

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: P392624

Luminaire Tested: **MWL-3-53-33-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392624
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-13 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-3-53-33-UNV-L840-EDD
Description: MWL 3FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

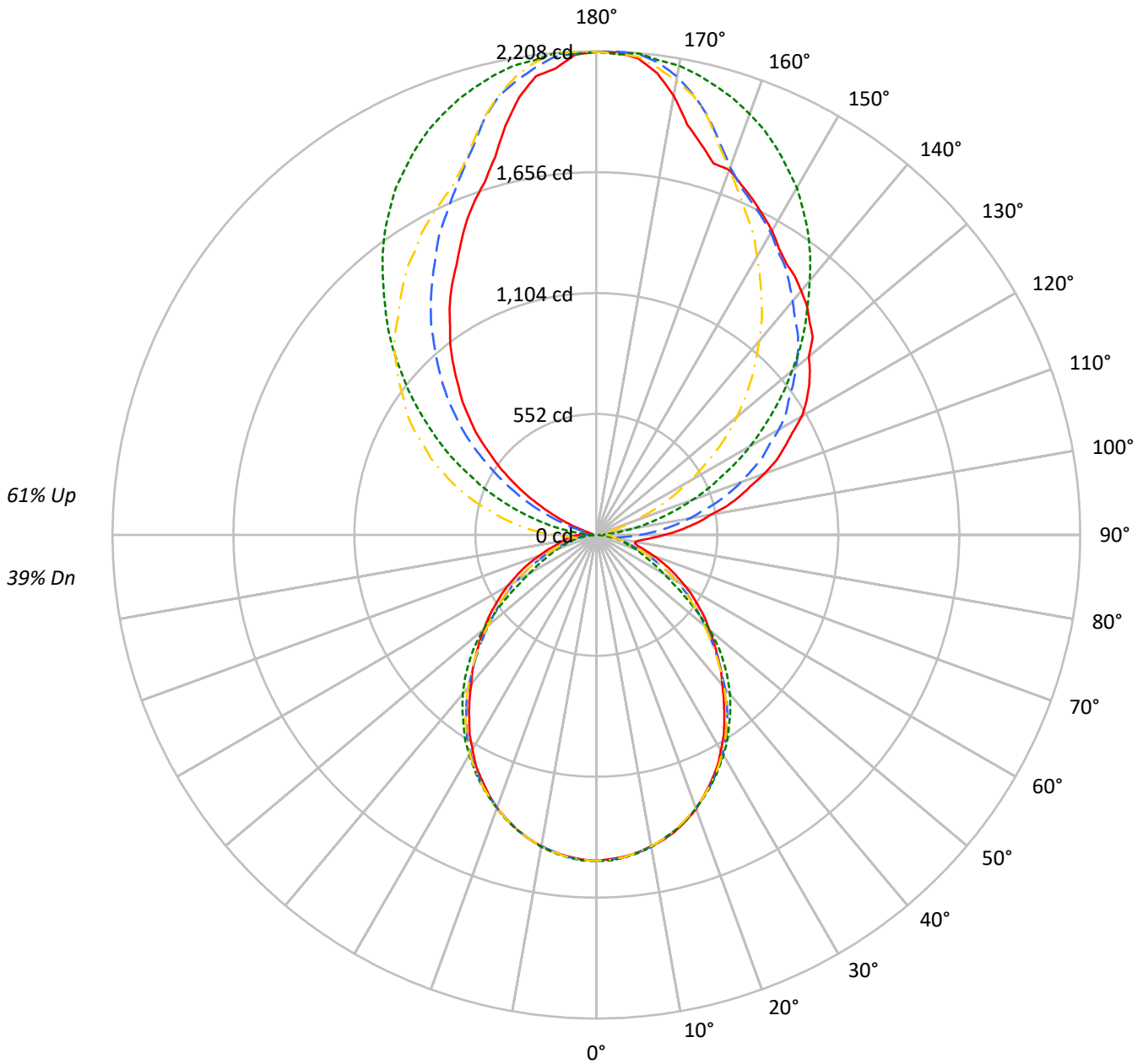
Lumens per Lamp: N/A
Luminaire Lumens: 8690.0 lumens
Efficiency: N/A
Efficacy: 82.9 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 104.8
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: P392624
CATALOG NUMBER: MWL-3-53-33-UNV-L840-EDD

Luminous Intensity Polar Plot



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



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L840-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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33
2	87	80	74	69	79	73	68	64	60	56	53	48	45	43	36	35	33	28
3	80	70	63	58	72	64	58	53	53	49	45	42	39	37	33	31	29	24
4	73	62	55	49	66	57	51	45	47	42	38	38	34	32	29	27	25	21
5	67	56	48	42	61	51	44	39	42	37	33	34	30	28	26	24	22	18
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19	16
7	57	45	37	32	52	42	35	30	35	29	26	28	24	21	22	19	17	15
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	20	18	16	13
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	17	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12812	12812	12812	12812
5°	12590	11752	12590	11752
10°	12318	10755	12318	10755
15°	12024	9807	11984	9807
20°	11610	8923	11569	8923
25°	11069	8107	11028	8107
30°	10462	7314	10404	7314
35°	9742	6530	9697	6530
40°	9000	5793	8937	5793
45°	8354	4998	8305	4998
50°	7727	4115	7675	4115
55°	7138	3077	7100	3077
60°	6528	2236	6507	2236
65°	5820	1679	5820	1679
70°	5013	1270	5042	1270
75°	4297	918	4400	918
80°	5024	592	4203	592
85°	8622	259	4754	259



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L840-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.9	1.6
10°-20°	392.7	4.5
20°-30°	573.2	6.6
30°-40°	648.2	7.5
40°-50°	606.3	7.0
50°-60°	478.9	5.5
60°-70°	313.4	3.6
70°-80°	164.4	1.9
80°-90°	110.1	1.3
90°-100°	176.7	2.0
100°-110°	341.7	3.9
110°-120°	585.6	6.7
120°-130°	795.8	9.2
130°-140°	907.7	10.4
140°-150°	905.5	10.4
150°-160°	788.6	9.1
160°-170°	554.8	6.4
170°-180°	206.6	2.4
0°-30°	1105.9	12.7
0°-40°	1754.0	20.2
0°-60°	2839.2	32.7
0°-90°	3427.1	39.4
90°-120°	1104.0	12.7
90°-150°	3712.9	42.7
90°-180°	5263.0	60.6
0°-180°	8690.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1488	1488	1488	1488	1488	
5°	1474	1478	1474	1478	1474	140
15°	1399	1395	1394	1395	1399	394
25°	1240	1251	1236	1251	1240	571
35°	1017	1056	1012	1056	1017	636
45°	781	821	777	821	781	604
55°	570	498	567	498	570	511
65°	371	259	371	259	371	367
75°	196	131	201	131	196	221
85°	226	33	124	33	226	176
90°	310	3	76	3	310	171
95°	418	63	49	63	418	366
105°	676	308	20	308	676	712
115°	947	629	218	629	947	940
125°	1185	987	538	987	1185	1058
135°	1376	1347	865	1347	1376	1062
145°	1512	1685	1164	1685	1512	953
155°	1689	1948	1465	1948	1689	779
165°	1847	2119	1786	2119	1847	524
175°	2184	2207	2137	2207	2184	204
180°	2205	2205	2205	2205	2205	



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L840-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9
2.5°	1481.2	1485.3	1484.5	1486.0	1488.0	1484.5	1484.5	1485.3	1482.8	1485.3	1484.5
5°	1474.2	1477.3	1477.5	1477.5	1478.5	1477.5	1475.9	1477.3	1474.2	1477.3	1475.9
7.5°	1460.8	1464.9	1461.9	1464.5	1464.5	1462.9	1460.3	1463.3	1460.8	1463.3	1460.3
10°	1443.3	1446.9	1444.9	1444.9	1446.9	1443.3	1443.3	1443.8	1443.3	1443.8	1443.3
12.5°	1424.5	1423.9	1420.3	1422.3	1420.8	1422.3	1420.3	1420.8	1421.3	1420.8	1420.3
15°	1399.0	1395.9	1394.3	1395.3	1394.8	1393.8	1392.8	1392.8	1394.3	1392.8	1392.8
17.5°	1366.0	1365.9	1361.3	1363.8	1363.8	1363.8	1359.8	1364.3	1361.3	1364.3	1359.8
20°	1331.0	1329.5	1327.3	1328.8	1328.2	1327.2	1325.8	1326.3	1326.3	1326.3	1325.8
22.5°	1285.5	1288.5	1288.3	1291.8	1290.2	1290.2	1286.8	1285.3	1282.3	1285.3	1286.8
25°	1240.5	1245.5	1247.9	1252.8	1251.2	1251.2	1244.8	1240.8	1235.8	1240.8	1244.8
27.5°	1193.5	1194.5	1202.9	1211.3	1206.2	1209.8	1199.8	1189.8	1188.8	1189.8	1199.8
30°	1136.5	1141.5	1154.5	1163.9	1160.2	1160.8	1149.8	1136.8	1130.2	1136.8	1149.8
32.5°	1082.5	1084.5	1101.5	1112.9	1112.8	1109.8	1096.8	1078.2	1076.2	1078.2	1096.8
35°	1016.9	1021.9	1039.9	1060.9	1056.2	1056.2	1035.2	1017.2	1012.2	1017.2	1035.2
37.5°	955.9	958.9	978.9	1004.9	1003.8	1000.2	974.2	954.2	951.2	954.2	974.2
40°	893.9	892.9	911.9	940.3	947.8	937.2	905.7	886.7	887.7	886.7	905.7
42.5°	841.9	829.9	842.3	874.3	886.8	871.2	837.7	823.7	835.7	823.7	837.7
45°	781.3	769.3	776.3	806.3	820.8	803.2	770.1	764.7	776.7	764.7	770.1
47.5°	727.3	712.3	711.3	732.8	753.8	731.2	705.1	707.7	722.7	707.7	705.1
50°	672.3	658.3	648.3	662.8	673.2	659.7	642.1	652.1	667.7	652.1	642.1
52.5°	625.3	606.3	588.8	592.8	584.2	589.7	584.1	600.1	620.7	600.1	584.1
55°	569.8	557.8	533.8	520.2	497.7	517.1	529.1	553.1	566.7	553.1	529.1
57.5°	520.8	509.8	480.8	449.2	417.7	446.1	476.1	505.1	517.7	505.1	476.1
60°	470.2	459.2	424.2	378.7	354.7	377.1	421.1	456.1	468.7	456.1	421.1
62.5°	418.2	411.2	371.2	319.7	305.1	318.1	368.1	408.1	416.7	408.1	368.1
65°	370.7	358.7	317.7	268.7	259.1	267.1	316.1	357.1	370.7	357.1	316.1
67.5°	322.7	307.7	268.7	223.1	222.1	223.1	267.1	306.1	322.7	306.1	267.1
70°	275.1	258.1	222.1	185.1	189.1	185.1	222.1	259.7	276.7	259.7	222.1
72.5°	234.1	211.1	182.1	152.1	155.6	150.6	182.1	212.7	237.2	212.7	182.1
75°	196.1	170.1	144.6	121.6	130.6	121.6	146.1	171.7	200.8	171.7	146.1
77.5°	180.6	145.3	111.6	95.6	104.6	95.6	113.1	140.7	174.3	140.7	113.1
80°	181.1	143.2	92.2	73.6	79.6	73.6	89.1	118.2	151.5	118.2	89.1
82.5°	196.5	158.4	94.9	52.6	56.6	52.6	76.2	102.3	137.3	102.3	76.2
85°	225.8	191.2	117.2	44.2	32.6	41.1	72.0	96.1	124.5	96.1	72.0
87.5°	263.8	236.8	153.4	58.6	9.0	36.8	64.6	87.3	103.4	87.3	64.6
90°	309.6	286.0	200.5	83.3	2.6	24.1	46.2	66.3	75.9	66.3	46.2
92.5°	365.2	342.5	251.1	122.6	25.9	15.1	37.7	54.2	59.8	54.2	37.7
95°	417.9	406.6	310.1	165.0	63.3	9.2	29.7	45.1	48.7	45.1	29.7
97.5°	478.5	467.7	368.7	219.1	111.6	19.7	24.3	39.2	42.2	39.2	24.3
100°	530.2	524.7	430.8	286.1	170.8	52.4	17.9	35.5	39.5	35.5	17.9
102.5°	610.1	587.4	489.7	350.0	234.7	97.6	25.4	26.5	30.5	26.5	25.4
105°	675.8	649.0	566.0	417.0	307.9	158.4	62.8	22.7	19.9	22.7	62.8
107.5°	736.8	720.3	634.6	485.6	385.8	228.5	115.7	59.6	38.8	59.6	115.7
110°	814.7	795.0	701.6	554.1	466.9	303.3	176.5	109.5	85.6	109.5	176.5



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	889.5	874.5	763.9	625.8	551.0	384.3	251.3	171.8	149.5	171.8	251.3
115°	947.2	938.4	835.6	692.8	628.9	476.2	333.9	245.1	218.0	245.1	333.9
117.5°	1006.9	1005.4	888.5	761.3	722.4	558.8	410.2	318.3	288.7	318.3	410.2
120°	1083.3	1070.8	961.8	829.9	811.2	646.0	494.3	402.4	372.8	402.4	494.3
122.5°	1136.3	1128.5	1024.1	896.3	896.3	735.8	575.4	483.4	452.3	483.4	575.4
125°	1184.6	1181.4	1070.8	961.8	986.7	818.4	665.7	572.2	538.0	572.2	665.7
127.5°	1228.2	1232.9	1131.6	1033.4	1078.6	902.6	754.5	651.7	615.9	651.7	754.5
130°	1265.6	1281.2	1189.2	1098.9	1165.9	994.5	834.0	731.2	707.8	731.2	834.0
132.5°	1338.8	1329.5	1248.4	1165.9	1259.3	1078.6	918.1	810.6	784.1	810.6	918.1
135°	1376.2	1379.3	1299.9	1223.5	1346.6	1162.7	997.6	891.6	865.2	891.6	997.6
137.5°	1421.4	1412.0	1340.4	1293.6	1427.6	1243.8	1075.5	977.3	935.3	977.3	1075.5
140°	1454.1	1452.5	1393.3	1355.9	1514.9	1323.2	1155.0	1055.2	1016.3	1055.2	1155.0
142.5°	1488.4	1497.7	1446.3	1424.5	1602.1	1407.4	1240.6	1131.6	1094.2	1131.6	1240.6
145°	1511.7	1532.0	1499.3	1510.2	1684.7	1500.8	1315.4	1204.8	1164.3	1204.8	1315.4
147.5°	1550.7	1577.2	1538.2	1571.0	1756.4	1583.4	1390.2	1281.2	1245.3	1281.2	1390.2
150°	1603.7	1616.1	1592.8	1655.1	1829.6	1675.3	1466.6	1354.4	1318.6	1354.4	1466.6
152.5°	1645.7	1661.3	1634.8	1747.0	1887.2	1759.5	1550.7	1426.1	1384.0	1426.1	1550.7
155°	1689.4	1695.6	1676.9	1835.8	1948.0	1842.1	1617.7	1505.5	1465.0	1505.5	1617.7
157.5°	1729.9	1742.3	1720.5	1902.8	2001.0	1913.7	1694.0	1585.0	1549.1	1585.0	1694.0
160°	1773.5	1773.5	1786.0	1980.7	2044.6	1976.0	1775.1	1672.2	1622.4	1672.2	1775.1
162.5°	1778.2	1807.8	1874.8	2035.3	2086.7	2030.6	1862.3	1734.6	1690.9	1734.6	1862.3
165°	1846.7	1873.2	1974.5	2083.6	2119.4	2078.9	1969.8	1837.4	1786.0	1837.4	1969.8
167.5°	1918.4	1974.5	2055.5	2138.1	2150.5	2124.1	2052.4	1960.5	1913.7	1960.5	2052.4
170°	2035.3	2083.6	2124.1	2158.3	2175.5	2159.9	2103.8	2058.6	2029.0	2058.6	2103.8
172.5°	2126.2	2158.3	2173.9	2195.7	2184.8	2178.6	2150.5	2128.7	2112.2	2128.7	2150.5
175°	2183.8	2191.1	2205.1	2197.3	2206.6	2189.5	2191.1	2202.0	2137.1	2202.0	2191.1
177.5°	2204.1	2216.0	2208.2	2194.2	2195.7	2192.6	2198.8	2205.1	2194.7	2205.1	2198.8
180°	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1487.9	1487.9	1487.9	1487.9	1487.9	1487.9
2.5°	1484.5	1488.0	1486.0	1484.5	1485.3	1481.2
5°	1477.5	1478.5	1477.5	1477.5	1477.3	1474.2
7.5°	1462.9	1464.5	1464.5	1461.9	1464.9	1460.8
10°	1443.3	1446.9	1444.9	1444.9	1446.9	1443.3
12.5°	1422.3	1420.8	1422.3	1420.3	1423.9	1424.5
15°	1393.8	1394.8	1395.3	1394.3	1395.9	1399.0
17.5°	1363.8	1363.8	1363.8	1361.3	1365.9	1366.0
20°	1327.2	1328.2	1328.8	1327.3	1329.5	1331.0
22.5°	1290.2	1290.2	1291.8	1288.3	1288.5	1285.5
25°	1251.2	1251.2	1252.8	1247.9	1245.5	1240.5
27.5°	1209.8	1206.2	1211.3	1202.9	1194.5	1193.5
30°	1160.8	1160.2	1163.9	1154.5	1141.5	1136.5
32.5°	1109.8	1112.8	1112.9	1101.5	1084.5	1082.5
35°	1056.2	1056.2	1060.9	1039.9	1021.9	1016.9
37.5°	1000.2	1003.8	1004.9	978.9	958.9	955.9
40°	937.2	947.8	940.3	911.9	892.9	893.9
42.5°	871.2	886.8	874.3	842.3	829.9	841.9
45°	803.2	820.8	806.3	776.3	769.3	781.3
47.5°	731.2	753.8	732.8	711.3	712.3	727.3
50°	659.7	673.2	662.8	648.3	658.3	672.3
52.5°	589.7	584.2	592.8	588.8	606.3	625.3
55°	517.1	497.7	520.2	533.8	557.8	569.8
57.5°	446.1	417.7	449.2	480.8	509.8	520.8
60°	377.1	354.7	378.7	424.2	459.2	470.2
62.5°	318.1	305.1	319.7	371.2	411.2	418.2
65°	267.1	259.1	268.7	317.7	358.7	370.7
67.5°	223.1	222.1	223.1	268.7	307.7	322.7
70°	185.1	189.1	185.1	222.1	258.1	275.1
72.5°	150.6	155.6	152.1	182.1	211.1	234.1
75°	121.6	130.6	121.6	144.6	170.1	196.1
77.5°	95.6	104.6	95.6	111.6	145.3	180.6
80°	73.6	79.6	73.6	92.2	143.2	181.1
82.5°	52.6	56.6	52.6	94.9	158.4	196.5
85°	41.1	32.6	44.2	117.2	191.2	225.8
87.5°	36.8	9.0	58.6	153.4	236.8	263.8
90°	24.1	2.6	83.3	200.5	286.0	309.6
92.5°	15.1	25.9	122.6	251.1	342.5	365.2
95°	9.2	63.3	165.0	310.1	406.6	417.9
97.5°	19.7	111.6	219.1	368.7	467.7	478.5
100°	52.4	170.8	286.1	430.8	524.7	530.2
102.5°	97.6	234.7	350.0	489.7	587.4	610.1
105°	158.4	307.9	417.0	566.0	649.0	675.8
107.5°	228.5	385.8	485.6	634.6	720.3	736.8
110°	303.3	466.9	554.1	701.6	795.0	814.7



TEST NUMBER: P392624

CATALOG NUMBER: MWL-3-53-33-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	384.3	551.0	625.8	763.9	874.5	889.5
115°	476.2	628.9	692.8	835.6	938.4	947.2
117.5°	558.8	722.4	761.3	888.5	1005.4	1006.9
120°	646.0	811.2	829.9	961.8	1070.8	1083.3
122.5°	735.8	896.3	896.3	1024.1	1128.5	1136.3
125°	818.4	986.7	961.8	1070.8	1181.4	1184.6
127.5°	902.6	1078.6	1033.4	1131.6	1232.9	1228.2
130°	994.5	1165.9	1098.9	1189.2	1281.2	1265.6
132.5°	1078.6	1259.3	1165.9	1248.4	1329.5	1338.8
135°	1162.7	1346.6	1223.5	1299.9	1379.3	1376.2
137.5°	1243.8	1427.6	1293.6	1340.4	1412.0	1421.4
140°	1323.2	1514.9	1355.9	1393.3	1452.5	1454.1
142.5°	1407.4	1602.1	1424.5	1446.3	1497.7	1488.4
145°	1500.8	1684.7	1510.2	1499.3	1532.0	1511.7
147.5°	1583.4	1756.4	1571.0	1538.2	1577.2	1550.7
150°	1675.3	1829.6	1655.1	1592.8	1616.1	1603.7
152.5°	1759.5	1887.2	1747.0	1634.8	1661.3	1645.7
155°	1842.1	1948.0	1835.8	1676.9	1695.6	1689.4
157.5°	1913.7	2001.0	1902.8	1720.5	1742.3	1729.9
160°	1976.0	2044.6	1980.7	1786.0	1773.5	1773.5
162.5°	2030.6	2086.7	2035.3	1874.8	1807.8	1778.2
165°	2078.9	2119.4	2083.6	1974.5	1873.2	1846.7
167.5°	2124.1	2150.5	2138.1	2055.5	1974.5	1918.4
170°	2159.9	2175.5	2158.3	2124.1	2083.6	2035.3
172.5°	2178.6	2184.8	2195.7	2173.9	2158.3	2126.2
175°	2189.5	2206.6	2197.3	2205.1	2191.1	2183.8
177.5°	2192.6	2195.7	2194.2	2208.2	2216.0	2204.1
180°	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1

(END OF REPORT)