

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: P392611

Luminaire Tested: **MWL-3-44-28-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392611  
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-3-44-28-UNV-L835-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

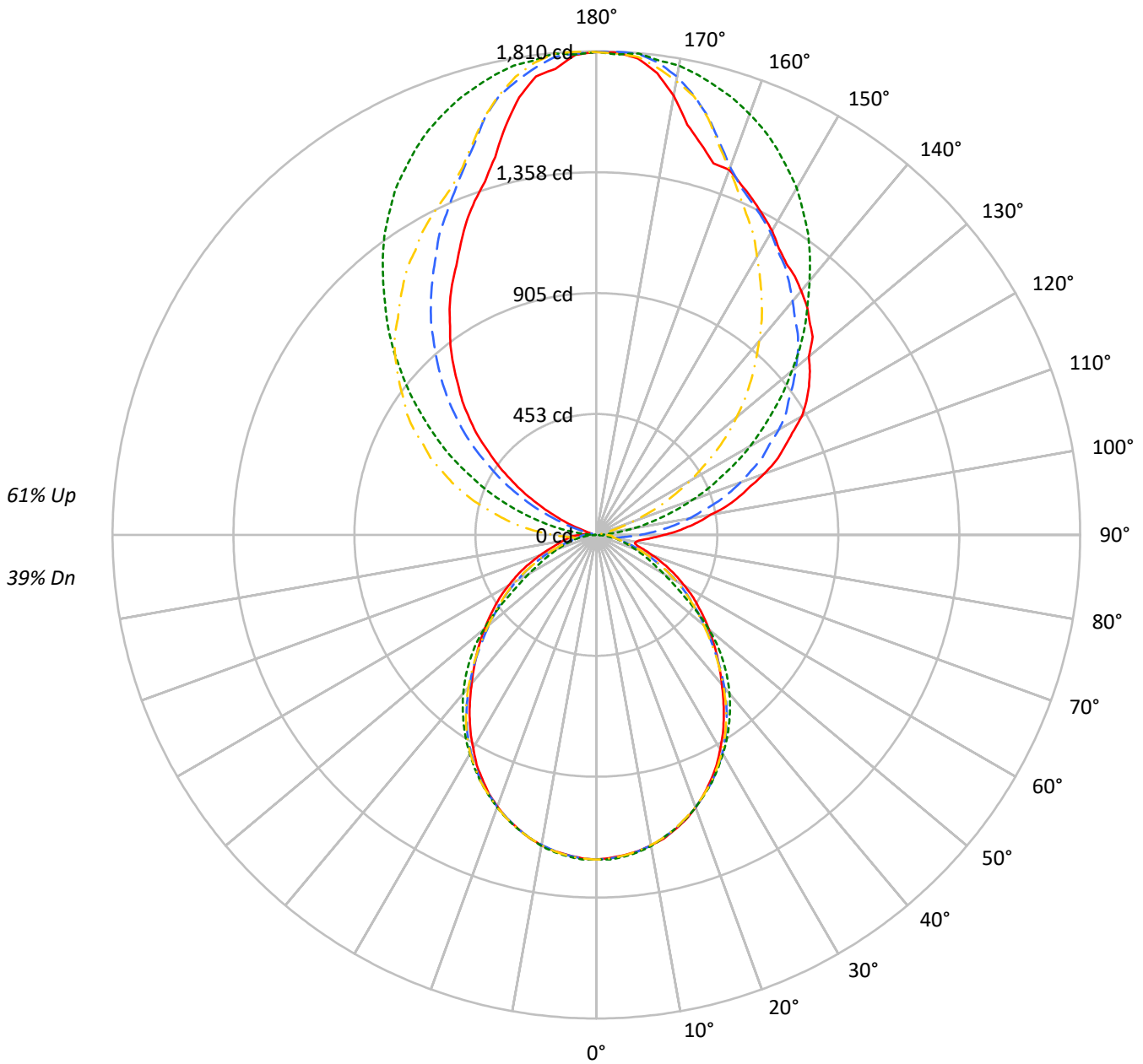
Lumens per Lamp: N/A  
Luminaire Lumens: 7110.0 lumens  
Efficiency: N/A  
Efficacy: 86.1 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 82.6  
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				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	63	60	56	53	48	45	43	36	35	33	28
3	80	70	63	58	72	64	58	53	53	48	45	42	39	37	32	30	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	27	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°	10462	10462	10462	10462
5°	10276	9604	10276	9604
10°	10064	8790	10064	8790
15°	9805	8005	9773	8005
20°	9471	7292	9437	7292
25°	9037	6618	9003	6618
30°	8526	5968	8479	5968
35°	7958	5349	7921	5349
40°	7353	4737	7301	4737
45°	6819	4097	6777	4097
50°	6313	3359	6269	3359
55°	5818	2485	5785	2485
60°	5284	1833	5266	1833
65°	4721	1386	4721	1386
70°	4077	1027	4100	1027
75°	3502	742	3585	742
80°	4147	491	3473	491
85°	7037	205	3868	205



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	114.3	1.6
10°-20°	320.8	4.5
20°-30°	468.1	6.6
30°-40°	529.1	7.4
40°-50°	494.7	7.0
50°-60°	390.4	5.5
60°-70°	255.6	3.6
70°-80°	134.0	1.9
80°-90°	90.0	1.3
90°-100°	144.7	2.0
100°-110°	279.8	3.9
110°-120°	480.0	6.8
120°-130°	652.1	9.2
130°-140°	743.9	10.5
140°-150°	742.1	10.4
150°-160°	646.3	9.1
160°-170°	454.7	6.4
170°-180°	169.4	2.4
0°-30°	903.2	12.7
0°-40°	1432.3	20.1
0°-60°	2317.5	32.6
0°-90°	2797.0	39.3
90°-120°	904.5	12.7
90°-150°	3042.5	42.8
90°-180°	4313.0	60.7
0°-180°	7110.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1215	1215	1215	1215	1215	
5°	1203	1208	1203	1208	1203	114
15°	1141	1139	1137	1139	1141	321
25°	1013	1021	1009	1021	1013	466
35°	831	865	827	865	831	519
45°	638	673	634	673	638	492
55°	464	402	462	402	464	416
65°	301	214	301	214	301	298
75°	160	106	164	106	160	181
85°	184	26	101	26	184	143
90°	252	2	61	2	252	140
95°	343	52	40	52	343	300
105°	553	252	16	252	553	583
115°	776	516	178	516	776	770
125°	971	808	441	808	971	867
135°	1128	1103	709	1103	1128	871
145°	1239	1380	954	1380	1239	781
155°	1385	1597	1201	1597	1385	639
165°	1514	1737	1464	1737	1514	429
175°	1790	1808	1751	1808	1790	167
180°	1807	1807	1807	1807	1807	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9
2.5°	1210.1	1212.6	1212.2	1214.5	1215.5	1213.2	1212.2	1212.6	1211.4	1212.6	1212.2
5°	1203.2	1205.8	1205.4	1206.3	1208.3	1206.3	1204.1	1205.8	1203.2	1205.8	1204.1
7.5°	1193.7	1196.2	1194.3	1196.5	1197.5	1195.2	1193.0	1194.9	1193.7	1194.9	1193.0
10°	1179.2	1180.5	1179.5	1180.5	1182.5	1179.2	1178.2	1177.9	1179.2	1177.9	1178.2
12.5°	1164.1	1162.8	1160.5	1161.5	1160.3	1161.5	1160.5	1160.3	1161.5	1160.3	1160.5
15°	1140.8	1140.2	1138.9	1140.9	1138.6	1139.6	1137.6	1137.6	1137.0	1137.6	1137.6
17.5°	1116.2	1114.6	1112.4	1114.1	1114.1	1114.1	1111.1	1113.4	1112.4	1113.4	1111.1
20°	1085.8	1086.4	1084.9	1086.5	1085.3	1085.3	1083.6	1083.9	1081.9	1083.9	1083.6
22.5°	1051.1	1053.0	1052.4	1056.1	1053.8	1054.8	1051.2	1050.5	1048.5	1050.5	1051.2
25°	1012.7	1015.7	1021.3	1022.7	1021.4	1021.4	1018.7	1011.8	1008.9	1011.8	1018.7
27.5°	973.4	976.4	982.0	986.6	985.0	985.3	979.4	972.5	969.6	972.5	979.4
30°	926.2	932.1	943.9	949.5	946.7	947.0	940.1	928.3	921.1	928.3	940.1
32.5°	881.0	885.9	898.7	909.2	907.7	906.7	894.9	880.8	875.9	880.8	894.9
35°	830.6	833.6	850.3	865.0	865.1	861.2	846.4	829.7	826.8	829.7	846.4
37.5°	780.5	781.5	799.2	819.8	821.2	816.0	795.3	777.6	776.6	777.6	795.3
40°	730.4	728.4	744.1	768.4	775.0	765.8	739.0	723.3	725.2	723.3	739.0
42.5°	683.2	676.3	688.8	716.3	724.9	713.7	684.9	671.2	678.1	671.2	684.9
45°	637.7	625.9	632.8	657.3	672.8	654.8	627.6	622.0	633.8	622.0	627.6
47.5°	592.5	581.6	578.7	598.1	615.8	596.8	573.6	577.8	588.6	577.8	573.6
50°	549.2	537.4	528.6	540.1	549.6	537.5	523.5	532.3	545.4	532.3	523.5
52.5°	506.0	495.2	480.1	482.1	477.9	479.5	476.3	490.0	502.1	490.0	476.3
55°	464.4	454.6	434.9	424.8	401.9	422.2	431.1	450.7	461.8	450.7	431.1
57.5°	425.1	416.2	391.7	366.8	341.9	364.2	387.8	412.4	422.5	412.4	387.8
60°	380.6	375.6	347.1	309.5	290.8	308.2	344.6	373.1	379.3	373.1	344.6
62.5°	341.2	335.3	302.9	261.3	246.3	260.1	300.4	332.8	340.0	332.8	300.4
65°	300.7	291.8	258.4	218.1	213.9	216.8	257.1	290.5	300.7	290.5	257.1
67.5°	260.4	251.5	220.1	183.4	180.5	183.4	218.8	250.2	260.4	250.2	218.8
70°	223.7	209.9	182.4	151.0	152.9	151.0	182.4	211.2	225.0	211.2	182.4
72.5°	190.3	170.6	150.0	124.4	128.1	123.2	150.0	171.9	192.8	171.9	150.0
75°	159.8	138.2	116.3	99.6	105.5	99.6	117.5	139.5	163.6	139.5	117.5
77.5°	147.4	117.7	90.7	78.9	86.8	78.9	92.0	113.9	142.3	113.9	92.0
80°	149.5	116.0	74.9	60.2	66.1	60.2	72.3	95.5	125.2	95.5	72.3
82.5°	159.4	129.3	78.4	42.6	45.5	42.6	63.1	83.3	111.0	83.3	63.1
85°	184.3	155.8	96.7	36.6	25.8	34.0	59.7	77.9	101.3	77.9	59.7
87.5°	215.5	194.2	125.8	47.9	6.9	30.0	53.1	71.6	84.0	71.6	53.1
90°	252.5	234.9	163.9	67.8	2.3	19.3	37.5	54.8	61.0	54.8	37.5
92.5°	299.9	280.6	205.3	100.4	21.4	12.4	30.4	44.4	49.6	44.4	30.4
95°	342.8	333.2	253.3	135.7	52.1	8.1	23.5	37.0	40.2	37.0	23.5
97.5°	391.1	382.7	302.6	179.8	91.6	16.3	20.4	31.6	33.6	31.6	20.4
100°	434.0	429.8	352.2	234.6	140.2	43.1	13.9	28.9	31.8	28.9	13.9
102.5°	499.9	480.6	400.6	287.0	192.5	80.1	20.1	21.0	25.0	21.0	20.1
105°	553.3	531.5	463.1	341.8	252.5	129.9	50.8	18.3	15.8	18.3	50.8
107.5°	603.3	590.5	519.3	398.1	316.4	187.4	94.2	49.2	31.4	49.2	94.2
110°	667.2	651.8	574.3	454.2	382.7	248.7	144.0	90.0	69.6	90.0	144.0



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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°	728.4	716.9	625.3	512.9	451.7	315.1	205.2	141.1	122.0	141.1	205.2
115°	775.7	769.3	685.0	567.9	515.5	390.4	273.9	201.1	178.2	201.1	273.9
117.5°	825.5	824.2	728.4	624.0	592.1	458.0	336.4	261.1	236.9	261.1	336.4
120°	888.0	877.8	788.4	680.2	664.9	529.6	405.4	330.0	305.9	330.0	405.4
122.5°	931.4	925.1	839.5	733.8	733.8	602.3	471.8	396.5	370.9	396.5	471.8
125°	971.0	968.5	877.8	787.5	807.9	670.0	545.9	469.2	441.2	469.2	545.9
127.5°	1006.7	1010.6	927.6	846.1	883.2	738.9	618.6	534.4	505.0	534.4	618.6
130°	1037.4	1050.2	974.8	899.8	954.7	814.3	683.8	599.4	580.4	599.4	683.8
132.5°	1097.4	1089.8	1023.3	954.7	1031.3	883.2	752.7	664.6	642.9	664.6	752.7
135°	1128.0	1130.6	1065.5	1002.9	1102.8	953.2	817.8	730.9	709.3	730.9	817.8
137.5°	1165.1	1157.4	1098.7	1060.4	1169.2	1019.5	881.6	801.2	766.7	801.2	881.6
140°	1191.9	1190.6	1142.1	1111.4	1240.6	1084.7	946.8	865.0	833.2	865.0	946.8
142.5°	1220.0	1227.7	1185.5	1167.6	1312.2	1153.6	1017.0	927.6	896.9	927.6	1017.0
145°	1239.1	1255.7	1228.9	1237.8	1379.8	1230.1	1078.3	987.6	954.4	987.6	1078.3
147.5°	1271.0	1292.7	1260.8	1287.6	1438.6	1297.9	1139.5	1050.2	1020.8	1050.2	1139.5
150°	1314.5	1324.7	1305.5	1356.6	1499.5	1373.1	1202.1	1110.1	1080.8	1110.1	1202.1
152.5°	1349.0	1361.6	1340.0	1431.9	1546.8	1442.1	1271.0	1168.9	1134.4	1168.9	1271.0
155°	1384.6	1389.7	1374.4	1504.6	1596.6	1509.8	1326.0	1234.0	1200.8	1234.0	1326.0
157.5°	1417.9	1428.1	1410.2	1559.6	1640.0	1568.5	1388.5	1299.1	1269.7	1299.1	1388.5
160°	1453.6	1453.6	1463.9	1623.4	1675.8	1619.5	1454.9	1370.6	1329.8	1370.6	1454.9
162.5°	1457.5	1481.7	1536.6	1668.1	1710.3	1664.3	1526.4	1421.7	1385.9	1421.7	1526.4
165°	1513.6	1535.3	1618.3	1707.7	1737.1	1703.9	1614.5	1505.9	1463.9	1505.9	1614.5
167.5°	1572.4	1618.3	1684.7	1752.3	1762.5	1740.9	1682.1	1606.9	1568.5	1606.9	1682.1
170°	1668.1	1707.7	1740.9	1768.9	1783.0	1770.2	1724.3	1687.3	1663.0	1687.3	1724.3
172.5°	1742.5	1768.9	1781.7	1799.6	1790.7	1785.5	1762.5	1744.7	1731.0	1744.7	1762.5
175°	1789.7	1795.8	1807.3	1800.9	1808.5	1794.5	1795.8	1804.7	1751.3	1804.7	1795.8
177.5°	1806.3	1816.2	1809.8	1798.3	1799.6	1797.0	1802.2	1807.3	1798.6	1807.3	1802.2
180°	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3



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CATALOG NUMBER: MWL-3-44-28-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1214.9	1214.9	1214.9	1214.9	1214.9	1214.9
2.5°	1213.2	1215.5	1214.5	1212.2	1212.6	1210.1
5°	1206.3	1208.3	1206.3	1205.4	1205.8	1203.2
7.5°	1195.2	1197.5	1196.5	1194.3	1196.2	1193.7
10°	1179.2	1182.5	1180.5	1179.5	1180.5	1179.2
12.5°	1161.5	1160.3	1161.5	1160.5	1162.8	1164.1
15°	1139.6	1138.6	1140.9	1138.9	1140.2	1140.8
17.5°	1114.1	1114.1	1114.1	1112.4	1114.6	1116.2
20°	1085.3	1085.3	1086.5	1084.9	1086.4	1085.8
22.5°	1054.8	1053.8	1056.1	1052.4	1053.0	1051.1
25°	1021.4	1021.4	1022.7	1021.3	1015.7	1012.7
27.5°	985.3	985.0	986.6	982.0	976.4	973.4
30°	947.0	946.7	949.5	943.9	932.1	926.2
32.5°	906.7	907.7	909.2	898.7	885.9	881.0
35°	861.2	865.1	865.0	850.3	833.6	830.6
37.5°	816.0	821.2	819.8	799.2	781.5	780.5
40°	765.8	775.0	768.4	744.1	728.4	730.4
42.5°	713.7	724.9	716.3	688.8	676.3	683.2
45°	654.8	672.8	657.3	632.8	625.9	637.7
47.5°	596.8	615.8	598.1	578.7	581.6	592.5
50°	537.5	549.6	540.1	528.6	537.4	549.2
52.5°	479.5	477.9	482.1	480.1	495.2	506.0
55°	422.2	401.9	424.8	434.9	454.6	464.4
57.5°	364.2	341.9	366.8	391.7	416.2	425.1
60°	308.2	290.8	309.5	347.1	375.6	380.6
62.5°	260.1	246.3	261.3	302.9	335.3	341.2
65°	216.8	213.9	218.1	258.4	291.8	300.7
67.5°	183.4	180.5	183.4	220.1	251.5	260.4
70°	151.0	152.9	151.0	182.4	209.9	223.7
72.5°	123.2	128.1	124.4	150.0	170.6	190.3
75°	99.6	105.5	99.6	116.3	138.2	159.8
77.5°	78.9	86.8	78.9	90.7	117.7	147.4
80°	60.2	66.1	60.2	74.9	116.0	149.5
82.5°	42.6	45.5	42.6	78.4	129.3	159.4
85°	34.0	25.8	36.6	96.7	155.8	184.3
87.5°	30.0	6.9	47.9	125.8	194.2	215.5
90°	19.3	2.3	67.8	163.9	234.9	252.5
92.5°	12.4	21.4	100.4	205.3	280.6	299.9
95°	8.1	52.1	135.7	253.3	333.2	342.8
97.5°	16.3	91.6	179.8	302.6	382.7	391.1
100°	43.1	140.2	234.6	352.2	429.8	434.0
102.5°	80.1	192.5	287.0	400.6	480.6	499.9
105°	129.9	252.5	341.8	463.1	531.5	553.3
107.5°	187.4	316.4	398.1	519.3	590.5	603.3
110°	248.7	382.7	454.2	574.3	651.8	667.2





TEST NUMBER: P392611

CATALOG NUMBER: MWL-3-44-28-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	315.1	451.7	512.9	625.3	716.9	728.4
115°	390.4	515.5	567.9	685.0	769.3	775.7
117.5°	458.0	592.1	624.0	728.4	824.2	825.5
120°	529.6	664.9	680.2	788.4	877.8	888.0
122.5°	602.3	733.8	733.8	839.5	925.1	931.4
125°	670.0	807.9	787.5	877.8	968.5	971.0
127.5°	738.9	883.2	846.1	927.6	1010.6	1006.7
130°	814.3	954.7	899.8	974.8	1050.2	1037.4
132.5°	883.2	1031.3	954.7	1023.3	1089.8	1097.4
135°	953.2	1102.8	1002.9	1065.5	1130.6	1128.0
137.5°	1019.5	1169.2	1060.4	1098.7	1157.4	1165.1
140°	1084.7	1240.6	1111.4	1142.1	1190.6	1191.9
142.5°	1153.6	1312.2	1167.6	1185.5	1227.7	1220.0
145°	1230.1	1379.8	1237.8	1228.9	1255.7	1239.1
147.5°	1297.9	1438.6	1287.6	1260.8	1292.7	1271.0
150°	1373.1	1499.5	1356.6	1305.5	1324.7	1314.5
152.5°	1442.1	1546.8	1431.9	1340.0	1361.6	1349.0
155°	1509.8	1596.6	1504.6	1374.4	1389.7	1384.6
157.5°	1568.5	1640.0	1559.6	1410.2	1428.1	1417.9
160°	1619.5	1675.8	1623.4	1463.9	1453.6	1453.6
162.5°	1664.3	1710.3	1668.1	1536.6	1481.7	1457.5
165°	1703.9	1737.1	1707.7	1618.3	1535.3	1513.6
167.5°	1740.9	1762.5	1752.3	1684.7	1618.3	1572.4
170°	1770.2	1783.0	1768.9	1740.9	1707.7	1668.1
172.5°	1785.5	1790.7	1799.6	1781.7	1768.9	1742.5
175°	1794.5	1808.5	1800.9	1807.3	1795.8	1789.7
177.5°	1797.0	1799.6	1798.3	1809.8	1816.2	1806.3
180°	1807.3	1807.3	1807.3	1807.3	1807.3	1807.3

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