

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: P392691

Luminaire Tested: **MWL-4-55-45-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392691
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-L930-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

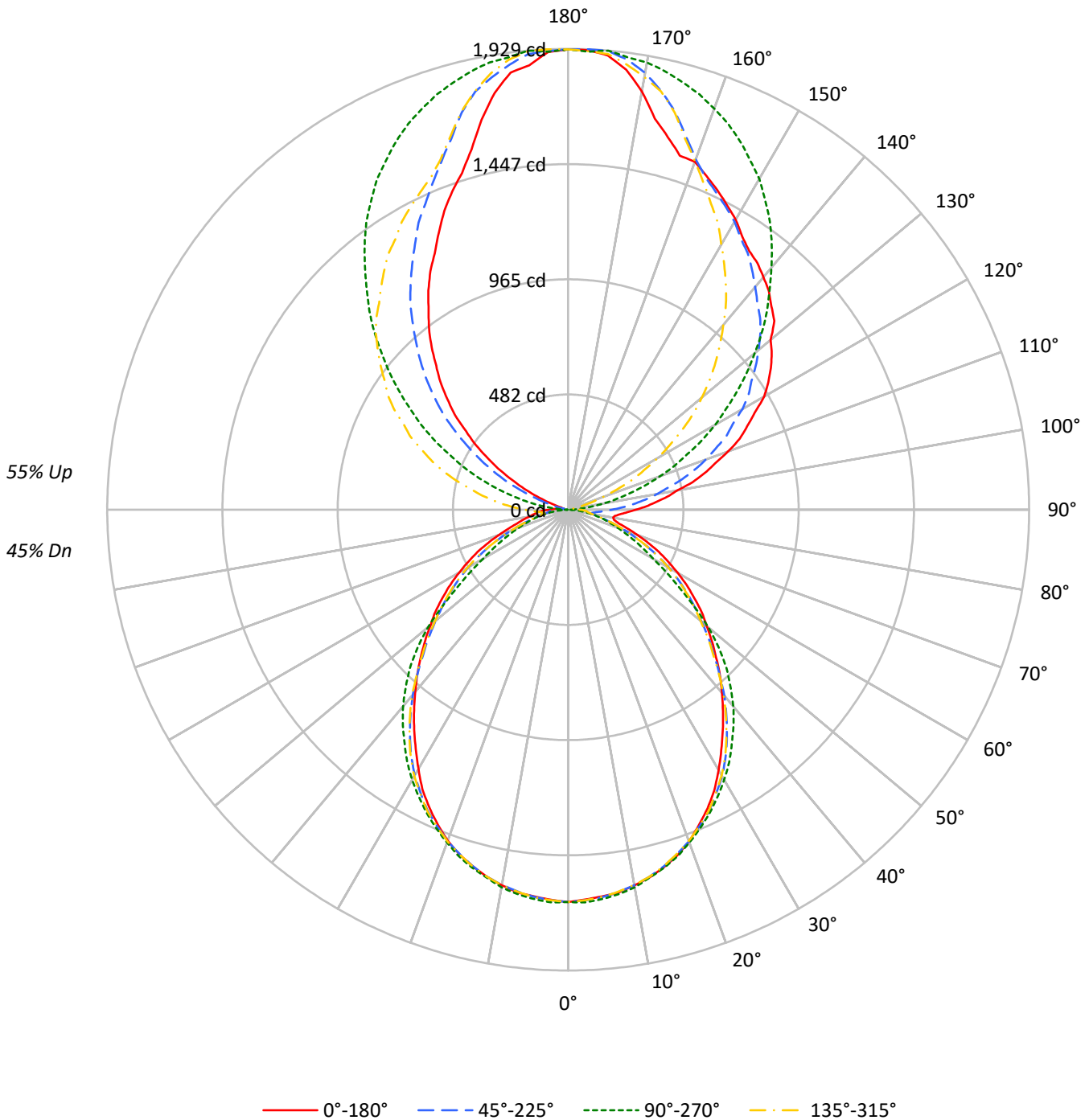
Lumens per Lamp: N/A
Luminaire Lumens: 8442.2 lumens
Efficiency: N/A
Efficacy: 75.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

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



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Luminous Intensity Polar Plot





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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°	10607	10607	10607	10607
5°	10438	9754	10438	9754
10°	10280	8949	10280	8949
15°	10074	8183	10048	8183
20°	9785	7472	9759	7472
25°	9373	6808	9346	6808
30°	8851	6171	8813	6171
35°	8287	5535	8256	5535
40°	7761	4928	7717	4928
45°	7240	4273	7206	4273
50°	6759	3511	6721	3511
55°	6305	2625	6278	2625
60°	5784	1946	5769	1946
65°	5234	1479	5234	1479
70°	4494	1108	4514	1108
75°	3890	800	3966	800
80°	4456	511	3851	511
85°	7347	240	4357	240



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.7	1.8
10°-20°	436.2	5.2
20°-30°	639.6	7.6
30°-40°	724.3	8.6
40°-50°	682.4	8.1
50°-60°	545.2	6.5
60°-70°	358.6	4.2
70°-80°	184.5	2.2
80°-90°	112.4	1.3
90°-100°	158.8	1.9
100°-110°	299.1	3.5
110°-120°	512.0	6.1
120°-130°	695.5	8.2
130°-140°	793.3	9.4
140°-150°	791.3	9.4
150°-160°	689.1	8.2
160°-170°	484.8	5.7
170°-180°	180.6	2.1
0°-30°	1230.5	14.6
0°-40°	1954.8	23.2
0°-60°	3182.4	37.7
0°-90°	3837.8	45.5
90°-120°	969.9	11.5
90°-150°	3250.0	38.5
90°-180°	4604.0	54.5
0°-180°	8442.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1642	1642	1642	1642	1642	
5°	1625	1636	1625	1636	1625	154
15°	1549	1552	1545	1552	1549	436
25°	1379	1401	1375	1401	1379	634
35°	1128	1194	1124	1194	1128	706
45°	875	936	871	936	875	677
55°	643	566	640	566	643	576
65°	419	304	419	304	419	413
75°	216	152	221	152	216	242
85°	217	40	129	40	217	172
90°	283	2	79	2	283	156
95°	369	55	46	55	369	322
105°	591	269	18	269	591	622
115°	827	550	190	550	827	821
125°	1035	862	471	862	1035	925
135°	1203	1176	756	1176	1203	928
145°	1321	1472	1018	1472	1321	833
155°	1476	1702	1280	1702	1476	681
165°	1614	1852	1561	1852	1614	458
175°	1908	1929	1867	1929	1908	178
180°	1927	1927	1927	1927	1927	



TEST NUMBER: P392691

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4
2.5°	1633.2	1639.4	1636.1	1645.9	1645.1	1644.6	1636.1	1639.4	1634.6	1639.4	1636.1
5°	1624.8	1631.0	1628.6	1635.4	1636.1	1635.4	1627.2	1631.0	1624.8	1631.0	1627.2
7.5°	1616.1	1617.9	1613.7	1623.5	1623.5	1622.1	1612.3	1616.5	1616.1	1616.5	1612.3
10°	1596.3	1600.1	1595.9	1605.2	1605.2	1603.8	1594.6	1597.4	1596.3	1597.4	1594.6
12.5°	1576.2	1576.4	1573.5	1581.0	1577.2	1581.0	1573.5	1573.8	1573.5	1573.8	1573.5
15°	1548.8	1546.9	1545.5	1554.0	1551.8	1552.7	1544.2	1544.2	1544.7	1544.2	1544.2
17.5°	1517.5	1515.6	1512.6	1520.5	1521.4	1520.5	1511.2	1514.3	1513.4	1514.3	1511.2
20°	1477.7	1476.4	1477.1	1483.4	1482.8	1481.9	1475.7	1473.7	1473.7	1473.7	1475.7
22.5°	1429.1	1434.2	1434.9	1444.5	1443.1	1443.1	1433.5	1431.4	1426.4	1431.4	1433.5
25°	1379.2	1385.1	1393.9	1401.4	1400.8	1399.9	1391.2	1381.1	1375.2	1381.1	1391.2
27.5°	1324.3	1331.1	1339.9	1357.1	1354.3	1355.7	1337.1	1327.0	1320.2	1327.0	1337.1
30°	1258.3	1268.5	1287.9	1306.0	1305.3	1303.3	1283.9	1264.5	1252.9	1264.5	1283.9
32.5°	1192.5	1202.6	1226.3	1250.2	1253.5	1247.6	1222.2	1197.1	1186.9	1197.1	1222.2
35°	1127.7	1134.4	1158.1	1192.8	1193.7	1188.7	1154.0	1130.3	1123.6	1130.3	1154.0
37.5°	1063.5	1065.1	1087.9	1129.4	1136.0	1125.3	1083.8	1061.0	1059.3	1061.0	1083.8
40°	1001.0	996.7	1016.2	1057.9	1075.1	1055.1	1010.6	991.2	995.4	991.2	1010.6
42.5°	940.1	930.8	937.0	987.7	1005.8	984.9	932.9	925.3	934.6	925.3	932.9
45°	875.3	864.4	864.4	910.0	935.7	907.2	858.8	860.2	871.2	860.2	858.8
47.5°	816.1	802.7	796.8	834.3	855.4	832.9	791.2	798.5	812.0	798.5	791.2
50°	756.2	745.2	728.3	750.6	766.0	747.8	722.8	739.7	752.0	739.7	722.8
52.5°	704.6	689.4	666.1	673.7	662.9	670.9	662.0	683.9	700.4	683.9	662.0
55°	643.3	634.8	606.0	597.1	566.1	594.3	601.9	630.7	640.5	630.7	601.9
57.5°	587.5	582.4	546.1	514.2	485.0	511.5	541.9	578.2	584.7	578.2	541.9
60°	528.6	526.0	487.2	439.3	411.5	438.0	484.5	523.4	527.2	523.4	484.5
62.5°	471.9	468.6	425.5	368.3	356.0	367.0	422.7	465.9	470.6	465.9	422.7
65°	419.0	409.7	365.0	307.5	304.4	306.1	363.6	408.4	419.0	408.4	363.6
67.5°	362.4	348.1	305.8	256.2	260.5	256.2	304.4	346.7	362.4	346.7	304.4
70°	306.1	287.5	253.8	213.2	219.9	213.2	253.8	288.9	307.5	288.9	253.8
72.5°	256.2	235.1	204.7	174.3	183.9	172.9	204.7	236.5	259.0	236.5	204.7
75°	216.5	192.0	160.3	138.2	151.8	138.2	161.6	193.4	220.7	193.4	161.6
77.5°	197.0	161.1	123.1	107.0	122.2	107.0	124.4	157.0	191.6	157.0	124.4
80°	190.6	154.0	101.8	79.9	91.7	79.9	99.1	132.2	164.7	132.2	99.1
82.5°	197.0	160.3	100.4	57.1	64.7	57.1	84.0	111.3	145.3	111.3	84.0
85°	217.2	185.9	117.6	48.5	40.2	45.8	78.2	102.8	128.8	102.8	78.2
87.5°	246.8	221.0	144.4	59.7	13.6	40.7	66.8	90.3	106.6	90.3	66.8
90°	283.0	261.8	184.1	78.1	2.2	26.3	49.4	69.9	78.9	69.9	49.4
92.5°	327.5	308.7	226.0	110.9	22.6	17.1	39.5	57.0	60.9	57.0	39.5
95°	368.8	361.5	275.2	146.5	55.3	10.5	30.3	45.8	46.3	45.8	30.3
97.5°	418.6	412.6	325.0	191.3	97.5	17.2	24.2	38.4	37.5	38.4	24.2
100°	463.2	460.9	377.7	249.8	149.2	45.7	17.2	33.7	34.6	33.7	17.2
102.5°	533.1	514.3	428.5	305.7	205.0	85.2	23.0	24.4	26.9	24.4	23.0
105°	590.8	569.3	494.3	364.2	268.9	138.2	54.8	22.2	18.0	22.2	54.8
107.5°	644.3	629.9	554.2	424.8	337.0	200.4	101.0	52.9	34.7	52.9	101.0
110°	711.5	695.2	612.7	484.8	408.6	265.7	154.1	96.4	74.7	96.4	154.1



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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°	776.8	764.6	667.1	547.3	482.1	336.4	219.4	150.8	130.4	150.8	219.4
115°	827.1	820.4	729.8	605.9	550.1	416.7	291.5	214.8	190.4	214.8	291.5
117.5°	880.2	878.9	776.0	665.7	631.8	488.9	358.2	278.8	253.0	278.8	358.2
120°	946.9	936.1	840.8	725.6	709.2	565.1	432.6	352.3	326.4	352.3	432.6
122.5°	993.1	986.4	895.2	782.8	782.8	642.7	503.3	423.0	395.8	423.0	503.3
125°	1035.4	1032.7	936.1	839.9	861.7	714.8	582.3	500.6	470.7	500.6	582.3
127.5°	1073.4	1077.6	989.1	903.4	942.0	789.0	659.8	569.9	538.7	569.9	659.8
130°	1106.2	1119.7	1039.4	960.5	1018.2	869.3	729.2	639.3	619.0	639.3	729.2
132.5°	1170.1	1161.9	1091.2	1019.0	1099.8	942.8	802.7	708.7	685.6	708.7	802.7
135°	1202.8	1205.5	1136.1	1069.4	1176.1	1016.3	872.0	779.6	756.4	779.6	872.0
137.5°	1242.2	1234.0	1171.5	1130.7	1246.8	1087.1	940.2	854.3	817.6	854.3	940.2
140°	1270.8	1269.4	1217.7	1185.1	1323.0	1156.5	1009.6	922.4	888.4	922.4	1009.6
142.5°	1300.7	1308.9	1264.0	1244.9	1399.3	1230.0	1084.3	989.1	956.5	989.1	1084.3
145°	1321.2	1338.8	1310.3	1319.8	1472.2	1311.6	1149.7	1053.1	1017.7	1053.1	1149.7
147.5°	1355.2	1378.3	1344.3	1372.9	1534.0	1383.7	1215.0	1119.7	1088.5	1119.7	1215.0
150°	1401.5	1412.3	1391.9	1446.3	1598.7	1464.0	1281.7	1183.7	1152.4	1183.7	1281.7
152.5°	1438.1	1451.8	1428.7	1526.6	1649.1	1537.5	1355.2	1246.3	1209.6	1246.3	1355.2
155°	1476.2	1481.7	1465.3	1604.2	1702.2	1609.6	1413.7	1315.6	1280.3	1315.6	1413.7
157.5°	1511.6	1522.6	1503.5	1662.7	1748.4	1672.2	1480.4	1385.1	1353.8	1385.1	1480.4
160°	1549.8	1549.8	1560.7	1730.7	1786.5	1726.7	1551.1	1461.3	1417.8	1461.3	1551.1
162.5°	1553.8	1579.7	1638.2	1778.4	1823.3	1774.3	1627.3	1515.7	1477.6	1515.7	1627.3
165°	1613.7	1636.8	1725.3	1820.6	1851.9	1816.5	1721.2	1605.6	1560.7	1605.6	1721.2
167.5°	1676.3	1725.3	1796.0	1868.2	1879.1	1855.9	1793.3	1713.1	1672.2	1713.1	1793.3
170°	1777.6	1820.6	1855.9	1885.9	1900.8	1887.3	1838.2	1798.8	1772.1	1798.8	1838.2
172.5°	1857.9	1885.9	1899.5	1918.5	1909.8	1903.6	1879.1	1860.1	1845.6	1860.1	1879.1
175°	1908.1	1914.5	1926.7	1919.8	1928.9	1913.2	1914.5	1923.9	1867.3	1923.9	1914.5
177.5°	1925.9	1936.2	1929.4	1917.2	1918.5	1915.8	1921.3	1926.7	1917.6	1926.7	1921.3
180°	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1642.4	1642.4	1642.4	1642.4	1642.4	1642.4
2.5°	1644.6	1645.1	1645.9	1636.1	1639.4	1633.2
5°	1635.4	1636.1	1635.4	1628.6	1631.0	1624.8
7.5°	1622.1	1623.5	1623.5	1613.7	1617.9	1616.1
10°	1603.8	1605.2	1605.2	1595.9	1600.1	1596.3
12.5°	1581.0	1577.2	1581.0	1573.5	1576.4	1576.2
15°	1552.7	1551.8	1554.0	1545.5	1546.9	1548.8
17.5°	1520.5	1521.4	1520.5	1512.6	1515.6	1517.5
20°	1481.9	1482.8	1483.4	1477.1	1476.4	1477.7
22.5°	1443.1	1443.1	1444.5	1434.9	1434.2	1429.1
25°	1399.9	1400.8	1401.4	1393.9	1385.1	1379.2
27.5°	1355.7	1354.3	1357.1	1339.9	1331.1	1324.3
30°	1303.3	1305.3	1306.0	1287.9	1268.5	1258.3
32.5°	1247.6	1253.5	1250.2	1226.3	1202.6	1192.5
35°	1188.7	1193.7	1192.8	1158.1	1134.4	1127.7
37.5°	1125.3	1136.0	1129.4	1087.9	1065.1	1063.5
40°	1055.1	1075.1	1057.9	1016.2	996.7	1001.0
42.5°	984.9	1005.8	987.7	937.0	930.8	940.1
45°	907.2	935.7	910.0	864.4	864.4	875.3
47.5°	832.9	855.4	834.3	796.8	802.7	816.1
50°	747.8	766.0	750.6	728.3	745.2	756.2
52.5°	670.9	662.9	673.7	666.1	689.4	704.6
55°	594.3	566.1	597.1	606.0	634.8	643.3
57.5°	511.5	485.0	514.2	546.1	582.4	587.5
60°	438.0	411.5	439.3	487.2	526.0	528.6
62.5°	367.0	356.0	368.3	425.5	468.6	471.9
65°	306.1	304.4	307.5	365.0	409.7	419.0
67.5°	256.2	260.5	256.2	305.8	348.1	362.4
70°	213.2	219.9	213.2	253.8	287.5	306.1
72.5°	172.9	183.9	174.3	204.7	235.1	256.2
75°	138.2	151.8	138.2	160.3	192.0	216.5
77.5°	107.0	122.2	107.0	123.1	161.1	197.0
80°	79.9	91.7	79.9	101.8	154.0	190.6
82.5°	57.1	64.7	57.1	100.4	160.3	197.0
85°	45.8	40.2	48.5	117.6	185.9	217.2
87.5°	40.7	13.6	59.7	144.4	221.0	246.8
90°	26.3	2.2	78.1	184.1	261.8	283.0
92.5°	17.1	22.6	110.9	226.0	308.7	327.5
95°	10.5	55.3	146.5	275.2	361.5	368.8
97.5°	17.2	97.5	191.3	325.0	412.6	418.6
100°	45.7	149.2	249.8	377.7	460.9	463.2
102.5°	85.2	205.0	305.7	428.5	514.3	533.1
105°	138.2	268.9	364.2	494.3	569.3	590.8
107.5°	200.4	337.0	424.8	554.2	629.9	644.3
110°	265.7	408.6	484.8	612.7	695.2	711.5



TEST NUMBER: P392691

CATALOG NUMBER: MWL-4-55-45-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	336.4	482.1	547.3	667.1	764.6	776.8
115°	416.7	550.1	605.9	729.8	820.4	827.1
117.5°	488.9	631.8	665.7	776.0	878.9	880.2
120°	565.1	709.2	725.6	840.8	936.1	946.9
122.5°	642.7	782.8	782.8	895.2	986.4	993.1
125°	714.8	861.7	839.9	936.1	1032.7	1035.4
127.5°	789.0	942.0	903.4	989.1	1077.6	1073.4
130°	869.3	1018.2	960.5	1039.4	1119.7	1106.2
132.5°	942.8	1099.8	1019.0	1091.2	1161.9	1170.1
135°	1016.3	1176.1	1069.4	1136.1	1205.5	1202.8
137.5°	1087.1	1246.8	1130.7	1171.5	1234.0	1242.2
140°	1156.5	1323.0	1185.1	1217.7	1269.4	1270.8
142.5°	1230.0	1399.3	1244.9	1264.0	1308.9	1300.7
145°	1311.6	1472.2	1319.8	1310.3	1338.8	1321.2
147.5°	1383.7	1534.0	1372.9	1344.3	1378.3	1355.2
150°	1464.0	1598.7	1446.3	1391.9	1412.3	1401.5
152.5°	1537.5	1649.1	1526.6	1428.7	1451.8	1438.1
155°	1609.6	1702.2	1604.2	1465.3	1481.7	1476.2
157.5°	1672.2	1748.4	1662.7	1503.5	1522.6	1511.6
160°	1726.7	1786.5	1730.7	1560.7	1549.8	1549.8
162.5°	1774.3	1823.3	1778.4	1638.2	1579.7	1553.8
165°	1816.5	1851.9	1820.6	1725.3	1636.8	1613.7
167.5°	1855.9	1879.1	1868.2	1796.0	1725.3	1676.3
170°	1887.3	1900.8	1885.9	1855.9	1820.6	1777.6
172.5°	1903.6	1909.8	1918.5	1899.5	1885.9	1857.9
175°	1913.2	1928.9	1919.8	1926.7	1914.5	1908.1
177.5°	1915.8	1918.5	1917.2	1929.4	1936.2	1925.9
180°	1926.7	1926.7	1926.7	1926.7	1926.7	1926.7

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