

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: P392703

Luminaire Tested: **MWL-4-66-33-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392703
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-4-66-33-UNV-L930-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8406.1 lumens
Efficiency: N/A
Efficacy: 70.2 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Indirect

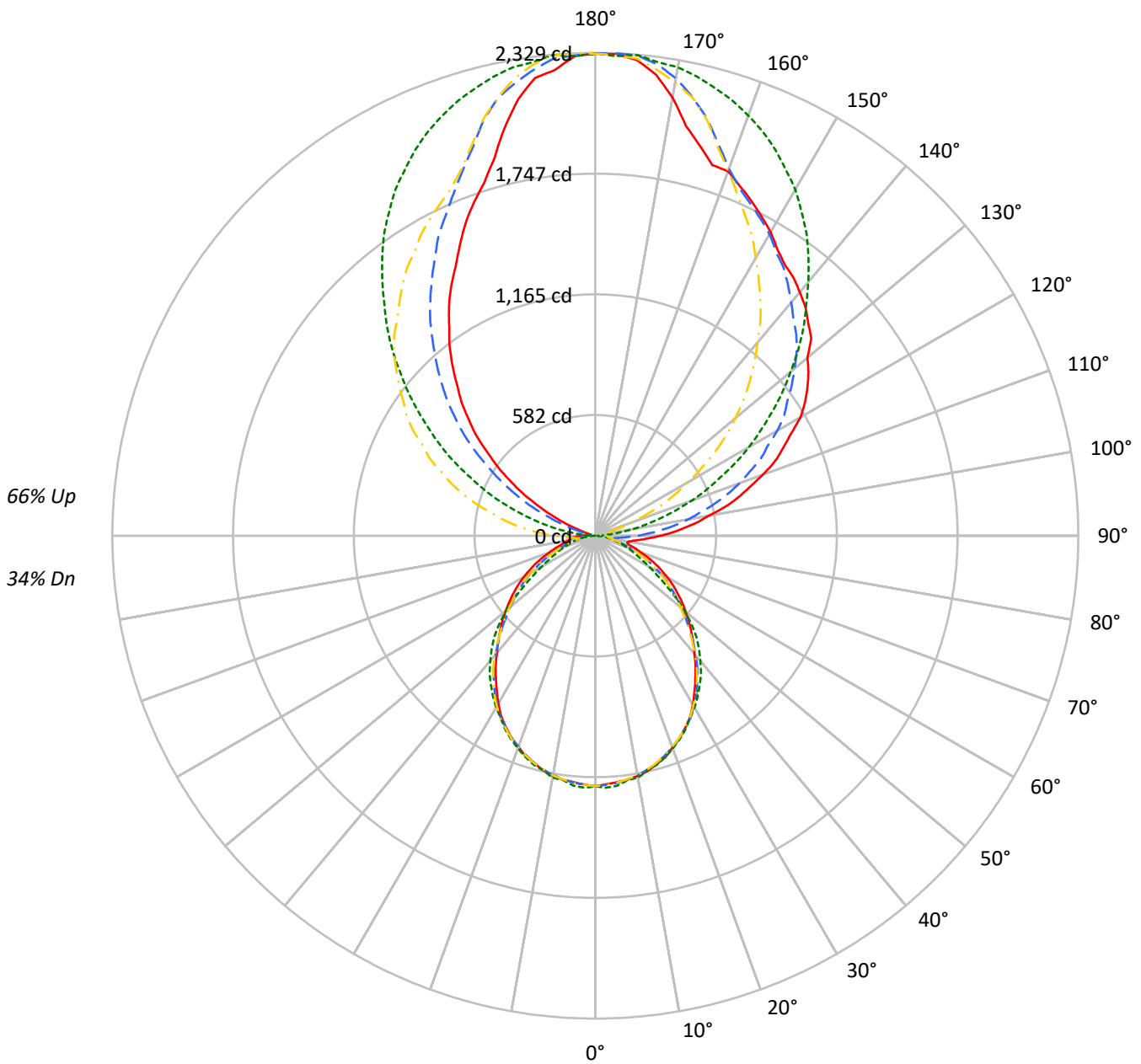
Input Watts (W): 119.786
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270° - - - 135°-315°



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	37	36	35	29
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	31	30	24
3	78	69	62	57	71	63	57	52	51	46	43	39	36	34	29	27	25	21
4	72	61	54	48	65	56	49	44	45	40	37	35	32	29	26	24	22	18
5	66	55	47	41	59	50	43	38	40	35	32	32	28	25	23	21	19	16
6	61	49	41	36	55	45	38	33	36	31	28	29	25	22	21	19	17	14
7	56	44	37	31	50	40	34	29	33	28	24	26	22	20	19	17	15	12
8	52	40	33	27	47	37	30	25	30	25	21	24	20	18	18	15	14	11
9	48	37	29	24	44	33	27	23	27	23	19	22	18	16	17	14	12	10
10	45	33	26	22	41	31	24	20	25	20	17	20	17	14	15	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7804	7804	7804	7804
5°	7666	7213	7666	7213
10°	7575	6604	7575	6604
15°	7419	6033	7387	6033
20°	7206	5501	7173	5501
25°	6958	5002	6926	5002
30°	6621	4523	6575	4523
35°	6177	4071	6142	4071
40°	5771	3610	5719	3610
45°	5416	3145	5375	3145
50°	5074	2572	5029	2572
55°	4744	1924	4713	1924
60°	4382	1426	4364	1426
65°	3957	1059	3957	1059
70°	3412	796	3434	796
75°	3006	584	3092	584
80°	3823	376	3093	376
85°	7361	176	3745	176



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	113.8	1.4
10°-20°	320.8	3.8
20°-30°	471.5	5.6
30°-40°	536.1	6.4
40°-50°	505.4	6.0
50°-60°	403.6	4.8
60°-70°	266.8	3.2
70°-80°	141.0	1.7
80°-90°	102.6	1.2
90°-100°	181.3	2.2
100°-110°	360.1	4.3
110°-120°	617.5	7.3
120°-130°	839.1	10.0
130°-140°	957.3	11.4
140°-150°	954.8	11.4
150°-160°	831.6	9.9
160°-170°	585.0	7.0
170°-180°	217.9	2.6
0°-30°	906.1	10.8
0°-40°	1442.2	17.2
0°-60°	2351.2	28.0
0°-90°	2861.5	34.0
90°-120°	1158.9	13.8
90°-150°	3910.1	46.5
90°-180°	5545.0	66.0
0°-180°	8406.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1208	1208	1208	1208	1208	
5°	1193	1210	1193	1210	1193	113
15°	1141	1144	1136	1144	1141	322
25°	1024	1029	1019	1029	1024	471
35°	841	878	836	878	841	527
45°	655	689	650	689	655	506
55°	484	415	481	415	484	433
65°	317	218	317	218	317	313
75°	167	111	172	111	167	191
85°	218	30	111	30	218	167
90°	313	2	66	2	313	173
95°	430	66	40	66	430	378
105°	713	324	22	324	713	749
115°	998	664	229	664	998	990
125°	1249	1040	568	1040	1249	1116
135°	1451	1419	913	1419	1451	1120
145°	1594	1776	1228	1776	1594	1005
155°	1782	2054	1545	2054	1782	822
165°	1947	2235	1883	2235	1947	552
175°	2303	2327	2254	2327	2303	215
180°	2325	2325	2325	2325	2325	



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3
2.5°	1200.0	1200.8	1202.3	1209.9	1216.7	1208.2	1202.3	1200.8	1201.6	1200.8	1202.3
5°	1193.3	1196.6	1197.2	1204.9	1209.9	1204.9	1195.6	1196.6	1193.3	1196.6	1195.6
7.5°	1186.4	1191.4	1186.3	1194.7	1188.8	1193.1	1184.7	1189.8	1186.4	1189.8	1184.7
10°	1176.3	1177.1	1173.6	1181.3	1184.6	1179.7	1172.0	1173.7	1176.3	1173.7	1172.0
12.5°	1162.6	1156.7	1155.1	1160.2	1159.4	1160.2	1155.1	1153.5	1159.4	1153.5	1155.1
15°	1140.6	1141.6	1136.5	1141.7	1144.1	1139.9	1134.9	1138.2	1135.7	1138.2	1134.9
17.5°	1120.3	1117.9	1112.1	1114.5	1119.6	1114.5	1110.3	1116.3	1115.4	1116.3	1110.3
20°	1088.2	1089.1	1085.0	1092.6	1091.8	1091.0	1083.3	1085.8	1083.3	1085.8	1083.3
22.5°	1058.6	1060.3	1057.9	1057.1	1062.2	1055.5	1056.2	1057.1	1055.5	1057.1	1056.2
25°	1023.9	1023.9	1024.0	1031.8	1029.3	1030.1	1020.8	1019.1	1019.1	1019.1	1020.8
27.5°	987.7	985.9	992.0	997.1	988.7	995.4	988.6	981.1	982.7	981.1	988.6
30°	941.2	942.8	949.6	964.1	956.6	960.7	944.7	937.9	934.7	937.9	944.7
32.5°	890.4	897.2	906.5	926.0	918.4	922.7	901.5	890.7	883.9	890.7	901.5
35°	840.6	843.2	857.5	882.1	878.0	877.2	852.7	838.2	835.8	838.2	852.7
37.5°	794.1	789.9	807.7	833.9	836.5	829.0	802.8	785.1	789.3	785.1	802.8
40°	744.3	745.2	752.7	783.3	787.5	779.9	746.1	738.6	737.7	738.6	746.1
42.5°	699.5	691.0	697.0	729.1	740.1	725.9	692.1	684.4	692.9	684.4	692.1
45°	654.7	643.8	644.6	672.5	688.6	669.3	638.0	638.8	649.8	638.8	638.0
47.5°	611.7	598.1	591.4	612.6	626.9	610.9	584.8	593.2	606.7	593.2	584.8
50°	567.7	555.1	541.5	554.2	561.1	550.9	534.9	548.5	562.7	548.5	534.9
52.5°	527.2	512.8	495.0	496.7	487.5	493.4	490.2	506.2	522.1	506.2	490.2
55°	484.0	471.3	450.2	435.9	414.8	432.7	445.4	466.5	480.8	466.5	445.4
57.5°	443.5	434.2	407.1	379.3	351.4	376.1	402.2	429.2	440.2	429.2	402.2
60°	400.5	392.9	361.6	321.8	301.6	320.2	358.3	389.5	398.8	389.5	358.3
62.5°	358.2	352.3	315.9	270.3	253.5	268.7	312.7	349.0	356.5	349.0	312.7
65°	316.8	307.5	270.3	228.0	218.0	226.5	268.7	305.9	316.8	305.9	268.7
67.5°	275.3	264.4	228.8	189.2	187.5	189.2	227.3	262.7	275.3	262.7	227.3
70°	232.4	221.4	190.1	157.1	158.0	157.1	190.1	222.9	233.9	222.9	190.1
72.5°	200.2	181.6	156.3	130.0	132.6	128.4	156.3	183.2	203.5	183.2	156.3
75°	167.3	147.0	122.5	103.0	110.7	103.0	124.2	148.6	172.1	148.6	124.2
77.5°	156.7	127.4	95.4	82.8	87.8	82.8	97.1	122.4	150.2	122.4	97.1
80°	163.5	128.4	79.2	62.4	67.5	62.4	76.0	102.1	132.3	102.1	76.0
82.5°	184.4	149.2	86.3	44.7	47.3	44.7	66.6	90.2	121.9	90.2	66.6
85°	217.6	185.9	113.1	39.5	29.5	36.3	65.5	85.7	110.7	85.7	65.5
87.5°	261.4	235.6	151.4	56.5	7.6	33.5	57.8	78.0	92.3	78.0	57.8
90°	312.8	289.7	203.8	84.3	2.5	21.9	41.2	58.0	66.4	58.0	41.2
92.5°	374.9	351.8	257.0	127.6	27.1	14.3	32.0	48.0	53.0	48.0	32.0
95°	429.7	419.9	321.7	174.2	66.5	9.9	26.1	38.8	40.4	38.8	26.1
97.5°	496.2	487.0	387.2	230.9	117.5	20.5	24.2	35.3	36.2	35.3	24.2
100°	553.5	550.0	454.4	301.5	179.9	55.0	19.1	34.3	35.9	34.3	19.1
102.5°	640.2	618.0	516.7	368.8	247.2	102.7	27.2	26.6	29.1	26.6	27.2
105°	713.2	687.7	596.4	439.5	324.5	166.8	65.8	27.3	21.7	27.3	65.8
107.5°	778.8	759.9	668.7	511.7	406.5	240.7	121.6	63.3	42.9	63.3	121.6
110°	858.4	837.9	739.2	584.8	492.0	320.3	185.7	115.0	89.6	115.0	185.7



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	937.3	921.6	805.0	660.5	580.8	405.8	264.6	180.7	157.0	180.7	264.6
115°	998.0	989.0	880.5	731.0	663.6	502.8	351.6	258.0	229.2	258.0	351.6
117.5°	1062.1	1060.4	936.4	803.3	762.2	589.8	432.1	336.0	304.7	336.0	432.1
120°	1142.5	1129.4	1013.5	875.7	855.8	681.8	520.8	424.8	393.5	424.8	520.8
122.5°	1198.4	1190.3	1080.1	944.6	944.6	775.4	607.0	510.1	477.3	510.1	607.0
125°	1249.3	1246.0	1129.4	1013.5	1039.9	862.4	702.3	603.8	567.7	603.8	702.3
127.5°	1295.3	1300.2	1193.5	1089.2	1136.8	951.2	796.0	687.5	649.7	687.5	796.0
130°	1334.7	1351.1	1254.3	1158.1	1228.7	1048.1	879.7	771.3	746.7	771.3	879.7
132.5°	1411.9	1402.1	1316.7	1229.6	1327.4	1137.7	968.5	855.1	827.1	855.1	968.5
135°	1451.4	1454.7	1370.9	1290.4	1419.4	1226.3	1052.2	940.5	912.6	940.5	1052.2
137.5°	1499.0	1489.2	1413.6	1364.3	1504.7	1311.8	1134.3	1030.8	986.5	1030.8	1134.3
140°	1533.6	1531.9	1469.5	1430.0	1596.8	1395.5	1218.1	1113.0	1071.9	1113.0	1218.1
142.5°	1569.7	1579.5	1525.3	1502.3	1688.7	1484.3	1308.4	1193.5	1154.1	1193.5	1308.4
145°	1594.3	1615.6	1581.1	1592.6	1775.8	1582.8	1387.3	1270.6	1228.0	1270.6	1387.3
147.5°	1635.4	1663.3	1622.2	1656.7	1851.3	1669.9	1466.2	1351.1	1313.4	1351.1	1466.2
150°	1691.2	1704.4	1679.6	1745.4	1928.5	1766.7	1546.7	1428.4	1390.7	1428.4	1546.7
152.5°	1735.6	1751.9	1724.0	1842.3	1989.4	1855.5	1635.4	1504.0	1459.6	1504.0	1635.4
155°	1781.5	1788.1	1768.4	1936.0	2054.3	1942.6	1706.0	1587.7	1545.0	1587.7	1706.0
157.5°	1824.3	1837.4	1814.4	2006.6	2110.0	2018.1	1786.5	1671.5	1633.7	1671.5	1786.5
160°	1870.3	1870.3	1883.4	2088.7	2156.2	2083.8	1871.9	1763.6	1711.0	1763.6	1871.9
162.5°	1875.2	1906.4	1977.0	2146.2	2200.5	2141.4	1964.0	1829.2	1783.2	1829.2	1964.0
165°	1947.4	1975.4	2082.2	2197.1	2234.9	2192.2	2077.3	1937.6	1883.4	1937.6	2077.3
167.5°	2023.0	2082.2	2167.6	2254.7	2267.8	2239.9	2164.4	2067.4	2018.1	2067.4	2164.4
170°	2145.4	2196.2	2239.9	2276.0	2294.1	2277.7	2218.5	2170.0	2138.8	2170.0	2218.5
172.5°	2242.4	2276.0	2292.5	2315.5	2303.9	2297.4	2267.8	2244.7	2227.6	2244.7	2267.8
175°	2303.1	2310.4	2325.2	2317.0	2327.0	2308.8	2310.4	2322.0	2253.8	2322.0	2310.4
177.5°	2324.4	2336.8	2328.6	2313.8	2315.5	2312.2	2318.7	2325.2	2314.6	2325.2	2318.7
180°	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1208.3	1208.3	1208.3	1208.3	1208.3	1208.3
2.5°	1208.2	1216.7	1209.9	1202.3	1200.8	1200.0
5°	1204.9	1209.9	1204.9	1197.2	1196.6	1193.3
7.5°	1193.1	1188.8	1194.7	1186.3	1191.4	1186.4
10°	1179.7	1184.6	1181.3	1173.6	1177.1	1176.3
12.5°	1160.2	1159.4	1160.2	1155.1	1156.7	1162.6
15°	1139.9	1144.1	1141.7	1136.5	1141.6	1140.6
17.5°	1114.5	1119.6	1114.5	1112.1	1117.9	1120.3
20°	1091.0	1091.8	1092.6	1085.0	1089.1	1088.2
22.5°	1055.5	1062.2	1057.1	1057.9	1060.3	1058.6
25°	1030.1	1029.3	1031.8	1024.0	1023.9	1023.9
27.5°	995.4	988.7	997.1	992.0	985.9	987.7
30°	960.7	956.6	964.1	949.6	942.8	941.2
32.5°	922.7	918.4	926.0	906.5	897.2	890.4
35°	877.2	878.0	882.1	857.5	843.2	840.6
37.5°	829.0	836.5	833.9	807.7	789.9	794.1
40°	779.9	787.5	783.3	752.7	745.2	744.3
42.5°	725.9	740.1	729.1	697.0	691.0	699.5
45°	669.3	688.6	672.5	644.6	643.8	654.7
47.5°	610.9	626.9	612.6	591.4	598.1	611.7
50°	550.9	561.1	554.2	541.5	555.1	567.7
52.5°	493.4	487.5	496.7	495.0	512.8	527.2
55°	432.7	414.8	435.9	450.2	471.3	484.0
57.5°	376.1	351.4	379.3	407.1	434.2	443.5
60°	320.2	301.6	321.8	361.6	392.9	400.5
62.5°	268.7	253.5	270.3	315.9	352.3	358.2
65°	226.5	218.0	228.0	270.3	307.5	316.8
67.5°	189.2	187.5	189.2	228.8	264.4	275.3
70°	157.1	158.0	157.1	190.1	221.4	232.4
72.5°	128.4	132.6	130.0	156.3	181.6	200.2
75°	103.0	110.7	103.0	122.5	147.0	167.3
77.5°	82.8	87.8	82.8	95.4	127.4	156.7
80°	62.4	67.5	62.4	79.2	128.4	163.5
82.5°	44.7	47.3	44.7	86.3	149.2	184.4
85°	36.3	29.5	39.5	113.1	185.9	217.6
87.5°	33.5	7.6	56.5	151.4	235.6	261.4
90°	21.9	2.5	84.3	203.8	289.7	312.8
92.5°	14.3	27.1	127.6	257.0	351.8	374.9
95°	9.9	66.5	174.2	321.7	419.9	429.7
97.5°	20.5	117.5	230.9	387.2	487.0	496.2
100°	55.0	179.9	301.5	454.4	550.0	553.5
102.5°	102.7	247.2	368.8	516.7	618.0	640.2
105°	166.8	324.5	439.5	596.4	687.7	713.2
107.5°	240.7	406.5	511.7	668.7	759.9	778.8
110°	320.3	492.0	584.8	739.2	837.9	858.4



TEST NUMBER: P392703

CATALOG NUMBER: MWL-4-66-33-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	405.8	580.8	660.5	805.0	921.6	937.3
115°	502.8	663.6	731.0	880.5	989.0	998.0
117.5°	589.8	762.2	803.3	936.4	1060.4	1062.1
120°	681.8	855.8	875.7	1013.5	1129.4	1142.5
122.5°	775.4	944.6	944.6	1080.1	1190.3	1198.4
125°	862.4	1039.9	1013.5	1129.4	1246.0	1249.3
127.5°	951.2	1136.8	1089.2	1193.5	1300.2	1295.3
130°	1048.1	1228.7	1158.1	1254.3	1351.1	1334.7
132.5°	1137.7	1327.4	1229.6	1316.7	1402.1	1411.9
135°	1226.3	1419.4	1290.4	1370.9	1454.7	1451.4
137.5°	1311.8	1504.7	1364.3	1413.6	1489.2	1499.0
140°	1395.5	1596.8	1430.0	1469.5	1531.9	1533.6
142.5°	1484.3	1688.7	1502.3	1525.3	1579.5	1569.7
145°	1582.8	1775.8	1592.6	1581.1	1615.6	1594.3
147.5°	1669.9	1851.3	1656.7	1622.2	1663.3	1635.4
150°	1766.7	1928.5	1745.4	1679.6	1704.4	1691.2
152.5°	1855.5	1989.4	1842.3	1724.0	1751.9	1735.6
155°	1942.6	2054.3	1936.0	1768.4	1788.1	1781.5
157.5°	2018.1	2110.0	2006.6	1814.4	1837.4	1824.3
160°	2083.8	2156.2	2088.7	1883.4	1870.3	1870.3
162.5°	2141.4	2200.5	2146.2	1977.0	1906.4	1875.2
165°	2192.2	2234.9	2197.1	2082.2	1975.4	1947.4
167.5°	2239.9	2267.8	2254.7	2167.6	2082.2	2023.0
170°	2277.7	2294.1	2276.0	2239.9	2196.2	2145.4
172.5°	2297.4	2303.9	2315.5	2292.5	2276.0	2242.4
175°	2308.8	2327.0	2317.0	2325.2	2310.4	2303.1
177.5°	2312.2	2315.5	2313.8	2328.6	2336.8	2324.4
180°	2325.2	2325.2	2325.2	2325.2	2325.2	2325.2

(END OF REPORT)