

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: P392669

Luminaire Tested: **MWL-4-34-73-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392669
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-L840-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

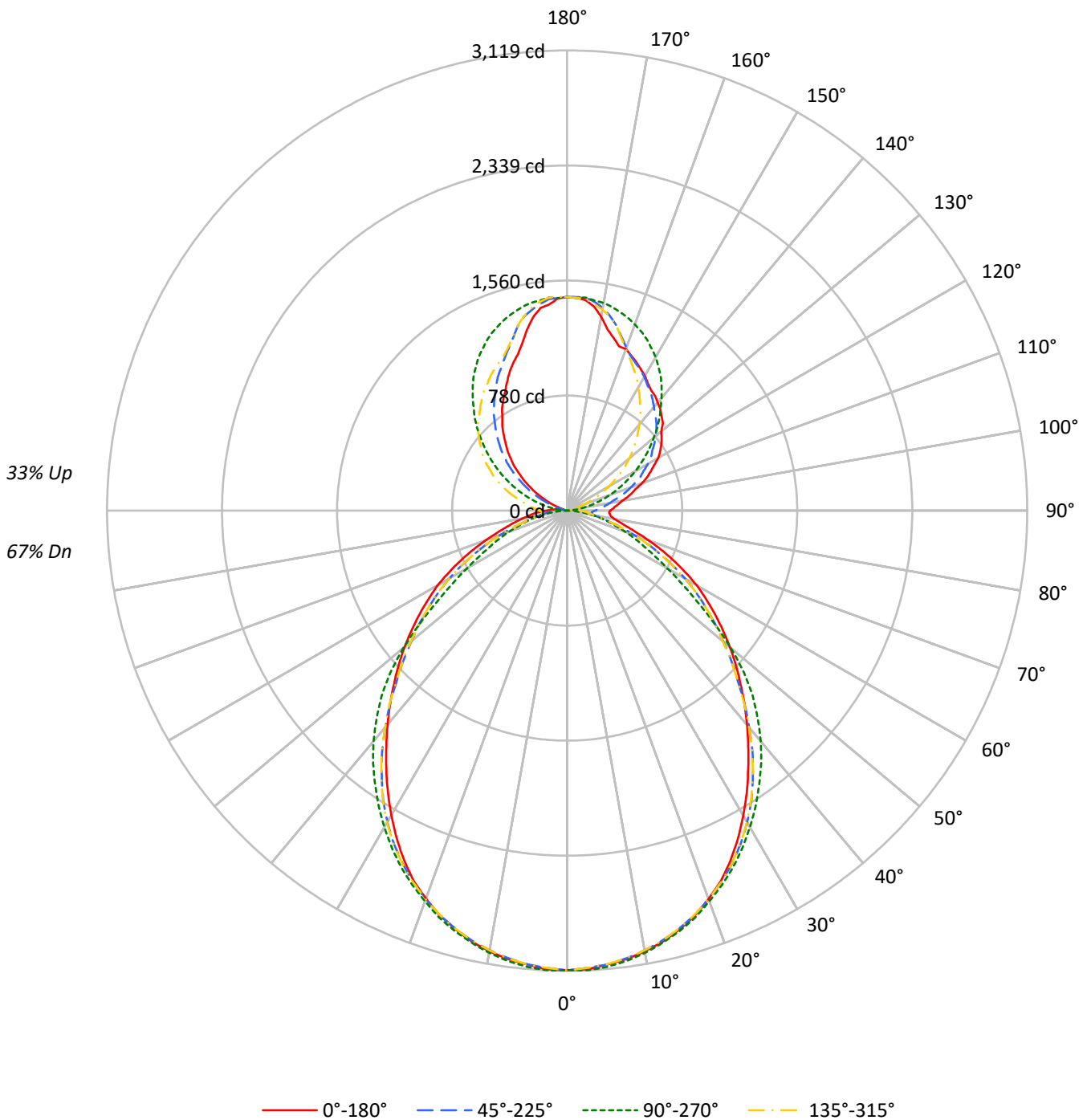
Lumens per Lamp: N/A
Luminaire Lumens: 10749.8 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Direct

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



TEST NUMBER: P392669
CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

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	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°	20119	20119	20119	20119
5°	19846	18506	19846	18506
10°	19532	16971	19532	16971
15°	19118	15551	19098	15551
20°	18549	14200	18528	14200
25°	17793	12947	17772	12947
30°	16793	11711	16764	11711
35°	15719	10518	15697	10518
40°	14708	9357	14677	9357
45°	13749	8125	13724	8125
50°	12871	6638	12845	6638
55°	11979	4995	11959	4995
60°	11108	3717	11097	3717
65°	9882	2799	9882	2799
70°	8589	2106	8605	2106
75°	7493	1508	7548	1508
80°	7563	970	7112	970
85°	9864	435	7621	435



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.7	2.7
10°-20°	828.4	7.7
20°-30°	1214.9	11.3
30°-40°	1375.1	12.8
40°-50°	1295.7	12.1
50°-60°	1036.9	9.6
60°-70°	682.7	6.4
70°-80°	349.0	3.2
80°-90°	173.2	1.6
90°-100°	150.9	1.4
100°-110°	229.9	2.1
110°-120°	386.0	3.6
120°-130°	523.7	4.9
130°-140°	596.9	5.6
140°-150°	595.1	5.5
150°-160°	517.9	4.8
160°-170°	364.2	3.4
170°-180°	135.6	1.3
0°-30°	2337.0	21.7
0°-40°	3712.1	34.5
0°-60°	6044.7	56.2
0°-90°	7249.6	67.4
90°-120°	766.7	7.1
90°-150°	2482.4	23.1
90°-180°	3500.0	32.6
0°-180°	10749.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3115	3115	3115	3115	3115	
5°	3089	3104	3089	3104	3089	293
15°	2939	2949	2936	2949	2939	828
25°	2618	2664	2615	2664	2618	1202
35°	2139	2268	2136	2268	2139	1339
45°	1662	1779	1659	1779	1662	1285
55°	1222	1077	1220	1077	1222	1094
65°	791	576	791	576	791	786
75°	417	286	420	286	417	456
85°	292	73	225	73	292	244
90°	292	2	139	2	292	162
95°	328	43	86	43	328	279
105°	453	203	23	203	453	479
115°	623	414	146	414	623	618
125°	779	648	356	648	779	696
135°	905	884	570	884	905	698
145°	993	1106	766	1106	993	627
155°	1110	1279	963	1279	1110	512
165°	1213	1392	1173	1392	1213	344
175°	1432	1449	1401	1449	1432	134
180°	1447	1447	1447	1447	1447	



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2
2.5°	3111.2	3111.2	3103.3	3120.3	3119.3	3119.3	3103.3	3111.2	3112.2	3111.2	3103.3
5°	3089.2	3095.2	3088.3	3105.3	3104.3	3105.3	3087.2	3095.2	3089.2	3095.2	3087.2
7.5°	3066.1	3074.1	3061.1	3081.2	3079.2	3080.1	3060.1	3073.1	3066.1	3073.1	3060.1
10°	3033.1	3036.1	3027.1	3045.1	3044.1	3044.1	3026.1	3034.1	3033.1	3034.1	3026.1
12.5°	2993.2	2992.1	2985.1	3001.1	2999.1	3001.1	2985.1	2990.1	2991.1	2990.1	2985.1
15°	2939.2	2938.1	2933.1	2949.1	2949.1	2948.1	2932.1	2936.1	2936.1	2936.1	2932.1
17.5°	2878.2	2876.1	2873.1	2890.1	2890.1	2890.1	2872.1	2875.1	2875.1	2875.1	2872.1
20°	2801.2	2804.2	2802.1	2819.1	2818.1	2818.1	2801.1	2802.1	2798.1	2802.1	2801.1
22.5°	2719.2	2722.2	2727.1	2749.1	2745.1	2748.1	2726.1	2720.1	2717.1	2720.1	2726.1
25°	2618.2	2624.2	2642.1	2665.1	2664.1	2664.1	2640.1	2621.1	2615.1	2621.1	2640.1
27.5°	2506.2	2522.2	2546.1	2575.1	2575.1	2574.1	2544.1	2519.1	2503.1	2519.1	2544.1
30°	2387.2	2404.2	2440.2	2481.1	2477.1	2479.1	2437.1	2401.1	2383.1	2401.1	2437.1
32.5°	2266.2	2283.2	2324.2	2373.1	2377.1	2371.1	2321.1	2279.1	2262.1	2279.1	2321.1
35°	2139.1	2147.1	2194.1	2268.1	2268.1	2265.1	2191.1	2144.1	2136.1	2144.1	2191.1
37.5°	2016.1	2018.1	2065.1	2143.1	2160.1	2140.1	2062.1	2015.1	2013.1	2015.1	2062.1
40°	1897.1	1887.1	1920.1	2007.1	2041.1	2005.1	1916.1	1883.1	1893.1	1883.1	1916.1
42.5°	1779.1	1767.1	1781.1	1867.1	1912.1	1865.1	1778.1	1763.1	1775.1	1763.1	1778.1
45°	1662.1	1640.1	1637.1	1723.1	1779.1	1721.1	1633.0	1637.1	1659.1	1637.1	1633.0
47.5°	1551.1	1525.1	1510.1	1576.1	1626.1	1575.1	1506.0	1522.1	1548.1	1522.1	1506.0
50°	1440.1	1415.1	1380.1	1426.1	1448.1	1424.1	1376.0	1411.0	1437.1	1411.0	1376.0
52.5°	1330.1	1311.1	1266.1	1282.1	1257.1	1280.1	1263.0	1307.0	1327.1	1307.0	1263.0
55°	1222.1	1205.1	1150.1	1129.1	1077.1	1127.0	1147.0	1202.0	1220.1	1202.0	1147.0
57.5°	1116.1	1106.1	1038.1	976.1	920.1	974.0	1035.0	1103.0	1114.1	1103.0	1035.0
60°	1015.1	1004.1	925.1	829.1	786.1	828.0	923.0	1002.0	1014.1	1002.0	923.0
62.5°	901.1	896.1	807.1	699.1	671.0	698.0	805.0	894.0	900.1	894.0	805.0
65°	791.1	776.1	693.1	587.1	576.0	586.0	692.0	775.0	791.1	775.0	692.0
67.5°	685.1	663.1	586.1	490.0	493.0	490.0	585.0	662.0	685.1	662.0	585.0
70°	585.0	551.0	482.0	405.0	418.0	405.0	482.0	552.1	586.1	552.1	482.0
72.5°	492.0	450.0	387.0	330.0	346.0	329.0	387.0	451.1	494.1	451.1	387.0
75°	417.0	364.0	301.0	263.0	286.0	263.0	302.0	365.1	420.1	365.1	302.0
77.5°	364.2	303.1	235.0	203.0	231.0	203.0	236.0	300.1	360.1	300.1	236.0
80°	323.5	264.4	189.1	150.0	174.0	150.0	187.0	248.1	304.2	248.1	187.0
82.5°	299.0	245.8	169.3	108.0	122.0	108.0	157.1	209.1	260.3	209.1	157.1
85°	291.6	244.4	165.8	87.1	73.0	85.0	136.2	182.2	225.3	182.2	136.2
87.5°	284.4	251.2	171.3	84.4	27.0	70.1	113.2	153.3	179.3	153.3	113.2
90°	292.1	267.9	189.1	86.8	2.0	48.0	88.1	124.1	139.1	124.1	88.1
92.5°	311.0	292.8	210.8	99.4	18.3	29.0	71.1	104.1	111.1	104.1	71.1
95°	327.8	319.7	237.7	115.1	42.8	13.1	54.1	83.0	86.1	83.0	54.1
97.5°	353.7	348.6	262.5	144.8	74.4	14.2	37.1	68.1	68.1	68.1	37.1
100°	376.5	372.4	292.4	188.7	113.2	35.7	22.1	52.2	55.2	52.2	22.1
102.5°	417.6	401.4	324.3	230.5	155.0	65.2	20.3	34.2	38.2	34.2	20.3
105°	452.6	433.3	372.2	274.3	202.9	105.0	42.8	23.2	23.1	23.2	42.8
107.5°	487.4	475.2	417.1	320.2	253.9	151.9	77.5	42.7	30.5	42.7	77.5
110°	536.4	524.2	461.0	365.1	308.0	200.9	117.2	75.4	59.1	75.4	117.2



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	585.4	576.2	501.8	412.0	363.1	253.9	166.2	116.2	100.9	116.2	166.2
115°	623.1	617.0	549.7	455.9	414.1	314.1	221.3	163.1	145.8	163.1	221.3
117.5°	662.9	660.9	584.4	500.7	475.3	368.2	271.2	211.1	192.7	211.1	271.2
120°	712.9	703.7	632.3	545.6	533.4	425.3	326.3	266.1	247.8	266.1	326.3
122.5°	747.5	742.4	673.1	589.5	588.5	484.4	379.4	320.2	299.8	320.2	379.4
125°	779.2	777.1	703.7	632.3	647.6	538.5	438.5	378.3	355.9	378.3	438.5
127.5°	807.7	810.8	744.5	679.2	708.8	593.5	497.7	430.3	406.9	430.3	497.7
130°	832.2	842.4	782.2	722.1	765.9	653.7	549.7	482.4	467.1	482.4	549.7
132.5°	880.1	874.0	821.0	765.9	827.1	708.8	604.7	534.4	517.0	534.4	604.7
135°	904.6	906.7	854.6	803.7	884.2	763.9	656.8	587.4	570.1	587.4	656.8
137.5°	934.2	928.1	881.2	850.6	937.3	817.9	707.8	643.5	616.0	643.5	707.8
140°	955.6	954.6	915.8	891.4	994.4	869.9	759.8	694.5	669.0	694.5	759.8
142.5°	979.1	985.2	950.5	936.2	1051.5	925.0	815.9	745.5	721.0	745.5	815.9
145°	993.4	1007.6	985.2	992.3	1105.6	986.2	864.8	793.4	765.9	793.4	864.8
147.5°	1019.9	1036.2	1010.7	1032.1	1152.5	1040.3	913.8	842.4	819.9	842.4	913.8
150°	1053.5	1061.7	1046.4	1087.2	1200.4	1100.5	963.8	890.3	866.9	890.3	963.8
152.5°	1081.1	1091.3	1073.9	1147.4	1238.2	1155.5	1018.9	937.3	909.7	937.3	1018.9
155°	1109.6	1113.7	1101.5	1205.5	1279.0	1209.6	1062.7	989.3	962.8	989.3	1062.7
157.5°	1136.2	1144.3	1130.0	1249.4	1313.6	1256.5	1112.7	1041.3	1017.8	1041.3	1112.7
160°	1164.7	1164.7	1172.9	1300.4	1342.2	1297.3	1165.7	1098.4	1065.8	1098.4	1165.7
162.5°	1167.8	1187.2	1231.0	1336.1	1369.7	1333.0	1222.9	1139.2	1110.7	1139.2	1222.9
165°	1212.7	1230.0	1296.3	1367.7	1392.2	1364.6	1293.2	1206.5	1172.9	1206.5	1293.2
167.5°	1258.6	1295.3	1349.3	1404.4	1412.6	1395.2	1347.3	1286.1	1255.5	1286.1	1347.3
170°	1334.1	1367.7	1394.2	1417.7	1428.9	1418.7	1381.0	1351.4	1330.0	1351.4	1381.0
172.5°	1394.3	1416.7	1426.9	1442.1	1435.0	1430.9	1411.6	1397.3	1385.1	1397.3	1411.6
175°	1432.0	1438.1	1447.3	1443.2	1449.3	1438.1	1438.1	1445.2	1401.4	1445.2	1438.1
177.5°	1445.3	1454.4	1449.3	1441.1	1442.1	1440.1	1443.2	1447.3	1439.1	1447.3	1443.2
180°	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3115.2	3115.2	3115.2	3115.2	3115.2	3115.2
2.5°	3119.3	3119.3	3120.3	3103.3	3111.2	3111.2
5°	3105.3	3104.3	3105.3	3088.3	3095.2	3089.2
7.5°	3080.1	3079.2	3081.2	3061.1	3074.1	3066.1
10°	3044.1	3044.1	3045.1	3027.1	3036.1	3033.1
12.5°	3001.1	2999.1	3001.1	2985.1	2992.1	2993.2
15°	2948.1	2949.1	2949.1	2933.1	2938.1	2939.2
17.5°	2890.1	2890.1	2890.1	2873.1	2876.1	2878.2
20°	2818.1	2818.1	2819.1	2802.1	2804.2	2801.2
22.5°	2748.1	2745.1	2749.1	2727.1	2722.2	2719.2
25°	2664.1	2664.1	2665.1	2642.1	2624.2	2618.2
27.5°	2574.1	2575.1	2575.1	2546.1	2522.2	2506.2
30°	2479.1	2477.1	2481.1	2440.2	2404.2	2387.2
32.5°	2371.1	2377.1	2373.1	2324.2	2283.2	2266.2
35°	2265.1	2268.1	2268.1	2194.1	2147.1	2139.1
37.5°	2140.1	2160.1	2143.1	2065.1	2018.1	2016.1
40°	2005.1	2041.1	2007.1	1920.1	1887.1	1897.1
42.5°	1865.1	1912.1	1867.1	1781.1	1767.1	1779.1
45°	1721.1	1779.1	1723.1	1637.1	1640.1	1662.1
47.5°	1575.1	1626.1	1576.1	1510.1	1525.1	1551.1
50°	1424.1	1448.1	1426.1	1380.1	1415.1	1440.1
52.5°	1280.1	1257.1	1282.1	1266.1	1311.1	1330.1
55°	1127.0	1077.1	1129.1	1150.1	1205.1	1222.1
57.5°	974.0	920.1	976.1	1038.1	1106.1	1116.1
60°	828.0	786.1	829.1	925.1	1004.1	1015.1
62.5°	698.0	671.0	699.1	807.1	896.1	901.1
65°	586.0	576.0	587.1	693.1	776.1	791.1
67.5°	490.0	493.0	490.0	586.1	663.1	685.1
70°	405.0	418.0	405.0	482.0	551.0	585.0
72.5°	329.0	346.0	330.0	387.0	450.0	492.0
75°	263.0	286.0	263.0	301.0	364.0	417.0
77.5°	203.0	231.0	203.0	235.0	303.1	364.2
80°	150.0	174.0	150.0	189.1	264.4	323.5
82.5°	108.0	122.0	108.0	169.3	245.8	299.0
85°	85.0	73.0	87.1	165.8	244.4	291.6
87.5°	70.1	27.0	84.4	171.3	251.2	284.4
90°	48.0	2.0	86.8	189.1	267.9	292.1
92.5°	29.0	18.3	99.4	210.8	292.8	311.0
95°	13.1	42.8	115.1	237.7	319.7	327.8
97.5°	14.2	74.4	144.8	262.5	348.6	353.7
100°	35.7	113.2	188.7	292.4	372.4	376.5
102.5°	65.2	155.0	230.5	324.3	401.4	417.6
105°	105.0	202.9	274.3	372.2	433.3	452.6
107.5°	151.9	253.9	320.2	417.1	475.2	487.4
110°	200.9	308.0	365.1	461.0	524.2	536.4



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	253.9	363.1	412.0	501.8	576.2	585.4
115°	314.1	414.1	455.9	549.7	617.0	623.1
117.5°	368.2	475.3	500.7	584.4	660.9	662.9
120°	425.3	533.4	545.6	632.3	703.7	712.9
122.5°	484.4	588.5	589.5	673.1	742.4	747.5
125°	538.5	647.6	632.3	703.7	777.1	779.2
127.5°	593.5	708.8	679.2	744.5	810.8	807.7
130°	653.7	765.9	722.1	782.2	842.4	832.2
132.5°	708.8	827.1	765.9	821.0	874.0	880.1
135°	763.9	884.2	803.7	854.6	906.7	904.6
137.5°	817.9	937.3	850.6	881.2	928.1	934.2
140°	869.9	994.4	891.4	915.8	954.6	955.6
142.5°	925.0	1051.5	936.2	950.5	985.2	979.1
145°	986.2	1105.6	992.3	985.2	1007.6	993.4
147.5°	1040.3	1152.5	1032.1	1010.7	1036.2	1019.9
150°	1100.5	1200.4	1087.2	1046.4	1061.7	1053.5
152.5°	1155.5	1238.2	1147.4	1073.9	1091.3	1081.1
155°	1209.6	1279.0	1205.5	1101.5	1113.7	1109.6
157.5°	1256.5	1313.6	1249.4	1130.0	1144.3	1136.2
160°	1297.3	1342.2	1300.4	1172.9	1164.7	1164.7
162.5°	1333.0	1369.7	1336.1	1231.0	1187.2	1167.8
165°	1364.6	1392.2	1367.7	1296.3	1230.0	1212.7
167.5°	1395.2	1412.6	1404.4	1349.3	1295.3	1258.6
170°	1418.7	1428.9	1417.7	1394.2	1367.7	1334.1
172.5°	1430.9	1435.0	1442.1	1426.9	1416.7	1394.3
175°	1438.1	1449.3	1443.2	1447.3	1438.1	1432.0
177.5°	1440.1	1442.1	1441.1	1449.3	1454.4	1445.3
180°	1447.3	1447.3	1447.3	1447.3	1447.3	1447.3

(END OF REPORT)