

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: P392704

Luminaire Tested: **MWL-4-66-33-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392704
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-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

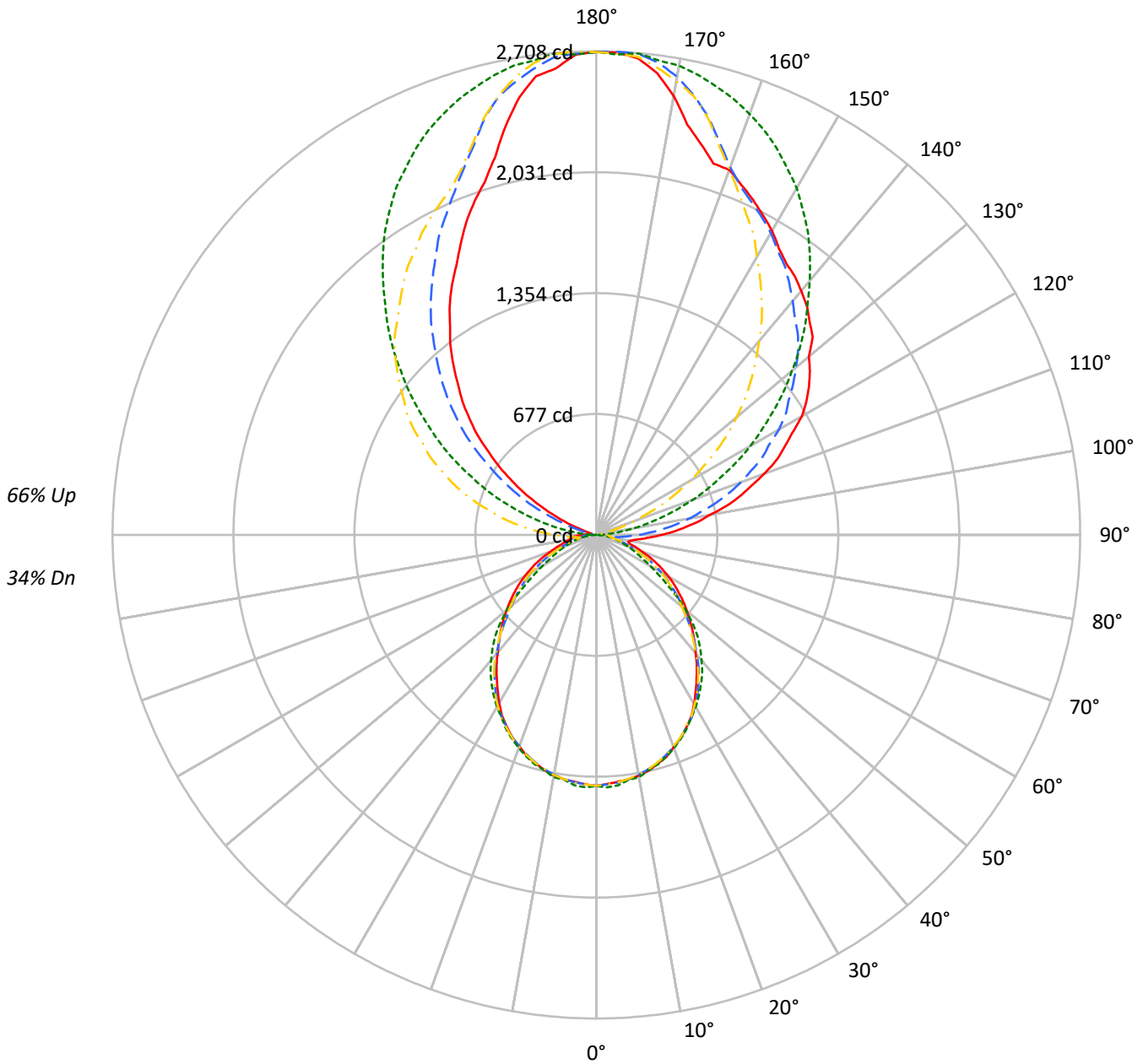
Lumens per Lamp: N/A
Luminaire Lumens: 9775.0 lumens
Efficiency: N/A
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 118.6
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



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



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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	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°	9075	9075	9075	9075
5°	8915	8387	8915	8387
10°	8808	7680	8808	7680
15°	8627	7016	8590	7016
20°	8379	6397	8341	6397
25°	8092	5817	8053	5817
30°	7698	5259	7645	5259
35°	7183	4735	7141	4735
40°	6710	4198	6651	4198
45°	6298	3657	6250	3657
50°	5901	2991	5849	2991
55°	5517	2237	5479	2237
60°	5096	1658	5074	1658
65°	4602	1232	4602	1232
70°	3967	926	3995	926
75°	3495	679	3597	679
80°	4447	438	3596	438
85°	8558	204	4357	204



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.3	1.4
10°-20°	373.1	3.8
20°-30°	548.3	5.6
30°-40°	623.4	6.4
40°-50°	587.7	6.0
50°-60°	469.3	4.8
60°-70°	310.2	3.2
70°-80°	163.9	1.7
80°-90°	119.3	1.2
90°-100°	210.9	2.2
100°-110°	418.7	4.3
110°-120°	718.0	7.3
120°-130°	975.7	10.0
130°-140°	1113.1	11.4
140°-150°	1110.3	11.4
150°-160°	967.0	9.9
160°-170°	680.3	7.0
170°-180°	253.4	2.6
0°-30°	1053.7	10.8
0°-40°	1677.1	17.2
0°-60°	2734.1	28.0
0°-90°	3327.6	34.0
90°-120°	1347.6	13.8
90°-150°	4546.8	46.5
90°-180°	6447.0	66.0
0°-180°	9775.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1405	1405	1405	1405	1405	
5°	1388	1407	1388	1407	1388	132
15°	1326	1330	1321	1330	1326	374
25°	1191	1197	1185	1197	1191	547
35°	978	1021	972	1021	978	612
45°	761	801	756	801	761	588
55°	563	482	559	482	563	504
65°	368	254	368	254	368	364
75°	194	129	200	129	194	222
85°	253	34	129	34	253	195
90°	364	3	77	3	364	201
95°	500	77	47	77	500	440
105°	829	377	25	377	829	872
115°	1160	772	266	772	1160	1152
125°	1453	1209	660	1209	1453	1297
135°	1688	1650	1061	1650	1688	1303
145°	1854	2065	1428	2065	1854	1169
155°	2072	2389	1797	2389	2072	956
165°	2265	2599	2190	2599	2265	642
175°	2678	2706	2621	2706	2678	250
180°	2704	2704	2704	2704	2704	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1
2.5°	1395.4	1396.3	1398.1	1406.9	1414.8	1405.0	1398.1	1396.3	1397.3	1396.3	1398.1
5°	1387.6	1391.4	1392.2	1401.0	1406.9	1401.0	1390.3	1391.4	1387.6	1391.4	1390.3
7.5°	1379.6	1385.4	1379.5	1389.2	1382.4	1387.4	1377.7	1383.5	1379.6	1383.5	1377.7
10°	1367.8	1368.7	1364.8	1373.6	1377.6	1371.8	1362.9	1364.9	1367.8	1364.9	1362.9
12.5°	1351.9	1345.1	1343.3	1349.1	1348.2	1349.1	1343.3	1341.3	1348.2	1341.3	1343.3
15°	1326.3	1327.4	1321.6	1327.5	1330.5	1325.6	1319.7	1323.6	1320.6	1323.6	1319.7
17.5°	1302.8	1299.9	1293.1	1296.1	1302.0	1296.1	1291.2	1298.0	1297.1	1298.0	1291.2
20°	1265.4	1266.4	1261.7	1270.5	1269.6	1268.7	1259.7	1262.7	1259.7	1262.7	1259.7
22.5°	1231.0	1233.0	1230.2	1229.2	1235.2	1227.4	1228.3	1229.2	1227.3	1229.2	1228.3
25°	1190.7	1190.7	1190.8	1199.8	1196.9	1197.9	1187.0	1185.0	1185.0	1185.0	1187.0
27.5°	1148.5	1146.5	1153.5	1159.5	1149.7	1157.5	1149.6	1140.8	1142.8	1140.8	1149.6
30°	1094.4	1096.4	1104.2	1121.0	1112.4	1117.2	1098.5	1090.7	1086.8	1090.7	1098.5
32.5°	1035.4	1043.3	1054.1	1076.8	1068.1	1073.0	1048.4	1035.7	1027.9	1035.7	1048.4
35°	977.5	980.5	997.2	1025.7	1021.0	1020.0	991.5	974.8	971.8	974.8	991.5
37.5°	923.5	918.6	939.2	969.7	972.7	964.0	933.5	912.9	917.8	912.9	933.5
40°	865.5	866.5	875.3	910.8	915.7	907.0	867.7	858.8	857.8	858.8	867.7
42.5°	813.4	803.6	810.6	847.9	860.7	844.1	804.8	795.9	805.7	795.9	804.8
45°	761.4	748.6	749.6	782.0	800.7	778.2	741.9	742.8	755.6	742.8	741.9
47.5°	711.3	695.6	687.7	712.3	729.0	710.4	680.0	689.8	705.5	689.8	680.0
50°	660.2	645.4	629.7	644.5	652.4	640.6	622.0	637.8	654.4	637.8	622.0
52.5°	613.0	596.3	575.7	577.6	566.9	573.8	570.0	588.6	607.2	588.6	570.0
55°	562.9	548.1	523.6	507.0	482.4	503.1	517.9	542.4	559.0	542.4	517.9
57.5°	515.7	504.9	473.4	441.1	408.7	437.3	467.7	499.2	511.9	499.2	467.7
60°	465.7	456.8	420.5	374.3	350.7	372.4	416.6	453.0	463.7	453.0	416.6
62.5°	416.5	409.6	367.4	314.3	294.8	312.4	363.6	405.8	414.6	405.8	363.6
65°	368.4	357.6	314.3	265.2	253.5	263.3	312.4	355.7	368.4	355.7	312.4
67.5°	320.2	307.4	266.2	220.1	218.1	220.1	264.3	305.6	320.2	305.6	264.3
70°	270.2	257.4	221.0	182.7	183.7	182.7	221.0	259.3	272.1	259.3	221.0
72.5°	232.8	211.2	181.7	151.3	154.2	149.3	181.7	213.1	236.7	213.1	181.7
75°	194.5	170.9	142.4	119.8	128.7	119.8	144.4	172.8	200.2	172.8	144.4
77.5°	182.2	148.1	111.0	96.2	102.1	96.2	112.9	142.3	174.7	142.3	112.9
80°	190.2	149.3	92.2	72.6	78.5	72.6	88.4	118.7	153.8	118.7	88.4
82.5°	214.4	173.6	100.3	52.0	54.9	52.0	77.4	104.9	141.8	104.9	77.4
85°	253.0	216.1	131.6	46.0	34.3	42.2	76.2	99.7	128.8	99.7	76.2
87.5°	304.0	274.0	176.1	65.8	8.8	39.0	67.2	90.7	107.3	90.7	67.2
90°	363.8	336.8	237.1	98.0	2.9	25.5	48.0	67.5	77.3	67.5	48.0
92.5°	436.0	409.2	298.9	148.4	31.5	16.6	37.2	55.8	61.6	55.8	37.2
95°	499.7	488.3	374.2	202.6	77.3	11.6	30.3	45.1	47.0	45.1	30.3
97.5°	576.9	566.3	450.3	268.4	136.6	23.9	28.2	41.1	42.1	41.1	28.2
100°	643.6	639.6	528.4	350.6	209.1	64.0	22.2	39.8	41.8	39.8	22.2
102.5°	744.5	718.7	600.8	428.8	287.5	119.4	31.6	31.0	33.9	31.0	31.6
105°	829.3	799.6	693.5	511.0	377.3	193.9	76.5	31.7	25.2	31.7	76.5
107.5°	905.6	883.6	777.5	595.0	472.7	279.9	141.4	73.6	49.8	73.6	141.4
110°	998.2	974.3	859.6	680.0	572.1	372.5	215.9	133.8	104.2	133.8	215.9



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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°	1089.9	1071.7	936.1	768.0	675.3	471.9	307.6	210.1	182.5	210.1	307.6
115°	1160.5	1150.0	1023.9	850.1	771.7	584.6	408.9	300.0	266.5	300.0	408.9
117.5°	1235.0	1233.1	1088.9	934.1	886.3	685.8	502.4	390.7	354.4	390.7	502.4
120°	1328.6	1313.4	1178.6	1018.2	995.2	792.8	605.6	493.9	457.6	493.9	605.6
122.5°	1393.6	1384.0	1256.0	1098.4	1098.4	901.7	705.9	593.1	555.0	593.1	705.9
125°	1452.7	1448.9	1313.4	1178.6	1209.2	1002.9	816.6	702.0	660.1	702.0	816.6
127.5°	1506.2	1512.0	1387.9	1266.5	1321.9	1106.1	925.5	799.4	755.5	799.4	925.5
130°	1552.1	1571.2	1458.5	1346.7	1428.9	1218.7	1022.9	896.9	868.2	896.9	1022.9
132.5°	1641.8	1630.4	1531.1	1429.8	1543.5	1322.9	1126.1	994.3	961.8	994.3	1126.1
135°	1687.7	1691.6	1594.2	1500.5	1650.5	1426.0	1223.5	1093.6	1061.2	1093.6	1223.5
137.5°	1743.1	1731.7	1643.8	1586.5	1749.8	1525.4	1319.1	1198.7	1147.2	1198.7	1319.1
140°	1783.3	1781.3	1708.8	1662.9	1856.8	1622.8	1416.5	1294.2	1246.4	1294.2	1416.5
142.5°	1825.2	1836.7	1773.6	1746.9	1963.7	1726.0	1521.5	1387.9	1342.0	1387.9	1521.5
145°	1853.9	1878.7	1838.6	1852.0	2065.0	1840.6	1613.2	1477.6	1428.0	1477.6	1613.2
147.5°	1901.7	1934.1	1886.4	1926.5	2152.8	1941.8	1704.9	1571.2	1527.2	1571.2	1704.9
150°	1966.6	1981.9	1953.2	2029.7	2242.6	2054.4	1798.5	1661.0	1617.1	1661.0	1798.5
152.5°	2018.2	2037.2	2004.8	2142.3	2313.3	2157.6	1901.7	1748.9	1697.3	1748.9	1901.7
155°	2071.6	2079.3	2056.4	2251.2	2388.8	2258.9	1983.8	1846.3	1796.6	1846.3	1983.8
157.5°	2121.4	2136.6	2109.9	2333.4	2453.7	2346.7	2077.4	1943.7	1899.7	1943.7	2077.4
160°	2174.8	2174.8	2190.1	2428.9	2507.2	2423.1	2176.7	2050.7	1989.6	2050.7	2176.7
162.5°	2180.5	2216.8	2299.0	2495.7	2558.7	2490.0	2283.7	2127.1	2073.6	2127.1	2283.7
165°	2264.6	2297.1	2421.2	2554.9	2598.8	2549.2	2415.5	2253.2	2190.1	2253.2	2415.5
167.5°	2352.4	2421.2	2520.6	2621.8	2637.1	2604.6	2516.8	2404.0	2346.7	2404.0	2516.8
170°	2494.8	2553.9	2604.6	2646.6	2667.6	2648.6	2579.8	2523.4	2487.1	2523.4	2579.8
172.5°	2607.5	2646.6	2665.8	2692.5	2679.1	2671.5	2637.1	2610.3	2590.3	2610.3	2637.1
175°	2678.1	2686.7	2703.9	2694.4	2705.9	2684.8	2686.7	2700.1	2620.8	2700.1	2686.7
177.5°	2702.9	2717.3	2707.7	2690.5	2692.5	2688.7	2696.3	2703.9	2691.5	2703.9	2696.3
180°	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9



TEST NUMBER: P392704

CATALOG NUMBER: MWL-4-66-33-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1405.1	1405.1	1405.1	1405.1	1405.1	1405.1
2.5°	1405.0	1414.8	1406.9	1398.1	1396.3	1395.4
5°	1401.0	1406.9	1401.0	1392.2	1391.4	1387.6
7.5°	1387.4	1382.4	1389.2	1379.5	1385.4	1379.6
10°	1371.8	1377.6	1373.6	1364.8	1368.7	1367.8
12.5°	1349.1	1348.2	1349.1	1343.3	1345.1	1351.9
15°	1325.6	1330.5	1327.5	1321.6	1327.4	1326.3
17.5°	1296.1	1302.0	1296.1	1293.1	1299.9	1302.8
20°	1268.7	1269.6	1270.5	1261.7	1266.4	1265.4
22.5°	1227.4	1235.2	1229.2	1230.2	1233.0	1231.0
25°	1197.9	1196.9	1199.8	1190.8	1190.7	1190.7
27.5°	1157.5	1149.7	1159.5	1153.5	1146.5	1148.5
30°	1117.2	1112.4	1121.0	1104.2	1096.4	1094.4
32.5°	1073.0	1068.1	1076.8	1054.1	1043.3	1035.4
35°	1020.0	1021.0	1025.7	997.2	980.5	977.5
37.5°	964.0	972.7	969.7	939.2	918.6	923.5
40°	907.0	915.7	910.8	875.3	866.5	865.5
42.5°	844.1	860.7	847.9	810.6	803.6	813.4
45°	778.2	800.7	782.0	749.6	748.6	761.4
47.5°	710.4	729.0	712.3	687.7	695.6	711.3
50°	640.6	652.4	644.5	629.7	645.4	660.2
52.5°	573.8	566.9	577.6	575.7	596.3	613.0
55°	503.1	482.4	507.0	523.6	548.1	562.9
57.5°	437.3	408.7	441.1	473.4	504.9	515.7
60°	372.4	350.7	374.3	420.5	456.8	465.7
62.5°	312.4	294.8	314.3	367.4	409.6	416.5
65°	263.3	253.5	265.2	314.3	357.6	368.4
67.5°	220.1	218.1	220.1	266.2	307.4	320.2
70°	182.7	183.7	182.7	221.0	257.4	270.2
72.5°	149.3	154.2	151.3	181.7	211.2	232.8
75°	119.8	128.7	119.8	142.4	170.9	194.5
77.5°	96.2	102.1	96.2	111.0	148.1	182.2
80°	72.6	78.5	72.6	92.2	149.3	190.2
82.5°	52.0	54.9	52.0	100.3	173.6	214.4
85°	42.2	34.3	46.0	131.6	216.1	253.0
87.5°	39.0	8.8	65.8	176.1	274.0	304.0
90°	25.5	2.9	98.0	237.1	336.8	363.8
92.5°	16.6	31.5	148.4	298.9	409.2	436.0
95°	11.6	77.3	202.6	374.2	488.3	499.7
97.5°	23.9	136.6	268.4	450.3	566.3	576.9
100°	64.0	209.1	350.6	528.4	639.6	643.6
102.5°	119.4	287.5	428.8	600.8	718.7	744.5
105°	193.9	377.3	511.0	693.5	799.6	829.3
107.5°	279.9	472.7	595.0	777.5	883.6	905.6
110°	372.5	572.1	680.0	859.6	974.3	998.2



TEST NUMBER: P392704

CATALOG NUMBER: MWL-4-66-33-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	471.9	675.3	768.0	936.1	1071.7	1089.9
115°	584.6	771.7	850.1	1023.9	1150.0	1160.5
117.5°	685.8	886.3	934.1	1088.9	1233.1	1235.0
120°	792.8	995.2	1018.2	1178.6	1313.4	1328.6
122.5°	901.7	1098.4	1098.4	1256.0	1384.0	1393.6
125°	1002.9	1209.2	1178.6	1313.4	1448.9	1452.7
127.5°	1106.1	1321.9	1266.5	1387.9	1512.0	1506.2
130°	1218.7	1428.9	1346.7	1458.5	1571.2	1552.1
132.5°	1322.9	1543.5	1429.8	1531.1	1630.4	1641.8
135°	1426.0	1650.5	1500.5	1594.2	1691.6	1687.7
137.5°	1525.4	1749.8	1586.5	1643.8	1731.7	1743.1
140°	1622.8	1856.8	1662.9	1708.8	1781.3	1783.3
142.5°	1726.0	1963.7	1746.9	1773.6	1836.7	1825.2
145°	1840.6	2065.0	1852.0	1838.6	1878.7	1853.9
147.5°	1941.8	2152.8	1926.5	1886.4	1934.1	1901.7
150°	2054.4	2242.6	2029.7	1953.2	1981.9	1966.6
152.5°	2157.6	2313.3	2142.3	2004.8	2037.2	2018.2
155°	2258.9	2388.8	2251.2	2056.4	2079.3	2071.6
157.5°	2346.7	2453.7	2333.4	2109.9	2136.6	2121.4
160°	2423.1	2507.2	2428.9	2190.1	2174.8	2174.8
162.5°	2490.0	2558.7	2495.7	2299.0	2216.8	2180.5
165°	2549.2	2598.8	2554.9	2421.2	2297.1	2264.6
167.5°	2604.6	2637.1	2621.8	2520.6	2421.2	2352.4
170°	2648.6	2667.6	2646.6	2604.6	2553.9	2494.8
172.5°	2671.5	2679.1	2692.5	2665.8	2646.6	2607.5
175°	2684.8	2705.9	2694.4	2703.9	2686.7	2678.1
177.5°	2688.7	2692.5	2690.5	2707.7	2717.3	2702.9
180°	2703.9	2703.9	2703.9	2703.9	2703.9	2703.9

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