

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-L940-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-L940-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

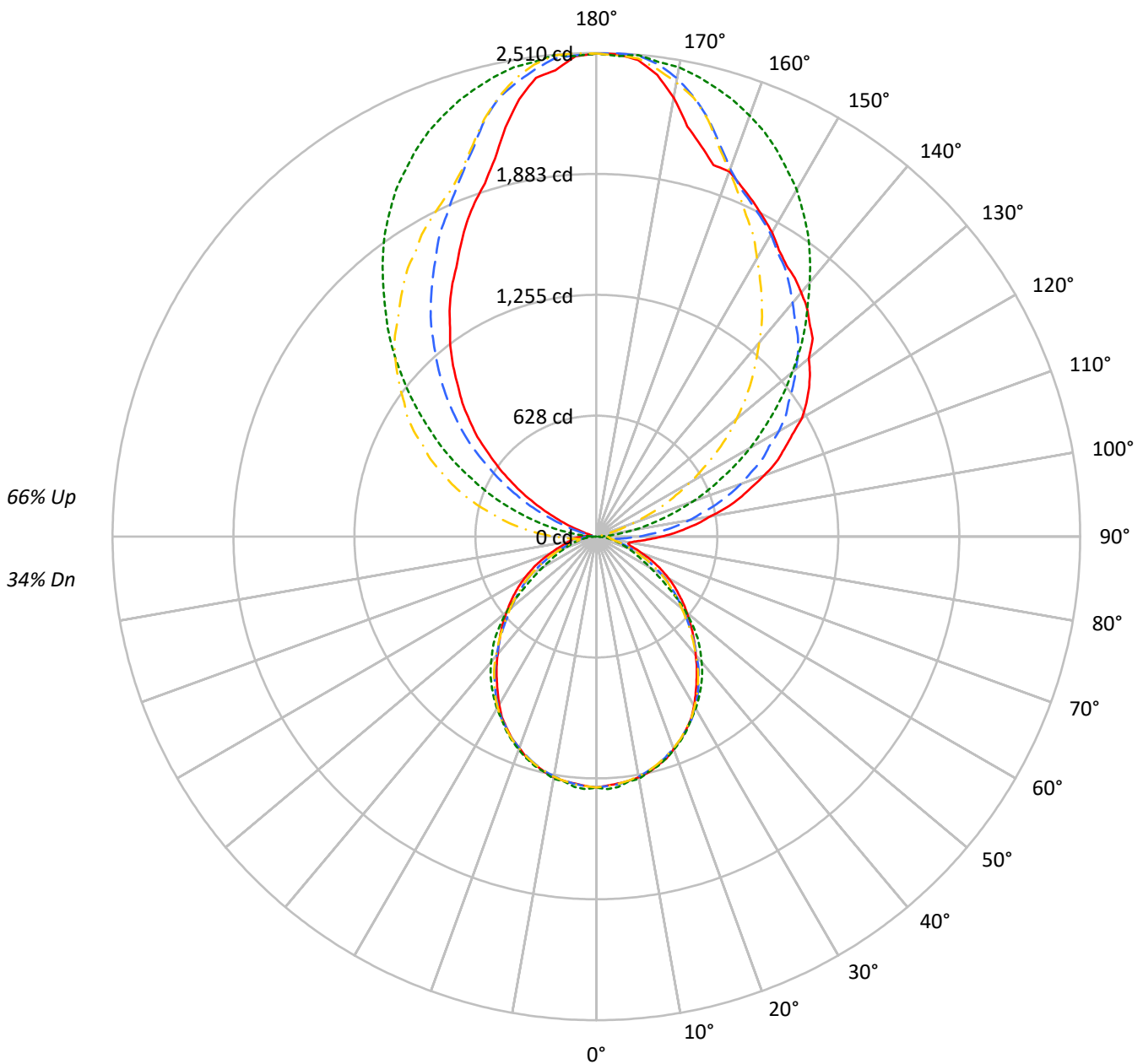
Lumens per Lamp: N/A
Luminaire Lumens: 9061.7 lumens
Efficiency: N/A
Efficacy: 75.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 119.786
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: P392705
CATALOG NUMBER: MWL-4-66-33-UNV-L940-EDD

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270° - - - 135°-315°



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L940-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	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°	8413	8413	8413	8413
5°	8264	7776	8264	7776
10°	8166	7120	8166	7120
15°	7997	6504	7963	6504
20°	7767	5931	7733	5931
25°	7501	5392	7465	5392
30°	7136	4875	7087	4875
35°	6659	4389	6620	4389
40°	6220	3892	6165	3892
45°	5838	3390	5794	3390
50°	5470	2773	5422	2773
55°	5114	2074	5079	2074
60°	4724	1537	4704	1537
65°	4266	1142	4266	1142
70°	3678	858	3703	858
75°	3240	629	3335	629
80°	4122	406	3334	406
85°	7932	190	4039	190



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L940-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.7	1.4
10°-20°	345.9	3.8
20°-30°	508.3	5.6
30°-40°	577.9	6.4
40°-50°	544.8	6.0
50°-60°	435.1	4.8
60°-70°	287.6	3.2
70°-80°	152.0	1.7
80°-90°	110.6	1.2
90°-100°	195.5	2.2
100°-110°	388.2	4.3
110°-120°	665.6	7.3
120°-130°	904.5	10.0
130°-140°	1031.9	11.4
140°-150°	1029.3	11.4
150°-160°	896.5	9.9
160°-170°	630.7	7.0
170°-180°	234.9	2.6
0°-30°	976.8	10.8
0°-40°	1554.7	17.2
0°-60°	2534.5	28.0
0°-90°	3084.7	34.0
90°-120°	1249.2	13.8
90°-150°	4215.0	46.5
90°-180°	5977.0	66.0
0°-180°	9061.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1303	1303	1303	1303	1303	
5°	1286	1304	1286	1304	1286	122
15°	1230	1233	1224	1233	1230	347
25°	1104	1110	1098	1110	1104	507
35°	906	946	901	946	906	568
45°	706	742	700	742	706	545
55°	522	447	518	447	522	467
65°	342	235	342	235	342	338
75°	180	119	186	119	180	206
85°	234	32	119	32	234	180
90°	337	3	72	3	337	186
95°	463	72	44	72	463	408
105°	769	350	23	350	769	808
115°	1076	715	247	715	1076	1068
125°	1347	1121	612	1121	1347	1203
135°	1565	1530	984	1530	1565	1208
145°	1719	1914	1324	1914	1719	1084
155°	1920	2214	1666	2214	1920	886
165°	2099	2409	2030	2409	2099	596
175°	2483	2508	2430	2508	2483	231
180°	2507	2507	2507	2507	2507	



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6
2.5°	1293.7	1294.5	1296.1	1304.3	1311.6	1302.5	1296.1	1294.5	1295.4	1294.5	1296.1
5°	1286.4	1289.9	1290.7	1298.9	1304.3	1298.9	1288.9	1289.9	1286.4	1289.9	1288.9
7.5°	1279.0	1284.4	1278.9	1287.9	1281.6	1286.2	1277.2	1282.6	1279.0	1282.6	1277.2
10°	1268.1	1268.9	1265.2	1273.4	1277.1	1271.7	1263.5	1265.3	1268.1	1265.3	1263.5
12.5°	1253.3	1247.0	1245.3	1250.8	1249.8	1250.8	1245.3	1243.5	1249.8	1243.5	1245.3
15°	1229.5	1230.5	1225.2	1230.6	1233.4	1228.8	1223.3	1227.0	1224.2	1227.0	1223.3
17.5°	1207.7	1205.0	1198.7	1201.5	1206.9	1201.5	1196.9	1203.3	1202.4	1203.3	1196.9
20°	1173.0	1174.0	1169.6	1177.8	1177.0	1176.0	1167.8	1170.5	1167.8	1170.5	1167.8
22.5°	1141.2	1143.0	1140.4	1139.5	1145.1	1137.8	1138.6	1139.5	1137.7	1139.5	1138.6
25°	1103.8	1103.8	1103.9	1112.2	1109.5	1110.4	1100.3	1098.5	1098.5	1098.5	1100.3
27.5°	1064.6	1062.8	1069.3	1074.8	1065.8	1073.0	1065.7	1057.5	1059.3	1057.5	1065.7
30°	1014.5	1016.3	1023.6	1039.2	1031.2	1035.6	1018.3	1011.0	1007.5	1011.0	1018.3
32.5°	959.8	967.1	977.2	998.2	990.1	994.6	971.9	960.1	952.8	960.1	971.9
35°	906.2	908.9	924.4	950.8	946.5	945.5	919.1	903.6	900.9	903.6	919.1
37.5°	856.1	851.5	870.6	898.9	901.7	893.6	865.4	846.2	850.8	846.2	865.4
40°	802.3	803.2	811.4	844.3	848.9	840.8	804.3	796.1	795.2	796.1	804.3
42.5°	754.0	744.9	751.4	786.0	797.9	782.5	746.0	737.8	746.9	737.8	746.0
45°	705.8	694.0	694.9	725.0	742.3	721.4	687.8	688.6	700.5	688.6	687.8
47.5°	659.4	644.8	637.5	660.3	675.8	658.5	630.4	639.4	654.0	639.4	630.4
50°	612.0	598.3	583.7	597.4	604.8	593.9	576.6	591.2	606.6	591.2	576.6
52.5°	568.3	552.8	533.6	535.5	525.5	531.9	528.3	545.7	562.9	545.7	528.3
55°	521.8	508.1	485.3	469.9	447.2	466.4	480.1	502.8	518.2	502.8	480.1
57.5°	478.1	468.0	438.9	408.9	378.8	405.3	433.6	462.7	474.5	462.7	433.6
60°	431.7	423.5	389.8	346.9	325.1	345.2	386.2	419.9	429.9	419.9	386.2
62.5°	386.1	379.7	340.6	291.4	273.2	289.6	337.0	376.2	384.3	376.2	337.0
65°	341.5	331.5	291.4	245.8	235.0	244.1	289.6	329.7	341.5	329.7	289.6
67.5°	296.8	285.0	246.7	204.0	202.2	204.0	245.0	283.3	296.8	283.3	245.0
70°	250.5	238.6	204.9	169.4	170.3	169.4	204.9	240.3	252.2	240.3	204.9
72.5°	215.8	195.8	168.5	140.2	143.0	138.4	168.5	197.5	219.4	197.5	168.5
75°	180.3	158.4	132.0	111.1	119.3	111.1	133.8	160.2	185.6	160.2	133.8
77.5°	168.9	137.3	102.9	89.2	94.7	89.2	104.7	131.9	161.9	131.9	104.7
80°	176.3	138.4	85.5	67.3	72.8	67.3	81.9	110.1	142.6	110.1	81.9
82.5°	198.7	160.9	93.0	48.2	50.9	48.2	71.8	97.2	131.5	97.2	71.8
85°	234.5	200.4	122.0	42.6	31.8	39.1	70.6	92.4	119.4	92.4	70.6
87.5°	281.8	254.0	163.3	61.0	8.2	36.2	62.3	84.1	99.5	84.1	62.3
90°	337.2	312.2	219.8	90.8	2.6	23.6	44.5	62.6	71.6	62.6	44.5
92.5°	404.2	379.3	277.1	137.6	29.2	15.4	34.4	51.8	57.1	51.8	34.4
95°	463.2	452.6	346.9	187.8	71.7	10.8	28.1	41.8	43.6	41.8	28.1
97.5°	534.8	525.0	417.5	248.8	126.6	22.1	26.1	38.1	39.0	38.1	26.1
100°	596.6	592.9	489.8	325.0	193.9	59.3	20.6	36.9	38.7	36.9	20.6
102.5°	690.2	666.2	557.0	397.5	266.5	110.7	29.3	28.7	31.4	28.7	29.3
105°	768.8	741.3	642.9	473.7	349.8	179.8	70.9	29.4	23.3	29.4	70.9
107.5°	839.5	819.1	720.8	551.6	438.2	259.5	131.1	68.2	46.2	68.2	131.1
110°	925.3	903.2	796.8	630.4	530.4	345.3	200.2	124.0	96.6	124.0	200.2



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	1010.3	993.5	867.7	711.9	626.0	437.4	285.2	194.8	169.2	194.8	285.2
115°	1075.8	1066.1	949.2	788.0	715.4	541.9	379.0	278.1	247.1	278.1	379.0
117.5°	1144.9	1143.1	1009.4	865.9	821.6	635.8	465.8	362.2	328.5	362.2	465.8
120°	1231.6	1217.5	1092.6	943.9	922.6	734.9	561.4	457.8	424.2	457.8	561.4
122.5°	1291.9	1283.1	1164.3	1018.2	1018.2	835.8	654.4	549.8	514.5	549.8	654.4
125°	1346.8	1343.2	1217.5	1092.6	1120.9	929.7	757.0	650.8	611.9	650.8	757.0
127.5°	1396.4	1401.7	1286.7	1174.0	1225.4	1025.4	858.0	741.1	700.4	741.1	858.0
130°	1438.9	1456.6	1352.2	1248.5	1324.6	1129.8	948.3	831.5	804.9	831.5	948.3
132.5°	1522.1	1511.5	1419.4	1325.6	1430.9	1226.3	1043.9	921.8	891.6	921.8	1043.9
135°	1564.6	1568.2	1477.9	1391.1	1530.1	1322.0	1134.2	1013.8	983.7	1013.8	1134.2
137.5°	1615.9	1605.4	1523.9	1470.8	1622.1	1414.1	1222.8	1111.2	1063.4	1111.2	1222.8
140°	1653.2	1651.4	1584.1	1541.6	1721.3	1504.4	1313.2	1199.7	1155.5	1199.7	1313.2
142.5°	1692.1	1702.8	1644.3	1619.5	1820.5	1600.1	1410.6	1286.7	1244.1	1286.7	1410.6
145°	1718.7	1741.7	1704.5	1716.9	1914.3	1706.3	1495.6	1369.8	1323.8	1369.8	1495.6
147.5°	1763.0	1793.0	1748.8	1785.9	1995.8	1800.2	1580.6	1456.6	1415.8	1456.6	1580.6
150°	1823.1	1837.3	1810.7	1881.6	2078.9	1904.6	1667.3	1539.9	1499.1	1539.9	1667.3
152.5°	1870.9	1888.6	1858.6	1986.0	2144.5	2000.2	1763.0	1621.3	1573.5	1621.3	1763.0
155°	1920.5	1927.6	1906.4	2087.0	2214.5	2094.1	1839.1	1711.6	1665.6	1711.6	1839.1
157.5°	1966.6	1980.7	1955.9	2163.1	2274.7	2175.5	1925.9	1801.9	1761.2	1801.9	1925.9
160°	2016.2	2016.2	2030.3	2251.7	2324.3	2246.3	2017.9	1901.1	1844.4	1901.1	2017.9
162.5°	2021.5	2055.1	2131.2	2313.6	2372.0	2308.4	2117.1	1971.9	1922.3	1971.9	2117.1
165°	2099.4	2129.5	2244.6	2368.5	2409.2	2363.2	2239.3	2088.8	2030.3	2088.8	2239.3
167.5°	2180.8	2244.6	2336.7	2430.5	2444.7	2414.6	2333.1	2228.6	2175.5	2228.6	2333.1
170°	2312.7	2367.6	2414.6	2453.5	2473.0	2455.3	2391.5	2339.2	2305.6	2339.2	2391.5
172.5°	2417.2	2453.5	2471.3	2496.0	2483.7	2476.6	2444.7	2419.9	2401.3	2419.9	2444.7
175°	2482.7	2490.7	2506.6	2497.8	2508.4	2488.9	2490.7	2503.1	2429.6	2503.1	2490.7
177.5°	2505.7	2519.0	2510.2	2494.2	2496.0	2492.5	2499.6	2506.6	2495.1	2506.6	2499.6
180°	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1302.6	1302.6	1302.6	1302.6	1302.6	1302.6
2.5°	1302.5	1311.6	1304.3	1296.1	1294.5	1293.7
5°	1298.9	1304.3	1298.9	1290.7	1289.9	1286.4
7.5°	1286.2	1281.6	1287.9	1278.9	1284.4	1279.0
10°	1271.7	1277.1	1273.4	1265.2	1268.9	1268.1
12.5°	1250.8	1249.8	1250.8	1245.3	1247.0	1253.3
15°	1228.8	1233.4	1230.6	1225.2	1230.5	1229.5
17.5°	1201.5	1206.9	1201.5	1198.7	1205.0	1207.7
20°	1176.0	1177.0	1177.8	1169.6	1174.0	1173.0
22.5°	1137.8	1145.1	1139.5	1140.4	1143.0	1141.2
25°	1110.4	1109.5	1112.2	1103.9	1103.8	1103.8
27.5°	1073.0	1065.8	1074.8	1069.3	1062.8	1064.6
30°	1035.6	1031.2	1039.2	1023.6	1016.3	1014.5
32.5°	994.6	990.1	998.2	977.2	967.1	959.8
35°	945.5	946.5	950.8	924.4	908.9	906.2
37.5°	893.6	901.7	898.9	870.6	851.5	856.1
40°	840.8	848.9	844.3	811.4	803.2	802.3
42.5°	782.5	797.9	786.0	751.4	744.9	754.0
45°	721.4	742.3	725.0	694.9	694.0	705.8
47.5°	658.5	675.8	660.3	637.5	644.8	659.4
50°	593.9	604.8	597.4	583.7	598.3	612.0
52.5°	531.9	525.5	535.5	533.6	552.8	568.3
55°	466.4	447.2	469.9	485.3	508.1	521.8
57.5°	405.3	378.8	408.9	438.9	468.0	478.1
60°	345.2	325.1	346.9	389.8	423.5	431.7
62.5°	289.6	273.2	291.4	340.6	379.7	386.1
65°	244.1	235.0	245.8	291.4	331.5	341.5
67.5°	204.0	202.2	204.0	246.7	285.0	296.8
70°	169.4	170.3	169.4	204.9	238.6	250.5
72.5°	138.4	143.0	140.2	168.5	195.8	215.8
75°	111.1	119.3	111.1	132.0	158.4	180.3
77.5°	89.2	94.7	89.2	102.9	137.3	168.9
80°	67.3	72.8	67.3	85.5	138.4	176.3
82.5°	48.2	50.9	48.2	93.0	160.9	198.7
85°	39.1	31.8	42.6	122.0	200.4	234.5
87.5°	36.2	8.2	61.0	163.3	254.0	281.8
90°	23.6	2.6	90.8	219.8	312.2	337.2
92.5°	15.4	29.2	137.6	277.1	379.3	404.2
95°	10.8	71.7	187.8	346.9	452.6	463.2
97.5°	22.1	126.6	248.8	417.5	525.0	534.8
100°	59.3	193.9	325.0	489.8	592.9	596.6
102.5°	110.7	266.5	397.5	557.0	666.2	690.2
105°	179.8	349.8	473.7	642.9	741.3	768.8
107.5°	259.5	438.2	551.6	720.8	819.1	839.5
110°	345.3	530.4	630.4	796.8	903.2	925.3



TEST NUMBER: P392705

CATALOG NUMBER: MWL-4-66-33-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	437.4	626.0	711.9	867.7	993.5	1010.3
115°	541.9	715.4	788.0	949.2	1066.1	1075.8
117.5°	635.8	821.6	865.9	1009.4	1143.1	1144.9
120°	734.9	922.6	943.9	1092.6	1217.5	1231.6
122.5°	835.8	1018.2	1018.2	1164.3	1283.1	1291.9
125°	929.7	1120.9	1092.6	1217.5	1343.2	1346.8
127.5°	1025.4	1225.4	1174.0	1286.7	1401.7	1396.4
130°	1129.8	1324.6	1248.5	1352.2	1456.6	1438.9
132.5°	1226.3	1430.9	1325.6	1419.4	1511.5	1522.1
135°	1322.0	1530.1	1391.1	1477.9	1568.2	1564.6
137.5°	1414.1	1622.1	1470.8	1523.9	1605.4	1615.9
140°	1504.4	1721.3	1541.6	1584.1	1651.4	1653.2
142.5°	1600.1	1820.5	1619.5	1644.3	1702.8	1692.1
145°	1706.3	1914.3	1716.9	1704.5	1741.7	1718.7
147.5°	1800.2	1995.8	1785.9	1748.8	1793.0	1763.0
150°	1904.6	2078.9	1881.6	1810.7	1837.3	1823.1
152.5°	2000.2	2144.5	1986.0	1858.6	1888.6	1870.9
155°	2094.1	2214.5	2087.0	1906.4	1927.6	1920.5
157.5°	2175.5	2274.7	2163.1	1955.9	1980.7	1966.6
160°	2246.3	2324.3	2251.7	2030.3	2016.2	2016.2
162.5°	2308.4	2372.0	2313.6	2131.2	2055.1	2021.5
165°	2363.2	2409.2	2368.5	2244.6	2129.5	2099.4
167.5°	2414.6	2444.7	2430.5	2336.7	2244.6	2180.8
170°	2455.3	2473.0	2453.5	2414.6	2367.6	2312.7
172.5°	2476.6	2483.7	2496.0	2471.3	2453.5	2417.2
175°	2488.9	2508.4	2497.8	2506.6	2490.7	2482.7
177.5°	2492.5	2496.0	2494.2	2510.2	2519.0	2505.7
180°	2506.6	2506.6	2506.6	2506.6	2506.6	2506.6

(END OF REPORT)