

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: P392712

Luminaire Tested: **MWL-4-66-73-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392712
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-4-66-73-UNV-L930-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

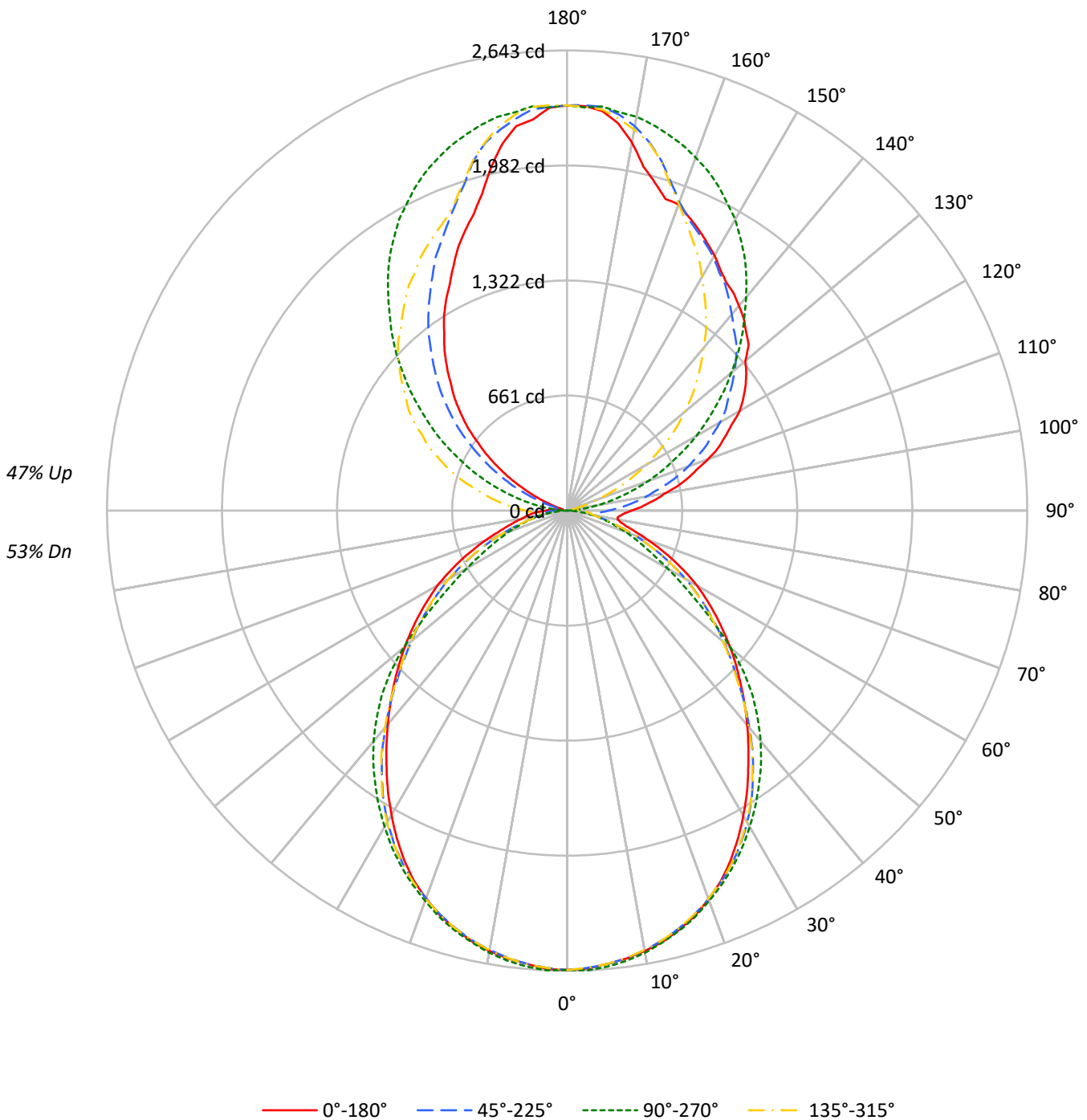
Lumens per Lamp: N/A
Luminaire Lumens: 11740.6 lumens
Efficiency: N/A
Efficacy: 68.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 171.397
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	53
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	44
2	90	83	77	71	83	77	71	67	66	62	58	55	53	50	46	44	42	38
3	82	73	66	60	76	68	61	56	58	53	49	49	46	43	41	39	36	32
4	75	65	57	51	70	60	53	48	52	47	42	44	40	37	37	34	32	28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	33	30	28	25
6	64	52	44	38	59	49	41	36	42	37	32	36	32	28	30	27	25	22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	25	22	19
8	55	43	35	30	51	40	33	28	35	29	25	30	26	23	26	22	20	17
9	51	39	32	27	48	37	30	25	32	27	23	28	24	20	24	20	18	16
10	48	36	29	24	44	34	27	23	30	24	21	26	22	19	22	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	17040	17040	17040	17040
5°	16794	15678	16794	15678
10°	16539	14374	16539	14374
15°	16204	13165	16173	13165
20°	15724	12018	15692	12018
25°	15081	10958	15047	10958
30°	14236	9913	14190	9913
35°	13326	8904	13289	8904
40°	12474	7926	12423	7926
45°	11659	6885	11619	6885
50°	10921	5625	10876	5625
55°	10162	4232	10130	4232
60°	9423	3152	9404	3152
65°	8380	2374	8380	2374
70°	7283	1788	7307	1788
75°	6361	1279	6451	1279
80°	6885	824	6156	824
85°	10506	372	6890	372



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	248.7	2.1
10°-20°	701.5	6.0
20°-30°	1028.9	8.8
30°-40°	1165.0	9.9
40°-50°	1097.9	9.4
50°-60°	878.8	7.5
60°-70°	579.1	4.9
70°-80°	297.2	2.5
80°-90°	167.6	1.4
90°-100°	203.2	1.7
100°-110°	363.1	3.1
110°-120°	618.8	5.3
120°-130°	840.4	7.2
130°-140°	958.5	8.2
140°-150°	956.0	8.1
150°-160°	832.4	7.1
160°-170°	585.5	5.0
170°-180°	218.1	1.9
0°-30°	1979.1	16.9
0°-40°	3144.1	26.8
0°-60°	5120.8	43.6
0°-90°	6164.7	52.5
90°-120°	1185.0	10.1
90°-150°	3939.9	33.6
90°-180°	5576.0	47.5
0°-180°	11740.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2638	2638	2638	2638	2638	
5°	2614	2630	2614	2630	2614	248
15°	2491	2496	2486	2496	2491	702
25°	2219	2255	2214	2255	2219	1019
35°	1814	1920	1808	1920	1814	1135
45°	1410	1508	1405	1508	1410	1090
55°	1037	913	1034	913	1037	929
65°	671	488	671	488	671	667
75°	354	242	359	242	354	391
85°	311	62	204	62	311	250
90°	370	2	123	2	370	204
95°	464	67	75	67	464	403
105°	717	325	25	325	717	756
115°	1000	664	231	664	1000	992
125°	1251	1041	569	1041	1251	1117
135°	1453	1421	914	1421	1453	1122
145°	1596	1778	1230	1778	1596	1006
155°	1783	2056	1547	2056	1783	822
165°	1949	2237	1885	2237	1949	553
175°	2304	2330	2255	2330	2304	215
180°	2327	2327	2327	2327	2327	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4
2.5°	2632.6	2634.3	2629.0	2644.2	2643.3	2642.6	2629.0	2634.3	2634.3	2634.3	2629.0
5°	2614.0	2620.7	2616.3	2630.7	2629.9	2630.7	2614.7	2620.7	2614.0	2620.7	2614.7
7.5°	2595.4	2603.7	2592.7	2610.4	2608.7	2608.8	2591.1	2602.1	2595.4	2602.1	2591.1
10°	2568.3	2571.6	2564.0	2579.2	2578.4	2577.7	2562.4	2568.3	2568.3	2568.3	2562.4
12.5°	2536.0	2534.4	2527.7	2541.3	2538.7	2541.3	2527.7	2531.2	2532.8	2531.2	2527.7
15°	2491.2	2488.8	2483.8	2497.4	2496.5	2495.6	2482.1	2485.5	2486.4	2485.5	2482.1
17.5°	2439.7	2436.3	2433.1	2446.6	2446.6	2446.6	2431.4	2434.8	2434.8	2434.8	2431.4
20°	2374.6	2376.3	2373.1	2386.6	2385.0	2385.0	2371.4	2373.1	2369.7	2373.1	2371.4
22.5°	2304.4	2307.0	2309.7	2327.4	2323.3	2325.8	2308.0	2303.7	2301.3	2303.7	2308.0
25°	2219.1	2224.1	2238.6	2256.5	2254.9	2254.9	2235.3	2219.2	2214.2	2219.2	2235.3
27.5°	2124.4	2137.9	2157.5	2181.3	2179.6	2179.5	2154.1	2133.0	2119.5	2133.0	2154.1
30°	2023.8	2038.2	2068.6	2102.5	2096.8	2099.2	2063.7	2033.3	2017.3	2033.3	2063.7
32.5°	1921.6	1936.0	1970.6	2011.2	2013.0	2008.0	1965.7	1929.4	1915.1	1929.4	1965.7
35°	1813.5	1820.3	1860.0	1922.5	1920.1	1917.6	1855.0	1815.3	1808.5	1815.3	1855.0
37.5°	1709.5	1711.2	1751.0	1816.8	1829.6	1812.0	1746.0	1706.3	1704.6	1706.3	1746.0
40°	1608.9	1600.5	1628.4	1701.1	1729.0	1697.9	1621.8	1593.9	1602.3	1593.9	1621.8
42.5°	1509.2	1499.1	1510.1	1582.8	1620.0	1579.5	1505.1	1492.4	1502.6	1492.4	1505.1
45°	1409.5	1390.9	1388.5	1461.1	1507.6	1457.8	1381.9	1386.0	1404.6	1386.0	1381.9
47.5°	1315.7	1293.7	1281.0	1336.0	1378.2	1334.4	1274.5	1288.8	1310.7	1288.8	1274.5
50°	1221.9	1200.8	1171.2	1209.2	1227.1	1205.9	1164.6	1194.2	1216.9	1194.2	1164.6
52.5°	1129.0	1112.9	1074.0	1087.5	1065.7	1084.2	1069.1	1106.3	1124.0	1106.3	1069.1
55°	1036.8	1022.4	975.9	957.5	912.6	954.1	971.0	1017.5	1033.5	1017.5	971.0
57.5°	947.2	938.8	881.3	828.1	779.9	824.9	876.4	933.9	943.9	933.9	876.4
60°	861.1	851.8	785.1	703.1	666.7	701.4	781.7	848.5	859.4	848.5	781.7
62.5°	764.7	760.5	685.3	593.2	568.7	591.5	682.0	757.2	763.0	757.2	682.0
65°	670.9	658.3	588.1	498.5	488.4	496.9	586.5	656.7	670.9	656.7	586.5
67.5°	581.3	562.7	497.7	415.8	418.3	415.8	496.1	561.1	581.3	561.1	496.1
70°	496.1	467.3	409.0	343.9	354.9	343.9	409.0	469.0	497.7	469.0	409.0
72.5°	417.4	382.0	328.7	280.5	293.2	278.9	328.7	383.5	420.7	383.5	328.7
75°	354.0	309.2	255.2	223.0	242.5	223.0	256.8	310.9	359.0	310.9	256.8
77.5°	315.6	260.9	199.3	172.3	196.0	172.3	201.1	256.0	309.1	256.0	201.1
80°	294.5	239.1	163.0	127.6	147.8	127.6	159.6	212.8	263.3	212.8	159.6
82.5°	292.5	240.6	155.6	92.0	103.9	92.0	135.9	181.5	230.2	181.5	135.9
85°	310.6	262.7	169.8	76.8	62.4	73.4	122.1	162.6	203.7	162.6	122.1
87.5°	332.4	297.3	197.1	86.1	22.8	63.1	103.5	139.7	163.3	139.7	103.5
90°	369.5	341.2	240.2	104.5	2.5	42.2	77.6	109.6	123.1	109.6	77.6
92.5°	419.7	395.0	287.5	139.5	28.0	26.2	62.3	91.1	97.8	91.1	62.3
95°	464.4	452.8	343.7	178.4	67.4	14.2	48.0	71.8	75.0	71.8	48.0
97.5°	520.6	512.4	399.1	231.7	118.3	21.4	36.1	60.7	60.7	60.7	36.1
100°	570.4	566.2	459.4	302.4	180.7	55.9	24.2	50.3	52.8	50.3	24.2
102.5°	649.5	626.5	518.4	369.6	248.0	103.5	28.9	35.0	38.5	35.0	28.9
105°	716.6	689.3	597.2	440.2	325.3	167.6	66.6	29.0	25.0	29.0	66.6
107.5°	779.6	761.5	669.4	513.4	407.4	242.4	122.5	65.0	43.7	65.0	122.5
110°	860.1	840.3	740.1	585.6	493.7	321.2	186.6	117.5	91.3	117.5	186.6



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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°	939.0	924.2	805.8	661.3	582.5	406.6	265.4	183.2	158.7	183.2	265.4
115°	999.7	990.7	882.3	731.9	664.5	503.6	353.3	259.7	230.9	259.7	353.3
117.5°	1063.7	1061.3	938.1	804.2	763.0	590.6	433.7	336.8	306.5	336.8	433.7
120°	1144.2	1130.3	1015.2	876.4	856.7	682.6	522.5	425.5	395.3	425.5	522.5
122.5°	1200.1	1191.9	1080.9	946.3	945.5	777.0	607.9	511.7	479.0	511.7	607.9
125°	1251.0	1247.7	1130.3	1015.2	1040.7	864.1	703.2	605.4	569.3	605.4	703.2
127.5°	1297.0	1302.0	1195.2	1090.9	1138.5	952.9	797.6	689.2	651.4	689.2	797.6
130°	1336.4	1352.8	1255.9	1159.8	1230.4	1049.7	881.4	773.0	748.3	773.0	881.4
132.5°	1413.6	1403.8	1318.4	1230.4	1329.0	1138.5	970.1	856.8	828.8	856.8	970.1
135°	1453.1	1456.3	1372.6	1291.3	1421.0	1227.2	1053.9	942.1	914.2	942.1	1053.9
137.5°	1500.6	1490.9	1415.3	1366.0	1506.4	1313.4	1136.0	1032.5	988.2	1032.5	1136.0
140°	1535.2	1533.6	1471.1	1431.7	1598.5	1397.2	1219.8	1114.6	1073.6	1114.6	1219.8
142.5°	1572.1	1582.1	1527.0	1504.0	1690.4	1485.9	1310.2	1196.1	1156.5	1196.1	1310.2
145°	1596.0	1618.2	1582.8	1594.3	1777.5	1584.5	1389.0	1273.2	1229.7	1273.2	1389.0
147.5°	1637.9	1664.9	1623.9	1658.3	1853.0	1671.5	1467.9	1352.8	1315.9	1352.8	1467.9
150°	1692.8	1706.1	1681.4	1747.1	1930.2	1768.4	1548.4	1430.1	1392.3	1430.1	1548.4
152.5°	1737.2	1753.6	1725.8	1843.9	1991.1	1857.2	1637.1	1505.7	1461.3	1505.7	1637.1
155°	1783.2	1789.8	1770.1	1937.6	2056.0	1944.2	1707.6	1589.4	1546.7	1589.4	1707.6
157.5°	1826.0	1839.1	1816.1	2008.3	2111.7	2019.8	1788.2	1673.1	1635.4	1673.1	1788.2
160°	1871.9	1871.9	1885.1	2090.5	2157.8	2085.5	1873.5	1765.2	1712.7	1765.2	1873.5
162.5°	1876.9	1908.0	1978.7	2147.9	2202.1	2143.0	1965.6	1830.9	1784.9	1830.9	1965.6
165°	1949.2	1977.1	2083.9	2198.8	2237.4	2193.9	2078.9	1939.3	1885.1	1939.3	2078.9
167.5°	2023.8	2083.0	2169.3	2257.2	2270.3	2242.4	2166.0	2068.2	2018.9	2068.2	2166.0
170°	2146.2	2198.8	2241.6	2278.5	2296.6	2280.2	2220.2	2172.5	2139.6	2172.5	2220.2
172.5°	2243.2	2277.7	2294.1	2318.0	2306.5	2299.9	2269.5	2246.5	2228.4	2246.5	2269.5
175°	2303.9	2312.1	2326.9	2319.6	2329.5	2311.4	2312.1	2323.6	2254.7	2323.6	2312.1
177.5°	2325.2	2338.4	2330.2	2316.2	2318.0	2314.7	2320.4	2326.9	2315.5	2326.9	2320.4
180°	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2638.4	2638.4	2638.4	2638.4	2638.4	2638.4
2.5°	2642.6	2643.3	2644.2	2629.0	2634.3	2632.6
5°	2630.7	2629.9	2630.7	2616.3	2620.7	2614.0
7.5°	2608.8	2608.7	2610.4	2592.7	2603.7	2595.4
10°	2577.7	2578.4	2579.2	2564.0	2571.6	2568.3
12.5°	2541.3	2538.7	2541.3	2527.7	2534.4	2536.0
15°	2495.6	2496.5	2497.4	2483.8	2488.8	2491.2
17.5°	2446.6	2446.6	2446.6	2433.1	2436.3	2439.7
20°	2385.0	2385.0	2386.6	2373.1	2376.3	2374.6
22.5°	2325.8	2323.3	2327.4	2309.7	2307.0	2304.4
25°	2254.9	2254.9	2256.5	2238.6	2224.1	2219.1
27.5°	2179.5	2179.6	2181.3	2157.5	2137.9	2124.4
30°	2099.2	2096.8	2102.5	2068.6	2038.2	2023.8
32.5°	2008.0	2013.0	2011.2	1970.6	1936.0	1921.6
35°	1917.6	1920.1	1922.5	1860.0	1820.3	1813.5
37.5°	1812.0	1829.6	1816.8	1751.0	1711.2	1709.5
40°	1697.9	1729.0	1701.1	1628.4	1600.5	1608.9
42.5°	1579.5	1620.0	1582.8	1510.1	1499.1	1509.2
45°	1457.8	1507.6	1461.1	1388.5	1390.9	1409.5
47.5°	1334.4	1378.2	1336.0	1281.0	1293.7	1315.7
50°	1205.9	1227.1	1209.2	1171.2	1200.8	1221.9
52.5°	1084.2	1065.7	1087.5	1074.0	1112.9	1129.0
55°	954.1	912.6	957.5	975.9	1022.4	1036.8
57.5°	824.9	779.9	828.1	881.3	938.8	947.2
60°	701.4	666.7	703.1	785.1	851.8	861.1
62.5°	591.5	568.7	593.2	685.3	760.5	764.7
65°	496.9	488.4	498.5	588.1	658.3	670.9
67.5°	415.8	418.3	415.8	497.7	562.7	581.3
70°	343.9	354.9	343.9	409.0	467.3	496.1
72.5°	278.9	293.2	280.5	328.7	382.0	417.4
75°	223.0	242.5	223.0	255.2	309.2	354.0
77.5°	172.3	196.0	172.3	199.3	260.9	315.6
80°	127.6	147.8	127.6	163.0	239.1	294.5
82.5°	92.0	103.9	92.0	155.6	240.6	292.5
85°	73.4	62.4	76.8	169.8	262.7	310.6
87.5°	63.1	22.8	86.1	197.1	297.3	332.4
90°	42.2	2.5	104.5	240.2	341.2	369.5
92.5°	26.2	28.0	139.5	287.5	395.0	419.7
95°	14.2	67.4	178.4	343.7	452.8	464.4
97.5°	21.4	118.3	231.7	399.1	512.4	520.6
100°	55.9	180.7	302.4	459.4	566.2	570.4
102.5°	103.5	248.0	369.6	518.4	626.5	649.5
105°	167.6	325.3	440.2	597.2	689.3	716.6
107.5°	242.4	407.4	513.4	669.4	761.5	779.6
110°	321.2	493.7	585.6	740.1	840.3	860.1



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CATALOG NUMBER: MWL-4-66-73-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	406.6	582.5	661.3	805.8	924.2	939.0
115°	503.6	664.5	731.9	882.3	990.7	999.7
117.5°	590.6	763.0	804.2	938.1	1061.3	1063.7
120°	682.6	856.7	876.4	1015.2	1130.3	1144.2
122.5°	777.0	945.5	946.3	1080.9	1191.9	1200.1
125°	864.1	1040.7	1015.2	1130.3	1247.7	1251.0
127.5°	952.9	1138.5	1090.9	1195.2	1302.0	1297.0
130°	1049.7	1230.4	1159.8	1255.9	1352.8	1336.4
132.5°	1138.5	1329.0	1230.4	1318.4	1403.8	1413.6
135°	1227.2	1421.0	1291.3	1372.6	1456.3	1453.1
137.5°	1313.4	1506.4	1366.0	1415.3	1490.9	1500.6
140°	1397.2	1598.5	1431.7	1471.1	1533.6	1535.2
142.5°	1485.9	1690.4	1504.0	1527.0	1582.1	1572.1
145°	1584.5	1777.5	1594.3	1582.8	1618.2	1596.0
147.5°	1671.5	1853.0	1658.3	1623.9	1664.9	1637.9
150°	1768.4	1930.2	1747.1	1681.4	1706.1	1692.8
152.5°	1857.2	1991.1	1843.9	1725.8	1753.6	1737.2
155°	1944.2	2056.0	1937.6	1770.1	1789.8	1783.2
157.5°	2019.8	2111.7	2008.3	1816.1	1839.1	1826.0
160°	2085.5	2157.8	2090.5	1885.1	1871.9	1871.9
162.5°	2143.0	2202.1	2147.9	1978.7	1908.0	1876.9
165°	2193.9	2237.4	2198.8	2083.9	1977.1	1949.2
167.5°	2242.4	2270.3	2257.2	2169.3	2083.0	2023.8
170°	2280.2	2296.6	2278.5	2241.6	2198.8	2146.2
172.5°	2299.9	2306.5	2318.0	2294.1	2277.7	2243.2
175°	2311.4	2329.5	2319.6	2326.9	2312.1	2303.9
177.5°	2314.7	2318.0	2316.2	2330.2	2338.4	2325.2
180°	2326.9	2326.9	2326.9	2326.9	2326.9	2326.9

(END OF REPORT)