

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: P392612

Luminaire Tested: **MWL-3-44-28-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392612  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-13 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-3-44-28-UNV-L840-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7234.1 lumens  
Efficiency: N/A  
Efficacy: 87.6 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

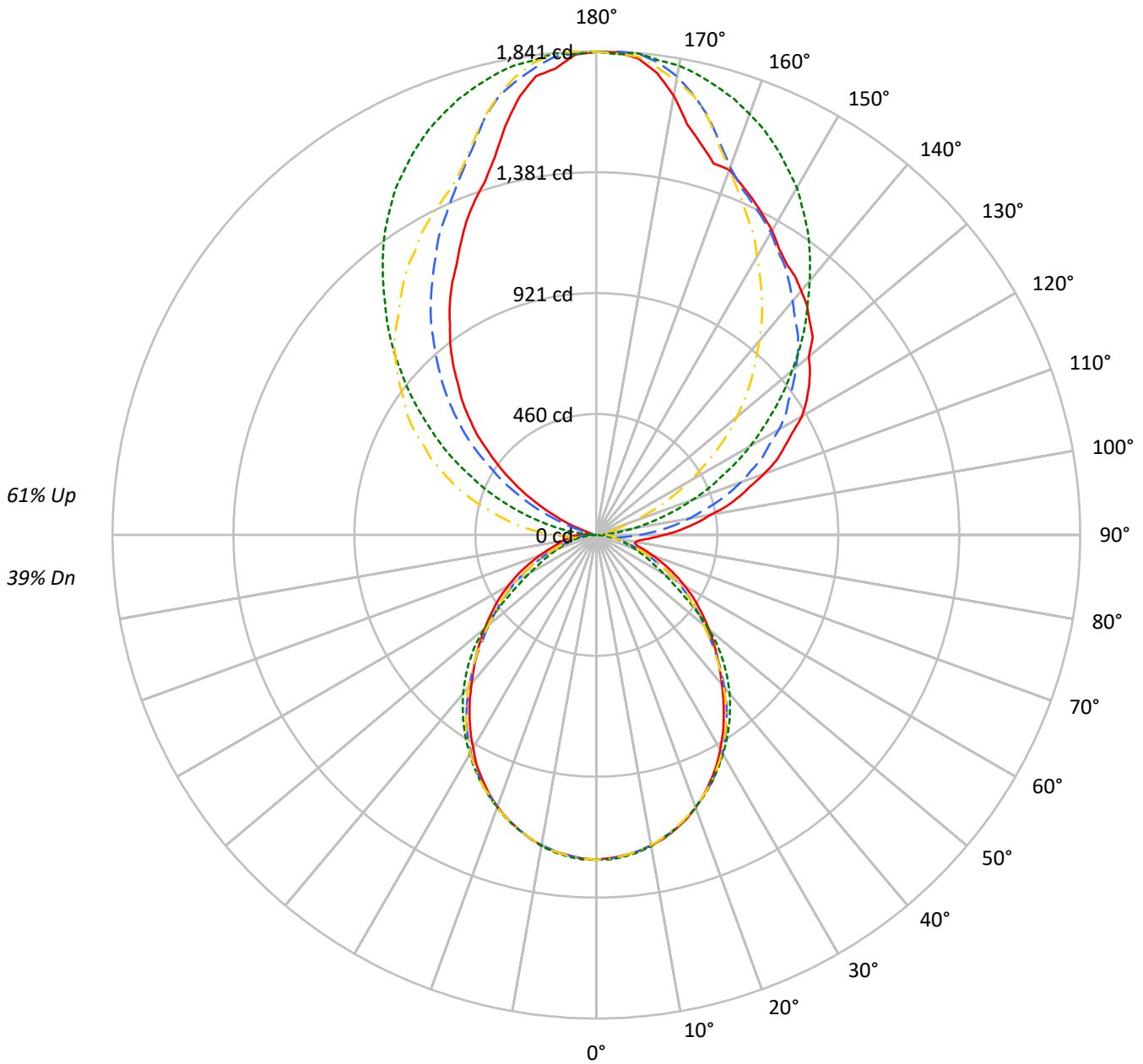
Input Watts (W): 82.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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CATALOG NUMBER: MWL-3-44-28-UNV-L840-EDD

### Luminous Intensity Polar Plot



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



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CATALOG NUMBER: MWL-3-44-28-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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39				
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33				
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	36	35	33	28				
3	80	70	63	58	72	64	58	53	53	48	45	42	39	37	32	30	29	24				
4	73	62	55	49	66	57	51	45	47	42	38	38	34	32	29	27	25	21				
5	67	56	48	42	61	51	44	39	42	37	33	34	30	27	26	24	22	18				
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19	16				
7	57	45	37	32	52	42	35	30	35	29	26	28	24	21	22	19	17	15				
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	20	18	16	13				
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12				
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	17	15	13	11				

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

	0°	90°	180°	270°
0°	10644	10644	10644	10644
5°	10455	9772	10455	9772
10°	10240	8943	10240	8943
15°	9976	8145	9943	8145
20°	9636	7419	9602	7419
25°	9195	6734	9160	6734
30°	8675	6072	8627	6072
35°	8097	5442	8059	5442
40°	7481	4820	7429	4820
45°	6938	4168	6896	4168
50°	6423	3418	6378	3418
55°	5920	2528	5887	2528
60°	5375	1865	5357	1865
65°	4802	1410	4802	1410
70°	4148	1045	4171	1045
75°	3563	754	3648	754
80°	4219	500	3534	500
85°	7160	209	3937	209



TEST NUMBER: P392612

CATALOG NUMBER: MWL-3-44-28-UNV-L840-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	116.3	1.6
10°-20°	326.4	4.5
20°-30°	476.3	6.6
30°-40°	538.3	7.4
40°-50°	503.3	7.0
50°-60°	397.3	5.5
60°-70°	260.1	3.6
70°-80°	136.3	1.9
80°-90°	91.5	1.3
90°-100°	147.2	2.0
100°-110°	284.7	3.9
110°-120°	488.3	6.8
120°-130°	663.5	9.2
130°-140°	756.9	10.5
140°-150°	755.1	10.4
150°-160°	657.6	9.1
160°-170°	462.6	6.4
170°-180°	172.3	2.4
0°-30°	919.0	12.7
0°-40°	1457.3	20.1
0°-60°	2357.9	32.6
0°-90°	2845.9	39.3
90°-120°	920.2	12.7
90°-150°	3095.6	42.8
90°-180°	4388.0	60.7
0°-180°	7234.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1236	1236	1236	1236	1236	
5°	1224	1229	1224	1229	1224	116
15°	1161	1158	1157	1158	1161	327
25°	1030	1039	1026	1039	1030	474
35°	845	880	841	880	845	528
45°	649	684	645	684	649	501
55°	472	409	470	409	472	423
65°	306	218	306	218	306	303
75°	163	107	166	107	163	184
85°	188	26	103	26	188	146
90°	257	2	62	2	257	142
95°	349	53	41	53	349	305
105°	563	257	16	257	563	593
115°	789	524	181	524	789	783
125°	988	822	449	822	988	882
135°	1148	1122	722	1122	1148	886
145°	1261	1404	971	1404	1261	795
155°	1409	1624	1222	1624	1409	650
165°	1540	1767	1489	1767	1540	437
175°	1821	1840	1782	1840	1821	170
180°	1839	1839	1839	1839	1839	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1
2.5°	1231.2	1233.8	1233.4	1235.7	1236.7	1234.4	1233.4	1233.8	1232.5	1233.8	1233.4
5°	1224.2	1226.8	1226.4	1227.4	1229.4	1227.4	1225.1	1226.8	1224.2	1226.8	1225.1
7.5°	1214.5	1217.1	1215.1	1217.4	1218.4	1216.1	1213.8	1215.8	1214.5	1215.8	1213.8
10°	1199.8	1201.1	1200.1	1201.1	1203.1	1199.8	1198.8	1198.5	1199.8	1198.5	1198.8
12.5°	1184.4	1183.1	1180.8	1181.8	1180.5	1181.8	1180.8	1180.5	1181.8	1180.5	1180.8
15°	1160.7	1160.1	1158.8	1160.8	1158.5	1159.5	1157.5	1157.5	1156.8	1157.5	1157.5
17.5°	1135.7	1134.1	1131.8	1133.5	1133.5	1133.5	1130.5	1132.8	1131.8	1132.8	1130.5
20°	1104.7	1105.4	1103.8	1105.5	1104.2	1104.2	1102.5	1102.8	1100.8	1102.8	1102.5
22.5°	1069.4	1071.4	1070.8	1074.5	1072.2	1073.2	1069.5	1068.8	1066.8	1068.8	1069.5
25°	1030.4	1033.4	1039.1	1040.5	1039.2	1039.2	1036.5	1029.5	1026.5	1029.5	1036.5
27.5°	990.4	993.4	999.1	1003.8	1002.2	1002.5	996.5	989.5	986.5	989.5	996.5
30°	942.4	948.4	960.4	966.1	963.2	963.5	956.5	944.5	937.2	944.5	956.5
32.5°	896.4	901.4	914.4	925.1	923.5	922.5	910.5	896.2	891.2	896.2	910.5
35°	845.1	848.1	865.1	880.1	880.2	876.2	861.2	844.2	841.2	844.2	861.2
37.5°	794.1	795.1	813.1	834.1	835.5	830.2	809.2	791.2	790.2	791.2	809.2
40°	743.1	741.1	757.1	781.8	788.5	779.2	751.9	735.9	737.9	735.9	751.9
42.5°	695.1	688.1	700.8	728.8	737.5	726.2	696.9	682.9	689.9	682.9	696.9
45°	648.8	636.8	643.8	668.8	684.5	666.2	638.6	632.9	644.9	632.9	638.6
47.5°	602.8	591.8	588.8	608.5	626.5	607.2	583.6	587.9	598.9	587.9	583.6
50°	558.8	546.8	537.8	549.5	559.2	546.9	532.6	541.6	554.9	541.6	532.6
52.5°	514.8	503.8	488.5	490.5	486.2	487.9	484.6	498.6	510.9	498.6	484.6
55°	472.5	462.5	442.5	432.2	408.9	429.6	438.6	458.6	469.9	458.6	438.6
57.5°	432.5	423.5	398.5	373.2	347.9	370.6	394.6	419.6	429.9	419.6	394.6
60°	387.2	382.2	353.2	314.9	295.9	313.6	350.6	379.6	385.9	379.6	350.6
62.5°	347.2	341.2	308.2	265.9	250.6	264.6	305.6	338.6	345.9	338.6	305.6
65°	305.9	296.9	262.9	221.9	217.6	220.6	261.6	295.6	305.9	295.6	261.6
67.5°	264.9	255.9	223.9	186.6	183.6	186.6	222.6	254.6	264.9	254.6	222.6
70°	227.6	213.6	185.6	153.6	155.6	153.6	185.6	214.9	228.9	214.9	185.6
72.5°	193.6	173.6	152.6	126.6	130.3	125.3	152.6	174.9	196.2	174.9	152.6
75°	162.6	140.6	118.3	101.3	107.3	101.3	119.6	141.9	166.5	141.9	119.6
77.5°	150.0	119.8	92.3	80.3	88.3	80.3	93.6	115.9	144.8	115.9	93.6
80°	152.1	118.0	76.2	61.3	67.3	61.3	73.6	97.2	127.4	97.2	73.6
82.5°	162.2	131.6	79.8	43.3	46.3	43.3	64.2	84.8	112.9	84.8	64.2
85°	187.5	158.5	98.4	37.2	26.3	34.6	60.7	79.3	103.1	79.3	60.7
87.5°	219.3	197.6	128.0	48.7	7.0	30.5	54.0	72.9	85.5	72.9	54.0
90°	256.9	239.0	166.8	69.0	2.3	19.6	38.2	55.8	62.1	55.8	38.2
92.5°	305.1	285.5	208.9	102.2	21.8	12.6	30.9	45.2	50.5	45.2	30.9
95°	348.8	339.0	257.7	138.1	53.0	8.2	23.9	37.6	40.9	37.6	23.9
97.5°	397.9	389.4	307.9	182.9	93.2	16.6	20.8	32.2	34.2	32.2	20.8
100°	441.6	437.3	358.3	238.7	142.6	43.9	14.1	29.4	32.4	29.4	14.1
102.5°	508.6	489.0	407.6	292.0	195.9	81.5	20.5	21.4	25.4	21.4	20.5
105°	563.0	540.8	471.2	347.8	256.9	132.2	51.7	18.6	16.1	18.6	51.7
107.5°	613.8	600.8	528.4	405.0	321.9	190.7	95.8	50.1	31.9	50.1	95.8
110°	678.8	663.2	584.3	462.1	389.4	253.0	146.5	91.6	70.8	91.6	146.5



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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°	741.1	729.4	636.2	521.9	459.6	320.6	208.8	143.6	124.1	143.6	208.8
115°	789.2	782.7	697.0	577.8	524.5	397.2	278.7	204.6	181.3	204.6	278.7
117.5°	839.9	838.6	741.1	634.9	602.4	466.0	342.3	265.7	241.0	265.7	342.3
120°	903.5	893.1	802.2	692.1	676.5	538.8	412.5	335.8	311.2	335.8	412.5
122.5°	947.7	941.2	854.2	746.6	746.6	612.8	480.0	403.4	377.4	403.4	480.0
125°	987.9	985.4	893.1	801.2	822.0	681.7	555.4	477.4	448.9	477.4	555.4
127.5°	1024.3	1028.2	943.8	860.9	898.6	751.8	629.4	543.7	513.8	543.7	629.4
130°	1055.5	1068.5	991.8	915.5	971.4	828.5	695.7	609.9	590.5	609.9	695.7
132.5°	1116.6	1108.8	1041.2	971.4	1049.3	898.6	765.8	676.2	654.1	676.2	765.8
135°	1147.7	1150.3	1084.1	1020.4	1122.0	969.8	832.1	743.7	721.7	743.7	832.1
137.5°	1185.4	1177.6	1117.9	1078.9	1189.6	1037.3	897.0	815.2	780.1	815.2	897.0
140°	1212.7	1211.4	1162.0	1130.8	1262.3	1103.6	963.3	880.1	847.7	880.1	963.3
142.5°	1241.3	1249.1	1206.2	1188.0	1335.1	1173.7	1034.7	943.8	912.6	943.8	1034.7
145°	1260.7	1277.6	1250.3	1259.4	1403.9	1251.6	1097.1	1004.8	971.1	1004.8	1097.1
147.5°	1293.2	1315.3	1282.8	1310.1	1463.7	1320.5	1159.4	1068.5	1038.6	1068.5	1159.4
150°	1337.4	1347.8	1328.3	1380.3	1525.7	1397.1	1223.1	1129.5	1099.7	1129.5	1223.1
152.5°	1372.5	1385.4	1363.4	1456.9	1573.8	1467.3	1293.2	1189.3	1154.2	1189.3	1293.2
155°	1408.8	1414.0	1398.4	1530.9	1624.5	1536.1	1349.1	1255.5	1221.8	1255.5	1349.1
157.5°	1442.6	1453.0	1434.8	1586.8	1668.6	1595.9	1412.7	1321.8	1291.9	1321.8	1412.7
160°	1479.0	1479.0	1489.4	1651.7	1705.0	1647.8	1480.3	1394.5	1353.0	1394.5	1480.3
162.5°	1482.9	1507.6	1563.4	1697.2	1740.1	1693.3	1553.0	1446.5	1410.1	1446.5	1553.0
165°	1540.0	1562.1	1646.5	1737.5	1767.4	1733.6	1642.7	1532.2	1489.4	1532.2	1642.7
167.5°	1599.8	1646.5	1714.1	1782.9	1793.3	1771.3	1711.5	1634.9	1595.9	1634.9	1711.5
170°	1697.2	1737.5	1771.3	1799.8	1814.1	1801.1	1754.4	1716.7	1692.0	1716.7	1754.4
172.5°	1772.9	1799.8	1812.8	1831.0	1821.9	1816.7	1793.3	1775.1	1761.2	1775.1	1793.3
175°	1820.9	1827.1	1838.8	1832.3	1840.1	1825.8	1827.1	1836.2	1781.9	1836.2	1827.1
177.5°	1837.8	1847.9	1841.4	1829.7	1831.0	1828.4	1833.6	1838.8	1830.0	1838.8	1833.6
180°	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8



TEST NUMBER: P392612

CATALOG NUMBER: MWL-3-44-28-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1236.1	1236.1	1236.1	1236.1	1236.1	1236.1
2.5°	1234.4	1236.7	1235.7	1233.4	1233.8	1231.2
5°	1227.4	1229.4	1227.4	1226.4	1226.8	1224.2
7.5°	1216.1	1218.4	1217.4	1215.1	1217.1	1214.5
10°	1199.8	1203.1	1201.1	1200.1	1201.1	1199.8
12.5°	1181.8	1180.5	1181.8	1180.8	1183.1	1184.4
15°	1159.5	1158.5	1160.8	1158.8	1160.1	1160.7
17.5°	1133.5	1133.5	1133.5	1131.8	1134.1	1135.7
20°	1104.2	1104.2	1105.5	1103.8	1105.4	1104.7
22.5°	1073.2	1072.2	1074.5	1070.8	1071.4	1069.4
25°	1039.2	1039.2	1040.5	1039.1	1033.4	1030.4
27.5°	1002.5	1002.2	1003.8	999.1	993.4	990.4
30°	963.5	963.2	966.1	960.4	948.4	942.4
32.5°	922.5	923.5	925.1	914.4	901.4	896.4
35°	876.2	880.2	880.1	865.1	848.1	845.1
37.5°	830.2	835.5	834.1	813.1	795.1	794.1
40°	779.2	788.5	781.8	757.1	741.1	743.1
42.5°	726.2	737.5	728.8	700.8	688.1	695.1
45°	666.2	684.5	668.8	643.8	636.8	648.8
47.5°	607.2	626.5	608.5	588.8	591.8	602.8
50°	546.9	559.2	549.5	537.8	546.8	558.8
52.5°	487.9	486.2	490.5	488.5	503.8	514.8
55°	429.6	408.9	432.2	442.5	462.5	472.5
57.5°	370.6	347.9	373.2	398.5	423.5	432.5
60°	313.6	295.9	314.9	353.2	382.2	387.2
62.5°	264.6	250.6	265.9	308.2	341.2	347.2
65°	220.6	217.6	221.9	262.9	296.9	305.9
67.5°	186.6	183.6	186.6	223.9	255.9	264.9
70°	153.6	155.6	153.6	185.6	213.6	227.6
72.5°	125.3	130.3	126.6	152.6	173.6	193.6
75°	101.3	107.3	101.3	118.3	140.6	162.6
77.5°	80.3	88.3	80.3	92.3	119.8	150.0
80°	61.3	67.3	61.3	76.2	118.0	152.1
82.5°	43.3	46.3	43.3	79.8	131.6	162.2
85°	34.6	26.3	37.2	98.4	158.5	187.5
87.5°	30.5	7.0	48.7	128.0	197.6	219.3
90°	19.6	2.3	69.0	166.8	239.0	256.9
92.5°	12.6	21.8	102.2	208.9	285.5	305.1
95°	8.2	53.0	138.1	257.7	339.0	348.8
97.5°	16.6	93.2	182.9	307.9	389.4	397.9
100°	43.9	142.6	238.7	358.3	437.3	441.6
102.5°	81.5	195.9	292.0	407.6	489.0	508.6
105°	132.2	256.9	347.8	471.2	540.8	563.0
107.5°	190.7	321.9	405.0	528.4	600.8	613.8
110°	253.0	389.4	462.1	584.3	663.2	678.8





TEST NUMBER: P392612

CATALOG NUMBER: MWL-3-44-28-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	320.6	459.6	521.9	636.2	729.4	741.1
115°	397.2	524.5	577.8	697.0	782.7	789.2
117.5°	466.0	602.4	634.9	741.1	838.6	839.9
120°	538.8	676.5	692.1	802.2	893.1	903.5
122.5°	612.8	746.6	746.6	854.2	941.2	947.7
125°	681.7	822.0	801.2	893.1	985.4	987.9
127.5°	751.8	898.6	860.9	943.8	1028.2	1024.3
130°	828.5	971.4	915.5	991.8	1068.5	1055.5
132.5°	898.6	1049.3	971.4	1041.2	1108.8	1116.6
135°	969.8	1122.0	1020.4	1084.1	1150.3	1147.7
137.5°	1037.3	1189.6	1078.9	1117.9	1177.6	1185.4
140°	1103.6	1262.3	1130.8	1162.0	1211.4	1212.7
142.5°	1173.7	1335.1	1188.0	1206.2	1249.1	1241.3
145°	1251.6	1403.9	1259.4	1250.3	1277.6	1260.7
147.5°	1320.5	1463.7	1310.1	1282.8	1315.3	1293.2
150°	1397.1	1525.7	1380.3	1328.3	1347.8	1337.4
152.5°	1467.3	1573.8	1456.9	1363.4	1385.4	1372.5
155°	1536.1	1624.5	1530.9	1398.4	1414.0	1408.8
157.5°	1595.9	1668.6	1586.8	1434.8	1453.0	1442.6
160°	1647.8	1705.0	1651.7	1489.4	1479.0	1479.0
162.5°	1693.3	1740.1	1697.2	1563.4	1507.6	1482.9
165°	1733.6	1767.4	1737.5	1646.5	1562.1	1540.0
167.5°	1771.3	1793.3	1782.9	1714.1	1646.5	1599.8
170°	1801.1	1814.1	1799.8	1771.3	1737.5	1697.2
172.5°	1816.7	1821.9	1831.0	1812.8	1799.8	1772.9
175°	1825.8	1840.1	1832.3	1838.8	1827.1	1820.9
177.5°	1828.4	1831.0	1829.7	1841.4	1847.9	1837.8
180°	1838.8	1838.8	1838.8	1838.8	1838.8	1838.8

(END OF REPORT)