

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: P392614

Luminaire Tested: **MWL-3-44-33-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392614  
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-3-44-33-UNV-L835-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

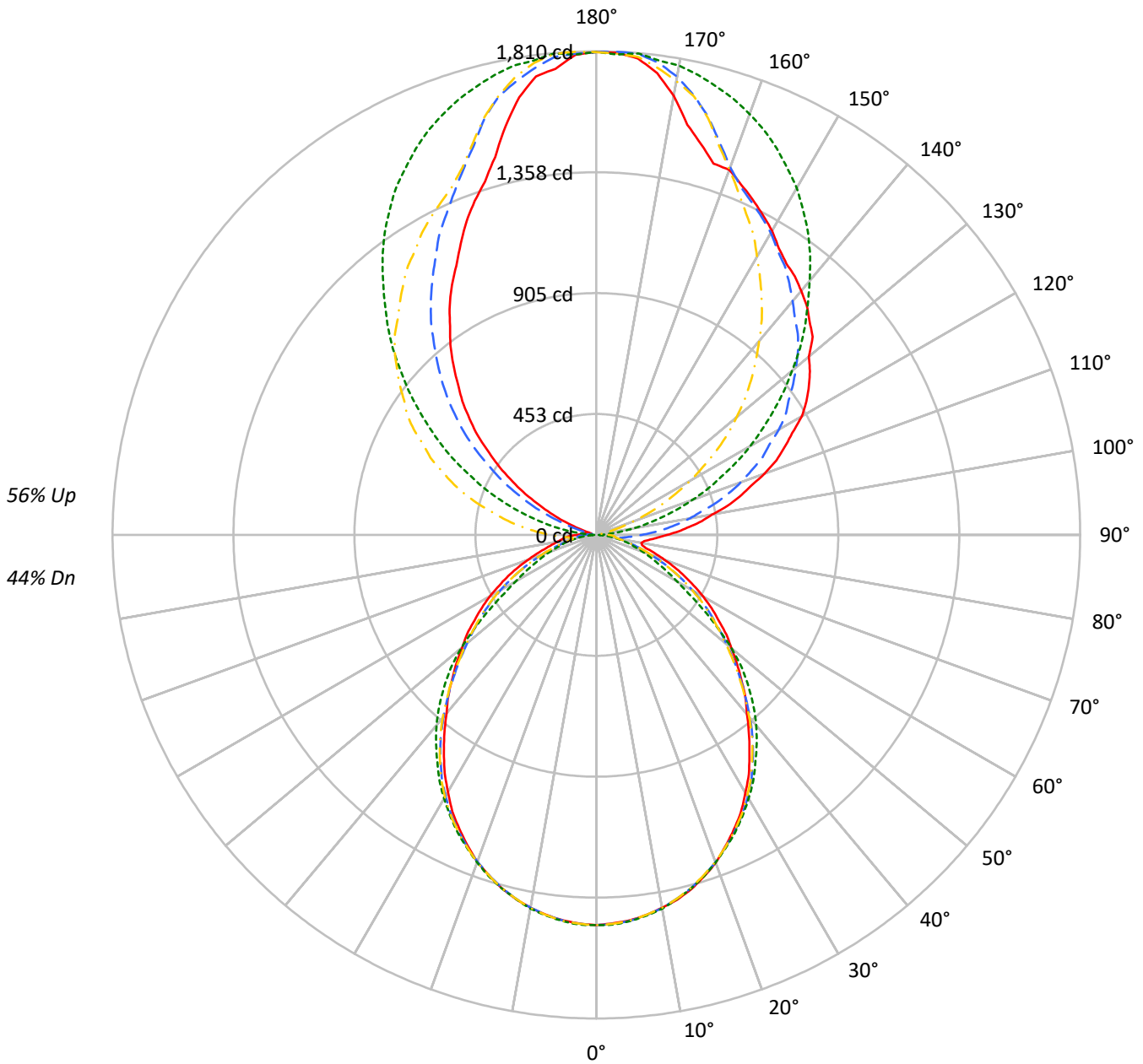
Lumens per Lamp: N/A  
Luminaire Lumens: 7675.0 lumens  
Efficiency: N/A  
Efficacy: 85.2 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 90.1  
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



TEST NUMBER: P392614  
CATALOG NUMBER: MWL-3-44-33-UNV-L835-EDD

### 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	106	106	106	106	97	97	97	97	80	80	80	64	64	64	50	50	50	44				
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43	37				
2	88	81	75	70	80	74	69	65	62	58	55	50	48	45	40	38	36	31				
3	81	71	64	58	73	66	59	54	55	50	46	45	41	39	35	33	31	27				
4	74	63	56	50	67	58	52	46	49	44	40	40	36	33	32	29	27	23				
5	68	56	49	43	62	52	45	40	44	38	34	36	32	29	29	26	24	21				
6	63	51	43	37	57	47	40	35	40	34	30	33	29	26	26	23	21	18				
7	58	46	38	33	53	42	36	31	36	31	27	30	26	23	24	21	19	16				
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	22	19	17	15				
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	18	15	13				
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	19	16	14	12				

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

	0°	90°	180°	270°
0°	12577	12577	12577	12577
5°	12365	11533	12365	11533
10°	12094	10557	12094	10557
15°	11798	9630	11766	9630
20°	11391	8764	11358	8764
25°	10861	7962	10827	7962
30°	10263	7182	10216	7182
35°	9558	6412	9521	6412
40°	8827	5686	8776	5686
45°	8195	4904	8154	4904
50°	7578	4038	7533	4038
55°	6999	3020	6968	3020
60°	6401	2192	6385	2192
65°	5707	1647	5707	1647
70°	4918	1246	4942	1246
75°	4212	901	4297	901
80°	4746	579	4072	579
85°	7675	252	4506	252



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	137.4	1.8
10°-20°	385.6	5.0
20°-30°	562.7	7.3
30°-40°	636.1	8.3
40°-50°	595.0	7.8
50°-60°	469.8	6.1
60°-70°	307.4	4.0
70°-80°	160.8	2.1
80°-90°	101.3	1.3
90°-100°	149.0	1.9
100°-110°	280.8	3.7
110°-120°	480.1	6.3
120°-130°	652.4	8.5
130°-140°	744.1	9.7
140°-150°	742.2	9.7
150°-160°	646.3	8.4
160°-170°	454.7	5.9
170°-180°	169.4	2.2
0°-30°	1085.6	14.1
0°-40°	1721.8	22.4
0°-60°	2786.6	36.3
0°-90°	3356.1	43.7
90°-120°	909.9	11.9
90°-150°	3048.5	39.7
90°-180°	4319.0	56.3
0°-180°	7675.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1461	1461	1461	1461	1461	
5°	1448	1451	1448	1451	1448	137
15°	1373	1370	1369	1370	1373	386
25°	1217	1229	1213	1229	1217	560
35°	998	1037	994	1037	998	624
45°	766	805	763	805	766	593
55°	559	488	556	488	559	501
65°	364	254	364	254	364	360
75°	192	128	196	128	192	216
85°	201	32	118	32	201	158
90°	264	2	73	2	264	146
95°	350	52	47	52	350	305
105°	555	252	18	252	555	585
115°	777	516	179	516	777	770
125°	971	809	441	809	971	867
135°	1128	1104	709	1104	1128	871
145°	1239	1381	954	1381	1239	781
155°	1385	1597	1201	1597	1385	639
165°	1514	1737	1464	1737	1514	429
175°	1790	1808	1751	1808	1790	167
180°	1807	1807	1807	1807	1807	



TEST NUMBER: P392614

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6
2.5°	1454.8	1458.3	1456.9	1458.2	1460.2	1456.9	1456.9	1458.3	1456.1	1458.3	1456.9
5°	1447.9	1450.5	1450.1	1450.1	1451.0	1450.1	1448.8	1450.5	1447.9	1450.5	1448.8
7.5°	1434.4	1438.0	1435.0	1437.3	1437.3	1436.0	1433.8	1436.7	1434.4	1436.7	1433.8
10°	1417.0	1420.3	1418.3	1418.3	1420.3	1417.0	1417.0	1417.7	1417.0	1417.7	1417.0
12.5°	1398.0	1397.7	1394.4	1396.4	1395.1	1396.4	1394.4	1395.1	1395.4	1395.1	1394.4
15°	1372.7	1370.2	1368.9	1369.9	1369.6	1368.6	1367.6	1367.6	1368.9	1367.6	1367.6
17.5°	1340.3	1340.7	1336.5	1339.1	1339.1	1339.1	1335.2	1339.4	1336.5	1339.4	1335.2
20°	1305.9	1304.6	1303.0	1304.7	1304.4	1303.4	1301.8	1302.1	1302.1	1302.1	1301.8
22.5°	1261.4	1264.3	1264.7	1268.3	1267.1	1267.1	1263.4	1261.8	1258.8	1261.8	1263.4
25°	1217.1	1222.0	1224.7	1230.0	1228.7	1228.7	1222.1	1218.2	1213.3	1218.2	1222.1
27.5°	1170.9	1171.9	1180.5	1189.0	1184.5	1187.7	1177.9	1168.1	1167.1	1168.1	1177.9
30°	1114.9	1119.8	1132.6	1142.1	1139.3	1139.6	1128.8	1116.0	1109.8	1116.0	1128.8
32.5°	1061.8	1063.8	1080.5	1092.0	1092.4	1089.5	1076.7	1058.7	1056.7	1058.7	1076.7
35°	997.7	1002.6	1020.3	1040.9	1037.1	1037.1	1016.4	998.8	993.8	998.8	1016.4
37.5°	937.7	940.7	960.3	985.9	985.3	982.0	956.5	936.8	933.9	936.8	956.5
40°	876.8	875.8	894.5	922.7	930.2	920.1	889.4	870.7	871.7	870.7	889.4
42.5°	825.7	813.9	826.4	857.8	870.3	855.3	822.5	808.8	820.6	808.8	822.5
45°	766.4	754.6	761.5	791.0	805.4	788.4	756.4	750.8	762.6	750.8	756.4
47.5°	713.3	698.6	697.6	718.9	739.6	717.7	692.5	694.8	709.5	694.8	692.5
50°	659.3	645.5	635.7	650.1	660.7	647.6	630.6	640.4	655.4	640.4	630.6
52.5°	613.1	594.4	577.4	581.3	573.2	578.8	573.6	589.3	609.3	589.3	573.6
55°	558.7	546.9	523.4	510.3	488.4	507.7	519.5	543.1	556.2	543.1	519.5
57.5°	510.6	499.8	471.3	440.5	409.7	437.9	467.4	495.9	508.0	495.9	467.4
60°	461.1	450.3	415.9	371.4	347.8	370.1	413.4	447.8	459.9	447.8	413.4
62.5°	410.0	403.2	363.8	313.4	299.4	312.1	361.3	400.6	408.8	400.6	361.3
65°	363.5	351.8	311.5	263.3	254.2	262.0	310.2	350.5	363.5	350.5	310.2
67.5°	316.4	301.6	263.3	218.8	217.8	218.8	262.0	300.4	316.4	300.4	262.0
70°	269.9	253.2	217.8	181.4	185.4	181.4	217.8	254.5	271.2	254.5	217.8
72.5°	229.6	207.0	178.5	149.0	152.6	147.7	178.5	208.3	232.1	208.3	178.5
75°	192.2	166.7	141.8	119.2	128.1	119.2	143.1	168.0	196.1	168.0	143.1
77.5°	174.9	141.3	109.4	93.7	102.5	93.7	110.7	137.5	169.8	137.5	110.7
80°	171.1	135.6	89.6	72.0	77.9	72.0	87.1	115.2	146.8	115.2	87.1
82.5°	180.1	145.1	89.2	51.4	55.3	51.4	73.9	99.1	131.6	99.1	73.9
85°	201.0	169.5	105.6	42.5	31.7	39.9	68.5	91.7	118.0	91.7	68.5
87.5°	229.3	205.0	133.7	52.8	8.8	34.9	60.9	82.5	97.8	82.5	60.9
90°	264.3	243.7	170.8	71.7	2.3	23.2	44.4	63.7	72.8	63.7	44.4
92.5°	307.7	288.5	211.2	102.4	21.4	14.3	36.3	52.3	57.5	52.3	36.3
95°	349.7	340.1	258.2	135.7	52.1	8.1	28.4	43.8	47.1	43.8	28.4
97.5°	397.9	388.6	304.6	179.8	91.6	16.3	22.4	37.5	40.5	37.5	22.4
100°	438.9	433.7	354.1	234.6	140.2	43.1	15.8	32.8	36.8	32.8	15.8
102.5°	502.8	483.6	401.6	287.0	192.5	80.1	21.1	24.0	27.9	24.0	21.1
105°	555.3	532.5	464.1	341.8	252.5	129.9	51.8	19.3	17.8	19.3	51.8
107.5°	604.2	590.5	520.3	398.0	316.4	187.4	95.1	49.2	32.3	49.2	95.1
110°	668.1	651.8	575.2	454.2	382.7	248.7	145.0	90.0	70.6	90.0	145.0



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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°	729.4	716.9	626.3	512.9	451.7	315.1	206.2	141.1	123.0	141.1	206.2
115°	776.6	769.3	685.0	567.9	515.5	390.4	273.9	201.1	179.2	201.1	273.9
117.5°	825.5	824.2	728.4	624.0	592.1	458.0	336.4	261.1	236.9	261.1	336.4
120°	888.0	877.8	788.4	680.2	664.9	529.5	405.4	330.0	305.9	330.0	405.4
122.5°	931.4	925.0	839.5	734.8	734.8	603.3	471.8	396.5	370.9	396.5	471.8
125°	970.9	968.5	877.8	788.4	808.9	671.0	545.9	469.2	441.2	469.2	545.9
127.5°	1006.7	1010.5	927.6	847.1	884.2	739.9	618.6	534.4	505.0	534.4	618.6
130°	1037.4	1050.2	974.8	900.8	955.7	815.3	683.8	599.4	580.4	599.4	683.8
132.5°	1097.4	1089.8	1023.3	955.7	1032.3	884.2	752.7	664.6	642.9	664.6	752.7
135°	1128.0	1130.5	1065.5	1002.9	1103.7	953.1	817.8	730.9	709.3	730.9	817.8
137.5°	1165.0	1157.4	1098.7	1060.4	1170.2	1019.5	881.6	801.2	766.7	801.2	881.6
140°	1191.9	1190.6	1142.0	1111.4	1241.6	1084.7	946.8	865.0	833.1	865.0	946.8
142.5°	1220.0	1227.7	1185.5	1167.6	1313.2	1153.5	1016.9	927.6	896.9	927.6	1016.9
145°	1239.1	1255.7	1228.8	1237.8	1380.8	1230.1	1078.3	987.5	954.4	987.5	1078.3
147.5°	1271.0	1292.7	1260.8	1287.6	1439.5	1297.8	1139.5	1050.2	1020.8	1050.2	1139.5
150°	1314.4	1324.7	1305.5	1356.6	1499.5	1373.1	1202.1	1110.1	1080.8	1110.1	1202.1
152.5°	1348.9	1361.6	1340.0	1431.9	1546.8	1442.1	1271.0	1168.9	1134.4	1168.9	1271.0
155°	1384.6	1389.7	1374.4	1504.6	1596.6	1509.7	1325.9	1233.9	1200.8	1233.9	1325.9
157.5°	1417.8	1428.1	1410.2	1559.6	1639.9	1568.5	1388.4	1299.1	1269.7	1299.1	1388.4
160°	1453.6	1453.6	1463.8	1623.3	1675.7	1619.5	1454.9	1370.6	1329.8	1370.6	1454.9
162.5°	1457.4	1481.7	1536.6	1668.1	1710.2	1664.2	1526.3	1421.7	1385.9	1421.7	1526.3
165°	1513.6	1535.3	1618.2	1707.7	1737.1	1703.8	1614.5	1505.9	1463.8	1505.9	1614.5
167.5°	1572.3	1618.2	1684.7	1752.3	1762.5	1740.9	1682.1	1606.8	1568.5	1606.8	1682.1
170°	1668.1	1707.7	1740.9	1768.9	1783.0	1770.2	1724.3	1687.2	1662.9	1687.2	1724.3
172.5°	1742.5	1768.9	1781.7	1799.6	1790.6	1785.5	1762.5	1744.6	1731.0	1744.6	1762.5
175°	1789.6	1795.7	1807.2	1800.8	1808.5	1794.4	1795.7	1804.7	1751.3	1804.7	1795.7
177.5°	1806.2	1816.2	1809.8	1798.3	1799.6	1797.0	1802.1	1807.2	1798.6	1807.2	1802.1
180°	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2



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CATALOG NUMBER: MWL-3-44-33-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1460.6	1460.6	1460.6	1460.6	1460.6	1460.6
2.5°	1456.9	1460.2	1458.2	1456.9	1458.3	1454.8
5°	1450.1	1451.0	1450.1	1450.1	1450.5	1447.9
7.5°	1436.0	1437.3	1437.3	1435.0	1438.0	1434.4
10°	1417.0	1420.3	1418.3	1418.3	1420.3	1417.0
12.5°	1396.4	1395.1	1396.4	1394.4	1397.7	1398.0
15°	1368.6	1369.6	1369.9	1368.9	1370.2	1372.7
17.5°	1339.1	1339.1	1339.1	1336.5	1340.7	1340.3
20°	1303.4	1304.4	1304.7	1303.0	1304.6	1305.9
22.5°	1267.1	1267.1	1268.3	1264.7	1264.3	1261.4
25°	1228.7	1228.7	1230.0	1224.7	1222.0	1217.1
27.5°	1187.7	1184.5	1189.0	1180.5	1171.9	1170.9
30°	1139.6	1139.3	1142.1	1132.6	1119.8	1114.9
32.5°	1089.5	1092.4	1092.0	1080.5	1063.8	1061.8
35°	1037.1	1037.1	1040.9	1020.3	1002.6	997.7
37.5°	982.0	985.3	985.9	960.3	940.7	937.7
40°	920.1	930.2	922.7	894.5	875.8	876.8
42.5°	855.3	870.3	857.8	826.4	813.9	825.7
45°	788.4	805.4	791.0	761.5	754.6	766.4
47.5°	717.7	739.6	718.9	697.6	698.6	713.3
50°	647.6	660.7	650.1	635.7	645.5	659.3
52.5°	578.8	573.2	581.3	577.4	594.4	613.1
55°	507.7	488.4	510.3	523.4	546.9	558.7
57.5°	437.9	409.7	440.5	471.3	499.8	510.6
60°	370.1	347.8	371.4	415.9	450.3	461.1
62.5°	312.1	299.4	313.4	363.8	403.2	410.0
65°	262.0	254.2	263.3	311.5	351.8	363.5
67.5°	218.8	217.8	218.8	263.3	301.6	316.4
70°	181.4	185.4	181.4	217.8	253.2	269.9
72.5°	147.7	152.6	149.0	178.5	207.0	229.6
75°	119.2	128.1	119.2	141.8	166.7	192.2
77.5°	93.7	102.5	93.7	109.4	141.3	174.9
80°	72.0	77.9	72.0	89.6	135.6	171.1
82.5°	51.4	55.3	51.4	89.2	145.1	180.1
85°	39.9	31.7	42.5	105.6	169.5	201.0
87.5°	34.9	8.8	52.8	133.7	205.0	229.3
90°	23.2	2.3	71.7	170.8	243.7	264.3
92.5°	14.3	21.4	102.4	211.2	288.5	307.7
95°	8.1	52.1	135.7	258.2	340.1	349.7
97.5°	16.3	91.6	179.8	304.6	388.6	397.9
100°	43.1	140.2	234.6	354.1	433.7	438.9
102.5°	80.1	192.5	287.0	401.6	483.6	502.8
105°	129.9	252.5	341.8	464.1	532.5	555.3
107.5°	187.4	316.4	398.0	520.3	590.5	604.2
110°	248.7	382.7	454.2	575.2	651.8	668.1





TEST NUMBER: P392614

CATALOG NUMBER: MWL-3-44-33-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	315.1	451.7	512.9	626.3	716.9	729.4
115°	390.4	515.5	567.9	685.0	769.3	776.6
117.5°	458.0	592.1	624.0	728.4	824.2	825.5
120°	529.5	664.9	680.2	788.4	877.8	888.0
122.5°	603.3	734.8	734.8	839.5	925.0	931.4
125°	671.0	808.9	788.4	877.8	968.5	970.9
127.5°	739.9	884.2	847.1	927.6	1010.5	1006.7
130°	815.3	955.7	900.8	974.8	1050.2	1037.4
132.5°	884.2	1032.3	955.7	1023.3	1089.8	1097.4
135°	953.1	1103.7	1002.9	1065.5	1130.5	1128.0
137.5°	1019.5	1170.2	1060.4	1098.7	1157.4	1165.0
140°	1084.7	1241.6	1111.4	1142.0	1190.6	1191.9
142.5°	1153.5	1313.2	1167.6	1185.5	1227.7	1220.0
145°	1230.1	1380.8	1237.8	1228.8	1255.7	1239.1
147.5°	1297.8	1439.5	1287.6	1260.8	1292.7	1271.0
150°	1373.1	1499.5	1356.6	1305.5	1324.7	1314.4
152.5°	1442.1	1546.8	1431.9	1340.0	1361.6	1348.9
155°	1509.7	1596.6	1504.6	1374.4	1389.7	1384.6
157.5°	1568.5	1639.9	1559.6	1410.2	1428.1	1417.8
160°	1619.5	1675.7	1623.3	1463.8	1453.6	1453.6
162.5°	1664.2	1710.2	1668.1	1536.6	1481.7	1457.4
165°	1703.8	1737.1	1707.7	1618.2	1535.3	1513.6
167.5°	1740.9	1762.5	1752.3	1684.7	1618.2	1572.3
170°	1770.2	1783.0	1768.9	1740.9	1707.7	1668.1
172.5°	1785.5	1790.6	1799.6	1781.7	1768.9	1742.5
175°	1794.4	1808.5	1800.8	1807.2	1795.7	1789.6
177.5°	1797.0	1799.6	1798.3	1809.8	1816.2	1806.2
180°	1807.2	1807.2	1807.2	1807.2	1807.2	1807.2

(END OF REPORT)