

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: P392668

Luminaire Tested: **MWL-4-34-73-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392668
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-4-34-73-UNV-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

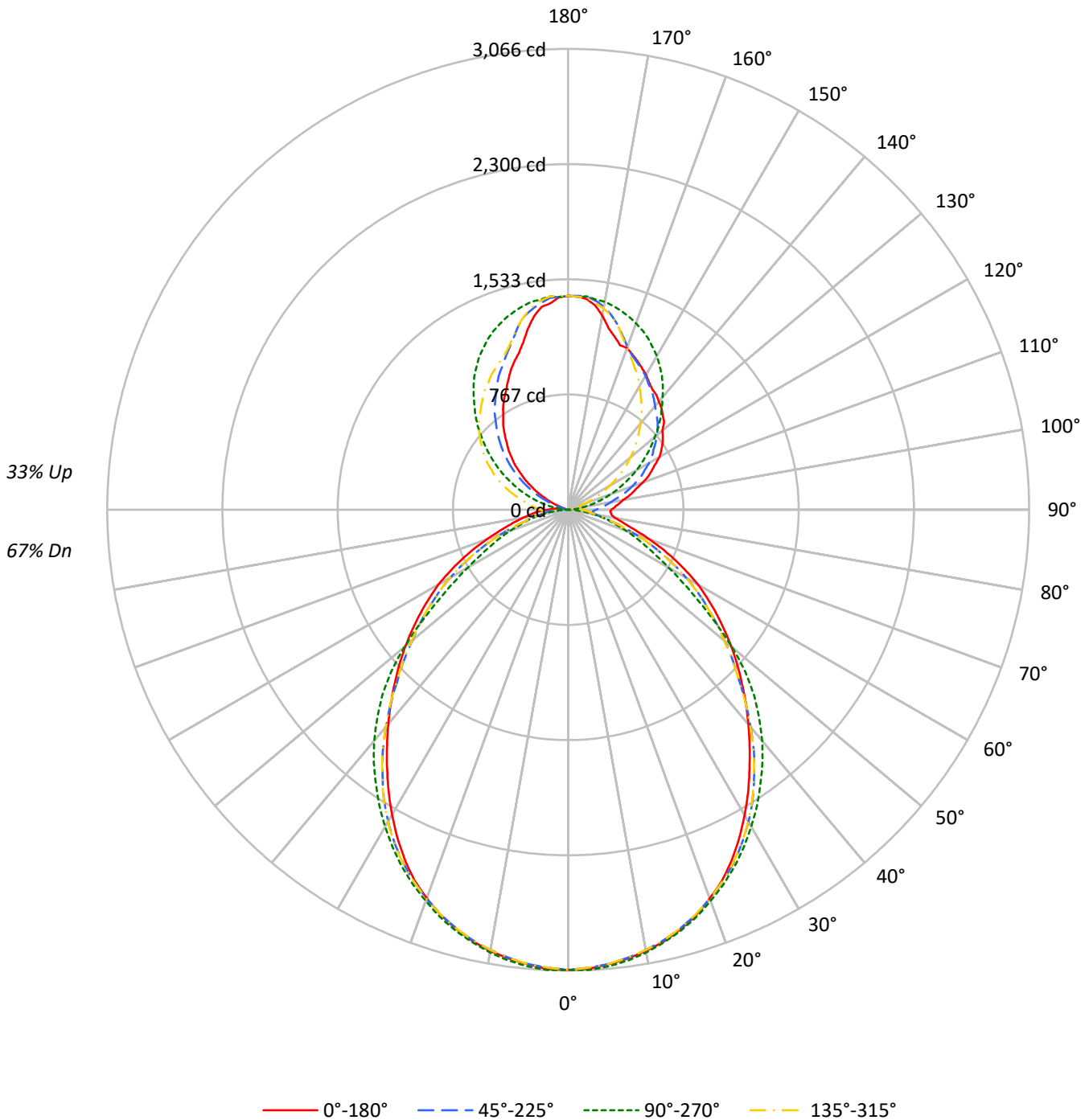
Lumens per Lamp: N/A
Luminaire Lumens: 10565.0 lumens
Efficiency: N/A
Efficacy: 89.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 118.7
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





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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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	67
1	102	98	94	90	96	92	89	86	82	79	77	73	71	69	64	63	61	57
2	93	86	80	74	88	81	76	71	72	68	65	64	61	58	57	55	52	49
3	85	76	68	63	80	72	65	60	64	59	55	57	53	50	51	48	45	42
4	78	67	60	53	74	64	57	51	58	52	47	51	47	43	46	42	39	36
5	72	60	52	46	68	57	50	44	52	46	41	46	42	38	42	38	35	32
6	67	54	46	40	63	52	44	39	47	41	36	42	37	33	38	34	31	28
7	62	49	41	36	58	47	40	35	43	37	32	39	33	30	35	31	27	25
8	58	45	37	32	54	43	36	31	39	33	29	35	30	27	32	28	25	22
9	54	41	34	29	51	39	32	28	36	30	26	33	28	24	30	25	22	20
10	50	38	31	26	48	36	30	25	33	27	23	30	25	22	27	23	20	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	19772	19772	19772	19772
5°	19505	18187	19505	18187
10°	19197	16679	19197	16679
15°	18790	15284	18770	15284
20°	18230	13956	18210	13956
25°	17487	12724	17466	12724
30°	16504	11510	16475	11510
35°	15448	10337	15427	10337
40°	14456	9196	14425	9196
45°	13512	7985	13488	7985
50°	12650	6524	12624	6524
55°	11773	4909	11753	4909
60°	10916	3653	10906	3653
65°	9712	2751	9712	2751
70°	8440	2070	8456	2070
75°	7363	1482	7419	1482
80°	7433	953	6991	953
85°	9695	427	7489	427



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	288.6	2.7
10°-20°	814.2	7.7
20°-30°	1194.0	11.3
30°-40°	1351.5	12.8
40°-50°	1273.4	12.1
50°-60°	1019.0	9.6
60°-70°	671.0	6.4
70°-80°	342.9	3.2
80°-90°	170.2	1.6
90°-100°	148.3	1.4
100°-110°	225.9	2.1
110°-120°	379.4	3.6
120°-130°	514.7	4.9
130°-140°	586.6	5.6
140°-150°	584.9	5.5
150°-160°	509.0	4.8
160°-170°	358.0	3.4
170°-180°	133.3	1.3
0°-30°	2296.8	21.7
0°-40°	3648.3	34.5
0°-60°	5940.8	56.2
0°-90°	7124.9	67.4
90°-120°	753.6	7.1
90°-150°	2439.7	23.1
90°-180°	3440.0	32.6
0°-180°	10565.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3062	3062	3062	3062	3062	
5°	3036	3051	3036	3051	3036	288
15°	2889	2898	2886	2898	2889	814
25°	2573	2618	2570	2618	2573	1181
35°	2102	2229	2099	2229	2102	1316
45°	1634	1748	1631	1748	1634	1263
55°	1201	1059	1199	1059	1201	1076
65°	778	566	778	566	778	772
75°	410	281	413	281	410	448
85°	287	72	221	72	287	239
90°	287	2	137	2	287	159
95°	322	42	85	42	322	274
105°	445	199	23	199	445	471
115°	612	407	143	407	612	608
125°	766	636	350	636	766	684
135°	889	869	560	869	889	686
145°	976	1087	753	1087	976	616
155°	1090	1257	946	1257	1090	503
165°	1192	1368	1153	1368	1192	338
175°	1407	1424	1377	1424	1407	131
180°	1422	1422	1422	1422	1422	



TEST NUMBER: P392668

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5
2.5°	3057.6	3057.6	3049.8	3066.6	3065.6	3065.6	3049.8	3057.6	3058.6	3057.6	3049.8
5°	3036.0	3041.9	3035.1	3051.8	3050.8	3051.8	3034.0	3041.9	3036.0	3041.9	3034.0
7.5°	3013.4	3021.2	3008.5	3028.2	3026.3	3027.1	3007.5	3020.3	3013.4	3020.3	3007.5
10°	2981.0	2983.9	2975.1	2992.7	2991.8	2991.8	2974.1	2981.9	2981.0	2981.9	2974.1
12.5°	2941.7	2940.7	2933.8	2949.5	2947.5	2949.5	2933.8	2938.7	2939.7	2938.7	2933.8
15°	2888.7	2887.6	2882.7	2898.4	2898.4	2897.4	2881.7	2885.6	2885.6	2885.6	2881.7
17.5°	2828.7	2826.7	2823.7	2840.4	2840.4	2840.4	2822.7	2825.7	2825.7	2825.7	2822.7
20°	2753.0	2756.0	2753.9	2770.6	2769.6	2769.6	2752.9	2753.9	2750.0	2753.9	2752.9
22.5°	2672.4	2675.4	2680.2	2701.8	2697.9	2700.9	2679.2	2673.3	2670.4	2673.3	2679.2
25°	2573.2	2579.1	2596.7	2619.3	2618.3	2618.3	2594.7	2576.0	2570.1	2576.0	2594.7
27.5°	2463.1	2478.8	2502.3	2530.8	2530.8	2529.8	2500.4	2475.8	2460.1	2475.8	2500.4
30°	2346.2	2362.9	2398.2	2438.4	2434.5	2436.5	2395.2	2359.8	2342.1	2359.8	2395.2
32.5°	2227.2	2243.9	2284.2	2332.3	2336.2	2330.3	2281.2	2239.9	2223.2	2239.9	2281.2
35°	2102.3	2110.2	2156.4	2229.1	2229.1	2226.2	2153.4	2107.2	2099.4	2107.2	2153.4
37.5°	1981.4	1983.4	2029.6	2106.3	2123.0	2103.3	2026.6	1980.5	1978.5	1980.5	2026.6
40°	1864.5	1854.7	1887.1	1972.6	2006.0	1970.6	1883.2	1850.7	1860.6	1850.7	1883.2
42.5°	1748.5	1736.7	1750.5	1835.0	1879.2	1833.0	1747.5	1732.8	1744.6	1732.8	1747.5
45°	1633.5	1611.9	1609.0	1693.5	1748.5	1691.5	1604.9	1609.0	1630.6	1609.0	1604.9
47.5°	1524.4	1498.9	1484.1	1549.0	1598.1	1548.0	1480.1	1495.9	1521.5	1495.9	1480.1
50°	1415.3	1390.8	1356.4	1401.6	1423.2	1399.6	1352.3	1386.7	1412.4	1386.7	1352.3
52.5°	1307.2	1288.6	1244.3	1260.1	1235.5	1258.1	1241.3	1284.5	1304.3	1284.5	1241.3
55°	1201.1	1184.4	1130.3	1109.7	1058.6	1107.6	1127.3	1181.3	1199.1	1181.3	1127.3
57.5°	1096.9	1087.1	1020.3	959.3	904.3	957.3	1017.2	1084.0	1094.9	1084.0	1017.2
60°	997.6	986.8	909.2	814.8	772.6	813.8	907.1	984.8	996.7	984.8	907.1
62.5°	885.6	880.7	793.2	687.1	659.5	686.0	791.2	878.6	884.6	878.6	791.2
65°	777.5	762.8	681.2	577.0	566.1	575.9	680.1	761.7	777.5	761.7	680.1
67.5°	673.3	651.7	576.0	481.6	484.5	481.6	574.9	650.6	673.3	650.6	574.9
70°	574.9	541.5	473.7	398.0	410.8	398.0	473.7	542.6	576.0	542.6	473.7
72.5°	483.5	442.3	380.3	324.3	340.1	323.3	380.3	443.3	485.6	443.3	380.3
75°	409.8	357.7	295.8	258.5	281.1	258.5	296.8	358.8	412.9	358.8	296.8
77.5°	357.9	297.9	231.0	199.5	227.0	199.5	231.9	294.9	353.9	294.9	231.9
80°	317.9	259.9	185.8	147.4	171.0	147.4	183.8	243.8	299.0	243.8	183.8
82.5°	293.9	241.6	166.4	106.1	119.9	106.1	154.4	205.5	255.8	205.5	154.4
85°	286.6	240.2	162.9	85.6	71.7	83.5	133.9	179.1	221.4	179.1	133.9
87.5°	279.5	246.9	168.4	82.9	26.5	68.9	111.3	150.7	176.2	150.7	111.3
90°	287.1	263.3	185.8	85.3	2.0	47.2	86.6	122.0	136.7	122.0	86.6
92.5°	305.7	287.8	207.2	97.7	18.0	28.5	69.9	102.3	109.2	102.3	69.9
95°	322.2	314.2	233.6	113.1	42.1	12.9	53.2	81.6	84.6	81.6	53.2
97.5°	347.6	342.6	258.0	142.3	73.1	14.0	36.5	66.9	66.9	66.9	36.5
100°	370.0	366.0	287.4	185.5	111.3	35.1	21.7	51.3	54.3	51.3	21.7
102.5°	410.4	394.5	318.7	226.5	152.3	64.1	20.0	33.6	37.5	33.6	20.0
105°	444.8	425.9	365.8	269.6	199.4	103.2	42.1	22.8	22.7	22.8	42.1
107.5°	479.0	467.0	409.9	314.7	249.5	149.3	76.2	42.0	30.0	42.0	76.2
110°	527.2	515.2	453.1	358.8	302.7	197.4	115.2	74.1	58.1	74.1	115.2



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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°	575.3	566.3	493.2	404.9	356.9	249.5	163.3	114.2	99.2	114.2	163.3
115°	612.4	606.4	540.2	448.1	407.0	308.7	217.5	160.3	143.3	160.3	217.5
117.5°	651.5	649.5	574.4	492.1	467.1	361.9	266.5	207.5	189.4	207.5	266.5
120°	700.6	691.6	621.4	536.2	524.2	418.0	320.7	261.5	243.5	261.5	320.7
122.5°	734.6	729.6	661.5	579.4	578.4	476.1	372.9	314.7	294.6	314.7	372.9
125°	765.8	763.7	691.6	621.4	636.5	529.2	431.0	371.8	349.8	371.8	431.0
127.5°	793.8	796.9	731.7	667.5	696.6	583.3	489.1	422.9	399.9	422.9	489.1
130°	817.9	827.9	768.8	709.7	752.7	642.5	540.2	474.1	459.1	474.1	540.2
132.5°	865.0	859.0	806.9	752.7	812.9	696.6	594.3	525.2	508.1	525.2	594.3
135°	889.0	891.1	839.9	789.9	869.0	750.8	645.5	577.3	560.3	577.3	645.5
137.5°	918.1	912.1	866.0	836.0	921.2	803.8	695.6	632.4	605.4	632.4	695.6
140°	939.2	938.2	900.1	876.1	977.3	854.9	746.7	682.6	657.5	682.6	746.7
142.5°	962.3	968.3	934.2	920.1	1033.4	909.1	801.9	732.7	708.6	732.7	801.9
145°	976.3	990.3	968.3	975.2	1086.6	969.2	849.9	779.8	752.7	779.8	849.9
147.5°	1002.4	1018.4	993.3	1014.4	1132.7	1022.4	898.1	827.9	805.8	827.9	898.1
150°	1035.4	1043.4	1028.4	1068.5	1179.8	1081.6	947.2	875.0	852.0	875.0	947.2
152.5°	1062.5	1072.5	1055.4	1127.7	1216.9	1135.6	1001.4	921.2	894.1	921.2	1001.4
155°	1090.5	1094.6	1082.6	1184.8	1257.0	1188.8	1044.4	972.3	946.2	972.3	1044.4
157.5°	1116.7	1124.6	1110.6	1227.9	1291.0	1234.9	1093.6	1023.4	1000.3	1023.4	1093.6
160°	1144.7	1144.7	1152.7	1278.0	1319.1	1275.0	1145.7	1079.5	1047.5	1079.5	1145.7
162.5°	1147.7	1166.8	1209.8	1313.1	1346.2	1310.1	1201.9	1119.6	1091.6	1119.6	1201.9
165°	1191.8	1208.9	1274.0	1344.2	1368.3	1341.1	1271.0	1185.8	1152.7	1185.8	1271.0
167.5°	1237.0	1273.0	1326.1	1380.3	1388.3	1371.2	1324.1	1264.0	1233.9	1264.0	1324.1
170°	1311.2	1344.2	1370.2	1393.3	1404.3	1394.3	1357.3	1328.2	1307.1	1328.2	1357.3
172.5°	1370.3	1392.3	1402.4	1417.3	1410.3	1406.3	1387.3	1373.3	1361.3	1373.3	1387.3
175°	1407.4	1413.4	1422.4	1418.4	1424.4	1413.4	1413.4	1420.4	1377.3	1420.4	1413.4
177.5°	1420.5	1429.4	1424.4	1416.3	1417.3	1415.3	1418.4	1422.4	1414.4	1422.4	1418.4
180°	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4



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CATALOG NUMBER: MWL-4-34-73-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3061.5	3061.5	3061.5	3061.5	3061.5	3061.5
2.5°	3065.6	3065.6	3066.6	3049.8	3057.6	3057.6
5°	3051.8	3050.8	3051.8	3035.1	3041.9	3036.0
7.5°	3027.1	3026.3	3028.2	3008.5	3021.2	3013.4
10°	2991.8	2991.8	2992.7	2975.1	2983.9	2981.0
12.5°	2949.5	2947.5	2949.5	2933.8	2940.7	2941.7
15°	2897.4	2898.4	2898.4	2882.7	2887.6	2888.7
17.5°	2840.4	2840.4	2840.4	2823.7	2826.7	2828.7
20°	2769.6	2769.6	2770.6	2753.9	2756.0	2753.0
22.5°	2700.9	2697.9	2701.8	2680.2	2675.4	2672.4
25°	2618.3	2618.3	2619.3	2596.7	2579.1	2573.2
27.5°	2529.8	2530.8	2530.8	2502.3	2478.8	2463.1
30°	2436.5	2434.5	2438.4	2398.2	2362.9	2346.2
32.5°	2330.3	2336.2	2332.3	2284.2	2243.9	2227.2
35°	2226.2	2229.1	2229.1	2156.4	2110.2	2102.3
37.5°	2103.3	2123.0	2106.3	2029.6	1983.4	1981.4
40°	1970.6	2006.0	1972.6	1887.1	1854.7	1864.5
42.5°	1833.0	1879.2	1835.0	1750.5	1736.7	1748.5
45°	1691.5	1748.5	1693.5	1609.0	1611.9	1633.5
47.5°	1548.0	1598.1	1549.0	1484.1	1498.9	1524.4
50°	1399.6	1423.2	1401.6	1356.4	1390.8	1415.3
52.5°	1258.1	1235.5	1260.1	1244.3	1288.6	1307.2
55°	1107.6	1058.6	1109.7	1130.3	1184.4	1201.1
57.5°	957.3	904.3	959.3	1020.3	1087.1	1096.9
60°	813.8	772.6	814.8	909.2	986.8	997.6
62.5°	686.0	659.5	687.1	793.2	880.7	885.6
65°	575.9	566.1	577.0	681.2	762.8	777.5
67.5°	481.6	484.5	481.6	576.0	651.7	673.3
70°	398.0	410.8	398.0	473.7	541.5	574.9
72.5°	323.3	340.1	324.3	380.3	442.3	483.5
75°	258.5	281.1	258.5	295.8	357.7	409.8
77.5°	199.5	227.0	199.5	231.0	297.9	357.9
80°	147.4	171.0	147.4	185.8	259.9	317.9
82.5°	106.1	119.9	106.1	166.4	241.6	293.9
85°	83.5	71.7	85.6	162.9	240.2	286.6
87.5°	68.9	26.5	82.9	168.4	246.9	279.5
90°	47.2	2.0	85.3	185.8	263.3	287.1
92.5°	28.5	18.0	97.7	207.2	287.8	305.7
95°	12.9	42.1	113.1	233.6	314.2	322.2
97.5°	14.0	73.1	142.3	258.0	342.6	347.6
100°	35.1	111.3	185.5	287.4	366.0	370.0
102.5°	64.1	152.3	226.5	318.7	394.5	410.4
105°	103.2	199.4	269.6	365.8	425.9	444.8
107.5°	149.3	249.5	314.7	409.9	467.0	479.0
110°	197.4	302.7	358.8	453.1	515.2	527.2



TEST NUMBER: P392668

CATALOG NUMBER: MWL-4-34-73-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	249.5	356.9	404.9	493.2	566.3	575.3
115°	308.7	407.0	448.1	540.2	606.4	612.4
117.5°	361.9	467.1	492.1	574.4	649.5	651.5
120°	418.0	524.2	536.2	621.4	691.6	700.6
122.5°	476.1	578.4	579.4	661.5	729.6	734.6
125°	529.2	636.5	621.4	691.6	763.7	765.8
127.5°	583.3	696.6	667.5	731.7	796.9	793.8
130°	642.5	752.7	709.7	768.8	827.9	817.9
132.5°	696.6	812.9	752.7	806.9	859.0	865.0
135°	750.8	869.0	789.9	839.9	891.1	889.0
137.5°	803.8	921.2	836.0	866.0	912.1	918.1
140°	854.9	977.3	876.1	900.1	938.2	939.2
142.5°	909.1	1033.4	920.1	934.2	968.3	962.3
145°	969.2	1086.6	975.2	968.3	990.3	976.3
147.5°	1022.4	1132.7	1014.4	993.3	1018.4	1002.4
150°	1081.6	1179.8	1068.5	1028.4	1043.4	1035.4
152.5°	1135.6	1216.9	1127.7	1055.4	1072.5	1062.5
155°	1188.8	1257.0	1184.8	1082.6	1094.6	1090.5
157.5°	1234.9	1291.0	1227.9	1110.6	1124.6	1116.7
160°	1275.0	1319.1	1278.0	1152.7	1144.7	1144.7
162.5°	1310.1	1346.2	1313.1	1209.8	1166.8	1147.7
165°	1341.1	1368.3	1344.2	1274.0	1208.9	1191.8
167.5°	1371.2	1388.3	1380.3	1326.1	1273.0	1237.0
170°	1394.3	1404.3	1393.3	1370.2	1344.2	1311.2
172.5°	1406.3	1410.3	1417.3	1402.4	1392.3	1370.3
175°	1413.4	1424.4	1418.4	1422.4	1413.4	1407.4
177.5°	1415.3	1417.3	1416.3	1424.4	1429.4	1420.5
180°	1422.4	1422.4	1422.4	1422.4	1422.4	1422.4

(END OF REPORT)