

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: P392662

Luminaire Tested: **MWL-4-34-45-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392662  
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-4-34-45-UNV-L835-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

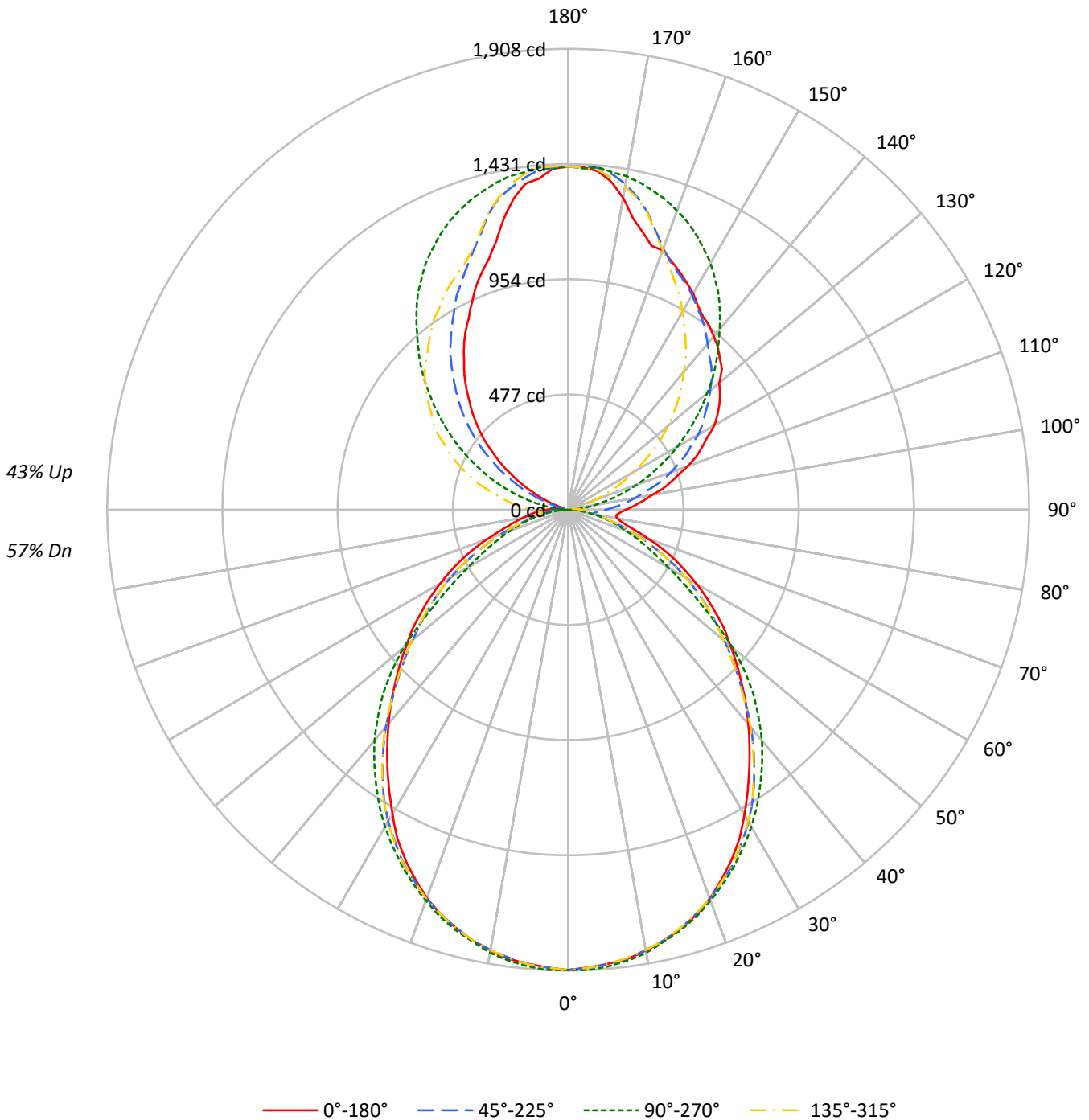
Lumens per Lamp: N/A  
Luminaire Lumens: 7845.0 lumens  
Efficiency: N/A  
Efficacy: 98.8 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 79.4  
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	57
1	99	95	91	88	92	89	85	82	77	74	72	65	64	62	55	54	53	48
2	91	83	77	72	84	78	73	68	68	64	60	58	55	52	49	47	45	41
3	83	74	66	61	77	69	63	57	60	55	51	52	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	27
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	40	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	24	20	17	16

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

	0°	90°	180°	270°
0°	12308	12308	12308	12308
5°	12124	11315	12124	11315
10°	11931	10384	11931	10384
15°	11682	9501	11661	9501
20°	11345	8677	11325	8677
25°	10869	7905	10848	7905
30°	10261	7166	10233	7166
35°	9606	6427	9584	6427
40°	8993	5718	8962	5718
45°	8391	4956	8367	4956
50°	7828	4074	7802	4074
55°	7303	3045	7284	3045
60°	6701	2254	6690	2254
65°	6066	1715	6066	1715
70°	5209	1283	5225	1283
75°	4503	928	4558	928
80°	4814	592	4370	592
85°	6934	275	4732	275



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	179.6	2.3
10°-20°	506.3	6.5
20°-30°	742.2	9.5
30°-40°	840.2	10.7
40°-50°	791.5	10.1
50°-60°	632.1	8.1
60°-70°	415.6	5.3
70°-80°	212.8	2.7
80°-90°	114.9	1.5
90°-100°	128.5	1.6
100°-110°	222.4	2.8
110°-120°	378.1	4.8
120°-130°	513.3	6.5
130°-140°	585.2	7.5
140°-150°	583.6	7.4
150°-160°	508.2	6.5
160°-170°	357.4	4.6
170°-180°	133.1	1.7
0°-30°	1428.1	18.2
0°-40°	2268.3	28.9
0°-60°	3692.0	47.1
0°-90°	4435.2	56.5
90°-120°	728.9	9.3
90°-150°	2411.1	30.7
90°-180°	3410.0	43.5
0°-180°	7845.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1906	1906	1906	1906	1906	
5°	1887	1898	1887	1898	1887	179
15°	1796	1802	1793	1802	1796	506
25°	1599	1627	1596	1627	1599	735
35°	1307	1386	1304	1386	1307	818
45°	1014	1085	1012	1085	1014	784
55°	745	657	743	657	745	667
65°	486	353	486	353	486	479
75°	251	176	254	176	251	277
85°	205	46	140	46	205	168
90°	238	2	88	2	238	131
95°	290	41	52	41	290	250
105°	439	198	17	198	439	463
115°	610	406	141	406	610	606
125°	764	636	348	636	764	682
135°	887	867	558	867	887	685
145°	974	1086	751	1086	974	614
155°	1089	1255	944	1255	1089	502
165°	1190	1365	1151	1365	1190	338
175°	1406	1422	1376	1422	1406	131
180°	1420	1420	1420	1420	1420	



TEST NUMBER: P392662

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8
2.5°	1897.0	1902.9	1898.1	1908.9	1907.9	1907.9	1898.1	1902.9	1898.0	1902.9	1898.1
5°	1887.2	1893.1	1889.2	1897.1	1898.1	1897.1	1888.2	1893.1	1887.2	1893.1	1888.2
7.5°	1876.4	1877.3	1872.4	1883.3	1883.3	1882.3	1871.4	1876.4	1876.4	1876.4	1871.4
10°	1852.8	1856.7	1851.8	1862.6	1862.6	1861.6	1850.8	1854.7	1852.8	1854.7	1850.8
12.5°	1828.3	1829.2	1826.2	1835.1	1831.2	1835.1	1826.2	1827.2	1826.2	1827.2	1826.2
15°	1795.9	1794.8	1793.8	1803.6	1801.7	1802.6	1792.8	1792.8	1792.8	1792.8	1792.8
17.5°	1759.5	1758.4	1755.5	1765.3	1766.3	1765.3	1754.5	1757.4	1756.5	1757.4	1754.5
20°	1713.3	1712.3	1714.2	1722.1	1722.1	1721.1	1713.2	1710.3	1710.3	1710.3	1713.2
22.5°	1657.3	1663.2	1665.0	1676.8	1675.9	1675.9	1664.1	1661.1	1655.2	1661.1	1664.1
25°	1599.3	1606.2	1616.9	1626.7	1626.7	1625.7	1614.9	1603.1	1596.3	1603.1	1614.9
27.5°	1535.4	1543.3	1554.0	1574.6	1572.7	1573.6	1552.0	1540.2	1532.4	1540.2	1552.0
30°	1458.7	1470.5	1493.1	1514.7	1515.7	1512.7	1490.1	1467.5	1454.7	1467.5	1490.1
32.5°	1382.1	1393.9	1421.4	1449.8	1454.7	1447.8	1418.4	1389.9	1378.1	1389.9	1418.4
35°	1307.3	1315.2	1342.7	1383.0	1385.9	1380.0	1339.7	1312.2	1304.3	1312.2	1339.7
37.5°	1232.6	1234.6	1261.1	1309.3	1318.1	1306.3	1258.1	1231.6	1229.6	1231.6	1258.1
40°	1159.9	1154.9	1177.6	1226.7	1247.3	1224.7	1173.6	1151.0	1155.9	1151.0	1173.6
42.5°	1089.1	1078.3	1086.1	1145.1	1166.7	1143.2	1083.2	1074.4	1085.2	1074.4	1083.2
45°	1014.4	1001.6	1001.6	1054.7	1085.2	1052.7	997.6	998.7	1011.5	998.7	997.6
47.5°	945.6	929.9	923.0	967.2	991.8	966.2	919.0	926.9	942.7	926.9	919.0
50°	875.8	863.0	843.4	869.9	888.6	868.0	839.4	859.0	872.9	859.0	839.4
52.5°	815.9	798.2	771.6	780.5	768.7	778.5	768.6	794.1	812.9	794.1	768.6
55°	745.1	735.3	701.9	692.0	656.6	690.0	698.8	732.2	743.1	732.2	698.8
57.5°	680.2	674.3	632.1	595.7	562.3	593.6	629.0	671.3	678.3	671.3	629.0
60°	612.4	609.5	564.3	509.2	476.8	508.1	562.2	607.4	611.4	607.4	562.2
62.5°	546.6	542.6	492.5	426.7	412.8	425.6	490.4	540.6	545.6	540.6	490.4
65°	485.6	474.8	422.7	355.9	352.8	354.8	421.6	473.7	485.6	473.7	421.6
67.5°	419.8	403.1	353.9	296.8	301.7	296.8	352.8	402.0	419.8	402.0	352.8
70°	354.8	333.2	293.9	246.7	254.6	246.7	293.9	334.3	355.9	334.3	293.9
72.5°	296.8	272.3	236.9	201.5	213.3	200.5	236.9	273.3	298.9	273.3	236.9
75°	250.6	222.1	185.8	160.2	175.9	160.2	186.7	223.2	253.7	223.2	186.7
77.5°	223.3	183.9	142.5	123.8	141.5	123.8	143.5	180.9	219.3	180.9	143.5
80°	205.9	167.5	116.1	92.4	106.1	92.4	114.0	151.5	186.9	151.5	114.0
82.5°	199.5	162.0	107.4	65.9	74.7	65.9	95.4	125.9	161.5	125.9	95.4
85°	205.0	174.4	114.8	54.2	46.2	52.1	85.7	113.2	139.9	113.2	85.7
87.5°	218.6	193.8	129.0	58.4	15.7	44.3	71.9	97.6	115.3	97.6	71.9
90°	237.9	219.1	154.4	67.6	2.0	29.5	55.1	77.7	87.6	77.7	55.1
92.5°	264.4	249.4	181.6	87.9	17.0	18.7	44.3	64.0	67.9	64.0	44.3
95°	289.7	284.7	214.0	110.2	41.1	9.9	33.5	52.1	52.2	52.1	33.5
97.5°	322.1	318.1	246.2	141.3	72.1	13.0	24.7	42.4	41.4	42.4	24.7
100°	351.4	349.3	281.5	184.5	110.3	34.1	15.8	34.6	35.6	34.6	15.8
102.5°	399.6	384.7	316.8	225.6	151.4	63.1	18.0	23.8	26.7	23.8	18.0
105°	438.9	421.9	364.8	268.6	198.4	102.2	41.1	18.9	16.8	18.9	41.1
107.5°	476.1	465.1	409.0	313.7	248.6	148.3	75.2	40.0	27.0	40.0	75.2
110°	525.2	513.2	452.1	357.9	301.7	196.5	114.2	72.1	56.1	72.1	114.2



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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°	573.4	564.4	492.2	404.0	355.9	248.6	162.4	112.2	97.2	112.2	162.4
115°	610.4	605.4	538.3	447.1	406.0	307.7	215.5	159.3	141.3	159.3	215.5
117.5°	649.6	648.6	572.4	491.1	466.2	360.9	264.6	206.5	187.4	206.5	264.6
120°	698.7	690.7	620.5	535.3	523.3	417.0	319.7	260.6	241.6	260.6	319.7
122.5°	732.7	727.7	660.6	577.4	577.4	474.1	371.9	312.7	292.7	312.7	371.9
125°	763.9	761.8	690.7	619.5	635.5	527.3	430.0	369.8	347.8	369.8	430.0
127.5°	791.9	794.9	729.8	666.6	694.7	582.3	487.2	421.0	398.0	421.0	487.2
130°	816.0	826.0	766.8	708.7	750.8	641.5	538.3	472.2	457.1	472.2	538.3
132.5°	863.0	857.0	805.0	751.8	811.0	695.7	592.4	523.3	506.2	523.3	592.4
135°	887.1	889.2	838.0	788.9	867.1	749.8	643.6	575.4	558.4	575.4	643.6
137.5°	916.2	910.2	864.1	834.0	919.3	801.9	693.7	630.5	603.5	630.5	693.7
140°	937.2	936.3	898.1	874.1	975.4	853.0	744.8	680.6	655.6	680.6	744.8
142.5°	959.4	965.4	932.2	918.2	1031.5	907.2	799.9	729.8	705.7	729.8	799.9
145°	974.4	987.4	966.3	973.3	1085.7	967.3	848.0	776.8	750.8	776.8	848.0
147.5°	999.5	1016.5	991.4	1012.4	1130.8	1020.5	896.2	826.0	802.9	826.0	896.2
150°	1033.5	1041.5	1026.5	1066.6	1178.8	1079.7	945.3	873.1	850.1	873.1	945.3
152.5°	1060.6	1070.6	1053.5	1125.8	1216.0	1133.7	999.5	919.3	892.1	919.3	999.5
155°	1088.6	1092.6	1080.6	1182.9	1255.1	1186.9	1042.5	970.4	944.3	970.4	1042.5
157.5°	1114.8	1122.7	1108.7	1226.0	1289.1	1233.0	1091.7	1021.5	998.4	1021.5	1091.7
160°	1142.8	1142.8	1150.8	1276.1	1317.2	1273.1	1143.7	1077.6	1045.6	1077.6	1143.7
162.5°	1145.8	1164.9	1207.9	1311.2	1344.2	1308.2	1200.0	1117.7	1089.7	1117.7	1200.0
165°	1189.9	1206.9	1272.1	1342.3	1365.4	1339.2	1269.1	1183.8	1150.8	1183.8	1269.1
167.5°	1236.0	1272.1	1324.2	1377.4	1385.4	1368.3	1322.2	1263.1	1233.0	1263.1	1322.2
170°	1310.2	1342.3	1368.3	1390.4	1401.4	1391.4	1355.4	1326.3	1306.2	1326.3	1355.4
172.5°	1369.4	1390.4	1400.5	1414.4	1408.4	1403.4	1385.4	1371.4	1360.4	1371.4	1385.4
175°	1406.5	1411.5	1420.5	1415.5	1422.5	1410.5	1411.5	1418.5	1376.4	1418.5	1411.5
177.5°	1419.5	1427.5	1422.5	1413.4	1414.4	1412.5	1416.5	1420.5	1413.4	1420.5	1416.5
180°	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1905.8	1905.8	1905.8	1905.8	1905.8	1905.8
2.5°	1907.9	1907.9	1908.9	1898.1	1902.9	1897.0
5°	1897.1	1898.1	1897.1	1889.2	1893.1	1887.2
7.5°	1882.3	1883.3	1883.3	1872.4	1877.3	1876.4
10°	1861.6	1862.6	1862.6	1851.8	1856.7	1852.8
12.5°	1835.1	1831.2	1835.1	1826.2	1829.2	1828.3
15°	1802.6	1801.7	1803.6	1793.8	1794.8	1795.9
17.5°	1765.3	1766.3	1765.3	1755.5	1758.4	1759.5
20°	1721.1	1722.1	1722.1	1714.2	1712.3	1713.3
22.5°	1675.9	1675.9	1676.8	1665.0	1663.2	1657.3
25°	1625.7	1626.7	1626.7	1616.9	1606.2	1599.3
27.5°	1573.6	1572.7	1574.6	1554.0	1543.3	1535.4
30°	1512.7	1515.7	1514.7	1493.1	1470.5	1458.7
32.5°	1447.8	1454.7	1449.8	1421.4	1393.9	1382.1
35°	1380.0	1385.9	1383.0	1342.7	1315.2	1307.3
37.5°	1306.3	1318.1	1309.3	1261.1	1234.6	1232.6
40°	1224.7	1247.3	1226.7	1177.6	1154.9	1159.9
42.5°	1143.2	1166.7	1145.1	1086.1	1078.3	1089.1
45°	1052.7	1085.2	1054.7	1001.6	1001.6	1014.4
47.5°	966.2	991.8	967.2	923.0	929.9	945.6
50°	868.0	888.6	869.9	843.4	863.0	875.8
52.5°	778.5	768.7	780.5	771.6	798.2	815.9
55°	690.0	656.6	692.0	701.9	735.3	745.1
57.5°	593.6	562.3	595.7	632.1	674.3	680.2
60°	508.1	476.8	509.2	564.3	609.5	612.4
62.5°	425.6	412.8	426.7	492.5	542.6	546.6
65°	354.8	352.8	355.9	422.7	474.8	485.6
67.5°	296.8	301.7	296.8	353.9	403.1	419.8
70°	246.7	254.6	246.7	293.9	333.2	354.8
72.5°	200.5	213.3	201.5	236.9	272.3	296.8
75°	160.2	175.9	160.2	185.8	222.1	250.6
77.5°	123.8	141.5	123.8	142.5	183.9	223.3
80°	92.4	106.1	92.4	116.1	167.5	205.9
82.5°	65.9	74.7	65.9	107.4	162.0	199.5
85°	52.1	46.2	54.2	114.8	174.4	205.0
87.5°	44.3	15.7	58.4	129.0	193.8	218.6
90°	29.5	2.0	67.6	154.4	219.1	237.9
92.5°	18.7	17.0	87.9	181.6	249.4	264.4
95°	9.9	41.1	110.2	214.0	284.7	289.7
97.5°	13.0	72.1	141.3	246.2	318.1	322.1
100°	34.1	110.3	184.5	281.5	349.3	351.4
102.5°	63.1	151.4	225.6	316.8	384.7	399.6
105°	102.2	198.4	268.6	364.8	421.9	438.9
107.5°	148.3	248.6	313.7	409.0	465.1	476.1
110°	196.5	301.7	357.9	452.1	513.2	525.2





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CATALOG NUMBER: MWL-4-34-45-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	248.6	355.9	404.0	492.2	564.4	573.4
115°	307.7	406.0	447.1	538.3	605.4	610.4
117.5°	360.9	466.2	491.1	572.4	648.6	649.6
120°	417.0	523.3	535.3	620.5	690.7	698.7
122.5°	474.1	577.4	577.4	660.6	727.7	732.7
125°	527.3	635.5	619.5	690.7	761.8	763.9
127.5°	582.3	694.7	666.6	729.8	794.9	791.9
130°	641.5	750.8	708.7	766.8	826.0	816.0
132.5°	695.7	811.0	751.8	805.0	857.0	863.0
135°	749.8	867.1	788.9	838.0	889.2	887.1
137.5°	801.9	919.3	834.0	864.1	910.2	916.2
140°	853.0	975.4	874.1	898.1	936.3	937.2
142.5°	907.2	1031.5	918.2	932.2	965.4	959.4
145°	967.3	1085.7	973.3	966.3	987.4	974.4
147.5°	1020.5	1130.8	1012.4	991.4	1016.5	999.5
150°	1079.7	1178.8	1066.6	1026.5	1041.5	1033.5
152.5°	1133.7	1216.0	1125.8	1053.5	1070.6	1060.6
155°	1186.9	1255.1	1182.9	1080.6	1092.6	1088.6
157.5°	1233.0	1289.1	1226.0	1108.7	1122.7	1114.8
160°	1273.1	1317.2	1276.1	1150.8	1142.8	1142.8
162.5°	1308.2	1344.2	1311.2	1207.9	1164.9	1145.8
165°	1339.2	1365.4	1342.3	1272.1	1206.9	1189.9
167.5°	1368.3	1385.4	1377.4	1324.2	1272.1	1236.0
170°	1391.4	1401.4	1390.4	1368.3	1342.3	1310.2
172.5°	1403.4	1408.4	1414.4	1400.5	1390.4	1369.4
175°	1410.5	1422.5	1415.5	1420.5	1411.5	1406.5
177.5°	1412.5	1414.4	1413.4	1422.5	1427.5	1419.5
180°	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5

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