

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: P392684

Luminaire Tested: **MWL-4-42-73-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392684
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-4-42-73-UNV-L840-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

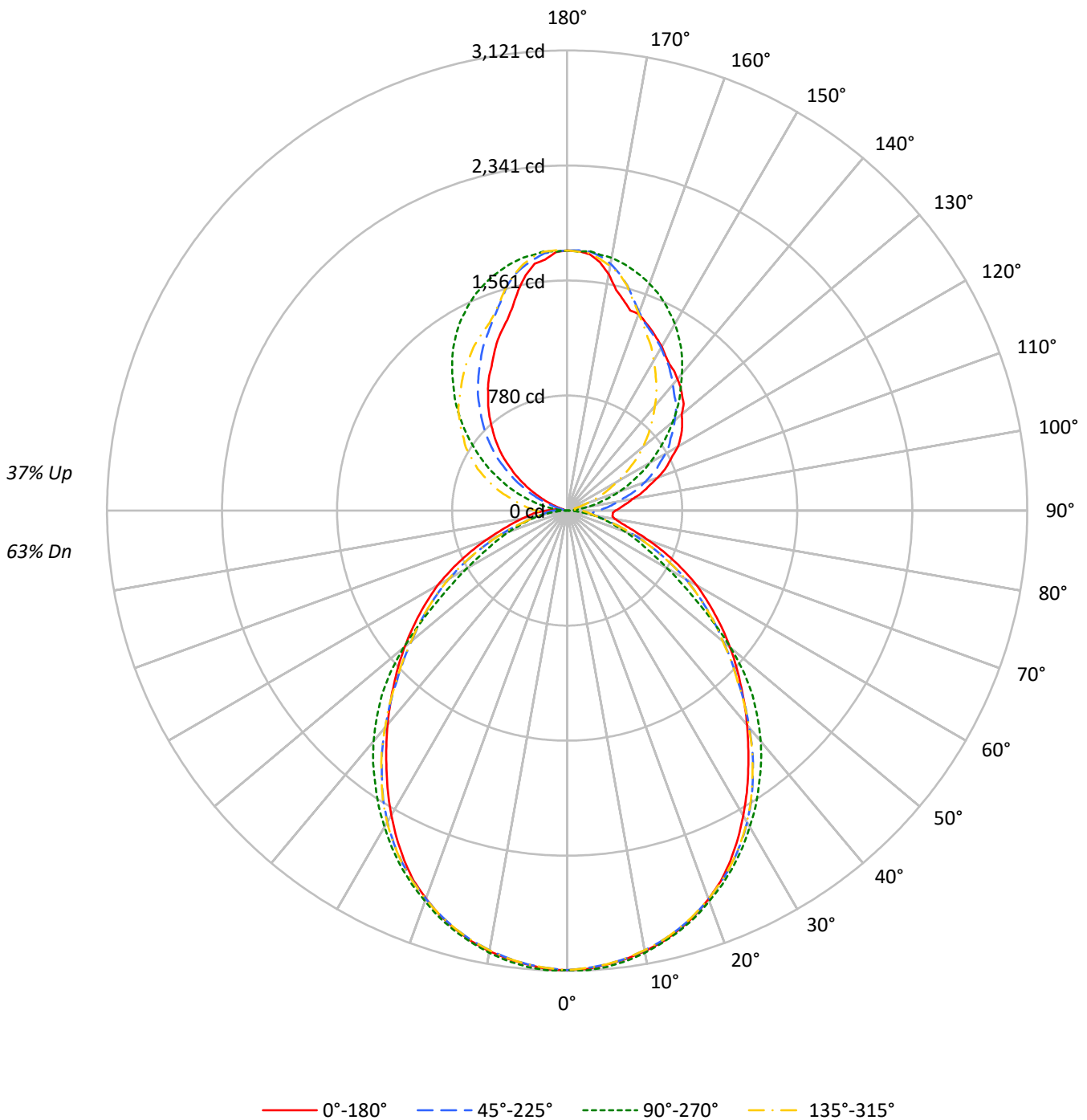
Lumens per Lamp: N/A
Luminaire Lumens: 11510.8 lumens
Efficiency: N/A
Efficacy: 89.8 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 128.2
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63
1	101	97	93	89	95	91	87	84	80	77	75	70	68	66	61	59	58	54
2	92	85	79	74	86	80	74	70	70	66	63	62	59	56	54	52	49	46
3	84	75	68	62	79	71	64	59	63	57	53	55	51	48	48	45	43	39
4	78	67	59	53	72	63	56	50	56	50	46	49	45	41	43	40	37	34
5	71	60	52	46	67	56	49	44	50	44	40	45	40	36	39	35	33	30
6	66	54	46	40	62	51	44	38	45	39	35	40	36	32	36	32	29	26
7	61	49	41	35	57	46	39	34	41	35	31	37	32	28	33	29	26	23
8	57	44	37	31	53	42	35	30	38	32	28	34	29	25	30	26	23	21
9	53	41	33	28	50	39	32	27	35	29	25	31	26	23	28	24	21	19
10	50	37	30	25	47	36	29	24	32	27	23	29	24	21	26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	20129	20129	20129	20129
5°	19852	18516	19852	18516
10°	19542	16980	19542	16980
15°	19131	15557	19107	15557
20°	18562	14204	18538	14204
25°	17805	12951	17779	12951
30°	16804	11716	16770	11716
35°	15730	10522	15703	10522
40°	14721	9362	14682	9362
45°	13760	8130	13729	8130
50°	12884	6642	12850	6642
55°	11989	4997	11965	4997
60°	11118	3719	11103	3719
65°	9889	2802	9889	2802
70°	8596	2109	8613	2109
75°	7502	1509	7568	1509
80°	7706	971	7152	971
85°	10486	436	7750	436



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.8	2.6
10°-20°	828.8	7.2
20°-30°	1215.5	10.6
30°-40°	1375.9	12.0
40°-50°	1296.5	11.3
50°-60°	1037.6	9.0
60°-70°	683.3	5.9
70°-80°	349.6	3.0
80°-90°	179.3	1.6
90°-100°	172.6	1.5
100°-110°	278.3	2.4
110°-120°	469.8	4.1
120°-130°	637.7	5.5
130°-140°	727.0	6.3
140°-150°	725.0	6.3
150°-160°	631.0	5.5
160°-170°	443.8	3.9
170°-180°	165.3	1.4
0°-30°	2338.1	20.3
0°-40°	3714.0	32.3
0°-60°	6048.1	52.5
0°-90°	7260.3	63.1
90°-120°	920.6	8.0
90°-150°	3010.3	26.2
90°-180°	4251.0	36.9
0°-180°	11510.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3117	3117	3117	3117	3117	
5°	3090	3106	3090	3106	3090	293
15°	2941	2950	2938	2950	2941	828
25°	2620	2665	2616	2665	2620	1203
35°	2141	2269	2137	2269	2141	1340
45°	1664	1780	1660	1780	1664	1286
55°	1223	1078	1221	1078	1223	1096
65°	792	576	792	576	792	786
75°	418	286	421	286	418	458
85°	310	73	229	73	310	256
90°	327	2	141	2	327	181
95°	382	52	87	52	382	327
105°	548	247	25	247	548	580
115°	759	504	177	504	759	753
125°	949	789	433	789	949	847
135°	1102	1077	694	1077	1102	851
145°	1210	1347	933	1347	1210	763
155°	1352	1558	1173	1558	1352	624
165°	1478	1696	1429	1696	1478	419
175°	1746	1766	1708	1766	1746	163
180°	1764	1764	1764	1764	1764	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8
2.5°	3112.1	3112.6	3105.0	3122.3	3121.3	3121.0	3105.0	3112.6	3113.3	3112.6	3105.0
5°	3090.1	3096.6	3090.0	3107.0	3106.0	3107.0	3088.8	3096.6	3090.1	3096.6	3088.8
7.5°	3067.3	3075.8	3062.8	3083.0	3081.0	3081.8	3061.6	3074.6	3067.3	3074.6	3061.6
10°	3034.6	3037.8	3028.8	3046.8	3045.8	3045.6	3027.6	3035.3	3034.6	3035.3	3027.6
12.5°	2994.9	2993.7	2986.5	3002.5	3000.2	3002.5	2986.5	2991.2	2992.5	2991.2	2986.5
15°	2941.2	2939.7	2934.5	2950.5	2950.2	2949.2	2933.2	2937.2	2937.5	2937.2	2933.2
17.5°	2880.2	2877.7	2874.5	2891.2	2891.2	2891.2	2873.2	2876.5	2876.5	2876.5	2873.2
20°	2803.2	2805.9	2803.5	2820.2	2819.0	2819.0	2802.2	2803.5	2799.5	2803.5	2802.2
22.5°	2720.9	2723.9	2728.5	2750.2	2746.0	2749.0	2727.2	2721.5	2718.5	2721.5	2727.2
25°	2619.9	2625.9	2643.7	2666.2	2665.0	2665.0	2641.2	2622.2	2616.2	2622.2	2641.2
27.5°	2507.9	2523.9	2547.7	2576.5	2576.0	2575.2	2545.2	2520.2	2504.2	2520.2	2545.2
30°	2388.9	2405.9	2441.9	2482.7	2478.0	2480.2	2438.2	2402.2	2384.0	2402.2	2438.2
32.5°	2267.9	2284.9	2325.9	2374.7	2378.2	2372.2	2322.2	2280.0	2263.0	2280.0	2322.2
35°	2140.7	2148.7	2195.7	2269.7	2269.0	2266.0	2192.0	2145.0	2137.0	2145.0	2192.0
37.5°	2017.7	2019.7	2066.7	2144.7	2161.2	2141.0	2063.0	2016.0	2014.0	2016.0	2063.0
40°	1898.7	1888.7	1921.7	2008.5	2042.2	2006.0	1916.7	1883.7	1893.7	1883.7	1916.7
42.5°	1780.7	1768.7	1782.5	1868.5	1913.2	1866.0	1778.7	1763.7	1775.7	1763.7	1778.7
45°	1663.5	1641.5	1638.5	1724.5	1780.2	1722.0	1633.5	1637.7	1659.7	1637.7	1633.5
47.5°	1552.5	1526.5	1511.5	1577.2	1627.2	1576.0	1506.5	1522.7	1548.7	1522.7	1506.5
50°	1441.5	1416.5	1381.5	1427.2	1449.0	1424.7	1376.5	1411.5	1437.7	1411.5	1376.5
52.5°	1331.5	1312.5	1267.2	1283.2	1258.0	1280.7	1263.5	1307.5	1327.7	1307.5	1263.5
55°	1223.2	1206.2	1151.2	1130.0	1077.7	1127.5	1147.5	1202.5	1220.7	1202.5	1147.5
57.5°	1117.2	1107.2	1039.2	977.0	920.7	974.5	1035.5	1103.5	1114.7	1103.5	1035.5
60°	1016.0	1005.0	926.0	829.7	786.7	828.5	923.5	1002.5	1014.7	1002.5	923.5
62.5°	902.0	897.0	808.0	699.7	671.5	698.5	805.5	894.5	900.7	894.5	805.5
65°	791.7	776.7	693.7	587.7	576.5	586.5	692.5	775.5	791.7	775.5	692.5
67.5°	685.7	663.7	586.7	490.5	493.5	490.5	585.5	662.5	685.7	662.5	585.5
70°	585.5	551.5	482.5	405.5	418.5	405.5	482.5	552.7	586.7	552.7	482.5
72.5°	492.5	450.5	387.5	330.5	346.2	329.2	387.5	451.7	495.0	451.7	387.5
75°	417.5	364.5	301.2	263.2	286.2	263.2	302.5	365.7	421.2	365.7	302.5
77.5°	366.4	304.5	235.2	203.2	231.2	203.2	236.5	300.7	361.5	300.7	236.5
80°	329.6	268.9	190.0	150.2	174.2	150.2	187.5	249.0	305.9	249.0	187.5
82.5°	310.4	255.2	172.9	108.2	122.2	108.2	158.0	210.5	263.2	210.5	158.0
85°	310.0	260.5	174.3	88.0	73.2	85.5	138.2	184.7	229.1	184.7	138.2
87.5°	310.8	275.6	186.3	88.6	27.0	71.2	115.4	156.2	182.7	156.2	115.4
90°	327.3	300.8	212.1	95.7	2.2	48.5	89.0	125.5	140.7	125.5	89.0
92.5°	356.0	335.1	242.1	115.3	21.9	29.5	71.7	105.0	112.2	105.0	71.7
95°	381.5	372.0	278.6	138.3	51.7	14.0	54.7	83.5	86.7	83.5	54.7
97.5°	417.2	411.0	313.3	176.1	90.3	16.9	38.5	69.0	69.0	69.0	38.5
100°	448.7	444.5	353.3	229.6	137.6	43.0	23.7	53.9	56.9	53.9	23.7
102.5°	502.6	483.7	394.3	280.6	188.6	79.1	23.7	35.9	39.9	35.9	23.7
105°	548.3	525.9	453.2	334.1	247.0	127.6	51.5	25.9	24.7	25.9	51.5
107.5°	592.8	578.4	508.0	389.8	309.2	184.6	93.8	51.0	35.6	51.0	93.8
110°	653.0	638.1	561.4	444.5	374.9	244.3	142.3	90.8	70.9	90.8	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°	712.7	701.5	611.2	501.7	442.0	309.0	202.0	140.6	121.9	140.6	202.0
115°	758.7	751.5	669.4	555.2	504.2	382.3	268.9	198.0	176.6	198.0	268.9
117.5°	807.2	805.0	711.7	609.9	578.8	448.3	329.9	256.5	233.8	256.5	329.9
120°	868.2	857.2	770.1	664.7	649.7	517.9	397.0	323.6	301.0	323.6	397.0
122.5°	910.4	904.2	819.9	717.9	716.9	589.8	461.7	389.3	364.4	389.3	461.7
125°	949.0	946.5	857.2	770.1	789.0	655.7	533.8	460.2	432.8	460.2	533.8
127.5°	983.8	987.5	906.7	827.4	863.4	722.9	605.7	523.6	495.0	523.6	605.7
130°	1013.7	1026.1	952.7	879.6	933.1	796.3	669.2	587.1	568.4	587.1	669.2
132.5°	1072.1	1064.7	1000.0	933.1	1007.7	863.4	736.3	650.5	629.4	650.5	736.3
135°	1102.0	1104.5	1041.0	979.1	1077.3	930.6	799.7	715.2	694.0	715.2	799.7
137.5°	1138.0	1130.6	1073.4	1036.1	1142.0	996.3	861.9	783.6	750.0	783.6	861.9
140°	1164.2	1162.9	1115.7	1085.8	1211.7	1059.7	925.4	845.8	814.7	845.8	925.4
142.5°	1192.5	1200.0	1157.9	1140.5	1281.3	1126.8	993.8	907.7	877.9	907.7	993.8
145°	1210.2	1227.3	1200.2	1208.9	1347.2	1201.5	1053.5	966.2	932.8	966.2	1053.5
147.5°	1242.3	1262.4	1231.3	1257.4	1404.4	1267.4	1113.2	1026.1	998.5	1026.1	1113.2
150°	1283.6	1293.5	1274.9	1324.6	1462.9	1340.8	1174.1	1084.6	1056.0	1084.6	1174.1
152.5°	1317.1	1329.6	1308.4	1398.0	1508.9	1407.9	1241.3	1141.8	1108.2	1141.8	1241.3
155°	1352.0	1356.9	1342.0	1468.9	1558.4	1473.8	1294.8	1205.2	1172.9	1205.2	1294.8
157.5°	1384.3	1394.3	1376.8	1522.4	1600.7	1531.1	1355.7	1268.6	1240.0	1268.6	1355.7
160°	1419.1	1419.1	1429.1	1584.5	1635.5	1580.8	1420.4	1338.3	1298.5	1338.3	1420.4
162.5°	1422.9	1446.5	1500.0	1628.1	1669.1	1624.3	1490.0	1388.0	1353.2	1388.0	1490.0
165°	1477.6	1498.7	1579.6	1666.6	1696.2	1662.9	1575.8	1470.1	1429.1	1470.1	1575.8
167.5°	1533.8	1578.6	1644.2	1711.2	1721.1	1700.0	1641.8	1567.4	1530.1	1567.4	1641.8
170°	1626.1	1666.6	1699.0	1727.3	1741.0	1728.6	1682.8	1646.7	1621.1	1646.7	1682.8
172.5°	1699.5	1726.3	1738.8	1757.2	1748.5	1743.5	1720.1	1702.7	1688.3	1702.7	1720.1
175°	1745.5	1752.4	1763.6	1758.4	1765.9	1752.2	1752.4	1761.2	1708.2	1761.2	1752.4
177.5°	1761.6	1772.3	1766.1	1755.9	1757.2	1754.7	1758.7	1763.6	1754.2	1763.6	1758.7
180°	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3116.8	3116.8	3116.8	3116.8	3116.8	3116.8
2.5°	3121.0	3121.3	3122.3	3105.0	3112.6	3112.1
5°	3107.0	3106.0	3107.0	3090.0	3096.6	3090.1
7.5°	3081.8	3081.0	3083.0	3062.8	3075.8	3067.3
10°	3045.6	3045.8	3046.8	3028.8	3037.8	3034.6
12.5°	3002.5	3000.2	3002.5	2986.5	2993.7	2994.9
15°	2949.2	2950.2	2950.5	2934.5	2939.7	2941.2
17.5°	2891.2	2891.2	2891.2	2874.5	2877.7	2880.2
20°	2819.0	2819.0	2820.2	2803.5	2805.9	2803.2
22.5°	2749.0	2746.0	2750.2	2728.5	2723.9	2720.9
25°	2665.0	2665.0	2666.2	2643.7	2625.9	2619.9
27.5°	2575.2	2576.0	2576.5	2547.7	2523.9	2507.9
30°	2480.2	2478.0	2482.7	2441.9	2405.9	2388.9
32.5°	2372.2	2378.2	2374.7	2325.9	2284.9	2267.9
35°	2266.0	2269.0	2269.7	2195.7	2148.7	2140.7
37.5°	2141.0	2161.2	2144.7	2066.7	2019.7	2017.7
40°	2006.0	2042.2	2008.5	1921.7	1888.7	1898.7
42.5°	1866.0	1913.2	1868.5	1782.5	1768.7	1780.7
45°	1722.0	1780.2	1724.5	1638.5	1641.5	1663.5
47.5°	1576.0	1627.2	1577.2	1511.5	1526.5	1552.5
50°	1424.7	1449.0	1427.2	1381.5	1416.5	1441.5
52.5°	1280.7	1258.0	1283.2	1267.2	1312.5	1331.5
55°	1127.5	1077.7	1130.0	1151.2	1206.2	1223.2
57.5°	974.5	920.7	977.0	1039.2	1107.2	1117.2
60°	828.5	786.7	829.7	926.0	1005.0	1016.0
62.5°	698.5	671.5	699.7	808.0	897.0	902.0
65°	586.5	576.5	587.7	693.7	776.7	791.7
67.5°	490.5	493.5	490.5	586.7	663.7	685.7
70°	405.5	418.5	405.5	482.5	551.5	585.5
72.5°	329.2	346.2	330.5	387.5	450.5	492.5
75°	263.2	286.2	263.2	301.2	364.5	417.5
77.5°	203.2	231.2	203.2	235.2	304.5	366.4
80°	150.2	174.2	150.2	190.0	268.9	329.6
82.5°	108.2	122.2	108.2	172.9	255.2	310.4
85°	85.5	73.2	88.0	174.3	260.5	310.0
87.5°	71.2	27.0	88.6	186.3	275.6	310.8
90°	48.5	2.2	95.7	212.1	300.8	327.3
92.5°	29.5	21.9	115.3	242.1	335.1	356.0
95°	14.0	51.7	138.3	278.6	372.0	381.5
97.5°	16.9	90.3	176.1	313.3	411.0	417.2
100°	43.0	137.6	229.6	353.3	444.5	448.7
102.5°	79.1	188.6	280.6	394.3	483.7	502.6
105°	127.6	247.0	334.1	453.2	525.9	548.3
107.5°	184.6	309.2	389.8	508.0	578.4	592.8
110°	244.3	374.9	444.5	561.4	638.1	653.0



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CATALOG NUMBER: MWL-4-42-73-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	309.0	442.0	501.7	611.2	701.5	712.7
115°	382.3	504.2	555.2	669.4	751.5	758.7
117.5°	448.3	578.8	609.9	711.7	805.0	807.2
120°	517.9	649.7	664.7	770.1	857.2	868.2
122.5°	589.8	716.9	717.9	819.9	904.2	910.4
125°	655.7	789.0	770.1	857.2	946.5	949.0
127.5°	722.9	863.4	827.4	906.7	987.5	983.8
130°	796.3	933.1	879.6	952.7	1026.1	1013.7
132.5°	863.4	1007.7	933.1	1000.0	1064.7	1072.1
135°	930.6	1077.3	979.1	1041.0	1104.5	1102.0
137.5°	996.3	1142.0	1036.1	1073.4	1130.6	1138.0
140°	1059.7	1211.7	1085.8	1115.7	1162.9	1164.2
142.5°	1126.8	1281.3	1140.5	1157.9	1200.0	1192.5
145°	1201.5	1347.2	1208.9	1200.2	1227.3	1210.2
147.5°	1267.4	1404.4	1257.4	1231.3	1262.4	1242.3
150°	1340.8	1462.9	1324.6	1274.9	1293.5	1283.6
152.5°	1407.9	1508.9	1398.0	1308.4	1329.6	1317.1
155°	1473.8	1558.4	1468.9	1342.0	1356.9	1352.0
157.5°	1531.1	1600.7	1522.4	1376.8	1394.3	1384.3
160°	1580.8	1635.5	1584.5	1429.1	1419.1	1419.1
162.5°	1624.3	1669.1	1628.1	1500.0	1446.5	1422.9
165°	1662.9	1696.2	1666.6	1579.6	1498.7	1477.6
167.5°	1700.0	1721.1	1711.2	1644.2	1578.6	1533.8
170°	1728.6	1741.0	1727.3	1699.0	1666.6	1626.1
172.5°	1743.5	1748.5	1757.2	1738.8	1726.3	1699.5
175°	1752.2	1765.9	1758.4	1763.6	1752.4	1745.5
177.5°	1754.7	1757.2	1755.9	1766.1	1772.3	1761.6
180°	1763.6	1763.6	1763.6	1763.6	1763.6	1763.6

(END OF REPORT)