

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: P392694

Luminaire Tested: **MWL-4-55-60-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392694  
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-L830-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11019.0 lumens  
Efficiency: N/A  
Efficacy: 85.3 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

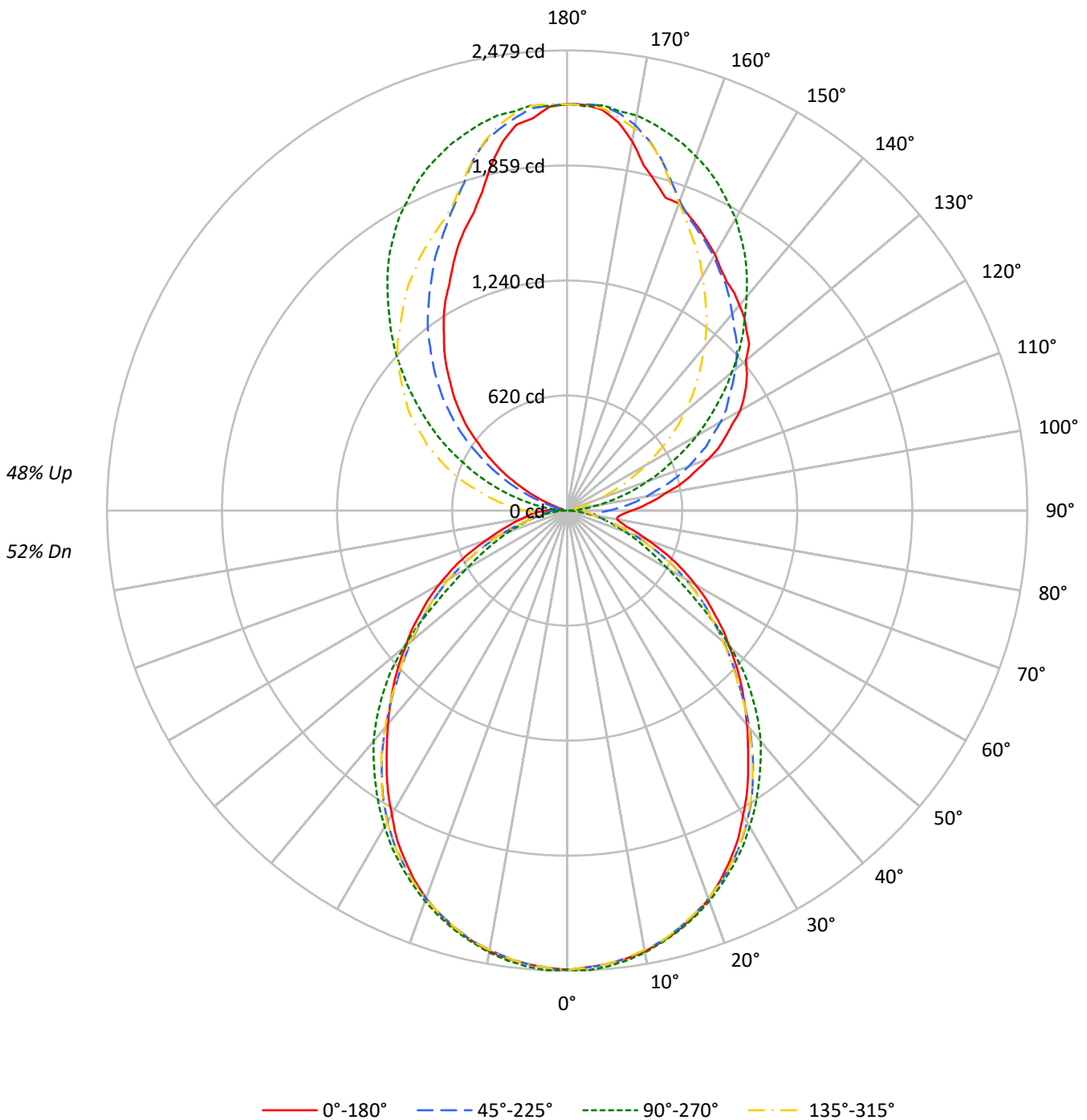
Input Watts (W): 129.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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CATALOG NUMBER: MWL-4-55-60-UNV-L830-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	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°	15978	15978	15978	15978
5°	15759	14701	15759	14701
10°	15527	13477	15527	13477
15°	15195	12341	15165	12341
20°	14750	11281	14720	11281
25°	14116	10270	14085	10270
30°	13329	9296	13285	9296
35°	12494	8344	12460	8344
40°	11687	7437	11638	7437
45°	10963	6427	10925	6427
50°	10182	5269	10139	5269
55°	9485	3970	9454	3970
60°	8722	2949	8706	2949
65°	7840	2236	7840	2236
70°	6739	1655	6762	1655
75°	5919	1203	6005	1203
80°	6385	779	5698	779
85°	9708	352	6312	352



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	233.2	2.1
10°-20°	657.6	6.0
20°-30°	964.4	8.8
30°-40°	1092.1	9.9
40°-50°	1028.9	9.3
50°-60°	823.0	7.5
60°-70°	540.7	4.9
70°-80°	277.3	2.5
80°-90°	156.3	1.4
90°-100°	190.6	1.7
100°-110°	341.6	3.1
110°-120°	582.1	5.3
120°-130°	790.7	7.2
130°-140°	901.8	8.2
140°-150°	899.5	8.2
150°-160°	783.1	7.1
160°-170°	550.9	5.0
170°-180°	205.2	1.9
0°-30°	1855.2	16.8
0°-40°	2947.3	26.7
0°-60°	4799.2	43.6
0°-90°	5773.6	52.4
90°-120°	1114.3	10.1
90°-150°	3706.2	33.6
90°-180°	5245.0	47.6
0°-180°	11019.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2474	2474	2474	2474	2474	
5°	2453	2466	2453	2466	2453	233
15°	2336	2340	2331	2340	2336	658
25°	2077	2113	2073	2113	2077	955
35°	1700	1799	1696	1799	1700	1064
45°	1325	1407	1321	1407	1325	1022
55°	968	856	964	856	968	868
65°	628	460	628	460	628	620
75°	329	228	334	228	329	365
85°	287	59	187	59	287	232
90°	347	2	116	2	347	192
95°	436	63	70	63	436	378
105°	674	306	23	306	674	711
115°	940	625	217	625	940	933
125°	1177	980	536	980	1177	1051
135°	1367	1337	860	1337	1367	1055
145°	1502	1672	1158	1672	1502	947
155°	1678	1934	1455	1934	1678	774
165°	1834	2104	1774	2104	1834	520
175°	2167	2192	2121	2192	2167	202
180°	2189	2189	2189	2189	2189	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0
2.5°	2462.6	2470.6	2464.1	2478.1	2479.0	2476.5	2464.1	2470.6	2464.2	2470.6	2464.1
5°	2453.0	2460.0	2453.5	2465.0	2466.0	2465.0	2452.0	2460.0	2453.0	2460.0	2452.0
7.5°	2434.5	2441.4	2431.8	2446.8	2445.8	2445.2	2430.3	2439.9	2434.5	2439.9	2430.3
10°	2411.1	2410.7	2404.9	2417.4	2417.4	2415.9	2403.4	2407.6	2411.1	2407.6	2403.4
12.5°	2376.7	2377.1	2372.7	2382.3	2379.8	2382.3	2372.7	2374.0	2373.6	2374.0	2372.7
15°	2336.0	2332.0	2328.5	2341.9	2340.4	2340.4	2327.0	2328.9	2331.4	2328.9	2327.0
17.5°	2285.1	2284.0	2279.6	2291.5	2292.4	2291.5	2278.0	2282.4	2280.5	2282.4	2278.0
20°	2227.5	2226.9	2225.8	2238.7	2238.9	2237.0	2224.3	2223.9	2222.9	2223.9	2224.3
22.5°	2155.9	2163.6	2164.4	2180.1	2177.5	2178.5	2162.8	2160.5	2152.8	2160.5	2162.8
25°	2077.2	2083.9	2096.8	2114.8	2113.2	2113.2	2093.7	2079.3	2072.6	2079.3	2093.7
27.5°	1994.6	2004.2	2023.8	2047.2	2045.0	2045.7	2020.8	1999.6	1990.0	1999.6	2020.8
30°	1894.8	1907.3	1938.0	1969.1	1966.3	1966.0	1933.4	1902.7	1888.6	1902.7	1933.4
32.5°	1802.7	1812.3	1847.8	1888.5	1886.4	1885.4	1843.2	1806.0	1796.4	1806.0	1843.2
35°	1700.3	1709.9	1746.4	1798.2	1799.3	1793.5	1741.7	1705.2	1695.6	1705.2	1741.7
37.5°	1599.5	1605.3	1641.8	1703.2	1710.7	1698.5	1637.1	1600.6	1594.8	1600.6	1637.1
40°	1507.4	1501.6	1526.6	1597.0	1622.4	1593.9	1520.3	1495.4	1501.1	1495.4	1520.3
42.5°	1415.2	1403.7	1414.7	1486.6	1518.7	1483.5	1409.9	1397.5	1409.0	1397.5	1409.9
45°	1325.4	1300.4	1301.4	1369.5	1407.4	1366.4	1295.1	1295.7	1320.7	1295.7	1295.1
47.5°	1235.1	1211.1	1201.5	1251.8	1294.1	1250.2	1195.3	1206.4	1230.4	1206.4	1195.3
50°	1139.2	1123.8	1098.8	1132.8	1149.4	1129.6	1092.6	1117.6	1134.4	1117.6	1092.6
52.5°	1059.5	1040.3	1003.2	1016.7	1007.4	1013.5	998.5	1034.0	1054.8	1034.0	998.5
55°	967.7	957.1	915.9	895.0	856.1	892.0	911.2	952.4	964.5	952.4	911.2
57.5°	887.1	878.4	825.6	779.8	729.4	776.8	820.9	873.7	883.9	873.7	820.9
60°	797.1	797.1	733.8	661.2	623.8	659.7	730.7	794.1	795.6	794.1	730.7
62.5°	711.7	708.8	641.6	555.6	538.7	554.1	638.5	705.7	710.2	705.7	638.5
65°	627.6	614.2	548.9	465.4	460.0	463.8	547.4	612.6	627.6	612.6	547.4
67.5°	541.2	524.9	460.6	386.1	394.7	386.1	459.0	523.4	541.2	523.4	459.0
70°	459.0	436.0	383.2	318.9	328.5	318.9	383.2	437.5	460.6	437.5	383.2
72.5°	391.8	354.4	308.3	261.3	275.1	259.8	308.3	355.9	394.9	355.9	308.3
75°	329.4	287.2	238.6	208.9	228.1	208.9	240.2	288.7	334.2	288.7	240.2
77.5°	295.8	241.6	186.8	161.8	183.0	161.8	188.3	236.9	289.6	236.9	188.3
80°	273.1	221.0	153.0	120.6	139.8	120.6	149.9	196.2	243.7	196.2	149.9
82.5°	273.7	223.3	143.8	87.0	96.6	87.0	125.2	167.7	214.9	167.7	125.2
85°	287.0	243.7	158.6	71.4	59.1	68.3	113.8	149.5	186.6	149.5	113.8
87.5°	312.0	279.8	184.2	81.2	19.2	59.6	96.1	131.4	152.8	131.4	96.1
90°	347.3	320.3	225.4	98.3	2.5	39.5	72.4	102.4	115.5	102.4	72.4
92.5°	393.2	369.9	270.1	129.9	25.7	23.2	58.4	83.9	90.3	83.9	58.4
95°	436.2	427.0	322.2	167.4	62.8	12.9	44.0	68.3	69.9	68.3	44.0
97.5°	488.9	481.1	375.8	218.3	110.7	20.4	34.3	56.1	56.1	56.1	34.3
100°	535.7	532.2	431.9	284.7	170.4	52.9	22.4	46.9	48.9	46.9	22.4
102.5°	610.3	588.9	487.6	348.2	233.7	97.7	27.1	32.5	35.4	32.5	27.1
105°	674.0	648.5	562.4	414.6	306.4	158.0	63.2	27.2	23.3	27.2	63.2
107.5°	733.8	716.4	630.4	482.6	383.7	227.6	115.7	61.1	41.3	61.1	115.7
110°	809.1	790.5	696.8	550.6	464.0	301.8	176.0	110.5	85.7	110.5	176.0



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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°	883.2	869.4	758.6	621.7	547.5	382.1	250.2	172.3	149.1	172.3	250.2
115°	940.4	931.8	829.8	688.2	624.8	473.3	332.0	244.0	217.1	244.0	332.0
117.5°	1000.7	998.2	882.3	757.1	718.5	556.2	407.8	316.6	288.3	316.6	407.8
120°	1076.5	1064.1	954.9	825.2	806.5	642.8	491.3	401.1	371.7	401.1	491.3
122.5°	1129.0	1121.3	1016.8	890.0	890.0	730.9	571.6	481.4	450.5	481.4	571.6
125°	1177.0	1173.8	1064.1	954.9	979.7	812.8	662.3	569.5	535.5	569.5	662.3
127.5°	1220.2	1224.9	1124.4	1026.1	1070.9	896.2	750.4	648.3	612.8	648.3	750.4
130°	1257.3	1272.8	1181.6	1091.0	1157.4	987.4	829.2	727.1	704.0	727.1	829.2
132.5°	1330.0	1320.7	1240.3	1158.4	1250.1	1071.9	912.6	806.0	779.8	806.0	912.6
135°	1367.0	1370.1	1291.3	1215.6	1336.7	1155.3	991.4	886.4	860.1	886.4	991.4
137.5°	1411.9	1402.6	1331.5	1285.2	1417.1	1235.6	1068.8	971.4	929.6	971.4	1068.8
140°	1444.3	1442.8	1384.0	1347.0	1503.6	1314.5	1147.6	1048.6	1010.0	1048.6	1147.6
142.5°	1478.3	1488.6	1436.6	1414.9	1590.2	1398.0	1232.6	1125.3	1087.3	1125.3	1232.6
145°	1502.5	1522.5	1489.1	1500.0	1672.1	1490.7	1306.8	1198.0	1157.8	1198.0	1306.8
147.5°	1541.1	1567.4	1527.8	1560.3	1743.2	1572.6	1381.0	1273.7	1238.2	1273.7	1381.0
150°	1592.7	1605.1	1581.9	1643.7	1815.8	1663.8	1456.7	1345.4	1309.8	1345.4	1456.7
152.5°	1634.4	1649.8	1623.6	1734.9	1873.0	1747.3	1540.1	1416.5	1374.8	1416.5	1540.1
155°	1677.7	1683.9	1665.3	1823.0	1934.3	1829.2	1606.6	1495.3	1455.2	1495.3	1606.6
157.5°	1717.9	1730.3	1708.6	1889.4	1986.8	1900.3	1682.4	1574.2	1538.6	1574.2	1682.4
160°	1761.2	1761.2	1773.6	1966.7	2030.1	1962.1	1762.7	1660.7	1611.2	1660.7	1762.7
162.5°	1765.8	1795.2	1861.6	2020.9	2071.8	2016.1	1849.2	1722.5	1679.2	1722.5	1849.2
165°	1833.8	1860.1	1960.6	2068.8	2104.3	2064.1	1955.9	1824.5	1773.6	1824.5	1955.9
167.5°	1904.9	1960.6	2040.9	2123.8	2136.1	2109.8	2037.8	1946.6	1900.3	1946.6	2037.8
170°	2019.9	2068.8	2108.9	2143.0	2160.9	2144.5	2088.8	2044.0	2013.7	2044.0	2088.8
172.5°	2110.1	2143.0	2158.4	2181.0	2170.1	2164.0	2135.2	2113.6	2096.2	2113.6	2135.2
175°	2167.2	2175.4	2189.3	2182.5	2191.8	2174.8	2175.4	2186.2	2120.9	2186.2	2175.4
177.5°	2187.4	2200.1	2192.4	2179.4	2181.0	2177.9	2183.1	2189.3	2178.1	2189.3	2183.1
180°	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2474.0	2474.0	2474.0	2474.0	2474.0	2474.0
2.5°	2476.5	2479.0	2478.1	2464.1	2470.6	2462.6
5°	2465.0	2466.0	2465.0	2453.5	2460.0	2453.0
7.5°	2445.2	2445.8	2446.8	2431.8	2441.4	2434.5
10°	2415.9	2417.4	2417.4	2404.9	2410.7	2411.1
12.5°	2382.3	2379.8	2382.3	2372.7	2377.1	2376.7
15°	2340.4	2340.4	2341.9	2328.5	2332.0	2336.0
17.5°	2291.5	2292.4	2291.5	2279.6	2284.0	2285.1
20°	2237.0	2238.9	2238.7	2225.8	2226.9	2227.5
22.5°	2178.5	2177.5	2180.1	2164.4	2163.6	2155.9
25°	2113.2	2113.2	2114.8	2096.8	2083.9	2077.2
27.5°	2045.7	2045.0	2047.2	2023.8	2004.2	1994.6
30°	1966.0	1966.3	1969.1	1938.0	1907.3	1894.8
32.5°	1885.4	1886.4	1888.5	1847.8	1812.3	1802.7
35°	1793.5	1799.3	1798.2	1746.4	1709.9	1700.3
37.5°	1698.5	1710.7	1703.2	1641.8	1605.3	1599.5
40°	1593.9	1622.4	1597.0	1526.6	1501.6	1507.4
42.5°	1483.5	1518.7	1486.6	1414.7	1403.7	1415.2
45°	1366.4	1407.4	1369.5	1301.4	1300.4	1325.4
47.5°	1250.2	1294.1	1251.8	1201.5	1211.1	1235.1
50°	1129.6	1149.4	1132.8	1098.8	1123.8	1139.2
52.5°	1013.5	1007.4	1016.7	1003.2	1040.3	1059.5
55°	892.0	856.1	895.0	915.9	957.1	967.7
57.5°	776.8	729.4	779.8	825.6	878.4	887.1
60°	659.7	623.8	661.2	733.8	797.1	797.1
62.5°	554.1	538.7	555.6	641.6	708.8	711.7
65°	463.8	460.0	465.4	548.9	614.2	627.6
67.5°	386.1	394.7	386.1	460.6	524.9	541.2
70°	318.9	328.5	318.9	383.2	436.0	459.0
72.5°	259.8	275.1	261.3	308.3	354.4	391.8
75°	208.9	228.1	208.9	238.6	287.2	329.4
77.5°	161.8	183.0	161.8	186.8	241.6	295.8
80°	120.6	139.8	120.6	153.0	221.0	273.1
82.5°	87.0	96.6	87.0	143.8	223.3	273.7
85°	68.3	59.1	71.4	158.6	243.7	287.0
87.5°	59.6	19.2	81.2	184.2	279.8	312.0
90°	39.5	2.5	98.3	225.4	320.3	347.3
92.5°	23.2	25.7	129.9	270.1	369.9	393.2
95°	12.9	62.8	167.4	322.2	427.0	436.2
97.5°	20.4	110.7	218.3	375.8	481.1	488.9
100°	52.9	170.4	284.7	431.9	532.2	535.7
102.5°	97.7	233.7	348.2	487.6	588.9	610.3
105°	158.0	306.4	414.6	562.4	648.5	674.0
107.5°	227.6	383.7	482.6	630.4	716.4	733.8
110°	301.8	464.0	550.6	696.8	790.5	809.1





TEST NUMBER: P392694

CATALOG NUMBER: MWL-4-55-60-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	382.1	547.5	621.7	758.6	869.4	883.2
115°	473.3	624.8	688.2	829.8	931.8	940.4
117.5°	556.2	718.5	757.1	882.3	998.2	1000.7
120°	642.8	806.5	825.2	954.9	1064.1	1076.5
122.5°	730.9	890.0	890.0	1016.8	1121.3	1129.0
125°	812.8	979.7	954.9	1064.1	1173.8	1177.0
127.5°	896.2	1070.9	1026.1	1124.4	1224.9	1220.2
130°	987.4	1157.4	1091.0	1181.6	1272.8	1257.3
132.5°	1071.9	1250.1	1158.4	1240.3	1320.7	1330.0
135°	1155.3	1336.7	1215.6	1291.3	1370.1	1367.0
137.5°	1235.6	1417.1	1285.2	1331.5	1402.6	1411.9
140°	1314.5	1503.6	1347.0	1384.0	1442.8	1444.3
142.5°	1398.0	1590.2	1414.9	1436.6	1488.6	1478.3
145°	1490.7	1672.1	1500.0	1489.1	1522.5	1502.5
147.5°	1572.6	1743.2	1560.3	1527.8	1567.4	1541.1
150°	1663.8	1815.8	1643.7	1581.9	1605.1	1592.7
152.5°	1747.3	1873.0	1734.9	1623.6	1649.8	1634.4
155°	1829.2	1934.3	1823.0	1665.3	1683.9	1677.7
157.5°	1900.3	1986.8	1889.4	1708.6	1730.3	1717.9
160°	1962.1	2030.1	1966.7	1773.6	1761.2	1761.2
162.5°	2016.1	2071.8	2020.9	1861.6	1795.2	1765.8
165°	2064.1	2104.3	2068.8	1960.6	1860.1	1833.8
167.5°	2109.8	2136.1	2123.8	2040.9	1960.6	1904.9
170°	2144.5	2160.9	2143.0	2108.9	2068.8	2019.9
172.5°	2164.0	2170.1	2181.0	2158.4	2143.0	2110.1
175°	2174.8	2191.8	2182.5	2189.3	2175.4	2167.2
177.5°	2177.9	2181.0	2179.4	2192.4	2200.1	2187.4
180°	2189.3	2189.3	2189.3	2189.3	2189.3	2189.3

(END OF REPORT)