

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: P392681

Luminaire Tested: **MWL-4-42-60-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392681  
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-4-42-60-UNV-L840-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

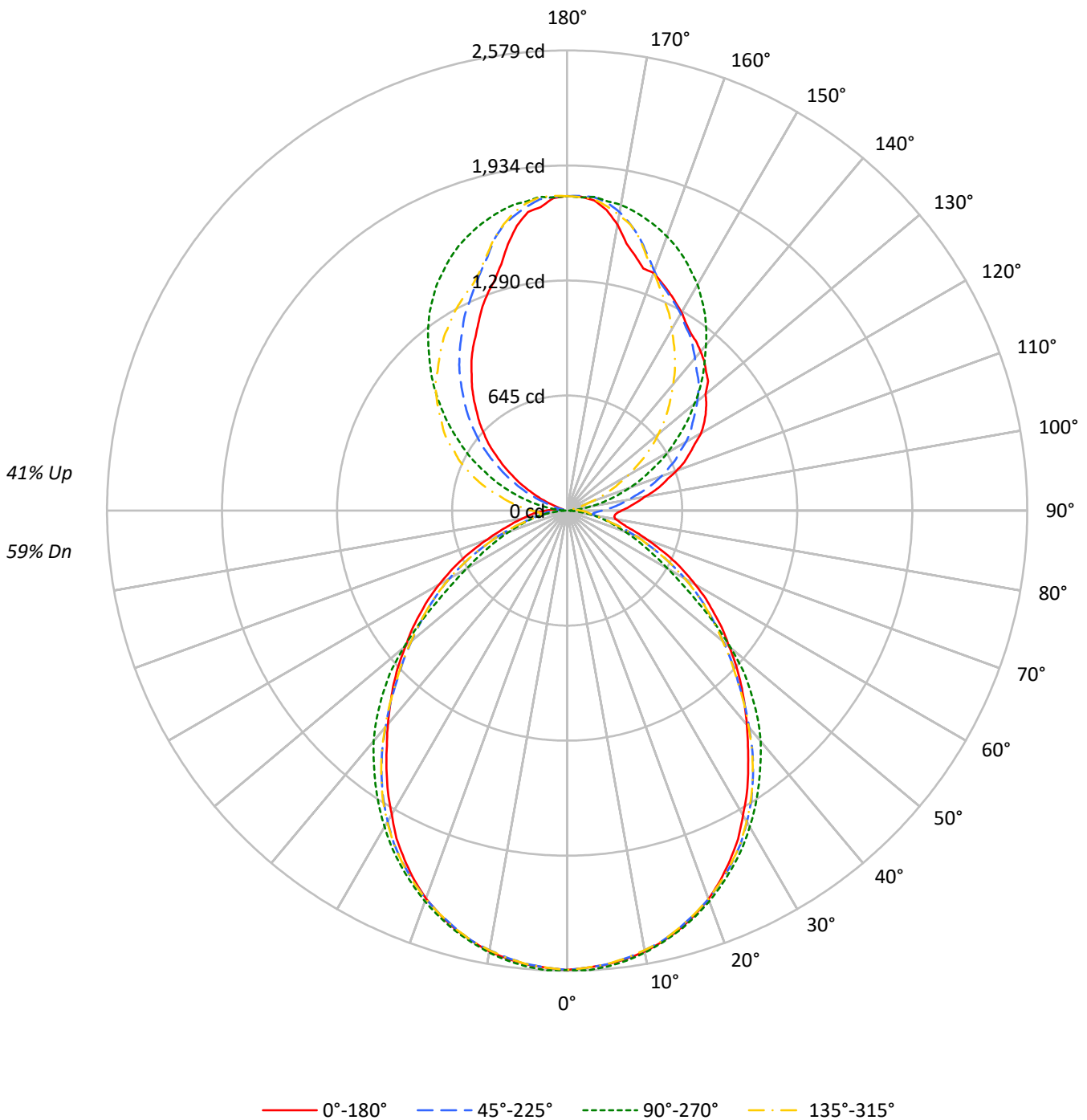
Lumens per Lamp: N/A  
Luminaire Lumens: 10232.9 lumens  
Efficiency: N/A  
Efficacy: 94.7 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 108  
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	102	102	102	102	88	88	88	76	76	76	64	64	64	59
1	100	96	92	88	93	89	86	83	78	75	73	67	65	63	57	56	54	50
2	91	84	78	73	85	79	73	69	68	64	61	59	56	54	51	48	46	42
3	84	74	67	61	78	69	63	58	61	56	52	53	49	46	45	42	40	36
4	77	66	58	52	71	62	55	49	54	49	44	47	43	40	41	37	35	31
5	71	59	51	45	66	55	48	43	49	43	39	43	38	35	37	33	31	28
6	65	53	45	39	61	50	43	37	44	38	34	39	34	30	33	30	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	31	27	31	27	24	22
8	56	44	36	31	52	41	34	29	37	31	27	32	28	24	28	25	22	20
9	52	40	33	28	49	38	31	26	34	28	24	30	25	22	26	22	20	18
10	49	37	30	25	46	35	28	24	31	26	22	28	23	20	24	21	18	16

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

	0°	90°	180°	270°
0°	16628	16628	16628	16628
5°	16408	15296	16408	15296
10°	16160	14025	16160	14025
15°	15808	12847	15783	12847
20°	15344	11746	15319	11746
25°	14685	10692	14660	10692
30°	13864	9678	13830	9678
35°	12997	8685	12970	8685
40°	12155	7739	12116	7739
45°	11403	6687	11371	6687
50°	10587	5483	10553	5483
55°	9862	4130	9838	4130
60°	9071	3067	9057	3067
65°	8153	2325	8153	2325
70°	7010	1721	7028	1721
75°	6154	1251	6221	1251
80°	6420	809	5866	809
85°	9099	365	6363	365



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	242.7	2.4
10°-20°	684.5	6.7
20°-30°	1003.7	9.8
30°-40°	1136.4	11.1
40°-50°	1070.6	10.5
50°-60°	856.2	8.4
60°-70°	562.4	5.5
70°-80°	287.9	2.8
80°-90°	152.9	1.5
90°-100°	163.0	1.6
100°-110°	276.6	2.7
110°-120°	469.1	4.6
120°-130°	637.0	6.2
130°-140°	726.3	7.1
140°-150°	724.4	7.1
150°-160°	630.6	6.2
160°-170°	443.6	4.3
170°-180°	165.2	1.6
0°-30°	1930.8	18.9
0°-40°	3067.2	30.0
0°-60°	4994.0	48.8
0°-90°	5997.1	58.6
90°-120°	908.8	8.9
90°-150°	2996.5	29.3
90°-180°	4236.0	41.4
0°-180°	10232.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2575	2575	2575	2575	2575	
5°	2554	2566	2554	2566	2554	242
15°	2430	2436	2426	2436	2430	684
25°	2161	2200	2157	2200	2161	993
35°	1769	1873	1765	1873	1769	1106
45°	1378	1464	1375	1464	1378	1063
55°	1006	891	1004	891	1006	902
65°	653	478	653	478	653	645
75°	342	237	346	237	342	378
85°	269	61	188	61	269	222
90°	304	2	118	2	304	168
95°	366	51	72	51	366	316
105°	545	247	22	247	545	576
115°	758	503	176	503	758	752
125°	948	789	432	789	948	847
135°	1101	1076	693	1076	1101	850
145°	1210	1346	933	1346	1210	763
155°	1351	1557	1172	1557	1351	623
165°	1477	1694	1428	1694	1477	419
175°	1744	1765	1707	1765	1744	163
180°	1763	1763	1763	1763	1763	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7
2.5°	2564.0	2571.5	2563.9	2578.2	2579.2	2576.9	2563.9	2571.5	2565.2	2571.5	2563.9
5°	2554.0	2560.5	2552.9	2564.9	2565.9	2564.9	2551.7	2560.5	2554.0	2560.5	2551.7
7.5°	2534.2	2540.7	2530.7	2545.9	2544.9	2544.7	2529.5	2539.5	2534.2	2539.5	2529.5
10°	2509.5	2508.7	2502.7	2515.7	2515.7	2514.5	2501.5	2506.2	2509.5	2506.2	2501.5
12.5°	2472.9	2473.7	2469.5	2479.5	2477.2	2479.5	2469.5	2471.2	2470.5	2471.2	2469.5
15°	2430.2	2426.7	2423.5	2437.5	2436.2	2436.2	2422.2	2424.2	2426.5	2424.2	2422.2
17.5°	2377.2	2376.7	2372.5	2385.2	2386.2	2385.2	2371.2	2375.5	2373.5	2375.5	2371.2
20°	2317.2	2316.9	2316.5	2330.2	2331.0	2329.0	2315.2	2314.5	2313.5	2314.5	2315.2
22.5°	2242.9	2250.9	2252.5	2269.2	2267.0	2268.0	2251.2	2248.5	2240.5	2248.5	2251.2
25°	2160.9	2167.9	2181.7	2201.2	2200.0	2200.0	2179.2	2164.2	2157.2	2164.2	2179.2
27.5°	2074.9	2084.9	2105.7	2130.5	2129.0	2129.2	2103.2	2081.2	2071.2	2081.2	2103.2
30°	1970.9	1983.9	2015.9	2048.7	2047.0	2046.2	2012.2	1980.2	1966.0	1980.2	2012.2
32.5°	1874.9	1884.9	1921.9	1964.7	1963.2	1962.2	1918.2	1880.0	1870.0	1880.0	1918.2
35°	1768.7	1778.7	1816.7	1870.7	1873.0	1867.0	1813.0	1775.0	1765.0	1775.0	1813.0
37.5°	1663.7	1669.7	1707.7	1771.7	1780.2	1768.0	1704.0	1666.0	1660.0	1666.0	1704.0
40°	1567.7	1561.7	1587.7	1661.5	1688.2	1659.0	1582.7	1556.7	1562.7	1556.7	1582.7
42.5°	1471.7	1459.7	1471.5	1546.5	1580.2	1544.0	1467.7	1454.7	1466.7	1454.7	1467.7
45°	1378.5	1352.5	1353.5	1424.5	1464.2	1422.0	1348.5	1348.7	1374.7	1348.7	1348.5
47.5°	1284.5	1259.5	1249.5	1302.2	1346.2	1301.0	1244.5	1255.7	1280.7	1255.7	1244.5
50°	1184.5	1168.5	1142.5	1178.2	1196.0	1175.7	1137.5	1163.5	1180.7	1163.5	1137.5
52.5°	1101.5	1081.5	1043.2	1057.2	1048.0	1054.7	1039.5	1076.5	1097.7	1076.5	1039.5
55°	1006.2	995.2	952.2	931.0	890.7	928.5	948.5	991.5	1003.7	991.5	948.5
57.5°	922.2	913.2	858.2	811.0	758.7	808.5	854.5	909.5	919.7	909.5	854.5
60°	829.0	829.0	763.0	687.7	648.7	686.5	760.5	826.5	827.7	826.5	760.5
62.5°	740.0	737.0	667.0	577.7	560.5	576.5	664.5	734.5	738.7	734.5	664.5
65°	652.7	638.7	570.7	483.7	478.5	482.5	569.5	637.5	652.7	637.5	569.5
67.5°	562.7	545.7	478.7	401.5	410.5	401.5	477.5	544.5	562.7	544.5	477.5
70°	477.5	453.5	398.5	331.5	341.5	331.5	398.5	454.7	478.7	454.7	398.5
72.5°	407.5	368.5	320.5	271.5	286.2	270.2	320.5	369.7	410.0	369.7	320.5
75°	342.5	298.5	248.2	217.2	237.2	217.2	249.5	299.7	346.2	299.7	249.5
77.5°	304.4	249.5	194.2	168.2	190.2	168.2	195.5	245.7	299.5	245.7	195.5
80°	274.6	222.9	158.0	125.2	145.2	125.2	155.5	203.0	250.9	203.0	155.5
82.5°	266.4	217.2	143.9	90.2	100.2	90.2	129.0	172.5	219.2	172.5	129.0
85°	269.0	227.5	151.3	73.0	61.2	70.5	115.2	151.7	188.1	151.7	115.2
87.5°	281.8	251.6	167.3	77.6	20.0	60.2	96.4	132.2	153.7	132.2	96.4
90°	304.3	279.8	197.1	87.7	2.2	40.5	74.0	104.5	117.7	104.5	74.0
92.5°	336.0	316.1	230.1	109.3	20.9	23.5	59.7	86.0	92.2	86.0	59.7
95°	366.5	359.0	268.6	136.3	50.7	12.0	44.7	70.5	71.7	70.5	44.7
97.5°	405.2	399.0	308.3	176.1	89.3	16.9	33.5	57.0	57.0	57.0	33.5
100°	439.7	436.5	350.3	229.6	137.6	43.0	20.7	45.9	47.9	45.9	20.7
102.5°	496.6	478.7	393.3	280.6	188.6	79.1	22.7	30.9	33.9	30.9	22.7
105°	545.3	523.9	453.2	334.1	247.0	127.6	51.5	23.9	21.7	23.9	51.5
107.5°	591.8	577.4	508.0	388.8	309.2	183.6	93.8	50.0	34.6	50.0	93.8
110°	652.0	637.1	561.4	443.5	373.9	243.3	142.3	89.8	69.9	89.8	142.3



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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°	711.7	700.5	611.2	500.7	441.0	308.0	202.0	139.6	120.9	139.6	202.0
115°	757.7	750.5	668.4	554.2	503.2	381.3	267.9	197.0	175.6	197.0	267.9
117.5°	806.2	804.0	710.7	609.9	578.8	448.3	328.9	255.5	232.8	255.5	328.9
120°	867.2	857.2	769.1	664.7	649.7	517.9	396.0	323.6	300.0	323.6	396.0
122.5°	909.4	903.2	818.9	716.9	716.9	588.8	460.7	388.3	363.4	388.3	460.7
125°	948.0	945.5	857.2	769.1	789.0	654.7	533.8	459.2	431.8	459.2	533.8
127.5°	982.8	986.5	905.7	826.4	862.4	721.9	604.7	522.6	494.0	522.6	604.7
130°	1012.7	1025.1	951.7	878.6	932.1	795.3	668.2	586.1	567.4	586.1	668.2
132.5°	1071.1	1063.7	999.0	933.1	1006.7	863.4	735.3	649.5	628.4	649.5	735.3
135°	1101.0	1103.5	1040.0	979.1	1076.3	930.6	798.7	714.2	693.0	714.2	798.7
137.5°	1137.0	1129.6	1072.4	1035.1	1141.0	995.3	860.9	782.6	749.0	782.6	860.9
140°	1163.2	1161.9	1114.7	1084.8	1210.7	1058.7	924.4	844.8	813.7	844.8	924.4
142.5°	1190.5	1199.0	1156.9	1139.5	1280.3	1125.8	992.8	906.7	875.9	906.7	992.8
145°	1210.2	1226.3	1199.2	1207.9	1346.2	1200.5	1052.5	965.2	932.8	965.2	1052.5
147.5°	1241.3	1262.4	1230.3	1256.4	1403.4	1266.4	1112.2	1026.1	997.5	1026.1	1112.2
150°	1282.6	1292.5	1273.9	1323.6	1461.9	1339.8	1173.1	1083.6	1055.0	1083.6	1173.1
152.5°	1316.1	1328.6	1307.4	1397.0	1507.9	1406.9	1240.3	1140.8	1107.2	1140.8	1240.3
155°	1351.0	1355.9	1341.0	1467.9	1557.4	1472.8	1293.8	1204.2	1171.9	1204.2	1293.8
157.5°	1383.3	1393.3	1375.8	1521.4	1599.7	1530.1	1354.7	1267.6	1239.0	1267.6	1354.7
160°	1418.1	1418.1	1428.1	1583.5	1634.5	1579.8	1419.4	1337.3	1297.5	1337.3	1419.4
162.5°	1421.9	1445.5	1499.0	1627.1	1668.1	1623.3	1489.0	1387.0	1352.2	1387.0	1489.0
165°	1476.6	1497.7	1578.6	1665.6	1694.2	1661.9	1574.8	1469.1	1428.1	1469.1	1574.8
167.5°	1533.8	1578.6	1643.2	1710.2	1720.1	1699.0	1640.8	1567.4	1530.1	1567.4	1640.8
170°	1626.1	1665.6	1698.0	1725.3	1740.0	1726.6	1681.8	1645.7	1621.1	1645.7	1681.8
172.5°	1698.5	1725.3	1737.8	1756.2	1747.5	1742.5	1719.1	1701.7	1687.3	1701.7	1719.1
175°	1744.5	1751.4	1762.6	1757.4	1764.9	1751.2	1751.4	1760.2	1707.2	1760.2	1751.4
177.5°	1760.6	1771.3	1765.1	1754.9	1756.2	1753.7	1757.7	1762.6	1753.2	1762.6	1757.7
180°	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2574.7	2574.7	2574.7	2574.7	2574.7	2574.7
2.5°	2576.9	2579.2	2578.2	2563.9	2571.5	2564.0
5°	2564.9	2565.9	2564.9	2552.9	2560.5	2554.0
7.5°	2544.7	2544.9	2545.9	2530.7	2540.7	2534.2
10°	2514.5	2515.7	2515.7	2502.7	2508.7	2509.5
12.5°	2479.5	2477.2	2479.5	2469.5	2473.7	2472.9
15°	2436.2	2436.2	2437.5	2423.5	2426.7	2430.2
17.5°	2385.2	2386.2	2385.2	2372.5	2376.7	2377.2
20°	2329.0	2331.0	2330.2	2316.5	2316.9	2317.2
22.5°	2268.0	2267.0	2269.2	2252.5	2250.9	2242.9
25°	2200.0	2200.0	2201.2	2181.7	2167.9	2160.9
27.5°	2129.2	2129.0	2130.5	2105.7	2084.9	2074.9
30°	2046.2	2047.0	2048.7	2015.9	1983.9	1970.9
32.5°	1962.2	1963.2	1964.7	1921.9	1884.9	1874.9
35°	1867.0	1873.0	1870.7	1816.7	1778.7	1768.7
37.5°	1768.0	1780.2	1771.7	1707.7	1669.7	1663.7
40°	1659.0	1688.2	1661.5	1587.7	1561.7	1567.7
42.5°	1544.0	1580.2	1546.5	1471.5	1459.7	1471.7
45°	1422.0	1464.2	1424.5	1353.5	1352.5	1378.5
47.5°	1301.0	1346.2	1302.2	1249.5	1259.5	1284.5
50°	1175.7	1196.0	1178.2	1142.5	1168.5	1184.5
52.5°	1054.7	1048.0	1057.2	1043.2	1081.5	1101.5
55°	928.5	890.7	931.0	952.2	995.2	1006.2
57.5°	808.5	758.7	811.0	858.2	913.2	922.2
60°	686.5	648.7	687.7	763.0	829.0	829.0
62.5°	576.5	560.5	577.7	667.0	737.0	740.0
65°	482.5	478.5	483.7	570.7	638.7	652.7
67.5°	401.5	410.5	401.5	478.7	545.7	562.7
70°	331.5	341.5	331.5	398.5	453.5	477.5
72.5°	270.2	286.2	271.5	320.5	368.5	407.5
75°	217.2	237.2	217.2	248.2	298.5	342.5
77.5°	168.2	190.2	168.2	194.2	249.5	304.4
80°	125.2	145.2	125.2	158.0	222.9	274.6
82.5°	90.2	100.2	90.2	143.9	217.2	266.4
85°	70.5	61.2	73.0	151.3	227.5	269.0
87.5°	60.2	20.0	77.6	167.3	251.6	281.8
90°	40.5	2.2	87.7	197.1	279.8	304.3
92.5°	23.5	20.9	109.3	230.1	316.1	336.0
95°	12.0	50.7	136.3	268.6	359.0	366.5
97.5°	16.9	89.3	176.1	308.3	399.0	405.2
100°	43.0	137.6	229.6	350.3	436.5	439.7
102.5°	79.1	188.6	280.6	393.3	478.7	496.6
105°	127.6	247.0	334.1	453.2	523.9	545.3
107.5°	183.6	309.2	388.8	508.0	577.4	591.8
110°	243.3	373.9	443.5	561.4	637.1	652.0





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CATALOG NUMBER: MWL-4-42-60-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	308.0	441.0	500.7	611.2	700.5	711.7
115°	381.3	503.2	554.2	668.4	750.5	757.7
117.5°	448.3	578.8	609.9	710.7	804.0	806.2
120°	517.9	649.7	664.7	769.1	857.2	867.2
122.5°	588.8	716.9	716.9	818.9	903.2	909.4
125°	654.7	789.0	769.1	857.2	945.5	948.0
127.5°	721.9	862.4	826.4	905.7	986.5	982.8
130°	795.3	932.1	878.6	951.7	1025.1	1012.7
132.5°	863.4	1006.7	933.1	999.0	1063.7	1071.1
135°	930.6	1076.3	979.1	1040.0	1103.5	1101.0
137.5°	995.3	1141.0	1035.1	1072.4	1129.6	1137.0
140°	1058.7	1210.7	1084.8	1114.7	1161.9	1163.2
142.5°	1125.8	1280.3	1139.5	1156.9	1199.0	1190.5
145°	1200.5	1346.2	1207.9	1199.2	1226.3	1210.2
147.5°	1266.4	1403.4	1256.4	1230.3	1262.4	1241.3
150°	1339.8	1461.9	1323.6	1273.9	1292.5	1282.6
152.5°	1406.9	1507.9	1397.0	1307.4	1328.6	1316.1
155°	1472.8	1557.4	1467.9	1341.0	1355.9	1351.0
157.5°	1530.1	1599.7	1521.4	1375.8	1393.3	1383.3
160°	1579.8	1634.5	1583.5	1428.1	1418.1	1418.1
162.5°	1623.3	1668.1	1627.1	1499.0	1445.5	1421.9
165°	1661.9	1694.2	1665.6	1578.6	1497.7	1476.6
167.5°	1699.0	1720.1	1710.2	1643.2	1578.6	1533.8
170°	1726.6	1740.0	1725.3	1698.0	1665.6	1626.1
172.5°	1742.5	1747.5	1756.2	1737.8	1725.3	1698.5
175°	1751.2	1764.9	1757.4	1762.6	1751.4	1744.5
177.5°	1753.7	1756.2	1754.9	1765.1	1771.3	1760.6
180°	1762.6	1762.6	1762.6	1762.6	1762.6	1762.6

(END OF REPORT)