

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: P392707

Luminaire Tested: **MWL-4-66-45-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392707
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-L935-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9433.2 lumens
Efficiency: N/A
Efficacy: 71.6 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

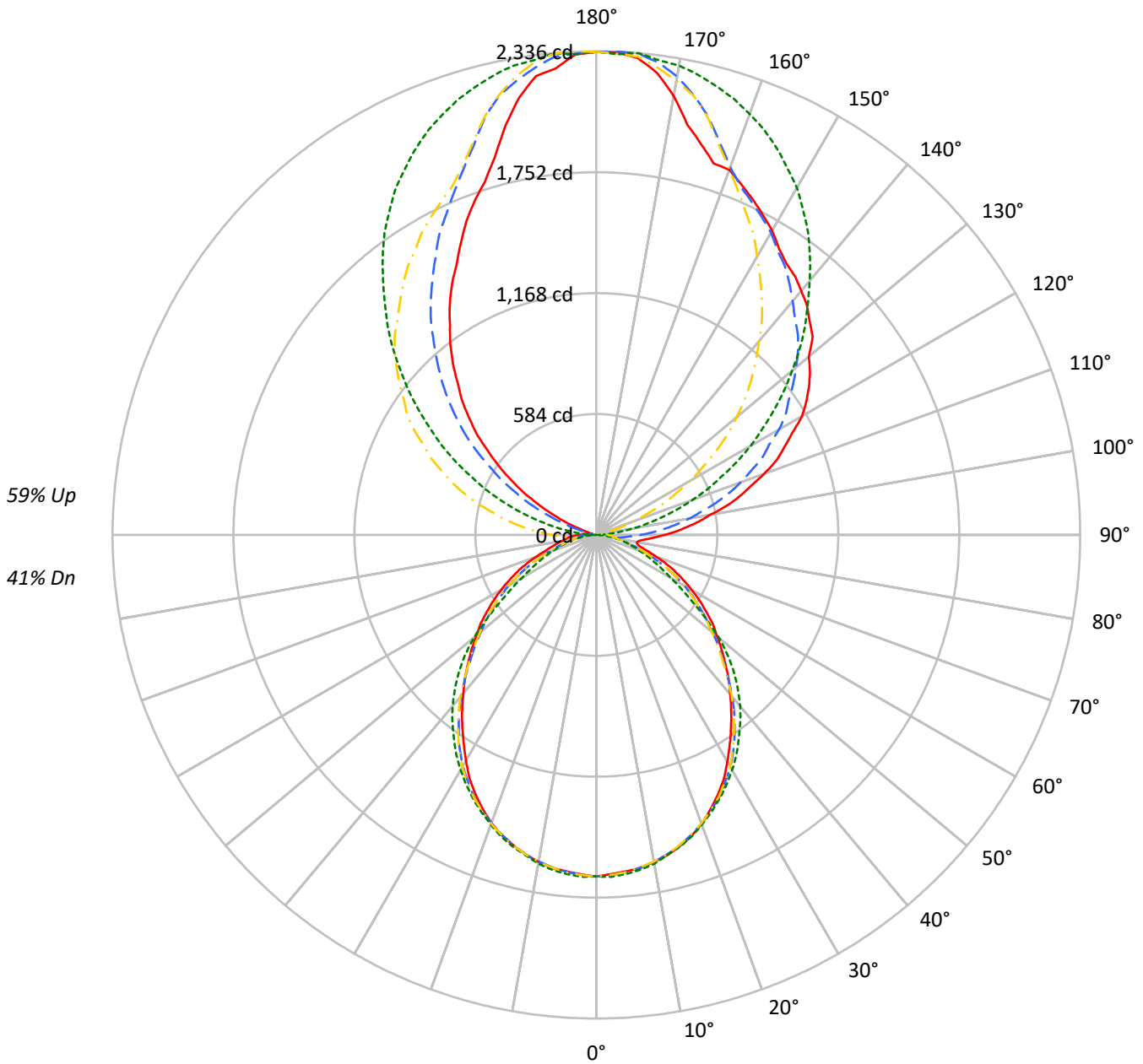
Input Watts (W): 131.704
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	10656	10656	10656	10656
5°	10482	9801	10482	9801
10°	10326	8991	10326	8991
15°	10126	8219	10094	8219
20°	9836	7503	9804	7503
25°	9420	6837	9387	6837
30°	8898	6198	8852	6198
35°	8330	5560	8294	5560
40°	7802	4952	7752	4952
45°	7280	4294	7239	4294
50°	6797	3529	6753	3529
55°	6340	2638	6308	2638
60°	5816	1956	5798	1956
65°	5264	1488	5264	1488
70°	4519	1115	4541	1115
75°	3915	805	4003	805
80°	4650	515	3916	515
85°	8159	242	4533	242



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.4	1.6
10°-20°	438.2	4.6
20°-30°	642.5	6.8
30°-40°	727.7	7.7
40°-50°	685.8	7.3
50°-60°	547.9	5.8
60°-70°	360.6	3.8
70°-80°	185.9	2.0
80°-90°	120.5	1.3
90°-100°	186.8	2.0
100°-110°	361.2	3.8
110°-120°	619.8	6.6
120°-130°	842.1	8.9
130°-140°	960.5	10.2
140°-150°	958.1	10.2
150°-160°	834.5	8.8
160°-170°	587.0	6.2
170°-180°	218.7	2.3
0°-30°	1236.2	13.1
0°-40°	1963.9	20.8
0°-60°	3197.6	33.9
0°-90°	3864.6	41.0
90°-120°	1167.7	12.4
90°-150°	3928.5	41.6
90°-180°	5569.0	59.0
0°-180°	9433.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1650	1650	1650	1650	1650	
5°	1632	1644	1632	1644	1632	155
15°	1557	1559	1552	1559	1557	438
25°	1386	1407	1381	1407	1386	637
35°	1134	1199	1129	1199	1134	709
45°	880	940	875	940	880	681
55°	647	569	644	569	647	579
65°	421	306	421	306	421	416
75°	218	153	223	153	218	245
85°	241	41	134	41	241	189
90°	328	2	81	2	328	181
95°	438	67	47	67	438	384
105°	714	326	20	326	714	751
115°	1001	666	230	666	1001	994
125°	1254	1043	570	1043	1254	1119
135°	1456	1424	916	1424	1456	1124
145°	1600	1783	1232	1783	1600	1009
155°	1788	2061	1550	2061	1788	825
165°	1954	2242	1890	2242	1954	554
175°	2311	2336	2262	2336	2311	215
180°	2333	2333	2333	2333	2333	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0
2.5°	1640.0	1646.8	1644.0	1654.2	1653.3	1652.5	1644.0	1646.8	1641.7	1646.8	1644.0
5°	1631.6	1638.3	1636.4	1643.2	1644.0	1643.2	1634.8	1638.3	1631.6	1638.3	1634.8
7.5°	1623.0	1625.4	1621.2	1631.3	1631.3	1629.7	1619.6	1623.8	1623.0	1623.8	1619.6
10°	1603.5	1607.7	1603.4	1612.8	1612.8	1611.1	1601.8	1604.3	1603.5	1604.3	1601.8
12.5°	1583.9	1583.9	1580.6	1588.3	1583.9	1588.3	1580.6	1580.6	1580.6	1580.6	1580.6
15°	1556.7	1554.3	1552.6	1561.1	1558.6	1559.3	1550.9	1550.9	1551.8	1550.9	1550.9
17.5°	1525.3	1522.8	1519.6	1527.2	1528.0	1527.2	1517.8	1521.2	1520.3	1521.2	1517.8
20°	1485.4	1483.8	1483.9	1489.9	1489.1	1488.2	1482.2	1480.5	1480.5	1480.5	1482.2
22.5°	1436.2	1441.3	1441.5	1450.8	1449.2	1449.2	1439.8	1438.1	1433.0	1438.1	1439.8
25°	1386.2	1392.1	1400.7	1407.6	1406.8	1406.0	1397.4	1387.2	1381.3	1387.2	1397.4
27.5°	1331.1	1337.8	1346.5	1363.5	1360.2	1361.7	1343.1	1332.9	1326.2	1332.9	1343.1
30°	1264.9	1275.1	1294.6	1312.5	1311.0	1309.2	1289.7	1270.2	1258.4	1270.2	1289.7
32.5°	1198.7	1208.9	1232.7	1256.6	1259.1	1253.2	1227.8	1202.5	1192.3	1202.5	1227.8
35°	1133.6	1140.3	1164.1	1198.8	1199.0	1193.9	1159.1	1135.4	1128.7	1135.4	1159.1
37.5°	1069.1	1070.8	1093.7	1135.2	1141.3	1130.3	1088.8	1065.9	1064.2	1065.9	1088.8
40°	1006.3	1002.1	1021.6	1063.3	1080.2	1060.0	1015.0	995.5	999.8	995.5	1015.0
42.5°	945.3	936.0	941.9	992.9	1010.7	989.6	936.9	929.3	938.7	929.3	936.9
45°	880.1	869.0	869.0	914.8	940.3	911.6	862.4	864.0	875.1	864.0	862.4
47.5°	820.7	807.2	801.2	838.5	859.7	836.9	794.6	802.2	815.7	802.2	794.6
50°	760.5	749.4	732.5	754.5	769.9	751.2	725.9	742.9	755.5	742.9	725.9
52.5°	708.8	693.5	669.7	677.4	666.4	674.1	664.8	686.9	703.8	686.9	664.8
55°	646.8	638.4	609.6	600.3	568.9	597.0	604.6	633.5	643.6	633.5	604.6
57.5°	590.8	585.7	549.3	517.1	487.5	513.9	544.4	580.8	587.5	580.8	544.4
60°	531.5	529.0	490.0	441.7	413.7	440.1	486.8	525.8	529.9	525.8	486.8
62.5°	474.8	471.4	428.1	370.4	357.8	368.8	424.8	468.0	473.0	468.0	424.8
65°	421.4	412.0	367.1	309.3	306.1	307.8	365.4	410.4	421.4	410.4	365.4
67.5°	364.5	350.1	307.7	257.7	262.0	257.7	306.1	348.4	364.5	348.4	306.1
70°	307.8	289.2	255.2	214.5	221.2	214.5	255.2	290.7	309.3	290.7	255.2
72.5°	257.7	236.5	206.0	175.4	184.8	173.8	206.0	238.2	261.0	238.2	206.0
75°	217.9	193.3	161.0	139.0	152.6	139.0	162.7	194.9	222.8	194.9	162.7
77.5°	200.5	163.4	123.7	107.6	122.9	107.6	125.5	158.4	194.0	158.4	125.5
80°	198.9	160.2	103.3	80.5	92.3	80.5	100.0	133.8	167.5	133.8	100.0
82.5°	212.1	172.7	105.3	57.6	65.2	57.6	85.5	113.4	149.5	113.4	85.5
85°	241.2	206.8	128.8	49.9	40.6	46.6	81.0	106.3	134.0	106.3	81.0
87.5°	281.0	252.6	163.9	65.2	13.5	42.1	69.9	94.4	111.2	94.4	69.9
90°	328.3	304.2	213.9	89.7	2.5	27.1	50.7	71.8	81.1	71.8	50.7
92.5°	385.5	363.3	266.4	131.4	27.2	17.7	40.6	58.3	62.5	58.3	40.6
95°	437.9	428.9	328.0	176.5	66.7	11.7	31.2	46.6	47.3	46.6	31.2
97.5°	500.4	492.9	390.3	231.6	117.9	20.6	26.1	39.7	38.8	39.7	26.1
100°	556.1	553.6	456.0	302.5	180.4	55.2	19.2	36.1	36.9	36.1	19.2
102.5°	642.4	620.2	518.4	370.0	248.1	103.0	27.3	26.7	29.3	26.7	27.3
105°	714.0	688.3	598.4	440.9	325.6	167.3	66.0	25.7	20.0	25.7	66.0
107.5°	779.7	762.5	670.9	514.3	407.9	242.4	122.0	63.5	41.3	63.5	122.0
110°	861.3	841.6	741.7	586.8	494.5	321.4	186.3	116.2	89.9	116.2	186.3



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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°	940.5	925.6	807.8	662.7	583.6	407.2	265.4	182.2	157.5	182.2	265.4
115°	1001.4	993.2	883.5	733.6	665.9	504.5	352.8	259.6	230.0	259.6	352.8
117.5°	1065.7	1064.0	939.6	806.0	764.8	591.8	433.5	337.1	305.8	337.1	433.5
120°	1146.4	1133.3	1017.9	878.6	858.8	684.1	523.4	426.2	394.9	426.2	523.4
122.5°	1202.5	1194.3	1083.8	947.8	947.8	778.1	609.1	511.8	478.9	511.8	609.1
125°	1253.5	1250.3	1133.3	1017.0	1043.4	865.4	704.6	605.8	569.6	605.8	704.6
127.5°	1299.7	1304.7	1197.6	1093.7	1140.7	955.3	798.6	689.8	651.9	689.8	798.6
130°	1339.3	1355.8	1258.5	1162.9	1233.0	1052.5	882.7	773.9	749.2	773.9	882.7
132.5°	1416.7	1406.9	1321.2	1233.8	1331.9	1141.5	971.7	858.0	829.9	858.0	971.7
135°	1456.3	1459.7	1375.6	1294.8	1424.2	1230.5	1055.8	943.7	915.7	943.7	1055.8
137.5°	1504.1	1494.3	1418.4	1369.0	1509.8	1316.3	1138.3	1034.4	989.9	1034.4	1138.3
140°	1538.8	1537.1	1474.5	1434.9	1602.2	1400.3	1222.3	1116.8	1075.5	1116.8	1222.3
142.5°	1575.0	1584.9	1530.4	1507.4	1694.5	1489.4	1312.9	1197.6	1158.0	1197.6	1312.9
145°	1599.7	1621.1	1586.5	1598.1	1782.7	1588.3	1392.0	1275.0	1232.2	1275.0	1392.0
147.5°	1641.0	1668.9	1627.8	1662.4	1857.7	1675.6	1471.2	1355.8	1317.8	1355.8	1471.2
150°	1697.0	1710.2	1685.4	1751.4	1935.9	1772.7	1551.9	1433.3	1395.4	1433.3	1551.9
152.5°	1741.5	1757.9	1729.9	1848.6	1997.0	1861.8	1641.0	1509.1	1464.6	1509.1	1641.0
155°	1787.6	1794.2	1774.5	1942.6	2061.3	1949.2	1711.8	1593.2	1550.3	1593.2	1711.8
157.5°	1830.6	1843.7	1820.6	2013.5	2117.3	2025.0	1792.6	1677.2	1639.3	1677.2	1792.6
160°	1876.6	1876.6	1889.8	2095.9	2163.5	2090.9	1878.3	1769.5	1716.8	1769.5	1878.3
162.5°	1881.6	1912.9	1983.8	2153.5	2207.9	2148.6	1970.6	1835.5	1789.3	1835.5	1970.6
165°	1954.1	1982.2	2089.3	2204.6	2242.5	2199.7	2084.3	1944.3	1889.8	1944.3	2084.3
167.5°	2029.9	2089.3	2175.0	2262.4	2275.6	2247.5	2171.7	2074.4	2025.0	2074.4	2171.7
170°	2152.7	2204.6	2247.5	2283.8	2301.9	2285.5	2226.1	2178.2	2146.1	2178.2	2226.1
172.5°	2250.0	2283.8	2300.3	2323.4	2312.7	2305.2	2275.6	2252.4	2235.2	2252.4	2275.6
175°	2310.9	2318.4	2333.2	2325.0	2335.7	2316.7	2318.4	2329.9	2261.5	2329.9	2318.4
177.5°	2332.3	2344.8	2336.5	2321.6	2323.4	2320.1	2326.6	2333.2	2322.5	2333.2	2326.6
180°	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1650.0	1650.0	1650.0	1650.0	1650.0	1650.0
2.5°	1652.5	1653.3	1654.2	1644.0	1646.8	1640.0
5°	1643.2	1644.0	1643.2	1636.4	1638.3	1631.6
7.5°	1629.7	1631.3	1631.3	1621.2	1625.4	1623.0
10°	1611.1	1612.8	1612.8	1603.4	1607.7	1603.5
12.5°	1588.3	1583.9	1588.3	1580.6	1583.9	1583.9
15°	1559.3	1558.6	1561.1	1552.6	1554.3	1556.7
17.5°	1527.2	1528.0	1527.2	1519.6	1522.8	1525.3
20°	1488.2	1489.1	1489.9	1483.9	1483.8	1485.4
22.5°	1449.2	1449.2	1450.8	1441.5	1441.3	1436.2
25°	1406.0	1406.8	1407.6	1400.7	1392.1	1386.2
27.5°	1361.7	1360.2	1363.5	1346.5	1337.8	1331.1
30°	1309.2	1311.0	1312.5	1294.6	1275.1	1264.9
32.5°	1253.2	1259.1	1256.6	1232.7	1208.9	1198.7
35°	1193.9	1199.0	1198.8	1164.1	1140.3	1133.6
37.5°	1130.3	1141.3	1135.2	1093.7	1070.8	1069.1
40°	1060.0	1080.2	1063.3	1021.6	1002.1	1006.3
42.5°	989.6	1010.7	992.9	941.9	936.0	945.3
45°	911.6	940.3	914.8	869.0	869.0	880.1
47.5°	836.9	859.7	838.5	801.2	807.2	820.7
50°	751.2	769.9	754.5	732.5	749.4	760.5
52.5°	674.1	666.4	677.4	669.7	693.5	708.8
55°	597.0	568.9	600.3	609.6	638.4	646.8
57.5°	513.9	487.5	517.1	549.3	585.7	590.8
60°	440.1	413.7	441.7	490.0	529.0	531.5
62.5°	368.8	357.8	370.4	428.1	471.4	474.8
65°	307.8	306.1	309.3	367.1	412.0	421.4
67.5°	257.7	262.0	257.7	307.7	350.1	364.5
70°	214.5	221.2	214.5	255.2	289.2	307.8
72.5°	173.8	184.8	175.4	206.0	236.5	257.7
75°	139.0	152.6	139.0	161.0	193.3	217.9
77.5°	107.6	122.9	107.6	123.7	163.4	200.5
80°	80.5	92.3	80.5	103.3	160.2	198.9
82.5°	57.6	65.2	57.6	105.3	172.7	212.1
85°	46.6	40.6	49.9	128.8	206.8	241.2
87.5°	42.1	13.5	65.2	163.9	252.6	281.0
90°	27.1	2.5	89.7	213.9	304.2	328.3
92.5°	17.7	27.2	131.4	266.4	363.3	385.5
95°	11.7	66.7	176.5	328.0	428.9	437.9
97.5°	20.6	117.9	231.6	390.3	492.9	500.4
100°	55.2	180.4	302.5	456.0	553.6	556.1
102.5°	103.0	248.1	370.0	518.4	620.2	642.4
105°	167.3	325.6	440.9	598.4	688.3	714.0
107.5°	242.4	407.9	514.3	670.9	762.5	779.7
110°	321.4	494.5	586.8	741.7	841.6	861.3



TEST NUMBER: P392707

CATALOG NUMBER: MWL-4-66-45-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	407.2	583.6	662.7	807.8	925.6	940.5
115°	504.5	665.9	733.6	883.5	993.2	1001.4
117.5°	591.8	764.8	806.0	939.6	1064.0	1065.7
120°	684.1	858.8	878.6	1017.9	1133.3	1146.4
122.5°	778.1	947.8	947.8	1083.8	1194.3	1202.5
125°	865.4	1043.4	1017.0	1133.3	1250.3	1253.5
127.5°	955.3	1140.7	1093.7	1197.6	1304.7	1299.7
130°	1052.5	1233.0	1162.9	1258.5	1355.8	1339.3
132.5°	1141.5	1331.9	1233.8	1321.2	1406.9	1416.7
135°	1230.5	1424.2	1294.8	1375.6	1459.7	1456.3
137.5°	1316.3	1509.8	1369.0	1418.4	1494.3	1504.1
140°	1400.3	1602.2	1434.9	1474.5	1537.1	1538.8
142.5°	1489.4	1694.5	1507.4	1530.4	1584.9	1575.0
145°	1588.3	1782.7	1598.1	1586.5	1621.1	1599.7
147.5°	1675.6	1857.7	1662.4	1627.8	1668.9	1641.0
150°	1772.7	1935.9	1751.4	1685.4	1710.2	1697.0
152.5°	1861.8	1997.0	1848.6	1729.9	1757.9	1741.5
155°	1949.2	2061.3	1942.6	1774.5	1794.2	1787.6
157.5°	2025.0	2117.3	2013.5	1820.6	1843.7	1830.6
160°	2090.9	2163.5	2095.9	1889.8	1876.6	1876.6
162.5°	2148.6	2207.9	2153.5	1983.8	1912.9	1881.6
165°	2199.7	2242.5	2204.6	2089.3	1982.2	1954.1
167.5°	2247.5	2275.6	2262.4	2175.0	2089.3	2029.9
170°	2285.5	2301.9	2283.8	2247.5	2204.6	2152.7
172.5°	2305.2	2312.7	2323.4	2300.3	2283.8	2250.0
175°	2316.7	2335.7	2325.0	2333.2	2318.4	2310.9
177.5°	2320.1	2323.4	2321.6	2336.5	2344.8	2332.3
180°	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2

(END OF REPORT)