

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: P392678

Luminaire Tested: **MWL-4-42-45-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392678
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-4-42-45-UNV-L840-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

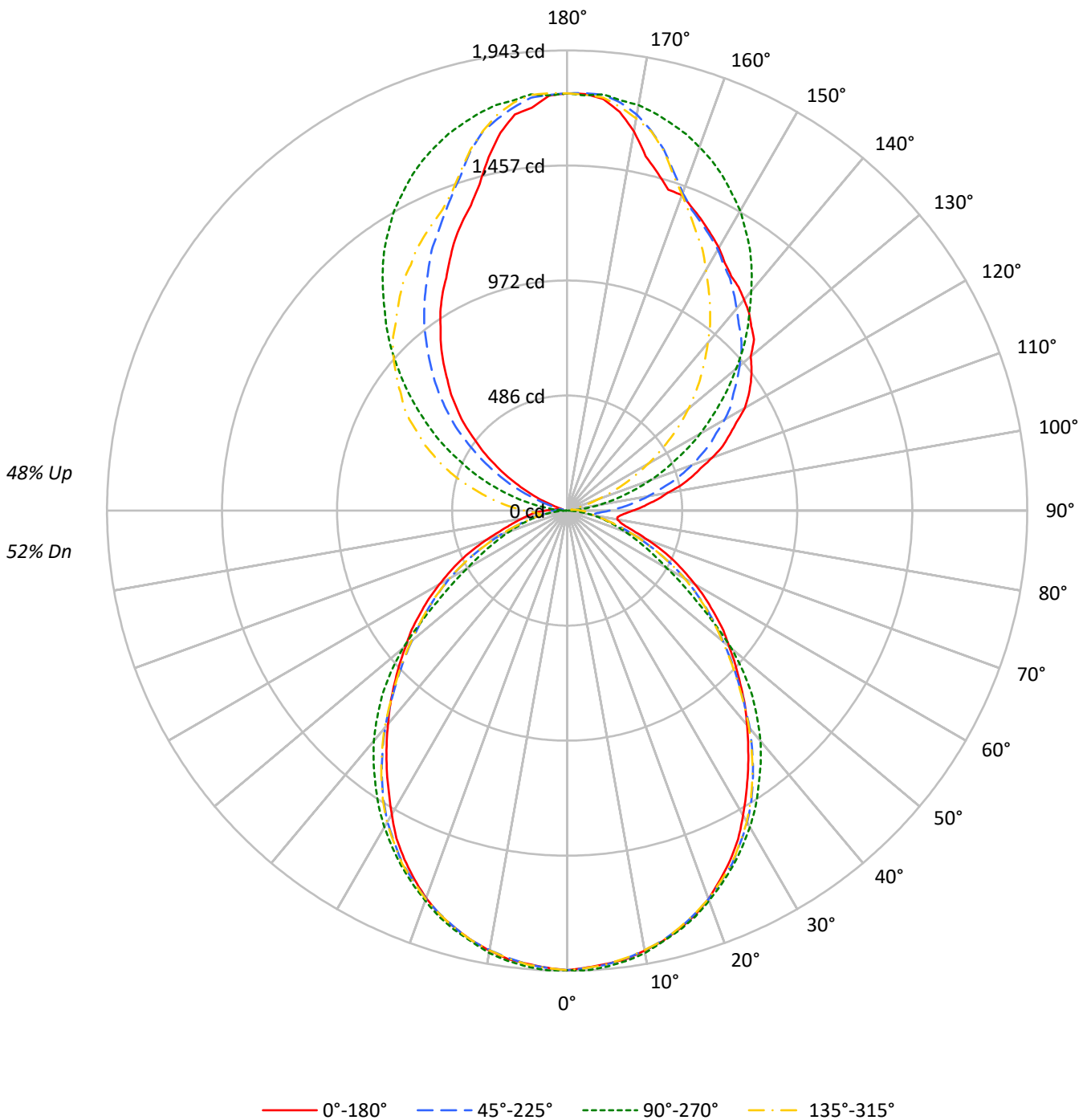
Lumens per Lamp: N/A
Luminaire Lumens: 8742.9 lumens
Efficiency: N/A
Efficacy: 98.3 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 88.9
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	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58	52				
1	98	94	90	87	91	87	84	81	74	72	69	62	60	59	51	50	49	44				
2	90	82	76	71	83	77	71	67	65	61	58	55	52	50	45	44	42	37				
3	82	73	66	60	76	68	61	56	58	53	49	49	45	42	41	38	36	32				
4	75	65	57	51	69	60	53	48	52	46	42	44	40	37	37	34	31	28				
5	69	58	50	44	64	54	47	41	46	41	37	40	35	32	33	30	27	24				
6	64	52	44	38	59	48	41	36	42	36	32	36	31	28	30	27	24	21				
7	59	47	39	34	55	44	37	32	38	33	28	33	28	25	28	24	22	19				
8	55	43	35	30	51	40	33	28	35	29	25	30	26	22	25	22	20	17				
9	51	39	32	27	47	37	30	25	32	27	23	28	23	20	23	20	18	16				
10	48	36	29	24	44	34	27	23	30	24	21	26	21	18	22	19	16	14				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12534	12534	12534	12534
5°	12341	11523	12341	11523
10°	12148	10574	12148	10574
15°	11898	9672	11874	9672
20°	11556	8833	11532	8833
25°	11070	8048	11045	8048
30°	10452	7295	10418	7295
35°	9786	6543	9758	6543
40°	9162	5823	9123	5823
45°	8549	5047	8518	5047
50°	7977	4149	7943	4149
55°	7441	3101	7417	3101
60°	6828	2296	6814	2296
65°	6179	1747	6179	1747
70°	5307	1308	5325	1308
75°	4591	945	4657	945
80°	5041	603	4487	603
85°	7679	281	4942	281



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.8	2.1
10°-20°	515.5	5.9
20°-30°	755.8	8.6
30°-40°	855.7	9.8
40°-50°	806.1	9.2
50°-60°	643.9	7.4
60°-70°	423.4	4.8
70°-80°	217.2	2.5
80°-90°	123.0	1.4
90°-100°	152.4	1.7
100°-110°	274.6	3.1
110°-120°	468.5	5.4
120°-130°	636.3	7.3
130°-140°	725.6	8.3
140°-150°	723.6	8.3
150°-160°	630.1	7.2
160°-170°	443.3	5.1
170°-180°	165.1	1.9
0°-30°	1454.1	16.6
0°-40°	2309.8	26.4
0°-60°	3759.8	43.0
0°-90°	4523.3	51.7
90°-120°	895.5	10.2
90°-150°	2981.0	34.1
90°-180°	4220.0	48.3
0°-180°	8742.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1941	1941	1941	1941	1941	
5°	1921	1933	1921	1933	1921	182
15°	1829	1834	1826	1834	1829	515
25°	1629	1656	1625	1656	1629	748
35°	1332	1411	1328	1411	1332	833
45°	1034	1105	1030	1105	1034	799
55°	759	669	757	669	759	680
65°	495	360	495	360	495	488
75°	256	179	259	179	256	284
85°	227	47	146	47	227	183
90°	277	2	91	2	277	153
95°	348	51	54	51	348	303
105°	542	246	19	246	542	572
115°	757	503	175	503	757	751
125°	947	788	431	788	947	846
135°	1100	1075	692	1075	1100	849
145°	1208	1346	931	1346	1208	762
155°	1350	1556	1171	1556	1350	623
165°	1476	1693	1427	1693	1476	419
175°	1744	1764	1707	1764	1744	163
180°	1762	1762	1762	1762	1762	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7
2.5°	1931.0	1937.5	1932.9	1944.2	1943.2	1942.9	1932.9	1937.5	1932.2	1937.5	1932.9
5°	1921.0	1927.5	1923.9	1931.9	1932.9	1931.9	1922.7	1927.5	1921.0	1927.5	1922.7
7.5°	1910.2	1911.7	1906.7	1917.9	1917.9	1916.7	1905.5	1910.5	1910.2	1910.5	1905.5
10°	1886.5	1890.7	1885.7	1896.7	1896.7	1895.5	1884.5	1888.2	1886.5	1888.2	1884.5
12.5°	1861.9	1862.7	1859.5	1868.5	1864.2	1868.5	1859.5	1860.2	1859.5	1860.2	1859.5
15°	1829.2	1827.7	1826.5	1836.5	1834.2	1835.2	1825.2	1825.2	1825.5	1825.2	1825.2
17.5°	1792.2	1790.7	1787.5	1797.2	1798.2	1797.2	1786.2	1789.5	1788.5	1789.5	1786.2
20°	1745.2	1743.9	1745.5	1753.2	1753.0	1752.0	1744.2	1741.5	1741.5	1741.5	1744.2
22.5°	1687.9	1693.9	1695.5	1707.2	1706.0	1706.0	1694.2	1691.5	1685.5	1691.5	1694.2
25°	1628.9	1635.9	1646.7	1656.2	1656.0	1655.0	1644.2	1632.2	1625.2	1632.2	1644.2
27.5°	1563.9	1571.9	1582.7	1603.5	1601.0	1602.2	1580.2	1568.2	1560.2	1568.2	1580.2
30°	1485.9	1497.9	1520.9	1542.7	1543.0	1540.2	1517.2	1494.2	1481.0	1494.2	1517.2
32.5°	1407.9	1419.9	1447.9	1476.7	1481.2	1474.2	1444.2	1415.0	1403.0	1415.0	1444.2
35°	1331.7	1339.7	1367.7	1408.7	1411.0	1405.0	1364.0	1336.0	1328.0	1336.0	1364.0
37.5°	1255.7	1257.7	1284.7	1333.7	1342.2	1330.0	1281.0	1254.0	1252.0	1254.0	1281.0
40°	1181.7	1176.7	1199.7	1249.5	1270.2	1247.0	1194.7	1171.7	1176.7	1171.7	1194.7
42.5°	1109.7	1098.7	1106.5	1166.5	1188.2	1164.0	1102.7	1093.7	1104.7	1093.7	1102.7
45°	1033.5	1020.5	1020.5	1074.5	1105.2	1072.0	1015.5	1016.7	1029.7	1016.7	1015.5
47.5°	963.5	947.5	940.5	985.2	1010.2	984.0	935.5	943.7	959.7	943.7	935.5
50°	892.5	879.5	859.5	886.2	905.0	883.7	854.5	874.5	888.7	874.5	854.5
52.5°	831.5	813.5	786.2	795.2	783.0	792.7	782.5	808.5	827.7	808.5	782.5
55°	759.2	749.2	715.2	705.0	668.7	702.5	711.5	745.5	756.7	745.5	711.5
57.5°	693.2	687.2	644.2	607.0	572.7	604.5	640.5	683.5	690.7	683.5	640.5
60°	624.0	621.0	575.0	518.7	485.7	517.5	572.5	618.5	622.7	618.5	572.5
62.5°	557.0	553.0	502.0	434.7	420.5	433.5	499.5	550.5	555.7	550.5	499.5
65°	494.7	483.7	430.7	362.7	359.5	361.5	429.5	482.5	494.7	482.5	429.5
67.5°	427.7	410.7	360.7	302.5	307.5	302.5	359.5	409.5	427.7	409.5	359.5
70°	361.5	339.5	299.5	251.5	259.5	251.5	299.5	340.7	362.7	340.7	299.5
72.5°	302.5	277.5	241.5	205.5	217.2	204.2	241.5	278.7	305.0	278.7	241.5
75°	255.5	226.5	189.2	163.2	179.2	163.2	190.5	227.7	259.2	227.7	190.5
77.5°	229.4	188.5	145.2	126.2	144.2	126.2	146.5	184.7	224.5	184.7	146.5
80°	215.6	174.9	119.0	94.2	108.2	94.2	116.5	155.0	191.9	155.0	116.5
82.5°	214.4	174.2	112.9	67.2	76.2	67.2	98.0	129.5	167.2	129.5	98.0
85°	227.0	193.5	125.3	56.0	47.2	53.5	89.2	117.7	146.1	117.7	89.2
87.5°	248.8	221.6	146.3	63.6	16.0	46.2	75.4	102.2	120.7	102.2	75.4
90°	277.3	255.8	180.1	77.7	2.2	30.5	57.0	80.5	90.7	80.5	57.0
92.5°	314.0	296.1	216.1	105.3	20.9	19.5	45.7	66.0	70.2	66.0	45.7
95°	348.5	342.0	258.6	135.3	50.7	11.0	34.7	53.5	53.7	53.5	34.7
97.5°	391.2	386.0	301.3	175.1	89.3	15.9	26.5	44.0	43.0	44.0	26.5
100°	429.7	427.5	347.3	228.6	136.6	42.0	17.7	36.9	37.9	36.9	17.7
102.5°	491.6	473.7	392.3	279.6	187.6	78.1	21.7	25.9	28.9	25.9	21.7
105°	542.3	521.9	452.2	333.1	246.0	126.6	50.5	21.9	18.7	21.9	50.5
107.5°	589.8	576.4	507.0	388.8	308.2	183.6	92.8	49.0	32.6	49.0	92.8
110°	651.0	636.1	560.4	443.5	373.9	243.3	141.3	88.8	68.9	88.8	141.3



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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°	710.7	699.5	610.2	500.7	441.0	308.0	201.0	138.6	119.9	138.6	201.0
115°	756.7	750.5	667.4	554.2	503.2	381.3	266.9	197.0	174.6	197.0	266.9
117.5°	805.2	804.0	709.7	608.9	577.8	447.3	327.9	255.5	231.8	255.5	327.9
120°	866.2	856.2	769.1	663.7	648.7	516.9	396.0	322.6	299.0	322.6	396.0
122.5°	908.4	902.2	818.9	715.9	715.9	587.8	460.7	387.3	362.4	387.3	460.7
125°	947.0	944.5	856.2	768.1	788.0	653.7	532.8	458.2	430.8	458.2	532.8
127.5°	981.8	985.5	904.7	826.4	861.4	721.9	603.7	521.6	493.0	521.6	603.7
130°	1011.7	1024.1	950.7	878.6	931.1	795.3	667.2	585.1	566.4	585.1	667.2
132.5°	1070.1	1062.7	998.0	932.1	1005.7	862.4	734.3	648.5	627.4	648.5	734.3
135°	1100.0	1102.5	1039.0	978.1	1075.3	929.6	797.7	713.2	692.0	713.2	797.7
137.5°	1136.0	1128.6	1071.4	1034.1	1140.0	994.3	859.9	781.6	748.0	781.6	859.9
140°	1162.2	1160.9	1113.7	1083.8	1209.7	1057.7	923.4	843.8	812.7	843.8	923.4
142.5°	1189.5	1197.0	1155.9	1138.5	1279.3	1124.8	991.8	904.7	874.9	904.7	991.8
145°	1208.2	1224.3	1198.2	1206.9	1346.2	1199.5	1051.5	963.2	930.8	963.2	1051.5
147.5°	1239.3	1260.4	1229.3	1255.4	1402.4	1265.4	1111.2	1024.1	995.5	1024.1	1111.2
150°	1281.6	1291.5	1272.9	1322.6	1461.9	1338.8	1172.1	1082.6	1054.0	1082.6	1172.1
152.5°	1315.1	1327.6	1306.4	1396.0	1507.9	1405.9	1239.3	1139.8	1106.2	1139.8	1239.3
155°	1350.0	1354.9	1340.0	1466.9	1556.4	1471.8	1292.8	1203.2	1170.9	1203.2	1292.8
157.5°	1382.3	1392.3	1374.8	1520.4	1598.7	1529.1	1353.7	1266.6	1238.0	1266.6	1353.7
160°	1417.1	1417.1	1427.1	1582.5	1633.5	1578.8	1418.4	1336.3	1296.5	1336.3	1418.4
162.5°	1420.9	1444.5	1498.0	1626.1	1667.1	1622.3	1488.0	1386.0	1351.2	1386.0	1488.0
165°	1475.6	1496.7	1577.6	1664.6	1693.2	1660.9	1573.8	1468.1	1427.1	1468.1	1573.8
167.5°	1532.8	1577.6	1642.2	1708.2	1718.1	1697.0	1639.8	1566.4	1529.1	1566.4	1639.8
170°	1625.1	1664.6	1697.0	1724.3	1738.0	1725.6	1680.8	1644.7	1620.1	1644.7	1680.8
172.5°	1698.5	1724.3	1736.8	1754.2	1746.5	1740.5	1718.1	1700.7	1687.3	1700.7	1718.1
175°	1744.5	1750.4	1761.6	1755.4	1763.9	1749.2	1750.4	1759.2	1707.2	1759.2	1750.4
177.5°	1760.6	1770.3	1764.1	1752.9	1754.2	1751.7	1756.7	1761.6	1753.2	1761.6	1756.7
180°	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1940.7	1940.7	1940.7	1940.7	1940.7	1940.7
2.5°	1942.9	1943.2	1944.2	1932.9	1937.5	1931.0
5°	1931.9	1932.9	1931.9	1923.9	1927.5	1921.0
7.5°	1916.7	1917.9	1917.9	1906.7	1911.7	1910.2
10°	1895.5	1896.7	1896.7	1885.7	1890.7	1886.5
12.5°	1868.5	1864.2	1868.5	1859.5	1862.7	1861.9
15°	1835.2	1834.2	1836.5	1826.5	1827.7	1829.2
17.5°	1797.2	1798.2	1797.2	1787.5	1790.7	1792.2
20°	1752.0	1753.0	1753.2	1745.5	1743.9	1745.2
22.5°	1706.0	1706.0	1707.2	1695.5	1693.9	1687.9
25°	1655.0	1656.0	1656.2	1646.7	1635.9	1628.9
27.5°	1602.2	1601.0	1603.5	1582.7	1571.9	1563.9
30°	1540.2	1543.0	1542.7	1520.9	1497.9	1485.9
32.5°	1474.2	1481.2	1476.7	1447.9	1419.9	1407.9
35°	1405.0	1411.0	1408.7	1367.7	1339.7	1331.7
37.5°	1330.0	1342.2	1333.7	1284.7	1257.7	1255.7
40°	1247.0	1270.2	1249.5	1199.7	1176.7	1181.7
42.5°	1164.0	1188.2	1166.5	1106.5	1098.7	1109.7
45°	1072.0	1105.2	1074.5	1020.5	1020.5	1033.5
47.5°	984.0	1010.2	985.2	940.5	947.5	963.5
50°	883.7	905.0	886.2	859.5	879.5	892.5
52.5°	792.7	783.0	795.2	786.2	813.5	831.5
55°	702.5	668.7	705.0	715.2	749.2	759.2
57.5°	604.5	572.7	607.0	644.2	687.2	693.2
60°	517.5	485.7	518.7	575.0	621.0	624.0
62.5°	433.5	420.5	434.7	502.0	553.0	557.0
65°	361.5	359.5	362.7	430.7	483.7	494.7
67.5°	302.5	307.5	302.5	360.7	410.7	427.7
70°	251.5	259.5	251.5	299.5	339.5	361.5
72.5°	204.2	217.2	205.5	241.5	277.5	302.5
75°	163.2	179.2	163.2	189.2	226.5	255.5
77.5°	126.2	144.2	126.2	145.2	188.5	229.4
80°	94.2	108.2	94.2	119.0	174.9	215.6
82.5°	67.2	76.2	67.2	112.9	174.2	214.4
85°	53.5	47.2	56.0	125.3	193.5	227.0
87.5°	46.2	16.0	63.6	146.3	221.6	248.8
90°	30.5	2.2	77.7	180.1	255.8	277.3
92.5°	19.5	20.9	105.3	216.1	296.1	314.0
95°	11.0	50.7	135.3	258.6	342.0	348.5
97.5°	15.9	89.3	175.1	301.3	386.0	391.2
100°	42.0	136.6	228.6	347.3	427.5	429.7
102.5°	78.1	187.6	279.6	392.3	473.7	491.6
105°	126.6	246.0	333.1	452.2	521.9	542.3
107.5°	183.6	308.2	388.8	507.0	576.4	589.8
110°	243.3	373.9	443.5	560.4	636.1	651.0



TEST NUMBER: P392678

CATALOG NUMBER: MWL-4-42-45-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	308.0	441.0	500.7	610.2	699.5	710.7
115°	381.3	503.2	554.2	667.4	750.5	756.7
117.5°	447.3	577.8	608.9	709.7	804.0	805.2
120°	516.9	648.7	663.7	769.1	856.2	866.2
122.5°	587.8	715.9	715.9	818.9	902.2	908.4
125°	653.7	788.0	768.1	856.2	944.5	947.0
127.5°	721.9	861.4	826.4	904.7	985.5	981.8
130°	795.3	931.1	878.6	950.7	1024.1	1011.7
132.5°	862.4	1005.7	932.1	998.0	1062.7	1070.1
135°	929.6	1075.3	978.1	1039.0	1102.5	1100.0
137.5°	994.3	1140.0	1034.1	1071.4	1128.6	1136.0
140°	1057.7	1209.7	1083.8	1113.7	1160.9	1162.2
142.5°	1124.8	1279.3	1138.5	1155.9	1197.0	1189.5
145°	1199.5	1346.2	1206.9	1198.2	1224.3	1208.2
147.5°	1265.4	1402.4	1255.4	1229.3	1260.4	1239.3
150°	1338.8	1461.9	1322.6	1272.9	1291.5	1281.6
152.5°	1405.9	1507.9	1396.0	1306.4	1327.6	1315.1
155°	1471.8	1556.4	1466.9	1340.0	1354.9	1350.0
157.5°	1529.1	1598.7	1520.4	1374.8	1392.3	1382.3
160°	1578.8	1633.5	1582.5	1427.1	1417.1	1417.1
162.5°	1622.3	1667.1	1626.1	1498.0	1444.5	1420.9
165°	1660.9	1693.2	1664.6	1577.6	1496.7	1475.6
167.5°	1697.0	1718.1	1708.2	1642.2	1577.6	1532.8
170°	1725.6	1738.0	1724.3	1697.0	1664.6	1625.1
172.5°	1740.5	1746.5	1754.2	1736.8	1724.3	1698.5
175°	1749.2	1763.9	1755.4	1761.6	1750.4	1744.5
177.5°	1751.7	1754.2	1752.9	1764.1	1770.3	1760.6
180°	1761.6	1761.6	1761.6	1761.6	1761.6	1761.6

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