

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: P392516

Luminaire Tested: **MWL-2-22-38-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392516  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-2-22-38-UNV-L840-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

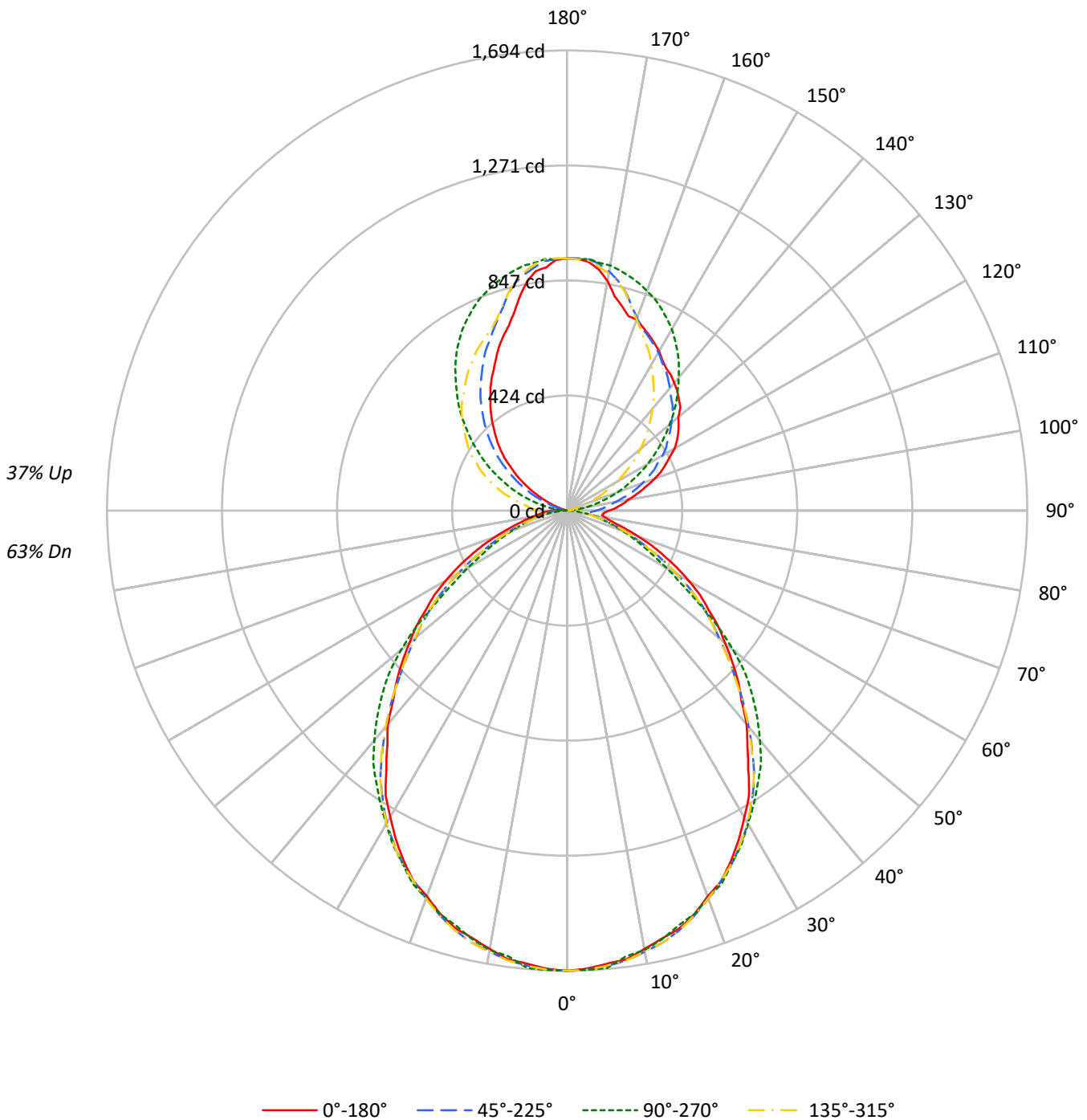
Lumens per Lamp: N/A  
Luminaire Lumens: 6072.1 lumens  
Efficiency: N/A  
Efficacy: 95.0 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: Semi-Direct

Input Watts (W): 63.9  
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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CATALOG NUMBER: MWL-2-22-38-UNV-L840-EDD

### 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	0
RCR																		
0	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	75	70	68	67	61	60	58	54
2	93	85	79	74	87	80	75	70	71	67	63	62	59	57	54	52	50	46
3	85	75	68	62	79	71	65	60	63	58	54	56	52	48	49	46	43	40
4	78	67	59	53	73	63	56	51	56	51	46	50	46	42	44	40	38	34
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	40	36	33	30
6	66	54	46	40	62	51	44	39	46	40	36	41	36	32	36	32	29	27
7	61	49	41	36	58	47	39	34	42	36	32	37	33	29	33	29	26	24
8	57	45	37	32	54	43	35	31	38	32	28	34	29	26	31	27	24	22
9	53	41	34	28	50	39	32	27	35	29	25	32	27	23	28	24	22	19
10	50	38	31	26	47	36	29	25	33	27	23	29	25	21	26	22	20	18

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

	0°	90°	180°	270°
0°	21887	21887	21887	21887
5°	21323	20151	21323	20151
10°	20733	18314	20733	18314
15°	20173	16676	20148	16676
20°	19316	15293	19290	15293
25°	18512	13933	18487	13933
30°	17362	12590	17328	12590
35°	15997	11356	15970	11356
40°	14762	10124	14724	10124
45°	13452	8816	13423	8816
50°	12217	7322	12186	7322
55°	11009	5435	10986	5435
60°	9807	3990	9795	3990
65°	8302	2967	8302	2967
70°	6708	2170	6725	2170
75°	5203	1526	5259	1526
80°	4729	967	4303	967
85°	5812	402	3949	402



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	159.3	2.6
10°-20°	448.2	7.4
20°-30°	657.5	10.8
30°-40°	745.6	12.3
40°-50°	695.9	11.5
50°-60°	546.6	9.0
60°-70°	340.3	5.6
70°-80°	164.6	2.7
80°-90°	83.1	1.4
90°-100°	85.1	1.4
100°-110°	144.0	2.4
110°-120°	247.3	4.1
120°-130°	336.0	5.5
130°-140°	383.3	6.3
140°-150°	382.1	6.3
150°-160°	332.6	5.5
160°-170°	233.7	3.8
170°-180°	87.0	1.4
0°-30°	1265.1	20.8
0°-40°	2010.7	33.1
0°-60°	3253.1	53.6
0°-90°	3841.1	63.3
90°-120°	476.4	7.8
90°-150°	1577.7	26.0
90°-180°	2231.0	36.7
0°-180°	6072.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1694	1694	1694	1694	1694	
5°	1674	1690	1674	1690	1674	159
15°	1593	1581	1591	1581	1593	447
25°	1425	1434	1423	1434	1425	654
35°	1162	1224	1160	1224	1162	729
45°	890	965	888	965	890	686
55°	634	586	633	586	634	571
65°	393	305	393	305	393	391
75°	185	145	187	145	185	206
85°	133	34	90	34	133	110
90°	154	2	56	2	154	85
95°	192	27	37	27	192	165
105°	282	130	7	130	282	299
115°	399	266	93	266	399	396
125°	499	416	228	416	499	446
135°	581	568	366	568	581	448
145°	638	710	492	710	638	402
155°	713	821	619	821	713	329
165°	779	892	754	892	779	221
175°	918	929	898	929	918	86
180°	928	928	928	928	928	



TEST NUMBER: P392516

CATALOG NUMBER: MWL-2-22-38-UNV-L840-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5
2.5°	1687.5	1683.8	1692.1	1686.8	1691.8	1686.1	1692.1	1683.8	1688.2	1683.8	1692.1
5°	1674.5	1678.8	1682.1	1679.1	1690.1	1679.1	1681.5	1678.8	1674.5	1678.8	1681.5
7.5°	1666.2	1669.5	1670.5	1666.1	1655.1	1665.5	1669.8	1668.8	1666.2	1668.8	1669.8
10°	1638.8	1651.5	1648.5	1644.5	1642.5	1643.8	1647.8	1650.2	1638.8	1650.2	1647.8
12.5°	1613.1	1616.5	1628.8	1619.8	1616.2	1619.8	1628.8	1615.2	1611.8	1615.2	1628.8
15°	1592.8	1589.5	1598.8	1588.8	1581.2	1588.2	1598.2	1588.2	1590.8	1588.2	1598.2
17.5°	1557.8	1552.5	1561.8	1561.2	1557.2	1561.2	1561.2	1551.8	1555.8	1551.8	1561.2
20°	1511.8	1521.1	1519.8	1522.2	1517.5	1521.5	1519.2	1519.8	1509.8	1519.8	1519.2
22.5°	1478.1	1476.1	1477.8	1481.2	1486.5	1480.5	1477.2	1474.8	1476.8	1474.8	1477.2
25°	1425.1	1422.1	1434.5	1432.2	1433.5	1431.5	1433.2	1420.2	1423.2	1420.2	1433.2
27.5°	1367.1	1365.1	1383.5	1386.8	1387.5	1386.2	1382.2	1363.2	1365.2	1363.2	1382.2
30°	1304.1	1309.1	1330.1	1332.5	1331.5	1331.2	1328.2	1307.2	1301.5	1307.2	1328.2
32.5°	1246.1	1242.1	1265.1	1281.5	1279.2	1280.2	1263.2	1239.5	1243.5	1239.5	1263.2
35°	1162.5	1167.5	1200.5	1220.5	1224.5	1218.5	1198.5	1165.5	1160.5	1165.5	1198.5
37.5°	1089.5	1093.5	1120.5	1160.5	1172.2	1158.5	1118.5	1091.5	1087.5	1091.5	1118.5
40°	1028.5	1016.5	1039.5	1086.8	1104.2	1085.5	1036.9	1013.9	1025.9	1013.9	1036.9
42.5°	950.5	945.5	959.8	1011.8	1036.2	1010.5	957.9	942.9	947.9	942.9	957.9
45°	889.8	875.8	877.8	930.8	965.2	929.5	875.2	873.9	887.9	873.9	875.2
47.5°	824.9	806.9	804.9	848.2	891.2	847.5	802.3	805.0	823.0	805.0	802.3
50°	758.9	749.9	729.9	761.3	798.6	760.0	727.3	747.3	757.0	747.3	727.3
52.5°	701.9	689.9	667.3	686.3	696.6	685.0	665.3	687.3	700.0	687.3	665.3
55°	634.3	629.3	603.3	604.6	586.0	603.3	601.3	627.3	633.0	627.3	601.3
57.5°	581.3	574.3	535.3	517.6	494.0	516.3	533.3	572.3	580.0	572.3	533.3
60°	516.6	508.6	465.6	434.0	422.0	433.3	464.3	507.3	516.0	507.3	464.3
62.5°	455.6	446.6	400.6	360.0	355.3	359.3	399.3	445.3	455.0	445.3	399.3
65°	393.0	378.0	332.0	298.0	305.3	297.3	331.3	377.3	393.0	377.3	331.3
67.5°	337.0	314.0	279.0	247.3	258.3	247.3	278.3	313.3	337.0	313.3	278.3
70°	279.3	254.3	229.3	203.3	215.3	203.3	229.3	255.0	280.0	255.0	229.3
72.5°	228.3	205.3	184.3	166.3	176.7	165.7	184.3	206.0	229.6	206.0	184.3
75°	185.3	160.3	142.7	131.7	144.7	131.7	143.3	161.0	187.3	161.0	143.3
77.5°	157.5	133.9	106.7	102.7	114.7	102.7	107.3	132.0	154.9	132.0	107.3
80°	138.7	121.1	84.6	76.7	86.7	76.7	83.3	110.6	126.2	110.6	83.3
82.5°	130.3	118.5	78.5	53.7	57.7	53.7	70.6	94.9	105.5	94.9	70.6
85°	132.6	124.1	81.8	42.6	33.7	41.3	62.9	84.2	90.1	84.2	62.9
87.5°	140.2	138.3	91.8	43.4	10.0	34.3	54.5	75.5	72.8	75.5	54.5
90°	153.7	153.1	107.4	47.2	1.7	22.3	42.6	60.9	55.6	60.9	42.6
92.5°	175.4	170.6	123.5	55.4	11.5	10.3	34.0	49.6	47.3	49.6	34.0
95°	191.9	189.0	140.7	69.0	27.2	3.6	23.0	37.3	37.0	37.3	23.0
97.5°	212.7	206.4	157.4	92.5	47.4	8.8	12.9	26.6	29.6	26.6	12.9
100°	227.2	221.6	179.9	120.7	72.3	22.6	6.6	16.2	21.2	16.2	6.6
102.5°	254.5	244.6	205.7	147.5	99.1	41.5	10.8	9.2	11.2	9.2	10.8
105°	281.9	272.7	238.7	175.6	129.8	67.0	27.5	9.8	6.6	9.8	27.5
107.5°	310.0	303.5	267.5	205.4	162.5	97.5	49.7	26.2	17.0	26.2	49.7
110°	342.7	334.8	295.6	234.1	197.5	128.9	75.2	47.1	36.7	47.1	75.2



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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°	374.1	368.2	321.8	264.2	232.8	162.9	106.6	73.3	63.5	73.3	106.6
115°	399.3	395.0	351.8	292.3	265.5	201.4	141.3	104.0	93.2	104.0	141.3
117.5°	424.8	424.1	375.1	321.1	304.8	236.1	174.3	135.7	123.3	135.7	174.3
120°	456.8	451.6	405.8	350.9	343.0	273.7	209.6	171.1	158.6	171.1	209.6
122.5°	479.1	475.8	432.0	378.3	378.3	311.0	243.6	205.1	192.0	205.1	243.6
125°	499.3	498.0	451.6	405.8	416.3	345.7	281.6	242.3	227.9	242.3	281.6
127.5°	517.6	519.6	477.1	435.9	454.9	381.0	318.8	275.7	260.6	275.7	318.8
130°	534.3	539.9	501.3	463.4	491.5	419.5	352.2	309.0	300.2	309.0	352.2
132.5°	565.1	561.1	526.1	492.5	531.7	455.9	387.5	343.4	332.3	343.4	387.5
135°	580.8	582.1	548.7	516.7	568.3	491.2	421.9	377.4	366.3	377.4	421.9
137.5°	599.7	595.8	565.7	546.1	602.3	525.2	454.5	413.4	395.7	413.4	454.5
140°	613.4	612.8	587.9	572.3	639.0	558.5	487.9	446.0	429.7	446.0	487.9
142.5°	627.8	631.8	610.2	601.0	675.6	593.8	523.9	478.1	462.4	478.1	523.9
145°	637.6	646.1	632.4	637.0	710.2	633.1	555.3	508.8	491.8	508.8	555.3
147.5°	654.0	665.1	648.8	662.5	740.3	667.7	586.6	540.9	525.8	540.9	586.6
150°	677.2	682.5	672.6	697.8	771.0	706.3	619.7	572.6	557.6	572.6	619.7
152.5°	694.9	701.4	690.3	736.4	795.2	741.6	655.0	602.7	585.0	602.7	655.0
155°	713.2	715.8	707.0	773.7	820.7	776.3	682.1	636.0	619.0	636.0	682.1
157.5°	730.2	735.4	725.3	801.8	842.9	806.4	714.2	669.4	654.3	669.4	714.2
160°	748.5	748.5	752.7	834.5	860.2	832.5	748.2	706.0	685.1	706.0	748.2
162.5°	750.5	761.9	790.0	857.3	877.8	855.3	784.8	731.2	713.8	731.2	784.8
165°	779.2	789.4	831.9	877.5	891.6	875.6	829.9	774.3	753.7	774.3	829.9
167.5°	808.3	831.9	865.8	899.4	904.6	893.5	864.5	826.0	806.4	826.0	864.5
170°	857.3	877.5	893.5	908.9	916.1	909.6	885.0	867.1	854.6	867.1	885.0
172.5°	894.8	908.9	914.5	924.6	920.0	917.4	904.6	896.5	889.0	896.5	904.6
175°	918.0	921.7	928.5	925.3	929.2	922.0	922.7	926.2	898.4	926.2	922.7
177.5°	927.5	932.1	929.8	925.0	925.6	924.3	925.9	927.5	923.6	927.5	925.9
180°	928.5	928.5	928.5	928.5	928.5	928.5	928.5	928.5	928.5	928.5	928.5



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1694.5	1694.5	1694.5	1694.5	1694.5	1694.5
2.5°	1686.1	1691.8	1686.8	1692.1	1683.8	1687.5
5°	1679.1	1690.1	1679.1	1682.1	1678.8	1674.5
7.5°	1665.5	1655.1	1666.1	1670.5	1669.5	1666.2
10°	1643.8	1642.5	1644.5	1648.5	1651.5	1638.8
12.5°	1619.8	1616.2	1619.8	1628.8	1616.5	1613.1
15°	1588.2	1581.2	1588.8	1598.8	1589.5	1592.8
17.5°	1561.2	1557.2	1561.2	1561.8	1552.5	1557.8
20°	1521.5	1517.5	1522.2	1519.8	1521.1	1511.8
22.5°	1480.5	1486.5	1481.2	1477.8	1476.1	1478.1
25°	1431.5	1433.5	1432.2	1434.5	1422.1	1425.1
27.5°	1386.2	1387.5	1386.8	1383.5	1365.1	1367.1
30°	1331.2	1331.5	1332.5	1330.1	1309.1	1304.1
32.5°	1280.2	1279.2	1281.5	1265.1	1242.1	1246.1
35°	1218.5	1224.5	1220.5	1200.5	1167.5	1162.5
37.5°	1158.5	1172.2	1160.5	1120.5	1093.5	1089.5
40°	1085.5	1104.2	1086.8	1039.5	1016.5	1028.5
42.5°	1010.5	1036.2	1011.8	959.8	945.5	950.5
45°	929.5	965.2	930.8	877.8	875.8	889.8
47.5°	847.5	891.2	848.2	804.9	806.9	824.9
50°	760.0	798.6	761.3	729.9	749.9	758.9
52.5°	685.0	696.6	686.3	667.3	689.9	701.9
55°	603.3	586.0	604.6	603.3	629.3	634.3
57.5°	516.3	494.0	517.6	535.3	574.3	581.3
60°	433.3	422.0	434.0	465.6	508.6	516.6
62.5°	359.3	355.3	360.0	400.6	446.6	455.6
65°	297.3	305.3	298.0	332.0	378.0	393.0
67.5°	247.3	258.3	247.3	279.0	314.0	337.0
70°	203.3	215.3	203.3	229.3	254.3	279.3
72.5°	165.7	176.7	166.3	184.3	205.3	228.3
75°	131.7	144.7	131.7	142.7	160.3	185.3
77.5°	102.7	114.7	102.7	106.7	133.9	157.5
80°	76.7	86.7	76.7	84.6	121.1	138.7
82.5°	53.7	57.7	53.7	78.5	118.5	130.3
85°	41.3	33.7	42.6	81.8	124.1	132.6
87.5°	34.3	10.0	43.4	91.8	138.3	140.2
90°	22.3	1.7	47.2	107.4	153.1	153.7
92.5°	10.3	11.5	55.4	123.5	170.6	175.4
95°	3.6	27.2	69.0	140.7	189.0	191.9
97.5°	8.8	47.4	92.5	157.4	206.4	212.7
100°	22.6	72.3	120.7	179.9	221.6	227.2
102.5°	41.5	99.1	147.5	205.7	244.6	254.5
105°	67.0	129.8	175.6	238.7	272.7	281.9
107.5°	97.5	162.5	205.4	267.5	303.5	310.0
110°	128.9	197.5	234.1	295.6	334.8	342.7





TEST NUMBER: P392516

CATALOG NUMBER: MWL-2-22-38-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	162.9	232.8	264.2	321.8	368.2	374.1
115°	201.4	265.5	292.3	351.8	395.0	399.3
117.5°	236.1	304.8	321.1	375.1	424.1	424.8
120°	273.7	343.0	350.9	405.8	451.6	456.8
122.5°	311.0	378.3	378.3	432.0	475.8	479.1
125°	345.7	416.3	405.8	451.6	498.0	499.3
127.5°	381.0	454.9	435.9	477.1	519.6	517.6
130°	419.5	491.5	463.4	501.3	539.9	534.3
132.5°	455.9	531.7	492.5	526.1	561.1	565.1
135°	491.2	568.3	516.7	548.7	582.1	580.8
137.5°	525.2	602.3	546.1	565.7	595.8	599.7
140°	558.5	639.0	572.3	587.9	612.8	613.4
142.5°	593.8	675.6	601.0	610.2	631.8	627.8
145°	633.1	710.2	637.0	632.4	646.1	637.6
147.5°	667.7	740.3	662.5	648.8	665.1	654.0
150°	706.3	771.0	697.8	672.6	682.5	677.2
152.5°	741.6	795.2	736.4	690.3	701.4	694.9
155°	776.3	820.7	773.7	707.0	715.8	713.2
157.5°	806.4	842.9	801.8	725.3	735.4	730.2
160°	832.5	860.2	834.5	752.7	748.5	748.5
162.5°	855.3	877.8	857.3	790.0	761.9	750.5
165°	875.6	891.6	877.5	831.9	789.4	779.2
167.5°	893.5	904.6	899.4	865.8	831.9	808.3
170°	909.6	916.1	908.9	893.5	877.5	857.3
172.5°	917.4	920.0	924.6	914.5	908.9	894.8
175°	922.0	929.2	925.3	928.5	921.7	918.0
177.5°	924.3	925.6	925.0	929.8	932.1	927.5
180°	928.5	928.5	928.5	928.5	928.5	928.5

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