

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: P392613

Luminaire Tested: **MWL-3-44-33-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392613  
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-L830-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

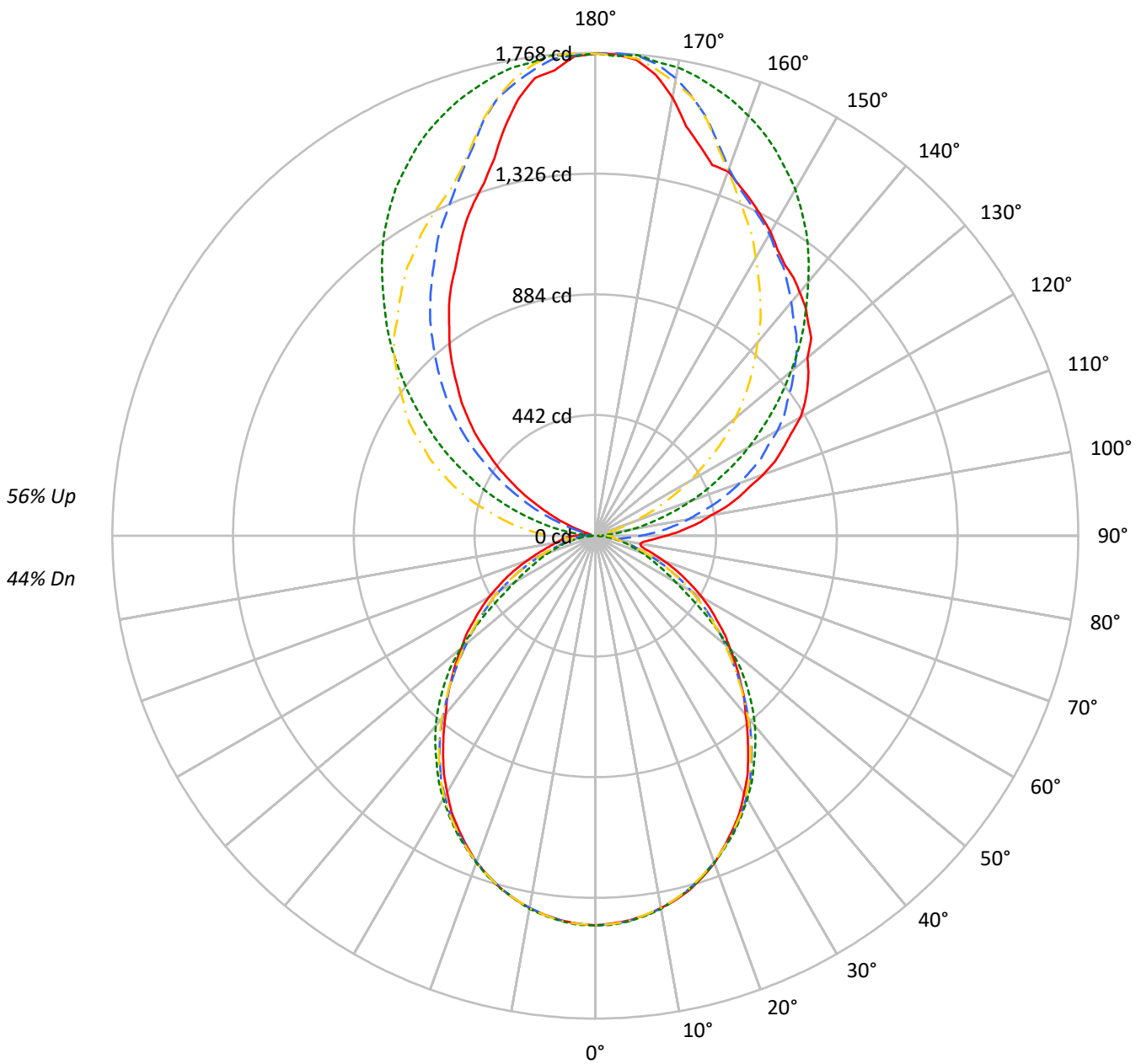
Lumens per Lamp: N/A  
Luminaire Lumens: 7496.0 lumens  
Efficiency: N/A  
Efficacy: 83.2 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: General Diffuse

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: P392613  
CATALOG NUMBER: MWL-3-44-33-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	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°	12284	12284	12284	12284
5°	12077	11265	12077	11265
10°	11812	10311	11812	10311
15°	11523	9405	11492	9405
20°	11125	8559	11093	8559
25°	10607	7776	10574	7776
30°	10023	7014	9977	7014
35°	9335	6263	9300	6263
40°	8621	5554	8571	5554
45°	8004	4790	7964	4790
50°	7401	3944	7358	3944
55°	6837	2949	6805	2949
60°	6253	2141	6235	2141
65°	5575	1608	5575	1608
70°	4804	1216	4826	1216
75°	4115	880	4196	880
80°	4635	566	3978	566
85°	7496	246	4403	246



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	134.2	1.8
10°-20°	376.6	5.0
20°-30°	549.6	7.3
30°-40°	621.3	8.3
40°-50°	581.1	7.8
50°-60°	458.9	6.1
60°-70°	300.2	4.0
70°-80°	157.1	2.1
80°-90°	98.9	1.3
90°-100°	145.5	1.9
100°-110°	274.2	3.7
110°-120°	468.9	6.3
120°-130°	637.1	8.5
130°-140°	726.7	9.7
140°-150°	724.9	9.7
150°-160°	631.3	8.4
160°-170°	444.1	5.9
170°-180°	165.4	2.2
0°-30°	1060.3	14.1
0°-40°	1681.6	22.4
0°-60°	2721.6	36.3
0°-90°	3277.9	43.7
90°-120°	888.7	11.9
90°-150°	2977.4	39.7
90°-180°	4218.0	56.3
0°-180°	7496.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1426	1426	1426	1426	1426	
5°	1414	1417	1414	1417	1414	134
15°	1341	1338	1337	1338	1341	377
25°	1189	1200	1185	1200	1189	547
35°	974	1013	971	1013	974	610
45°	748	787	745	787	748	579
55°	546	477	543	477	546	490
65°	355	248	355	248	355	352
75°	188	125	192	125	188	211
85°	196	31	115	31	196	155
90°	258	2	71	2	258	143
95°	342	51	46	51	342	298
105°	542	247	17	247	542	572
115°	758	504	175	504	758	752
125°	948	790	431	790	948	847
135°	1102	1078	693	1078	1102	850
145°	1210	1349	932	1349	1210	763
155°	1352	1559	1173	1559	1352	624
165°	1478	1696	1430	1696	1478	419
175°	1748	1766	1710	1766	1748	163
180°	1765	1765	1765	1765	1765	



TEST NUMBER: P392613

CATALOG NUMBER: MWL-3-44-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5
2.5°	1420.9	1424.3	1423.0	1424.2	1426.1	1423.0	1423.0	1424.3	1422.1	1424.3	1423.0
5°	1414.1	1416.6	1416.2	1416.2	1417.2	1416.2	1415.0	1416.6	1414.1	1416.6	1415.0
7.5°	1401.0	1404.4	1401.6	1403.8	1403.8	1402.5	1400.3	1403.2	1401.0	1403.2	1400.3
10°	1384.0	1387.2	1385.2	1385.2	1387.2	1384.0	1384.0	1384.7	1384.0	1384.7	1384.0
12.5°	1365.4	1365.1	1361.9	1363.8	1362.6	1363.8	1361.9	1362.6	1362.9	1362.6	1361.9
15°	1340.7	1338.2	1337.0	1337.9	1337.6	1336.7	1335.7	1335.7	1337.0	1335.7	1335.7
17.5°	1309.0	1309.4	1305.3	1307.9	1307.9	1307.9	1304.0	1308.2	1305.3	1308.2	1304.0
20°	1275.4	1274.2	1272.6	1274.3	1274.0	1273.0	1271.4	1271.7	1271.7	1271.7	1271.4
22.5°	1231.9	1234.8	1235.2	1238.8	1237.5	1237.5	1234.0	1232.3	1229.4	1232.3	1234.0
25°	1188.7	1193.5	1196.1	1201.3	1200.1	1200.1	1193.6	1189.8	1185.0	1189.8	1193.6
27.5°	1143.6	1144.6	1152.9	1161.3	1156.9	1160.0	1150.4	1140.8	1139.9	1140.8	1150.4
30°	1088.9	1093.7	1106.2	1115.5	1112.7	1113.0	1102.5	1090.0	1083.9	1090.0	1102.5
32.5°	1037.1	1039.0	1055.3	1066.6	1066.9	1064.1	1051.6	1034.0	1032.1	1034.0	1051.6
35°	974.4	979.2	996.5	1016.6	1012.9	1012.9	992.7	975.5	970.7	975.5	992.7
37.5°	915.8	918.7	937.9	962.9	962.3	959.1	934.2	915.0	912.1	915.0	934.2
40°	856.3	855.4	873.6	901.2	908.6	898.7	868.6	850.4	851.3	850.4	868.6
42.5°	806.4	794.9	807.1	837.8	850.0	835.3	803.3	789.9	801.4	789.9	803.3
45°	748.5	737.0	743.7	772.5	786.6	770.0	738.7	733.3	744.8	733.3	738.7
47.5°	696.7	682.3	681.3	702.2	722.3	700.9	676.4	678.6	693.0	678.6	676.4
50°	643.9	630.5	620.9	635.0	645.2	632.5	615.9	625.5	640.2	625.5	615.9
52.5°	598.8	580.6	563.9	567.8	559.8	565.3	560.2	575.6	595.0	575.6	560.2
55°	545.7	534.2	511.2	498.4	477.0	495.9	507.4	530.4	543.2	530.4	507.4
57.5°	498.7	488.1	460.3	430.2	400.2	427.7	456.5	484.4	496.2	484.4	456.5
60°	450.4	439.8	406.2	362.7	339.7	361.5	403.7	437.3	449.1	437.3	403.7
62.5°	400.5	393.8	355.4	306.1	292.4	304.9	352.9	391.3	399.2	391.3	352.9
65°	355.1	343.6	304.2	257.2	248.2	255.9	302.9	342.3	355.1	342.3	302.9
67.5°	309.0	294.6	257.2	213.7	212.7	213.7	255.9	293.3	309.0	293.3	255.9
70°	263.6	247.3	212.7	177.2	181.0	177.2	212.7	248.5	264.8	248.5	212.7
72.5°	224.2	202.2	174.3	145.5	149.1	144.3	174.3	203.4	226.7	203.4	174.3
75°	187.8	162.8	138.5	116.4	125.1	116.4	139.8	164.0	191.5	164.0	139.8
77.5°	170.9	138.0	106.8	91.5	100.1	91.5	108.1	134.3	165.9	134.3	108.1
80°	167.1	132.5	87.5	70.4	76.1	70.4	85.0	112.5	143.4	112.5	85.0
82.5°	175.9	141.7	87.2	50.2	54.0	50.2	72.2	96.8	128.5	96.8	72.2
85°	196.3	165.6	103.1	41.5	31.0	39.0	66.9	89.6	115.3	89.6	66.9
87.5°	223.9	200.2	130.5	51.5	8.6	34.1	59.5	80.5	95.5	80.5	59.5
90°	258.1	238.1	166.8	70.1	2.2	22.7	43.4	62.2	71.1	62.2	43.4
92.5°	300.5	281.7	206.3	100.0	20.9	14.0	35.4	51.1	56.2	51.1	35.4
95°	341.5	332.1	252.2	132.6	50.9	7.9	27.7	42.8	46.0	42.8	27.7
97.5°	388.7	379.5	297.5	175.6	89.5	15.9	21.9	36.7	39.5	36.7	21.9
100°	428.7	423.6	345.9	229.1	136.9	42.1	15.5	32.1	35.9	32.1	15.5
102.5°	491.1	472.3	392.2	280.3	188.0	78.2	20.6	23.4	27.3	23.4	20.6
105°	542.3	520.1	453.3	333.9	246.6	126.9	50.6	18.8	17.4	18.8	50.6
107.5°	590.2	576.7	508.2	388.8	309.0	183.1	92.9	48.1	31.6	48.1	92.9
110°	652.5	636.6	561.8	443.6	373.8	242.9	141.6	87.9	68.9	87.9	141.6



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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°	712.3	700.2	611.7	501.0	441.2	307.7	201.4	137.8	120.1	137.8	201.4
115°	758.5	751.3	669.1	554.6	503.5	381.3	267.5	196.4	175.0	196.4	267.5
117.5°	806.2	805.0	711.4	609.4	578.2	447.3	328.6	255.0	231.3	255.0	328.6
120°	867.3	857.3	770.0	664.4	649.4	517.2	396.0	322.3	298.7	322.3	396.0
122.5°	909.7	903.5	820.0	717.6	717.6	589.2	460.8	387.2	362.3	387.2	460.8
125°	948.3	945.9	857.3	770.0	790.0	655.3	533.1	458.3	430.9	458.3	533.1
127.5°	983.2	987.0	906.0	827.3	863.5	722.6	604.2	521.9	493.2	521.9	604.2
130°	1013.2	1025.7	952.0	879.8	933.4	796.2	667.8	585.4	566.8	585.4	667.8
132.5°	1071.8	1064.3	999.5	933.4	1008.2	863.5	735.1	649.1	627.9	649.1	735.1
135°	1101.7	1104.2	1040.6	979.5	1078.0	930.9	798.7	713.9	692.8	713.9	798.7
137.5°	1137.9	1130.4	1073.1	1035.6	1142.9	995.7	861.0	782.5	748.8	782.5	861.0
140°	1164.1	1162.8	1115.4	1085.5	1212.7	1059.4	924.7	844.8	813.7	844.8	924.7
142.5°	1191.5	1199.0	1157.8	1140.4	1282.5	1126.6	993.2	906.0	876.0	906.0	993.2
145°	1210.2	1226.4	1200.2	1208.9	1348.6	1201.4	1053.1	964.5	932.2	964.5	1053.1
147.5°	1241.4	1262.6	1231.4	1257.6	1406.0	1267.6	1112.9	1025.7	997.0	1025.7	1112.9
150°	1283.8	1293.8	1275.0	1325.0	1464.5	1341.1	1174.1	1084.2	1055.6	1084.2	1174.1
152.5°	1317.5	1329.9	1308.7	1398.5	1510.7	1408.5	1241.4	1141.6	1107.9	1141.6	1241.4
155°	1352.3	1357.3	1342.3	1469.5	1559.4	1474.5	1295.0	1205.2	1172.8	1205.2	1295.0
157.5°	1384.8	1394.7	1377.3	1523.2	1601.7	1531.9	1356.1	1268.8	1240.1	1268.8	1356.1
160°	1419.7	1419.7	1429.7	1585.5	1636.6	1581.7	1421.0	1338.6	1298.8	1338.6	1421.0
162.5°	1423.4	1447.2	1500.7	1629.2	1670.3	1625.4	1490.7	1388.5	1353.6	1388.5	1490.7
165°	1478.3	1499.5	1580.5	1667.8	1696.5	1664.1	1576.8	1470.8	1429.7	1470.8	1576.8
167.5°	1535.7	1580.5	1645.4	1711.4	1721.4	1700.3	1642.9	1569.4	1531.9	1569.4	1642.9
170°	1629.2	1667.8	1700.3	1727.6	1741.4	1728.9	1684.1	1647.9	1624.2	1647.9	1684.1
172.5°	1701.8	1727.6	1740.1	1757.6	1748.9	1743.9	1721.4	1703.9	1690.6	1703.9	1721.4
175°	1747.9	1753.8	1765.1	1758.8	1766.3	1752.6	1753.8	1762.6	1710.5	1762.6	1753.8
177.5°	1764.1	1773.8	1767.6	1756.3	1757.6	1755.1	1760.1	1765.1	1756.6	1765.1	1760.1
180°	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1



TEST NUMBER: P392613

CATALOG NUMBER: MWL-3-44-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1426.5	1426.5	1426.5	1426.5	1426.5	1426.5
2.5°	1423.0	1426.1	1424.2	1423.0	1424.3	1420.9
5°	1416.2	1417.2	1416.2	1416.2	1416.6	1414.1
7.5°	1402.5	1403.8	1403.8	1401.6	1404.4	1401.0
10°	1384.0	1387.2	1385.2	1385.2	1387.2	1384.0
12.5°	1363.8	1362.6	1363.8	1361.9	1365.1	1365.4
15°	1336.7	1337.6	1337.9	1337.0	1338.2	1340.7
17.5°	1307.9	1307.9	1307.9	1305.3	1309.4	1309.0
20°	1273.0	1274.0	1274.3	1272.6	1274.2	1275.4
22.5°	1237.5	1237.5	1238.8	1235.2	1234.8	1231.9
25°	1200.1	1200.1	1201.3	1196.1	1193.5	1188.7
27.5°	1160.0	1156.9	1161.3	1152.9	1144.6	1143.6
30°	1113.0	1112.7	1115.5	1106.2	1093.7	1088.9
32.5°	1064.1	1066.9	1066.6	1055.3	1039.0	1037.1
35°	1012.9	1012.9	1016.6	996.5	979.2	974.4
37.5°	959.1	962.3	962.9	937.9	918.7	915.8
40°	898.7	908.6	901.2	873.6	855.4	856.3
42.5°	835.3	850.0	837.8	807.1	794.9	806.4
45°	770.0	786.6	772.5	743.7	737.0	748.5
47.5°	700.9	722.3	702.2	681.3	682.3	696.7
50°	632.5	645.2	635.0	620.9	630.5	643.9
52.5°	565.3	559.8	567.8	563.9	580.6	598.8
55°	495.9	477.0	498.4	511.2	534.2	545.7
57.5°	427.7	400.2	430.2	460.3	488.1	498.7
60°	361.5	339.7	362.7	406.2	439.8	450.4
62.5°	304.9	292.4	306.1	355.4	393.8	400.5
65°	255.9	248.2	257.2	304.2	343.6	355.1
67.5°	213.7	212.7	213.7	257.2	294.6	309.0
70°	177.2	181.0	177.2	212.7	247.3	263.6
72.5°	144.3	149.1	145.5	174.3	202.2	224.2
75°	116.4	125.1	116.4	138.5	162.8	187.8
77.5°	91.5	100.1	91.5	106.8	138.0	170.9
80°	70.4	76.1	70.4	87.5	132.5	167.1
82.5°	50.2	54.0	50.2	87.2	141.7	175.9
85°	39.0	31.0	41.5	103.1	165.6	196.3
87.5°	34.1	8.6	51.5	130.5	200.2	223.9
90°	22.7	2.2	70.1	166.8	238.1	258.1
92.5°	14.0	20.9	100.0	206.3	281.7	300.5
95°	7.9	50.9	132.6	252.2	332.1	341.5
97.5°	15.9	89.5	175.6	297.5	379.5	388.7
100°	42.1	136.9	229.1	345.9	423.6	428.7
102.5°	78.2	188.0	280.3	392.2	472.3	491.1
105°	126.9	246.6	333.9	453.3	520.1	542.3
107.5°	183.1	309.0	388.8	508.2	576.7	590.2
110°	242.9	373.8	443.6	561.8	636.6	652.5





TEST NUMBER: P392613

CATALOG NUMBER: MWL-3-44-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	307.7	441.2	501.0	611.7	700.2	712.3
115°	381.3	503.5	554.6	669.1	751.3	758.5
117.5°	447.3	578.2	609.4	711.4	805.0	806.2
120°	517.2	649.4	664.4	770.0	857.3	867.3
122.5°	589.2	717.6	717.6	820.0	903.5	909.7
125°	655.3	790.0	770.0	857.3	945.9	948.3
127.5°	722.6	863.5	827.3	906.0	987.0	983.2
130°	796.2	933.4	879.8	952.0	1025.7	1013.2
132.5°	863.5	1008.2	933.4	999.5	1064.3	1071.8
135°	930.9	1078.0	979.5	1040.6	1104.2	1101.7
137.5°	995.7	1142.9	1035.6	1073.1	1130.4	1137.9
140°	1059.4	1212.7	1085.5	1115.4	1162.8	1164.1
142.5°	1126.6	1282.5	1140.4	1157.8	1199.0	1191.5
145°	1201.4	1348.6	1208.9	1200.2	1226.4	1210.2
147.5°	1267.6	1406.0	1257.6	1231.4	1262.6	1241.4
150°	1341.1	1464.5	1325.0	1275.0	1293.8	1283.8
152.5°	1408.5	1510.7	1398.5	1308.7	1329.9	1317.5
155°	1474.5	1559.4	1469.5	1342.3	1357.3	1352.3
157.5°	1531.9	1601.7	1523.2	1377.3	1394.7	1384.8
160°	1581.7	1636.6	1585.5	1429.7	1419.7	1419.7
162.5°	1625.4	1670.3	1629.2	1500.7	1447.2	1423.4
165°	1664.1	1696.5	1667.8	1580.5	1499.5	1478.3
167.5°	1700.3	1721.4	1711.4	1645.4	1580.5	1535.7
170°	1728.9	1741.4	1727.6	1700.3	1667.8	1629.2
172.5°	1743.9	1748.9	1757.6	1740.1	1727.6	1701.8
175°	1752.6	1766.3	1758.8	1765.1	1753.8	1747.9
177.5°	1755.1	1757.6	1756.3	1767.6	1773.8	1764.1
180°	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1

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