

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: P392543

Luminaire Tested: **MWL-2-35-31-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392543
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-2-35-31-UNV-L840-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

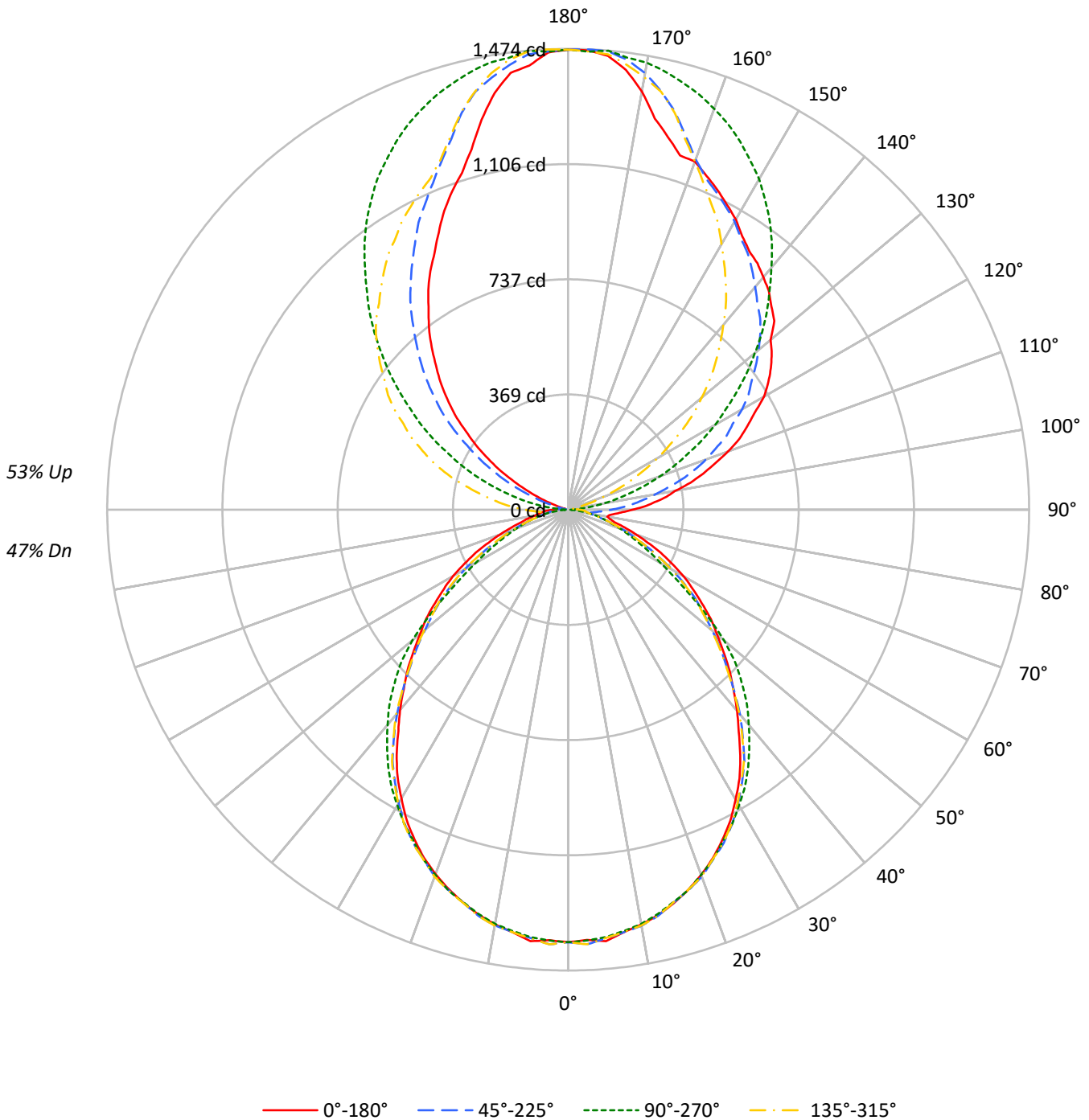
Lumens per Lamp: N/A
Luminaire Lumens: 6674.2 lumens
Efficiency: N/A
Efficacy: 89.0 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 75
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: P392543
CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P392543

CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54	47																				
1	97	93	89	86	89	86	83	80	72	70	68	59	58	56	48	47	46	40																				
2	89	82	76	71	82	75	70	66	64	60	57	53	50	48	43	41	39	34																				
3	81	72	65	59	75	67	61	56	56	52	48	47	44	41	38	36	34	30																				
4	75	64	56	51	68	59	53	47	50	45	41	42	38	35	34	32	29	26																				
5	69	57	49	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23																				
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20																				
7	59	47	39	33	54	43	36	31	37	32	28	31	27	24	26	23	20	18																				
8	54	42	35	30	50	39	33	28	34	29	25	29	25	22	24	21	18	16																				
9	51	39	31	26	47	36	29	25	31	26	22	26	22	19	22	19	17	15																				
10	47	36	28	24	44	33	27	22	29	24	20	24	20	18	20	17	15	13																				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	17868	17868	17868	17868
5°	17639	16362	17639	16362
10°	17044	15000	17044	15000
15°	16507	13702	16467	13702
20°	15885	12529	15846	12529
25°	15150	11374	15110	11374
30°	14249	10327	14195	10327
35°	13201	9304	13158	9304
40°	12060	8235	12000	8235
45°	11039	7172	10992	7172
50°	10000	5961	9950	5961
55°	9046	4425	9009	4425
60°	8091	3235	8070	3235
65°	6889	2402	6889	2402
70°	5527	1785	5551	1785
75°	4270	1244	4357	1244
80°	4330	792	3659	792
85°	6583	334	3625	334



TEST NUMBER: P392543

CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.5	2.0
10°-20°	367.0	5.5
20°-30°	538.2	8.1
30°-40°	610.7	9.2
40°-50°	569.9	8.5
50°-60°	447.2	6.7
60°-70°	279.3	4.2
70°-80°	135.8	2.0
80°-90°	81.8	1.2
90°-100°	118.5	1.8
100°-110°	226.8	3.4
110°-120°	391.1	5.9
120°-130°	531.5	8.0
130°-140°	606.3	9.1
140°-150°	604.8	9.1
150°-160°	526.6	7.9
160°-170°	370.3	5.5
170°-180°	137.9	2.1
0°-30°	1035.7	15.5
0°-40°	1646.4	24.7
0°-60°	2663.4	39.9
0°-90°	3160.3	47.4
90°-120°	736.4	11.0
90°-150°	2479.0	37.1
90°-180°	3514.0	52.7
0°-180°	6674.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1383	1383	1383	1383	1383	
5°	1385	1372	1385	1372	1385	131
15°	1303	1299	1300	1299	1303	367
25°	1166	1170	1163	1170	1166	536
35°	959	1003	956	1003	959	598
45°	730	785	727	785	730	562
55°	521	477	519	477	521	468
65°	326	247	326	247	326	322
75°	152	118	155	118	152	173
85°	150	28	83	28	150	118
90°	205	2	49	2	205	114
95°	278	42	32	42	278	243
105°	446	206	9	206	446	471
115°	631	420	145	420	631	626
125°	791	658	360	658	791	706
135°	919	899	578	899	919	709
145°	1009	1125	778	1125	1009	637
155°	1129	1300	979	1300	1129	521
165°	1234	1414	1193	1414	1234	350
175°	1457	1474	1426	1474	1457	136
180°	1471	1471	1471	1471	1471	



TEST NUMBER: P392543

CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3
2.5°	1377.2	1386.2	1391.3	1378.3	1379.3	1377.3	1391.3	1386.2	1378.2	1386.2	1391.3
5°	1385.2	1376.2	1376.3	1375.3	1372.3	1375.3	1375.3	1376.2	1385.2	1376.2	1375.3
7.5°	1363.2	1370.3	1363.3	1362.3	1359.3	1361.3	1362.2	1369.2	1363.2	1369.2	1362.2
10°	1347.2	1352.3	1351.3	1344.3	1345.3	1343.2	1350.2	1350.2	1347.2	1350.2	1350.2
12.5°	1328.3	1331.3	1330.2	1322.2	1324.2	1322.2	1330.2	1329.2	1326.2	1329.2	1330.2
15°	1303.3	1302.3	1301.2	1298.2	1299.2	1297.2	1300.2	1300.2	1300.2	1300.2	1300.2
17.5°	1275.3	1277.3	1276.2	1276.2	1276.2	1276.2	1275.2	1276.2	1272.2	1276.2	1275.2
20°	1243.3	1248.3	1249.2	1243.2	1243.2	1242.2	1248.2	1246.2	1240.2	1246.2	1248.2
22.5°	1207.3	1208.3	1210.2	1202.2	1210.2	1201.2	1209.2	1206.2	1205.2	1206.2	1209.2
25°	1166.3	1167.3	1176.3	1171.2	1170.2	1170.2	1174.2	1164.2	1163.2	1164.2	1174.2
27.5°	1122.3	1122.3	1134.3	1130.2	1134.2	1129.2	1132.2	1119.2	1119.2	1119.2	1132.2
30°	1070.3	1079.3	1086.3	1100.3	1092.2	1098.2	1083.2	1076.2	1066.2	1076.2	1083.2
32.5°	1019.3	1024.3	1034.3	1044.3	1051.2	1042.2	1031.2	1020.2	1015.2	1020.2	1031.2
35°	959.3	959.3	982.3	1001.3	1003.2	998.2	979.2	956.2	956.2	956.2	979.2
37.5°	895.3	897.3	917.3	946.3	951.2	943.2	914.2	894.2	892.2	894.2	914.2
40°	840.3	836.3	855.3	892.2	898.2	890.2	851.1	832.1	836.1	832.1	851.1
42.5°	782.3	776.3	785.2	831.2	846.2	829.2	782.1	772.1	778.1	772.1	782.1
45°	730.2	718.2	720.2	763.2	785.2	761.2	716.1	715.1	727.1	715.1	716.1
47.5°	673.2	669.2	661.2	689.2	725.2	688.2	657.1	666.1	670.1	666.1	657.1
50°	621.2	613.2	601.2	624.2	650.2	622.1	597.1	609.1	618.1	609.1	597.1
52.5°	575.2	568.2	545.2	559.2	564.2	557.1	542.1	564.1	572.1	564.1	542.1
55°	521.2	520.2	497.2	490.2	477.1	488.1	494.1	517.1	519.1	517.1	494.1
57.5°	473.2	471.2	438.2	426.2	402.1	424.1	435.1	468.1	471.1	468.1	435.1
60°	426.2	419.2	383.2	354.1	342.1	353.1	381.1	417.1	425.1	417.1	381.1
62.5°	374.2	370.2	326.2	295.1	292.1	294.1	324.1	368.1	373.1	368.1	324.1
65°	326.1	311.1	274.1	246.1	247.1	245.1	273.1	310.1	326.1	310.1	273.1
67.5°	275.1	260.1	228.1	202.1	210.1	202.1	227.1	259.1	275.1	259.1	227.1
70°	230.1	210.1	186.1	165.1	177.1	165.1	186.1	211.1	231.1	211.1	186.1
72.5°	189.1	168.1	150.1	135.1	145.0	134.0	150.1	169.1	191.2	169.1	150.1
75°	152.1	133.1	116.0	108.0	118.0	108.0	117.1	134.1	155.2	134.1	117.1
77.5°	136.4	112.2	88.0	84.0	96.0	84.0	89.1	109.1	132.2	109.1	89.1
80°	127.0	108.8	71.2	63.0	71.0	63.0	69.1	92.2	107.3	92.2	69.1
82.5°	133.0	118.6	72.6	45.0	49.0	45.0	60.2	81.2	93.5	81.2	60.2
85°	150.2	138.8	85.5	37.2	28.0	35.1	55.3	75.4	82.7	75.4	55.3
87.5°	174.5	168.2	108.6	44.7	8.0	30.2	49.4	68.5	67.6	68.5	49.4
90°	205.0	199.7	139.0	58.5	2.0	19.1	36.2	53.2	49.3	53.2	36.2
92.5°	244.7	235.3	171.4	81.7	17.6	10.1	29.1	43.2	41.2	43.2	29.1
95°	278.2	272.0	208.0	109.0	42.5	5.2	21.1	31.1	32.1	31.1	21.1
97.5°	316.9	309.7	242.7	146.4	74.7	13.5	13.2	24.2	26.2	24.2	13.2
100°	348.4	344.4	283.5	191.0	114.2	35.3	8.3	18.3	21.3	18.3	8.3
102.5°	400.6	385.2	326.1	233.6	156.8	65.4	16.6	11.3	14.3	11.3	16.6
105°	446.5	431.9	376.9	278.3	205.6	105.9	41.5	14.5	9.3	14.5	41.5
107.5°	491.1	480.7	423.6	324.0	257.5	152.6	77.8	40.4	25.9	40.4	77.8
110°	543.1	530.6	468.3	369.7	311.5	202.5	118.3	73.7	57.0	73.7	118.3



TEST NUMBER: P392543

CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	592.9	583.6	509.8	418.4	367.6	257.5	168.2	115.2	99.6	115.2	168.2
115°	631.3	626.1	557.6	463.1	420.5	318.7	223.2	164.0	145.3	164.0	223.2
117.5°	671.8	670.8	592.9	508.8	482.8	373.8	274.1	212.8	193.1	212.8	274.1
120°	722.7	714.4	641.7	554.5	542.0	431.9	330.2	268.9	249.2	268.9	330.2
122.5°	759.0	752.8	683.3	598.1	598.1	491.1	384.2	322.9	303.1	322.9	384.2
125°	791.2	789.1	715.4	641.7	658.3	546.2	445.4	383.1	360.2	383.1	445.4
127.5°	820.3	823.4	755.9	690.5	720.6	603.3	504.6	436.1	412.2	436.1	504.6
130°	845.2	855.6	794.3	734.1	778.8	664.5	557.6	489.0	473.4	489.0	557.6
132.5°	894.0	887.8	833.8	778.8	841.1	720.6	613.6	542.0	524.3	542.0	613.6
135°	919.0	921.0	868.1	817.2	899.2	776.7	666.6	596.0	578.3	596.0	666.6
137.5°	949.1	942.8	895.1	863.9	953.2	830.7	718.5	653.1	625.1	653.1	718.5
140°	970.9	969.8	930.4	905.5	1011.4	883.7	771.5	705.0	679.1	705.0	771.5
142.5°	993.7	1000.0	965.7	951.2	1069.5	939.7	828.6	755.9	731.0	755.9	828.6
145°	1009.3	1023.8	1001.0	1008.3	1124.6	1002.0	878.5	805.7	777.7	805.7	878.5
147.5°	1036.3	1053.9	1028.0	1048.8	1172.4	1057.1	929.3	856.6	832.7	856.6	929.3
150°	1071.6	1079.9	1064.3	1104.9	1221.2	1118.4	980.2	905.4	881.5	905.4	980.2
152.5°	1099.6	1110.0	1092.4	1166.1	1259.6	1174.4	1036.3	953.2	925.2	953.2	1036.3
155°	1128.7	1132.9	1120.4	1225.3	1300.1	1229.5	1080.9	1006.2	979.2	1006.2	1080.9
157.5°	1155.7	1164.0	1148.5	1270.0	1335.4	1277.2	1130.8	1059.1	1035.2	1059.1	1130.8
160°	1184.8	1184.8	1192.1	1321.9	1364.5	1318.8	1184.8	1117.3	1084.0	1117.3	1184.8
162.5°	1187.9	1207.6	1251.3	1358.2	1392.5	1355.1	1243.0	1158.8	1129.7	1158.8	1243.0
165°	1233.6	1250.2	1317.7	1390.4	1414.3	1387.3	1314.6	1226.4	1193.1	1226.4	1314.6
167.5°	1281.4	1317.7	1371.7	1426.8	1435.1	1417.4	1369.7	1308.4	1278.2	1308.4	1369.7
170°	1358.2	1390.4	1417.4	1440.3	1451.7	1441.3	1403.9	1373.8	1354.1	1373.8	1403.9
172.5°	1418.5	1440.3	1450.7	1465.2	1457.9	1453.8	1435.1	1420.6	1409.2	1420.6	1435.1
175°	1456.9	1462.1	1471.4	1467.3	1473.5	1462.1	1462.1	1469.4	1425.8	1469.4	1462.1
177.5°	1470.4	1477.7	1473.5	1465.2	1466.2	1464.1	1467.3	1470.4	1464.2	1470.4	1467.3
180°	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4



TEST NUMBER: P392543

CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1383.3	1383.3	1383.3	1383.3	1383.3	1383.3
2.5°	1377.3	1379.3	1378.3	1391.3	1386.2	1377.2
5°	1375.3	1372.3	1375.3	1376.3	1376.2	1385.2
7.5°	1361.3	1359.3	1362.3	1363.3	1370.3	1363.2
10°	1343.2	1345.3	1344.3	1351.3	1352.3	1347.2
12.5°	1322.2	1324.2	1322.2	1330.2	1331.3	1328.3
15°	1297.2	1299.2	1298.2	1301.2	1302.3	1303.3
17.5°	1276.2	1276.2	1276.2	1276.2	1277.3	1275.3
20°	1242.2	1243.2	1243.2	1249.2	1248.3	1243.3
22.5°	1201.2	1210.2	1202.2	1210.2	1208.3	1207.3
25°	1170.2	1170.2	1171.2	1176.3	1167.3	1166.3
27.5°	1129.2	1134.2	1130.2	1134.3	1122.3	1122.3
30°	1098.2	1092.2	1100.3	1086.3	1079.3	1070.3
32.5°	1042.2	1051.2	1044.3	1034.3	1024.3	1019.3
35°	998.2	1003.2	1001.3	982.3	959.3	959.3
37.5°	943.2	951.2	946.3	917.3	897.3	895.3
40°	890.2	898.2	892.2	855.3	836.3	840.3
42.5°	829.2	846.2	831.2	785.2	776.3	782.3
45°	761.2	785.2	763.2	720.2	718.2	730.2
47.5°	688.2	725.2	689.2	661.2	669.2	673.2
50°	622.1	650.2	624.2	601.2	613.2	621.2
52.5°	557.1	564.2	559.2	545.2	568.2	575.2
55°	488.1	477.1	490.2	497.2	520.2	521.2
57.5°	424.1	402.1	426.2	438.2	471.2	473.2
60°	353.1	342.1	354.1	383.2	419.2	426.2
62.5°	294.1	292.1	295.1	326.2	370.2	374.2
65°	245.1	247.1	246.1	274.1	311.1	326.1
67.5°	202.1	210.1	202.1	228.1	260.1	275.1
70°	165.1	177.1	165.1	186.1	210.1	230.1
72.5°	134.0	145.0	135.1	150.1	168.1	189.1
75°	108.0	118.0	108.0	116.0	133.1	152.1
77.5°	84.0	96.0	84.0	88.0	112.2	136.4
80°	63.0	71.0	63.0	71.2	108.8	127.0
82.5°	45.0	49.0	45.0	72.6	118.6	133.0
85°	35.1	28.0	37.2	85.5	138.8	150.2
87.5°	30.2	8.0	44.7	108.6	168.2	174.5
90°	19.1	2.0	58.5	139.0	199.7	205.0
92.5°	10.1	17.6	81.7	171.4	235.3	244.7
95°	5.2	42.5	109.0	208.0	272.0	278.2
97.5°	13.5	74.7	146.4	242.7	309.7	316.9
100°	35.3	114.2	191.0	283.5	344.4	348.4
102.5°	65.4	156.8	233.6	326.1	385.2	400.6
105°	105.9	205.6	278.3	376.9	431.9	446.5
107.5°	152.6	257.5	324.0	423.6	480.7	491.1
110°	202.5	311.5	369.7	468.3	530.6	543.1



TEST NUMBER: P392543

CATALOG NUMBER: MWL-2-35-31-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	257.5	367.6	418.4	509.8	583.6	592.9
115°	318.7	420.5	463.1	557.6	626.1	631.3
117.5°	373.8	482.8	508.8	592.9	670.8	671.8
120°	431.9	542.0	554.5	641.7	714.4	722.7
122.5°	491.1	598.1	598.1	683.3	752.8	759.0
125°	546.2	658.3	641.7	715.4	789.1	791.2
127.5°	603.3	720.6	690.5	755.9	823.4	820.3
130°	664.5	778.8	734.1	794.3	855.6	845.2
132.5°	720.6	841.1	778.8	833.8	887.8	894.0
135°	776.7	899.2	817.2	868.1	921.0	919.0
137.5°	830.7	953.2	863.9	895.1	942.8	949.1
140°	883.7	1011.4	905.5	930.4	969.8	970.9
142.5°	939.7	1069.5	951.2	965.7	1000.0	993.7
145°	1002.0	1124.6	1008.3	1001.0	1023.8	1009.3
147.5°	1057.1	1172.4	1048.8	1028.0	1053.9	1036.3
150°	1118.4	1221.2	1104.9	1064.3	1079.9	1071.6
152.5°	1174.4	1259.6	1166.1	1092.4	1110.0	1099.6
155°	1229.5	1300.1	1225.3	1120.4	1132.9	1128.7
157.5°	1277.2	1335.4	1270.0	1148.5	1164.0	1155.7
160°	1318.8	1364.5	1321.9	1192.1	1184.8	1184.8
162.5°	1355.1	1392.5	1358.2	1251.3	1207.6	1187.9
165°	1387.3	1414.3	1390.4	1317.7	1250.2	1233.6
167.5°	1417.4	1435.1	1426.8	1371.7	1317.7	1281.4
170°	1441.3	1451.7	1440.3	1417.4	1390.4	1358.2
172.5°	1453.8	1457.9	1465.2	1450.7	1440.3	1418.5
175°	1462.1	1473.5	1467.3	1471.4	1462.1	1456.9
177.5°	1464.1	1466.2	1465.2	1473.5	1477.7	1470.4
180°	1471.4	1471.4	1471.4	1471.4	1471.4	1471.4

(END OF REPORT)