-40°	856.9	8.6
40°-50°	807.4	8.1
50°-60°	645.0	6.5
60°-70°	424.3	4.2
70°-80°	218.3	2.2
80°-90°	133.0	1.3
90°-100°	187.9	1.9
100°-110°	353.9	3.5
110°-120°	605.8	6.1
120°-130°	823.0	8.2
130°-140°	938.7	9.4
140°-150°	936.2	9.4
150°-160°	815.4	8.2
160°-170°	573.6	5.7
170°-180°	213.6	2.1
0°-30°	1456.0	14.6
0°-40°	2312.9	23.2
0°-60°	3765.4	37.7
0°-90°	4540.9	45.5
90°-120°	1147.6	11.5
90°-150°	3845.4	38.5
90°-180°	5448.0	54.5
0°-180°	9988.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1943	1943	1943	1943	1943	
5°	1922	1936	1922	1936	1922	183
15°	1832	1836	1828	1836	1832	516
25°	1632	1657	1627	1657	1632	750
35°	1334	1412	1329	1412	1334	835
45°	1036	1107	1031	1107	1036	801
55°	761	670	758	670	761	682
65°	496	360	496	360	496	489
75°	256	180	261	180	256	287
85°	257	48	152	48	257	204
90°	335	3	93	3	335	185
95°	436	65	55	65	436	381
105°	699	318	21	318	699	736
115°	979	651	225	651	979	971
125°	1225	1020	557	1020	1225	1094
135°	1423	1392	895	1392	1423	1098
145°	1563	1742	1204	1742	1563	986
155°	1747	2014	1515	2014	1747	806
165°	1909	2191	1847	2191	1909	542
175°	2258	2282	2209	2282	2258	210
180°	2280	2280	2280	2280	2280	



TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3
2.5°	1932.4	1939.7	1935.9	1947.5	1946.5	1945.9	1935.9	1939.7	1934.1	1939.7	1935.9
5°	1922.4	1929.7	1926.9	1934.9	1935.9	1934.9	1925.3	1929.7	1922.4	1929.7	1925.3
7.5°	1912.1	1914.3	1909.3	1920.9	1920.9	1919.3	1907.7	1912.7	1912.1	1912.7	1907.7
10°	1888.7	1893.3	1888.3	1899.3	1899.3	1897.7	1886.7	1890.1	1888.7	1890.1	1886.7
12.5°	1864.9	1865.3	1861.7	1870.7	1866.1	1870.7	1861.7	1862.1	1861.7	1862.1	1861.7
15°	1832.5	1830.3	1828.7	1838.7	1836.1	1837.1	1827.1	1827.1	1827.7	1827.1	1827.1
17.5°	1795.5	1793.3	1789.7	1799.1	1800.1	1799.1	1788.1	1791.7	1790.7	1791.7	1788.1
20°	1748.5	1746.9	1747.7	1755.1	1754.4	1753.4	1746.1	1743.7	1743.7	1743.7	1746.1
22.5°	1690.9	1696.9	1697.7	1709.1	1707.4	1707.4	1696.1	1693.7	1687.7	1693.7	1696.1
25°	1631.9	1638.9	1649.3	1658.1	1657.4	1656.4	1646.1	1634.1	1627.1	1634.1	1646.1
27.5°	1566.9	1574.9	1585.3	1605.7	1602.4	1604.1	1582.1	1570.1	1562.1	1570.1	1582.1
30°	1488.9	1500.9	1523.9	1545.3	1544.4	1542.1	1519.1	1496.1	1482.4	1496.1	1519.1
32.5°	1410.9	1422.9	1450.9	1479.3	1483.1	1476.1	1446.1	1416.4	1404.4	1416.4	1446.1
35°	1334.3	1342.3	1370.3	1411.3	1412.4	1406.4	1365.4	1337.4	1329.4	1337.4	1365.4
37.5°	1258.3	1260.3	1287.3	1336.3	1344.1	1331.4	1282.4	1255.4	1253.4	1255.4	1282.4
40°	1184.3	1179.3	1202.3	1251.7	1272.1	1248.4	1195.8	1172.8	1177.8	1172.8	1195.8
42.5°	1112.3	1101.3	1108.7	1168.7	1190.1	1165.4	1103.8	1094.8	1105.8	1094.8	1103.8
45°	1035.7	1022.7	1022.7	1076.7	1107.1	1073.4	1016.2	1017.8	1030.8	1017.8	1016.2
47.5°	965.7	949.7	942.7	987.1	1012.1	985.4	936.2	944.8	960.8	944.8	936.2
50°	894.7	881.7	861.7	888.1	906.4	884.8	855.2	875.2	889.8	875.2	855.2
52.5°	833.7	815.7	788.1	797.1	784.4	793.8	783.2	809.2	828.8	809.2	783.2
55°	761.1	751.1	717.1	706.4	669.8	703.2	712.2	746.2	757.8	746.2	712.2
57.5°	695.1	689.1	646.1	608.4	573.8	605.2	641.2	684.2	691.8	684.2	641.2
60°	625.4	622.4	576.4	519.8	486.8	518.2	573.2	619.2	623.8	619.2	573.2
62.5°	558.4	554.4	503.4	435.8	421.2	434.2	500.2	551.2	556.8	551.2	500.2
65°	495.8	484.8	431.8	363.8	360.2	362.2	430.2	483.2	495.8	483.2	430.2
67.5°	428.8	411.8	361.8	303.2	308.2	303.2	360.2	410.2	428.8	410.2	360.2
70°	362.2	340.2	300.2	252.2	260.2	252.2	300.2	341.8	363.8	341.8	300.2
72.5°	303.2	278.2	242.2	206.2	217.6	204.6	242.2	279.8	306.4	279.8	242.2
75°	256.2	227.2	189.6	163.6	179.6	163.6	191.2	228.8	261.1	228.8	191.2
77.5°	233.1	190.7	145.6	126.6	144.6	126.6	147.2	185.8	226.7	185.8	147.2
80°	225.5	182.2	120.4	94.6	108.6	94.6	117.2	156.4	194.9	156.4	117.2
82.5°	233.1	189.6	118.8	67.6	76.6	67.6	99.4	131.7	171.9	131.7	99.4
85°	257.0	219.9	139.2	57.4	47.6	54.2	92.5	121.7	152.4	121.7	92.5
87.5°	292.0	261.5	170.9	70.6	16.0	48.1	79.1	106.9	126.2	106.9	79.1
90°	334.8	309.7	217.8	92.4	2.6	31.2	58.4	82.7	93.3	82.7	58.4
92.5°	387.6	365.3	267.4	131.3	26.8	20.2	46.8	67.4	72.1	67.4	46.8
95°	436.4	427.8	325.6	173.4	65.4	12.4	35.8	54.2	54.8	54.2	35.8
97.5°	495.3	488.2	384.5	226.4	115.3	20.3	28.7	45.4	44.4	45.4	28.7
100°	548.1	545.4	446.9	295.6	176.5	54.1	20.3	39.9	40.9	39.9	20.3
102.5°	630.8	608.5	507.0	361.7	242.5	100.8	27.2	28.9	31.9	28.9	27.2
105°	699.1	673.6	584.9	430.9	318.2	163.6	64.8	26.3	21.3	26.3	64.8
107.5°	762.4	745.3	655.7	502.7	398.7	237.1	119.5	62.6	41.0	62.6	119.5
110°	841.9	822.5	724.9	573.6	483.4	314.4	182.3	114.1	88.3	114.1	182.3



TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	919.1	904.7	789.3	647.6	570.4	398.1	259.6	178.5	154.3	178.5	259.6
115°	978.7	970.7	863.4	716.9	650.9	493.1	344.9	254.2	225.2	254.2	344.9
117.5°	1041.5	1039.9	918.1	787.7	747.5	578.4	423.8	329.8	299.3	329.8	423.8
120°	1120.4	1107.5	994.8	858.6	839.2	668.6	511.8	416.8	386.2	416.8	511.8
122.5°	1175.1	1167.1	1059.2	926.2	926.2	760.4	595.5	500.5	468.3	500.5	595.5
125°	1225.1	1221.8	1107.5	993.8	1019.6	845.7	688.9	592.3	556.9	592.3	688.9
127.5°	1270.1	1275.0	1170.3	1068.9	1114.6	933.6	780.7	674.4	637.4	674.4	780.7
130°	1308.8	1324.9	1229.9	1136.5	1204.7	1028.6	862.8	756.5	732.4	756.5	862.8
132.5°	1384.5	1374.8	1291.1	1205.7	1301.3	1115.6	949.7	838.6	811.3	838.6	949.7
135°	1423.1	1426.3	1344.2	1265.3	1391.5	1202.5	1031.8	922.4	895.0	922.4	1031.8
137.5°	1469.8	1460.1	1386.1	1337.8	1475.2	1286.2	1112.4	1010.9	967.4	1010.9	1112.4
140°	1503.6	1502.0	1440.8	1402.2	1565.4	1368.4	1194.5	1091.4	1051.2	1091.4	1194.5
142.5°	1539.0	1548.7	1495.6	1473.0	1655.6	1455.3	1283.0	1170.3	1131.7	1170.3	1283.0
145°	1563.2	1584.1	1550.3	1561.6	1741.9	1551.9	1360.3	1246.0	1204.1	1246.0	1360.3
147.5°	1603.4	1630.8	1590.6	1624.4	1815.0	1637.2	1437.6	1324.9	1287.9	1324.9	1437.6
150°	1658.2	1671.1	1646.9	1711.3	1891.6	1732.2	1516.5	1400.6	1363.5	1400.6	1516.5
152.5°	1701.6	1717.7	1690.4	1806.3	1951.2	1819.2	1603.4	1474.6	1431.2	1474.6	1603.4
155°	1746.7	1753.2	1733.8	1898.1	2014.0	1904.5	1672.7	1556.7	1514.9	1556.7	1672.7
157.5°	1788.6	1801.5	1778.9	1967.3	2068.7	1978.6	1751.6	1638.9	1601.8	1638.9	1751.6
160°	1833.7	1833.7	1846.6	2047.8	2113.8	2043.0	1835.3	1729.0	1677.5	1729.0	1835.3
162.5°	1838.5	1869.1	1938.3	2104.2	2157.3	2099.3	1925.4	1793.4	1748.3	1793.4	1925.4
165°	1909.3	1936.7	2041.4	2154.1	2191.1	2149.3	2036.5	1899.7	1846.6	1899.7	2036.5
167.5°	1983.4	2041.4	2125.1	2210.4	2223.3	2195.9	2121.9	2026.9	1978.6	2026.9	2121.9
170°	2103.2	2154.1	2195.9	2231.4	2249.1	2233.0	2175.0	2128.3	2096.7	2128.3	2175.0
172.5°	2198.2	2231.4	2247.5	2270.0	2259.7	2252.3	2223.3	2200.8	2183.7	2200.8	2223.3
175°	2257.7	2265.2	2279.7	2271.6	2282.3	2263.6	2265.2	2276.4	2209.4	2276.4	2265.2
177.5°	2278.7	2290.9	2282.9	2268.4	2270.0	2266.8	2273.2	2279.7	2269.0	2279.7	2273.2
180°	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7



TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1943.3	1943.3	1943.3	1943.3	1943.3	1943.3
2.5°	1945.9	1946.5	1947.5	1935.9	1939.7	1932.4
5°	1934.9	1935.9	1934.9	1926.9	1929.7	1922.4
7.5°	1919.3	1920.9	1920.9	1909.3	1914.3	1912.1
10°	1897.7	1899.3	1899.3	1888.3	1893.3	1888.7
12.5°	1870.7	1866.1	1870.7	1861.7	1865.3	1864.9
15°	1837.1	1836.1	1838.7	1828.7	1830.3	1832.5
17.5°	1799.1	1800.1	1799.1	1789.7	1793.3	1795.5
20°	1753.4	1754.4	1755.1	1747.7	1746.9	1748.5
22.5°	1707.4	1707.4	1709.1	1697.7	1696.9	1690.9
25°	1656.4	1657.4	1658.1	1649.3	1638.9	1631.9
27.5°	1604.1	1602.4	1605.7	1585.3	1574.9	1566.9
30°	1542.1	1544.4	1545.3	1523.9	1500.9	1488.9
32.5°	1476.1	1483.1	1479.3	1450.9	1422.9	1410.9
35°	1406.4	1412.4	1411.3	1370.3	1342.3	1334.3
37.5°	1331.4	1344.1	1336.3	1287.3	1260.3	1258.3
40°	1248.4	1272.1	1251.7	1202.3	1179.3	1184.3
42.5°	1165.4	1190.1	1168.7	1108.7	1101.3	1112.3
45°	1073.4	1107.1	1076.7	1022.7	1022.7	1035.7
47.5°	985.4	1012.1	987.1	942.7	949.7	965.7
50°	884.8	906.4	888.1	861.7	881.7	894.7
52.5°	793.8	784.4	797.1	788.1	815.7	833.7
55°	703.2	669.8	706.4	717.1	751.1	761.1
57.5°	605.2	573.8	608.4	646.1	689.1	695.1
60°	518.2	486.8	519.8	576.4	622.4	625.4
62.5°	434.2	421.2	435.8	503.4	554.4	558.4
65°	362.2	360.2	363.8	431.8	484.8	495.8
67.5°	303.2	308.2	303.2	361.8	411.8	428.8
70°	252.2	260.2	252.2	300.2	340.2	362.2
72.5°	204.6	217.6	206.2	242.2	278.2	303.2
75°	163.6	179.6	163.6	189.6	227.2	256.2
77.5°	126.6	144.6	126.6	145.6	190.7	233.1
80°	94.6	108.6	94.6	120.4	182.2	225.5
82.5°	67.6	76.6	67.6	118.8	189.6	233.1
85°	54.2	47.6	57.4	139.2	219.9	257.0
87.5°	48.1	16.0	70.6	170.9	261.5	292.0
90°	31.2	2.6	92.4	217.8	309.7	334.8
92.5°	20.2	26.8	131.3	267.4	365.3	387.6
95°	12.4	65.4	173.4	325.6	427.8	436.4
97.5°	20.3	115.3	226.4	384.5	488.2	495.3
100°	54.1	176.5	295.6	446.9	545.4	548.1
102.5°	100.8	242.5	361.7	507.0	608.5	630.8
105°	163.6	318.2	430.9	584.9	673.6	699.1
107.5°	237.1	398.7	502.7	655.7	745.3	762.4
110°	314.4	483.4	573.6	724.9	822.5	841.9





TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	398.1	570.4	647.6	789.3	904.7	919.1
115°	493.1	650.9	716.9	863.4	970.7	978.7
117.5°	578.4	747.5	787.7	918.1	1039.9	1041.5
120°	668.6	839.2	858.6	994.8	1107.5	1120.4
122.5°	760.4	926.2	926.2	1059.2	1167.1	1175.1
125°	845.7	1019.6	993.8	1107.5	1221.8	1225.1
127.5°	933.6	1114.6	1068.9	1170.3	1275.0	1270.1
130°	1028.6	1204.7	1136.5	1229.9	1324.9	1308.8
132.5°	1115.6	1301.3	1205.7	1291.1	1374.8	1384.5
135°	1202.5	1391.5	1265.3	1344.2	1426.3	1423.1
137.5°	1286.2	1475.2	1337.8	1386.1	1460.1	1469.8
140°	1368.4	1565.4	1402.2	1440.8	1502.0	1503.6
142.5°	1455.3	1655.6	1473.0	1495.6	1548.7	1539.0
145°	1551.9	1741.9	1561.6	1550.3	1584.1	1563.2
147.5°	1637.2	1815.0	1624.4	1590.6	1630.8	1603.4
150°	1732.2	1891.6	1711.3	1646.9	1671.1	1658.2
152.5°	1819.2	1951.2	1806.3	1690.4	1717.7	1701.6
155°	1904.5	2014.0	1898.1	1733.8	1753.2	1746.7
157.5°	1978.6	2068.7	1967.3	1778.9	1801.5	1788.6
160°	2043.0	2113.8	2047.8	1846.6	1833.7	1833.7
162.5°	2099.3	2157.3	2104.2	1938.3	1869.1	1838.5
165°	2149.3	2191.1	2154.1	2041.4	1936.7	1909.3
167.5°	2195.9	2223.3	2210.4	2125.1	2041.4	1983.4
170°	2233.0	2249.1	2231.4	2195.9	2154.1	2103.2
172.5°	2252.3	2259.7	2270.0	2247.5	2231.4	2198.2
175°	2263.6	2282.3	2271.6	2279.7	2265.2	2257.7
177.5°	2266.8	2270.0	2268.4	2282.9	2290.9	2278.7
180°	2279.7	2279.7	2279.7	2279.7	2279.7	2279.7

(END OF REPORT)