

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: P392708

Luminaire Tested: **MWL-4-66-45-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392708
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-4-66-45-UNV-L940-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

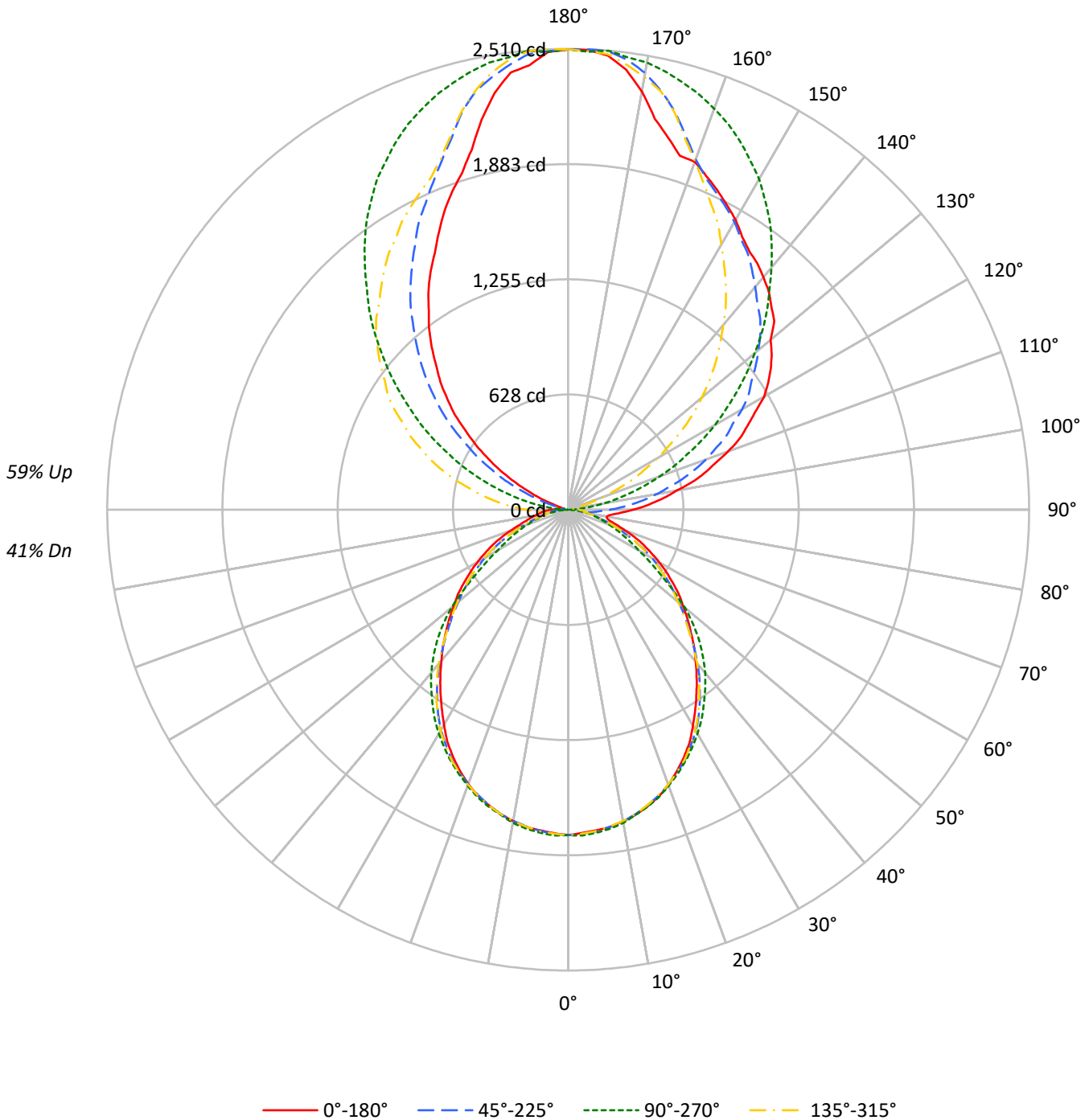
Lumens per Lamp: N/A
Luminaire Lumens: 10134.0 lumens
Efficiency: N/A
Efficacy: 76.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 131.704
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	50	30	10	0	
RCR																						
0	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41				
1	96	92	88	84	87	84	80	77	69	66	64	55	53	52	42	41	40	35				
2	87	80	74	69	79	73	68	64	60	57	54	49	46	44	38	36	34	29				
3	80	71	64	58	73	65	59	54	54	49	45	43	40	37	34	31	30	25				
4	73	63	55	49	66	58	51	46	48	43	39	39	35	32	30	28	26	22				
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	27	25	23	19				
6	62	50	42	37	56	46	39	34	39	33	29	31	28	25	25	22	20	17				
7	57	45	38	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15				
8	53	41	34	28	48	38	31	27	32	27	23	26	22	19	21	18	16	14				
9	49	38	30	25	45	35	28	24	29	24	21	24	20	18	19	17	14	12				
10	46	34	27	23	42	32	26	21	27	22	19	22	19	16	18	15	13	11				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	11448	11448	11448	11448
5°	11261	10529	11261	10529
10°	11093	9659	11093	9659
15°	10878	8829	10843	8829
20°	10567	8061	10532	8061
25°	10120	7345	10084	7345
30°	9559	6659	9510	6659
35°	8949	5973	8910	5973
40°	8382	5320	8327	5320
45°	7820	4613	7776	4613
50°	7302	3792	7254	3792
55°	6811	2834	6776	2834
60°	6249	2101	6230	2101
65°	5654	1598	5654	1598
70°	4854	1198	4880	1198
75°	4206	864	4300	864
80°	4996	553	4206	553
85°	8764	260	4871	260



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.0	1.6
10°-20°	470.8	4.6
20°-30°	690.3	6.8
30°-40°	781.8	7.7
40°-50°	736.7	7.3
50°-60°	588.6	5.8
60°-70°	387.4	3.8
70°-80°	199.7	2.0
80°-90°	129.4	1.3
90°-100°	200.6	2.0
100°-110°	388.1	3.8
110°-120°	665.8	6.6
120°-130°	904.6	8.9
130°-140°	1031.9	10.2
140°-150°	1029.3	10.2
150°-160°	896.4	8.8
160°-170°	630.6	6.2
170°-180°	234.9	2.3
0°-30°	1328.0	13.1
0°-40°	2109.8	20.8
0°-60°	3435.2	33.9
0°-90°	4151.7	41.0
90°-120°	1254.5	12.4
90°-150°	4220.3	41.6
90°-180°	5982.0	59.0
0°-180°	10134.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1773	1773	1773	1773	1773	
5°	1753	1766	1753	1766	1753	167
15°	1672	1674	1667	1674	1672	471
25°	1489	1511	1484	1511	1489	684
35°	1218	1288	1212	1288	1218	762
45°	945	1010	940	1010	945	731
55°	695	611	691	611	695	623
65°	453	329	453	329	453	446
75°	234	164	239	164	234	264
85°	259	44	144	44	259	203
90°	353	3	87	3	353	195
95°	470	72	51	72	470	412
105°	767	350	22	350	767	807
115°	1076	715	247	715	1076	1068
125°	1347	1121	612	1121	1347	1203
135°	1564	1530	984	1530	1564	1208
145°	1719	1915	1324	1915	1719	1084
155°	1920	2214	1666	2214	1920	886
165°	2099	2409	2030	2409	2099	596
175°	2483	2509	2430	2509	2483	231
180°	2506	2506	2506	2506	2506	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6
2.5°	1761.9	1769.1	1766.2	1777.1	1776.2	1775.3	1766.2	1769.1	1763.6	1769.1	1766.2
5°	1752.8	1760.0	1758.0	1765.3	1766.2	1765.3	1756.2	1760.0	1752.8	1760.0	1756.2
7.5°	1743.6	1746.2	1741.7	1752.5	1752.5	1750.8	1739.9	1744.5	1743.6	1744.5	1739.9
10°	1722.6	1727.1	1722.5	1732.5	1732.5	1730.8	1720.8	1723.5	1722.6	1723.5	1720.8
12.5°	1701.5	1701.6	1698.0	1706.2	1701.7	1706.2	1698.0	1698.0	1698.0	1698.0	1698.0
15°	1672.3	1669.7	1668.0	1677.1	1674.3	1675.2	1666.1	1666.1	1667.0	1666.1	1666.1
17.5°	1638.6	1636.0	1632.4	1640.6	1641.5	1640.6	1630.6	1634.2	1633.3	1634.2	1630.6
20°	1595.8	1594.0	1594.2	1600.5	1599.7	1598.8	1592.3	1590.5	1590.5	1590.5	1592.3
22.5°	1542.9	1548.4	1548.6	1558.6	1556.9	1556.9	1546.8	1545.0	1539.5	1545.0	1546.8
25°	1489.2	1495.6	1504.8	1512.2	1511.3	1510.4	1501.2	1490.3	1483.9	1490.3	1501.2
27.5°	1430.0	1437.3	1446.5	1464.8	1461.2	1463.0	1442.9	1432.0	1424.7	1432.0	1442.9
30°	1358.9	1369.8	1390.8	1410.0	1408.4	1406.5	1385.5	1364.6	1351.9	1364.6	1385.5
32.5°	1287.8	1298.8	1324.3	1349.9	1352.7	1346.3	1319.0	1291.8	1280.8	1291.8	1319.0
35°	1217.8	1225.1	1250.6	1287.9	1288.1	1282.6	1245.3	1219.8	1212.5	1219.8	1245.3
37.5°	1148.5	1150.4	1175.0	1219.6	1226.1	1214.3	1169.7	1145.1	1143.2	1145.1	1169.7
40°	1081.1	1076.6	1097.5	1142.2	1160.5	1138.7	1090.4	1069.4	1074.0	1069.4	1090.4
42.5°	1015.5	1005.5	1012.0	1066.6	1085.8	1063.1	1006.6	998.4	1008.4	998.4	1006.6
45°	945.4	933.6	933.6	982.8	1010.1	979.3	926.5	928.2	940.1	928.2	926.5
47.5°	881.7	867.1	860.7	900.8	923.6	899.1	853.6	861.7	876.3	861.7	853.6
50°	817.0	805.1	786.9	810.6	827.1	807.1	779.8	798.0	811.6	798.0	779.8
52.5°	761.4	745.0	719.5	727.7	715.9	724.1	714.2	737.9	756.0	737.9	714.2
55°	694.9	685.8	654.8	644.9	611.2	641.3	649.5	680.5	691.3	680.5	649.5
57.5°	634.8	629.3	590.1	555.6	523.7	552.0	584.8	624.0	631.2	624.0	584.8
60°	571.1	568.3	526.4	474.5	444.4	472.8	522.9	564.8	569.3	564.8	522.9
62.5°	510.0	506.4	459.9	398.0	384.4	396.2	456.4	502.8	508.2	502.8	456.4
65°	452.6	442.6	394.3	332.4	328.8	330.6	392.6	440.9	452.6	440.9	392.6
67.5°	391.6	376.1	330.5	276.9	281.4	276.9	328.8	374.4	391.6	374.4	328.8
70°	330.6	310.6	274.1	230.4	237.7	230.4	274.1	312.3	332.4	312.3	274.1
72.5°	276.9	254.1	221.3	188.5	198.5	186.7	221.3	255.8	280.4	255.8	221.3
75°	234.1	207.6	173.0	149.3	163.9	149.3	174.8	209.4	239.3	209.4	174.8
77.5°	215.4	175.6	132.9	115.6	132.0	115.6	134.8	170.2	208.4	170.2	134.8
80°	213.7	172.1	111.0	86.5	99.2	86.5	107.4	143.8	179.9	143.8	107.4
82.5°	227.9	185.5	113.1	61.9	70.1	61.9	91.8	121.8	160.6	121.8	91.8
85°	259.1	222.2	138.4	53.6	43.6	50.0	87.0	114.3	144.0	114.3	87.0
87.5°	301.8	271.3	176.0	70.1	14.6	45.3	75.1	101.4	119.5	101.4	75.1
90°	352.7	326.8	229.8	96.3	2.6	29.1	54.5	77.2	87.1	77.2	54.5
92.5°	414.2	390.2	286.2	141.2	29.2	19.0	43.6	62.7	67.1	62.7	43.6
95°	470.5	460.8	352.3	189.6	71.7	12.6	33.5	50.0	50.8	50.0	33.5
97.5°	537.5	529.5	419.3	248.8	126.6	22.1	28.0	42.6	41.7	42.6	28.0
100°	597.5	594.8	489.8	325.0	193.9	59.3	20.6	38.7	39.6	38.7	20.6
102.5°	690.2	666.2	557.0	397.5	266.5	110.7	29.3	28.7	31.4	28.7	29.3
105°	767.0	739.4	642.9	473.7	349.8	179.8	70.9	27.6	21.5	27.6	70.9
107.5°	837.7	819.1	720.8	552.5	438.2	260.4	131.1	68.2	44.4	68.2	131.1
110°	925.3	904.1	796.8	630.4	531.3	345.3	200.2	124.9	96.6	124.9	200.2



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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°	1010.3	994.4	867.7	711.9	626.9	437.4	285.2	195.7	169.2	195.7	285.2
115°	1075.8	1067.0	949.2	788.0	715.4	541.9	379.0	279.0	247.1	279.0	379.0
117.5°	1144.9	1143.1	1009.4	865.9	821.6	635.8	465.8	362.2	328.5	362.2	465.8
120°	1231.6	1217.5	1093.5	943.9	922.6	734.9	562.3	457.8	424.2	457.8	562.3
122.5°	1291.8	1283.0	1164.3	1018.2	1018.2	835.8	654.4	549.8	514.5	549.8	654.4
125°	1346.7	1343.1	1217.5	1092.6	1120.9	929.7	757.0	650.8	611.9	650.8	757.0
127.5°	1396.3	1401.6	1286.6	1175.0	1225.4	1026.3	858.0	741.1	700.4	741.1	858.0
130°	1438.8	1456.5	1352.1	1249.3	1324.6	1130.7	948.3	831.5	804.9	831.5	948.3
132.5°	1522.0	1511.4	1419.3	1325.5	1430.8	1226.3	1043.9	921.8	891.6	921.8	1043.9
135°	1564.5	1568.1	1477.8	1391.0	1530.0	1321.9	1134.2	1013.8	983.7	1013.8	1134.2
137.5°	1615.8	1605.3	1523.8	1470.7	1622.0	1414.0	1222.8	1111.2	1063.4	1111.2	1222.8
140°	1653.1	1651.3	1584.0	1541.5	1721.3	1504.3	1313.1	1199.7	1155.5	1199.7	1313.1
142.5°	1692.0	1702.7	1644.2	1619.4	1820.4	1600.0	1410.5	1286.6	1244.0	1286.6	1410.5
145°	1718.6	1741.6	1704.4	1716.8	1915.1	1706.2	1495.5	1369.7	1323.7	1369.7	1495.5
147.5°	1762.9	1793.0	1748.7	1785.8	1995.7	1800.1	1580.5	1456.5	1415.8	1456.5	1580.5
150°	1823.0	1837.2	1810.6	1881.5	2079.8	1904.5	1667.2	1539.8	1499.0	1539.8	1667.2
152.5°	1870.9	1888.5	1858.5	1985.9	2145.4	2000.1	1762.9	1621.2	1573.4	1621.2	1762.9
155°	1920.4	1927.5	1906.3	2086.9	2214.4	2094.0	1839.0	1711.5	1665.5	1711.5	1839.0
157.5°	1966.5	1980.6	1955.9	2163.0	2274.6	2175.4	1925.8	1801.8	1761.1	1801.8	1925.8
160°	2016.1	2016.1	2030.2	2251.6	2324.2	2246.2	2017.8	1901.0	1844.3	1901.0	2017.8
162.5°	2021.4	2055.0	2131.2	2313.6	2372.0	2308.3	2117.0	1971.8	1922.2	1971.8	2117.0
165°	2099.3	2129.4	2244.5	2368.4	2409.1	2363.1	2239.2	2088.7	2030.2	2088.7	2239.2
167.5°	2180.7	2244.5	2336.6	2430.5	2444.6	2414.5	2333.1	2228.6	2175.4	2228.6	2333.1
170°	2312.6	2368.4	2414.5	2453.4	2472.9	2455.2	2391.5	2340.1	2305.5	2340.1	2391.5
172.5°	2417.1	2453.4	2471.2	2496.0	2484.5	2476.5	2444.6	2419.8	2401.2	2419.8	2444.6
175°	2482.7	2490.6	2506.5	2497.7	2509.3	2488.9	2490.6	2503.0	2429.5	2503.0	2490.6
177.5°	2505.6	2518.9	2510.1	2494.1	2496.0	2492.4	2499.5	2506.5	2495.0	2506.5	2499.5
180°	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1772.6	1772.6	1772.6	1772.6	1772.6	1772.6
2.5°	1775.3	1776.2	1777.1	1766.2	1769.1	1761.9
5°	1765.3	1766.2	1765.3	1758.0	1760.0	1752.8
7.5°	1750.8	1752.5	1752.5	1741.7	1746.2	1743.6
10°	1730.8	1732.5	1732.5	1722.5	1727.1	1722.6
12.5°	1706.2	1701.7	1706.2	1698.0	1701.6	1701.5
15°	1675.2	1674.3	1677.1	1668.0	1669.7	1672.3
17.5°	1640.6	1641.5	1640.6	1632.4	1636.0	1638.6
20°	1598.8	1599.7	1600.5	1594.2	1594.0	1595.8
22.5°	1556.9	1556.9	1558.6	1548.6	1548.4	1542.9
25°	1510.4	1511.3	1512.2	1504.8	1495.6	1489.2
27.5°	1463.0	1461.2	1464.8	1446.5	1437.3	1430.0
30°	1406.5	1408.4	1410.0	1390.8	1369.8	1358.9
32.5°	1346.3	1352.7	1349.9	1324.3	1298.8	1287.8
35°	1282.6	1288.1	1287.9	1250.6	1225.1	1217.8
37.5°	1214.3	1226.1	1219.6	1175.0	1150.4	1148.5
40°	1138.7	1160.5	1142.2	1097.5	1076.6	1081.1
42.5°	1063.1	1085.8	1066.6	1012.0	1005.5	1015.5
45°	979.3	1010.1	982.8	933.6	933.6	945.4
47.5°	899.1	923.6	900.8	860.7	867.1	881.7
50°	807.1	827.1	810.6	786.9	805.1	817.0
52.5°	724.1	715.9	727.7	719.5	745.0	761.4
55°	641.3	611.2	644.9	654.8	685.8	694.9
57.5°	552.0	523.7	555.6	590.1	629.3	634.8
60°	472.8	444.4	474.5	526.4	568.3	571.1
62.5°	396.2	384.4	398.0	459.9	506.4	510.0
65°	330.6	328.8	332.4	394.3	442.6	452.6
67.5°	276.9	281.4	276.9	330.5	376.1	391.6
70°	230.4	237.7	230.4	274.1	310.6	330.6
72.5°	186.7	198.5	188.5	221.3	254.1	276.9
75°	149.3	163.9	149.3	173.0	207.6	234.1
77.5°	115.6	132.0	115.6	132.9	175.6	215.4
80°	86.5	99.2	86.5	111.0	172.1	213.7
82.5°	61.9	70.1	61.9	113.1	185.5	227.9
85°	50.0	43.6	53.6	138.4	222.2	259.1
87.5°	45.3	14.6	70.1	176.0	271.3	301.8
90°	29.1	2.6	96.3	229.8	326.8	352.7
92.5°	19.0	29.2	141.2	286.2	390.2	414.2
95°	12.6	71.7	189.6	352.3	460.8	470.5
97.5°	22.1	126.6	248.8	419.3	529.5	537.5
100°	59.3	193.9	325.0	489.8	594.8	597.5
102.5°	110.7	266.5	397.5	557.0	666.2	690.2
105°	179.8	349.8	473.7	642.9	739.4	767.0
107.5°	260.4	438.2	552.5	720.8	819.1	837.7
110°	345.3	531.3	630.4	796.8	904.1	925.3



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CATALOG NUMBER: MWL-4-66-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	437.4	626.9	711.9	867.7	994.4	1010.3
115°	541.9	715.4	788.0	949.2	1067.0	1075.8
117.5°	635.8	821.6	865.9	1009.4	1143.1	1144.9
120°	734.9	922.6	943.9	1093.5	1217.5	1231.6
122.5°	835.8	1018.2	1018.2	1164.3	1283.0	1291.8
125°	929.7	1120.9	1092.6	1217.5	1343.1	1346.7
127.5°	1026.3	1225.4	1175.0	1286.6	1401.6	1396.3
130°	1130.7	1324.6	1249.3	1352.1	1456.5	1438.8
132.5°	1226.3	1430.8	1325.5	1419.3	1511.4	1522.0
135°	1321.9	1530.0	1391.0	1477.8	1568.1	1564.5
137.5°	1414.0	1622.0	1470.7	1523.8	1605.3	1615.8
140°	1504.3	1721.3	1541.5	1584.0	1651.3	1653.1
142.5°	1600.0	1820.4	1619.4	1644.2	1702.7	1692.0
145°	1706.2	1915.1	1716.8	1704.4	1741.6	1718.6
147.5°	1800.1	1995.7	1785.8	1748.7	1793.0	1762.9
150°	1904.5	2079.8	1881.5	1810.6	1837.2	1823.0
152.5°	2000.1	2145.4	1985.9	1858.5	1888.5	1870.9
155°	2094.0	2214.4	2086.9	1906.3	1927.5	1920.4
157.5°	2175.4	2274.6	2163.0	1955.9	1980.6	1966.5
160°	2246.2	2324.2	2251.6	2030.2	2016.1	2016.1
162.5°	2308.3	2372.0	2313.6	2131.2	2055.0	2021.4
165°	2363.1	2409.1	2368.4	2244.5	2129.4	2099.3
167.5°	2414.5	2444.6	2430.5	2336.6	2244.5	2180.7
170°	2455.2	2472.9	2453.4	2414.5	2368.4	2312.6
172.5°	2476.5	2484.5	2496.0	2471.2	2453.4	2417.1
175°	2488.9	2509.3	2497.7	2506.5	2490.6	2482.7
177.5°	2492.4	2496.0	2494.1	2510.1	2518.9	2505.6
180°	2506.5	2506.5	2506.5	2506.5	2506.5	2506.5

(END OF REPORT)