

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: P392546

Luminaire Tested: **MWL-2-35-38-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392546  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-2-35-38-UNV-L840-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

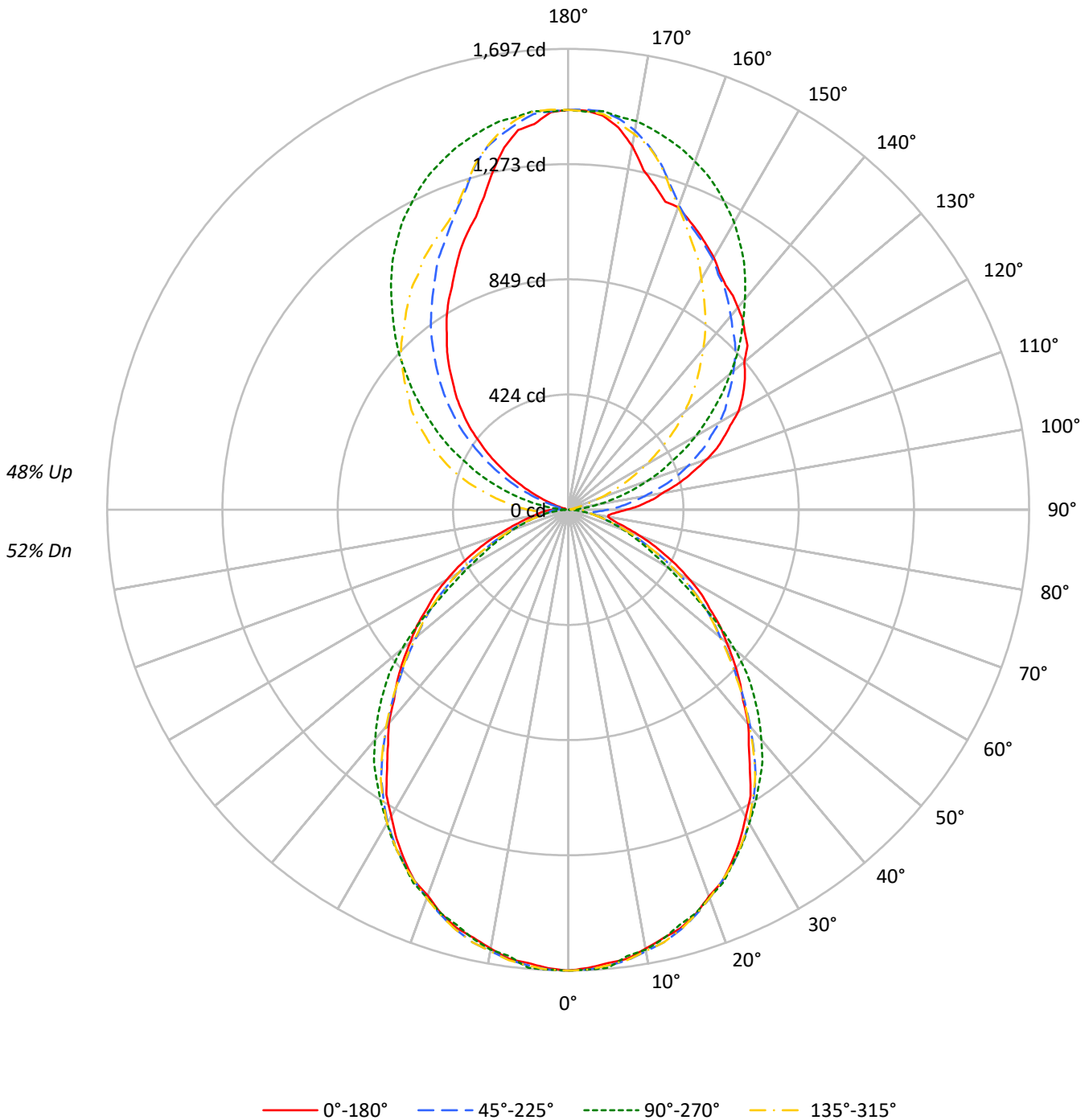
Lumens per Lamp: N/A  
Luminaire Lumens: 7380.1 lumens  
Efficiency: N/A  
Efficacy: 87.3 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 84.5  
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-2-35-38-UNV-L840-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	0
RCR																		
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52
1	99	94	91	87	91	87	84	81	75	72	70	63	61	60	52	51	50	45
2	90	83	77	72	83	77	72	67	66	62	59	56	53	50	46	44	43	38
3	82	73	66	60	76	68	62	57	58	54	50	50	46	43	41	39	37	33
4	76	65	57	51	70	61	54	49	52	47	43	44	41	37	37	34	32	28
5	70	58	50	44	64	54	47	42	47	41	37	40	36	33	34	31	28	25
6	64	52	44	39	59	49	42	37	42	37	33	36	32	29	31	27	25	22
7	59	47	40	34	55	44	37	32	39	33	29	33	29	26	28	25	22	20
8	55	43	35	30	51	40	34	29	35	30	26	30	26	23	26	23	20	18
9	52	39	32	27	48	37	30	26	32	27	23	28	24	21	24	21	18	16
10	48	36	29	24	45	34	28	23	30	25	21	26	22	19	22	19	17	15

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

	0°	90°	180°	270°
0°	21922	21922	21922	21922
5°	21343	20188	21343	20188
10°	20762	18344	20762	18344
15°	20216	16696	20177	16696
20°	19359	15309	19320	15309
25°	18552	13949	18512	13949
30°	17403	12605	17349	12605
35°	16034	11371	15992	11371
40°	14802	10141	14741	10141
45°	13488	8834	13441	8834
50°	12254	7337	12204	7337
55°	11042	5445	11005	5445
60°	9837	4001	9816	4001
65°	8325	2975	8325	2975
70°	6727	2178	6751	2178
75°	5225	1529	5312	1529
80°	5081	970	4409	970
85°	7197	405	4238	405



TEST NUMBER: P392546

CATALOG NUMBER: MWL-2-35-38-UNV-L840-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	159.6	2.2
10°-20°	448.9	6.1
20°-30°	658.6	8.9
30°-40°	746.9	10.1
40°-50°	697.3	9.4
50°-60°	547.8	7.4
60°-70°	341.3	4.6
70°-80°	165.7	2.2
80°-90°	93.5	1.3
90°-100°	122.3	1.7
100°-110°	227.1	3.1
110°-120°	391.5	5.3
120°-130°	531.9	7.2
130°-140°	607.0	8.2
140°-150°	605.2	8.2
150°-160°	527.0	7.1
160°-170°	370.5	5.0
170°-180°	138.0	1.9
0°-30°	1267.0	17.2
0°-40°	2013.9	27.3
0°-60°	3259.0	44.2
0°-90°	3859.6	52.3
90°-120°	740.9	10.0
90°-150°	2485.1	33.7
90°-180°	3521.0	47.7
0°-180°	7380.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1697	1697	1697	1697	1697	
5°	1676	1693	1676	1693	1676	159
15°	1596	1583	1593	1583	1596	448
25°	1428	1435	1425	1435	1428	656
35°	1165	1226	1162	1226	1165	731
45°	892	967	889	967	892	688
55°	636	587	634	587	636	573
65°	394	306	394	306	394	393
75°	186	145	189	145	186	209
85°	164	34	97	34	164	131
90°	214	2	58	2	214	119
95°	284	42	38	42	284	247
105°	446	206	9	206	446	471
115°	632	420	146	420	632	627
125°	791	659	360	659	791	707
135°	920	900	579	900	920	710
145°	1010	1126	779	1126	1010	637
155°	1130	1301	980	1301	1130	521
165°	1234	1414	1194	1414	1234	350
175°	1457	1473	1426	1473	1457	136
180°	1472	1472	1472	1472	1472	



TEST NUMBER: P392546

CATALOG NUMBER: MWL-2-35-38-UNV-L840-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2
2.5°	1689.1	1686.1	1695.2	1690.2	1695.2	1689.2	1695.2	1686.1	1690.1	1686.1	1695.2
5°	1676.1	1681.1	1685.2	1682.2	1693.2	1682.2	1684.2	1681.1	1676.1	1681.1	1684.2
7.5°	1668.1	1672.2	1673.2	1669.2	1658.2	1668.2	1672.1	1671.1	1668.1	1671.1	1672.1
10°	1641.1	1654.2	1651.2	1647.2	1645.2	1646.1	1650.1	1652.1	1641.1	1652.1	1650.1
12.5°	1616.2	1619.2	1631.1	1622.1	1618.1	1622.1	1631.1	1617.1	1614.1	1617.1	1631.1
15°	1596.2	1592.2	1601.1	1591.1	1583.1	1590.1	1600.1	1590.1	1593.1	1590.1	1600.1
17.5°	1561.2	1555.2	1564.1	1563.1	1559.1	1563.1	1563.1	1554.1	1558.1	1554.1	1563.1
20°	1515.2	1524.2	1522.1	1524.1	1519.1	1523.1	1521.1	1522.1	1512.1	1522.1	1521.1
22.5°	1481.2	1479.2	1480.1	1483.1	1488.1	1482.1	1479.1	1477.1	1479.1	1477.1	1479.1
25°	1428.2	1425.2	1437.2	1434.1	1435.1	1433.1	1435.1	1422.1	1425.1	1422.1	1435.1
27.5°	1370.2	1368.2	1386.2	1389.1	1389.1	1388.1	1384.1	1365.1	1367.1	1365.1	1384.1
30°	1307.2	1312.2	1333.2	1335.2	1333.1	1333.1	1330.1	1309.1	1303.1	1309.1	1330.1
32.5°	1249.2	1245.2	1268.2	1284.2	1281.1	1282.1	1265.1	1241.1	1245.1	1241.1	1265.1
35°	1165.2	1170.2	1203.2	1223.2	1226.1	1220.1	1200.1	1167.1	1162.1	1167.1	1200.1
37.5°	1092.2	1096.2	1123.2	1163.2	1174.1	1160.1	1120.1	1093.1	1089.1	1093.1	1120.1
40°	1031.3	1019.3	1042.3	1089.1	1106.1	1087.1	1038.1	1015.1	1027.1	1015.1	1038.1
42.5°	953.3	948.3	962.2	1014.2	1038.2	1012.2	959.1	944.1	949.1	944.1	959.1
45°	892.2	878.2	880.2	933.2	967.2	931.2	876.1	875.1	889.1	875.1	876.1
47.5°	827.2	809.2	807.2	850.2	893.2	849.2	803.1	806.1	824.1	806.1	803.1
50°	761.2	752.2	732.2	763.2	800.2	761.1	728.1	748.1	758.1	748.1	728.1
52.5°	704.2	692.2	669.2	688.2	698.2	686.1	666.1	688.1	701.1	688.1	666.1
55°	636.2	631.2	605.2	606.2	587.1	604.1	602.1	628.1	634.1	628.1	602.1
57.5°	583.2	576.2	537.2	519.2	495.1	517.1	534.1	573.1	581.1	573.1	534.1
60°	518.2	510.2	467.2	435.1	423.1	434.1	465.1	508.1	517.1	508.1	465.1
62.5°	457.2	448.2	402.2	361.1	356.1	360.1	400.1	446.1	456.1	446.1	400.1
65°	394.1	379.1	333.1	299.1	306.1	298.1	332.1	378.1	394.1	378.1	332.1
67.5°	338.1	315.1	280.1	248.1	259.1	248.1	279.1	314.1	338.1	314.1	279.1
70°	280.1	255.1	230.1	204.1	216.1	204.1	230.1	256.1	281.1	256.1	230.1
72.5°	229.1	206.1	185.1	167.1	177.0	166.0	185.1	207.1	231.2	207.1	185.1
75°	186.1	161.1	143.0	132.0	145.0	132.0	144.1	162.1	189.2	162.1	144.1
77.5°	161.4	136.2	107.0	103.0	115.0	103.0	108.1	133.1	157.2	133.1	108.1
80°	149.0	128.8	86.2	77.0	87.0	77.0	84.1	112.2	129.3	112.2	84.1
82.5°	150.0	134.6	84.6	54.0	58.0	54.0	72.2	97.2	110.5	97.2	72.2
85°	164.2	151.8	96.5	44.2	34.0	42.1	66.3	88.4	96.7	88.4	66.3
87.5°	185.5	180.2	117.6	50.7	10.0	36.2	58.4	80.5	78.6	80.5	58.4
90°	214.0	209.7	147.0	62.5	2.0	23.1	44.2	63.2	58.3	63.2	44.2
92.5°	252.7	243.3	177.4	82.7	17.6	11.1	35.1	51.2	49.2	51.2	35.1
95°	284.2	279.0	211.0	109.0	42.5	5.2	24.1	38.1	38.1	38.1	24.1
97.5°	321.9	313.7	244.7	146.4	74.7	13.5	15.2	28.2	31.2	28.2	15.2
100°	351.4	345.4	284.5	191.0	114.2	35.3	9.3	19.3	24.3	19.3	9.3
102.5°	400.6	386.2	326.1	233.6	156.8	65.4	16.6	12.3	14.3	12.3	16.6
105°	446.5	431.9	377.9	278.3	205.6	105.9	42.5	14.5	9.3	14.5	42.5
107.5°	491.1	480.7	423.6	325.0	257.5	153.6	77.8	40.4	25.9	40.4	77.8
110°	543.1	530.6	468.3	370.7	312.5	203.5	118.3	73.7	57.0	73.7	118.3



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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°	592.9	583.6	509.8	418.4	368.6	257.5	168.2	115.2	99.6	115.2	168.2
115°	632.3	626.1	557.6	463.1	420.5	318.7	223.2	164.0	146.3	164.0	223.2
117.5°	672.8	671.8	593.9	508.8	482.8	373.8	275.1	213.8	194.1	213.8	275.1
120°	723.7	715.4	642.7	555.5	543.0	432.9	331.2	269.9	250.2	269.9	331.2
122.5°	759.0	753.8	684.3	599.1	599.1	492.1	385.2	323.9	303.1	323.9	385.2
125°	791.2	789.1	715.4	642.7	659.3	547.2	445.4	383.1	360.2	383.1	445.4
127.5°	820.3	823.4	755.9	690.5	720.6	603.3	504.6	436.1	412.2	436.1	504.6
130°	846.2	855.6	794.3	734.1	778.8	664.5	557.6	489.0	474.4	489.0	557.6
132.5°	895.0	888.8	833.8	779.8	842.1	721.6	613.6	543.0	525.3	543.0	613.6
135°	920.0	922.0	869.1	818.2	900.2	777.7	667.6	597.0	579.3	597.0	667.6
137.5°	950.1	943.8	896.1	864.9	954.2	831.7	719.5	654.1	626.1	654.1	719.5
140°	971.9	970.8	931.4	906.5	1012.4	884.7	772.5	706.0	680.1	706.0	772.5
142.5°	994.7	1001.0	966.7	952.2	1070.4	940.7	829.6	756.9	732.0	756.9	829.6
145°	1010.3	1023.8	1002.0	1009.3	1125.5	1003.0	879.5	805.7	778.7	805.7	879.5
147.5°	1036.3	1053.9	1028.0	1049.8	1173.3	1058.1	929.3	856.6	832.7	856.6	929.3
150°	1072.5	1080.8	1065.2	1105.8	1222.1	1119.3	981.2	906.4	882.5	906.4	981.2
152.5°	1100.5	1110.9	1093.3	1167.0	1260.5	1175.3	1037.3	954.2	926.2	954.2	1037.3
155°	1129.6	1133.8	1120.3	1226.2	1301.0	1230.4	1080.8	1007.2	980.2	1007.2	1080.8
157.5°	1156.6	1164.9	1149.4	1270.9	1336.3	1278.1	1131.7	1060.1	1036.2	1060.1	1131.7
160°	1185.7	1185.7	1193.0	1322.8	1364.4	1319.7	1185.7	1118.2	1084.9	1118.2	1185.7
162.5°	1188.8	1207.5	1252.2	1359.1	1392.4	1356.0	1243.9	1158.7	1130.6	1158.7	1243.9
165°	1234.5	1251.1	1318.6	1391.3	1414.2	1388.2	1315.5	1227.3	1194.0	1227.3	1315.5
167.5°	1281.3	1318.6	1372.6	1426.7	1435.0	1417.3	1370.6	1309.3	1278.1	1309.3	1370.6
170°	1359.1	1391.3	1417.3	1441.2	1452.6	1442.2	1403.8	1374.7	1355.0	1374.7	1403.8
172.5°	1419.4	1441.2	1450.6	1466.1	1458.8	1454.7	1435.0	1421.5	1410.1	1421.5	1435.0
175°	1456.8	1462.0	1472.3	1467.2	1473.4	1462.0	1463.0	1469.3	1425.7	1469.3	1463.0
177.5°	1471.3	1478.6	1474.4	1466.1	1467.1	1465.0	1468.2	1471.3	1465.1	1471.3	1468.2
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1697.2	1697.2	1697.2	1697.2	1697.2	1697.2
2.5°	1689.2	1695.2	1690.2	1695.2	1686.1	1689.1
5°	1682.2	1693.2	1682.2	1685.2	1681.1	1676.1
7.5°	1668.2	1658.2	1669.2	1673.2	1672.2	1668.1
10°	1646.1	1645.2	1647.2	1651.2	1654.2	1641.1
12.5°	1622.1	1618.1	1622.1	1631.1	1619.2	1616.2
15°	1590.1	1583.1	1591.1	1601.1	1592.2	1596.2
17.5°	1563.1	1559.1	1563.1	1564.1	1555.2	1561.2
20°	1523.1	1519.1	1524.1	1522.1	1524.2	1515.2
22.5°	1482.1	1488.1	1483.1	1480.1	1479.2	1481.2
25°	1433.1	1435.1	1434.1	1437.2	1425.2	1428.2
27.5°	1388.1	1389.1	1389.1	1386.2	1368.2	1370.2
30°	1333.1	1333.1	1335.2	1333.2	1312.2	1307.2
32.5°	1282.1	1281.1	1284.2	1268.2	1245.2	1249.2
35°	1220.1	1226.1	1223.2	1203.2	1170.2	1165.2
37.5°	1160.1	1174.1	1163.2	1123.2	1096.2	1092.2
40°	1087.1	1106.1	1089.1	1042.3	1019.3	1031.3
42.5°	1012.2	1038.2	1014.2	962.2	948.3	953.3
45°	931.2	967.2	933.2	880.2	878.2	892.2
47.5°	849.2	893.2	850.2	807.2	809.2	827.2
50°	761.1	800.2	763.2	732.2	752.2	761.2
52.5°	686.1	698.2	688.2	669.2	692.2	704.2
55°	604.1	587.1	606.2	605.2	631.2	636.2
57.5°	517.1	495.1	519.2	537.2	576.2	583.2
60°	434.1	423.1	435.1	467.2	510.2	518.2
62.5°	360.1	356.1	361.1	402.2	448.2	457.2
65°	298.1	306.1	299.1	333.1	379.1	394.1
67.5°	248.1	259.1	248.1	280.1	315.1	338.1
70°	204.1	216.1	204.1	230.1	255.1	280.1
72.5°	166.0	177.0	167.1	185.1	206.1	229.1
75°	132.0	145.0	132.0	143.0	161.1	186.1
77.5°	103.0	115.0	103.0	107.0	136.2	161.4
80°	77.0	87.0	77.0	86.2	128.8	149.0
82.5°	54.0	58.0	54.0	84.6	134.6	150.0
85°	42.1	34.0	44.2	96.5	151.8	164.2
87.5°	36.2	10.0	50.7	117.6	180.2	185.5
90°	23.1	2.0	62.5	147.0	209.7	214.0
92.5°	11.1	17.6	82.7	177.4	243.3	252.7
95°	5.2	42.5	109.0	211.0	279.0	284.2
97.5°	13.5	74.7	146.4	244.7	313.7	321.9
100°	35.3	114.2	191.0	284.5	345.4	351.4
102.5°	65.4	156.8	233.6	326.1	386.2	400.6
105°	105.9	205.6	278.3	377.9	431.9	446.5
107.5°	153.6	257.5	325.0	423.6	480.7	491.1
110°	203.5	312.5	370.7	468.3	530.6	543.1





TEST NUMBER: P392546

CATALOG NUMBER: MWL-2-35-38-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	257.5	368.6	418.4	509.8	583.6	592.9
115°	318.7	420.5	463.1	557.6	626.1	632.3
117.5°	373.8	482.8	508.8	593.9	671.8	672.8
120°	432.9	543.0	555.5	642.7	715.4	723.7
122.5°	492.1	599.1	599.1	684.3	753.8	759.0
125°	547.2	659.3	642.7	715.4	789.1	791.2
127.5°	603.3	720.6	690.5	755.9	823.4	820.3
130°	664.5	778.8	734.1	794.3	855.6	846.2
132.5°	721.6	842.1	779.8	833.8	888.8	895.0
135°	777.7	900.2	818.2	869.1	922.0	920.0
137.5°	831.7	954.2	864.9	896.1	943.8	950.1
140°	884.7	1012.4	906.5	931.4	970.8	971.9
142.5°	940.7	1070.4	952.2	966.7	1001.0	994.7
145°	1003.0	1125.5	1009.3	1002.0	1023.8	1010.3
147.5°	1058.1	1173.3	1049.8	1028.0	1053.9	1036.3
150°	1119.3	1222.1	1105.8	1065.2	1080.8	1072.5
152.5°	1175.3	1260.5	1167.0	1093.3	1110.9	1100.5
155°	1230.4	1301.0	1226.2	1120.3	1133.8	1129.6
157.5°	1278.1	1336.3	1270.9	1149.4	1164.9	1156.6
160°	1319.7	1364.4	1322.8	1193.0	1185.7	1185.7
162.5°	1356.0	1392.4	1359.1	1252.2	1207.5	1188.8
165°	1388.2	1414.2	1391.3	1318.6	1251.1	1234.5
167.5°	1417.3	1435.0	1426.7	1372.6	1318.6	1281.3
170°	1442.2	1452.6	1441.2	1417.3	1391.3	1359.1
172.5°	1454.7	1458.8	1466.1	1450.6	1441.2	1419.4
175°	1462.0	1473.4	1467.2	1472.3	1462.0	1456.8
177.5°	1465.0	1467.1	1466.1	1474.4	1478.6	1471.3
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3

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