

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: P392713

Luminaire Tested: **MWL-4-66-73-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392713
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-L935-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

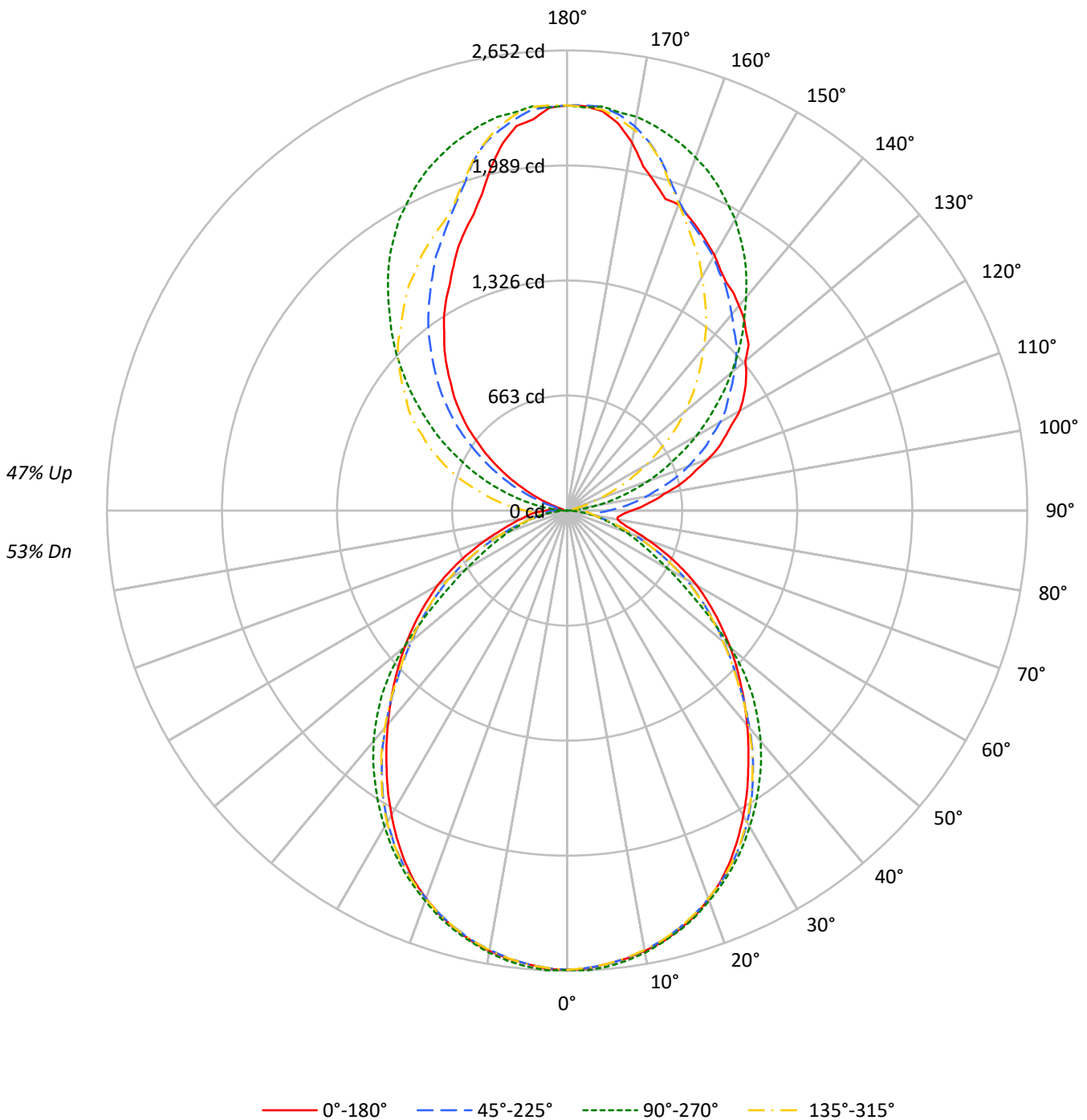
Lumens per Lamp: N/A
Luminaire Lumens: 11780.3 lumens
Efficiency: N/A
Efficacy: 68.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

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



TEST NUMBER: P392713
CATALOG NUMBER: MWL-4-66-73-UNV-L935-EDD

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	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°	17097	17097	17097	17097
5°	16851	15730	16851	15730
10°	16596	14423	16596	14423
15°	16259	13209	16227	13209
20°	15777	12058	15745	12058
25°	15132	10995	15098	10995
30°	14285	9946	14239	9946
35°	13371	8934	13335	8934
40°	12517	7953	12465	7953
45°	11699	6908	11657	6908
50°	10958	5644	10913	5644
55°	10197	4246	10164	4246
60°	9454	3162	9436	3162
65°	8409	2382	8409	2382
70°	7307	1794	7332	1794
75°	6384	1283	6472	1283
80°	6909	827	6175	827
85°	10540	373	6914	373



TEST NUMBER: P392713

CATALOG NUMBER: MWL-4-66-73-UNV-L935-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	249.6	2.1
10°-20°	703.9	6.0
20°-30°	1032.4	8.8
30°-40°	1168.9	9.9
40°-50°	1101.6	9.4
50°-60°	881.8	7.5
60°-70°	581.0	4.9
70°-80°	298.2	2.5
80°-90°	168.2	1.4
90°-100°	203.8	1.7
100°-110°	364.3	3.1
110°-120°	620.9	5.3
120°-130°	843.3	7.2
130°-140°	961.7	8.2
140°-150°	959.2	8.1
150°-160°	835.2	7.1
160°-170°	587.5	5.0
170°-180°	218.8	1.9
0°-30°	1985.8	16.9
0°-40°	3154.7	26.8
0°-60°	5138.2	43.6
0°-90°	6185.6	52.5
90°-120°	1189.0	10.1
90°-150°	3953.2	33.6
90°-180°	5595.0	47.5
0°-180°	11780.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2647	2647	2647	2647	2647	
5°	2623	2639	2623	2639	2623	249
15°	2500	2505	2495	2505	2500	704
25°	2227	2262	2222	2262	2227	1022
35°	1820	1927	1815	1927	1820	1139
45°	1414	1513	1409	1513	1414	1093
55°	1040	916	1037	916	1040	932
65°	673	490	673	490	673	669
75°	355	243	360	243	355	393
85°	312	63	204	63	312	250
90°	371	2	124	2	371	205
95°	466	68	75	68	466	404
105°	719	326	25	326	719	758
115°	1003	667	232	667	1003	995
125°	1255	1044	571	1044	1255	1121
135°	1458	1426	917	1426	1458	1125
145°	1601	1783	1234	1783	1601	1010
155°	1789	2063	1552	2063	1789	825
165°	1956	2245	1892	2245	1956	555
175°	2312	2337	2262	2337	2312	216
180°	2335	2335	2335	2335	2335	



TEST NUMBER: P392713

CATALOG NUMBER: MWL-4-66-73-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3
2.5°	2641.5	2643.1	2637.9	2653.2	2652.3	2651.4	2637.9	2643.1	2643.1	2643.1	2637.9
5°	2622.9	2629.6	2625.2	2639.6	2638.7	2639.6	2623.6	2629.6	2622.9	2629.6	2623.6
7.5°	2604.1	2612.5	2601.6	2619.2	2617.5	2617.6	2599.9	2611.0	2604.1	2611.0	2599.9
10°	2577.1	2580.3	2572.7	2587.9	2587.1	2586.4	2571.1	2577.1	2577.1	2577.1	2571.1
12.5°	2544.6	2543.0	2536.3	2549.9	2547.4	2549.9	2536.3	2539.7	2541.4	2539.7	2536.3
15°	2499.6	2497.2	2492.2	2505.8	2504.9	2504.0	2490.5	2493.9	2494.7	2493.9	2490.5
17.5°	2448.0	2444.6	2441.3	2454.9	2454.9	2454.9	2439.6	2443.0	2443.0	2443.0	2439.6
20°	2382.6	2384.4	2381.1	2394.7	2393.1	2393.1	2379.4	2381.1	2377.7	2381.1	2379.4
22.5°	2312.2	2314.8	2317.5	2335.4	2331.1	2333.7	2315.9	2311.5	2309.0	2311.5	2315.9
25°	2226.6	2231.7	2246.2	2264.1	2262.4	2262.4	2242.8	2226.8	2221.7	2226.8	2242.8
27.5°	2131.6	2145.2	2164.8	2188.6	2187.0	2186.9	2161.5	2140.3	2126.7	2140.3	2161.5
30°	2030.7	2045.1	2075.6	2109.6	2103.8	2106.3	2070.7	2040.2	2024.2	2040.2	2070.7
32.5°	1928.1	1942.5	1977.2	2018.1	2019.9	2014.8	1972.3	1936.0	1921.5	1936.0	1972.3
35°	1819.6	1826.4	1866.3	1929.0	1926.6	1924.1	1861.4	1821.5	1814.7	1821.5	1861.4
37.5°	1715.3	1717.0	1756.9	1823.0	1835.8	1818.0	1751.9	1712.1	1710.4	1712.1	1751.9
40°	1614.4	1605.9	1633.9	1706.9	1734.9	1703.6	1627.3	1599.3	1607.8	1599.3	1627.3
42.5°	1514.3	1504.1	1515.3	1588.2	1625.4	1584.9	1510.2	1497.5	1507.7	1497.5	1510.2
45°	1414.3	1395.7	1393.2	1466.1	1512.7	1462.7	1386.5	1390.6	1409.3	1390.6	1386.5
47.5°	1320.2	1298.1	1285.4	1340.5	1383.0	1339.0	1278.8	1293.1	1315.1	1293.1	1278.8
50°	1226.0	1204.9	1175.2	1213.3	1231.2	1210.0	1168.5	1198.2	1221.0	1198.2	1168.5
52.5°	1132.7	1116.7	1077.7	1091.2	1069.2	1087.9	1072.8	1110.0	1127.7	1110.0	1072.8
55°	1040.3	1025.9	979.2	960.7	915.7	957.4	974.3	1021.0	1037.0	1021.0	974.3
57.5°	950.4	941.9	884.3	831.0	782.6	827.6	879.4	937.0	947.1	937.0	879.4
60°	864.0	854.7	787.7	705.4	668.9	703.8	784.4	851.3	862.3	851.3	784.4
62.5°	767.3	763.1	687.6	595.1	570.6	593.6	684.3	759.8	765.7	759.8	684.3
65°	673.2	660.5	590.1	500.2	490.1	498.6	588.5	658.8	673.2	658.8	588.5
67.5°	583.3	564.7	499.4	417.1	419.7	417.1	497.7	563.0	583.3	563.0	497.7
70°	497.7	468.9	410.4	345.1	356.1	345.1	410.4	470.5	499.4	470.5	410.4
72.5°	418.9	383.2	329.8	281.5	294.2	279.8	329.8	384.9	422.1	384.9	329.8
75°	355.3	310.3	256.0	223.8	243.3	223.8	257.7	311.9	360.2	311.9	257.7
77.5°	316.7	261.8	200.0	172.9	196.7	172.9	201.7	256.8	310.1	256.8	201.7
80°	295.5	239.9	163.5	128.0	148.3	128.0	160.2	213.6	264.1	213.6	160.2
82.5°	293.5	241.4	156.1	92.3	104.2	92.3	136.3	182.1	230.9	182.1	136.3
85°	311.6	263.7	170.3	77.0	62.6	73.7	122.5	163.2	204.4	163.2	122.5
87.5°	333.5	298.4	197.8	86.4	22.9	63.3	103.8	140.2	163.9	140.2	103.8
90°	370.7	342.4	241.0	104.9	2.5	42.3	77.8	110.0	123.5	110.0	77.8
92.5°	421.2	396.3	288.5	140.0	28.0	26.2	62.6	91.4	98.1	91.4	62.6
95°	466.0	454.4	344.9	179.1	67.6	14.2	48.1	72.0	75.3	72.0	48.1
97.5°	522.4	514.1	400.5	232.5	118.7	21.5	36.2	60.9	60.9	60.9	36.2
100°	572.3	568.0	461.0	303.4	181.3	56.1	24.2	50.5	53.0	50.5	24.2
102.5°	651.7	628.6	520.2	370.9	248.9	103.9	29.0	35.2	38.6	35.2	29.0
105°	719.0	691.7	599.3	441.7	326.4	168.2	66.8	29.1	25.1	29.1	66.8
107.5°	782.2	764.1	671.8	515.2	408.8	243.3	122.9	65.2	43.8	65.2	122.9
110°	863.0	843.2	742.5	587.6	495.4	322.3	187.2	118.0	91.6	118.0	187.2



TEST NUMBER: P392713

CATALOG NUMBER: MWL-4-66-73-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	942.1	927.3	808.5	663.5	584.4	408.0	266.3	183.9	159.2	183.9	266.3
115°	1003.1	994.0	885.2	734.3	666.8	505.3	354.5	260.5	231.7	260.5	354.5
117.5°	1067.4	1064.8	941.3	806.8	765.7	592.6	435.2	337.9	307.5	337.9	435.2
120°	1148.1	1134.1	1018.7	879.5	859.6	684.9	524.3	427.0	396.6	427.0	524.3
122.5°	1204.2	1196.0	1084.6	949.5	948.7	779.7	609.9	513.5	480.6	513.5	609.9
125°	1255.3	1251.9	1134.1	1018.7	1044.2	867.0	705.5	607.5	571.2	607.5	705.5
127.5°	1301.3	1306.3	1199.3	1094.5	1142.3	956.1	800.3	691.5	653.6	691.5	800.3
130°	1340.9	1357.4	1260.3	1163.7	1234.6	1053.3	884.4	775.7	750.9	775.7	884.4
132.5°	1418.3	1408.5	1322.8	1234.6	1333.5	1142.3	973.4	859.7	831.6	859.7	973.4
135°	1458.0	1461.3	1377.3	1295.6	1425.9	1231.3	1057.5	945.3	917.3	945.3	1057.5
137.5°	1505.8	1495.9	1420.1	1370.6	1511.5	1317.9	1139.9	1036.0	991.6	1036.0	1139.9
140°	1540.4	1538.7	1476.2	1436.6	1603.9	1402.0	1223.9	1118.4	1077.2	1118.4	1223.9
142.5°	1577.5	1587.4	1532.1	1509.0	1696.1	1491.0	1314.5	1200.1	1160.5	1200.1	1314.5
145°	1601.4	1623.6	1588.2	1599.7	1783.4	1589.9	1393.7	1277.5	1233.9	1277.5	1393.7
147.5°	1643.5	1670.6	1629.4	1664.0	1859.3	1677.2	1472.8	1357.4	1320.3	1357.4	1472.8
150°	1698.6	1711.8	1687.1	1753.1	1936.7	1774.4	1553.6	1434.9	1397.0	1434.9	1553.6
152.5°	1743.1	1759.5	1731.6	1850.2	1997.8	1863.4	1642.6	1510.8	1466.2	1510.8	1642.6
155°	1789.2	1795.9	1776.1	1944.2	2062.9	1950.8	1713.5	1594.8	1551.9	1594.8	1713.5
157.5°	1832.2	1845.3	1822.3	2015.0	2118.9	2026.6	1794.2	1678.9	1640.9	1678.9	1794.2
160°	1878.3	1878.3	1891.5	2097.5	2165.1	2092.5	1879.9	1771.2	1718.5	1771.2	1879.9
162.5°	1883.2	1914.5	1985.4	2155.2	2209.5	2150.3	1972.2	1837.1	1790.9	1837.1	1972.2
165°	1955.8	1983.8	2090.9	2206.3	2245.0	2201.3	2086.0	1945.9	1891.5	1945.9	2086.0
167.5°	2030.7	2090.0	2176.7	2264.9	2278.0	2250.0	2173.3	2075.2	2025.7	2075.2	2173.3
170°	2153.5	2206.3	2249.1	2286.3	2304.4	2287.9	2227.7	2179.9	2146.9	2179.9	2227.7
172.5°	2250.8	2285.4	2301.9	2325.8	2314.3	2307.7	2277.1	2254.1	2235.9	2254.1	2277.1
175°	2311.7	2320.0	2334.8	2327.4	2337.3	2319.2	2320.0	2331.5	2262.3	2331.5	2320.0
177.5°	2333.1	2346.3	2338.1	2324.1	2325.8	2322.5	2328.3	2334.8	2323.3	2334.8	2328.3
180°	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8



TEST NUMBER: P392713

CATALOG NUMBER: MWL-4-66-73-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2647.3	2647.3	2647.3	2647.3	2647.3	2647.3
2.5°	2651.4	2652.3	2653.2	2637.9	2643.1	2641.5
5°	2639.6	2638.7	2639.6	2625.2	2629.6	2622.9
7.5°	2617.6	2617.5	2619.2	2601.6	2612.5	2604.1
10°	2586.4	2587.1	2587.9	2572.7	2580.3	2577.1
12.5°	2549.9	2547.4	2549.9	2536.3	2543.0	2544.6
15°	2504.0	2504.9	2505.8	2492.2	2497.2	2499.6
17.5°	2454.9	2454.9	2454.9	2441.3	2444.6	2448.0
20°	2393.1	2393.1	2394.7	2381.1	2384.4	2382.6
22.5°	2333.7	2331.1	2335.4	2317.5	2314.8	2312.2
25°	2262.4	2262.4	2264.1	2246.2	2231.7	2226.6
27.5°	2186.9	2187.0	2188.6	2164.8	2145.2	2131.6
30°	2106.3	2103.8	2109.6	2075.6	2045.1	2030.7
32.5°	2014.8	2019.9	2018.1	1977.2	1942.5	1928.1
35°	1924.1	1926.6	1929.0	1866.3	1826.4	1819.6
37.5°	1818.0	1835.8	1823.0	1756.9	1717.0	1715.3
40°	1703.6	1734.9	1706.9	1633.9	1605.9	1614.4
42.5°	1584.9	1625.4	1588.2	1515.3	1504.1	1514.3
45°	1462.7	1512.7	1466.1	1393.2	1395.7	1414.3
47.5°	1339.0	1383.0	1340.5	1285.4	1298.1	1320.2
50°	1210.0	1231.2	1213.3	1175.2	1204.9	1226.0
52.5°	1087.9	1069.2	1091.2	1077.7	1116.7	1132.7
55°	957.4	915.7	960.7	979.2	1025.9	1040.3
57.5°	827.6	782.6	831.0	884.3	941.9	950.4
60°	703.8	668.9	705.4	787.7	854.7	864.0
62.5°	593.6	570.6	595.1	687.6	763.1	767.3
65°	498.6	490.1	500.2	590.1	660.5	673.2
67.5°	417.1	419.7	417.1	499.4	564.7	583.3
70°	345.1	356.1	345.1	410.4	468.9	497.7
72.5°	279.8	294.2	281.5	329.8	383.2	418.9
75°	223.8	243.3	223.8	256.0	310.3	355.3
77.5°	172.9	196.7	172.9	200.0	261.8	316.7
80°	128.0	148.3	128.0	163.5	239.9	295.5
82.5°	92.3	104.2	92.3	156.1	241.4	293.5
85°	73.7	62.6	77.0	170.3	263.7	311.6
87.5°	63.3	22.9	86.4	197.8	298.4	333.5
90°	42.3	2.5	104.9	241.0	342.4	370.7
92.5°	26.2	28.0	140.0	288.5	396.3	421.2
95°	14.2	67.6	179.1	344.9	454.4	466.0
97.5°	21.5	118.7	232.5	400.5	514.1	522.4
100°	56.1	181.3	303.4	461.0	568.0	572.3
102.5°	103.9	248.9	370.9	520.2	628.6	651.7
105°	168.2	326.4	441.7	599.3	691.7	719.0
107.5°	243.3	408.8	515.2	671.8	764.1	782.2
110°	322.3	495.4	587.6	742.5	843.2	863.0



TEST NUMBER: P392713

CATALOG NUMBER: MWL-4-66-73-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	408.0	584.4	663.5	808.5	927.3	942.1
115°	505.3	666.8	734.3	885.2	994.0	1003.1
117.5°	592.6	765.7	806.8	941.3	1064.8	1067.4
120°	684.9	859.6	879.5	1018.7	1134.1	1148.1
122.5°	779.7	948.7	949.5	1084.6	1196.0	1204.2
125°	867.0	1044.2	1018.7	1134.1	1251.9	1255.3
127.5°	956.1	1142.3	1094.5	1199.3	1306.3	1301.3
130°	1053.3	1234.6	1163.7	1260.3	1357.4	1340.9
132.5°	1142.3	1333.5	1234.6	1322.8	1408.5	1418.3
135°	1231.3	1425.9	1295.6	1377.3	1461.3	1458.0
137.5°	1317.9	1511.5	1370.6	1420.1	1495.9	1505.8
140°	1402.0	1603.9	1436.6	1476.2	1538.7	1540.4
142.5°	1491.0	1696.1	1509.0	1532.1	1587.4	1577.5
145°	1589.9	1783.4	1599.7	1588.2	1623.6	1601.4
147.5°	1677.2	1859.3	1664.0	1629.4	1670.6	1643.5
150°	1774.4	1936.7	1753.1	1687.1	1711.8	1698.6
152.5°	1863.4	1997.8	1850.2	1731.6	1759.5	1743.1
155°	1950.8	2062.9	1944.2	1776.1	1795.9	1789.2
157.5°	2026.6	2118.9	2015.0	1822.3	1845.3	1832.2
160°	2092.5	2165.1	2097.5	1891.5	1878.3	1878.3
162.5°	2150.3	2209.5	2155.2	1985.4	1914.5	1883.2
165°	2201.3	2245.0	2206.3	2090.9	1983.8	1955.8
167.5°	2250.0	2278.0	2264.9	2176.7	2090.0	2030.7
170°	2287.9	2304.4	2286.3	2249.1	2206.3	2153.5
172.5°	2307.7	2314.3	2325.8	2301.9	2285.4	2250.8
175°	2319.2	2337.3	2327.4	2334.8	2320.0	2311.7
177.5°	2322.5	2325.8	2324.1	2338.1	2346.3	2333.1
180°	2334.8	2334.8	2334.8	2334.8	2334.8	2334.8

(END OF REPORT)