

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: P392693

Luminaire Tested: **MWL-4-55-45-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392693  
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-4-55-45-UNV-L940-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

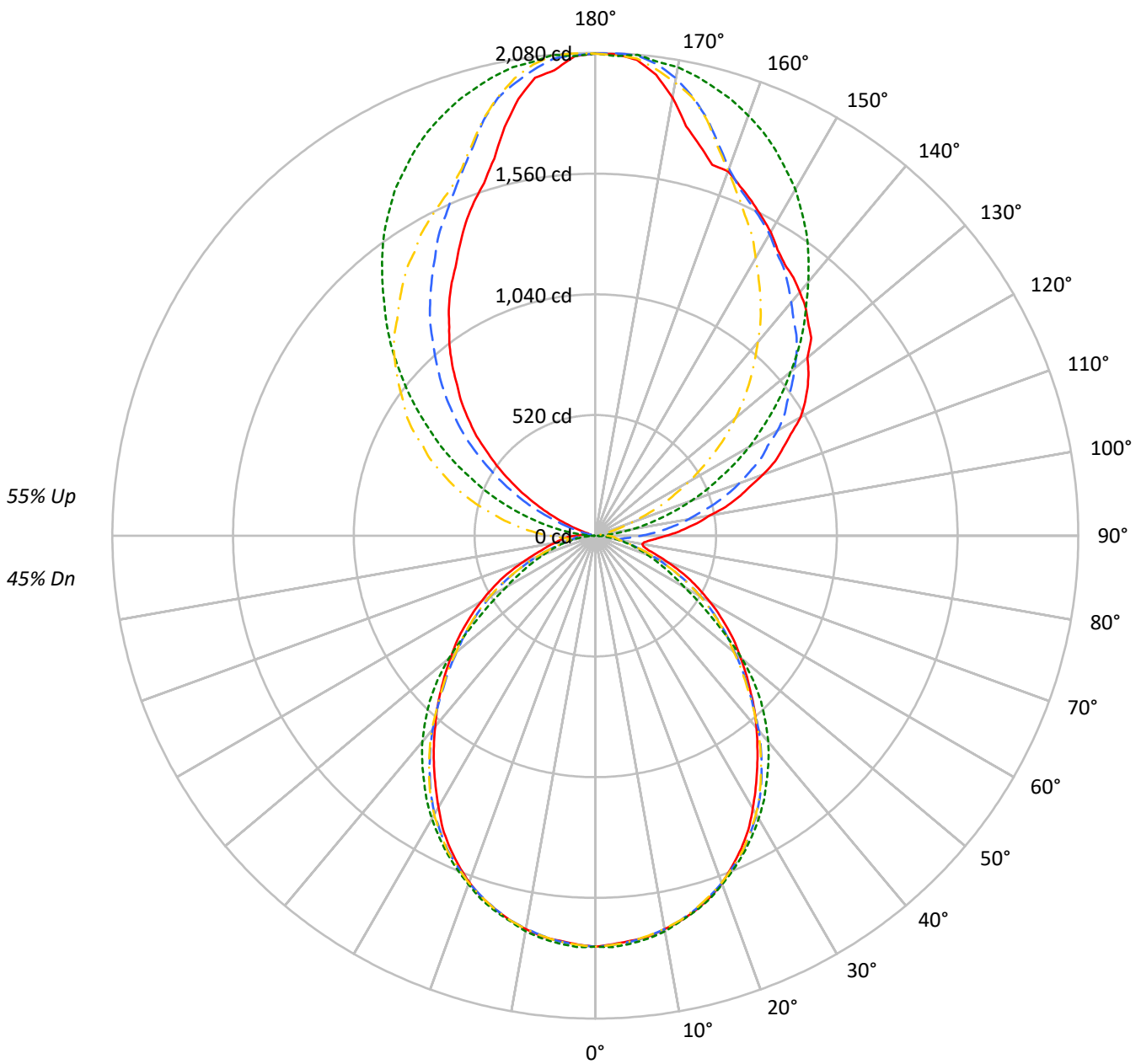
Lumens per Lamp: N/A  
Luminaire Lumens: 9100.9 lumens  
Efficiency: N/A  
Efficacy: 81.8 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 111.201  
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: P392693  
CATALOG NUMBER: MWL-4-55-45-UNV-L940-EDD

### 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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45				
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	38				
2	88	81	75	70	81	75	69	65	62	59	55	51	49	46	41	39	37	33				
3	81	72	64	59	74	66	60	55	55	51	47	46	42	39	36	34	32	28				
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	33	30	28	24				
5	68	57	49	43	62	52	45	40	44	39	35	37	33	30	30	27	25	21				
6	63	51	43	37	57	47	40	35	40	35	31	33	29	26	27	24	22	19				
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	25	22	19	17				
8	54	42	34	29	49	39	32	27	33	28	24	28	24	21	23	20	17	15				
9	50	38	31	26	46	36	29	24	30	25	22	26	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	14	12				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	11434	11434	11434	11434
5°	11252	10515	11252	10515
10°	11081	9647	11081	9647
15°	10860	8822	10831	8822
20°	10549	8054	10520	8054
25°	10104	7339	10075	7339
30°	9542	6653	9501	6653
35°	8933	5967	8900	5967
40°	8366	5313	8320	5313
45°	7805	4606	7769	4606
50°	7286	3786	7246	3786
55°	6796	2830	6767	2830
60°	6235	2097	6219	2097
65°	5642	1595	5642	1595
70°	4845	1195	4867	1195
75°	4194	863	4275	863
80°	4805	551	4152	551
85°	7922	259	4698	259



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	166.8	1.8
10°-20°	470.3	5.2
20°-30°	689.5	7.6
30°-40°	780.8	8.6
40°-50°	735.6	8.1
50°-60°	587.7	6.5
60°-70°	386.6	4.2
70°-80°	198.9	2.2
80°-90°	121.1	1.3
90°-100°	171.2	1.9
100°-110°	322.4	3.5
110°-120°	551.9	6.1
120°-130°	749.8	8.2
130°-140°	855.2	9.4
140°-150°	853.0	9.4
150°-160°	742.9	8.2
160°-170°	522.6	5.7
170°-180°	194.6	2.1
0°-30°	1326.5	14.6
0°-40°	2107.3	23.2
0°-60°	3430.6	37.7
0°-90°	4137.2	45.5
90°-120°	1045.5	11.5
90°-150°	3503.6	38.5
90°-180°	4964.0	54.5
0°-180°	9100.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1770	1770	1770	1770	1770	
5°	1752	1764	1752	1764	1752	166
15°	1670	1673	1665	1673	1670	470
25°	1487	1510	1482	1510	1487	683
35°	1216	1287	1211	1287	1216	761
45°	944	1009	939	1009	944	730
55°	693	610	690	610	693	621
65°	452	328	452	328	452	445
75°	233	164	238	164	233	261
85°	234	43	139	43	234	186
90°	305	2	85	2	305	168
95°	398	60	50	60	398	347
105°	637	290	19	290	637	671
115°	892	593	205	593	892	885
125°	1116	929	507	929	1116	997
135°	1297	1268	815	1268	1297	1001
145°	1424	1587	1097	1587	1424	898
155°	1591	1835	1380	1835	1591	734
165°	1740	1996	1682	1996	1740	493
175°	2057	2079	2013	2079	2057	192
180°	2077	2077	2077	2077	2077	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5
2.5°	1760.6	1767.3	1763.8	1774.4	1773.5	1772.9	1763.8	1767.3	1762.2	1767.3	1763.8
5°	1751.5	1758.1	1755.6	1762.9	1763.8	1762.9	1754.1	1758.1	1751.5	1758.1	1754.1
7.5°	1742.1	1744.1	1739.6	1750.1	1750.1	1748.7	1738.1	1742.7	1742.1	1742.7	1738.1
10°	1720.8	1725.0	1720.4	1730.5	1730.5	1729.0	1719.0	1722.1	1720.8	1722.1	1719.0
12.5°	1699.1	1699.5	1696.2	1704.4	1700.2	1704.4	1696.2	1696.6	1696.2	1696.6	1696.2
15°	1669.6	1667.6	1666.1	1675.2	1672.9	1673.8	1664.7	1664.7	1665.2	1664.7	1664.7
17.5°	1635.9	1633.9	1630.6	1639.2	1640.1	1639.2	1629.1	1632.4	1631.5	1632.4	1629.1
20°	1593.1	1591.6	1592.3	1599.1	1598.4	1597.5	1590.9	1588.7	1588.7	1588.7	1590.9
22.5°	1540.6	1546.0	1546.8	1557.2	1555.6	1555.6	1545.3	1543.1	1537.7	1543.1	1545.3
25°	1486.8	1493.2	1502.7	1510.7	1510.1	1509.1	1499.8	1488.8	1482.5	1488.8	1499.8
27.5°	1427.6	1434.9	1444.4	1463.0	1459.9	1461.5	1441.5	1430.5	1423.2	1430.5	1441.5
30°	1356.5	1367.5	1388.4	1407.9	1407.1	1405.0	1384.1	1363.1	1350.6	1363.1	1384.1
32.5°	1285.5	1296.4	1321.9	1347.8	1351.3	1344.9	1317.5	1290.5	1279.5	1290.5	1317.5
35°	1215.7	1223.0	1248.5	1285.8	1286.8	1281.4	1244.0	1218.5	1211.2	1218.5	1244.0
37.5°	1146.4	1148.3	1172.9	1217.5	1224.6	1213.0	1168.4	1143.8	1142.0	1143.8	1168.4
40°	1079.0	1074.5	1095.4	1140.4	1159.0	1137.4	1089.5	1068.5	1073.1	1068.5	1089.5
42.5°	1013.4	1003.4	1010.1	1064.8	1084.3	1061.8	1005.7	997.5	1007.5	997.5	1005.7
45°	943.6	931.8	931.8	981.0	1008.7	978.0	925.9	927.3	939.2	927.3	925.9
47.5°	879.8	865.3	858.9	899.3	922.1	897.8	853.0	860.8	875.4	860.8	853.0
50°	815.2	803.3	785.1	809.1	825.8	806.1	779.2	797.4	810.7	797.4	779.2
52.5°	759.6	743.2	718.0	726.2	714.7	723.2	713.6	737.3	755.1	737.3	713.6
55°	693.4	684.3	653.3	643.6	610.3	640.7	648.9	679.9	690.4	679.9	648.9
57.5°	633.3	627.8	588.7	554.3	522.8	551.4	584.2	623.4	630.3	623.4	584.2
60°	569.8	567.1	525.2	473.6	443.5	472.1	522.2	564.2	568.3	564.2	522.2
62.5°	508.8	505.1	458.6	397.1	383.8	395.6	455.7	502.2	507.3	502.2	455.7
65°	451.7	441.7	393.4	331.5	328.2	330.0	392.0	440.2	451.7	440.2	392.0
67.5°	390.7	375.2	329.6	276.2	280.8	276.2	328.2	373.7	390.7	373.7	328.2
70°	330.0	310.0	273.5	229.8	237.1	229.8	273.5	311.4	331.5	311.4	273.5
72.5°	276.2	253.5	220.7	187.9	198.3	186.4	220.7	254.9	279.2	254.9	220.7
75°	233.4	207.0	172.7	149.1	163.6	149.1	174.2	208.5	237.9	208.5	174.2
77.5°	212.4	173.7	132.7	115.3	131.7	115.3	134.1	169.3	206.5	169.3	134.1
80°	205.5	166.0	109.7	86.2	98.9	86.2	106.8	142.5	177.6	142.5	106.8
82.5°	212.4	172.7	108.2	61.6	69.8	61.6	90.6	120.0	156.6	120.0	90.6
85°	234.2	200.4	126.8	52.3	43.4	49.4	84.3	110.9	138.9	110.9	84.3
87.5°	266.0	238.3	155.7	64.3	14.6	43.8	72.1	97.4	115.0	97.4	72.1
90°	305.0	282.2	198.4	84.2	2.4	28.4	53.2	75.3	85.0	75.3	53.2
92.5°	353.1	332.8	243.6	119.6	24.4	18.4	42.6	61.4	65.7	61.4	42.6
95°	397.6	389.8	296.7	158.0	59.6	11.3	32.6	49.4	49.9	49.4	32.6
97.5°	451.3	444.8	350.3	206.3	105.0	18.5	26.1	41.4	40.5	41.4	26.1
100°	499.4	496.9	407.2	269.3	160.8	49.3	18.5	36.4	37.3	36.4	18.5
102.5°	574.7	554.4	461.9	329.5	220.9	91.8	24.8	26.3	29.1	26.3	24.8
105°	637.0	613.7	532.9	392.6	289.9	149.1	59.0	24.0	19.4	24.0	59.0
107.5°	694.6	679.0	597.4	458.0	363.3	216.0	108.9	57.0	37.4	57.0	108.9
110°	767.1	749.4	660.5	522.6	440.4	286.4	166.1	104.0	80.5	104.0	166.1



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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°	837.4	824.3	719.1	590.0	519.7	362.7	236.5	162.6	140.6	162.6	236.5
115°	891.7	884.4	786.6	653.2	593.0	449.3	314.2	231.6	205.2	231.6	314.2
117.5°	948.9	947.5	836.5	717.7	681.0	527.0	386.1	300.5	272.7	300.5	386.1
120°	1020.8	1009.0	906.4	782.3	764.6	609.2	466.3	379.7	351.9	379.7	466.3
122.5°	1070.6	1063.3	965.0	843.9	843.9	692.8	542.6	456.0	426.7	456.0	542.6
125°	1116.2	1113.2	1009.0	905.5	929.0	770.5	627.7	539.6	507.4	539.6	627.7
127.5°	1157.2	1161.7	1066.3	973.9	1015.5	850.6	711.3	614.4	580.7	614.4	711.3
130°	1192.4	1207.1	1120.6	1035.5	1097.6	937.2	786.1	689.2	667.3	689.2	786.1
132.5°	1261.4	1252.6	1176.3	1098.5	1185.6	1016.4	865.3	764.0	739.2	764.0	865.3
135°	1296.6	1299.5	1224.7	1152.8	1267.8	1095.6	940.1	840.4	815.4	840.4	940.1
137.5°	1339.1	1330.3	1262.9	1218.9	1344.1	1171.9	1013.5	921.0	881.4	921.0	1013.5
140°	1369.9	1368.5	1312.7	1277.5	1426.2	1246.7	1088.3	994.4	957.7	994.4	1088.3
142.5°	1402.2	1411.0	1362.6	1342.1	1508.4	1325.9	1168.9	1066.3	1031.1	1066.3	1168.9
145°	1424.2	1443.3	1412.5	1422.8	1587.0	1413.9	1239.4	1135.2	1097.1	1135.2	1239.4
147.5°	1460.9	1485.8	1449.2	1480.0	1653.6	1491.7	1309.8	1207.1	1173.4	1207.1	1309.8
150°	1510.8	1522.5	1500.5	1559.2	1723.4	1578.2	1381.7	1276.1	1242.3	1276.1	1381.7
152.5°	1550.3	1565.0	1540.1	1645.7	1777.7	1657.5	1460.9	1343.5	1304.0	1343.5	1460.9
155°	1591.4	1597.3	1579.7	1729.4	1835.0	1735.2	1524.0	1418.3	1380.2	1418.3	1524.0
157.5°	1629.6	1641.3	1620.8	1792.4	1884.8	1802.7	1595.9	1493.2	1459.4	1493.2	1595.9
160°	1670.7	1670.7	1682.4	1865.8	1925.9	1861.4	1672.1	1575.3	1528.4	1575.3	1672.1
162.5°	1675.1	1702.9	1766.0	1917.1	1965.5	1912.7	1754.2	1634.0	1592.9	1634.0	1754.2
165°	1739.6	1764.5	1859.9	1962.6	1996.3	1958.2	1855.5	1730.8	1682.4	1730.8	1855.5
167.5°	1807.1	1859.9	1936.2	2013.9	2025.6	2000.7	1933.3	1846.7	1802.7	1846.7	1933.3
170°	1916.2	1962.6	2000.7	2033.0	2049.2	2034.5	1981.6	1939.1	1910.3	1939.1	1981.6
172.5°	2002.8	2033.0	2047.7	2068.2	2058.8	2052.1	2025.6	2005.1	1989.6	2005.1	2025.6
175°	2057.0	2063.8	2077.0	2069.7	2079.4	2062.4	2063.8	2074.0	2013.0	2074.0	2063.8
177.5°	2076.1	2087.2	2080.0	2066.7	2068.2	2065.3	2071.1	2077.0	2067.3	2077.0	2071.1
180°	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1770.5	1770.5	1770.5	1770.5	1770.5	1770.5
2.5°	1772.9	1773.5	1774.4	1763.8	1767.3	1760.6
5°	1762.9	1763.8	1762.9	1755.6	1758.1	1751.5
7.5°	1748.7	1750.1	1750.1	1739.6	1744.1	1742.1
10°	1729.0	1730.5	1730.5	1720.4	1725.0	1720.8
12.5°	1704.4	1700.2	1704.4	1696.2	1699.5	1699.1
15°	1673.8	1672.9	1675.2	1666.1	1667.6	1669.6
17.5°	1639.2	1640.1	1639.2	1630.6	1633.9	1635.9
20°	1597.5	1598.4	1599.1	1592.3	1591.6	1593.1
22.5°	1555.6	1555.6	1557.2	1546.8	1546.0	1540.6
25°	1509.1	1510.1	1510.7	1502.7	1493.2	1486.8
27.5°	1461.5	1459.9	1463.0	1444.4	1434.9	1427.6
30°	1405.0	1407.1	1407.9	1388.4	1367.5	1356.5
32.5°	1344.9	1351.3	1347.8	1321.9	1296.4	1285.5
35°	1281.4	1286.8	1285.8	1248.5	1223.0	1215.7
37.5°	1213.0	1224.6	1217.5	1172.9	1148.3	1146.4
40°	1137.4	1159.0	1140.4	1095.4	1074.5	1079.0
42.5°	1061.8	1084.3	1064.8	1010.1	1003.4	1013.4
45°	978.0	1008.7	981.0	931.8	931.8	943.6
47.5°	897.8	922.1	899.3	858.9	865.3	879.8
50°	806.1	825.8	809.1	785.1	803.3	815.2
52.5°	723.2	714.7	726.2	718.0	743.2	759.6
55°	640.7	610.3	643.6	653.3	684.3	693.4
57.5°	551.4	522.8	554.3	588.7	627.8	633.3
60°	472.1	443.5	473.6	525.2	567.1	569.8
62.5°	395.6	383.8	397.1	458.6	505.1	508.8
65°	330.0	328.2	331.5	393.4	441.7	451.7
67.5°	276.2	280.8	276.2	329.6	375.2	390.7
70°	229.8	237.1	229.8	273.5	310.0	330.0
72.5°	186.4	198.3	187.9	220.7	253.5	276.2
75°	149.1	163.6	149.1	172.7	207.0	233.4
77.5°	115.3	131.7	115.3	132.7	173.7	212.4
80°	86.2	98.9	86.2	109.7	166.0	205.5
82.5°	61.6	69.8	61.6	108.2	172.7	212.4
85°	49.4	43.4	52.3	126.8	200.4	234.2
87.5°	43.8	14.6	64.3	155.7	238.3	266.0
90°	28.4	2.4	84.2	198.4	282.2	305.0
92.5°	18.4	24.4	119.6	243.6	332.8	353.1
95°	11.3	59.6	158.0	296.7	389.8	397.6
97.5°	18.5	105.0	206.3	350.3	444.8	451.3
100°	49.3	160.8	269.3	407.2	496.9	499.4
102.5°	91.8	220.9	329.5	461.9	554.4	574.7
105°	149.1	289.9	392.6	532.9	613.7	637.0
107.5°	216.0	363.3	458.0	597.4	679.0	694.6
110°	286.4	440.4	522.6	660.5	749.4	767.1





TEST NUMBER: P392693

CATALOG NUMBER: MWL-4-55-45-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	362.7	519.7	590.0	719.1	824.3	837.4
115°	449.3	593.0	653.2	786.6	884.4	891.7
117.5°	527.0	681.0	717.7	836.5	947.5	948.9
120°	609.2	764.6	782.3	906.4	1009.0	1020.8
122.5°	692.8	843.9	843.9	965.0	1063.3	1070.6
125°	770.5	929.0	905.5	1009.0	1113.2	1116.2
127.5°	850.6	1015.5	973.9	1066.3	1161.7	1157.2
130°	937.2	1097.6	1035.5	1120.6	1207.1	1192.4
132.5°	1016.4	1185.6	1098.5	1176.3	1252.6	1261.4
135°	1095.6	1267.8	1152.8	1224.7	1299.5	1296.6
137.5°	1171.9	1344.1	1218.9	1262.9	1330.3	1339.1
140°	1246.7	1426.2	1277.5	1312.7	1368.5	1369.9
142.5°	1325.9	1508.4	1342.1	1362.6	1411.0	1402.2
145°	1413.9	1587.0	1422.8	1412.5	1443.3	1424.2
147.5°	1491.7	1653.6	1480.0	1449.2	1485.8	1460.9
150°	1578.2	1723.4	1559.2	1500.5	1522.5	1510.8
152.5°	1657.5	1777.7	1645.7	1540.1	1565.0	1550.3
155°	1735.2	1835.0	1729.4	1579.7	1597.3	1591.4
157.5°	1802.7	1884.8	1792.4	1620.8	1641.3	1629.6
160°	1861.4	1925.9	1865.8	1682.4	1670.7	1670.7
162.5°	1912.7	1965.5	1917.1	1766.0	1702.9	1675.1
165°	1958.2	1996.3	1962.6	1859.9	1764.5	1739.6
167.5°	2000.7	2025.6	2013.9	1936.2	1859.9	1807.1
170°	2034.5	2049.2	2033.0	2000.7	1962.6	1916.2
172.5°	2052.1	2058.8	2068.2	2047.7	2033.0	2002.8
175°	2062.4	2079.4	2069.7	2077.0	2063.8	2057.0
177.5°	2065.3	2068.2	2066.7	2080.0	2087.2	2076.1
180°	2077.0	2077.0	2077.0	2077.0	2077.0	2077.0

(END OF REPORT)