

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-L835-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-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

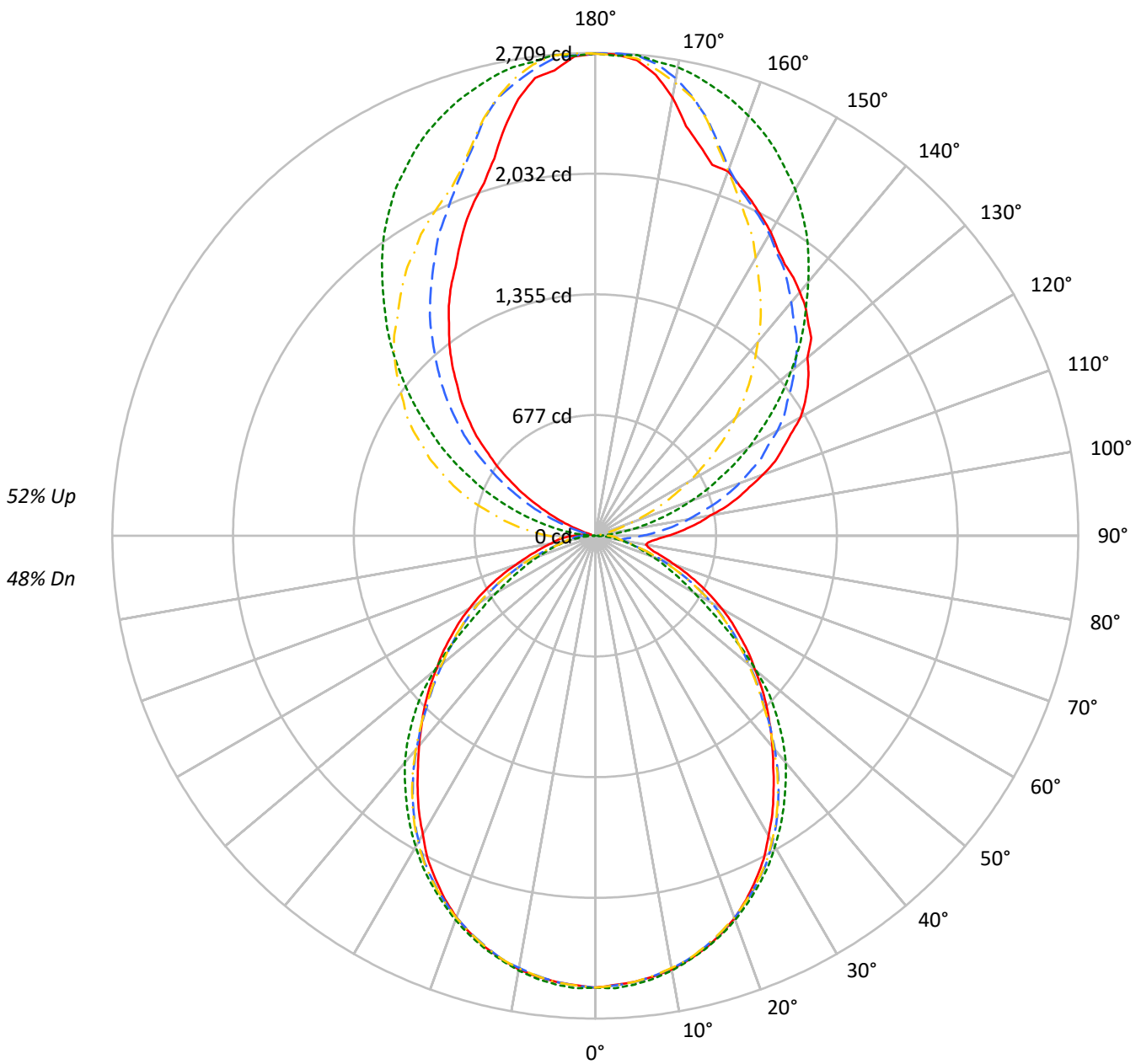
Lumens per Lamp: N/A
Luminaire Lumens: 12396.0 lumens
Efficiency: N/A
Efficacy: 82.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 149.5
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	50	30	10	0	
RCR																						
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54	48	48	48	48	
1	97	93	89	86	89	86	83	80	72	70	68	60	58	56	48	47	46	40	40	40	40	
2	89	82	76	71	82	75	70	66	64	60	56	53	50	48	43	41	39	34	34	34	34	
3	81	72	65	59	75	67	60	55	56	52	48	47	43	41	38	36	34	29	29	29	29	
4	75	64	56	50	68	59	52	47	50	45	41	42	38	35	34	31	29	26	26	26	26	
5	68	57	49	43	63	53	46	41	45	40	36	38	34	31	31	28	26	22	22	22	22	
6	63	51	43	38	58	48	41	35	41	35	31	34	30	27	28	25	23	20	20	20	20	
7	58	46	39	33	54	43	36	31	37	31	27	31	27	24	26	23	20	18	18	18	18	
8	54	42	35	29	50	39	32	28	34	28	24	29	24	21	24	21	18	16	16	16	16	
9	51	39	31	26	47	36	29	25	31	26	22	26	22	19	22	19	17	14	14	14	14	
10	47	35	28	23	44	33	27	22	29	23	20	24	20	17	20	17	15	13	13	13	13	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	16373	16373	16373	16373
5°	16143	15066	16143	15066
10°	15909	13810	15909	13810
15°	15576	12644	15539	12644
20°	15121	11558	15083	11558
25°	14470	10521	14431	10521
30°	13664	9524	13611	9524
35°	12809	8549	12767	8549
40°	11983	7622	11923	7622
45°	11241	6588	11193	6588
50°	10442	5401	10390	5401
55°	9726	4069	9689	4069
60°	8945	3024	8924	3024
65°	8038	2292	8038	2292
70°	6910	1698	6937	1698
75°	6073	1233	6176	1233
80°	6745	799	5894	799
85°	10852	362	6650	362



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	239.0	1.9
10°-20°	673.8	5.4
20°-30°	988.2	8.0
30°-40°	1119.2	9.0
40°-50°	1054.6	8.5
50°-60°	843.6	6.8
60°-70°	554.4	4.5
70°-80°	284.9	2.3
80°-90°	169.0	1.4
90°-100°	226.9	1.8
100°-110°	420.6	3.4
110°-120°	718.8	5.8
120°-130°	976.5	7.9
130°-140°	1113.8	9.0
140°-150°	1111.1	9.0
150°-160°	967.4	7.8
160°-170°	680.6	5.5
170°-180°	253.5	2.0
0°-30°	1901.0	15.3
0°-40°	3020.3	24.4
0°-60°	4918.5	39.7
0°-90°	5926.8	47.8
90°-120°	1366.2	11.0
90°-150°	4567.7	36.8
90°-180°	6469.0	52.2
0°-180°	12396.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2535	2535	2535	2535	2535	
5°	2513	2527	2513	2527	2513	238
15°	2395	2398	2389	2398	2395	674
25°	2129	2165	2124	2165	2129	979
35°	1743	1844	1737	1844	1743	1091
45°	1359	1442	1353	1442	1359	1048
55°	992	877	988	877	992	890
65°	644	472	644	472	644	636
75°	338	234	344	234	338	376
85°	321	61	197	61	321	256
90°	407	3	120	3	407	225
95°	525	77	72	77	525	457
105°	830	378	26	378	830	875
115°	1162	772	268	772	1162	1153
125°	1454	1210	661	1210	1454	1298
135°	1689	1651	1062	1651	1689	1303
145°	1856	2066	1430	2066	1856	1170
155°	2072	2390	1798	2390	2072	956
165°	2266	2600	2191	2600	2266	643
175°	2678	2708	2621	2708	2678	250
180°	2705	2705	2705	2705	2705	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2
2.5°	2522.7	2531.4	2525.3	2540.0	2541.0	2538.1	2525.3	2531.4	2524.5	2531.4	2525.3
5°	2512.8	2520.6	2514.5	2526.3	2527.3	2526.3	2512.6	2520.6	2512.8	2520.6	2512.6
7.5°	2494.1	2501.8	2492.0	2507.6	2506.6	2505.7	2490.1	2499.9	2494.1	2499.9	2490.1
10°	2470.5	2470.4	2464.5	2477.2	2477.2	2475.4	2462.6	2466.5	2470.5	2466.5	2462.6
12.5°	2435.9	2436.0	2431.2	2441.0	2438.0	2441.0	2431.2	2432.1	2432.1	2432.1	2431.2
15°	2394.6	2389.8	2385.9	2399.7	2397.7	2397.7	2384.0	2385.9	2388.9	2385.9	2384.0
17.5°	2342.5	2340.6	2335.8	2347.6	2348.6	2347.6	2333.9	2338.8	2336.8	2338.8	2333.9
20°	2283.5	2282.6	2280.8	2293.6	2293.7	2291.7	2278.8	2278.8	2277.8	2278.8	2278.8
22.5°	2209.8	2217.7	2217.9	2233.6	2230.8	2231.7	2215.9	2214.0	2206.1	2214.0	2215.9
25°	2129.2	2136.1	2149.0	2166.8	2164.9	2164.9	2145.2	2130.4	2123.5	2130.4	2145.2
27.5°	2044.7	2054.5	2074.3	2098.0	2095.1	2096.0	2070.5	2048.8	2039.0	2048.8	2070.5
30°	1942.5	1955.3	1986.7	2018.3	2014.5	2014.4	1981.0	1949.6	1934.9	1949.6	1981.0
32.5°	1848.2	1858.0	1894.3	1935.7	1932.9	1931.9	1888.6	1850.4	1840.6	1850.4	1888.6
35°	1743.1	1752.9	1790.3	1843.3	1843.5	1837.6	1784.6	1747.2	1737.4	1747.2	1784.6
37.5°	1639.9	1645.8	1683.1	1746.0	1753.0	1740.3	1677.4	1640.1	1634.2	1640.1	1677.4
40°	1545.6	1539.7	1565.2	1637.1	1662.6	1633.2	1557.5	1532.0	1537.9	1532.0	1557.5
42.5°	1451.2	1439.4	1450.3	1524.0	1556.5	1520.2	1444.5	1431.7	1443.5	1431.7	1444.5
45°	1358.9	1333.4	1334.3	1404.1	1442.5	1400.3	1326.7	1327.6	1353.1	1327.6	1326.7
47.5°	1266.5	1242.0	1232.1	1283.2	1326.5	1281.4	1224.5	1236.2	1260.7	1236.2	1224.5
50°	1168.3	1152.5	1127.0	1161.4	1178.2	1157.5	1119.3	1144.9	1162.5	1144.9	1119.3
52.5°	1086.7	1067.0	1028.7	1042.5	1032.7	1038.6	1023.0	1059.4	1080.9	1059.4	1023.0
55°	992.3	981.5	939.3	917.7	877.4	913.9	933.6	975.8	988.5	975.8	933.6
57.5°	909.8	900.9	846.9	799.8	747.7	796.0	841.2	895.2	905.9	895.2	841.2
60°	817.5	817.5	752.6	677.9	639.6	676.1	748.8	813.7	815.5	813.7	748.8
62.5°	730.0	727.1	658.3	569.8	552.2	568.0	654.4	723.2	728.1	723.2	654.4
65°	643.5	629.8	562.9	477.4	471.6	475.6	561.1	627.9	643.5	627.9	561.1
67.5°	555.1	538.4	472.5	396.0	404.8	396.0	470.7	536.5	555.1	536.5	470.7
70°	470.7	447.1	393.0	327.2	337.0	327.2	393.0	448.9	472.5	448.9	393.0
72.5°	401.9	363.5	316.4	268.2	282.0	266.2	316.4	365.4	405.7	365.4	316.4
75°	338.0	294.7	244.6	214.2	233.8	214.2	246.6	296.6	343.7	296.6	246.6
77.5°	306.0	249.3	191.5	166.0	187.6	166.0	193.5	243.5	298.5	243.5	193.5
80°	288.5	232.8	158.0	123.7	143.4	123.7	154.2	202.3	252.1	202.3	154.2
82.5°	296.9	242.4	152.4	89.3	99.2	89.3	129.5	173.7	224.4	173.7	129.5
85°	320.8	273.1	174.8	74.5	60.8	70.7	119.4	156.7	196.6	156.7	119.4
87.5°	358.0	322.2	210.5	89.3	19.7	62.6	101.6	138.9	161.4	138.9	101.6
90°	407.0	376.1	264.6	113.7	2.9	41.2	75.5	106.8	120.5	106.8	75.5
92.5°	468.4	440.6	322.5	156.3	31.5	24.5	60.7	87.3	94.1	87.3	60.7
95°	525.2	513.8	389.9	205.5	77.3	14.5	46.0	70.7	72.5	70.7	46.0
97.5°	593.6	584.0	459.2	269.4	136.6	24.9	37.1	58.8	58.8	58.8	37.1
100°	654.3	650.4	531.3	351.5	210.1	65.0	25.2	50.6	52.6	50.6	25.2
102.5°	749.4	723.5	601.8	429.8	288.5	120.4	32.6	35.9	38.8	35.9	32.6
105°	830.3	799.6	694.4	511.9	378.3	194.9	77.4	31.7	26.1	31.7	77.4
107.5°	905.6	884.5	778.5	596.0	473.7	280.9	142.4	74.6	49.8	74.6	142.4
110°	999.1	976.2	860.5	680.0	573.1	372.5	216.9	135.7	105.2	135.7	216.9



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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°	1090.8	1073.6	937.0	768.0	676.3	471.8	308.6	212.1	183.5	212.1	308.6
115°	1161.5	1151.0	1024.9	850.0	771.7	584.6	409.8	300.9	267.5	300.9	409.8
117.5°	1236.0	1233.0	1089.8	935.0	887.3	686.8	503.4	390.7	355.4	390.7	503.4
120°	1329.5	1314.3	1179.6	1019.2	996.2	793.7	606.6	494.8	458.6	494.8	606.6
122.5°	1394.5	1385.0	1255.9	1099.4	1099.4	902.6	705.8	594.1	556.0	594.1	705.8
125°	1453.7	1449.8	1314.3	1179.6	1210.1	1003.8	817.6	703.0	661.0	703.0	817.6
127.5°	1507.1	1512.9	1388.8	1267.4	1322.8	1107.0	926.5	800.4	756.5	800.4	926.5
130°	1553.0	1572.1	1459.5	1347.6	1429.8	1219.7	1023.9	897.9	869.2	897.9	1023.9
132.5°	1642.8	1631.4	1532.0	1430.8	1544.4	1323.8	1127.1	995.3	962.8	995.3	1127.1
135°	1688.6	1692.5	1595.1	1501.4	1651.4	1426.9	1224.5	1094.5	1062.1	1094.5	1224.5
137.5°	1744.0	1732.6	1644.7	1587.4	1750.7	1526.3	1320.0	1199.6	1148.1	1199.6	1320.0
140°	1784.2	1782.2	1709.7	1663.8	1857.7	1623.7	1417.4	1295.1	1247.4	1295.1	1417.4
142.5°	1826.1	1838.6	1774.5	1747.8	1964.6	1726.9	1522.5	1389.8	1342.9	1389.8	1522.5
145°	1855.8	1880.6	1839.5	1852.9	2065.8	1841.5	1614.2	1479.5	1429.9	1479.5	1614.2
147.5°	1903.6	1936.0	1887.3	1927.4	2153.7	1942.7	1705.8	1573.1	1529.1	1573.1	1705.8
150°	1967.5	1982.8	1954.1	2030.6	2243.4	2055.3	1799.4	1661.9	1618.0	1661.9	1799.4
152.5°	2019.1	2038.1	2005.7	2143.2	2314.2	2158.5	1902.6	1749.8	1698.2	1749.8	1902.6
155°	2072.5	2080.2	2057.3	2252.1	2389.7	2259.8	1984.7	1847.2	1797.5	1847.2	1984.7
157.5°	2122.3	2137.5	2110.8	2334.2	2454.5	2347.6	2078.3	1944.6	1900.6	1944.6	2078.3
160°	2175.7	2175.7	2191.0	2429.8	2508.1	2424.0	2177.6	2051.6	1990.5	2051.6	2177.6
162.5°	2181.4	2217.7	2299.9	2496.6	2559.6	2490.9	2284.6	2128.0	2074.5	2128.0	2284.6
165°	2265.5	2298.0	2422.1	2555.8	2599.7	2550.1	2416.4	2254.1	2191.0	2254.1	2416.4
167.5°	2353.3	2422.1	2521.5	2623.7	2638.9	2606.5	2517.6	2404.9	2347.6	2404.9	2517.6
170°	2495.6	2555.8	2605.5	2647.5	2669.5	2649.4	2580.6	2525.2	2488.0	2525.2	2580.6
172.5°	2607.4	2647.5	2666.6	2694.3	2681.0	2673.3	2637.9	2611.2	2590.2	2611.2	2637.9
175°	2678.0	2687.6	2704.8	2696.2	2707.7	2686.7	2687.6	2700.9	2620.7	2700.9	2687.6
177.5°	2702.8	2718.1	2708.6	2692.4	2694.3	2690.5	2697.2	2704.8	2691.4	2704.8	2697.2
180°	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2535.2	2535.2	2535.2	2535.2	2535.2	2535.2
2.5°	2538.1	2541.0	2540.0	2525.3	2531.4	2522.7
5°	2526.3	2527.3	2526.3	2514.5	2520.6	2512.8
7.5°	2505.7	2506.6	2507.6	2492.0	2501.8	2494.1
10°	2475.4	2477.2	2477.2	2464.5	2470.4	2470.5
12.5°	2441.0	2438.0	2441.0	2431.2	2436.0	2435.9
15°	2397.7	2397.7	2399.7	2385.9	2389.8	2394.6
17.5°	2347.6	2348.6	2347.6	2335.8	2340.6	2342.5
20°	2291.7	2293.7	2293.6	2280.8	2282.6	2283.5
22.5°	2231.7	2230.8	2233.6	2217.9	2217.7	2209.8
25°	2164.9	2164.9	2166.8	2149.0	2136.1	2129.2
27.5°	2096.0	2095.1	2098.0	2074.3	2054.5	2044.7
30°	2014.4	2014.5	2018.3	1986.7	1955.3	1942.5
32.5°	1931.9	1932.9	1935.7	1894.3	1858.0	1848.2
35°	1837.6	1843.5	1843.3	1790.3	1752.9	1743.1
37.5°	1740.3	1753.0	1746.0	1683.1	1645.8	1639.9
40°	1633.2	1662.6	1637.1	1565.2	1539.7	1545.6
42.5°	1520.2	1556.5	1524.0	1450.3	1439.4	1451.2
45°	1400.3	1442.5	1404.1	1334.3	1333.4	1358.9
47.5°	1281.4	1326.5	1283.2	1232.1	1242.0	1266.5
50°	1157.5	1178.2	1161.4	1127.0	1152.5	1168.3
52.5°	1038.6	1032.7	1042.5	1028.7	1067.0	1086.7
55°	913.9	877.4	917.7	939.3	981.5	992.3
57.5°	796.0	747.7	799.8	846.9	900.9	909.8
60°	676.1	639.6	677.9	752.6	817.5	817.5
62.5°	568.0	552.2	569.8	658.3	727.1	730.0
65°	475.6	471.6	477.4	562.9	629.8	643.5
67.5°	396.0	404.8	396.0	472.5	538.4	555.1
70°	327.2	337.0	327.2	393.0	447.1	470.7
72.5°	266.2	282.0	268.2	316.4	363.5	401.9
75°	214.2	233.8	214.2	244.6	294.7	338.0
77.5°	166.0	187.6	166.0	191.5	249.3	306.0
80°	123.7	143.4	123.7	158.0	232.8	288.5
82.5°	89.3	99.2	89.3	152.4	242.4	296.9
85°	70.7	60.8	74.5	174.8	273.1	320.8
87.5°	62.6	19.7	89.3	210.5	322.2	358.0
90°	41.2	2.9	113.7	264.6	376.1	407.0
92.5°	24.5	31.5	156.3	322.5	440.6	468.4
95°	14.5	77.3	205.5	389.9	513.8	525.2
97.5°	24.9	136.6	269.4	459.2	584.0	593.6
100°	65.0	210.1	351.5	531.3	650.4	654.3
102.5°	120.4	288.5	429.8	601.8	723.5	749.4
105°	194.9	378.3	511.9	694.4	799.6	830.3
107.5°	280.9	473.7	596.0	778.5	884.5	905.6
110°	372.5	573.1	680.0	860.5	976.2	999.1



TEST NUMBER: P392710

CATALOG NUMBER: MWL-4-66-60-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	471.8	676.3	768.0	937.0	1073.6	1090.8
115°	584.6	771.7	850.0	1024.9	1151.0	1161.5
117.5°	686.8	887.3	935.0	1089.8	1233.0	1236.0
120°	793.7	996.2	1019.2	1179.6	1314.3	1329.5
122.5°	902.6	1099.4	1099.4	1255.9	1385.0	1394.5
125°	1003.8	1210.1	1179.6	1314.3	1449.8	1453.7
127.5°	1107.0	1322.8	1267.4	1388.8	1512.9	1507.1
130°	1219.7	1429.8	1347.6	1459.5	1572.1	1553.0
132.5°	1323.8	1544.4	1430.8	1532.0	1631.4	1642.8
135°	1426.9	1651.4	1501.4	1595.1	1692.5	1688.6
137.5°	1526.3	1750.7	1587.4	1644.7	1732.6	1744.0
140°	1623.7	1857.7	1663.8	1709.7	1782.2	1784.2
142.5°	1726.9	1964.6	1747.8	1774.5	1838.6	1826.1
145°	1841.5	2065.8	1852.9	1839.5	1880.6	1855.8
147.5°	1942.7	2153.7	1927.4	1887.3	1936.0	1903.6
150°	2055.3	2243.4	2030.6	1954.1	1982.8	1967.5
152.5°	2158.5	2314.2	2143.2	2005.7	2038.1	2019.1
155°	2259.8	2389.7	2252.1	2057.3	2080.2	2072.5
157.5°	2347.6	2454.5	2334.2	2110.8	2137.5	2122.3
160°	2424.0	2508.1	2429.8	2191.0	2175.7	2175.7
162.5°	2490.9	2559.6	2496.6	2299.9	2217.7	2181.4
165°	2550.1	2599.7	2555.8	2422.1	2298.0	2265.5
167.5°	2606.5	2638.9	2623.7	2521.5	2422.1	2353.3
170°	2649.4	2669.5	2647.5	2605.5	2555.8	2495.6
172.5°	2673.3	2681.0	2694.3	2666.6	2647.5	2607.4
175°	2686.7	2707.7	2696.2	2704.8	2687.6	2678.0
177.5°	2690.5	2694.3	2692.4	2708.6	2718.1	2702.8
180°	2704.8	2704.8	2704.8	2704.8	2704.8	2704.8

(END OF REPORT)