

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: P392666

Luminaire Tested: **MWL-4-34-60-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392666
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-4-34-60-UNV-L840-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

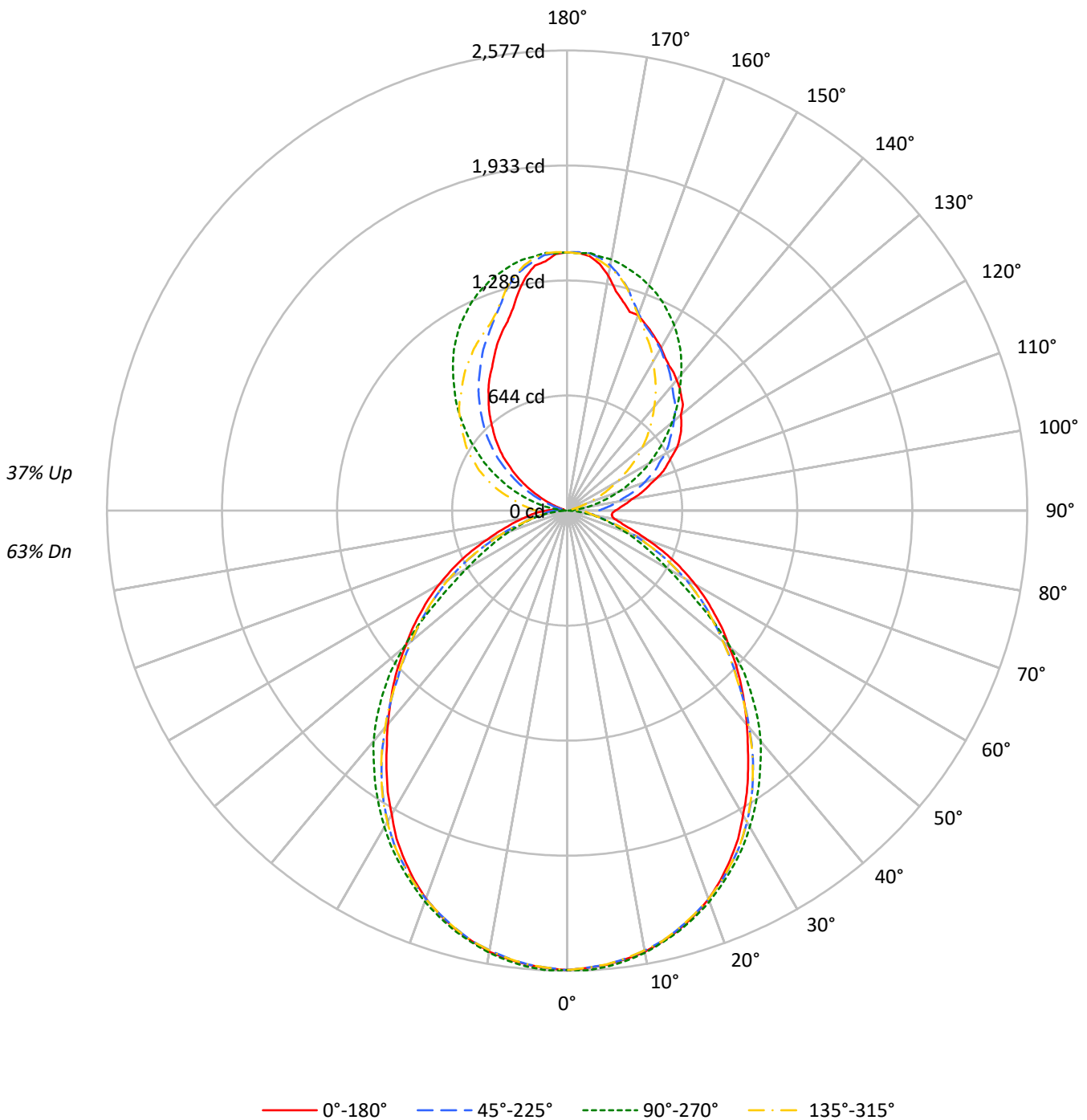
Lumens per Lamp: N/A
Luminaire Lumens: 9471.9 lumens
Efficiency: N/A
Efficacy: 96.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 98.5
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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CATALOG NUMBER: MWL-4-34-60-UNV-L840-EDD

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	50	30	10	0	
RCR																						
0	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63				
1	101	97	93	89	95	91	87	84	80	77	75	70	68	66	61	59	58	54				
2	92	85	79	74	86	80	74	70	71	66	63	62	59	56	54	52	50	46				
3	84	75	68	62	79	71	64	59	63	58	53	55	51	48	48	45	43	39				
4	78	67	59	53	73	63	56	50	56	50	46	49	45	41	43	40	37	34				
5	71	60	52	46	67	56	49	44	50	44	40	45	40	36	39	36	33	30				
6	66	54	46	40	62	51	44	38	46	40	35	40	36	32	36	32	29	26				
7	61	49	41	35	57	46	39	34	41	35	31	37	32	28	33	29	26	23				
8	57	44	37	31	53	42	35	30	38	32	28	34	29	26	30	26	23	21				
9	53	41	33	28	50	39	32	27	35	29	25	31	27	23	28	24	21	19				
10	50	37	30	25	47	36	29	24	32	27	23	29	24	21	26	22	19	17				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	16618	16618	16618	16618
5°	16402	15286	16402	15286
10°	16151	14016	16151	14016
15°	15795	12841	15774	12841
20°	15331	11741	15310	11741
25°	14674	10687	14653	10687
30°	13852	9674	13823	9674
35°	12985	8681	12963	8681
40°	12142	7734	12111	7734
45°	11391	6682	11366	6682
50°	10574	5479	10548	5479
55°	9852	4128	9832	4128
60°	9061	3064	9050	3064
65°	8146	2323	8146	2323
70°	7003	1718	7019	1718
75°	6145	1250	6201	1250
80°	6278	808	5826	808
85°	8477	364	6234	364



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	242.6	2.6
10°-20°	684.1	7.2
20°-30°	1003.1	10.6
30°-40°	1135.6	12.0
40°-50°	1069.8	11.3
50°-60°	855.5	9.0
60°-70°	561.8	5.9
70°-80°	287.2	3.0
80°-90°	146.8	1.5
90°-100°	141.4	1.5
100°-110°	228.3	2.4
110°-120°	385.3	4.1
120°-130°	523.0	5.5
130°-140°	596.2	6.3
140°-150°	594.5	6.3
150°-160°	517.5	5.5
160°-170°	364.0	3.8
170°-180°	135.6	1.4
0°-30°	1929.7	20.4
0°-40°	3065.3	32.4
0°-60°	4990.6	52.7
0°-90°	5986.4	63.2
90°-120°	754.9	8.0
90°-150°	2468.6	26.1
90°-180°	3486.0	36.8
0°-180°	9471.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2573	2573	2573	2573	2573	
5°	2553	2564	2553	2564	2553	242
15°	2428	2435	2425	2435	2428	684
25°	2159	2199	2156	2199	2159	992
35°	1767	1872	1764	1872	1767	1105
45°	1377	1463	1374	1463	1377	1062
55°	1005	890	1003	890	1005	901
65°	652	478	652	478	652	644
75°	342	237	345	237	342	376
85°	251	61	184	61	251	209
90°	269	2	116	2	269	149
95°	313	42	71	42	313	268
105°	450	203	20	203	450	475
115°	622	413	145	413	622	617
125°	778	648	355	648	778	695
135°	904	883	569	883	904	697
145°	993	1105	766	1105	993	626
155°	1109	1278	962	1278	1109	511
165°	1212	1390	1172	1390	1212	344
175°	1431	1448	1400	1448	1431	133
180°	1446	1446	1446	1446	1446	



TEST NUMBER: P392666

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1
2.5°	2563.1	2570.1	2562.2	2576.2	2577.2	2575.2	2562.2	2570.1	2564.1	2570.1	2562.2
5°	2553.1	2559.1	2551.2	2563.2	2564.2	2563.2	2550.1	2559.1	2553.1	2559.1	2550.1
7.5°	2533.1	2539.1	2529.1	2544.2	2543.2	2543.1	2528.1	2538.1	2533.1	2538.1	2528.1
10°	2508.1	2507.1	2501.1	2514.1	2514.1	2513.1	2500.1	2505.1	2508.1	2505.1	2500.1
12.5°	2471.2	2472.1	2468.1	2478.1	2476.1	2478.1	2468.1	2470.1	2469.1	2470.1	2468.1
15°	2428.2	2425.1	2422.1	2436.1	2435.1	2435.1	2421.1	2423.1	2425.1	2423.1	2421.1
17.5°	2375.2	2375.1	2371.1	2384.1	2385.1	2384.1	2370.1	2374.1	2372.1	2374.1	2370.1
20°	2315.2	2315.2	2315.1	2329.1	2330.1	2328.1	2314.1	2313.1	2312.1	2313.1	2314.1
22.5°	2241.2	2249.2	2251.1	2268.1	2266.1	2267.1	2250.1	2247.1	2239.1	2247.1	2250.1
25°	2159.2	2166.2	2180.1	2200.1	2199.1	2199.1	2178.1	2163.1	2156.1	2163.1	2178.1
27.5°	2073.2	2083.2	2104.1	2129.1	2128.1	2128.1	2102.1	2080.1	2070.1	2080.1	2102.1
30°	1969.2	1982.2	2014.2	2047.1	2046.1	2045.1	2011.1	1979.1	1965.1	1979.1	2011.1
32.5°	1873.2	1883.2	1920.2	1963.1	1962.1	1961.1	1917.1	1879.1	1869.1	1879.1	1917.1
35°	1767.1	1777.1	1815.1	1869.1	1872.1	1866.1	1812.1	1774.1	1764.1	1774.1	1812.1
37.5°	1662.1	1668.1	1706.1	1770.1	1779.1	1767.1	1703.1	1665.1	1659.1	1665.1	1703.1
40°	1566.1	1560.1	1586.1	1660.1	1687.1	1658.1	1582.1	1556.1	1562.1	1556.1	1582.1
42.5°	1470.1	1458.1	1470.1	1545.1	1579.1	1543.1	1467.1	1454.1	1466.1	1454.1	1467.1
45°	1377.1	1351.1	1352.1	1423.1	1463.1	1421.1	1348.0	1348.1	1374.1	1348.1	1348.0
47.5°	1283.1	1258.1	1248.1	1301.1	1345.1	1300.1	1244.0	1255.1	1280.1	1255.1	1244.0
50°	1183.1	1167.1	1141.1	1177.1	1195.1	1175.1	1137.0	1163.0	1180.1	1163.0	1137.0
52.5°	1100.1	1080.1	1042.1	1056.1	1047.1	1054.1	1039.0	1076.0	1097.1	1076.0	1039.0
55°	1005.1	994.1	951.1	930.1	890.1	928.0	948.0	991.0	1003.1	991.0	948.0
57.5°	921.1	912.1	857.1	810.1	758.1	808.0	854.0	909.0	919.1	909.0	854.0
60°	828.1	828.1	762.1	687.1	648.1	686.0	760.0	826.0	827.1	826.0	760.0
62.5°	739.1	736.1	666.1	577.1	560.0	576.0	664.0	734.0	738.1	734.0	664.0
65°	652.1	638.1	570.1	483.1	478.0	482.0	569.0	637.0	652.1	637.0	569.0
67.5°	562.1	545.1	478.1	401.0	410.0	401.0	477.0	544.0	562.1	544.0	477.0
70°	477.0	453.0	398.0	331.0	341.0	331.0	398.0	454.1	478.1	454.1	398.0
72.5°	407.0	368.0	320.0	271.0	286.0	270.0	320.0	369.1	409.1	369.1	320.0
75°	342.0	298.0	248.0	217.0	237.0	217.0	249.0	299.1	345.1	299.1	249.0
77.5°	302.2	248.1	194.0	168.0	190.0	168.0	195.0	245.1	298.1	245.1	195.0
80°	268.5	218.4	157.1	125.0	145.0	125.0	155.0	202.1	249.2	202.1	155.0
82.5°	255.0	207.8	140.3	90.0	100.0	90.0	128.1	171.1	216.3	171.1	128.1
85°	250.6	211.4	142.8	72.1	61.0	70.0	113.2	149.2	184.3	149.2	113.2
87.5°	255.4	227.2	152.3	73.4	20.0	59.1	94.2	129.3	150.3	129.3	94.2
90°	269.1	246.9	174.1	78.8	2.0	40.0	73.1	103.1	116.1	103.1	73.1
92.5°	291.0	273.8	198.8	93.4	17.3	23.0	59.1	85.1	91.1	85.1	59.1
95°	312.8	306.7	227.7	113.1	41.8	11.1	44.1	70.0	71.1	70.0	44.1
97.5°	341.7	336.6	257.5	144.8	73.4	14.2	32.1	56.1	56.1	56.1	32.1
100°	367.5	364.4	289.4	188.7	113.2	35.7	19.1	44.2	46.2	44.2	19.1
102.5°	411.6	396.4	323.3	230.5	155.0	65.2	19.3	29.2	32.2	29.2	19.3
105°	449.6	431.3	372.2	274.3	202.9	105.0	42.8	21.2	20.1	21.2	42.8
107.5°	486.4	474.2	417.1	319.2	253.9	150.9	77.5	41.7	29.5	41.7	77.5
110°	535.4	523.2	461.0	364.1	307.0	199.9	117.2	74.4	58.1	74.4	117.2



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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°	584.4	575.2	501.8	411.0	362.1	252.9	166.2	115.2	99.9	115.2	166.2
115°	622.1	616.0	548.7	454.9	413.1	313.1	220.3	162.1	144.8	162.1	220.3
117.5°	661.9	659.9	583.4	500.7	475.3	368.2	270.2	210.1	191.7	210.1	270.2
120°	711.9	703.7	631.3	545.6	533.4	425.3	325.3	266.1	246.8	266.1	325.3
122.5°	746.5	741.4	672.1	588.5	588.5	483.4	378.4	319.2	298.8	319.2	378.4
125°	778.2	776.1	703.7	631.3	647.6	537.5	438.5	377.3	354.9	377.3	438.5
127.5°	806.7	809.8	743.5	678.2	707.8	592.5	496.7	429.3	405.9	429.3	496.7
130°	831.2	841.4	781.2	721.1	764.9	652.7	548.7	481.4	466.1	481.4	548.7
132.5°	879.1	873.0	820.0	765.9	826.1	708.8	603.7	533.4	516.0	533.4	603.7
135°	903.6	905.7	853.6	803.7	883.2	763.9	655.8	586.4	569.1	586.4	655.8
137.5°	933.2	927.1	880.2	849.6	936.3	816.9	706.8	642.5	615.0	642.5	706.8
140°	954.6	953.6	914.8	890.4	993.4	868.9	758.8	693.5	668.0	693.5	758.8
142.5°	977.1	984.2	949.5	935.2	1050.5	924.0	814.9	744.5	719.0	744.5	814.9
145°	993.4	1006.6	984.2	991.3	1104.6	985.2	863.8	792.4	765.9	792.4	863.8
147.5°	1018.9	1036.2	1009.7	1031.1	1151.5	1039.3	912.8	842.4	818.9	842.4	912.8
150°	1052.5	1060.7	1045.4	1086.2	1199.4	1099.5	962.8	889.3	865.9	889.3	962.8
152.5°	1080.1	1090.3	1072.9	1146.4	1237.2	1154.5	1017.9	936.3	908.7	936.3	1017.9
155°	1108.6	1112.7	1100.5	1204.5	1278.0	1208.6	1061.7	988.3	961.8	988.3	1061.7
157.5°	1135.2	1143.3	1129.0	1248.4	1312.6	1255.5	1111.7	1040.3	1016.8	1040.3	1111.7
160°	1163.7	1163.7	1171.9	1299.4	1341.2	1296.3	1164.7	1097.4	1064.8	1097.4	1164.7
162.5°	1166.8	1186.2	1230.0	1335.1	1368.7	1332.0	1221.9	1138.2	1109.7	1138.2	1221.9
165°	1211.7	1229.0	1295.3	1366.7	1390.2	1363.6	1292.2	1205.5	1171.9	1205.5	1292.2
167.5°	1258.6	1295.3	1348.3	1403.4	1411.6	1394.2	1346.3	1286.1	1255.5	1286.1	1346.3
170°	1334.1	1366.7	1393.2	1415.7	1427.9	1416.7	1380.0	1350.4	1330.0	1350.4	1380.0
172.5°	1393.3	1415.7	1425.9	1441.1	1434.0	1429.9	1410.6	1396.3	1384.1	1396.3	1410.6
175°	1431.0	1437.1	1446.3	1442.2	1448.3	1437.1	1437.1	1444.2	1400.4	1444.2	1437.1
177.5°	1444.3	1453.4	1448.3	1440.1	1441.1	1439.1	1442.2	1446.3	1438.1	1446.3	1442.2
180°	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3



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CATALOG NUMBER: MWL-4-34-60-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2573.1	2573.1	2573.1	2573.1	2573.1	2573.1
2.5°	2575.2	2577.2	2576.2	2562.2	2570.1	2563.1
5°	2563.2	2564.2	2563.2	2551.2	2559.1	2553.1
7.5°	2543.1	2543.2	2544.2	2529.1	2539.1	2533.1
10°	2513.1	2514.1	2514.1	2501.1	2507.1	2508.1
12.5°	2478.1	2476.1	2478.1	2468.1	2472.1	2471.2
15°	2435.1	2435.1	2436.1	2422.1	2425.1	2428.2
17.5°	2384.1	2385.1	2384.1	2371.1	2375.1	2375.2
20°	2328.1	2330.1	2329.1	2315.1	2315.2	2315.2
22.5°	2267.1	2266.1	2268.1	2251.1	2249.2	2241.2
25°	2199.1	2199.1	2200.1	2180.1	2166.2	2159.2
27.5°	2128.1	2128.1	2129.1	2104.1	2083.2	2073.2
30°	2045.1	2046.1	2047.1	2014.2	1982.2	1969.2
32.5°	1961.1	1962.1	1963.1	1920.2	1883.2	1873.2
35°	1866.1	1872.1	1869.1	1815.1	1777.1	1767.1
37.5°	1767.1	1779.1	1770.1	1706.1	1668.1	1662.1
40°	1658.1	1687.1	1660.1	1586.1	1560.1	1566.1
42.5°	1543.1	1579.1	1545.1	1470.1	1458.1	1470.1
45°	1421.1	1463.1	1423.1	1352.1	1351.1	1377.1
47.5°	1300.1	1345.1	1301.1	1248.1	1258.1	1283.1
50°	1175.1	1195.1	1177.1	1141.1	1167.1	1183.1
52.5°	1054.1	1047.1	1056.1	1042.1	1080.1	1100.1
55°	928.0	890.1	930.1	951.1	994.1	1005.1
57.5°	808.0	758.1	810.1	857.1	912.1	921.1
60°	686.0	648.1	687.1	762.1	828.1	828.1
62.5°	576.0	560.0	577.1	666.1	736.1	739.1
65°	482.0	478.0	483.1	570.1	638.1	652.1
67.5°	401.0	410.0	401.0	478.1	545.1	562.1
70°	331.0	341.0	331.0	398.0	453.0	477.0
72.5°	270.0	286.0	271.0	320.0	368.0	407.0
75°	217.0	237.0	217.0	248.0	298.0	342.0
77.5°	168.0	190.0	168.0	194.0	248.1	302.2
80°	125.0	145.0	125.0	157.1	218.4	268.5
82.5°	90.0	100.0	90.0	140.3	207.8	255.0
85°	70.0	61.0	72.1	142.8	211.4	250.6
87.5°	59.1	20.0	73.4	152.3	227.2	255.4
90°	40.0	2.0	78.8	174.1	246.9	269.1
92.5°	23.0	17.3	93.4	198.8	273.8	291.0
95°	11.1	41.8	113.1	227.7	306.7	312.8
97.5°	14.2	73.4	144.8	257.5	336.6	341.7
100°	35.7	113.2	188.7	289.4	364.4	367.5
102.5°	65.2	155.0	230.5	323.3	396.4	411.6
105°	105.0	202.9	274.3	372.2	431.3	449.6
107.5°	150.9	253.9	319.2	417.1	474.2	486.4
110°	199.9	307.0	364.1	461.0	523.2	535.4



TEST NUMBER: P392666

CATALOG NUMBER: MWL-4-34-60-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	252.9	362.1	411.0	501.8	575.2	584.4
115°	313.1	413.1	454.9	548.7	616.0	622.1
117.5°	368.2	475.3	500.7	583.4	659.9	661.9
120°	425.3	533.4	545.6	631.3	703.7	711.9
122.5°	483.4	588.5	588.5	672.1	741.4	746.5
125°	537.5	647.6	631.3	703.7	776.1	778.2
127.5°	592.5	707.8	678.2	743.5	809.8	806.7
130°	652.7	764.9	721.1	781.2	841.4	831.2
132.5°	708.8	826.1	765.9	820.0	873.0	879.1
135°	763.9	883.2	803.7	853.6	905.7	903.6
137.5°	816.9	936.3	849.6	880.2	927.1	933.2
140°	868.9	993.4	890.4	914.8	953.6	954.6
142.5°	924.0	1050.5	935.2	949.5	984.2	977.1
145°	985.2	1104.6	991.3	984.2	1006.6	993.4
147.5°	1039.3	1151.5	1031.1	1009.7	1036.2	1018.9
150°	1099.5	1199.4	1086.2	1045.4	1060.7	1052.5
152.5°	1154.5	1237.2	1146.4	1072.9	1090.3	1080.1
155°	1208.6	1278.0	1204.5	1100.5	1112.7	1108.6
157.5°	1255.5	1312.6	1248.4	1129.0	1143.3	1135.2
160°	1296.3	1341.2	1299.4	1171.9	1163.7	1163.7
162.5°	1332.0	1368.7	1335.1	1230.0	1186.2	1166.8
165°	1363.6	1390.2	1366.7	1295.3	1229.0	1211.7
167.5°	1394.2	1411.6	1403.4	1348.3	1295.3	1258.6
170°	1416.7	1427.9	1415.7	1393.2	1366.7	1334.1
172.5°	1429.9	1434.0	1441.1	1425.9	1415.7	1393.3
175°	1437.1	1448.3	1442.2	1446.3	1437.1	1431.0
177.5°	1439.1	1441.1	1440.1	1448.3	1453.4	1444.3
180°	1446.3	1446.3	1446.3	1446.3	1446.3	1446.3

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