

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: P392703

Luminaire Tested: **MWL-4-66-33-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392703
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-4-66-33-UNV-L830-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

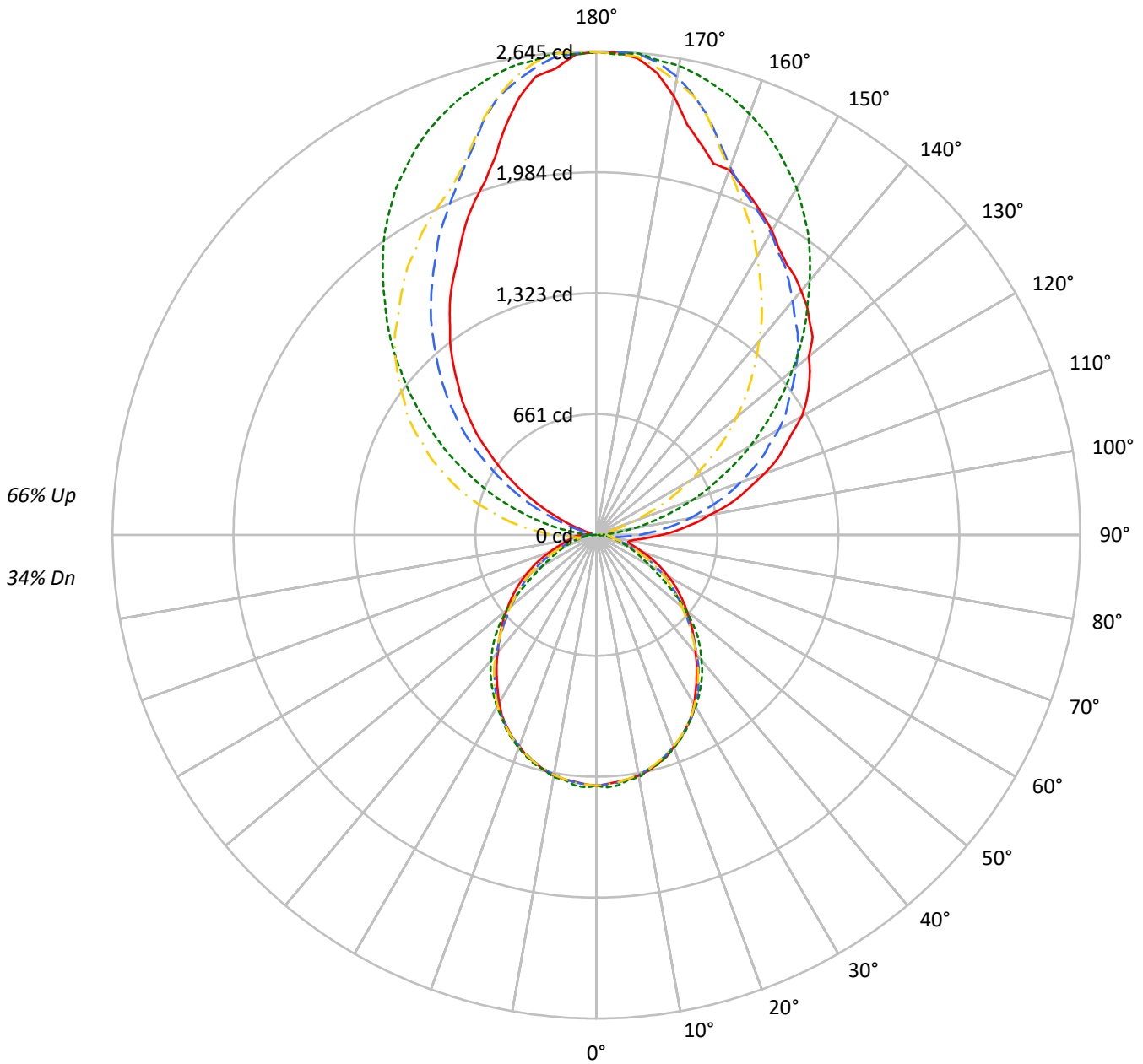
Lumens per Lamp: N/A
Luminaire Lumens: 9547.0 lumens
Efficiency: N/A
Efficacy: 80.5 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 118.6
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	37	36	35	29
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	31	30	24
3	78	69	62	57	71	63	57	52	51	46	43	39	36	34	29	27	25	21
4	72	61	54	48	65	56	49	44	45	40	37	35	32	29	26	24	22	18
5	66	55	47	41	59	50	43	38	40	35	32	32	28	25	23	21	19	16
6	61	49	41	36	55	45	38	33	36	31	28	29	25	22	21	19	17	14
7	56	44	37	31	50	40	34	29	33	28	24	26	22	20	19	17	15	12
8	52	40	33	27	47	37	30	25	30	25	21	24	20	18	18	15	14	11
9	48	37	29	24	44	33	27	23	27	23	19	22	18	16	17	14	12	10
10	45	33	26	22	41	31	24	20	25	20	17	20	17	14	15	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	8863	8863	8863	8863
5°	8706	8192	8706	8192
10°	8603	7501	8603	7501
15°	8426	6852	8390	6852
20°	8184	6248	8147	6248
25°	7903	5681	7866	5681
30°	7519	5136	7467	5136
35°	7015	4624	6975	4624
40°	6554	4100	6496	4100
45°	6151	3571	6105	3571
50°	5763	2921	5712	2921
55°	5388	2185	5352	2185
60°	4977	1619	4956	1619
65°	4494	1203	4494	1203
70°	3874	904	3901	904
75°	3414	663	3513	663
80°	4342	428	3512	428
85°	8359	200	4252	200



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	129.2	1.4
10°-20°	364.4	3.8
20°-30°	535.5	5.6
30°-40°	608.9	6.4
40°-50°	574.0	6.0
50°-60°	458.4	4.8
60°-70°	303.0	3.2
70°-80°	160.1	1.7
80°-90°	116.5	1.2
90°-100°	205.9	2.2
100°-110°	408.9	4.3
110°-120°	701.2	7.3
120°-130°	953.0	10.0
130°-140°	1087.2	11.4
140°-150°	1084.4	11.4
150°-160°	944.5	9.9
160°-170°	664.4	7.0
170°-180°	247.5	2.6
0°-30°	1029.1	10.8
0°-40°	1638.0	17.2
0°-60°	2670.3	28.0
0°-90°	3249.9	34.0
90°-120°	1316.1	13.8
90°-150°	4440.7	46.5
90°-180°	6297.0	66.0
0°-180°	9547.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1372	1372	1372	1372	1372	
5°	1355	1374	1355	1374	1355	129
15°	1295	1299	1290	1299	1295	365
25°	1163	1169	1157	1169	1163	535
35°	955	997	949	997	955	598
45°	744	782	738	782	744	574
55°	550	471	546	471	550	492
65°	360	248	360	248	360	356
75°	190	126	196	126	190	217
85°	247	34	126	34	247	190
90°	355	3	75	3	355	196
95°	488	76	46	76	488	430
105°	810	368	25	368	810	851
115°	1134	754	260	754	1134	1125
125°	1419	1181	645	1181	1419	1267
135°	1648	1612	1036	1612	1648	1272
145°	1811	2017	1395	2017	1811	1142
155°	2023	2333	1755	2333	2023	933
165°	2212	2538	2139	2538	2212	627
175°	2616	2643	2560	2643	2616	244
180°	2641	2641	2641	2641	2641	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3
2.5°	1362.9	1363.8	1365.5	1374.1	1381.8	1372.2	1365.5	1363.8	1364.7	1363.8	1365.5
5°	1355.2	1359.0	1359.7	1368.4	1374.1	1368.4	1357.9	1359.0	1355.2	1359.0	1357.9
7.5°	1347.4	1353.1	1347.3	1356.8	1350.1	1355.0	1345.5	1351.3	1347.4	1351.3	1345.5
10°	1335.9	1336.8	1332.9	1341.6	1345.4	1339.8	1331.1	1333.0	1335.9	1333.0	1331.1
12.5°	1320.4	1313.7	1311.9	1317.7	1316.7	1317.7	1311.9	1310.0	1316.7	1310.0	1311.9
15°	1295.4	1296.5	1290.8	1296.6	1299.4	1294.6	1288.9	1292.7	1289.8	1292.7	1288.9
17.5°	1272.4	1269.6	1263.0	1265.8	1271.6	1265.8	1261.0	1267.8	1266.8	1267.8	1261.0
20°	1235.9	1236.9	1232.2	1240.9	1240.0	1239.1	1230.3	1233.2	1230.3	1233.2	1230.3
22.5°	1202.3	1204.2	1201.5	1200.6	1206.4	1198.7	1199.6	1200.6	1198.7	1200.6	1199.6
25°	1162.9	1162.9	1163.0	1171.8	1169.0	1169.9	1159.3	1157.4	1157.4	1157.4	1159.3
27.5°	1121.7	1119.7	1126.6	1132.4	1122.9	1130.5	1122.8	1114.2	1116.1	1114.2	1122.8
30°	1068.9	1070.8	1078.5	1094.9	1086.4	1091.1	1072.9	1065.2	1061.5	1065.2	1072.9
32.5°	1011.3	1019.0	1029.5	1051.7	1043.1	1047.9	1023.9	1011.6	1003.9	1011.6	1023.9
35°	954.7	957.6	973.9	1001.8	997.2	996.2	968.4	952.0	949.2	952.0	968.4
37.5°	901.9	897.1	917.3	947.1	950.0	941.5	911.7	891.6	896.4	891.6	911.7
40°	845.3	846.3	854.9	889.6	894.4	885.8	847.4	838.8	837.8	838.8	847.4
42.5°	794.4	784.8	791.6	828.1	840.6	824.4	786.0	777.3	786.9	777.3	786.0
45°	743.6	731.2	732.1	763.8	782.0	760.1	724.6	725.5	738.0	725.5	724.6
47.5°	694.7	679.3	671.7	695.7	712.0	693.8	664.2	673.7	689.0	673.7	664.2
50°	644.8	630.4	615.0	629.4	637.2	625.7	607.5	622.9	639.1	622.9	607.5
52.5°	598.7	582.4	562.2	564.1	553.7	560.4	556.7	574.9	593.0	574.9	556.7
55°	549.7	535.3	511.3	495.1	471.1	491.4	505.8	529.8	546.0	529.8	505.8
57.5°	503.7	493.1	462.4	430.8	399.1	427.1	456.8	487.5	499.9	487.5	456.8
60°	454.8	446.2	410.7	365.5	342.5	363.7	406.9	442.4	452.9	442.4	406.9
62.5°	406.8	400.1	358.8	307.0	287.9	305.2	355.1	396.4	404.9	396.4	355.1
65°	359.8	349.2	307.0	259.0	247.6	257.2	305.2	347.4	359.8	347.4	305.2
67.5°	312.7	300.3	259.9	214.9	213.0	214.9	258.1	298.4	312.7	298.4	258.1
70°	263.9	251.4	215.9	178.4	179.4	178.4	215.9	253.2	265.7	253.2	215.9
72.5°	227.4	206.3	177.5	147.7	150.6	145.8	177.5	208.1	231.1	208.1	177.5
75°	190.0	166.9	139.1	117.0	125.7	117.0	141.0	168.8	195.5	168.8	141.0
77.5°	178.0	144.7	108.4	94.0	99.7	94.0	110.3	139.0	170.6	139.0	110.3
80°	185.7	145.8	90.0	70.9	76.7	70.9	86.3	116.0	150.2	116.0	86.3
82.5°	209.4	169.5	98.0	50.8	53.7	50.8	75.6	102.4	138.5	102.4	75.6
85°	247.1	211.1	128.5	44.9	33.5	41.2	74.4	97.3	125.7	97.3	74.4
87.5°	296.9	267.6	172.0	64.2	8.6	38.1	65.7	88.6	104.8	88.6	65.7
90°	355.3	329.0	231.5	95.7	2.8	24.9	46.8	65.9	75.4	65.9	46.8
92.5°	425.8	399.6	291.9	144.9	30.8	16.2	36.3	54.5	60.2	54.5	36.3
95°	488.0	476.9	365.4	197.8	75.5	11.3	29.6	44.1	45.9	44.1	29.6
97.5°	563.5	553.1	439.8	262.2	133.4	23.3	27.5	40.1	41.1	40.1	27.5
100°	628.6	624.7	516.1	342.4	204.3	62.5	21.7	38.9	40.8	38.9	21.7
102.5°	727.1	701.9	586.8	418.8	280.8	116.6	30.9	30.2	33.1	30.2	30.9
105°	810.0	781.0	677.3	499.1	368.5	189.4	74.7	31.0	24.6	31.0	74.7
107.5°	884.5	863.0	759.4	581.1	461.7	273.4	138.1	71.9	48.7	71.9	138.1
110°	974.9	951.6	839.5	664.2	558.8	363.8	210.9	130.6	101.8	130.6	210.9



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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°	1064.5	1046.7	914.2	750.1	659.6	460.9	300.5	205.2	178.3	205.2	300.5
115°	1133.5	1123.2	1000.0	830.2	753.7	571.0	399.3	293.0	260.3	293.0	399.3
117.5°	1206.2	1204.3	1063.5	912.3	865.7	669.8	490.7	381.6	346.1	381.6	490.7
120°	1297.6	1282.7	1151.1	994.5	972.0	774.3	591.5	482.4	446.9	482.4	591.5
122.5°	1361.1	1351.8	1226.7	1072.8	1072.8	880.6	689.4	579.3	542.1	579.3	689.4
125°	1418.9	1415.1	1282.7	1151.1	1181.0	979.5	797.6	685.7	644.7	685.7	797.6
127.5°	1471.1	1476.7	1355.5	1237.0	1291.1	1080.3	904.0	780.8	737.9	780.8	904.0
130°	1515.9	1534.5	1424.5	1315.3	1395.5	1190.3	999.1	876.0	848.0	876.0	999.1
132.5°	1603.5	1592.4	1495.4	1396.5	1507.5	1292.1	1099.9	971.1	939.4	971.1	1099.9
135°	1648.4	1652.1	1557.0	1465.5	1612.0	1392.7	1195.0	1068.1	1036.4	1068.1	1195.0
137.5°	1702.4	1691.3	1605.5	1549.5	1708.9	1489.8	1288.3	1170.7	1120.4	1170.7	1288.3
140°	1741.7	1739.8	1668.9	1624.1	1813.5	1584.9	1383.4	1264.0	1217.4	1264.0	1383.4
142.5°	1782.7	1793.9	1732.3	1706.2	1917.9	1685.7	1486.0	1355.5	1310.7	1355.5	1486.0
145°	1810.7	1834.9	1795.7	1808.8	2016.8	1797.6	1575.6	1443.1	1394.7	1443.1	1575.6
147.5°	1857.3	1889.0	1842.4	1881.5	2102.6	1896.5	1665.2	1534.5	1491.6	1534.5	1665.2
150°	1920.7	1935.7	1907.6	1982.3	2190.2	2006.5	1756.6	1622.3	1579.4	1622.3	1756.6
152.5°	1971.1	1989.7	1958.0	2092.3	2259.4	2107.3	1857.3	1708.1	1657.7	1708.1	1857.3
155°	2023.3	2030.8	2008.4	2198.7	2333.1	2206.2	1937.5	1803.2	1754.7	1803.2	1937.5
157.5°	2071.9	2086.8	2060.7	2278.9	2396.4	2292.0	2029.0	1898.3	1855.4	1898.3	2029.0
160°	2124.1	2124.1	2139.0	2372.2	2448.8	2366.6	2125.9	2002.9	1943.2	2002.9	2125.9
162.5°	2129.7	2165.1	2245.3	2437.5	2499.1	2432.0	2230.5	2077.5	2025.2	2077.5	2230.5
165°	2211.7	2243.5	2364.8	2495.3	2538.2	2489.7	2359.2	2200.6	2139.0	2200.6	2359.2
167.5°	2297.6	2364.8	2461.8	2560.7	2575.6	2543.9	2458.1	2348.0	2292.0	2348.0	2458.1
170°	2436.6	2494.3	2543.9	2584.9	2605.4	2586.8	2519.6	2464.5	2429.1	2464.5	2519.6
172.5°	2546.7	2584.9	2603.6	2629.7	2616.6	2609.2	2575.6	2549.4	2529.9	2549.4	2575.6
175°	2615.7	2624.0	2640.8	2631.5	2642.8	2622.2	2624.0	2637.1	2559.7	2637.1	2624.0
177.5°	2639.9	2653.9	2644.6	2627.8	2629.7	2626.0	2633.4	2640.8	2628.7	2640.8	2633.4
180°	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1372.3	1372.3	1372.3	1372.3	1372.3	1372.3
2.5°	1372.2	1381.8	1374.1	1365.5	1363.8	1362.9
5°	1368.4	1374.1	1368.4	1359.7	1359.0	1355.2
7.5°	1355.0	1350.1	1356.8	1347.3	1353.1	1347.4
10°	1339.8	1345.4	1341.6	1332.9	1336.8	1335.9
12.5°	1317.7	1316.7	1317.7	1311.9	1313.7	1320.4
15°	1294.6	1299.4	1296.6	1290.8	1296.5	1295.4
17.5°	1265.8	1271.6	1265.8	1263.0	1269.6	1272.4
20°	1239.1	1240.0	1240.9	1232.2	1236.9	1235.9
22.5°	1198.7	1206.4	1200.6	1201.5	1204.2	1202.3
25°	1169.9	1169.0	1171.8	1163.0	1162.9	1162.9
27.5°	1130.5	1122.9	1132.4	1126.6	1119.7	1121.7
30°	1091.1	1086.4	1094.9	1078.5	1070.8	1068.9
32.5°	1047.9	1043.1	1051.7	1029.5	1019.0	1011.3
35°	996.2	997.2	1001.8	973.9	957.6	954.7
37.5°	941.5	950.0	947.1	917.3	897.1	901.9
40°	885.8	894.4	889.6	854.9	846.3	845.3
42.5°	824.4	840.6	828.1	791.6	784.8	794.4
45°	760.1	782.0	763.8	732.1	731.2	743.6
47.5°	693.8	712.0	695.7	671.7	679.3	694.7
50°	625.7	637.2	629.4	615.0	630.4	644.8
52.5°	560.4	553.7	564.1	562.2	582.4	598.7
55°	491.4	471.1	495.1	511.3	535.3	549.7
57.5°	427.1	399.1	430.8	462.4	493.1	503.7
60°	363.7	342.5	365.5	410.7	446.2	454.8
62.5°	305.2	287.9	307.0	358.8	400.1	406.8
65°	257.2	247.6	259.0	307.0	349.2	359.8
67.5°	214.9	213.0	214.9	259.9	300.3	312.7
70°	178.4	179.4	178.4	215.9	251.4	263.9
72.5°	145.8	150.6	147.7	177.5	206.3	227.4
75°	117.0	125.7	117.0	139.1	166.9	190.0
77.5°	94.0	99.7	94.0	108.4	144.7	178.0
80°	70.9	76.7	70.9	90.0	145.8	185.7
82.5°	50.8	53.7	50.8	98.0	169.5	209.4
85°	41.2	33.5	44.9	128.5	211.1	247.1
87.5°	38.1	8.6	64.2	172.0	267.6	296.9
90°	24.9	2.8	95.7	231.5	329.0	355.3
92.5°	16.2	30.8	144.9	291.9	399.6	425.8
95°	11.3	75.5	197.8	365.4	476.9	488.0
97.5°	23.3	133.4	262.2	439.8	553.1	563.5
100°	62.5	204.3	342.4	516.1	624.7	628.6
102.5°	116.6	280.8	418.8	586.8	701.9	727.1
105°	189.4	368.5	499.1	677.3	781.0	810.0
107.5°	273.4	461.7	581.1	759.4	863.0	884.5
110°	363.8	558.8	664.2	839.5	951.6	974.9



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	460.9	659.6	750.1	914.2	1046.7	1064.5
115°	571.0	753.7	830.2	1000.0	1123.2	1133.5
117.5°	669.8	865.7	912.3	1063.5	1204.3	1206.2
120°	774.3	972.0	994.5	1151.1	1282.7	1297.6
122.5°	880.6	1072.8	1072.8	1226.7	1351.8	1361.1
125°	979.5	1181.0	1151.1	1282.7	1415.1	1418.9
127.5°	1080.3	1291.1	1237.0	1355.5	1476.7	1471.1
130°	1190.3	1395.5	1315.3	1424.5	1534.5	1515.9
132.5°	1292.1	1507.5	1396.5	1495.4	1592.4	1603.5
135°	1392.7	1612.0	1465.5	1557.0	1652.1	1648.4
137.5°	1489.8	1708.9	1549.5	1605.5	1691.3	1702.4
140°	1584.9	1813.5	1624.1	1668.9	1739.8	1741.7
142.5°	1685.7	1917.9	1706.2	1732.3	1793.9	1782.7
145°	1797.6	2016.8	1808.8	1795.7	1834.9	1810.7
147.5°	1896.5	2102.6	1881.5	1842.4	1889.0	1857.3
150°	2006.5	2190.2	1982.3	1907.6	1935.7	1920.7
152.5°	2107.3	2259.4	2092.3	1958.0	1989.7	1971.1
155°	2206.2	2333.1	2198.7	2008.4	2030.8	2023.3
157.5°	2292.0	2396.4	2278.9	2060.7	2086.8	2071.9
160°	2366.6	2448.8	2372.2	2139.0	2124.1	2124.1
162.5°	2432.0	2499.1	2437.5	2245.3	2165.1	2129.7
165°	2489.7	2538.2	2495.3	2364.8	2243.5	2211.7
167.5°	2543.9	2575.6	2560.7	2461.8	2364.8	2297.6
170°	2586.8	2605.4	2584.9	2543.9	2494.3	2436.6
172.5°	2609.2	2616.6	2629.7	2603.6	2584.9	2546.7
175°	2622.2	2642.8	2631.5	2640.8	2624.0	2615.7
177.5°	2626.0	2629.7	2627.8	2644.6	2653.9	2639.9
180°	2640.8	2640.8	2640.8	2640.8	2640.8	2640.8

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