

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: P392706

Luminaire Tested: **MWL-4-66-45-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392706
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-4-66-45-UNV-L930-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

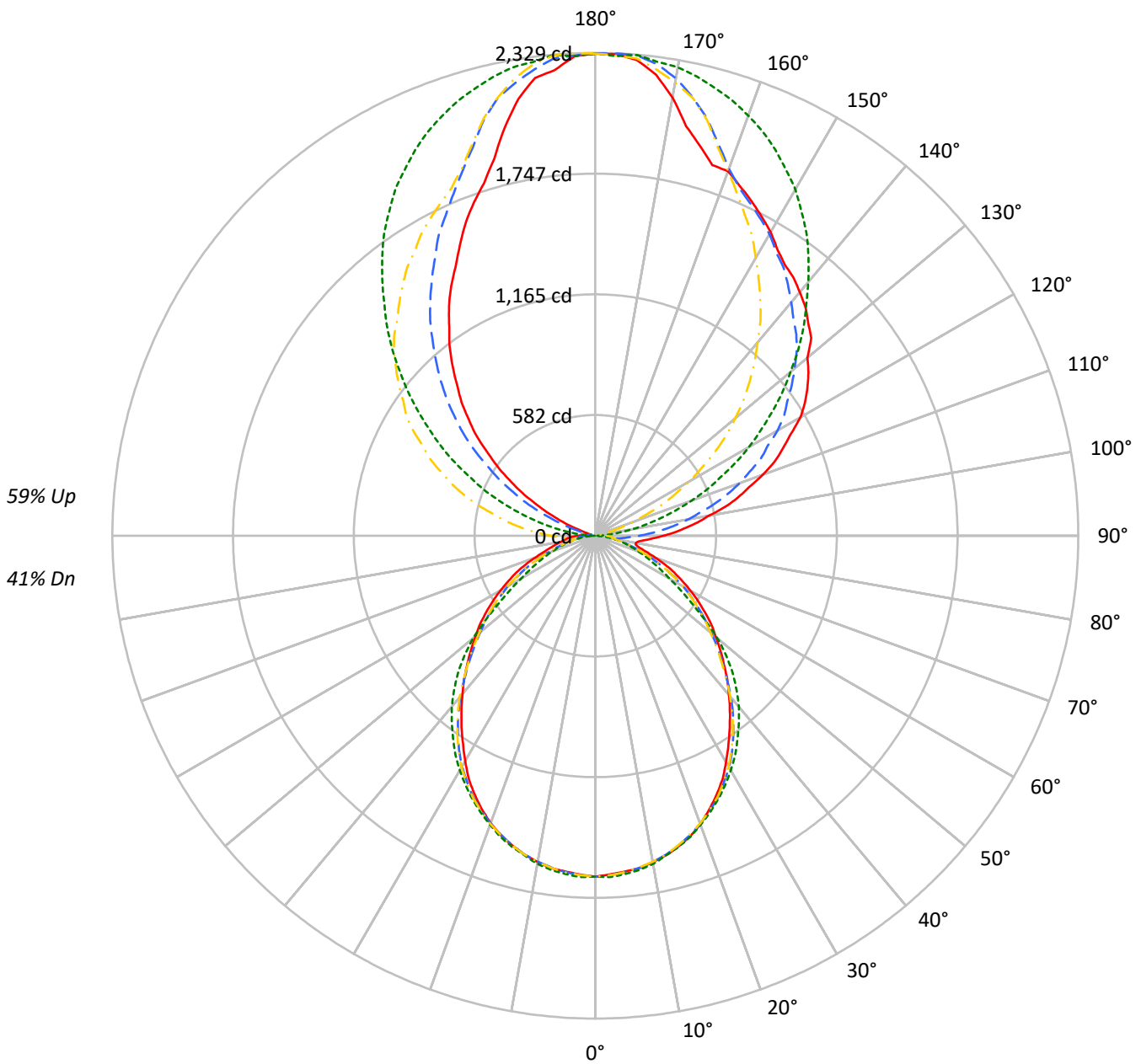
Lumens per Lamp: N/A
Luminaire Lumens: 9401.1 lumens
Efficiency: N/A
Efficacy: 71.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 131.704
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	50	30	10	0	
RCR																						
0	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41				
1	96	92	88	84	87	84	80	77	69	66	64	55	53	52	42	41	40	35				
2	87	80	74	69	79	73	68	64	60	57	54	49	46	44	38	36	34	29				
3	80	71	64	58	73	65	59	54	54	49	45	43	40	37	34	31	30	25				
4	73	63	55	49	66	58	51	46	48	43	39	39	35	32	30	28	26	22				
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	27	25	23	19				
6	62	50	42	37	56	46	39	34	39	33	29	31	28	25	25	22	20	17				
7	57	45	38	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15				
8	53	41	34	28	48	38	31	27	32	27	23	26	22	19	21	18	16	14				
9	49	38	30	25	45	35	28	24	29	24	21	24	20	18	19	17	14	12				
10	46	34	27	23	42	32	26	21	27	22	19	22	19	16	18	15	13	11				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	10620	10620	10620	10620
5°	10446	9767	10446	9767
10°	10291	8961	10291	8961
15°	10091	8190	10059	8190
20°	9803	7478	9770	7478
25°	9389	6813	9355	6813
30°	8868	6177	8822	6177
35°	8301	5541	8265	5541
40°	7776	4935	7724	4935
45°	7255	4279	7213	4279
50°	6774	3517	6729	3517
55°	6318	2629	6287	2629
60°	5797	1949	5779	1949
65°	5245	1482	5245	1482
70°	4504	1111	4528	1111
75°	3901	802	3991	802
80°	4634	513	3902	513
85°	8132	241	4519	241



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.9	1.6
10°-20°	436.7	4.6
20°-30°	640.3	6.8
30°-40°	725.3	7.7
40°-50°	683.4	7.3
50°-60°	546.1	5.8
60°-70°	359.4	3.8
70°-80°	185.3	2.0
80°-90°	120.0	1.3
90°-100°	186.1	2.0
100°-110°	360.0	3.8
110°-120°	617.7	6.6
120°-130°	839.2	8.9
130°-140°	957.3	10.2
140°-150°	954.9	10.2
150°-160°	831.6	8.8
160°-170°	585.0	6.2
170°-180°	217.9	2.3
0°-30°	1232.0	13.1
0°-40°	1957.2	20.8
0°-60°	3186.7	33.9
0°-90°	3851.4	41.0
90°-120°	1163.8	12.4
90°-150°	3915.1	41.6
90°-180°	5550.0	59.0
0°-180°	9401.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1644	1644	1644	1644	1644	
5°	1626	1638	1626	1638	1626	154
15°	1551	1553	1546	1553	1551	437
25°	1382	1402	1377	1402	1382	635
35°	1130	1195	1125	1195	1130	707
45°	877	937	872	937	877	678
55°	645	567	641	567	645	578
65°	420	305	420	305	420	414
75°	217	152	222	152	217	245
85°	240	40	134	40	240	188
90°	327	2	81	2	327	181
95°	436	66	47	66	436	382
105°	712	324	20	324	712	749
115°	998	664	229	664	998	990
125°	1249	1040	568	1040	1249	1116
135°	1451	1419	913	1419	1451	1120
145°	1594	1777	1228	1777	1594	1005
155°	1782	2054	1545	2054	1782	822
165°	1947	2235	1883	2235	1947	552
175°	2303	2328	2254	2328	2303	215
180°	2325	2325	2325	2325	2325	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4
2.5°	1634.5	1641.2	1638.4	1648.6	1647.8	1646.9	1638.4	1641.2	1636.1	1641.2	1638.4
5°	1626.0	1632.7	1630.9	1637.6	1638.4	1637.6	1629.2	1632.7	1626.0	1632.7	1629.2
7.5°	1617.5	1619.9	1615.7	1625.8	1625.8	1624.2	1614.0	1618.3	1617.5	1618.3	1614.0
10°	1598.0	1602.2	1597.9	1607.3	1607.3	1605.6	1596.3	1598.9	1598.0	1598.9	1596.3
12.5°	1578.4	1578.5	1575.2	1582.8	1578.6	1582.8	1575.2	1575.2	1575.2	1575.2	1575.2
15°	1551.4	1548.9	1547.3	1555.8	1553.2	1554.1	1545.6	1545.6	1546.5	1545.6	1545.6
17.5°	1520.1	1517.6	1514.4	1521.9	1522.8	1521.9	1512.7	1516.0	1515.2	1516.0	1512.7
20°	1480.4	1478.7	1478.9	1484.8	1484.0	1483.2	1477.1	1475.5	1475.5	1475.5	1477.1
22.5°	1431.3	1436.4	1436.6	1445.9	1444.3	1444.3	1434.9	1433.2	1428.2	1433.2	1434.9
25°	1381.5	1387.4	1395.9	1402.8	1402.0	1401.1	1392.7	1382.5	1376.6	1382.5	1392.7
27.5°	1326.6	1333.3	1341.9	1358.9	1355.5	1357.1	1338.5	1328.4	1321.6	1328.4	1338.5
30°	1260.6	1270.7	1290.2	1308.1	1306.5	1304.7	1285.3	1265.9	1254.1	1265.9	1285.3
32.5°	1194.7	1204.9	1228.5	1252.2	1254.9	1249.0	1223.6	1198.4	1188.1	1198.4	1223.6
35°	1129.7	1136.5	1160.1	1194.8	1194.9	1189.9	1155.2	1131.5	1124.8	1131.5	1155.2
37.5°	1065.5	1067.2	1090.0	1131.4	1137.4	1126.5	1085.0	1062.2	1060.6	1062.2	1085.0
40°	1002.9	998.7	1018.1	1059.6	1076.5	1056.3	1011.5	992.1	996.3	992.1	1011.5
42.5°	942.0	932.8	938.8	989.5	1007.2	986.2	933.8	926.2	935.4	926.2	933.8
45°	877.1	866.1	866.1	911.8	937.1	908.4	859.5	861.1	872.0	861.1	859.5
47.5°	817.9	804.4	798.4	835.7	856.8	834.0	791.8	799.4	812.9	799.4	791.8
50°	757.9	746.9	730.0	751.9	767.3	748.7	723.4	740.3	752.9	740.3	723.4
52.5°	706.3	691.1	667.4	675.1	664.2	671.7	662.6	684.5	701.3	684.5	662.6
55°	644.6	636.2	607.5	598.2	567.0	595.0	602.5	631.3	641.4	631.3	602.5
57.5°	588.9	583.8	547.4	515.4	485.9	512.1	542.6	578.8	585.5	578.8	542.6
60°	529.8	527.2	488.3	440.2	412.3	438.6	485.1	524.0	528.1	524.0	485.1
62.5°	473.2	469.7	426.7	369.2	356.6	367.6	423.3	466.5	471.4	466.5	423.3
65°	419.9	410.6	365.8	308.4	305.0	306.8	364.2	409.0	419.9	409.0	364.2
67.5°	363.3	348.9	306.7	256.8	261.1	256.8	305.0	347.3	363.3	347.3	305.0
70°	306.8	288.1	254.3	213.8	220.5	213.8	254.3	289.8	308.4	289.8	254.3
72.5°	256.8	235.7	205.3	174.9	184.2	173.2	205.3	237.3	260.2	237.3	205.3
75°	217.1	192.7	160.5	138.5	152.1	138.5	162.2	194.2	222.1	194.2	162.2
77.5°	199.8	162.9	123.4	107.2	122.5	107.2	125.0	157.9	193.3	157.9	125.0
80°	198.2	159.6	102.9	80.2	92.0	80.2	99.7	133.4	166.9	133.4	99.7
82.5°	211.4	172.0	104.9	57.4	65.0	57.4	85.2	113.0	149.0	113.0	85.2
85°	240.4	206.1	128.4	49.7	40.5	46.4	80.7	106.0	133.6	106.0	80.7
87.5°	280.0	251.7	163.3	65.0	13.6	42.0	69.6	94.0	110.9	94.0	69.6
90°	327.2	303.2	213.2	89.4	2.5	26.9	50.5	71.6	80.8	71.6	50.5
92.5°	384.3	362.0	265.5	131.0	27.1	17.7	40.4	58.1	62.3	58.1	40.4
95°	436.5	427.5	326.8	175.9	66.5	11.6	31.1	46.4	47.2	46.4	31.1
97.5°	498.6	491.2	389.0	230.9	117.5	20.5	26.0	39.5	38.7	39.5	26.0
100°	554.3	551.7	454.3	301.5	179.9	55.0	19.1	35.9	36.8	35.9	19.1
102.5°	640.2	618.0	516.7	368.8	247.2	102.7	27.2	26.6	29.1	26.6	27.2
105°	711.5	686.0	596.4	439.5	324.5	166.8	65.8	25.6	20.0	25.6	65.8
107.5°	777.0	759.9	668.7	512.5	406.5	241.5	121.6	63.3	41.1	63.3	121.6
110°	858.4	838.7	739.2	584.8	492.8	320.3	185.7	115.9	89.6	115.9	185.7



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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°	937.2	922.5	805.0	660.5	581.6	405.8	264.6	181.6	157.0	181.6	264.6
115°	998.0	989.9	880.5	731.0	663.6	502.8	351.6	258.8	229.2	258.8	351.6
117.5°	1062.1	1060.4	936.4	803.3	762.2	589.8	432.1	336.0	304.7	336.0	432.1
120°	1142.5	1129.4	1014.4	875.7	855.8	681.8	521.7	424.8	393.5	424.8	521.7
122.5°	1198.4	1190.3	1080.1	944.6	944.6	775.4	607.0	510.1	477.3	510.1	607.0
125°	1249.3	1246.0	1129.4	1013.5	1039.9	862.4	702.3	603.8	567.7	603.8	702.3
127.5°	1295.3	1300.2	1193.5	1090.0	1136.8	952.0	796.0	687.5	649.7	687.5	796.0
130°	1334.7	1351.1	1254.3	1158.9	1228.7	1048.9	879.7	771.3	746.7	771.3	879.7
132.5°	1411.9	1402.1	1316.7	1229.6	1327.3	1137.6	968.5	855.1	827.1	855.1	968.5
135°	1451.4	1454.7	1370.9	1290.4	1419.4	1226.3	1052.2	940.5	912.6	940.5	1052.2
137.5°	1499.0	1489.2	1413.6	1364.3	1504.7	1311.8	1134.3	1030.8	986.5	1030.8	1134.3
140°	1533.6	1531.8	1469.5	1430.0	1596.8	1395.5	1218.1	1113.0	1071.9	1113.0	1218.1
142.5°	1569.7	1579.5	1525.3	1502.3	1688.7	1484.3	1308.4	1193.5	1154.1	1193.5	1308.4
145°	1594.3	1615.6	1581.1	1592.6	1776.6	1582.8	1387.3	1270.6	1228.0	1270.6	1387.3
147.5°	1635.4	1663.3	1622.2	1656.7	1851.3	1669.9	1466.2	1351.1	1313.4	1351.1	1466.2
150°	1691.2	1704.4	1679.6	1745.4	1929.4	1766.7	1546.6	1428.4	1390.6	1428.4	1546.6
152.5°	1735.6	1751.9	1724.0	1842.3	1990.2	1855.5	1635.4	1504.0	1459.6	1504.0	1635.4
155°	1781.5	1788.1	1768.4	1936.0	2054.3	1942.6	1706.0	1587.7	1545.0	1587.7	1706.0
157.5°	1824.3	1837.4	1814.4	2006.6	2110.0	2018.1	1786.5	1671.5	1633.7	1671.5	1786.5
160°	1870.3	1870.3	1883.4	2088.7	2156.1	2083.8	1871.9	1763.6	1711.0	1763.6	1871.9
162.5°	1875.2	1906.4	1977.0	2146.2	2200.4	2141.3	1964.0	1829.2	1783.2	1829.2	1964.0
165°	1947.4	1975.4	2082.1	2197.1	2234.9	2192.2	2077.3	1937.6	1883.4	1937.6	2077.3
167.5°	2023.0	2082.1	2167.6	2254.7	2267.7	2239.9	2164.4	2067.3	2018.1	2067.3	2164.4
170°	2145.3	2197.1	2239.9	2276.0	2294.1	2277.7	2218.5	2170.8	2138.8	2170.8	2218.5
172.5°	2242.4	2276.0	2292.5	2315.5	2304.8	2297.3	2267.7	2244.7	2227.6	2244.7	2267.7
175°	2303.1	2310.4	2325.2	2317.0	2327.8	2308.8	2310.4	2322.0	2253.8	2322.0	2310.4
177.5°	2324.4	2336.8	2328.6	2313.8	2315.5	2312.1	2318.7	2325.2	2314.6	2325.2	2318.7
180°	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1644.4	1644.4	1644.4	1644.4	1644.4	1644.4
2.5°	1646.9	1647.8	1648.6	1638.4	1641.2	1634.5
5°	1637.6	1638.4	1637.6	1630.9	1632.7	1626.0
7.5°	1624.2	1625.8	1625.8	1615.7	1619.9	1617.5
10°	1605.6	1607.3	1607.3	1597.9	1602.2	1598.0
12.5°	1582.8	1578.6	1582.8	1575.2	1578.5	1578.4
15°	1554.1	1553.2	1555.8	1547.3	1548.9	1551.4
17.5°	1521.9	1522.8	1521.9	1514.4	1517.6	1520.1
20°	1483.2	1484.0	1484.8	1478.9	1478.7	1480.4
22.5°	1444.3	1444.3	1445.9	1436.6	1436.4	1431.3
25°	1401.1	1402.0	1402.8	1395.9	1387.4	1381.5
27.5°	1357.1	1355.5	1358.9	1341.9	1333.3	1326.6
30°	1304.7	1306.5	1308.1	1290.2	1270.7	1260.6
32.5°	1249.0	1254.9	1252.2	1228.5	1204.9	1194.7
35°	1189.9	1194.9	1194.8	1160.1	1136.5	1129.7
37.5°	1126.5	1137.4	1131.4	1090.0	1067.2	1065.5
40°	1056.3	1076.5	1059.6	1018.1	998.7	1002.9
42.5°	986.2	1007.2	989.5	938.8	932.8	942.0
45°	908.4	937.1	911.8	866.1	866.1	877.1
47.5°	834.0	856.8	835.7	798.4	804.4	817.9
50°	748.7	767.3	751.9	730.0	746.9	757.9
52.5°	671.7	664.2	675.1	667.4	691.1	706.3
55°	595.0	567.0	598.2	607.5	636.2	644.6
57.5°	512.1	485.9	515.4	547.4	583.8	588.9
60°	438.6	412.3	440.2	488.3	527.2	529.8
62.5°	367.6	356.6	369.2	426.7	469.7	473.2
65°	306.8	305.0	308.4	365.8	410.6	419.9
67.5°	256.8	261.1	256.8	306.7	348.9	363.3
70°	213.8	220.5	213.8	254.3	288.1	306.8
72.5°	173.2	184.2	174.9	205.3	235.7	256.8
75°	138.5	152.1	138.5	160.5	192.7	217.1
77.5°	107.2	122.5	107.2	123.4	162.9	199.8
80°	80.2	92.0	80.2	102.9	159.6	198.2
82.5°	57.4	65.0	57.4	104.9	172.0	211.4
85°	46.4	40.5	49.7	128.4	206.1	240.4
87.5°	42.0	13.6	65.0	163.3	251.7	280.0
90°	26.9	2.5	89.4	213.2	303.2	327.2
92.5°	17.7	27.1	131.0	265.5	362.0	384.3
95°	11.6	66.5	175.9	326.8	427.5	436.5
97.5°	20.5	117.5	230.9	389.0	491.2	498.6
100°	55.0	179.9	301.5	454.3	551.7	554.3
102.5°	102.7	247.2	368.8	516.7	618.0	640.2
105°	166.8	324.5	439.5	596.4	686.0	711.5
107.5°	241.5	406.5	512.5	668.7	759.9	777.0
110°	320.3	492.8	584.8	739.2	838.7	858.4



TEST NUMBER: P392706

CATALOG NUMBER: MWL-4-66-45-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	405.8	581.6	660.5	805.0	922.5	937.2
115°	502.8	663.6	731.0	880.5	989.9	998.0
117.5°	589.8	762.2	803.3	936.4	1060.4	1062.1
120°	681.8	855.8	875.7	1014.4	1129.4	1142.5
122.5°	775.4	944.6	944.6	1080.1	1190.3	1198.4
125°	862.4	1039.9	1013.5	1129.4	1246.0	1249.3
127.5°	952.0	1136.8	1090.0	1193.5	1300.2	1295.3
130°	1048.9	1228.7	1158.9	1254.3	1351.1	1334.7
132.5°	1137.6	1327.3	1229.6	1316.7	1402.1	1411.9
135°	1226.3	1419.4	1290.4	1370.9	1454.7	1451.4
137.5°	1311.8	1504.7	1364.3	1413.6	1489.2	1499.0
140°	1395.5	1596.8	1430.0	1469.5	1531.8	1533.6
142.5°	1484.3	1688.7	1502.3	1525.3	1579.5	1569.7
145°	1582.8	1776.6	1592.6	1581.1	1615.6	1594.3
147.5°	1669.9	1851.3	1656.7	1622.2	1663.3	1635.4
150°	1766.7	1929.4	1745.4	1679.6	1704.4	1691.2
152.5°	1855.5	1990.2	1842.3	1724.0	1751.9	1735.6
155°	1942.6	2054.3	1936.0	1768.4	1788.1	1781.5
157.5°	2018.1	2110.0	2006.6	1814.4	1837.4	1824.3
160°	2083.8	2156.1	2088.7	1883.4	1870.3	1870.3
162.5°	2141.3	2200.4	2146.2	1977.0	1906.4	1875.2
165°	2192.2	2234.9	2197.1	2082.1	1975.4	1947.4
167.5°	2239.9	2267.7	2254.7	2167.6	2082.1	2023.0
170°	2277.7	2294.1	2276.0	2239.9	2197.1	2145.3
172.5°	2297.3	2304.8	2315.5	2292.5	2276.0	2242.4
175°	2308.8	2327.8	2317.0	2325.2	2310.4	2303.1
177.5°	2312.1	2315.5	2313.8	2328.6	2336.8	2324.4
180°	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2

(END OF REPORT)