

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: P392688

Luminaire Tested: **MWL-4-55-33-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392688  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-1 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-4-55-33-UNV-L830-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

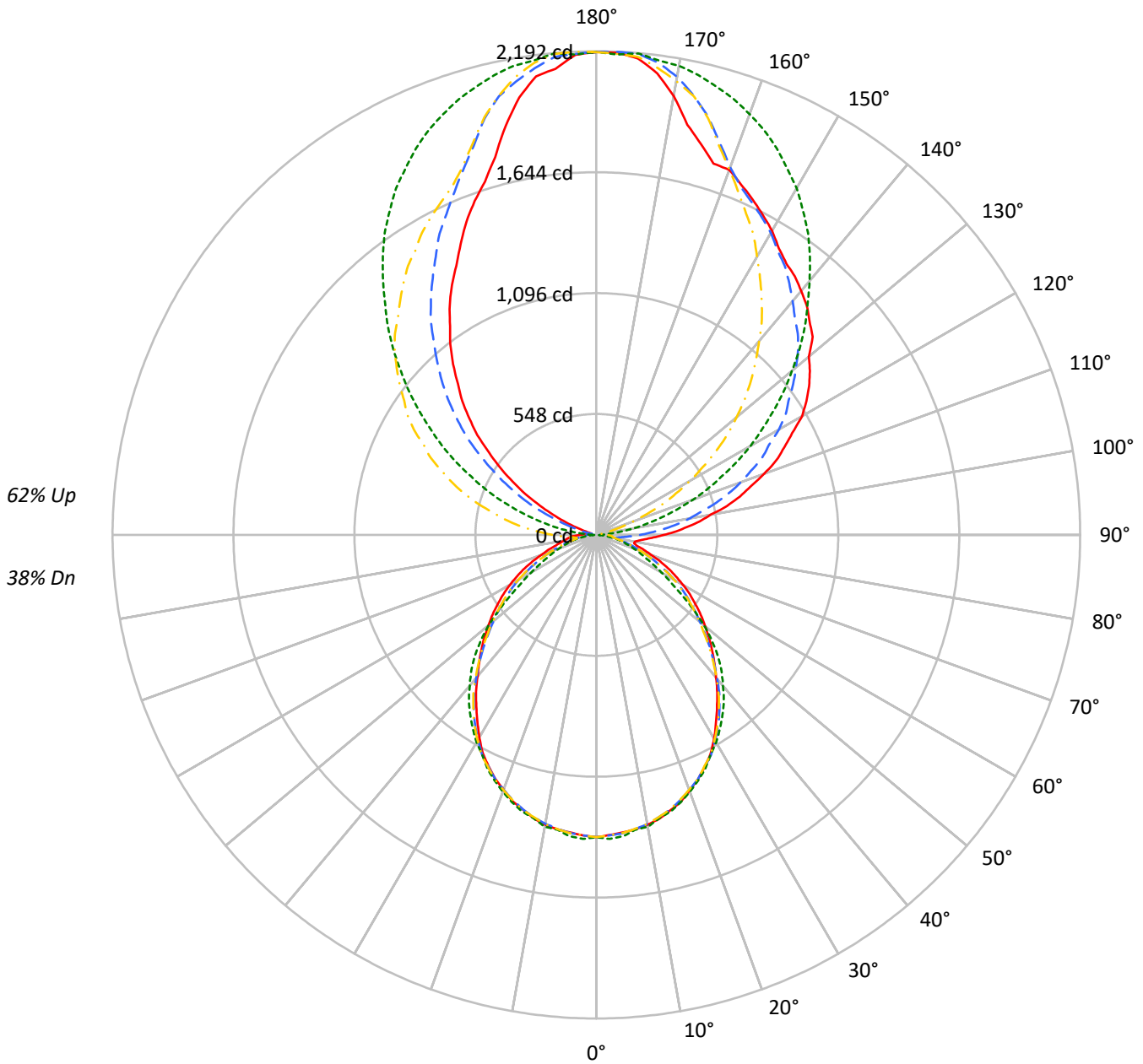
Lumens per Lamp: N/A  
Luminaire Lumens: 8459.0 lumens  
Efficiency: N/A  
Efficacy: 86.1 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 98.3  
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: P392688  
CATALOG NUMBER: MWL-4-55-33-UNV-L830-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	0
RCR																		
0	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45	38
1	95	91	87	84	86	83	79	76	67	65	63	53	52	50	40	39	38	32
2	87	80	74	69	79	72	67	63	59	56	52	47	44	42	35	34	33	27
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28	23
4	73	62	55	49	66	57	50	45	47	42	38	37	34	31	28	26	24	20
5	67	55	48	42	60	51	44	39	42	37	33	33	30	27	26	23	21	18
6	61	50	42	36	56	46	39	34	38	32	29	30	27	24	23	21	19	16
7	57	45	37	32	51	41	34	30	34	29	25	28	24	21	21	19	17	14
8	53	41	33	28	48	37	31	26	31	26	22	25	21	19	20	17	15	13
9	49	37	30	25	45	34	28	23	29	24	20	23	19	17	18	16	14	11
10	46	34	27	22	42	31	25	21	26	21	18	21	18	15	17	14	12	10

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

	0°	90°	180°	270°
0°	8849	8849	8849	8849
5°	8699	8177	8699	8177
10°	8591	7489	8591	7489
15°	8408	6845	8378	6845
20°	8165	6242	8135	6242
25°	7887	5675	7855	5675
30°	7501	5131	7458	5131
35°	7000	4618	6965	4618
40°	6537	4093	6489	4093
45°	6136	3565	6097	3565
50°	5746	2915	5704	2915
55°	5373	2180	5343	2180
60°	4962	1615	4946	1615
65°	4482	1200	4482	1200
70°	3864	900	3888	900
75°	3401	661	3486	661
80°	4141	426	3453	426
85°	7469	198	4073	198



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	129.0	1.5
10°-20°	363.9	4.3
20°-30°	534.7	6.3
30°-40°	607.8	7.2
40°-50°	572.9	6.8
50°-60°	457.4	5.4
60°-70°	302.2	3.6
70°-80°	159.2	1.9
80°-90°	107.8	1.3
90°-100°	174.9	2.1
100°-110°	339.8	4.0
110°-120°	581.3	6.9
120°-130°	789.9	9.3
130°-140°	901.1	10.7
140°-150°	898.8	10.6
150°-160°	782.7	9.3
160°-170°	550.6	6.5
170°-180°	205.1	2.4
0°-30°	1027.6	12.1
0°-40°	1635.4	19.3
0°-60°	2665.7	31.5
0°-90°	3234.8	38.2
90°-120°	1096.0	13.0
90°-150°	3685.8	43.6
90°-180°	5224.0	61.8
0°-180°	8459.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1370	1370	1370	1370	1370	
5°	1354	1372	1354	1372	1354	129
15°	1293	1298	1288	1298	1293	365
25°	1160	1168	1156	1168	1160	533
35°	953	996	948	996	953	597
45°	742	781	737	781	742	573
55°	548	470	545	470	548	491
65°	359	247	359	247	359	355
75°	189	125	194	125	189	214
85°	221	33	120	33	221	172
90°	305	2	73	2	305	169
95°	411	63	45	63	411	361
105°	673	306	22	306	673	708
115°	940	625	216	625	940	932
125°	1176	979	535	979	1176	1050
135°	1366	1336	859	1336	1366	1055
145°	1501	1671	1156	1671	1501	946
155°	1677	1933	1454	1933	1677	773
165°	1833	2103	1773	2103	1833	520
175°	2167	2190	2121	2190	2167	202
180°	2188	2188	2188	2188	2188	



TEST NUMBER: P392688

CATALOG NUMBER: MWL-4-55-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2
2.5°	1361.6	1361.9	1363.1	1371.3	1379.0	1369.8	1363.1	1361.9	1363.3	1361.9	1363.1
5°	1354.0	1357.1	1357.3	1366.0	1371.7	1366.0	1355.8	1357.1	1354.0	1357.1	1355.8
7.5°	1346.0	1351.0	1345.2	1354.4	1347.7	1352.9	1343.7	1349.4	1346.0	1349.4	1343.7
10°	1334.1	1334.7	1330.8	1339.5	1343.3	1337.9	1329.3	1331.6	1334.1	1331.6	1329.3
12.5°	1318.0	1311.6	1310.1	1315.8	1315.3	1315.8	1310.1	1308.6	1314.9	1308.6	1310.1
15°	1292.6	1294.3	1289.0	1294.7	1298.0	1293.2	1287.4	1291.3	1288.0	1291.3	1287.4
17.5°	1269.6	1267.5	1261.1	1264.4	1270.2	1264.4	1259.6	1265.9	1265.0	1265.9	1259.6
20°	1233.1	1234.4	1230.4	1239.4	1238.8	1237.8	1228.9	1231.4	1228.5	1231.4	1228.9
22.5°	1199.9	1201.8	1199.7	1199.1	1205.2	1197.5	1198.2	1198.7	1196.8	1198.7	1198.2
25°	1160.5	1160.5	1160.9	1170.3	1167.7	1168.7	1157.8	1155.9	1155.9	1155.9	1157.8
27.5°	1119.2	1117.3	1124.4	1130.6	1121.6	1129.0	1121.4	1112.7	1114.6	1112.7	1121.4
30°	1066.4	1068.4	1076.0	1092.7	1085.2	1089.7	1071.4	1063.8	1060.2	1063.8	1071.4
32.5°	1008.8	1016.5	1027.1	1049.5	1041.7	1046.5	1022.5	1010.3	1002.6	1010.3	1022.5
35°	952.6	955.5	971.8	999.6	995.9	994.9	967.1	950.8	947.9	950.8	967.1
37.5°	899.8	895.0	915.2	944.9	948.6	940.2	910.4	890.3	895.1	890.3	910.4
40°	843.2	844.1	852.8	887.7	892.9	884.5	846.5	837.9	836.9	837.9	846.5
42.5°	792.3	782.7	789.8	826.3	839.1	823.1	785.1	776.4	786.0	776.4	785.1
45°	741.8	729.3	730.3	761.9	780.6	758.8	724.0	724.6	737.1	724.6	724.0
47.5°	692.8	677.5	669.8	694.2	710.5	692.5	663.5	672.8	688.1	672.8	663.5
50°	642.9	628.5	613.1	627.9	635.9	624.8	606.9	622.3	638.2	622.3	606.9
52.5°	596.8	580.5	560.7	562.6	552.4	559.5	556.0	574.3	592.1	574.3	556.0
55°	548.2	533.8	509.8	493.8	470.2	490.7	505.1	529.1	545.1	529.1	505.1
57.5°	502.2	491.6	460.9	429.5	398.2	426.4	456.2	486.9	499.0	486.9	456.2
60°	453.5	444.9	409.3	364.6	341.6	363.1	406.3	441.8	452.0	441.8	406.3
62.5°	405.5	398.8	357.5	306.0	287.2	304.5	354.4	395.7	404.0	395.7	354.4
65°	358.8	348.3	306.0	258.0	246.9	256.5	304.5	346.7	358.8	346.7	304.5
67.5°	311.8	299.3	259.0	214.3	212.3	214.3	257.5	297.8	311.8	297.8	257.5
70°	263.2	250.7	215.2	177.8	178.7	177.8	215.2	252.3	264.8	252.3	215.2
72.5°	226.7	205.6	176.8	147.1	150.3	145.5	176.8	207.2	229.8	207.2	176.8
75°	189.3	166.3	138.8	116.7	125.4	116.7	140.3	167.8	194.0	167.8	140.3
77.5°	174.8	142.7	108.1	93.7	99.5	93.7	109.6	138.0	168.7	138.0	109.6
80°	177.1	139.4	88.7	70.7	76.4	70.7	85.6	114.6	147.7	114.6	85.6
82.5°	193.1	156.1	92.9	50.5	53.4	50.5	74.3	100.5	134.3	100.5	74.3
85°	220.8	188.1	116.3	43.6	33.2	40.5	71.5	93.8	120.4	93.8	71.5
87.5°	259.2	232.8	150.6	58.2	8.6	36.6	62.5	84.4	100.0	84.4	62.5
90°	305.1	281.9	198.5	82.9	2.5	24.2	45.5	64.0	73.2	64.0	45.5
92.5°	361.5	339.2	247.1	122.2	25.7	15.6	35.3	53.2	58.7	53.2	35.3
95°	411.3	402.0	306.8	164.5	62.8	10.0	28.6	43.4	44.9	43.4	28.6
97.5°	472.6	463.9	367.2	217.3	110.7	19.5	25.6	38.8	39.7	38.8	25.6
100°	525.2	521.7	429.0	283.8	169.4	51.9	19.5	36.4	38.3	36.4	19.5
102.5°	605.6	584.1	486.7	347.2	232.8	96.8	26.1	27.7	30.6	27.7	26.1
105°	673.0	648.6	561.5	413.7	305.5	157.1	62.2	27.2	22.4	27.2	62.2
107.5°	733.8	715.5	629.5	481.6	382.7	226.7	114.7	60.1	41.3	60.1	114.7
110°	808.2	788.6	695.9	550.6	463.1	301.8	175.0	108.6	84.8	108.6	175.0



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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°	882.3	867.5	757.7	621.7	546.6	382.2	249.2	170.4	148.1	170.4	249.2
115°	939.5	930.9	828.8	688.2	624.9	473.4	331.1	243.1	216.2	243.1	331.1
117.5°	999.8	998.3	881.4	756.2	717.6	555.3	406.8	316.6	287.3	316.6	406.8
120°	1075.6	1063.2	954.0	824.2	805.6	641.8	490.4	400.1	370.7	400.1	490.4
122.5°	1128.1	1120.4	1016.8	889.1	889.1	730.0	571.7	480.5	449.6	480.5	571.7
125°	1176.1	1172.9	1063.2	954.0	978.8	811.9	661.3	568.6	534.6	568.6	661.3
127.5°	1219.3	1224.0	1123.5	1025.2	1070.0	895.3	749.5	647.4	611.9	647.4	749.5
130°	1256.4	1271.9	1180.7	1090.1	1156.5	986.5	828.3	726.2	703.1	726.2	828.3
132.5°	1329.1	1319.8	1239.4	1157.5	1249.2	1071.0	911.7	805.0	778.8	805.0	911.7
135°	1366.2	1369.2	1290.4	1214.7	1335.8	1154.4	990.5	885.5	859.2	885.5	990.5
137.5°	1411.0	1401.7	1330.6	1284.3	1416.2	1234.7	1067.9	970.4	928.7	970.4	1067.9
140°	1443.4	1441.9	1383.1	1346.1	1502.8	1313.6	1146.7	1047.7	1009.1	1047.7	1146.7
142.5°	1477.4	1486.7	1435.7	1414.1	1589.3	1397.1	1231.7	1123.5	1086.4	1123.5	1231.7
145°	1500.6	1520.7	1488.3	1499.1	1671.2	1489.8	1305.9	1196.1	1155.9	1196.1	1305.9
147.5°	1539.2	1565.5	1526.9	1559.4	1742.4	1571.7	1380.1	1271.9	1236.4	1271.9	1380.1
150°	1591.8	1604.2	1581.0	1642.8	1814.9	1662.9	1455.8	1344.6	1308.9	1344.6	1455.8
152.5°	1633.5	1649.0	1622.8	1734.0	1872.2	1746.4	1539.2	1415.6	1373.9	1415.6	1539.2
155°	1676.8	1683.0	1664.4	1822.1	1933.4	1828.3	1605.8	1494.4	1454.3	1494.4	1605.8
157.5°	1717.0	1729.4	1707.7	1888.6	1985.9	1899.4	1681.5	1573.3	1537.7	1573.3	1681.5
160°	1760.3	1760.3	1772.7	1965.9	2029.2	1961.2	1761.9	1659.8	1610.4	1659.8	1761.9
162.5°	1764.9	1794.3	1860.7	2020.0	2071.0	2015.3	1848.3	1721.6	1678.3	1721.6	1848.3
165°	1832.9	1859.2	1959.7	2067.9	2103.4	2063.3	1955.0	1823.7	1772.7	1823.7	1955.0
167.5°	1904.0	1959.7	2040.1	2121.9	2134.3	2108.0	2037.0	1945.8	1899.4	1945.8	2037.0
170°	2019.0	2066.9	2108.0	2142.1	2159.1	2143.6	2088.0	2042.2	2012.8	2042.2	2088.0
172.5°	2110.2	2142.1	2157.6	2179.2	2168.3	2162.2	2134.3	2112.7	2096.3	2112.7	2134.3
175°	2167.4	2174.6	2188.5	2180.7	2190.0	2173.0	2174.6	2185.3	2121.0	2185.3	2174.6
177.5°	2187.5	2199.2	2191.5	2177.6	2179.2	2176.1	2182.2	2188.5	2178.2	2188.5	2182.2
180°	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5



TEST NUMBER: P392688

CATALOG NUMBER: MWL-4-55-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2
2.5°	1369.8	1379.0	1371.3	1363.1	1361.9	1361.6
5°	1366.0	1371.7	1366.0	1357.3	1357.1	1354.0
7.5°	1352.9	1347.7	1354.4	1345.2	1351.0	1346.0
10°	1337.9	1343.3	1339.5	1330.8	1334.7	1334.1
12.5°	1315.8	1315.3	1315.8	1310.1	1311.6	1318.0
15°	1293.2	1298.0	1294.7	1289.0	1294.3	1292.6
17.5°	1264.4	1270.2	1264.4	1261.1	1267.5	1269.6
20°	1237.8	1238.8	1239.4	1230.4	1234.4	1233.1
22.5°	1197.5	1205.2	1199.1	1199.7	1201.8	1199.9
25°	1168.7	1167.7	1170.3	1160.9	1160.5	1160.5
27.5°	1129.0	1121.6	1130.6	1124.4	1117.3	1119.2
30°	1089.7	1085.2	1092.7	1076.0	1068.4	1066.4
32.5°	1046.5	1041.7	1049.5	1027.1	1016.5	1008.8
35°	994.9	995.9	999.6	971.8	955.5	952.6
37.5°	940.2	948.6	944.9	915.2	895.0	899.8
40°	884.5	892.9	887.7	852.8	844.1	843.2
42.5°	823.1	839.1	826.3	789.8	782.7	792.3
45°	758.8	780.6	761.9	730.3	729.3	741.8
47.5°	692.5	710.5	694.2	669.8	677.5	692.8
50°	624.8	635.9	627.9	613.1	628.5	642.9
52.5°	559.5	552.4	562.6	560.7	580.5	596.8
55°	490.7	470.2	493.8	509.8	533.8	548.2
57.5°	426.4	398.2	429.5	460.9	491.6	502.2
60°	363.1	341.6	364.6	409.3	444.9	453.5
62.5°	304.5	287.2	306.0	357.5	398.8	405.5
65°	256.5	246.9	258.0	306.0	348.3	358.8
67.5°	214.3	212.3	214.3	259.0	299.3	311.8
70°	177.8	178.7	177.8	215.2	250.7	263.2
72.5°	145.5	150.3	147.1	176.8	205.6	226.7
75°	116.7	125.4	116.7	138.8	166.3	189.3
77.5°	93.7	99.5	93.7	108.1	142.7	174.8
80°	70.7	76.4	70.7	88.7	139.4	177.1
82.5°	50.5	53.4	50.5	92.9	156.1	193.1
85°	40.5	33.2	43.6	116.3	188.1	220.8
87.5°	36.6	8.6	58.2	150.6	232.8	259.2
90°	24.2	2.5	82.9	198.5	281.9	305.1
92.5°	15.6	25.7	122.2	247.1	339.2	361.5
95°	10.0	62.8	164.5	306.8	402.0	411.3
97.5°	19.5	110.7	217.3	367.2	463.9	472.6
100°	51.9	169.4	283.8	429.0	521.7	525.2
102.5°	96.8	232.8	347.2	486.7	584.1	605.6
105°	157.1	305.5	413.7	561.5	648.6	673.0
107.5°	226.7	382.7	481.6	629.5	715.5	733.8
110°	301.8	463.1	550.6	695.9	788.6	808.2





TEST NUMBER: P392688

CATALOG NUMBER: MWL-4-55-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	382.2	546.6	621.7	757.7	867.5	882.3
115°	473.4	624.9	688.2	828.8	930.9	939.5
117.5°	555.3	717.6	756.2	881.4	998.3	999.8
120°	641.8	805.6	824.2	954.0	1063.2	1075.6
122.5°	730.0	889.1	889.1	1016.8	1120.4	1128.1
125°	811.9	978.8	954.0	1063.2	1172.9	1176.1
127.5°	895.3	1070.0	1025.2	1123.5	1224.0	1219.3
130°	986.5	1156.5	1090.1	1180.7	1271.9	1256.4
132.5°	1071.0	1249.2	1157.5	1239.4	1319.8	1329.1
135°	1154.4	1335.8	1214.7	1290.4	1369.2	1366.2
137.5°	1234.7	1416.2	1284.3	1330.6	1401.7	1411.0
140°	1313.6	1502.8	1346.1	1383.1	1441.9	1443.4
142.5°	1397.1	1589.3	1414.1	1435.7	1486.7	1477.4
145°	1489.8	1671.2	1499.1	1488.3	1520.7	1500.6
147.5°	1571.7	1742.4	1559.4	1526.9	1565.5	1539.2
150°	1662.9	1814.9	1642.8	1581.0	1604.2	1591.8
152.5°	1746.4	1872.2	1734.0	1622.8	1649.0	1633.5
155°	1828.3	1933.4	1822.1	1664.4	1683.0	1676.8
157.5°	1899.4	1985.9	1888.6	1707.7	1729.4	1717.0
160°	1961.2	2029.2	1965.9	1772.7	1760.3	1760.3
162.5°	2015.3	2071.0	2020.0	1860.7	1794.3	1764.9
165°	2063.3	2103.4	2067.9	1959.7	1859.2	1832.9
167.5°	2108.0	2134.3	2121.9	2040.1	1959.7	1904.0
170°	2143.6	2159.1	2142.1	2108.0	2066.9	2019.0
172.5°	2162.2	2168.3	2179.2	2157.6	2142.1	2110.2
175°	2173.0	2190.0	2180.7	2188.5	2174.6	2167.4
177.5°	2176.1	2179.2	2177.6	2191.5	2199.2	2187.5
180°	2188.5	2188.5	2188.5	2188.5	2188.5	2188.5

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