

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: P392697

Luminaire Tested: **MWL-4-55-73-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392697
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-4-55-73-UNV-L830-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

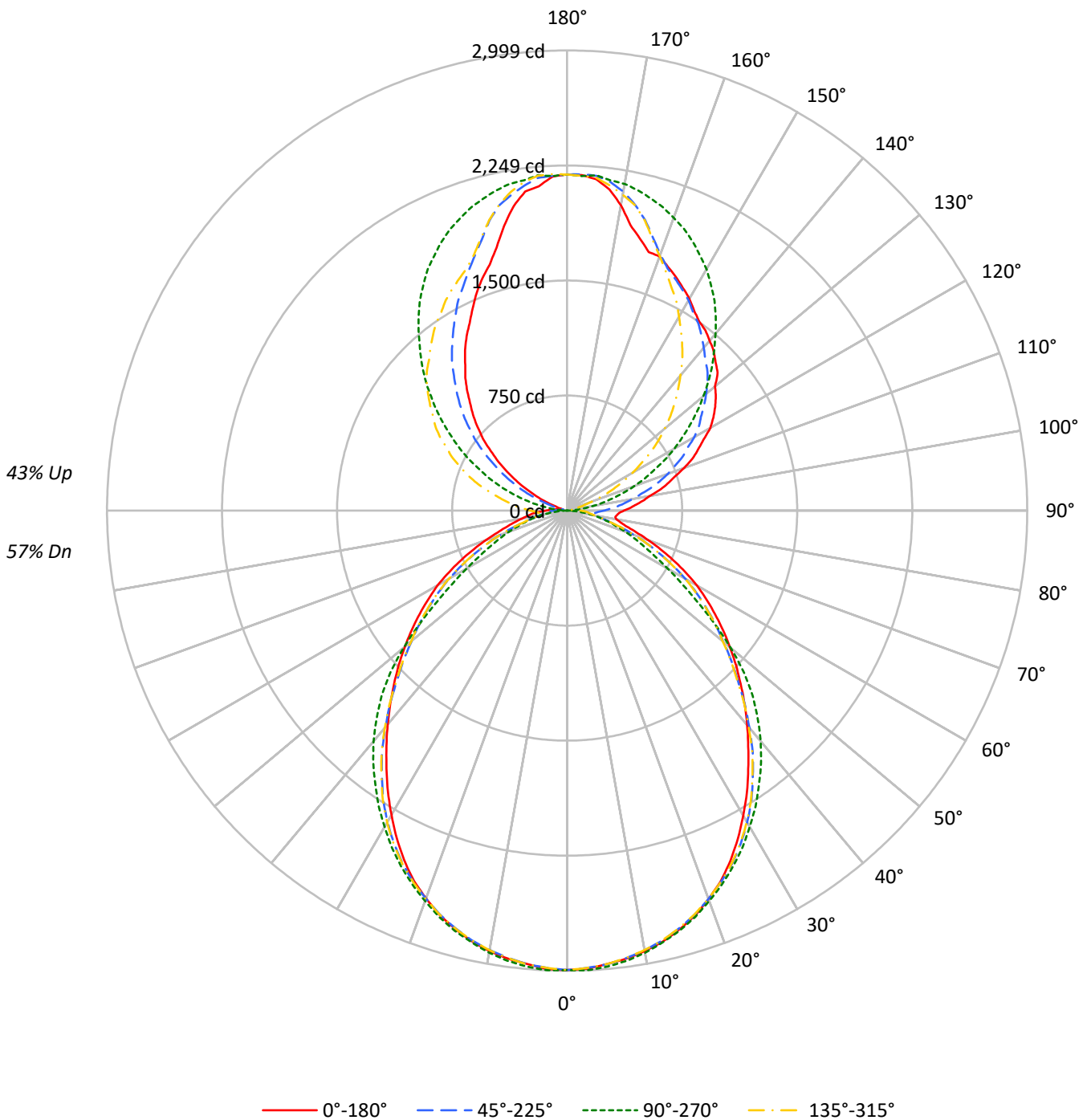
Lumens per Lamp: N/A
Luminaire Lumens: 12245.0 lumens
Efficiency: N/A
Efficacy: 82.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 149.4
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	63	63	63	57
1	100	95	91	88	93	89	85	82	77	74	72	66	64	62	56	54	53	48
2	91	84	77	72	84	78	73	68	68	64	60	58	55	53	49	47	45	41
3	83	74	67	61	77	69	63	57	60	55	51	52	48	45	44	41	39	35
4	76	66	58	52	71	61	54	49	54	48	44	46	42	39	40	37	34	31
5	70	59	51	45	65	55	48	42	48	43	38	42	37	34	36	33	30	27
6	65	53	45	39	60	50	42	37	44	38	33	38	33	30	33	29	26	24
7	60	48	40	34	56	45	38	33	40	34	30	35	30	27	30	26	24	21
8	56	44	36	30	52	41	34	29	36	31	26	32	27	24	28	24	21	19
9	52	40	32	27	48	38	31	26	33	28	24	29	25	22	26	22	19	17
10	49	37	29	25	45	35	28	24	31	25	22	27	23	20	24	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	19338	19338	19338	19338
5°	19064	17790	19064	17790
10°	18771	16312	18771	16312
15°	18385	14943	18355	14943
20°	17838	13641	17808	13641
25°	17110	12438	17079	12438
30°	16150	11252	16107	11252
35°	15117	10106	15083	10106
40°	14149	8995	14101	8995
45°	13226	7812	13187	7812
50°	12386	6382	12344	6382
55°	11526	4802	11495	4802
60°	10686	3575	10669	3575
65°	9506	2692	9506	2692
70°	8261	2028	8283	2028
75°	7212	1451	7297	1451
80°	7620	934	6932	934
85°	11041	421	7645	421



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	282.3	2.3
10°-20°	796.1	6.5
20°-30°	1167.7	9.5
30°-40°	1321.9	10.8
40°-50°	1245.7	10.2
50°-60°	997.0	8.1
60°-70°	656.8	5.4
70°-80°	336.6	2.7
80°-90°	181.6	1.5
90°-100°	199.7	1.6
100°-110°	343.1	2.8
110°-120°	582.8	4.8
120°-130°	791.3	6.5
130°-140°	902.4	7.4
140°-150°	900.0	7.3
150°-160°	783.5	6.4
160°-170°	551.1	4.5
170°-180°	205.3	1.7
0°-30°	2246.1	18.3
0°-40°	3568.0	29.1
0°-60°	5810.8	47.5
0°-90°	6985.8	57.1
90°-120°	1125.6	9.2
90°-150°	3719.3	30.4
90°-180°	5259.0	42.9
0°-180°	12245.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2994	2994	2994	2994	2994	
5°	2967	2984	2967	2984	2967	282
15°	2826	2834	2822	2834	2826	796
25°	2518	2559	2513	2559	2518	1156
35°	2057	2179	2053	2179	2057	1288
45°	1599	1711	1594	1711	1599	1236
55°	1176	1036	1173	1036	1176	1053
65°	761	554	761	554	761	756
75°	401	275	406	275	401	442
85°	326	71	226	71	326	266
90°	369	2	138	2	369	204
95°	451	64	84	64	451	389
105°	677	306	26	306	677	714
115°	941	626	218	626	941	934
125°	1178	980	536	980	1178	1052
135°	1368	1338	861	1338	1368	1056
145°	1502	1673	1158	1673	1502	947
155°	1678	1935	1456	1935	1678	774
165°	1835	2106	1774	2106	1835	520
175°	2168	2193	2122	2193	2168	202
180°	2190	2190	2190	2190	2190	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2
2.5°	2988.5	2989.7	2983.2	3000.1	2999.1	2998.6	2983.2	2989.7	2990.1	2989.7	2983.2
5°	2967.4	2974.4	2968.8	2985.1	2984.2	2985.1	2967.3	2974.4	2967.4	2974.4	2967.3
7.5°	2946.0	2954.8	2942.3	2962.1	2960.2	2960.6	2940.8	2953.3	2946.0	2953.3	2940.8
10°	2914.9	2918.3	2909.7	2927.0	2926.0	2925.4	2908.1	2915.2	2914.9	2915.2	2908.1
12.5°	2877.6	2876.1	2868.8	2884.1	2881.7	2884.1	2868.8	2873.0	2874.6	2873.0	2868.8
15°	2826.4	2824.3	2818.9	2834.2	2833.7	2832.7	2817.3	2821.2	2821.8	2821.2	2817.3
17.5°	2767.8	2764.7	2761.3	2777.0	2777.0	2777.0	2759.7	2763.2	2763.2	2763.2	2759.7
20°	2693.9	2696.2	2693.1	2708.9	2707.2	2707.2	2691.6	2693.1	2689.3	2693.1	2691.6
22.5°	2614.6	2617.5	2621.1	2641.7	2637.2	2640.1	2619.6	2614.4	2611.5	2614.4	2619.6
25°	2517.7	2523.4	2540.1	2561.1	2559.4	2559.4	2537.1	2518.8	2513.1	2518.8	2537.1
27.5°	2410.2	2425.5	2448.0	2475.2	2474.0	2473.7	2444.9	2420.9	2405.6	2420.9	2444.9
30°	2295.9	2312.3	2346.8	2385.6	2379.9	2382.5	2342.2	2307.6	2289.7	2307.6	2342.2
32.5°	2179.8	2196.1	2235.5	2281.9	2284.6	2278.8	2230.9	2189.9	2173.6	2189.9	2230.9
35°	2057.3	2065.0	2110.1	2181.1	2179.3	2176.4	2105.4	2060.3	2052.6	2060.3	2105.4
37.5°	1939.2	1941.2	1986.3	2061.1	2076.3	2056.4	1981.6	1936.5	1934.5	1936.5	1981.6
40°	1825.0	1815.4	1847.1	1930.0	1962.1	1926.9	1840.9	1809.2	1818.8	1809.2	1840.9
42.5°	1711.8	1700.2	1713.1	1795.6	1838.3	1792.5	1708.4	1694.0	1705.5	1694.0	1708.4
45°	1598.9	1577.8	1574.9	1657.4	1710.6	1654.3	1568.6	1573.1	1594.2	1573.1	1568.6
47.5°	1492.3	1467.4	1453.0	1515.7	1563.7	1514.1	1446.7	1462.7	1487.6	1462.7	1446.7
50°	1385.8	1361.8	1328.2	1371.8	1392.2	1368.6	1321.9	1355.5	1381.1	1355.5	1321.9
52.5°	1280.2	1262.0	1218.2	1233.5	1208.9	1230.4	1213.5	1255.7	1275.5	1255.7	1213.5
55°	1175.9	1159.6	1106.8	1086.0	1035.5	1082.9	1102.1	1154.9	1172.8	1154.9	1102.1
57.5°	1074.2	1064.6	999.3	939.1	884.8	936.1	994.6	1059.9	1071.0	1059.9	994.6
60°	976.6	966.0	890.2	797.5	756.2	795.9	887.1	963.0	975.0	963.0	887.1
62.5°	867.2	862.4	776.9	672.7	645.2	671.1	773.9	859.3	865.6	859.3	773.9
65°	761.0	746.6	666.9	565.2	554.0	563.6	665.4	745.1	761.0	745.1	665.4
67.5°	659.2	638.1	564.2	471.5	474.4	471.5	562.7	636.6	659.2	636.6	562.7
70°	562.7	530.0	463.8	389.9	402.4	389.9	463.8	531.6	564.2	531.6	463.8
72.5°	473.4	433.1	372.6	317.9	332.7	316.4	372.6	434.6	476.5	434.6	372.6
75°	401.4	350.5	289.5	253.0	275.1	253.0	291.0	352.1	406.1	352.1	291.0
77.5°	355.3	294.4	226.1	195.4	222.3	195.4	227.7	289.7	349.1	289.7	227.7
80°	325.9	265.1	183.7	144.6	167.6	144.6	180.6	240.4	296.5	240.4	180.6
82.5°	315.9	259.7	171.6	104.2	117.7	104.2	153.0	204.2	257.2	204.2	153.0
85°	326.4	275.4	180.6	85.8	70.6	82.7	135.8	181.1	226.0	181.1	135.8
87.5°	339.8	302.8	202.4	91.8	25.9	70.2	114.3	154.4	180.6	154.4	114.3
90°	369.4	340.5	239.8	106.0	2.5	47.2	86.8	122.6	137.6	122.6	86.8
92.5°	412.4	388.1	281.6	135.6	26.7	29.0	69.9	102.1	109.5	102.1	69.9
95°	450.6	439.4	331.7	169.3	63.7	14.8	53.6	80.8	84.3	80.8	53.6
97.5°	500.4	492.6	380.6	218.3	111.6	20.4	39.1	67.6	67.6	67.6	39.1
100°	544.3	539.8	434.7	284.7	170.4	52.9	25.2	54.6	57.5	54.6	25.2
102.5°	616.1	593.7	488.6	348.1	233.7	97.7	28.0	37.3	41.2	37.3	28.0
105°	676.8	650.4	562.4	414.6	306.4	158.0	63.2	29.1	26.2	29.1	63.2
107.5°	734.7	717.3	630.4	483.5	383.7	228.5	115.7	62.0	42.2	62.0	115.7
110°	810.0	791.4	696.8	551.5	465.0	302.7	175.9	111.4	86.7	111.4	175.9



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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°	884.1	870.3	758.6	622.6	548.5	383.1	250.1	173.3	150.0	173.3	250.1
115°	941.4	932.7	830.7	689.1	625.7	474.3	333.0	245.0	218.1	245.0	333.0
117.5°	1001.6	999.1	883.2	757.1	718.5	556.2	408.7	317.5	289.2	317.5	408.7
120°	1077.4	1064.0	955.8	825.1	806.5	642.7	492.2	401.0	372.6	401.0	492.2
122.5°	1129.9	1122.2	1017.7	891.0	890.0	731.8	572.6	482.3	451.4	482.3	572.6
125°	1177.9	1174.7	1064.0	955.8	979.7	813.7	662.2	570.5	536.5	570.5	662.2
127.5°	1221.1	1225.8	1125.3	1027.0	1071.8	897.1	751.3	649.3	613.7	649.3	751.3
130°	1258.2	1273.7	1182.5	1091.9	1158.3	988.3	830.1	728.1	704.9	728.1	830.1
132.5°	1330.9	1321.6	1241.2	1158.3	1251.0	1071.8	913.5	806.9	780.7	806.9	913.5
135°	1367.9	1371.0	1292.2	1215.5	1337.6	1155.2	992.3	887.3	861.0	887.3	992.3
137.5°	1412.8	1403.4	1332.4	1286.0	1417.9	1236.5	1069.7	972.3	930.5	972.3	1069.7
140°	1445.2	1443.7	1384.9	1347.9	1504.5	1315.4	1148.5	1049.5	1010.9	1049.5	1148.5
142.5°	1480.1	1489.4	1437.5	1415.8	1591.1	1398.8	1233.4	1126.2	1089.2	1126.2	1233.4
145°	1502.4	1523.4	1490.0	1500.9	1673.0	1491.6	1307.6	1198.9	1157.7	1198.9	1307.6
147.5°	1542.0	1567.3	1528.7	1561.1	1744.1	1573.4	1381.8	1273.7	1239.1	1273.7	1381.8
150°	1593.6	1606.0	1582.7	1644.6	1816.7	1664.6	1457.6	1346.3	1310.7	1346.3	1457.6
152.5°	1635.3	1650.7	1624.5	1735.7	1873.9	1748.1	1541.0	1417.4	1375.7	1417.4	1541.0
155°	1678.5	1684.8	1666.2	1823.9	1935.1	1830.0	1607.5	1496.2	1456.0	1496.2	1607.5
157.5°	1718.8	1731.1	1709.4	1890.3	1987.6	1901.1	1683.2	1575.1	1539.5	1575.1	1683.2
160°	1762.1	1762.1	1774.4	1967.6	2030.9	1963.0	1763.6	1661.6	1612.1	1661.6	1763.6
162.5°	1766.7	1796.0	1862.5	2021.7	2072.7	2017.0	1850.1	1723.4	1680.1	1723.4	1850.1
165°	1834.6	1860.9	1961.4	2069.6	2106.1	2065.0	1956.7	1825.4	1774.4	1825.4	1956.7
167.5°	1904.8	1960.5	2041.8	2124.6	2137.0	2110.7	2038.7	1946.5	1900.2	1946.5	2038.7
170°	2019.8	2069.6	2109.7	2144.8	2161.7	2146.3	2089.7	2044.8	2013.5	2044.8	2089.7
172.5°	2111.0	2143.8	2159.2	2181.8	2171.0	2164.8	2136.0	2114.4	2097.0	2114.4	2136.0
175°	2168.1	2176.2	2190.2	2183.3	2192.7	2175.7	2176.2	2187.0	2121.7	2187.0	2176.2
177.5°	2188.2	2200.9	2193.2	2180.3	2181.8	2178.7	2183.9	2190.2	2178.9	2190.2	2183.9
180°	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2994.2	2994.2	2994.2	2994.2	2994.2	2994.2
2.5°	2998.6	2999.1	3000.1	2983.2	2989.7	2988.5
5°	2985.1	2984.2	2985.1	2968.8	2974.4	2967.4
7.5°	2960.6	2960.2	2962.1	2942.3	2954.8	2946.0
10°	2925.4	2926.0	2927.0	2909.7	2918.3	2914.9
12.5°	2884.1	2881.7	2884.1	2868.8	2876.1	2877.6
15°	2832.7	2833.7	2834.2	2818.9	2824.3	2826.4
17.5°	2777.0	2777.0	2777.0	2761.3	2764.7	2767.8
20°	2707.2	2707.2	2708.9	2693.1	2696.2	2693.9
22.5°	2640.1	2637.2	2641.7	2621.1	2617.5	2614.6
25°	2559.4	2559.4	2561.1	2540.1	2523.4	2517.7
27.5°	2473.7	2474.0	2475.2	2448.0	2425.5	2410.2
30°	2382.5	2379.9	2385.6	2346.8	2312.3	2295.9
32.5°	2278.8	2284.6	2281.9	2235.5	2196.1	2179.8
35°	2176.4	2179.3	2181.1	2110.1	2065.0	2057.3
37.5°	2056.4	2076.3	2061.1	1986.3	1941.2	1939.2
40°	1926.9	1962.1	1930.0	1847.1	1815.4	1825.0
42.5°	1792.5	1838.3	1795.6	1713.1	1700.2	1711.8
45°	1654.3	1710.6	1657.4	1574.9	1577.8	1598.9
47.5°	1514.1	1563.7	1515.7	1453.0	1467.4	1492.3
50°	1368.6	1392.2	1371.8	1328.2	1361.8	1385.8
52.5°	1230.4	1208.9	1233.5	1218.2	1262.0	1280.2
55°	1082.9	1035.5	1086.0	1106.8	1159.6	1175.9
57.5°	936.1	884.8	939.1	999.3	1064.6	1074.2
60°	795.9	756.2	797.5	890.2	966.0	976.6
62.5°	671.1	645.2	672.7	776.9	862.4	867.2
65°	563.6	554.0	565.2	666.9	746.6	761.0
67.5°	471.5	474.4	471.5	564.2	638.1	659.2
70°	389.9	402.4	389.9	463.8	530.0	562.7
72.5°	316.4	332.7	317.9	372.6	433.1	473.4
75°	253.0	275.1	253.0	289.5	350.5	401.4
77.5°	195.4	222.3	195.4	226.1	294.4	355.3
80°	144.6	167.6	144.6	183.7	265.1	325.9
82.5°	104.2	117.7	104.2	171.6	259.7	315.9
85°	82.7	70.6	85.8	180.6	275.4	326.4
87.5°	70.2	25.9	91.8	202.4	302.8	339.8
90°	47.2	2.5	106.0	239.8	340.5	369.4
92.5°	29.0	26.7	135.6	281.6	388.1	412.4
95°	14.8	63.7	169.3	331.7	439.4	450.6
97.5°	20.4	111.6	218.3	380.6	492.6	500.4
100°	52.9	170.4	284.7	434.7	539.8	544.3
102.5°	97.7	233.7	348.1	488.6	593.7	616.1
105°	158.0	306.4	414.6	562.4	650.4	676.8
107.5°	228.5	383.7	483.5	630.4	717.3	734.7
110°	302.7	465.0	551.5	696.8	791.4	810.0



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CATALOG NUMBER: MWL-4-55-73-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	383.1	548.5	622.6	758.6	870.3	884.1
115°	474.3	625.7	689.1	830.7	932.7	941.4
117.5°	556.2	718.5	757.1	883.2	999.1	1001.6
120°	642.7	806.5	825.1	955.8	1064.0	1077.4
122.5°	731.8	890.0	891.0	1017.7	1122.2	1129.9
125°	813.7	979.7	955.8	1064.0	1174.7	1177.9
127.5°	897.1	1071.8	1027.0	1125.3	1225.8	1221.1
130°	988.3	1158.3	1091.9	1182.5	1273.7	1258.2
132.5°	1071.8	1251.0	1158.3	1241.2	1321.6	1330.9
135°	1155.2	1337.6	1215.5	1292.2	1371.0	1367.9
137.5°	1236.5	1417.9	1286.0	1332.4	1403.4	1412.8
140°	1315.4	1504.5	1347.9	1384.9	1443.7	1445.2
142.5°	1398.8	1591.1	1415.8	1437.5	1489.4	1480.1
145°	1491.6	1673.0	1500.9	1490.0	1523.4	1502.4
147.5°	1573.4	1744.1	1561.1	1528.7	1567.3	1542.0
150°	1664.6	1816.7	1644.6	1582.7	1606.0	1593.6
152.5°	1748.1	1873.9	1735.7	1624.5	1650.7	1635.3
155°	1830.0	1935.1	1823.9	1666.2	1684.8	1678.5
157.5°	1901.1	1987.6	1890.3	1709.4	1731.1	1718.8
160°	1963.0	2030.9	1967.6	1774.4	1762.1	1762.1
162.5°	2017.0	2072.7	2021.7	1862.5	1796.0	1766.7
165°	2065.0	2106.1	2069.6	1961.4	1860.9	1834.6
167.5°	2110.7	2137.0	2124.6	2041.8	1960.5	1904.8
170°	2146.3	2161.7	2144.8	2109.7	2069.6	2019.8
172.5°	2164.8	2171.0	2181.8	2159.2	2143.8	2111.0
175°	2175.7	2192.7	2183.3	2190.2	2176.2	2168.1
177.5°	2178.7	2181.8	2180.3	2193.2	2200.9	2188.2
180°	2190.2	2190.2	2190.2	2190.2	2190.2	2190.2

(END OF REPORT)