

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: P392714

Luminaire Tested: **MWL-4-66-73-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392714  
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-4-66-73-UNV-L940-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12655.9 lumens  
Efficiency: N/A  
Efficacy: 73.8 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

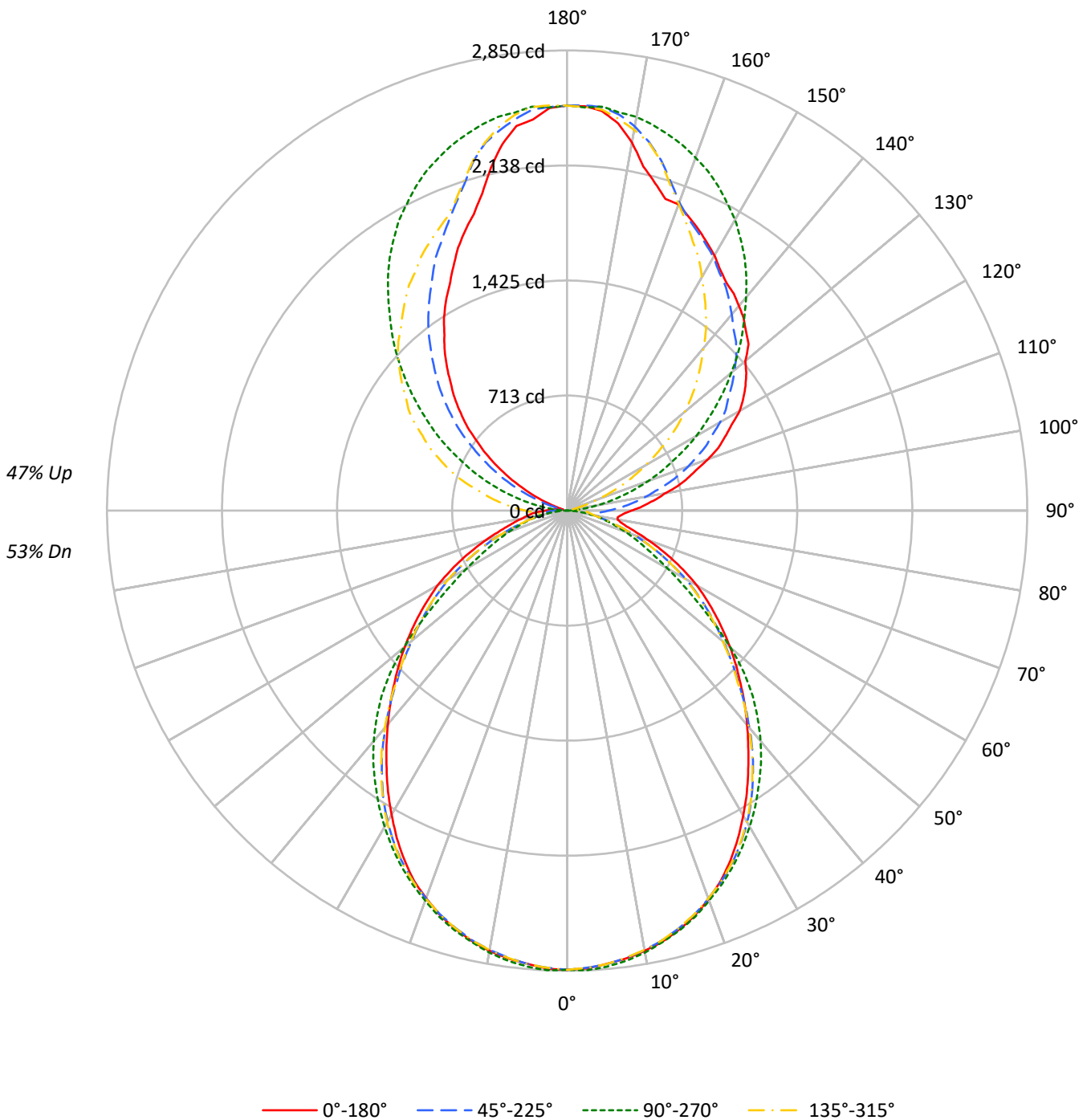
Input Watts (W): 171.397  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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CATALOG NUMBER: MWL-4-66-73-UNV-L940-EDD

### 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	53
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	39	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	37	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	24	20	24	20	18	16
10	48	36	29	24	44	34	27	23	30	24	21	26	22	19	22	19	16	14

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

	0°	90°	180°	270°
0°	18368	18368	18368	18368
5°	18103	16900	18103	16900
10°	17829	15495	17829	15495
15°	17468	14191	17434	14191
20°	16950	12954	16915	12954
25°	16256	11812	16220	11812
30°	15346	10686	15297	10686
35°	14365	9598	14326	9598
40°	13447	8544	13392	8544
45°	12568	7421	12524	7421
50°	11773	6063	11725	6063
55°	10954	4562	10920	4562
60°	10157	3398	10137	3398
65°	9034	2559	9034	2559
70°	7850	1928	7876	1928
75°	6858	1378	6952	1378
80°	7423	889	6635	889
85°	11322	401	7428	401



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	268.1	2.1
10°-20°	756.2	6.0
20°-30°	1109.1	8.8
30°-40°	1255.8	9.9
40°-50°	1183.5	9.4
50°-60°	947.4	7.5
60°-70°	624.2	4.9
70°-80°	320.4	2.5
80°-90°	180.7	1.4
90°-100°	219.0	1.7
100°-110°	391.4	3.1
110°-120°	667.0	5.3
120°-130°	905.9	7.2
130°-140°	1033.2	8.2
140°-150°	1030.5	8.1
150°-160°	897.3	7.1
160°-170°	631.2	5.0
170°-180°	235.1	1.9
0°-30°	2133.4	16.9
0°-40°	3389.2	26.8
0°-60°	5520.1	43.6
0°-90°	6645.4	52.5
90°-120°	1277.4	10.1
90°-150°	4247.0	33.6
90°-180°	6011.0	47.5
0°-180°	12655.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2844	2844	2844	2844	2844	
5°	2818	2835	2818	2835	2818	268
15°	2686	2691	2680	2691	2686	756
25°	2392	2431	2387	2431	2392	1098
35°	1955	2070	1950	2070	1955	1224
45°	1519	1625	1514	1625	1519	1175
55°	1118	984	1114	984	1118	1001
65°	723	526	723	526	723	719
75°	382	261	387	261	382	422
85°	335	67	220	67	335	269
90°	398	3	133	3	398	220
95°	501	73	81	73	501	434
105°	772	351	27	351	772	814
115°	1078	716	249	716	1078	1069
125°	1348	1122	614	1122	1348	1204
135°	1566	1532	986	1532	1566	1209
145°	1720	1916	1326	1916	1720	1085
155°	1922	2216	1667	2216	1922	887
165°	2101	2412	2032	2412	2101	596
175°	2484	2511	2430	2511	2484	232
180°	2508	2508	2508	2508	2508	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1
2.5°	2837.9	2839.6	2834.0	2850.4	2849.5	2848.6	2834.0	2839.6	2839.6	2839.6	2834.0
5°	2817.9	2825.0	2820.3	2835.8	2834.9	2835.8	2818.6	2825.0	2817.9	2825.0	2818.6
7.5°	2797.7	2806.7	2794.9	2813.9	2812.1	2812.2	2793.2	2805.0	2797.7	2805.0	2793.2
10°	2768.6	2772.1	2763.9	2780.3	2779.4	2778.6	2762.2	2768.6	2768.6	2768.6	2762.2
12.5°	2733.8	2732.0	2724.8	2739.4	2736.7	2739.4	2724.8	2728.5	2730.3	2728.5	2724.8
15°	2685.5	2682.8	2677.4	2692.0	2691.1	2690.2	2675.6	2679.3	2680.2	2679.3	2675.6
17.5°	2629.9	2626.3	2622.8	2637.4	2637.4	2637.4	2621.0	2624.6	2624.6	2624.6	2621.0
20°	2559.7	2561.6	2558.1	2572.7	2570.9	2570.9	2556.3	2558.1	2554.5	2558.1	2556.3
22.5°	2484.1	2486.8	2489.8	2508.9	2504.4	2507.2	2487.9	2483.4	2480.7	2483.4	2487.9
25°	2392.1	2397.6	2413.1	2432.4	2430.6	2430.6	2409.6	2392.3	2386.8	2392.3	2409.6
27.5°	2290.0	2304.6	2325.7	2351.3	2349.5	2349.5	2322.1	2299.3	2284.8	2299.3	2322.1
30°	2181.6	2197.1	2229.9	2266.5	2260.3	2262.9	2224.6	2191.8	2174.6	2191.8	2224.6
32.5°	2071.4	2086.9	2124.2	2168.1	2170.0	2164.5	2118.9	2079.9	2064.4	2079.9	2118.9
35°	1954.9	1962.1	2005.0	2072.4	2069.8	2067.1	1999.7	1956.9	1949.6	1956.9	1999.7
37.5°	1842.8	1844.6	1887.4	1958.5	1972.3	1953.2	1882.2	1839.3	1837.5	1839.3	1882.2
40°	1734.4	1725.3	1755.3	1833.8	1863.8	1830.2	1748.2	1718.2	1727.3	1718.2	1748.2
42.5°	1626.9	1615.9	1627.9	1706.2	1746.3	1702.7	1622.5	1608.8	1619.8	1608.8	1622.5
45°	1519.4	1499.4	1496.7	1575.0	1625.1	1571.5	1489.6	1494.0	1514.1	1494.0	1489.6
47.5°	1418.3	1394.6	1381.0	1440.2	1485.7	1438.4	1373.8	1389.2	1412.9	1389.2	1373.8
50°	1317.2	1294.4	1262.5	1303.5	1322.7	1300.0	1255.4	1287.3	1311.8	1287.3	1255.4
52.5°	1217.0	1199.6	1157.7	1172.3	1148.7	1168.8	1152.5	1192.5	1211.6	1192.5	1152.5
55°	1117.6	1102.2	1052.0	1032.1	983.8	1028.5	1046.8	1096.9	1114.1	1096.9	1046.8
57.5°	1021.1	1012.0	950.0	892.7	840.8	889.1	944.7	1006.7	1017.5	1006.7	944.7
60°	928.2	918.2	846.2	757.9	718.7	756.1	842.7	914.7	926.4	914.7	842.7
62.5°	824.4	819.8	738.7	639.4	613.1	637.7	735.2	816.3	822.5	816.3	735.2
65°	723.2	709.6	633.9	537.4	526.5	535.6	632.2	707.8	723.2	707.8	632.2
67.5°	626.7	606.6	536.5	448.2	450.9	448.2	534.7	604.9	626.7	604.9	534.7
70°	534.7	503.7	440.9	370.7	382.6	370.7	440.9	505.5	536.5	505.5	440.9
72.5°	450.0	411.7	354.3	302.4	316.1	300.6	354.3	413.5	453.5	413.5	354.3
75°	381.7	333.4	275.1	240.4	261.4	240.4	276.9	335.1	386.9	335.1	276.9
77.5°	340.2	281.3	214.9	185.8	211.3	185.8	216.8	275.9	333.2	275.9	216.8
80°	317.5	257.8	175.7	137.5	159.4	137.5	172.1	229.4	283.8	229.4	172.1
82.5°	315.3	259.3	167.7	99.2	112.0	99.2	146.5	195.6	248.1	195.6	146.5
85°	334.7	283.3	183.0	82.7	67.3	79.2	131.7	175.3	219.6	175.3	131.7
87.5°	358.3	320.5	212.5	92.8	24.6	68.1	111.5	150.6	176.0	150.6	111.5
90°	398.2	367.8	258.9	112.7	2.6	45.5	83.6	118.2	132.7	118.2	83.6
92.5°	452.5	425.8	309.9	150.3	30.2	28.2	67.2	98.2	105.4	98.2	67.2
95°	500.6	488.2	370.5	192.3	72.6	15.3	51.8	77.4	80.9	77.4	51.8
97.5°	561.2	552.3	430.2	249.7	127.6	23.1	38.9	65.4	65.4	65.4	38.9
100°	614.8	610.3	495.3	325.9	194.8	60.2	26.1	54.2	56.9	54.2	26.1
102.5°	700.2	675.3	558.8	398.4	267.4	111.6	31.2	37.8	41.5	37.8	31.2
105°	772.4	743.1	643.8	474.6	350.7	180.7	71.8	31.3	27.0	31.3	71.8
107.5°	840.4	820.9	721.7	553.4	439.2	261.3	132.0	70.1	47.1	70.1	132.0
110°	927.1	905.9	797.8	631.3	532.2	346.2	201.1	126.7	98.4	126.7	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°	1012.1	996.2	868.6	712.8	627.8	438.3	286.1	197.5	171.0	197.5	286.1
115°	1077.6	1067.9	951.0	788.9	716.3	542.8	380.8	279.9	248.9	279.9	380.8
117.5°	1146.7	1144.0	1011.2	866.8	822.5	636.7	467.6	363.1	330.4	363.1	467.6
120°	1233.4	1218.4	1094.4	944.8	923.5	735.8	563.2	458.7	426.0	458.7	563.2
122.5°	1293.7	1284.8	1165.2	1020.1	1019.2	837.7	655.3	551.7	516.3	551.7	655.3
125°	1348.5	1345.0	1218.4	1094.4	1121.8	931.5	757.9	652.6	613.7	652.6	757.9
127.5°	1398.1	1403.5	1288.4	1175.9	1227.3	1027.2	859.8	742.9	702.2	742.9	859.8
130°	1440.6	1458.3	1353.9	1250.2	1326.4	1131.6	950.1	833.3	806.7	833.3	950.1
132.5°	1523.8	1513.2	1421.1	1326.4	1432.6	1227.3	1045.8	923.6	893.4	923.6	1045.8
135°	1566.4	1569.9	1479.6	1391.9	1531.8	1322.8	1136.1	1015.6	985.5	1015.6	1136.1
137.5°	1617.7	1607.1	1525.6	1472.5	1623.9	1415.8	1224.6	1113.0	1065.3	1113.0	1224.6
140°	1654.9	1653.1	1585.9	1543.3	1723.1	1506.1	1314.9	1201.6	1157.3	1201.6	1314.9
142.5°	1694.7	1705.4	1646.0	1621.2	1822.2	1601.8	1412.3	1289.3	1246.7	1289.3	1412.3
145°	1720.4	1744.3	1706.2	1718.6	1916.0	1708.0	1497.3	1372.5	1325.6	1372.5	1497.3
147.5°	1765.6	1794.8	1750.5	1787.7	1997.5	1801.9	1582.3	1458.3	1418.5	1458.3	1582.3
150°	1824.8	1839.1	1812.5	1883.3	2080.7	1906.3	1669.0	1541.6	1500.9	1541.6	1669.0
152.5°	1872.7	1890.4	1860.3	1987.7	2146.3	2002.0	1764.7	1623.0	1575.2	1623.0	1764.7
155°	1922.2	1929.3	1908.1	2088.7	2216.3	2095.8	1840.8	1713.3	1667.3	1713.3	1840.8
157.5°	1968.3	1982.5	1957.7	2164.9	2276.4	2177.3	1927.6	1803.6	1762.9	1803.6	1927.6
160°	2017.9	2017.9	2032.0	2253.4	2326.0	2248.0	2019.6	1902.8	1846.2	1902.8	2019.6
162.5°	2023.2	2056.8	2133.0	2315.4	2373.8	2310.1	2118.9	1973.6	1924.1	1973.6	2118.9
165°	2101.1	2131.2	2246.3	2370.2	2411.9	2364.9	2241.0	2090.5	2032.0	2090.5	2241.0
167.5°	2181.6	2245.4	2338.4	2433.2	2447.3	2417.2	2334.9	2229.5	2176.3	2229.5	2334.9
170°	2313.6	2370.2	2416.3	2456.1	2475.6	2458.0	2393.3	2341.9	2306.4	2341.9	2393.3
172.5°	2418.1	2455.2	2473.0	2498.7	2486.3	2479.2	2446.4	2421.6	2402.1	2421.6	2446.4
175°	2483.6	2492.4	2508.3	2500.4	2511.1	2491.6	2492.4	2504.8	2430.5	2504.8	2492.4
177.5°	2506.5	2520.7	2511.9	2496.9	2498.7	2495.1	2501.3	2508.3	2496.0	2508.3	2501.3
180°	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2844.1	2844.1	2844.1	2844.1	2844.1	2844.1
2.5°	2848.6	2849.5	2850.4	2834.0	2839.6	2837.9
5°	2835.8	2834.9	2835.8	2820.3	2825.0	2817.9
7.5°	2812.2	2812.1	2813.9	2794.9	2806.7	2797.7
10°	2778.6	2779.4	2780.3	2763.9	2772.1	2768.6
12.5°	2739.4	2736.7	2739.4	2724.8	2732.0	2733.8
15°	2690.2	2691.1	2692.0	2677.4	2682.8	2685.5
17.5°	2637.4	2637.4	2637.4	2622.8	2626.3	2629.9
20°	2570.9	2570.9	2572.7	2558.1	2561.6	2559.7
22.5°	2507.2	2504.4	2508.9	2489.8	2486.8	2484.1
25°	2430.6	2430.6	2432.4	2413.1	2397.6	2392.1
27.5°	2349.5	2349.5	2351.3	2325.7	2304.6	2290.0
30°	2262.9	2260.3	2266.5	2229.9	2197.1	2181.6
32.5°	2164.5	2170.0	2168.1	2124.2	2086.9	2071.4
35°	2067.1	2069.8	2072.4	2005.0	1962.1	1954.9
37.5°	1953.2	1972.3	1958.5	1887.4	1844.6	1842.8
40°	1830.2	1863.8	1833.8	1755.3	1725.3	1734.4
42.5°	1702.7	1746.3	1706.2	1627.9	1615.9	1626.9
45°	1571.5	1625.1	1575.0	1496.7	1499.4	1519.4
47.5°	1438.4	1485.7	1440.2	1381.0	1394.6	1418.3
50°	1300.0	1322.7	1303.5	1262.5	1294.4	1317.2
52.5°	1168.8	1148.7	1172.3	1157.7	1199.6	1217.0
55°	1028.5	983.8	1032.1	1052.0	1102.2	1117.6
57.5°	889.1	840.8	892.7	950.0	1012.0	1021.1
60°	756.1	718.7	757.9	846.2	918.2	928.2
62.5°	637.7	613.1	639.4	738.7	819.8	824.4
65°	535.6	526.5	537.4	633.9	709.6	723.2
67.5°	448.2	450.9	448.2	536.5	606.6	626.7
70°	370.7	382.6	370.7	440.9	503.7	534.7
72.5°	300.6	316.1	302.4	354.3	411.7	450.0
75°	240.4	261.4	240.4	275.1	333.4	381.7
77.5°	185.8	211.3	185.8	214.9	281.3	340.2
80°	137.5	159.4	137.5	175.7	257.8	317.5
82.5°	99.2	112.0	99.2	167.7	259.3	315.3
85°	79.2	67.3	82.7	183.0	283.3	334.7
87.5°	68.1	24.6	92.8	212.5	320.5	358.3
90°	45.5	2.6	112.7	258.9	367.8	398.2
92.5°	28.2	30.2	150.3	309.9	425.8	452.5
95°	15.3	72.6	192.3	370.5	488.2	500.6
97.5°	23.1	127.6	249.7	430.2	552.3	561.2
100°	60.2	194.8	325.9	495.3	610.3	614.8
102.5°	111.6	267.4	398.4	558.8	675.3	700.2
105°	180.7	350.7	474.6	643.8	743.1	772.4
107.5°	261.3	439.2	553.4	721.7	820.9	840.4
110°	346.2	532.2	631.3	797.8	905.9	927.1





TEST NUMBER: P392714

CATALOG NUMBER: MWL-4-66-73-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	438.3	627.8	712.8	868.6	996.2	1012.1
115°	542.8	716.3	788.9	951.0	1067.9	1077.6
117.5°	636.7	822.5	866.8	1011.2	1144.0	1146.7
120°	735.8	923.5	944.8	1094.4	1218.4	1233.4
122.5°	837.7	1019.2	1020.1	1165.2	1284.8	1293.7
125°	931.5	1121.8	1094.4	1218.4	1345.0	1348.5
127.5°	1027.2	1227.3	1175.9	1288.4	1403.5	1398.1
130°	1131.6	1326.4	1250.2	1353.9	1458.3	1440.6
132.5°	1227.3	1432.6	1326.4	1421.1	1513.2	1523.8
135°	1322.8	1531.8	1391.9	1479.6	1569.9	1566.4
137.5°	1415.8	1623.9	1472.5	1525.6	1607.1	1617.7
140°	1506.1	1723.1	1543.3	1585.9	1653.1	1654.9
142.5°	1601.8	1822.2	1621.2	1646.0	1705.4	1694.7
145°	1708.0	1916.0	1718.6	1706.2	1744.3	1720.4
147.5°	1801.9	1997.5	1787.7	1750.5	1794.8	1765.6
150°	1906.3	2080.7	1883.3	1812.5	1839.1	1824.8
152.5°	2002.0	2146.3	1987.7	1860.3	1890.4	1872.7
155°	2095.8	2216.3	2088.7	1908.1	1929.3	1922.2
157.5°	2177.3	2276.4	2164.9	1957.7	1982.5	1968.3
160°	2248.0	2326.0	2253.4	2032.0	2017.9	2017.9
162.5°	2310.1	2373.8	2315.4	2133.0	2056.8	2023.2
165°	2364.9	2411.9	2370.2	2246.3	2131.2	2101.1
167.5°	2417.2	2447.3	2433.2	2338.4	2245.4	2181.6
170°	2458.0	2475.6	2456.1	2416.3	2370.2	2313.6
172.5°	2479.2	2486.3	2498.7	2473.0	2455.2	2418.1
175°	2491.6	2511.1	2500.4	2508.3	2492.4	2483.6
177.5°	2495.1	2498.7	2496.9	2511.9	2520.7	2506.5
180°	2508.3	2508.3	2508.3	2508.3	2508.3	2508.3

(END OF REPORT)