

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: P392676

Luminaire Tested: **MWL-4-42-45-UNV-L930-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392676  
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-L930-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

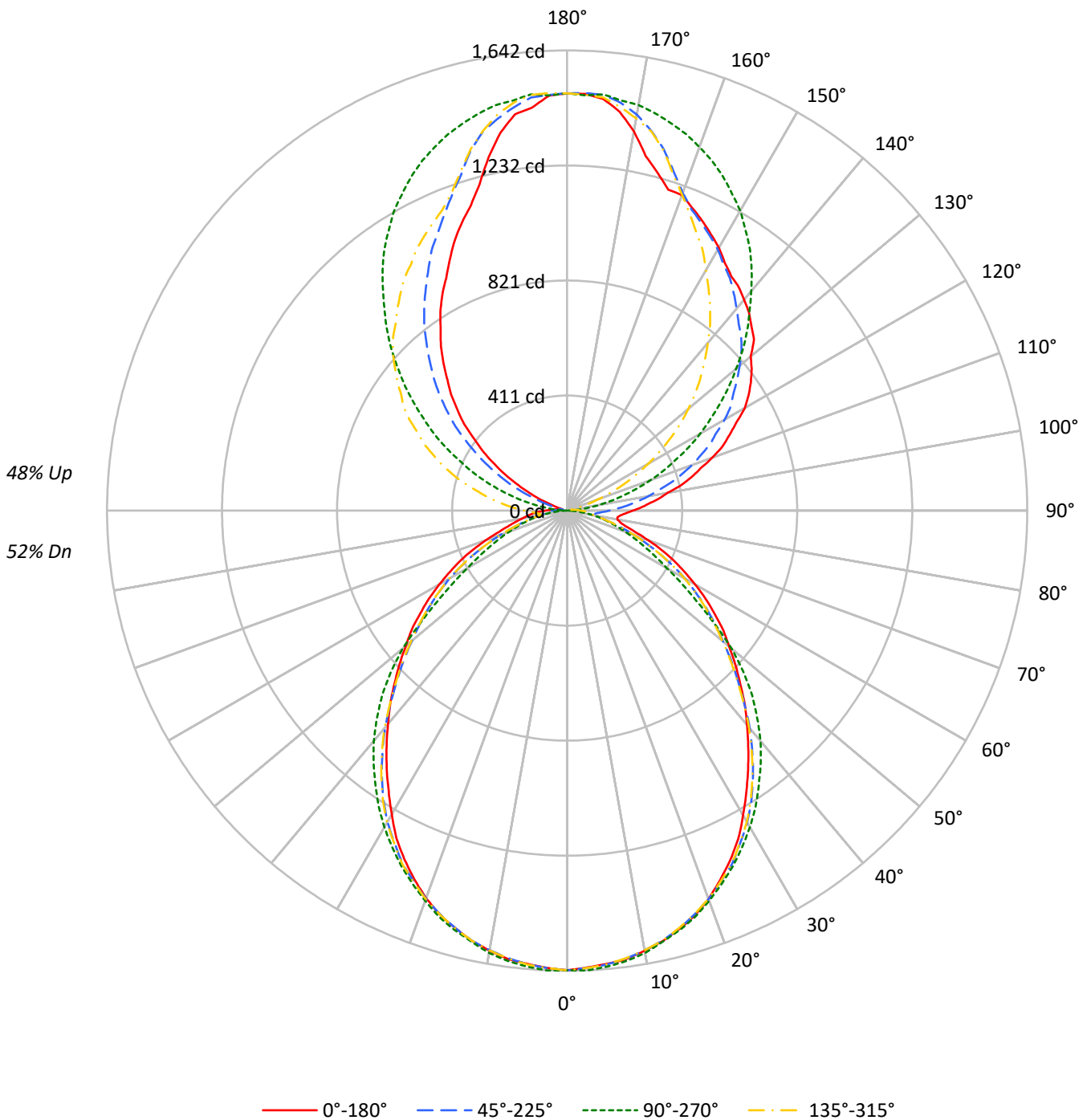
Lumens per Lamp: N/A  
Luminaire Lumens: 7389.2 lumens  
Efficiency: N/A  
Efficacy: 82.3 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 89.789  
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	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°	10593	10593	10593	10593
5°	10431	9739	10431	9739
10°	10267	8937	10267	8937
15°	10056	8175	10035	8175
20°	9767	7466	9746	7466
25°	9356	6802	9335	6802
30°	8835	6166	8805	6166
35°	8270	5530	8248	5530
40°	7744	4921	7710	4921
45°	7225	4265	7199	4265
50°	6742	3506	6713	3506
55°	6289	2621	6268	2621
60°	5771	1941	5759	1941
65°	5223	1477	5223	1477
70°	4485	1105	4500	1105
75°	3879	798	3937	798
80°	4260	510	3792	510
85°	6491	238	4174	238



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	154.5	2.1
10°-20°	435.7	5.9
20°-30°	638.8	8.6
30°-40°	723.2	9.8
40°-50°	681.3	9.2
50°-60°	544.2	7.4
60°-70°	357.8	4.8
70°-80°	183.6	2.5
80°-90°	103.9	1.4
90°-100°	128.8	1.7
100°-110°	232.1	3.1
110°-120°	395.9	5.4
120°-130°	537.8	7.3
130°-140°	613.2	8.3
140°-150°	611.6	8.3
150°-160°	532.6	7.2
160°-170°	374.6	5.1
170°-180°	139.5	1.9
0°-30°	1229.0	16.6
0°-40°	1952.1	26.4
0°-60°	3177.6	43.0
0°-90°	3823.0	51.7
90°-120°	756.9	10.2
90°-150°	2519.5	34.1
90°-180°	3566.0	48.3
0°-180°	7389.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1640	1640	1640	1640	1640	
5°	1624	1634	1624	1634	1624	154
15°	1546	1550	1543	1550	1546	435
25°	1377	1400	1374	1400	1377	632
35°	1126	1192	1122	1192	1126	704
45°	874	934	870	934	874	675
55°	642	565	640	565	642	575
65°	418	304	418	304	418	412
75°	216	151	219	151	216	240
85°	192	40	123	40	192	155
90°	234	2	77	2	234	129
95°	294	43	45	43	294	256
105°	458	208	16	208	458	483
115°	640	425	148	425	640	635
125°	800	666	364	666	800	715
135°	930	909	585	909	930	718
145°	1021	1138	787	1138	1021	644
155°	1141	1315	990	1315	1141	526
165°	1247	1431	1206	1431	1247	354
175°	1474	1491	1443	1491	1474	137
180°	1489	1489	1489	1489	1489	



TEST NUMBER: P392676

CATALOG NUMBER: MWL-4-42-45-UNV-L930-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2
2.5°	1632.0	1637.5	1633.6	1643.2	1642.3	1642.0	1633.6	1637.5	1633.1	1637.5	1633.6
5°	1623.6	1629.0	1626.0	1632.8	1633.6	1632.8	1625.0	1629.0	1623.6	1629.0	1625.0
7.5°	1614.4	1615.7	1611.5	1620.9	1620.9	1619.9	1610.4	1614.7	1614.4	1614.7	1610.4
10°	1594.4	1597.9	1593.7	1603.0	1603.0	1602.0	1592.7	1595.8	1594.4	1595.8	1592.7
12.5°	1573.6	1574.2	1571.6	1579.2	1575.6	1579.2	1571.6	1572.1	1571.6	1572.1	1571.6
15°	1546.0	1544.7	1543.7	1552.1	1550.2	1551.1	1542.6	1542.6	1542.8	1542.6	1542.6
17.5°	1514.7	1513.4	1510.8	1519.0	1519.7	1519.0	1509.6	1512.4	1511.6	1512.4	1509.6
20°	1475.0	1473.9	1475.3	1481.7	1481.6	1480.7	1474.1	1471.8	1471.8	1471.8	1474.1
22.5°	1426.6	1431.6	1433.0	1442.9	1441.8	1441.8	1431.9	1429.6	1424.6	1429.6	1431.9
25°	1376.7	1382.6	1391.7	1399.7	1399.6	1398.8	1389.6	1379.5	1373.6	1379.5	1389.6
27.5°	1321.7	1328.5	1337.7	1355.3	1353.2	1354.1	1335.5	1325.4	1318.6	1325.4	1335.5
30°	1255.9	1266.0	1285.4	1303.8	1304.1	1301.7	1282.3	1262.8	1251.7	1262.8	1282.3
32.5°	1189.9	1200.0	1223.7	1248.0	1251.9	1245.9	1220.5	1195.9	1185.8	1195.9	1220.5
35°	1125.5	1132.2	1155.9	1190.6	1192.5	1187.4	1152.8	1129.2	1122.4	1129.2	1152.8
37.5°	1061.3	1062.9	1085.7	1127.2	1134.3	1124.0	1082.7	1059.9	1058.2	1059.9	1082.7
40°	998.8	994.5	1014.0	1056.1	1073.5	1054.0	1009.8	990.3	994.5	990.3	1009.8
42.5°	937.9	928.6	935.2	985.9	1004.2	983.8	931.9	924.3	933.7	924.3	931.9
45°	873.5	862.4	862.4	908.1	934.0	906.0	858.2	859.3	870.3	859.3	858.2
47.5°	814.3	800.8	794.9	832.7	853.8	831.6	790.7	797.6	811.1	797.6	790.7
50°	754.3	743.3	726.4	749.0	764.9	746.8	722.2	739.1	751.1	739.1	722.2
52.5°	702.7	687.6	664.4	672.1	661.8	670.0	661.3	683.4	699.6	683.4	661.3
55°	641.6	633.2	604.5	595.8	565.2	593.7	601.3	630.1	639.5	630.1	601.3
57.5°	585.9	580.8	544.4	513.0	484.0	510.9	541.3	577.7	583.8	577.7	541.3
60°	527.4	524.9	485.9	438.4	410.5	437.3	483.8	522.8	526.3	522.8	483.8
62.5°	470.7	467.4	424.3	367.4	355.4	366.4	422.2	465.3	469.7	465.3	422.2
65°	418.1	408.8	364.0	306.5	303.9	305.5	363.0	407.8	418.1	407.8	363.0
67.5°	361.4	347.1	304.8	255.7	259.9	255.7	303.9	346.1	361.4	346.1	303.9
70°	305.5	287.0	253.1	212.6	219.3	212.6	253.1	287.9	306.5	287.9	253.1
72.5°	255.7	234.6	204.1	173.7	183.6	172.6	204.1	235.5	257.8	235.5	204.1
75°	215.9	191.4	159.9	138.0	151.4	138.0	161.0	192.5	219.1	192.5	161.0
77.5°	193.9	159.3	122.7	106.6	121.9	106.6	123.8	156.1	189.7	156.1	123.8
80°	182.2	147.8	100.6	79.6	91.5	79.6	98.4	131.0	162.2	131.0	98.4
82.5°	181.2	147.2	95.4	56.8	64.4	56.8	82.9	109.4	141.3	109.4	82.9
85°	191.9	163.5	105.9	47.4	39.9	45.3	75.4	99.5	123.4	99.5	75.4
87.5°	210.3	187.3	123.6	53.7	13.6	39.0	63.7	86.4	102.0	86.4	63.7
90°	234.4	216.2	152.2	65.7	1.8	25.8	48.2	68.1	76.7	68.1	48.2
92.5°	265.4	250.2	182.6	89.0	17.7	16.5	38.7	55.8	59.3	55.8	38.7
95°	294.5	289.1	218.5	114.4	42.9	9.3	29.3	45.3	45.3	45.3	29.3
97.5°	330.6	326.2	254.6	148.0	75.5	13.5	22.4	37.2	36.4	37.2	22.4
100°	363.2	361.3	293.6	193.2	115.4	35.5	15.0	31.2	32.1	31.2	15.0
102.5°	415.5	400.4	331.6	236.3	158.6	66.0	18.3	21.9	24.4	21.9	18.3
105°	458.3	441.1	382.2	281.5	207.9	107.0	42.7	18.5	15.8	18.5	42.7
107.5°	498.5	487.2	428.5	328.6	260.5	155.1	78.5	41.4	27.6	41.4	78.5
110°	550.2	537.6	473.6	374.8	316.0	205.6	119.4	75.0	58.2	75.0	119.4



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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°	600.7	591.2	515.7	423.2	372.7	260.3	169.8	117.1	101.3	117.1	169.8
115°	639.5	634.3	564.0	468.4	425.3	322.3	225.6	166.5	147.6	166.5	225.6
117.5°	680.5	679.5	599.8	514.7	488.3	378.0	277.1	215.9	195.9	215.9	277.1
120°	732.0	723.6	650.0	561.0	548.3	436.9	334.7	272.7	252.7	272.7	334.7
122.5°	767.7	762.5	692.1	605.1	605.1	496.8	389.4	327.4	306.3	327.4	389.4
125°	800.4	798.3	723.6	649.2	666.0	552.5	450.3	387.2	364.1	387.2	450.3
127.5°	829.8	833.0	764.6	698.4	728.0	610.1	510.2	440.9	416.7	440.9	510.2
130°	855.1	865.5	803.5	742.5	786.9	672.2	563.9	494.5	478.7	494.5	563.9
132.5°	904.4	898.2	843.4	787.8	849.9	728.9	620.6	548.1	530.2	548.1	620.6
135°	929.7	931.8	878.1	826.6	908.8	785.7	674.2	602.8	584.8	602.8	674.2
137.5°	960.1	953.8	905.5	874.0	963.5	840.3	726.8	660.6	632.2	660.6	726.8
140°	982.3	981.1	941.3	916.0	1022.4	894.0	780.4	713.1	686.9	713.1	780.4
142.5°	1005.4	1011.7	976.9	962.2	1081.3	950.7	838.2	764.6	739.4	764.6	838.2
145°	1021.1	1034.8	1012.7	1020.1	1137.8	1013.8	888.7	814.0	786.6	814.0	888.7
147.5°	1047.4	1065.2	1039.0	1061.0	1185.2	1069.5	939.1	865.5	841.4	865.5	939.1
150°	1083.2	1091.6	1075.8	1117.8	1235.5	1131.5	990.7	915.0	890.8	915.0	990.7
152.5°	1111.5	1122.0	1104.1	1179.9	1274.4	1188.2	1047.4	963.4	934.9	963.4	1047.4
155°	1141.0	1145.1	1132.5	1239.7	1315.4	1243.9	1092.6	1016.9	989.6	1016.9	1092.6
157.5°	1168.2	1176.7	1161.9	1285.0	1351.1	1292.3	1144.1	1070.5	1046.3	1070.5	1144.1
160°	1197.7	1197.7	1206.1	1337.5	1380.5	1334.3	1198.8	1129.4	1095.8	1129.4	1198.8
162.5°	1200.9	1220.8	1266.1	1374.3	1409.0	1371.1	1257.6	1171.4	1142.0	1171.4	1257.6
165°	1247.1	1264.9	1333.3	1406.9	1431.1	1403.7	1330.1	1240.8	1206.1	1240.8	1330.1
167.5°	1295.5	1333.3	1387.9	1443.7	1452.1	1434.2	1385.9	1323.8	1292.3	1323.8	1385.9
170°	1373.5	1406.9	1434.2	1457.3	1468.9	1458.5	1420.5	1390.0	1369.3	1390.0	1420.5
172.5°	1435.5	1457.3	1467.9	1482.6	1476.1	1471.1	1452.1	1437.4	1426.1	1437.4	1452.1
175°	1474.4	1479.4	1488.8	1483.6	1490.8	1478.4	1479.4	1486.8	1442.9	1486.8	1479.4
177.5°	1488.0	1496.2	1491.0	1481.5	1482.6	1480.5	1484.7	1488.8	1481.7	1488.8	1484.7
180°	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1640.2	1640.2	1640.2	1640.2	1640.2	1640.2
2.5°	1642.0	1642.3	1643.2	1633.6	1637.5	1632.0
5°	1632.8	1633.6	1632.8	1626.0	1629.0	1623.6
7.5°	1619.9	1620.9	1620.9	1611.5	1615.7	1614.4
10°	1602.0	1603.0	1603.0	1593.7	1597.9	1594.4
12.5°	1579.2	1575.6	1579.2	1571.6	1574.2	1573.6
15°	1551.1	1550.2	1552.1	1543.7	1544.7	1546.0
17.5°	1519.0	1519.7	1519.0	1510.8	1513.4	1514.7
20°	1480.7	1481.6	1481.7	1475.3	1473.9	1475.0
22.5°	1441.8	1441.8	1442.9	1433.0	1431.6	1426.6
25°	1398.8	1399.6	1399.7	1391.7	1382.6	1376.7
27.5°	1354.1	1353.2	1355.3	1337.7	1328.5	1321.7
30°	1301.7	1304.1	1303.8	1285.4	1266.0	1255.9
32.5°	1245.9	1251.9	1248.0	1223.7	1200.0	1189.9
35°	1187.4	1192.5	1190.6	1155.9	1132.2	1125.5
37.5°	1124.0	1134.3	1127.2	1085.7	1062.9	1061.3
40°	1054.0	1073.5	1056.1	1014.0	994.5	998.8
42.5°	983.8	1004.2	985.9	935.2	928.6	937.9
45°	906.0	934.0	908.1	862.4	862.4	873.5
47.5°	831.6	853.8	832.7	794.9	800.8	814.3
50°	746.8	764.9	749.0	726.4	743.3	754.3
52.5°	670.0	661.8	672.1	664.4	687.6	702.7
55°	593.7	565.2	595.8	604.5	633.2	641.6
57.5°	510.9	484.0	513.0	544.4	580.8	585.9
60°	437.3	410.5	438.4	485.9	524.9	527.4
62.5°	366.4	355.4	367.4	424.3	467.4	470.7
65°	305.5	303.9	306.5	364.0	408.8	418.1
67.5°	255.7	259.9	255.7	304.8	347.1	361.4
70°	212.6	219.3	212.6	253.1	287.0	305.5
72.5°	172.6	183.6	173.7	204.1	234.6	255.7
75°	138.0	151.4	138.0	159.9	191.4	215.9
77.5°	106.6	121.9	106.6	122.7	159.3	193.9
80°	79.6	91.5	79.6	100.6	147.8	182.2
82.5°	56.8	64.4	56.8	95.4	147.2	181.2
85°	45.3	39.9	47.4	105.9	163.5	191.9
87.5°	39.0	13.6	53.7	123.6	187.3	210.3
90°	25.8	1.8	65.7	152.2	216.2	234.4
92.5°	16.5	17.7	89.0	182.6	250.2	265.4
95°	9.3	42.9	114.4	218.5	289.1	294.5
97.5°	13.5	75.5	148.0	254.6	326.2	330.6
100°	35.5	115.4	193.2	293.6	361.3	363.2
102.5°	66.0	158.6	236.3	331.6	400.4	415.5
105°	107.0	207.9	281.5	382.2	441.1	458.3
107.5°	155.1	260.5	328.6	428.5	487.2	498.5
110°	205.6	316.0	374.8	473.6	537.6	550.2





TEST NUMBER: P392676

CATALOG NUMBER: MWL-4-42-45-UNV-L930-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	260.3	372.7	423.2	515.7	591.2	600.7
115°	322.3	425.3	468.4	564.0	634.3	639.5
117.5°	378.0	488.3	514.7	599.8	679.5	680.5
120°	436.9	548.3	561.0	650.0	723.6	732.0
122.5°	496.8	605.1	605.1	692.1	762.5	767.7
125°	552.5	666.0	649.2	723.6	798.3	800.4
127.5°	610.1	728.0	698.4	764.6	833.0	829.8
130°	672.2	786.9	742.5	803.5	865.5	855.1
132.5°	728.9	849.9	787.8	843.4	898.2	904.4
135°	785.7	908.8	826.6	878.1	931.8	929.7
137.5°	840.3	963.5	874.0	905.5	953.8	960.1
140°	894.0	1022.4	916.0	941.3	981.1	982.3
142.5°	950.7	1081.3	962.2	976.9	1011.7	1005.4
145°	1013.8	1137.8	1020.1	1012.7	1034.8	1021.1
147.5°	1069.5	1185.2	1061.0	1039.0	1065.2	1047.4
150°	1131.5	1235.5	1117.8	1075.8	1091.6	1083.2
152.5°	1188.2	1274.4	1179.9	1104.1	1122.0	1111.5
155°	1243.9	1315.4	1239.7	1132.5	1145.1	1141.0
157.5°	1292.3	1351.1	1285.0	1161.9	1176.7	1168.2
160°	1334.3	1380.5	1337.5	1206.1	1197.7	1197.7
162.5°	1371.1	1409.0	1374.3	1266.1	1220.8	1200.9
165°	1403.7	1431.1	1406.9	1333.3	1264.9	1247.1
167.5°	1434.2	1452.1	1443.7	1387.9	1333.3	1295.5
170°	1458.5	1468.9	1457.3	1434.2	1406.9	1373.5
172.5°	1471.1	1476.1	1482.6	1467.9	1457.3	1435.5
175°	1478.4	1490.8	1483.6	1488.8	1479.4	1474.4
177.5°	1480.5	1482.6	1481.5	1491.0	1496.2	1488.0
180°	1488.8	1488.8	1488.8	1488.8	1488.8	1488.8

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