

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: P392622

Luminaire Tested: **MWL-3-53-33-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392622
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-3-53-33-UNV-L830-EDD
Description: MWL 3FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

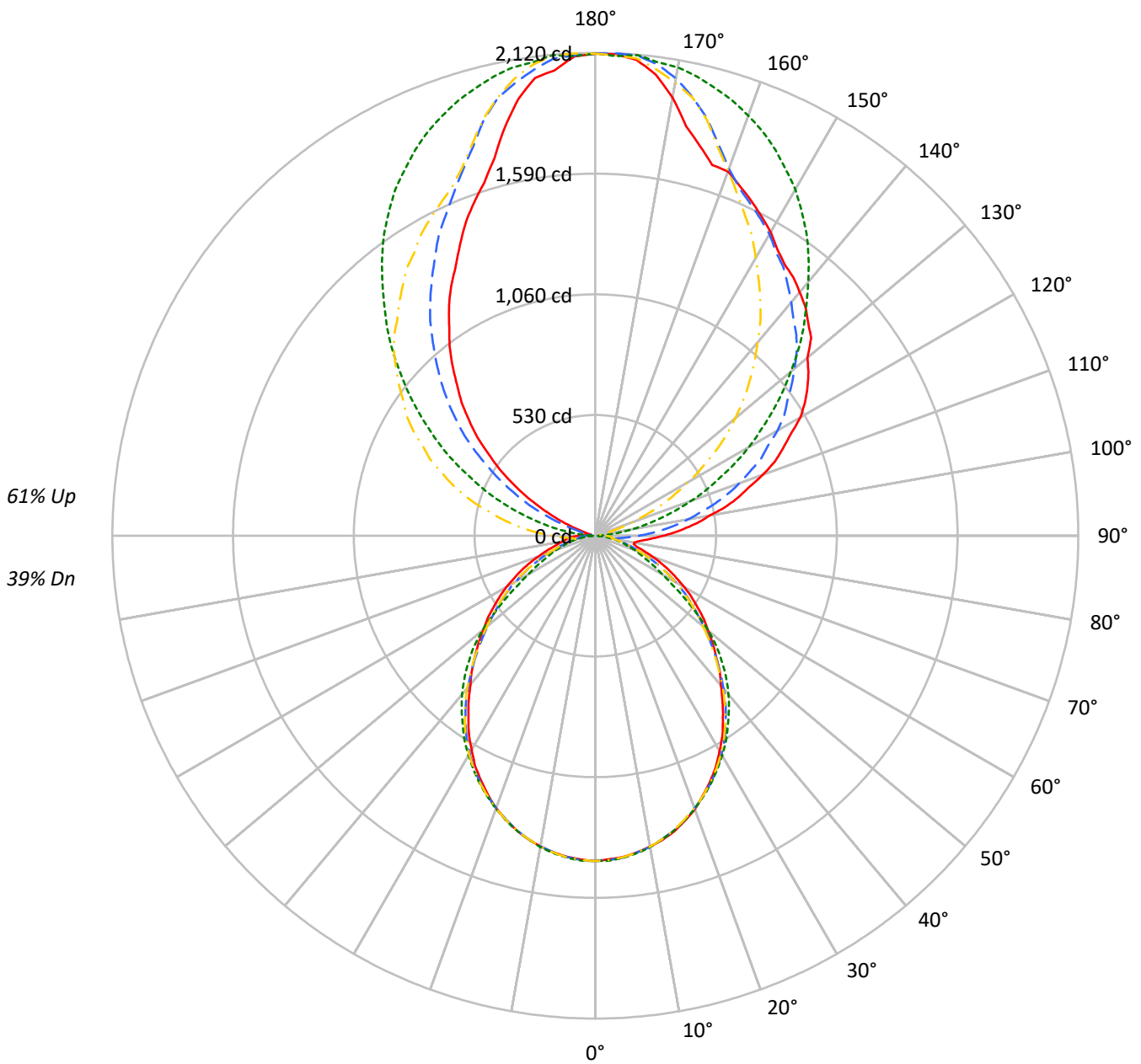
Lumens per Lamp: N/A
Luminaire Lumens: 8341.0 lumens
Efficiency: N/A
Efficacy: 79.6 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 104.8
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										
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	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	64	60	56	53	48	45	43	36	35	33	28																				
3	80	70	63	58	72	64	58	53	53	49	45	42	39	37	33	31	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	28	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°	12298	12298	12298	12298
5°	12084	11280	12084	11280
10°	11823	10323	11823	10323
15°	11541	9413	11503	9413
20°	11143	8565	11104	8565
25°	10625	7782	10585	7782
30°	10042	7020	9986	7020
35°	9352	6268	9307	6268
40°	8638	5560	8578	5560
45°	8019	4797	7972	4797
50°	7417	3950	7367	3950
55°	6852	2954	6814	2954
60°	6265	2146	6246	2146
65°	5586	1612	5586	1612
70°	4813	1219	4840	1219
75°	4124	882	4223	882
80°	4821	568	4033	568
85°	8274	249	4563	249



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	134.3	1.6
10°-20°	377.0	4.5
20°-30°	550.2	6.6
30°-40°	622.1	7.5
40°-50°	581.9	7.0
50°-60°	459.6	5.5
60°-70°	300.8	3.6
70°-80°	157.8	1.9
80°-90°	105.7	1.3
90°-100°	169.6	2.0
100°-110°	328.0	3.9
110°-120°	562.1	6.7
120°-130°	763.8	9.2
130°-140°	871.3	10.4
140°-150°	869.1	10.4
150°-160°	756.9	9.1
160°-170°	532.5	6.4
170°-180°	198.3	2.4
0°-30°	1061.5	12.7
0°-40°	1683.6	20.2
0°-60°	2725.2	32.7
0°-90°	3289.5	39.4
90°-120°	1059.6	12.7
90°-150°	3563.8	42.7
90°-180°	5052.0	60.6
0°-180°	8341.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1428	1428	1428	1428	1428	
5°	1415	1419	1415	1419	1415	134
15°	1343	1339	1338	1339	1343	378
25°	1191	1201	1186	1201	1191	548
35°	976	1014	972	1014	976	611
45°	750	788	746	788	750	580
55°	547	478	544	478	547	491
65°	356	249	356	249	356	352
75°	188	125	193	125	188	213
85°	217	31	120	31	217	169
90°	297	2	73	2	297	164
95°	401	61	47	61	401	351
105°	649	296	19	296	649	683
115°	909	604	209	604	909	902
125°	1137	947	516	947	1137	1015
135°	1321	1292	830	1292	1321	1020
145°	1451	1617	1118	1617	1451	915
155°	1622	1870	1406	1870	1622	748
165°	1772	2034	1714	2034	1772	503
175°	2096	2118	2051	2118	2096	195
180°	2116	2116	2116	2116	2116	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1
2.5°	1421.7	1425.6	1424.9	1426.3	1428.2	1424.9	1424.9	1425.6	1423.2	1425.6	1424.9
5°	1415.0	1418.0	1418.2	1418.2	1419.1	1418.2	1416.6	1418.0	1415.0	1418.0	1416.6
7.5°	1402.1	1406.1	1403.2	1405.7	1405.7	1404.1	1401.6	1404.5	1402.1	1404.5	1401.6
10°	1385.3	1388.8	1386.9	1386.9	1388.8	1385.3	1385.3	1385.8	1385.3	1385.8	1385.3
12.5°	1367.3	1366.7	1363.3	1365.2	1363.7	1365.2	1363.3	1363.7	1364.2	1363.7	1363.3
15°	1342.8	1339.8	1338.3	1339.3	1338.8	1337.8	1336.9	1336.9	1338.3	1336.9	1336.9
17.5°	1311.1	1311.0	1306.6	1309.0	1309.0	1309.0	1305.2	1309.5	1306.6	1309.5	1305.2
20°	1277.5	1276.1	1274.0	1275.4	1274.9	1273.9	1272.5	1273.0	1273.0	1273.0	1272.5
22.5°	1233.9	1236.7	1236.6	1239.9	1238.4	1238.4	1235.1	1233.7	1230.8	1233.7	1235.1
25°	1190.7	1195.5	1197.8	1202.5	1200.9	1200.9	1194.8	1191.0	1186.2	1191.0	1194.8
27.5°	1145.6	1146.5	1154.6	1162.6	1157.8	1161.2	1151.6	1142.0	1141.1	1142.0	1151.6
30°	1090.9	1095.7	1108.1	1117.2	1113.6	1114.2	1103.6	1091.1	1084.8	1091.1	1103.6
32.5°	1039.0	1040.9	1057.3	1068.2	1068.1	1065.2	1052.7	1034.9	1033.0	1034.9	1052.7
35°	976.1	980.9	998.1	1018.3	1013.8	1013.8	993.6	976.3	971.5	976.3	993.6
37.5°	917.5	920.4	939.6	964.5	963.5	960.0	935.1	915.9	913.0	915.9	935.1
40°	858.0	857.0	875.3	902.5	909.7	899.6	869.3	851.1	852.0	851.1	869.3
42.5°	808.1	796.6	808.5	839.2	851.2	836.2	804.1	790.6	802.1	790.6	804.1
45°	749.9	738.4	745.1	773.9	787.8	770.9	739.2	734.0	745.5	734.0	739.2
47.5°	698.1	683.7	682.7	703.4	723.5	701.8	676.8	679.3	693.7	679.3	676.8
50°	645.3	631.9	622.3	636.2	646.2	633.2	616.3	625.9	640.9	625.9	616.3
52.5°	600.2	581.9	565.2	569.0	560.7	566.0	560.6	576.0	595.8	576.0	560.6
55°	546.9	535.4	512.4	499.3	477.7	496.3	507.8	530.9	543.9	530.9	507.8
57.5°	499.9	489.3	461.5	431.2	400.9	428.2	457.0	484.8	496.9	484.8	457.0
60°	451.3	440.8	407.2	363.5	340.5	362.0	404.2	437.8	449.9	437.8	404.2
62.5°	401.4	394.7	356.3	306.9	292.8	305.3	353.3	391.7	400.0	391.7	353.3
65°	355.8	344.3	304.9	257.9	248.7	256.4	303.4	342.8	355.8	342.8	303.4
67.5°	309.7	295.3	257.9	214.1	213.2	214.1	256.4	293.8	309.7	293.8	256.4
70°	264.1	247.7	213.2	177.7	181.5	177.7	213.2	249.3	265.6	249.3	213.2
72.5°	224.7	202.6	174.8	146.0	149.4	144.6	174.8	204.2	227.7	204.2	174.8
75°	188.2	163.3	138.8	116.7	125.4	116.7	140.2	164.8	192.7	164.8	140.2
77.5°	173.3	139.5	107.1	91.8	100.4	91.8	108.6	135.0	167.3	135.0	108.6
80°	173.8	137.4	88.5	70.6	76.4	70.6	85.5	113.5	145.4	113.5	85.5
82.5°	188.6	152.0	91.1	50.5	54.3	50.5	73.1	98.2	131.8	98.2	73.1
85°	216.7	183.5	112.5	42.4	31.3	39.4	69.1	92.2	119.5	92.2	69.1
87.5°	253.2	227.3	147.2	56.2	8.6	35.3	62.0	83.8	99.2	83.8	62.0
90°	297.2	274.5	192.4	80.0	2.5	23.1	44.3	63.6	72.9	63.6	44.3
92.5°	350.5	328.7	241.0	117.7	24.9	14.5	36.2	52.0	57.4	52.0	36.2
95°	401.1	390.3	297.6	158.4	60.8	8.8	28.5	43.3	46.7	43.3	28.5
97.5°	459.3	448.9	353.9	210.3	107.1	18.9	23.3	37.6	40.5	37.6	23.3
100°	508.9	503.6	413.5	274.6	163.9	50.3	17.2	34.1	37.9	34.1	17.2
102.5°	585.6	563.8	470.0	335.9	225.3	93.7	24.4	25.4	29.3	25.4	24.4
105°	648.7	622.9	543.3	400.3	295.5	152.0	60.3	21.8	19.1	21.8	60.3
107.5°	707.2	691.4	609.1	466.1	370.3	219.3	111.1	57.2	37.2	57.2	111.1
110°	782.0	763.1	673.4	531.8	448.1	291.1	169.4	105.1	82.2	105.1	169.4



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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°	853.8	839.4	733.2	600.7	528.9	368.9	241.2	164.9	143.5	164.9	241.2
115°	909.2	900.7	802.0	665.0	603.6	457.1	320.5	235.3	209.2	235.3	320.5
117.5°	966.5	965.0	852.8	730.7	693.4	536.4	393.7	305.5	277.1	305.5	393.7
120°	1039.8	1027.8	923.2	796.6	778.6	620.1	474.4	386.2	357.8	386.2	474.4
122.5°	1090.7	1083.2	983.0	860.3	860.3	706.2	552.3	464.0	434.1	464.0	552.3
125°	1137.0	1133.9	1027.8	923.2	947.1	785.5	639.0	549.2	516.4	549.2	639.0
127.5°	1178.9	1183.4	1086.1	991.9	1035.3	866.3	724.2	625.5	591.2	625.5	724.2
130°	1214.8	1229.7	1141.4	1054.8	1119.1	954.6	800.5	701.8	679.4	701.8	800.5
132.5°	1285.0	1276.1	1198.3	1119.1	1208.7	1035.3	881.2	778.0	752.6	778.0	881.2
135°	1320.9	1323.9	1247.7	1174.4	1292.5	1116.0	957.5	855.8	830.4	855.8	957.5
137.5°	1364.3	1355.3	1286.6	1241.6	1370.3	1193.8	1032.3	938.0	897.7	938.0	1032.3
140°	1395.7	1394.2	1337.3	1301.4	1454.1	1270.1	1108.6	1012.8	975.5	1012.8	1108.6
142.5°	1428.6	1437.5	1388.2	1367.3	1537.8	1350.9	1190.8	1086.1	1050.3	1086.1	1190.8
145°	1451.0	1470.5	1439.1	1449.5	1617.0	1440.5	1262.6	1156.4	1117.5	1156.4	1262.6
147.5°	1488.4	1513.9	1476.4	1507.9	1685.9	1519.8	1334.4	1229.7	1195.3	1229.7	1334.4
150°	1539.3	1551.2	1528.8	1588.6	1756.1	1608.0	1407.7	1300.0	1265.6	1300.0	1407.7
152.5°	1579.6	1594.6	1569.1	1676.8	1811.4	1688.8	1488.4	1368.8	1328.4	1368.8	1488.4
155°	1621.5	1627.5	1609.5	1762.1	1869.8	1768.1	1552.7	1445.0	1406.2	1445.0	1552.7
157.5°	1660.4	1672.3	1651.4	1826.4	1920.6	1836.8	1626.0	1521.3	1486.9	1521.3	1626.0
160°	1702.3	1702.3	1714.3	1901.1	1962.5	1896.6	1703.8	1605.0	1557.2	1605.0	1703.8
162.5°	1706.8	1735.2	1799.5	1953.6	2002.9	1949.0	1787.5	1664.9	1623.0	1664.9	1787.5
165°	1772.5	1798.0	1895.2	1999.9	2034.3	1995.4	1890.7	1763.6	1714.3	1763.6	1890.7
167.5°	1841.3	1895.2	1972.9	2052.2	2064.1	2038.8	1970.0	1881.8	1836.8	1881.8	1970.0
170°	1953.6	1999.9	2038.8	2071.6	2088.1	2073.1	2019.3	1975.9	1947.5	1975.9	2019.3
172.5°	2040.8	2071.6	2086.6	2107.5	2097.0	2091.1	2064.1	2043.2	2027.4	2043.2	2064.1
175°	2096.1	2103.1	2116.5	2109.0	2118.0	2101.6	2103.1	2113.6	2051.3	2113.6	2103.1
177.5°	2115.6	2127.0	2119.5	2106.1	2107.5	2104.5	2110.5	2116.5	2106.5	2116.5	2110.5
180°	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5



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CATALOG NUMBER: MWL-3-53-33-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1428.1	1428.1	1428.1	1428.1	1428.1	1428.1
2.5°	1424.9	1428.2	1426.3	1424.9	1425.6	1421.7
5°	1418.2	1419.1	1418.2	1418.2	1418.0	1415.0
7.5°	1404.1	1405.7	1405.7	1403.2	1406.1	1402.1
10°	1385.3	1388.8	1386.9	1386.9	1388.8	1385.3
12.5°	1365.2	1363.7	1365.2	1363.3	1366.7	1367.3
15°	1337.8	1338.8	1339.3	1338.3	1339.8	1342.8
17.5°	1309.0	1309.0	1309.0	1306.6	1311.0	1311.1
20°	1273.9	1274.9	1275.4	1274.0	1276.1	1277.5
22.5°	1238.4	1238.4	1239.9	1236.6	1236.7	1233.9
25°	1200.9	1200.9	1202.5	1197.8	1195.5	1190.7
27.5°	1161.2	1157.8	1162.6	1154.6	1146.5	1145.6
30°	1114.2	1113.6	1117.2	1108.1	1095.7	1090.9
32.5°	1065.2	1068.1	1068.2	1057.3	1040.9	1039.0
35°	1013.8	1013.8	1018.3	998.1	980.9	976.1
37.5°	960.0	963.5	964.5	939.6	920.4	917.5
40°	899.6	909.7	902.5	875.3	857.0	858.0
42.5°	836.2	851.2	839.2	808.5	796.6	808.1
45°	770.9	787.8	773.9	745.1	738.4	749.9
47.5°	701.8	723.5	703.4	682.7	683.7	698.1
50°	633.2	646.2	636.2	622.3	631.9	645.3
52.5°	566.0	560.7	569.0	565.2	581.9	600.2
55°	496.3	477.7	499.3	512.4	535.4	546.9
57.5°	428.2	400.9	431.2	461.5	489.3	499.9
60°	362.0	340.5	363.5	407.2	440.8	451.3
62.5°	305.3	292.8	306.9	356.3	394.7	401.4
65°	256.4	248.7	257.9	304.9	344.3	355.8
67.5°	214.1	213.2	214.1	257.9	295.3	309.7
70°	177.7	181.5	177.7	213.2	247.7	264.1
72.5°	144.6	149.4	146.0	174.8	202.6	224.7
75°	116.7	125.4	116.7	138.8	163.3	188.2
77.5°	91.8	100.4	91.8	107.1	139.5	173.3
80°	70.6	76.4	70.6	88.5	137.4	173.8
82.5°	50.5	54.3	50.5	91.1	152.0	188.6
85°	39.4	31.3	42.4	112.5	183.5	216.7
87.5°	35.3	8.6	56.2	147.2	227.3	253.2
90°	23.1	2.5	80.0	192.4	274.5	297.2
92.5°	14.5	24.9	117.7	241.0	328.7	350.5
95°	8.8	60.8	158.4	297.6	390.3	401.1
97.5°	18.9	107.1	210.3	353.9	448.9	459.3
100°	50.3	163.9	274.6	413.5	503.6	508.9
102.5°	93.7	225.3	335.9	470.0	563.8	585.6
105°	152.0	295.5	400.3	543.3	622.9	648.7
107.5°	219.3	370.3	466.1	609.1	691.4	707.2
110°	291.1	448.1	531.8	673.4	763.1	782.0



TEST NUMBER: P392622

CATALOG NUMBER: MWL-3-53-33-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	368.9	528.9	600.7	733.2	839.4	853.8
115°	457.1	603.6	665.0	802.0	900.7	909.2
117.5°	536.4	693.4	730.7	852.8	965.0	966.5
120°	620.1	778.6	796.6	923.2	1027.8	1039.8
122.5°	706.2	860.3	860.3	983.0	1083.2	1090.7
125°	785.5	947.1	923.2	1027.8	1133.9	1137.0
127.5°	866.3	1035.3	991.9	1086.1	1183.4	1178.9
130°	954.6	1119.1	1054.8	1141.4	1229.7	1214.8
132.5°	1035.3	1208.7	1119.1	1198.3	1276.1	1285.0
135°	1116.0	1292.5	1174.4	1247.7	1323.9	1320.9
137.5°	1193.8	1370.3	1241.6	1286.6	1355.3	1364.3
140°	1270.1	1454.1	1301.4	1337.3	1394.2	1395.7
142.5°	1350.9	1537.8	1367.3	1388.2	1437.5	1428.6
145°	1440.5	1617.0	1449.5	1439.1	1470.5	1451.0
147.5°	1519.8	1685.9	1507.9	1476.4	1513.9	1488.4
150°	1608.0	1756.1	1588.6	1528.8	1551.2	1539.3
152.5°	1688.8	1811.4	1676.8	1569.1	1594.6	1579.6
155°	1768.1	1869.8	1762.1	1609.5	1627.5	1621.5
157.5°	1836.8	1920.6	1826.4	1651.4	1672.3	1660.4
160°	1896.6	1962.5	1901.1	1714.3	1702.3	1702.3
162.5°	1949.0	2002.9	1953.6	1799.5	1735.2	1706.8
165°	1995.4	2034.3	1999.9	1895.2	1798.0	1772.5
167.5°	2038.8	2064.1	2052.2	1972.9	1895.2	1841.3
170°	2073.1	2088.1	2071.6	2038.8	1999.9	1953.6
172.5°	2091.1	2097.0	2107.5	2086.6	2071.6	2040.8
175°	2101.6	2118.0	2109.0	2116.5	2103.1	2096.1
177.5°	2104.5	2107.5	2106.1	2119.5	2127.0	2115.6
180°	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5

(END OF REPORT)