

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: P392696

Luminaire Tested: **MWL-4-55-60-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392696  
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-4-55-60-UNV-L840-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11478.9 lumens  
Efficiency: N/A  
Efficacy: 88.8 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

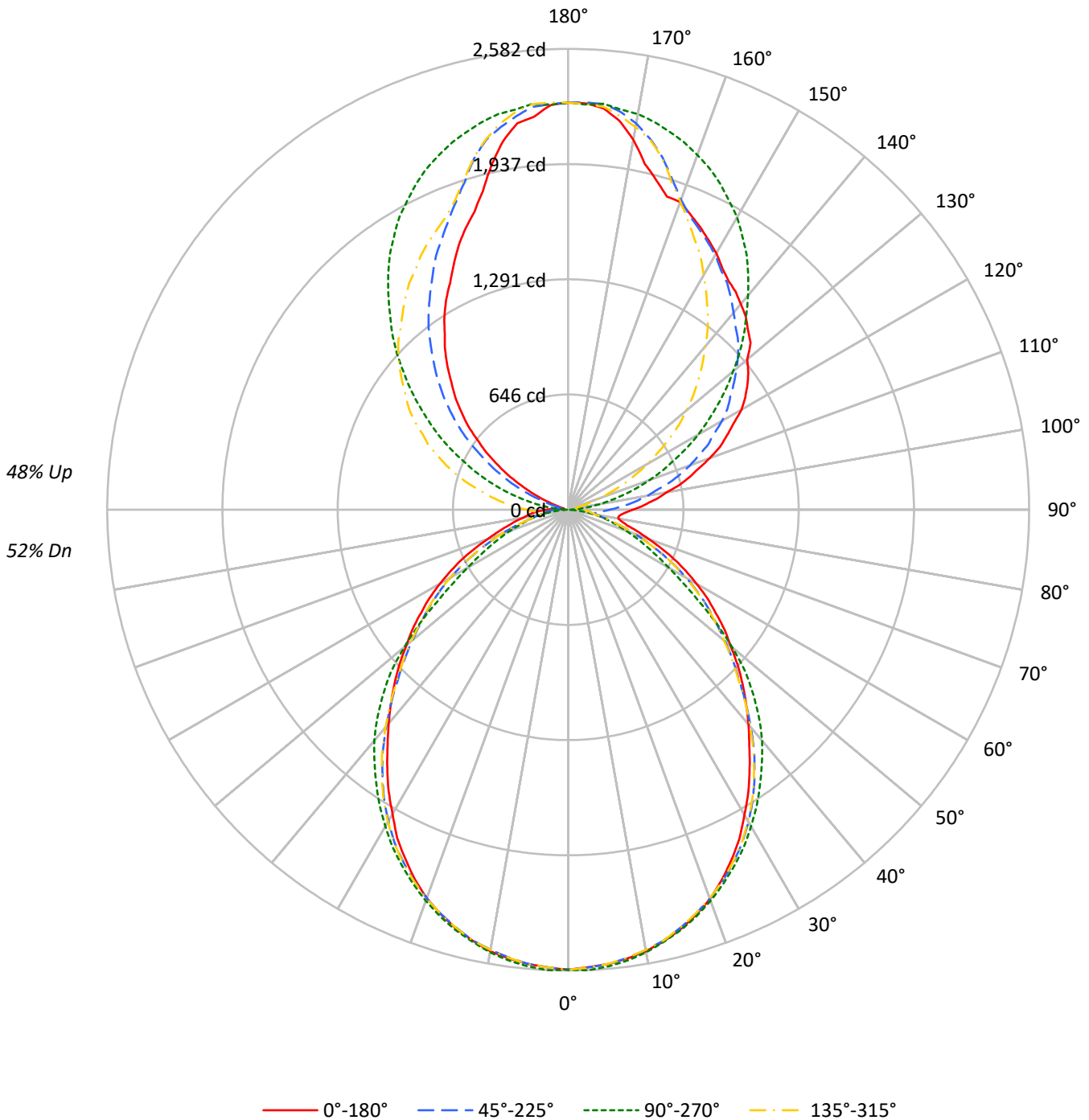
Input Watts (W): 129.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	44
2	90	83	77	71	83	77	71	67	66	62	58	55	53	50	46	44	42	38
3	82	73	66	60	76	68	61	56	58	53	49	49	46	43	41	38	36	32
4	75	65	57	51	70	60	53	48	52	47	42	44	40	37	37	34	32	28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	33	30	28	25
6	64	52	44	38	59	49	41	36	42	36	32	36	32	28	30	27	25	22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	25	22	19
8	55	43	35	30	51	40	33	28	35	29	25	30	26	23	26	22	20	17
9	51	39	32	27	48	37	30	25	32	27	23	28	23	20	24	20	18	16
10	48	36	29	24	44	34	27	23	30	24	21	26	21	18	22	19	16	14

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

	0°	90°	180°	270°
0°	16645	16645	16645	16645
5°	16417	15314	16417	15314
10°	16175	14039	16175	14039
15°	15829	12857	15798	12857
20°	15366	11753	15334	11753
25°	14706	10698	14673	10698
30°	13885	9684	13839	9684
35°	13016	8692	12980	8692
40°	12175	7748	12124	7748
45°	11421	6695	11380	6695
50°	10607	5489	10563	5489
55°	9881	4135	9849	4135
60°	9087	3072	9069	3072
65°	8167	2329	8167	2329
70°	7021	1724	7044	1724
75°	6167	1253	6255	1253
80°	6652	812	5936	812
85°	10114	367	6576	367



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	243.0	2.1
10°-20°	685.1	6.0
20°-30°	1004.6	8.8
30°-40°	1137.7	9.9
40°-50°	1071.9	9.3
50°-60°	857.3	7.5
60°-70°	563.3	4.9
70°-80°	288.9	2.5
80°-90°	162.8	1.4
90°-100°	198.5	1.7
100°-110°	355.9	3.1
110°-120°	606.4	5.3
120°-130°	823.7	7.2
130°-140°	939.4	8.2
140°-150°	937.0	8.2
150°-160°	815.8	7.1
160°-170°	573.9	5.0
170°-180°	213.7	1.9
0°-30°	1932.7	16.8
0°-40°	3070.4	26.7
0°-60°	4999.6	43.6
0°-90°	6014.6	52.4
90°-120°	1160.8	10.1
90°-150°	3860.9	33.6
90°-180°	5464.0	47.6
0°-180°	11478.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2577	2577	2577	2577	2577	
5°	2555	2569	2555	2569	2555	243
15°	2434	2438	2429	2438	2434	685
25°	2164	2201	2159	2201	2164	995
35°	1771	1874	1766	1874	1771	1108
45°	1381	1466	1376	1466	1381	1065
55°	1008	892	1005	892	1008	904
65°	654	479	654	479	654	646
75°	343	238	348	238	343	380
85°	299	62	194	62	299	242
90°	362	3	120	3	362	200
95°	454	65	73	65	454	394
105°	702	319	24	319	702	740
115°	980	651	226	651	980	972
125°	1226	1021	558	1021	1226	1095
135°	1424	1392	896	1392	1424	1099
145°	1565	1742	1206	1742	1565	986
155°	1748	2015	1516	2015	1748	806
165°	1910	2192	1848	2192	1910	542
175°	2258	2283	2209	2283	2258	211
180°	2281	2281	2281	2281	2281	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3
2.5°	2565.4	2573.7	2566.9	2581.5	2582.5	2579.9	2566.9	2573.7	2567.1	2573.7	2566.9
5°	2555.4	2562.7	2555.9	2567.9	2568.9	2567.9	2554.3	2562.7	2555.4	2562.7	2554.3
7.5°	2536.1	2543.3	2533.3	2548.9	2547.9	2547.3	2531.7	2541.7	2536.1	2541.7	2531.7
10°	2511.7	2511.3	2505.3	2518.3	2518.3	2516.7	2503.7	2508.1	2511.7	2508.1	2503.7
12.5°	2475.9	2476.3	2471.7	2481.7	2479.1	2481.7	2471.7	2473.1	2472.7	2473.1	2471.7
15°	2433.5	2429.3	2425.7	2439.7	2438.1	2438.1	2424.1	2426.1	2428.7	2426.1	2424.1
17.5°	2380.5	2379.3	2374.7	2387.1	2388.1	2387.1	2373.1	2377.7	2375.7	2377.7	2373.1
20°	2320.5	2319.9	2318.7	2332.1	2332.4	2330.4	2317.1	2316.7	2315.7	2316.7	2317.1
22.5°	2245.9	2253.9	2254.7	2271.1	2268.4	2269.4	2253.1	2250.7	2242.7	2250.7	2253.1
25°	2163.9	2170.9	2184.3	2203.1	2201.4	2201.4	2181.1	2166.1	2159.1	2166.1	2181.1
27.5°	2077.9	2087.9	2108.3	2132.7	2130.4	2131.1	2105.1	2083.1	2073.1	2083.1	2105.1
30°	1973.9	1986.9	2018.9	2051.3	2048.4	2048.1	2014.1	1982.1	1967.4	1982.1	2014.1
32.5°	1877.9	1887.9	1924.9	1967.3	1965.1	1964.1	1920.1	1881.4	1871.4	1881.4	1920.1
35°	1771.3	1781.3	1819.3	1873.3	1874.4	1868.4	1814.4	1776.4	1766.4	1776.4	1814.4
37.5°	1666.3	1672.3	1710.3	1774.3	1782.1	1769.4	1705.4	1667.4	1661.4	1667.4	1705.4
40°	1570.3	1564.3	1590.3	1663.7	1690.1	1660.4	1583.8	1557.8	1563.8	1557.8	1583.8
42.5°	1474.3	1462.3	1473.7	1548.7	1582.1	1545.4	1468.8	1455.8	1467.8	1455.8	1468.8
45°	1380.7	1354.7	1355.7	1426.7	1466.1	1423.4	1349.2	1349.8	1375.8	1349.8	1349.2
47.5°	1286.7	1261.7	1251.7	1304.1	1348.1	1302.4	1245.2	1256.8	1281.8	1256.8	1245.2
50°	1186.7	1170.7	1144.7	1180.1	1197.4	1176.8	1138.2	1164.2	1181.8	1164.2	1138.2
52.5°	1103.7	1083.7	1045.1	1059.1	1049.4	1055.8	1040.2	1077.2	1098.8	1077.2	1040.2
55°	1008.1	997.1	954.1	932.4	891.8	929.2	949.2	992.2	1004.8	992.2	949.2
57.5°	924.1	915.1	860.1	812.4	759.8	809.2	855.2	910.2	920.8	910.2	855.2
60°	830.4	830.4	764.4	688.8	649.8	687.2	761.2	827.2	828.8	827.2	761.2
62.5°	741.4	738.4	668.4	578.8	561.2	577.2	665.2	735.2	739.8	735.2	665.2
65°	653.8	639.8	571.8	484.8	479.2	483.2	570.2	638.2	653.8	638.2	570.2
67.5°	563.8	546.8	479.8	402.2	411.2	402.2	478.2	545.2	563.8	545.2	478.2
70°	478.2	454.2	399.2	332.2	342.2	332.2	399.2	455.8	479.8	455.8	399.2
72.5°	408.2	369.2	321.2	272.2	286.6	270.6	321.2	370.8	411.4	370.8	321.2
75°	343.2	299.2	248.6	217.6	237.6	217.6	250.2	300.8	348.1	300.8	250.2
77.5°	308.1	251.7	194.6	168.6	190.6	168.6	196.2	246.8	301.7	246.8	196.2
80°	284.5	230.2	159.4	125.6	145.6	125.6	156.2	204.4	253.9	204.4	156.2
82.5°	285.1	232.6	149.8	90.6	100.6	90.6	130.4	174.7	223.9	174.7	130.4
85°	299.0	253.9	165.2	74.4	61.6	71.2	118.5	155.7	194.4	155.7	118.5
87.5°	325.0	291.5	191.9	84.6	20.0	62.1	100.1	136.9	159.2	136.9	100.1
90°	361.8	333.7	234.8	102.4	2.6	41.2	75.4	106.7	120.3	106.7	75.4
92.5°	409.6	385.3	281.4	135.3	26.8	24.2	60.8	87.4	94.1	87.4	60.8
95°	454.4	444.8	335.6	174.4	65.4	13.4	45.8	71.2	72.8	71.2	45.8
97.5°	509.3	501.2	391.5	227.4	115.3	21.3	35.7	58.4	58.4	58.4	35.7
100°	558.1	554.4	449.9	296.6	177.5	55.1	23.3	48.9	50.9	48.9	23.3
102.5°	635.8	613.5	508.0	362.7	243.5	101.8	28.2	33.9	36.9	33.9	28.2
105°	702.1	675.6	585.9	431.9	319.2	164.6	65.8	28.3	24.3	28.3	65.8
107.5°	764.4	746.3	656.7	502.7	399.7	237.1	120.5	63.6	43.0	63.6	120.5
110°	842.9	823.5	725.9	573.6	483.4	314.4	183.3	115.1	89.3	115.1	183.3



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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°	920.1	905.7	790.3	647.6	570.4	398.1	260.6	179.5	155.3	179.5	260.6
115°	979.7	970.7	864.4	716.9	650.9	493.1	345.9	254.2	226.2	254.2	345.9
117.5°	1042.5	1039.9	919.1	788.7	748.5	579.4	424.8	329.8	300.3	329.8	424.8
120°	1121.4	1108.5	994.8	859.6	840.2	669.6	511.8	417.8	387.2	417.8	511.8
122.5°	1176.1	1168.1	1059.2	927.2	927.2	761.4	595.5	501.5	469.3	501.5	595.5
125°	1226.1	1222.8	1108.5	994.8	1020.6	846.7	689.9	593.3	557.9	593.3	689.9
127.5°	1271.1	1276.0	1171.3	1068.9	1115.6	933.6	781.7	675.4	638.4	675.4	781.7
130°	1309.8	1325.9	1230.9	1136.5	1205.7	1028.6	863.8	757.5	733.4	757.5	863.8
132.5°	1385.5	1375.8	1292.1	1206.7	1302.3	1116.6	950.7	839.6	812.3	839.6	950.7
135°	1424.1	1427.3	1345.2	1266.3	1392.5	1203.5	1032.8	923.4	896.0	923.4	1032.8
137.5°	1470.8	1461.1	1387.1	1338.8	1476.2	1287.2	1113.4	1011.9	968.4	1011.9	1113.4
140°	1504.6	1503.0	1441.8	1403.2	1566.4	1369.4	1195.5	1092.4	1052.2	1092.4	1195.5
142.5°	1540.0	1550.7	1496.6	1474.0	1656.6	1456.3	1284.0	1172.3	1132.7	1172.3	1284.0
145°	1565.2	1586.1	1551.3	1562.6	1741.9	1552.9	1361.3	1248.0	1206.1	1248.0	1361.3
147.5°	1605.4	1632.8	1591.6	1625.4	1816.0	1638.2	1438.6	1326.9	1289.9	1326.9	1438.6
150°	1659.2	1672.1	1647.9	1712.3	1891.6	1733.2	1517.5	1401.6	1364.5	1401.6	1517.5
152.5°	1702.6	1718.7	1691.4	1807.3	1951.2	1820.2	1604.4	1475.6	1432.2	1475.6	1604.4
155°	1747.7	1754.2	1734.8	1899.1	2015.0	1905.5	1673.7	1557.7	1515.9	1557.7	1673.7
157.5°	1789.6	1802.5	1779.9	1968.3	2069.7	1979.6	1752.6	1639.9	1602.8	1639.9	1752.6
160°	1834.7	1834.7	1847.6	2048.8	2114.8	2044.0	1836.3	1730.0	1678.5	1730.0	1836.3
162.5°	1839.5	1870.1	1939.3	2105.2	2158.3	2100.3	1926.4	1794.4	1749.3	1794.4	1926.4
165°	1910.3	1937.7	2042.4	2155.1	2192.1	2150.3	2037.5	1900.7	1847.6	1900.7	2037.5
167.5°	1984.4	2042.4	2126.1	2212.4	2225.3	2197.9	2122.9	2027.9	1979.6	2027.9	2122.9
170°	2104.2	2155.1	2196.9	2232.4	2251.1	2234.0	2176.0	2129.3	2097.7	2129.3	2176.0
172.5°	2198.2	2232.4	2248.5	2272.0	2260.7	2254.3	2224.3	2201.8	2183.7	2201.8	2224.3
175°	2257.7	2266.2	2280.7	2273.6	2283.3	2265.6	2266.2	2277.4	2209.4	2277.4	2266.2
177.5°	2278.7	2291.9	2283.9	2270.4	2272.0	2268.8	2274.2	2280.7	2269.0	2280.7	2274.2
180°	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2577.3	2577.3	2577.3	2577.3	2577.3	2577.3
2.5°	2579.9	2582.5	2581.5	2566.9	2573.7	2565.4
5°	2567.9	2568.9	2567.9	2555.9	2562.7	2555.4
7.5°	2547.3	2547.9	2548.9	2533.3	2543.3	2536.1
10°	2516.7	2518.3	2518.3	2505.3	2511.3	2511.7
12.5°	2481.7	2479.1	2481.7	2471.7	2476.3	2475.9
15°	2438.1	2438.1	2439.7	2425.7	2429.3	2433.5
17.5°	2387.1	2388.1	2387.1	2374.7	2379.3	2380.5
20°	2330.4	2332.4	2332.1	2318.7	2319.9	2320.5
22.5°	2269.4	2268.4	2271.1	2254.7	2253.9	2245.9
25°	2201.4	2201.4	2203.1	2184.3	2170.9	2163.9
27.5°	2131.1	2130.4	2132.7	2108.3	2087.9	2077.9
30°	2048.1	2048.4	2051.3	2018.9	1986.9	1973.9
32.5°	1964.1	1965.1	1967.3	1924.9	1887.9	1877.9
35°	1868.4	1874.4	1873.3	1819.3	1781.3	1771.3
37.5°	1769.4	1782.1	1774.3	1710.3	1672.3	1666.3
40°	1660.4	1690.1	1663.7	1590.3	1564.3	1570.3
42.5°	1545.4	1582.1	1548.7	1473.7	1462.3	1474.3
45°	1423.4	1466.1	1426.7	1355.7	1354.7	1380.7
47.5°	1302.4	1348.1	1304.1	1251.7	1261.7	1286.7
50°	1176.8	1197.4	1180.1	1144.7	1170.7	1186.7
52.5°	1055.8	1049.4	1059.1	1045.1	1083.7	1103.7
55°	929.2	891.8	932.4	954.1	997.1	1008.1
57.5°	809.2	759.8	812.4	860.1	915.1	924.1
60°	687.2	649.8	688.8	764.4	830.4	830.4
62.5°	577.2	561.2	578.8	668.4	738.4	741.4
65°	483.2	479.2	484.8	571.8	639.8	653.8
67.5°	402.2	411.2	402.2	479.8	546.8	563.8
70°	332.2	342.2	332.2	399.2	454.2	478.2
72.5°	270.6	286.6	272.2	321.2	369.2	408.2
75°	217.6	237.6	217.6	248.6	299.2	343.2
77.5°	168.6	190.6	168.6	194.6	251.7	308.1
80°	125.6	145.6	125.6	159.4	230.2	284.5
82.5°	90.6	100.6	90.6	149.8	232.6	285.1
85°	71.2	61.6	74.4	165.2	253.9	299.0
87.5°	62.1	20.0	84.6	191.9	291.5	325.0
90°	41.2	2.6	102.4	234.8	333.7	361.8
92.5°	24.2	26.8	135.3	281.4	385.3	409.6
95°	13.4	65.4	174.4	335.6	444.8	454.4
97.5°	21.3	115.3	227.4	391.5	501.2	509.3
100°	55.1	177.5	296.6	449.9	554.4	558.1
102.5°	101.8	243.5	362.7	508.0	613.5	635.8
105°	164.6	319.2	431.9	585.9	675.6	702.1
107.5°	237.1	399.7	502.7	656.7	746.3	764.4
110°	314.4	483.4	573.6	725.9	823.5	842.9





TEST NUMBER: P392696

CATALOG NUMBER: MWL-4-55-60-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	398.1	570.4	647.6	790.3	905.7	920.1
115°	493.1	650.9	716.9	864.4	970.7	979.7
117.5°	579.4	748.5	788.7	919.1	1039.9	1042.5
120°	669.6	840.2	859.6	994.8	1108.5	1121.4
122.5°	761.4	927.2	927.2	1059.2	1168.1	1176.1
125°	846.7	1020.6	994.8	1108.5	1222.8	1226.1
127.5°	933.6	1115.6	1068.9	1171.3	1276.0	1271.1
130°	1028.6	1205.7	1136.5	1230.9	1325.9	1309.8
132.5°	1116.6	1302.3	1206.7	1292.1	1375.8	1385.5
135°	1203.5	1392.5	1266.3	1345.2	1427.3	1424.1
137.5°	1287.2	1476.2	1338.8	1387.1	1461.1	1470.8
140°	1369.4	1566.4	1403.2	1441.8	1503.0	1504.6
142.5°	1456.3	1656.6	1474.0	1496.6	1550.7	1540.0
145°	1552.9	1741.9	1562.6	1551.3	1586.1	1565.2
147.5°	1638.2	1816.0	1625.4	1591.6	1632.8	1605.4
150°	1733.2	1891.6	1712.3	1647.9	1672.1	1659.2
152.5°	1820.2	1951.2	1807.3	1691.4	1718.7	1702.6
155°	1905.5	2015.0	1899.1	1734.8	1754.2	1747.7
157.5°	1979.6	2069.7	1968.3	1779.9	1802.5	1789.6
160°	2044.0	2114.8	2048.8	1847.6	1834.7	1834.7
162.5°	2100.3	2158.3	2105.2	1939.3	1870.1	1839.5
165°	2150.3	2192.1	2155.1	2042.4	1937.7	1910.3
167.5°	2197.9	2225.3	2212.4	2126.1	2042.4	1984.4
170°	2234.0	2251.1	2232.4	2196.9	2155.1	2104.2
172.5°	2254.3	2260.7	2272.0	2248.5	2232.4	2198.2
175°	2265.6	2283.3	2273.6	2280.7	2266.2	2257.7
177.5°	2268.8	2272.0	2270.4	2283.9	2291.9	2278.7
180°	2280.7	2280.7	2280.7	2280.7	2280.7	2280.7

(END OF REPORT)