

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: P392705

Luminaire Tested: **MWL-4-66-33-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392705
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-L840-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

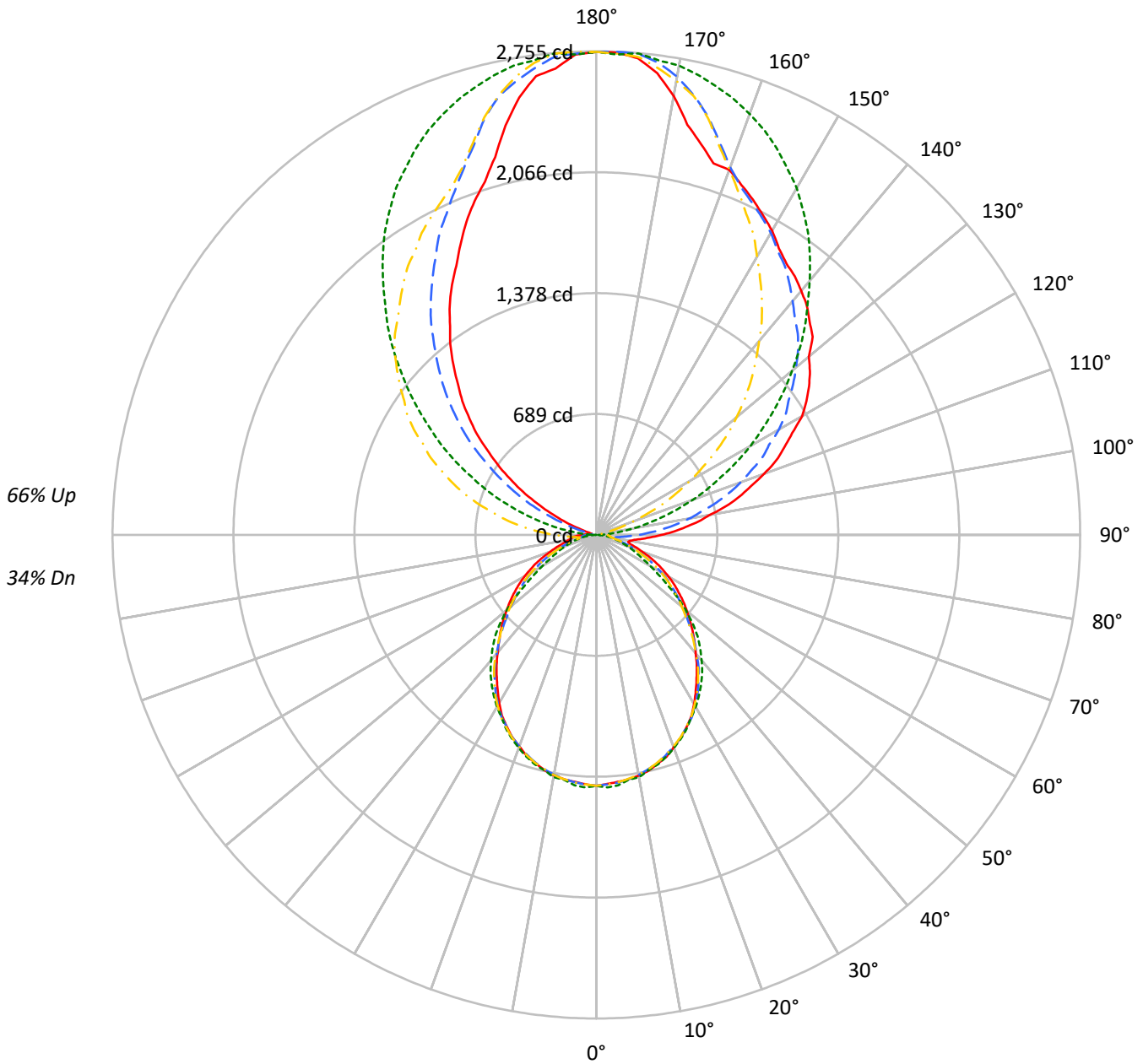
Lumens per Lamp: N/A
Luminaire Lumens: 9945.9 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Indirect

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°	9233	9233	9233	9233
5°	9071	8534	9071	8534
10°	8963	7814	8963	7814
15°	8778	7138	8740	7138
20°	8526	6509	8487	6509
25°	8233	5918	8194	5918
30°	7833	5351	7779	5351
35°	7309	4817	7266	4817
40°	6827	4271	6767	4271
45°	6408	3721	6359	3721
50°	6004	3043	5951	3043
55°	5613	2276	5575	2276
60°	5185	1687	5163	1687
65°	4682	1253	4682	1253
70°	4036	942	4064	942
75°	3556	690	3660	690
80°	4524	445	3659	445
85°	8707	208	4431	208



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	134.6	1.4
10°-20°	379.6	3.8
20°-30°	557.9	5.6
30°-40°	634.3	6.4
40°-50°	598.0	6.0
50°-60°	477.5	4.8
60°-70°	315.6	3.2
70°-80°	166.8	1.7
80°-90°	121.4	1.2
90°-100°	214.5	2.2
100°-110°	426.0	4.3
110°-120°	730.5	7.3
120°-130°	992.8	10.0
130°-140°	1132.6	11.4
140°-150°	1129.8	11.4
150°-160°	983.9	9.9
160°-170°	692.2	7.0
170°-180°	257.8	2.6
0°-30°	1072.1	10.8
0°-40°	1706.4	17.2
0°-60°	2781.9	28.0
0°-90°	3385.7	34.0
90°-120°	1371.1	13.8
90°-150°	4626.3	46.5
90°-180°	6560.0	66.0
0°-180°	9945.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1430	1430	1430	1430	1430	
5°	1412	1432	1412	1432	1412	134
15°	1350	1354	1344	1354	1350	381
25°	1212	1218	1206	1218	1212	557
35°	995	1039	989	1039	995	623
45°	775	815	769	815	775	598
55°	573	491	569	491	573	513
65°	375	258	375	258	375	371
75°	198	131	204	131	198	226
85°	257	35	131	35	257	198
90°	370	3	79	3	370	205
95°	508	79	48	79	508	448
105°	844	384	26	384	844	887
115°	1181	785	271	785	1181	1172
125°	1478	1230	672	1230	1478	1320
135°	1717	1679	1080	1679	1717	1326
145°	1886	2101	1453	2101	1886	1189
155°	2108	2431	1828	2431	2108	972
165°	2304	2644	2228	2644	2304	654
175°	2725	2753	2667	2753	2725	254
180°	2751	2751	2751	2751	2751	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7
2.5°	1419.9	1420.8	1422.6	1431.6	1439.6	1429.6	1422.6	1420.8	1421.8	1420.8	1422.6
5°	1411.9	1415.8	1416.6	1425.6	1431.6	1425.6	1414.7	1415.8	1411.9	1415.8	1414.7
7.5°	1403.8	1409.7	1403.7	1413.6	1406.6	1411.7	1401.8	1407.8	1403.8	1407.8	1401.8
10°	1391.8	1392.7	1388.7	1397.7	1401.7	1395.8	1386.8	1388.8	1391.8	1388.8	1386.8
12.5°	1375.6	1368.7	1366.8	1372.8	1371.8	1372.8	1366.8	1364.8	1371.8	1364.8	1366.8
15°	1349.5	1350.6	1344.7	1350.7	1353.7	1348.7	1342.7	1346.7	1343.7	1346.7	1342.7
17.5°	1325.5	1322.6	1315.7	1318.7	1324.7	1318.7	1313.7	1320.7	1319.7	1320.7	1313.7
20°	1287.5	1288.5	1283.7	1292.7	1291.8	1290.8	1281.7	1284.7	1281.7	1284.7	1281.7
22.5°	1252.5	1254.5	1251.7	1250.7	1256.8	1248.8	1249.7	1250.7	1248.7	1250.7	1249.7
25°	1211.5	1211.5	1211.6	1220.7	1217.8	1218.8	1207.7	1205.7	1205.7	1205.7	1207.7
27.5°	1168.5	1166.5	1173.6	1179.7	1169.8	1177.7	1169.7	1160.7	1162.7	1160.7	1169.7
30°	1113.5	1115.5	1123.5	1140.6	1131.8	1136.7	1117.7	1109.7	1105.8	1109.7	1117.7
32.5°	1053.5	1061.5	1072.5	1095.6	1086.7	1091.7	1066.7	1053.8	1045.8	1053.8	1066.7
35°	994.6	997.6	1014.6	1043.6	1038.8	1037.8	1008.8	991.8	988.8	991.8	1008.8
37.5°	939.6	934.6	955.6	986.6	989.7	980.8	949.8	928.8	933.8	928.8	949.8
40°	880.6	881.6	890.6	926.7	931.7	922.8	882.8	873.8	872.8	873.8	882.8
42.5°	827.6	817.6	824.7	862.7	875.7	858.8	818.8	809.8	819.8	809.8	818.8
45°	774.7	761.7	762.7	795.7	814.7	791.8	754.9	755.8	768.8	755.8	754.9
47.5°	723.7	707.7	699.7	724.7	741.7	722.8	691.9	701.8	717.8	701.8	691.9
50°	671.7	656.7	640.7	655.7	663.8	651.8	632.9	648.9	665.8	648.9	632.9
52.5°	623.7	606.7	585.7	587.7	576.8	583.8	579.9	598.9	617.8	598.9	579.9
55°	572.7	557.7	532.7	515.8	490.8	511.9	526.9	551.9	568.8	551.9	526.9
57.5°	524.7	513.7	481.7	448.8	415.8	444.9	475.9	507.9	520.8	507.9	475.9
60°	473.8	464.8	427.8	380.8	356.8	378.9	423.9	460.9	471.8	460.9	423.9
62.5°	423.8	416.8	373.8	319.8	299.9	317.9	369.9	412.9	421.8	412.9	369.9
65°	374.8	363.8	319.8	269.8	257.9	267.9	317.9	361.9	374.8	361.9	317.9
67.5°	325.8	312.8	270.8	223.9	221.9	223.9	268.9	310.9	325.8	310.9	268.9
70°	274.9	261.9	224.9	185.9	186.9	185.9	224.9	263.8	276.8	263.8	224.9
72.5°	236.9	214.9	184.9	153.9	156.9	151.9	184.9	216.8	240.8	216.8	184.9
75°	197.9	173.9	144.9	121.9	130.9	121.9	146.9	175.8	203.7	175.8	146.9
77.5°	185.4	150.7	112.9	97.9	103.9	97.9	114.9	144.8	177.7	144.8	114.9
80°	193.5	151.9	93.8	73.9	79.9	73.9	89.9	120.8	156.5	120.8	89.9
82.5°	218.1	176.6	102.1	52.9	55.9	52.9	78.8	106.7	144.3	106.7	78.8
85°	257.4	219.9	133.9	46.8	34.9	42.9	77.5	101.4	131.0	101.4	77.5
87.5°	309.3	278.8	179.2	66.9	9.0	39.7	68.4	92.3	109.2	92.3	68.4
90°	370.1	342.7	241.2	99.7	2.9	25.9	48.8	68.7	78.6	68.7	48.8
92.5°	443.6	416.3	304.1	151.0	32.1	16.9	37.8	56.8	62.7	56.8	37.8
95°	508.4	496.8	380.7	206.1	78.7	11.8	30.8	45.9	47.8	45.9	30.8
97.5°	587.0	576.2	458.2	273.1	139.0	24.3	28.7	41.8	42.8	41.8	28.7
100°	654.8	650.8	537.6	356.7	212.8	65.1	22.6	40.5	42.5	40.5	22.6
102.5°	757.5	731.2	611.3	436.3	292.5	121.5	32.2	31.5	34.5	31.5	32.2
105°	843.8	813.6	705.6	519.9	383.9	197.3	77.8	32.3	25.6	32.3	77.8
107.5°	921.4	899.0	791.1	605.4	481.0	284.8	143.9	74.9	50.7	74.9	143.9
110°	1015.6	991.3	874.6	691.9	582.1	379.0	219.7	136.1	106.0	136.1	219.7



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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°	1108.9	1090.4	952.4	781.4	687.1	480.1	313.0	213.8	185.7	213.8	313.0
115°	1180.8	1170.1	1041.8	864.9	785.2	594.8	416.0	305.2	271.2	305.2	416.0
117.5°	1256.6	1254.6	1107.9	950.4	901.8	697.8	511.2	397.5	360.6	397.5	511.2
120°	1351.8	1336.3	1199.2	1036.0	1012.6	806.6	616.2	502.5	465.6	502.5	616.2
122.5°	1418.0	1408.3	1277.9	1117.6	1117.6	917.4	718.2	603.5	564.7	603.5	718.2
125°	1478.2	1474.3	1336.3	1199.2	1230.3	1020.4	830.9	714.3	671.6	714.3	830.9
127.5°	1532.6	1538.5	1412.2	1288.6	1345.0	1125.4	941.7	813.4	768.7	813.4	941.7
130°	1579.3	1598.7	1484.1	1370.3	1453.9	1240.0	1040.8	912.6	883.4	912.6	1040.8
132.5°	1670.6	1659.0	1557.9	1454.9	1570.5	1346.0	1145.8	1011.7	978.6	1011.7	1145.8
135°	1717.3	1721.2	1622.1	1526.8	1679.4	1451.0	1244.9	1112.7	1079.7	1112.7	1244.9
137.5°	1773.6	1762.0	1672.6	1614.3	1780.4	1552.1	1342.1	1219.6	1167.2	1219.6	1342.1
140°	1814.5	1812.5	1738.7	1692.0	1889.3	1651.2	1441.3	1316.8	1268.2	1316.8	1441.3
142.5°	1857.2	1868.9	1804.7	1777.5	1998.1	1756.2	1548.2	1412.2	1365.5	1412.2	1548.2
145°	1886.4	1911.6	1870.8	1884.4	2101.1	1872.8	1641.5	1503.5	1453.0	1503.5	1641.5
147.5°	1935.0	1968.0	1919.4	1960.2	2190.5	1975.8	1734.8	1598.7	1554.0	1598.7	1734.8
150°	2001.0	2016.6	1987.4	2065.2	2281.8	2090.4	1830.0	1690.1	1645.4	1690.1	1830.0
152.5°	2053.5	2072.9	2039.9	2179.8	2353.8	2195.4	1935.0	1779.5	1727.0	1779.5	1935.0
155°	2107.9	2115.7	2092.4	2290.6	2430.6	2298.4	2018.5	1878.6	1828.1	1878.6	2018.5
157.5°	2158.5	2174.0	2146.8	2374.2	2496.6	2387.8	2113.8	1977.7	1933.0	1977.7	2113.8
160°	2212.9	2212.9	2228.4	2471.4	2551.1	2465.5	2214.8	2086.6	2024.4	2086.6	2214.8
162.5°	2218.7	2255.6	2339.2	2539.4	2603.5	2533.6	2323.7	2164.3	2109.9	2164.3	2323.7
165°	2304.2	2337.3	2463.6	2599.6	2644.3	2593.8	2457.8	2292.6	2228.4	2292.6	2457.8
167.5°	2393.6	2463.6	2564.7	2667.7	2683.2	2650.2	2560.8	2446.1	2387.8	2446.1	2560.8
170°	2538.4	2598.6	2650.2	2692.9	2714.3	2694.9	2624.9	2567.5	2530.6	2567.5	2624.9
172.5°	2653.1	2692.9	2712.4	2739.6	2726.0	2718.2	2683.2	2656.0	2635.6	2656.0	2683.2
175°	2725.0	2733.7	2751.2	2741.5	2753.2	2731.8	2733.7	2747.3	2666.7	2747.3	2733.7
177.5°	2750.2	2764.8	2755.1	2737.6	2739.6	2735.7	2743.5	2751.2	2738.6	2751.2	2743.5
180°	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2



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CATALOG NUMBER: MWL-4-66-33-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1429.7	1429.7	1429.7	1429.7	1429.7	1429.7
2.5°	1429.6	1439.6	1431.6	1422.6	1420.8	1419.9
5°	1425.6	1431.6	1425.6	1416.6	1415.8	1411.9
7.5°	1411.7	1406.6	1413.6	1403.7	1409.7	1403.8
10°	1395.8	1401.7	1397.7	1388.7	1392.7	1391.8
12.5°	1372.8	1371.8	1372.8	1366.8	1368.7	1375.6
15°	1348.7	1353.7	1350.7	1344.7	1350.6	1349.5
17.5°	1318.7	1324.7	1318.7	1315.7	1322.6	1325.5
20°	1290.8	1291.8	1292.7	1283.7	1288.5	1287.5
22.5°	1248.8	1256.8	1250.7	1251.7	1254.5	1252.5
25°	1218.8	1217.8	1220.7	1211.6	1211.5	1211.5
27.5°	1177.7	1169.8	1179.7	1173.6	1166.5	1168.5
30°	1136.7	1131.8	1140.6	1123.5	1115.5	1113.5
32.5°	1091.7	1086.7	1095.6	1072.5	1061.5	1053.5
35°	1037.8	1038.8	1043.6	1014.6	997.6	994.6
37.5°	980.8	989.7	986.6	955.6	934.6	939.6
40°	922.8	931.7	926.7	890.6	881.6	880.6
42.5°	858.8	875.7	862.7	824.7	817.6	827.6
45°	791.8	814.7	795.7	762.7	761.7	774.7
47.5°	722.8	741.7	724.7	699.7	707.7	723.7
50°	651.8	663.8	655.7	640.7	656.7	671.7
52.5°	583.8	576.8	587.7	585.7	606.7	623.7
55°	511.9	490.8	515.8	532.7	557.7	572.7
57.5°	444.9	415.8	448.8	481.7	513.7	524.7
60°	378.9	356.8	380.8	427.8	464.8	473.8
62.5°	317.9	299.9	319.8	373.8	416.8	423.8
65°	267.9	257.9	269.8	319.8	363.8	374.8
67.5°	223.9	221.9	223.9	270.8	312.8	325.8
70°	185.9	186.9	185.9	224.9	261.9	274.9
72.5°	151.9	156.9	153.9	184.9	214.9	236.9
75°	121.9	130.9	121.9	144.9	173.9	197.9
77.5°	97.9	103.9	97.9	112.9	150.7	185.4
80°	73.9	79.9	73.9	93.8	151.9	193.5
82.5°	52.9	55.9	52.9	102.1	176.6	218.1
85°	42.9	34.9	46.8	133.9	219.9	257.4
87.5°	39.7	9.0	66.9	179.2	278.8	309.3
90°	25.9	2.9	99.7	241.2	342.7	370.1
92.5°	16.9	32.1	151.0	304.1	416.3	443.6
95°	11.8	78.7	206.1	380.7	496.8	508.4
97.5°	24.3	139.0	273.1	458.2	576.2	587.0
100°	65.1	212.8	356.7	537.6	650.8	654.8
102.5°	121.5	292.5	436.3	611.3	731.2	757.5
105°	197.3	383.9	519.9	705.6	813.6	843.8
107.5°	284.8	481.0	605.4	791.1	899.0	921.4
110°	379.0	582.1	691.9	874.6	991.3	1015.6



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	480.1	687.1	781.4	952.4	1090.4	1108.9
115°	594.8	785.2	864.9	1041.8	1170.1	1180.8
117.5°	697.8	901.8	950.4	1107.9	1254.6	1256.6
120°	806.6	1012.6	1036.0	1199.2	1336.3	1351.8
122.5°	917.4	1117.6	1117.6	1277.9	1408.3	1418.0
125°	1020.4	1230.3	1199.2	1336.3	1474.3	1478.2
127.5°	1125.4	1345.0	1288.6	1412.2	1538.5	1532.6
130°	1240.0	1453.9	1370.3	1484.1	1598.7	1579.3
132.5°	1346.0	1570.5	1454.9	1557.9	1659.0	1670.6
135°	1451.0	1679.4	1526.8	1622.1	1721.2	1717.3
137.5°	1552.1	1780.4	1614.3	1672.6	1762.0	1773.6
140°	1651.2	1889.3	1692.0	1738.7	1812.5	1814.5
142.5°	1756.2	1998.1	1777.5	1804.7	1868.9	1857.2
145°	1872.8	2101.1	1884.4	1870.8	1911.6	1886.4
147.5°	1975.8	2190.5	1960.2	1919.4	1968.0	1935.0
150°	2090.4	2281.8	2065.2	1987.4	2016.6	2001.0
152.5°	2195.4	2353.8	2179.8	2039.9	2072.9	2053.5
155°	2298.4	2430.6	2290.6	2092.4	2115.7	2107.9
157.5°	2387.8	2496.6	2374.2	2146.8	2174.0	2158.5
160°	2465.5	2551.1	2471.4	2228.4	2212.9	2212.9
162.5°	2533.6	2603.5	2539.4	2339.2	2255.6	2218.7
165°	2593.8	2644.3	2599.6	2463.6	2337.3	2304.2
167.5°	2650.2	2683.2	2667.7	2564.7	2463.6	2393.6
170°	2694.9	2714.3	2692.9	2650.2	2598.6	2538.4
172.5°	2718.2	2726.0	2739.6	2712.4	2692.9	2653.1
175°	2731.8	2753.2	2741.5	2751.2	2733.7	2725.0
177.5°	2735.7	2739.6	2737.6	2755.1	2764.8	2750.2
180°	2751.2	2751.2	2751.2	2751.2	2751.2	2751.2

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