

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: P392603

Luminaire Tested: **MWL-3-37-47-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392603  
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-3-37-47-UNV-L840-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

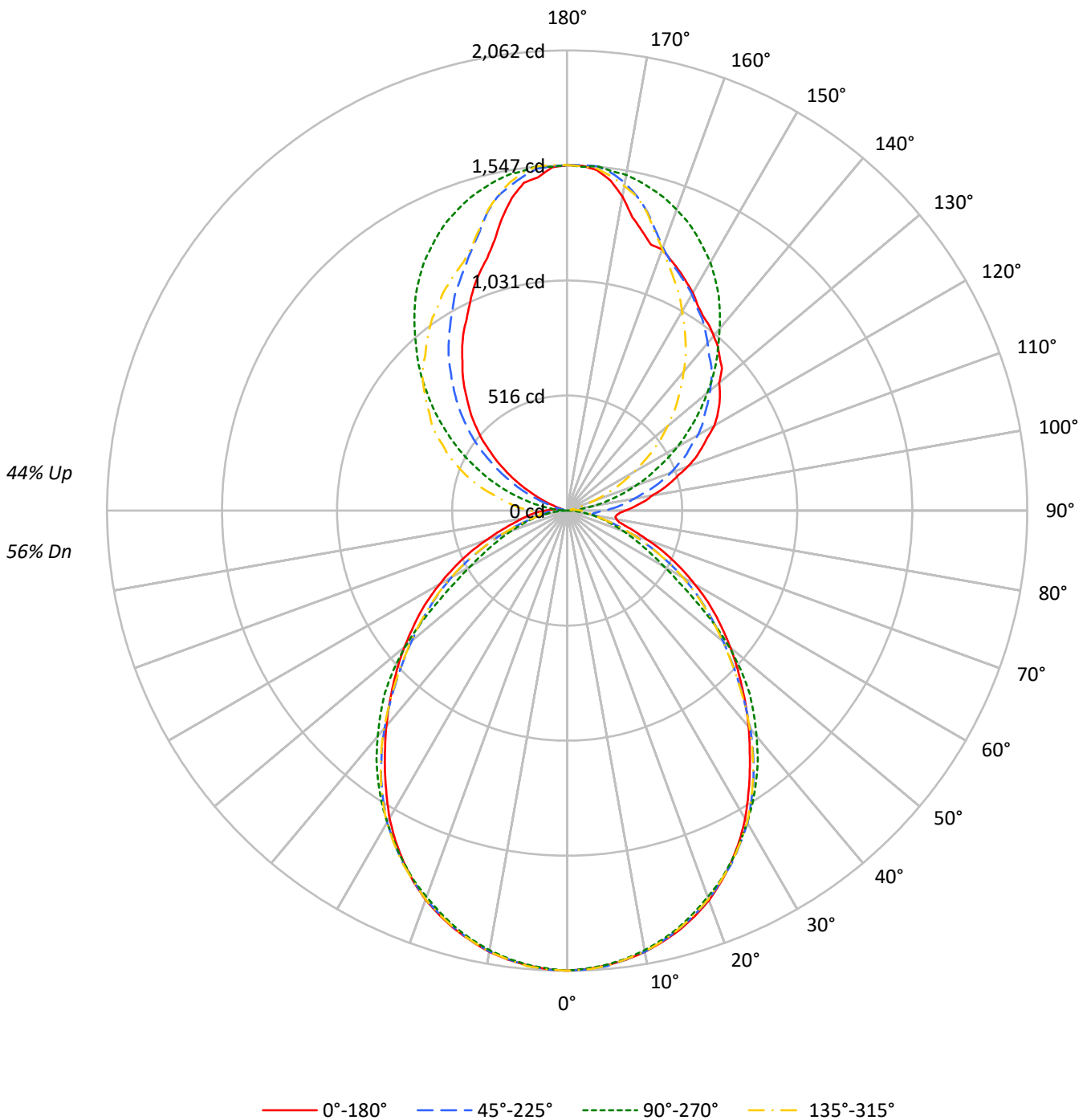
Lumens per Lamp: N/A  
Luminaire Lumens: 8487.2 lumens  
Efficiency: N/A  
Efficacy: 93.9 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.17 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 90.4  
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56
1	99	95	91	88	92	89	85	82	76	74	72	65	63	62	55	54	53	48
2	91	83	77	72	84	78	73	68	67	63	60	58	55	52	49	47	45	41
3	83	74	66	61	77	69	63	57	60	55	51	51	48	45	44	41	39	35
4	76	66	58	52	71	61	54	49	53	48	44	46	42	39	39	36	34	30
5	70	59	51	45	65	55	48	42	48	42	38	42	37	34	36	32	30	26
6	65	53	45	39	60	50	42	37	43	38	33	38	33	30	32	29	26	23
7	60	48	40	34	56	45	38	33	39	34	30	34	30	26	30	26	23	21
8	56	43	36	30	52	41	34	29	36	30	26	32	27	24	27	24	21	19
9	52	40	32	27	48	38	31	26	33	28	24	29	25	21	25	22	19	17
10	49	37	29	25	45	35	28	24	31	25	21	27	23	19	23	20	17	15

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

	0°	90°	180°	270°
0°	17752	17752	17752	17752
5°	17467	16236	17467	16236
10°	17142	14870	17142	14870
15°	16723	13594	16696	13594
20°	16213	12377	16185	12377
25°	15514	11257	15486	11257
30°	14688	10164	14648	10164
35°	13668	9134	13637	9134
40°	12732	8071	12688	8071
45°	11811	7030	11776	7030
50°	10972	5785	10934	5785
55°	10141	4318	10114	4318
60°	9168	3166	9153	3166
65°	8137	2392	8137	2392
70°	6929	1775	6949	1775
75°	5987	1280	6059	1280
80°	6228	811	5651	811
85°	8534	343	5827	343



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	194.0	2.3
10°-20°	546.3	6.4
20°-30°	800.5	9.4
30°-40°	907.5	10.7
40°-50°	853.5	10.1
50°-60°	677.7	8.0
60°-70°	441.2	5.2
70°-80°	225.5	2.7
80°-90°	123.3	1.5
90°-100°	140.9	1.7
100°-110°	242.5	2.9
110°-120°	412.1	4.9
120°-130°	559.5	6.6
130°-140°	638.0	7.5
140°-150°	636.2	7.5
150°-160°	553.8	6.5
160°-170°	389.6	4.6
170°-180°	145.0	1.7
0°-30°	1540.8	18.2
0°-40°	2448.3	28.8
0°-60°	3979.4	46.9
0°-90°	4769.5	56.2
90°-120°	795.5	9.4
90°-150°	2629.2	31.0
90°-180°	3718.0	43.8
0°-180°	8487.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2062	2062	2062	2062	2062	
5°	2045	2043	2045	2043	2045	194
15°	1946	1933	1942	1933	1946	548
25°	1739	1737	1735	1737	1739	799
35°	1427	1477	1423	1477	1427	893
45°	1105	1154	1101	1154	1105	854
55°	810	698	807	698	810	723
65°	518	369	518	369	518	514
75°	273	182	276	182	273	301
85°	224	43	153	43	224	183
90°	259	2	96	2	259	144
95°	321	45	62	45	321	277
105°	478	217	19	217	478	505
115°	666	442	155	442	666	661
125°	833	693	380	693	833	744
135°	967	945	609	945	967	747
145°	1062	1182	819	1182	1062	670
155°	1187	1367	1029	1367	1187	547
165°	1297	1488	1254	1488	1297	368
175°	1532	1549	1499	1549	1532	143
180°	1548	1548	1548	1548	1548	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5
2.5°	2056.3	2059.5	2058.6	2055.7	2053.7	2054.6	2058.6	2059.5	2057.4	2059.5	2058.6
5°	2045.3	2048.5	2048.6	2044.6	2042.6	2044.6	2047.5	2048.5	2045.3	2048.5	2047.5
7.5°	2029.4	2033.5	2028.5	2027.6	2024.6	2026.5	2027.5	2032.5	2029.4	2032.5	2027.5
10°	2008.5	2010.5	2007.5	2002.5	2000.5	2001.5	2006.5	2008.4	2008.5	2008.4	2006.5
12.5°	1978.6	1978.5	1975.5	1971.5	1969.4	1971.5	1975.5	1976.4	1976.5	1976.4	1975.5
15°	1945.7	1942.5	1940.5	1937.5	1933.4	1936.4	1939.4	1940.4	1942.5	1940.4	1939.4
17.5°	1904.7	1902.5	1898.5	1895.4	1889.4	1895.4	1897.4	1901.5	1901.5	1901.5	1897.4
20°	1858.7	1855.6	1853.5	1848.4	1842.3	1847.3	1852.4	1853.5	1855.5	1853.5	1852.4
22.5°	1801.6	1801.6	1798.5	1797.4	1794.3	1796.3	1797.4	1799.5	1799.5	1799.5	1797.4
25°	1738.6	1740.6	1744.5	1742.4	1737.3	1741.3	1742.4	1737.4	1735.4	1737.4	1742.4
27.5°	1670.6	1673.6	1680.5	1684.5	1676.3	1683.4	1678.4	1670.4	1667.4	1670.4	1678.4
30°	1595.6	1600.6	1616.6	1622.5	1612.3	1620.4	1613.4	1597.4	1591.3	1597.4	1613.4
32.5°	1510.6	1518.6	1537.6	1551.5	1548.4	1549.4	1534.4	1514.3	1506.3	1514.3	1534.4
35°	1426.6	1433.6	1456.6	1478.5	1477.3	1475.3	1453.4	1430.4	1423.4	1430.4	1453.4
37.5°	1343.6	1344.6	1368.6	1398.6	1403.5	1395.4	1365.4	1341.4	1340.4	1341.4	1365.4
40°	1264.6	1261.6	1277.6	1312.6	1320.5	1310.4	1273.3	1257.3	1260.3	1257.3	1273.3
42.5°	1184.6	1173.6	1180.6	1223.6	1238.5	1221.4	1177.3	1169.3	1180.3	1169.3	1177.3
45°	1104.6	1089.6	1087.6	1125.6	1154.5	1123.4	1083.2	1086.3	1101.3	1086.3	1083.2
47.5°	1030.6	1011.6	997.6	1025.5	1054.5	1024.4	993.2	1008.3	1027.3	1008.3	993.2
50°	954.6	933.6	912.6	929.5	946.4	927.3	908.2	929.2	951.3	929.2	908.2
52.5°	879.6	862.6	831.5	830.5	823.4	828.3	828.2	858.2	876.3	858.2	828.2
55°	809.5	792.5	753.5	735.4	698.3	733.2	750.2	789.2	807.3	789.2	750.2
57.5°	736.5	723.5	678.5	634.4	588.3	632.2	675.2	720.2	734.3	720.2	675.2
60°	660.4	653.4	601.4	532.3	502.3	531.2	599.2	651.2	659.3	651.2	599.2
62.5°	588.4	582.4	523.4	449.3	430.2	448.2	521.2	580.2	587.3	580.2	521.2
65°	518.3	504.3	445.3	375.3	369.2	374.2	444.2	503.2	518.3	503.2	444.2
67.5°	452.3	434.3	373.3	314.2	314.2	314.2	372.2	433.2	452.3	433.2	372.2
70°	380.2	358.2	310.2	260.2	264.2	260.2	310.2	359.3	381.3	359.3	310.2
72.5°	325.2	289.2	252.2	211.2	219.1	210.1	252.2	290.3	327.4	290.3	252.2
75°	273.2	235.2	196.1	167.1	182.1	167.1	197.2	236.3	276.5	236.3	197.2
77.5°	237.9	194.6	151.1	131.1	146.1	131.1	152.2	191.3	233.6	191.3	152.2
80°	224.5	177.8	123.4	98.1	109.1	98.1	121.2	160.4	203.7	160.4	121.2
82.5°	217.7	175.9	114.5	71.1	78.1	71.1	101.4	136.6	176.2	136.6	101.4
85°	223.5	186.6	122.5	57.4	43.1	55.2	90.8	120.0	152.6	120.0	90.8
87.5°	235.9	212.0	140.2	61.7	13.0	46.5	77.9	107.2	123.4	107.2	77.9
90°	259.4	240.5	168.5	72.7	2.1	31.2	60.4	86.6	95.6	86.6	60.4
92.5°	292.5	274.4	198.9	94.5	18.5	19.2	49.3	72.4	78.5	72.4	49.3
95°	321.1	311.5	233.8	117.6	44.7	8.4	37.3	58.2	62.3	58.2	37.3
97.5°	358.1	349.7	266.9	154.9	78.5	15.1	25.6	49.4	52.4	49.4	25.6
100°	385.7	379.6	305.0	201.8	120.0	38.0	15.6	36.7	41.7	36.7	15.6
102.5°	435.0	416.9	344.8	246.6	164.8	69.7	19.4	23.7	28.7	23.7	19.4
105°	478.4	459.1	398.3	293.6	217.1	112.3	45.6	20.1	18.6	20.1	45.6
107.5°	520.3	507.4	446.4	341.6	271.7	161.4	82.7	44.4	31.1	44.4	82.7
110°	573.9	559.8	493.3	389.7	328.5	213.9	125.3	79.3	62.9	79.3	125.3



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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°	625.4	614.5	537.0	439.9	387.5	270.6	177.7	122.0	106.6	122.0	177.7
115°	665.8	659.3	587.2	486.9	442.1	335.1	235.6	173.4	154.7	173.4	235.6
117.5°	708.4	706.3	624.4	534.9	507.6	392.9	289.1	224.7	204.9	224.7	289.1
120°	761.9	753.1	675.7	583.0	569.8	454.1	348.1	284.6	263.9	284.6	348.1
122.5°	799.0	793.5	719.4	629.8	629.8	517.3	404.9	341.4	319.6	341.4	404.9
125°	832.8	830.7	752.1	675.7	693.2	575.2	468.2	403.7	379.7	403.7	468.2
127.5°	863.4	866.7	794.7	725.9	757.6	634.2	530.4	459.4	434.3	459.4	530.4
130°	889.6	900.5	836.1	771.8	818.7	698.6	587.1	515.1	498.7	515.1	587.1
132.5°	940.9	934.4	877.6	818.7	884.3	757.6	646.1	570.8	552.2	570.8	646.1
135°	967.2	969.3	913.6	859.1	945.4	816.6	701.8	627.5	609.0	627.5	701.8
137.5°	998.8	992.3	942.0	909.3	1002.2	874.3	756.4	687.6	658.1	687.6	756.4
140°	1021.8	1020.7	979.2	953.0	1063.3	930.0	812.1	742.2	714.9	742.2	812.1
142.5°	1045.8	1052.3	1016.3	1001.0	1124.5	989.0	872.2	795.7	769.5	795.7	872.2
145°	1062.2	1076.4	1053.4	1061.1	1182.4	1054.5	924.6	847.0	818.6	847.0	924.6
147.5°	1089.5	1108.0	1080.7	1103.7	1232.6	1112.4	977.0	900.5	875.4	900.5	977.0
150°	1126.6	1135.3	1118.9	1162.6	1283.9	1176.8	1030.5	951.9	926.8	951.9	1030.5
152.5°	1156.1	1167.0	1148.4	1227.1	1324.3	1235.8	1089.5	1002.1	972.6	1002.1	1089.5
155°	1186.7	1191.0	1177.9	1289.3	1366.9	1293.7	1136.4	1057.8	1029.4	1057.8	1136.4
157.5°	1215.0	1223.8	1208.5	1335.3	1404.1	1342.9	1189.9	1113.5	1088.4	1113.5	1189.9
160°	1245.6	1245.6	1254.4	1390.9	1434.6	1387.6	1246.7	1174.6	1139.7	1174.6	1246.7
162.5°	1248.9	1269.6	1316.6	1429.1	1465.1	1425.8	1307.9	1218.3	1187.7	1218.3	1307.9
165°	1296.9	1315.5	1386.5	1462.9	1487.9	1459.7	1383.2	1290.4	1254.4	1290.4	1383.2
167.5°	1347.2	1386.5	1443.3	1501.1	1509.8	1491.2	1441.1	1376.7	1343.9	1376.7	1441.1
170°	1428.1	1461.9	1491.2	1515.3	1527.3	1516.3	1477.0	1444.5	1423.7	1444.5	1477.0
172.5°	1491.4	1514.3	1526.2	1541.5	1533.8	1529.4	1509.8	1493.5	1481.6	1493.5	1509.8
175°	1531.8	1537.2	1548.0	1542.6	1549.1	1537.1	1538.2	1544.8	1499.1	1544.8	1538.2
177.5°	1546.0	1554.7	1550.2	1540.4	1541.5	1539.3	1543.6	1547.0	1539.5	1547.0	1543.6
180°	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2061.5	2061.5	2061.5	2061.5	2061.5	2061.5
2.5°	2054.6	2053.7	2055.7	2058.6	2059.5	2056.3
5°	2044.6	2042.6	2044.6	2048.6	2048.5	2045.3
7.5°	2026.5	2024.6	2027.6	2028.5	2033.5	2029.4
10°	2001.5	2000.5	2002.5	2007.5	2010.5	2008.5
12.5°	1971.5	1969.4	1971.5	1975.5	1978.5	1978.6
15°	1936.4	1933.4	1937.5	1940.5	1942.5	1945.7
17.5°	1895.4	1889.4	1895.4	1898.5	1902.5	1904.7
20°	1847.3	1842.3	1848.4	1853.5	1855.6	1858.7
22.5°	1796.3	1794.3	1797.4	1798.5	1801.6	1801.6
25°	1741.3	1737.3	1742.4	1744.5	1740.6	1738.6
27.5°	1683.4	1676.3	1684.5	1680.5	1673.6	1670.6
30°	1620.4	1612.3	1622.5	1616.6	1600.6	1595.6
32.5°	1549.4	1548.4	1551.5	1537.6	1518.6	1510.6
35°	1475.3	1477.3	1478.5	1456.6	1433.6	1426.6
37.5°	1395.4	1403.5	1398.6	1368.6	1344.6	1343.6
40°	1310.4	1320.5	1312.6	1277.6	1261.6	1264.6
42.5°	1221.4	1238.5	1223.6	1180.6	1173.6	1184.6
45°	1123.4	1154.5	1125.6	1087.6	1089.6	1104.6
47.5°	1024.4	1054.5	1025.5	997.6	1011.6	1030.6
50°	927.3	946.4	929.5	912.6	933.6	954.6
52.5°	828.3	823.4	830.5	831.5	862.6	879.6
55°	733.2	698.3	735.4	753.5	792.5	809.5
57.5°	632.2	588.3	634.4	678.5	723.5	736.5
60°	531.2	502.3	532.3	601.4	653.4	660.4
62.5°	448.2	430.2	449.3	523.4	582.4	588.4
65°	374.2	369.2	375.3	445.3	504.3	518.3
67.5°	314.2	314.2	314.2	373.3	434.3	452.3
70°	260.2	264.2	260.2	310.2	358.2	380.2
72.5°	210.1	219.1	211.2	252.2	289.2	325.2
75°	167.1	182.1	167.1	196.1	235.2	273.2
77.5°	131.1	146.1	131.1	151.1	194.6	237.9
80°	98.1	109.1	98.1	123.4	177.8	224.5
82.5°	71.1	78.1	71.1	114.5	175.9	217.7
85°	55.2	43.1	57.4	122.5	186.6	223.5
87.5°	46.5	13.0	61.7	140.2	212.0	235.9
90°	31.2	2.1	72.7	168.5	240.5	259.4
92.5°	19.2	18.5	94.5	198.9	274.4	292.5
95°	8.4	44.7	117.6	233.8	311.5	321.1
97.5°	15.1	78.5	154.9	266.9	349.7	358.1
100°	38.0	120.0	201.8	305.0	379.6	385.7
102.5°	69.7	164.8	246.6	344.8	416.9	435.0
105°	112.3	217.1	293.6	398.3	459.1	478.4
107.5°	161.4	271.7	341.6	446.4	507.4	520.3
110°	213.9	328.5	389.7	493.3	559.8	573.9





TEST NUMBER: P392603

CATALOG NUMBER: MWL-3-37-47-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	270.6	387.5	439.9	537.0	614.5	625.4
115°	335.1	442.1	486.9	587.2	659.3	665.8
117.5°	392.9	507.6	534.9	624.4	706.3	708.4
120°	454.1	569.8	583.0	675.7	753.1	761.9
122.5°	517.3	629.8	629.8	719.4	793.5	799.0
125°	575.2	693.2	675.7	752.1	830.7	832.8
127.5°	634.2	757.6	725.9	794.7	866.7	863.4
130°	698.6	818.7	771.8	836.1	900.5	889.6
132.5°	757.6	884.3	818.7	877.6	934.4	940.9
135°	816.6	945.4	859.1	913.6	969.3	967.2
137.5°	874.3	1002.2	909.3	942.0	992.3	998.8
140°	930.0	1063.3	953.0	979.2	1020.7	1021.8
142.5°	989.0	1124.5	1001.0	1016.3	1052.3	1045.8
145°	1054.5	1182.4	1061.1	1053.4	1076.4	1062.2
147.5°	1112.4	1232.6	1103.7	1080.7	1108.0	1089.5
150°	1176.8	1283.9	1162.6	1118.9	1135.3	1126.6
152.5°	1235.8	1324.3	1227.1	1148.4	1167.0	1156.1
155°	1293.7	1366.9	1289.3	1177.9	1191.0	1186.7
157.5°	1342.9	1404.1	1335.3	1208.5	1223.8	1215.0
160°	1387.6	1434.6	1390.9	1254.4	1245.6	1245.6
162.5°	1425.8	1465.1	1429.1	1316.6	1269.6	1248.9
165°	1459.7	1487.9	1462.9	1386.5	1315.5	1296.9
167.5°	1491.2	1509.8	1501.1	1443.3	1386.5	1347.2
170°	1516.3	1527.3	1515.3	1491.2	1461.9	1428.1
172.5°	1529.4	1533.8	1541.5	1526.2	1514.3	1491.4
175°	1537.1	1549.1	1542.6	1548.0	1537.2	1531.8
177.5°	1539.3	1541.5	1540.4	1550.2	1554.7	1546.0
180°	1548.0	1548.0	1548.0	1548.0	1548.0	1548.0

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