

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: P392624

Luminaire Tested: **MWL-3-53-33-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392624  
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-L940-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

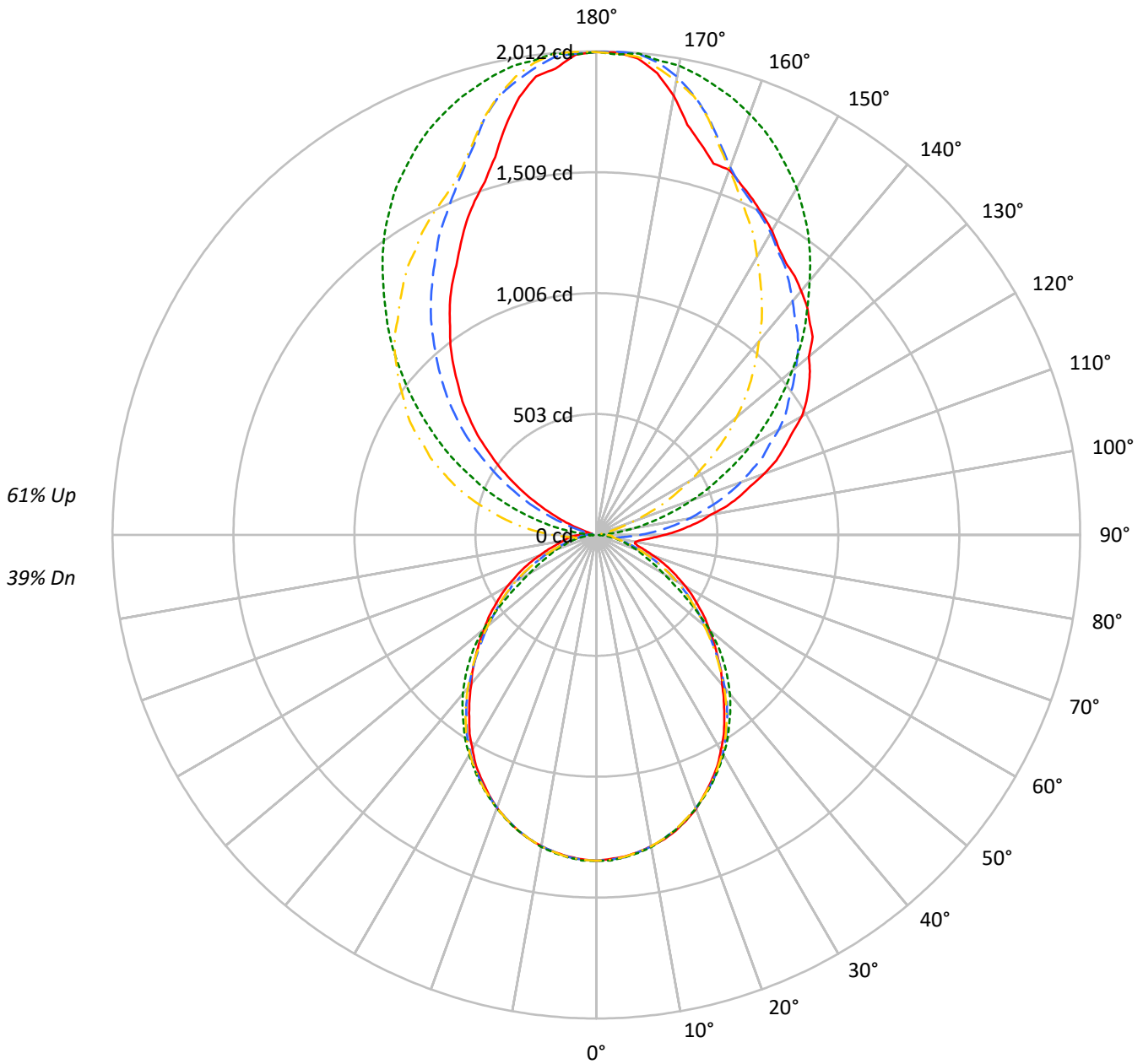
Lumens per Lamp: N/A  
Luminaire Lumens: 7917.5 lumens  
Efficiency: N/A  
Efficacy: 74.8 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 105.848  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: P392624  
CATALOG NUMBER: MWL-3-53-33-UNV-L940-EDD

### Luminous Intensity Polar Plot



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



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L940-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	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°	11673	11673	11673	11673
5°	11470	10708	11470	10708
10°	11223	9799	11223	9799
15°	10955	8935	10918	8935
20°	10578	8130	10541	8130
25°	10085	7387	10047	7387
30°	9532	6664	9479	6664
35°	8876	5950	8835	5950
40°	8199	5278	8143	5278
45°	7611	4553	7567	4553
50°	7040	3749	6992	3749
55°	6503	2804	6468	2804
60°	5947	2037	5928	2037
65°	5302	1530	5302	1530
70°	4567	1158	4594	1158
75°	3916	837	4008	837
80°	4577	539	3828	539
85°	7854	236	4330	236



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CATALOG NUMBER: MWL-3-53-33-UNV-L940-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	127.5	1.6
10°-20°	357.8	4.5
20°-30°	522.3	6.6
30°-40°	590.5	7.5
40°-50°	552.4	7.0
50°-60°	436.3	5.5
60°-70°	285.6	3.6
70°-80°	149.8	1.9
80°-90°	100.3	1.3
90°-100°	161.0	2.0
100°-110°	311.3	3.9
110°-120°	533.5	6.7
120°-130°	725.0	9.2
130°-140°	827.0	10.4
140°-150°	825.0	10.4
150°-160°	718.5	9.1
160°-170°	505.5	6.4
170°-180°	188.3	2.4
0°-30°	1007.6	12.7
0°-40°	1598.1	20.2
0°-60°	2586.8	32.7
0°-90°	3122.5	39.4
90°-120°	1005.8	12.7
90°-150°	3382.8	42.7
90°-180°	4795.0	60.6
0°-180°	7917.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1356	1356	1356	1356	1356	
5°	1343	1347	1343	1347	1343	127
15°	1275	1271	1270	1271	1275	359
25°	1130	1140	1126	1140	1130	520
35°	926	962	922	962	926	580
45°	712	748	708	748	712	551
55°	519	454	516	454	519	466
65°	338	236	338	236	338	334
75°	179	119	183	119	179	202
85°	206	30	113	30	206	160
90°	282	2	69	2	282	156
95°	381	58	44	58	381	333
105°	616	280	18	280	616	648
115°	863	573	199	573	863	856
125°	1079	899	490	899	1079	964
135°	1254	1227	788	1227	1254	968
145°	1377	1535	1061	1535	1377	868
155°	1539	1775	1335	1775	1539	710
165°	1682	1931	1627	1931	1682	477
175°	1990	2010	1947	2010	1990	186
180°	2009	2009	2009	2009	2009	



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L940-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6
2.5°	1349.5	1353.3	1352.5	1353.9	1355.7	1352.5	1352.5	1353.3	1351.0	1353.3	1352.5
5°	1343.1	1346.0	1346.2	1346.2	1347.1	1346.2	1344.7	1346.0	1343.1	1346.0	1344.7
7.5°	1330.9	1334.7	1331.9	1334.3	1334.3	1332.8	1330.5	1333.2	1330.9	1333.2	1330.5
10°	1315.0	1318.3	1316.4	1316.4	1318.3	1315.0	1315.0	1315.4	1315.0	1315.4	1315.0
12.5°	1297.9	1297.3	1294.0	1295.9	1294.5	1295.9	1294.0	1294.5	1294.9	1294.5	1294.0
15°	1274.6	1271.8	1270.3	1271.3	1270.8	1269.9	1269.0	1269.0	1270.3	1269.0	1269.0
17.5°	1244.6	1244.5	1240.3	1242.6	1242.6	1242.6	1238.9	1243.0	1240.3	1243.0	1238.9
20°	1212.7	1211.3	1209.3	1210.7	1210.1	1209.2	1207.9	1208.4	1208.4	1208.4	1207.9
22.5°	1171.2	1174.0	1173.8	1177.0	1175.5	1175.5	1172.4	1171.0	1168.3	1171.0	1172.4
25°	1130.2	1134.8	1137.0	1141.4	1140.0	1140.0	1134.1	1130.5	1125.9	1130.5	1134.1
27.5°	1087.4	1088.3	1096.0	1103.6	1099.0	1102.2	1093.1	1084.0	1083.1	1084.0	1093.1
30°	1035.5	1040.0	1051.9	1060.4	1057.1	1057.6	1047.6	1035.7	1029.7	1035.7	1047.6
32.5°	986.3	988.1	1003.6	1014.0	1013.9	1011.1	999.3	982.3	980.5	982.3	999.3
35°	926.5	931.1	947.5	966.6	962.3	962.3	943.2	926.8	922.2	926.8	943.2
37.5°	870.9	873.7	891.9	915.6	914.6	911.3	887.6	869.4	866.6	869.4	887.6
40°	814.4	813.5	830.8	856.7	863.5	853.9	825.2	807.9	808.8	807.9	825.2
42.5°	767.1	756.1	767.4	796.6	808.0	793.8	763.2	750.5	761.4	750.5	763.2
45°	711.8	700.9	707.3	734.6	747.8	731.8	701.6	696.7	707.7	696.7	701.6
47.5°	662.6	649.0	648.1	667.7	686.8	666.2	642.4	644.8	658.5	644.8	642.4
50°	612.5	599.8	590.7	603.9	613.4	601.1	585.0	594.1	608.3	594.1	585.0
52.5°	569.7	552.4	536.5	540.1	532.3	537.3	532.2	546.8	565.5	546.8	532.2
55°	519.1	508.2	486.3	474.0	453.5	471.1	482.1	503.9	516.3	503.9	482.1
57.5°	474.5	464.5	438.1	409.3	380.6	406.4	433.8	460.2	471.7	460.2	433.8
60°	428.4	418.4	386.5	345.0	323.2	343.6	383.7	415.6	427.0	415.6	383.7
62.5°	381.0	374.6	338.2	291.3	278.0	289.8	335.4	371.8	379.7	371.8	335.4
65°	337.7	326.8	289.5	244.8	236.1	243.4	288.0	325.4	337.7	325.4	288.0
67.5°	294.0	280.3	244.8	203.3	202.4	203.3	243.4	278.9	294.0	278.9	243.4
70°	250.6	235.2	202.4	168.6	172.3	168.6	202.4	236.6	252.1	236.6	202.4
72.5°	213.3	192.3	165.9	138.6	141.8	137.2	165.9	193.8	216.1	193.8	165.9
75°	178.7	155.0	131.7	110.8	119.0	110.8	133.1	156.4	182.9	156.4	133.1
77.5°	164.5	132.4	101.7	87.1	95.3	87.1	103.0	128.2	158.8	128.2	103.0
80°	165.0	130.5	84.0	67.1	72.5	67.1	81.2	107.7	138.0	107.7	81.2
82.5°	179.0	144.3	86.5	47.9	51.6	47.9	69.4	93.2	125.1	93.2	69.4
85°	205.7	174.2	106.8	40.3	29.7	37.4	65.6	87.6	113.4	87.6	65.6
87.5°	240.3	215.7	139.8	53.4	8.2	33.5	58.9	79.5	94.2	79.5	58.9
90°	282.1	260.6	182.7	75.9	2.4	22.0	42.1	60.4	69.2	60.4	42.1
92.5°	332.7	312.1	228.8	111.7	23.6	13.8	34.3	49.4	54.5	49.4	34.3
95°	380.7	370.5	282.5	150.3	57.7	8.4	27.1	41.1	44.4	41.1	27.1
97.5°	436.0	426.1	335.9	199.6	101.7	17.9	22.1	35.7	38.4	35.7	22.1
100°	483.1	478.1	392.5	260.7	155.6	47.7	16.3	32.3	36.0	32.3	16.3
102.5°	555.9	535.2	446.2	318.9	213.8	88.9	23.1	24.1	27.8	24.1	23.1
105°	615.7	591.3	515.7	379.9	280.5	144.3	57.2	20.7	18.1	20.7	57.2
107.5°	671.3	656.3	578.2	442.4	351.5	208.2	105.4	54.3	35.4	54.3	105.4
110°	742.3	724.3	639.2	504.8	425.4	276.3	160.8	99.8	78.0	99.8	160.8



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	810.4	796.8	696.0	570.2	502.0	350.1	229.0	156.5	136.2	156.5	229.0
115°	863.0	855.0	761.3	631.2	573.0	433.9	304.2	223.3	198.6	223.3	304.2
117.5°	917.4	916.0	809.5	693.6	658.2	509.1	373.7	290.0	263.0	290.0	373.7
120°	987.0	975.6	876.3	756.1	739.1	588.6	450.4	366.6	339.7	366.6	450.4
122.5°	1035.3	1028.2	933.1	816.6	816.6	670.4	524.2	440.4	412.1	440.4	524.2
125°	1079.3	1076.4	975.6	876.3	899.0	745.6	606.5	521.3	490.2	521.3	606.5
127.5°	1119.0	1123.3	1031.0	941.5	982.7	822.4	687.4	593.8	561.1	593.8	687.4
130°	1153.1	1167.3	1083.5	1001.2	1062.3	906.1	759.9	666.2	644.9	666.2	759.9
132.5°	1219.8	1211.3	1137.4	1062.3	1147.3	982.7	836.5	738.5	714.4	738.5	836.5
135°	1253.9	1256.7	1184.3	1114.7	1226.9	1059.3	908.9	812.3	788.3	812.3	908.9
137.5°	1295.0	1286.5	1221.2	1178.6	1300.7	1133.2	979.9	890.4	852.2	890.4	979.9
140°	1324.8	1323.4	1269.4	1235.4	1380.2	1205.6	1052.3	961.4	926.0	961.4	1052.3
142.5°	1356.1	1364.6	1317.7	1297.9	1459.7	1282.3	1130.3	1031.0	996.9	1031.0	1130.3
145°	1377.3	1395.8	1366.0	1375.9	1534.9	1367.4	1198.5	1097.7	1060.8	1097.7	1198.5
147.5°	1412.8	1437.0	1401.5	1431.3	1600.3	1442.6	1266.6	1167.3	1134.6	1167.3	1266.6
150°	1461.1	1472.4	1451.2	1508.0	1666.9	1526.4	1336.2	1234.0	1201.4	1234.0	1336.2
152.5°	1499.4	1513.6	1489.5	1591.7	1719.4	1603.1	1412.8	1299.3	1261.0	1299.3	1412.8
155°	1539.2	1544.9	1527.8	1672.6	1774.8	1678.3	1473.9	1371.7	1334.8	1371.7	1473.9
157.5°	1576.1	1587.4	1567.5	1733.6	1823.1	1743.6	1543.4	1444.1	1411.4	1444.1	1543.4
160°	1615.8	1615.8	1627.2	1804.6	1862.8	1800.3	1617.3	1523.5	1478.2	1523.5	1617.3
162.5°	1620.1	1647.1	1708.1	1854.4	1901.2	1850.1	1696.7	1580.4	1540.6	1580.4	1696.7
165°	1682.5	1706.7	1799.0	1898.4	1931.0	1894.1	1794.7	1674.1	1627.2	1674.1	1794.7
167.5°	1747.9	1799.0	1872.8	1948.0	1959.3	1935.3	1869.9	1786.2	1743.6	1786.2	1869.9
170°	1854.4	1898.4	1935.3	1966.4	1982.1	1967.9	1916.8	1875.6	1848.6	1875.6	1916.8
172.5°	1937.2	1966.4	1980.6	2000.5	1990.6	1984.9	1959.3	1939.5	1924.4	1939.5	1959.3
175°	1989.7	1996.3	2009.1	2002.0	2010.4	1994.9	1996.3	2006.2	1947.1	2006.2	1996.3
177.5°	2008.2	2019.0	2011.9	1999.1	2000.5	1997.7	2003.3	2009.1	1999.6	2009.1	2003.3
180°	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1355.6	1355.6	1355.6	1355.6	1355.6	1355.6
2.5°	1352.5	1355.7	1353.9	1352.5	1353.3	1349.5
5°	1346.2	1347.1	1346.2	1346.2	1346.0	1343.1
7.5°	1332.8	1334.3	1334.3	1331.9	1334.7	1330.9
10°	1315.0	1318.3	1316.4	1316.4	1318.3	1315.0
12.5°	1295.9	1294.5	1295.9	1294.0	1297.3	1297.9
15°	1269.9	1270.8	1271.3	1270.3	1271.8	1274.6
17.5°	1242.6	1242.6	1242.6	1240.3	1244.5	1244.6
20°	1209.2	1210.1	1210.7	1209.3	1211.3	1212.7
22.5°	1175.5	1175.5	1177.0	1173.8	1174.0	1171.2
25°	1140.0	1140.0	1141.4	1137.0	1134.8	1130.2
27.5°	1102.2	1099.0	1103.6	1096.0	1088.3	1087.4
30°	1057.6	1057.1	1060.4	1051.9	1040.0	1035.5
32.5°	1011.1	1013.9	1014.0	1003.6	988.1	986.3
35°	962.3	962.3	966.6	947.5	931.1	926.5
37.5°	911.3	914.6	915.6	891.9	873.7	870.9
40°	853.9	863.5	856.7	830.8	813.5	814.4
42.5°	793.8	808.0	796.6	767.4	756.1	767.1
45°	731.8	747.8	734.6	707.3	700.9	711.8
47.5°	666.2	686.8	667.7	648.1	649.0	662.6
50°	601.1	613.4	603.9	590.7	599.8	612.5
52.5°	537.3	532.3	540.1	536.5	552.4	569.7
55°	471.1	453.5	474.0	486.3	508.2	519.1
57.5°	406.4	380.6	409.3	438.1	464.5	474.5
60°	343.6	323.2	345.0	386.5	418.4	428.4
62.5°	289.8	278.0	291.3	338.2	374.6	381.0
65°	243.4	236.1	244.8	289.5	326.8	337.7
67.5°	203.3	202.4	203.3	244.8	280.3	294.0
70°	168.6	172.3	168.6	202.4	235.2	250.6
72.5°	137.2	141.8	138.6	165.9	192.3	213.3
75°	110.8	119.0	110.8	131.7	155.0	178.7
77.5°	87.1	95.3	87.1	101.7	132.4	164.5
80°	67.1	72.5	67.1	84.0	130.5	165.0
82.5°	47.9	51.6	47.9	86.5	144.3	179.0
85°	37.4	29.7	40.3	106.8	174.2	205.7
87.5°	33.5	8.2	53.4	139.8	215.7	240.3
90°	22.0	2.4	75.9	182.7	260.6	282.1
92.5°	13.8	23.6	111.7	228.8	312.1	332.7
95°	8.4	57.7	150.3	282.5	370.5	380.7
97.5°	17.9	101.7	199.6	335.9	426.1	436.0
100°	47.7	155.6	260.7	392.5	478.1	483.1
102.5°	88.9	213.8	318.9	446.2	535.2	555.9
105°	144.3	280.5	379.9	515.7	591.3	615.7
107.5°	208.2	351.5	442.4	578.2	656.3	671.3
110°	276.3	425.4	504.8	639.2	724.3	742.3





TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	350.1	502.0	570.2	696.0	796.8	810.4
115°	433.9	573.0	631.2	761.3	855.0	863.0
117.5°	509.1	658.2	693.6	809.5	916.0	917.4
120°	588.6	739.1	756.1	876.3	975.6	987.0
122.5°	670.4	816.6	816.6	933.1	1028.2	1035.3
125°	745.6	899.0	876.3	975.6	1076.4	1079.3
127.5°	822.4	982.7	941.5	1031.0	1123.3	1119.0
130°	906.1	1062.3	1001.2	1083.5	1167.3	1153.1
132.5°	982.7	1147.3	1062.3	1137.4	1211.3	1219.8
135°	1059.3	1226.9	1114.7	1184.3	1256.7	1253.9
137.5°	1133.2	1300.7	1178.6	1221.2	1286.5	1295.0
140°	1205.6	1380.2	1235.4	1269.4	1323.4	1324.8
142.5°	1282.3	1459.7	1297.9	1317.7	1364.6	1356.1
145°	1367.4	1534.9	1375.9	1366.0	1395.8	1377.3
147.5°	1442.6	1600.3	1431.3	1401.5	1437.0	1412.8
150°	1526.4	1666.9	1508.0	1451.2	1472.4	1461.1
152.5°	1603.1	1719.4	1591.7	1489.5	1513.6	1499.4
155°	1678.3	1774.8	1672.6	1527.8	1544.9	1539.2
157.5°	1743.6	1823.1	1733.6	1567.5	1587.4	1576.1
160°	1800.3	1862.8	1804.6	1627.2	1615.8	1615.8
162.5°	1850.1	1901.2	1854.4	1708.1	1647.1	1620.1
165°	1894.1	1931.0	1898.4	1799.0	1706.7	1682.5
167.5°	1935.3	1959.3	1948.0	1872.8	1799.0	1747.9
170°	1967.9	1982.1	1966.4	1935.3	1898.4	1854.4
172.5°	1984.9	1990.6	2000.5	1980.6	1966.4	1937.2
175°	1994.9	2010.4	2002.0	2009.1	1996.3	1989.7
177.5°	1997.7	2000.5	1999.1	2011.9	2019.0	2008.2
180°	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1

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