

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: P392677

Luminaire Tested: **MWL-4-42-45-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392677
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-4-42-45-UNV-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8593.0 lumens
Efficiency: N/A
Efficacy: 96.7 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

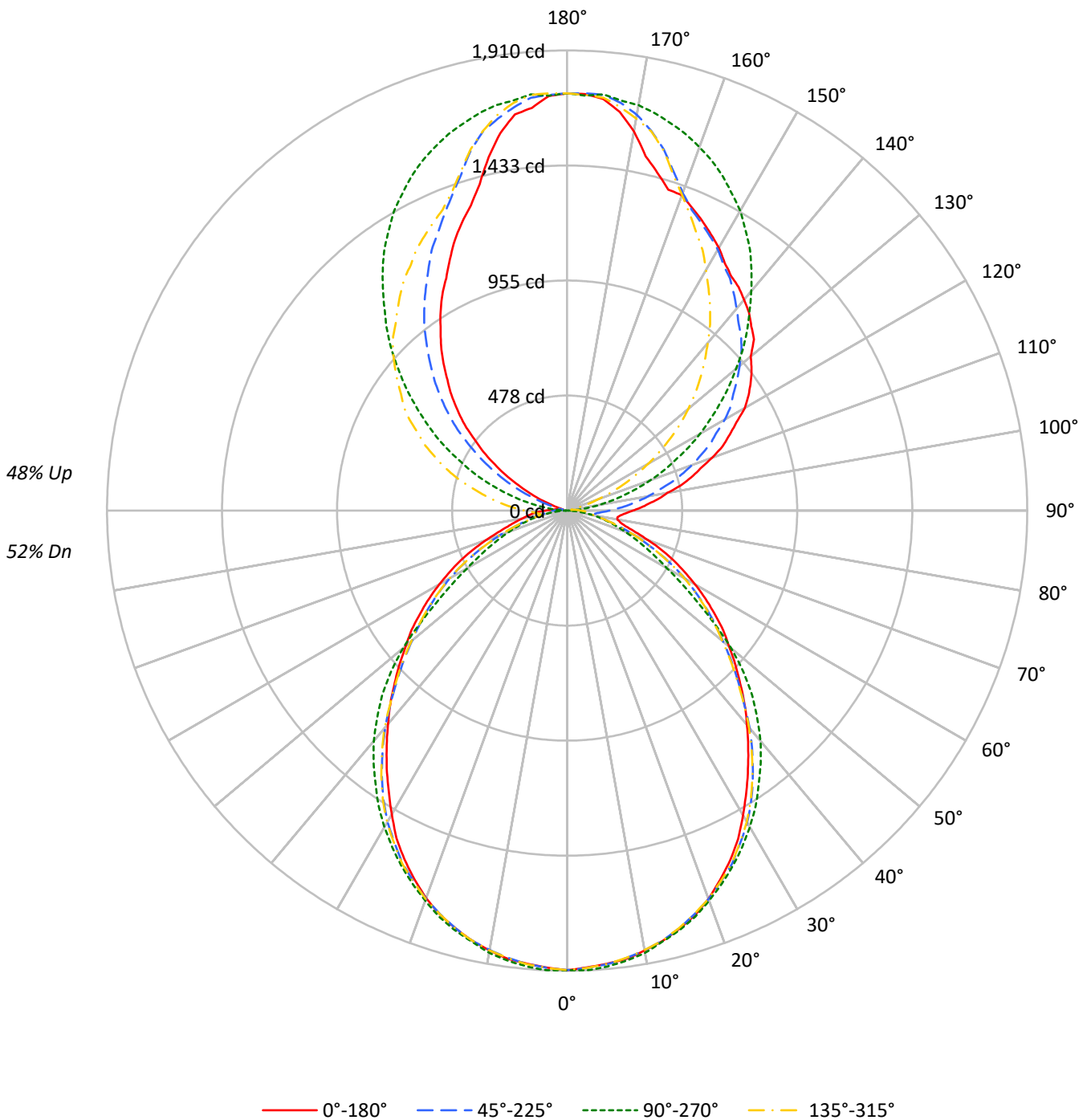
Input Watts (W): 88.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58	52				
1	98	94	90	87	91	87	84	81	74	72	69	62	60	59	51	50	49	44				
2	90	82	76	71	83	77	71	67	65	61	58	55	52	50	45	44	42	37				
3	82	73	66	60	76	68	61	56	58	53	49	49	45	42	41	38	36	32				
4	75	65	57	51	69	60	53	48	52	46	42	44	40	37	37	34	31	28				
5	69	58	50	44	64	54	47	41	46	41	37	40	35	32	33	30	27	24				
6	64	52	44	38	59	48	41	36	42	36	32	36	31	28	30	27	24	21				
7	59	47	39	34	55	44	37	32	38	33	28	33	28	25	28	24	22	19				
8	55	43	35	30	51	40	33	28	35	29	25	30	26	22	25	22	20	17				
9	51	39	32	27	47	37	30	25	32	27	23	28	23	20	23	20	18	16				
10	48	36	29	24	44	34	27	23	30	24	21	26	21	18	22	19	16	14				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12319	12319	12319	12319
5°	12130	11326	12130	11326
10°	11940	10393	11940	10393
15°	11694	9507	11671	9507
20°	11358	8682	11334	8682
25°	10880	7910	10855	7910
30°	10273	7170	10239	7170
35°	9618	6431	9591	6431
40°	9004	5723	8966	5723
45°	8403	4961	8372	4961
50°	7840	4078	7807	4078
55°	7314	3048	7289	3048
60°	6711	2257	6697	2257
65°	6073	1717	6073	1717
70°	5216	1285	5234	1285
75°	4512	929	4578	929
80°	4954	593	4409	593
85°	7547	277	4857	277



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.7	2.1
10°-20°	506.7	5.9
20°-30°	742.8	8.6
30°-40°	841.0	9.8
40°-50°	792.3	9.2
50°-60°	632.8	7.4
60°-70°	416.1	4.8
70°-80°	213.5	2.5
80°-90°	120.9	1.4
90°-100°	149.8	1.7
100°-110°	269.9	3.1
110°-120°	460.5	5.4
120°-130°	625.3	7.3
130°-140°	713.2	8.3
140°-150°	711.2	8.3
150°-160°	619.3	7.2
160°-170°	435.7	5.1
170°-180°	162.3	1.9
0°-30°	1429.2	16.6
0°-40°	2270.2	26.4
0°-60°	3695.3	43.0
0°-90°	4445.8	51.7
90°-120°	880.2	10.2
90°-150°	2929.9	34.1
90°-180°	4147.0	48.3
0°-180°	8593.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1907	1907	1907	1907	1907	
5°	1888	1900	1888	1900	1888	179
15°	1798	1803	1794	1803	1798	506
25°	1601	1628	1597	1628	1601	735
35°	1309	1387	1305	1387	1309	819
45°	1016	1086	1012	1086	1016	786
55°	746	657	744	657	746	668
65°	486	353	486	353	486	479
75°	251	176	255	176	251	279
85°	223	46	144	46	223	180
90°	272	2	89	2	272	150
95°	342	50	53	50	342	297
105°	533	242	18	242	533	562
115°	744	495	172	495	744	738
125°	931	774	423	774	931	831
135°	1081	1057	680	1057	1081	834
145°	1188	1323	915	1323	1188	749
155°	1327	1530	1151	1530	1327	612
165°	1450	1664	1403	1664	1450	411
175°	1715	1734	1678	1734	1715	160
180°	1731	1731	1731	1731	1731	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4
2.5°	1897.9	1904.3	1899.8	1910.9	1909.9	1909.6	1899.8	1904.3	1899.1	1904.3	1899.8
5°	1888.1	1894.5	1890.9	1898.8	1899.8	1898.8	1889.7	1894.5	1888.1	1894.5	1889.7
7.5°	1877.5	1878.9	1874.0	1885.0	1885.0	1883.8	1872.8	1877.8	1877.5	1877.8	1872.8
10°	1854.2	1858.3	1853.4	1864.2	1864.2	1863.0	1852.2	1855.8	1854.2	1855.8	1852.2
12.5°	1830.0	1830.8	1827.6	1836.5	1832.2	1836.5	1827.6	1828.3	1827.6	1828.3	1827.6
15°	1797.8	1796.4	1795.2	1805.0	1802.8	1803.7	1793.9	1793.9	1794.2	1793.9	1793.9
17.5°	1761.5	1760.0	1756.9	1766.4	1767.4	1766.4	1755.6	1758.8	1757.8	1758.8	1755.6
20°	1715.3	1714.0	1715.6	1723.1	1723.0	1722.0	1714.3	1711.7	1711.7	1711.7	1714.3
22.5°	1659.0	1664.9	1666.4	1677.9	1676.8	1676.8	1665.2	1662.5	1656.6	1662.5	1665.2
25°	1601.0	1607.9	1618.5	1627.8	1627.6	1626.6	1616.0	1604.2	1597.3	1604.2	1616.0
27.5°	1537.1	1545.0	1555.6	1576.0	1573.6	1574.7	1553.1	1541.3	1533.5	1541.3	1553.1
30°	1460.4	1472.2	1494.8	1516.3	1516.6	1513.8	1491.2	1468.6	1455.6	1468.6	1491.2
32.5°	1383.8	1395.6	1423.1	1451.4	1455.8	1448.9	1419.4	1390.7	1379.0	1390.7	1419.4
35°	1308.9	1316.7	1344.3	1384.6	1386.8	1380.9	1340.6	1313.1	1305.2	1313.1	1340.6
37.5°	1234.2	1236.1	1262.7	1310.8	1319.2	1307.2	1259.0	1232.5	1230.5	1232.5	1259.0
40°	1161.4	1156.5	1179.1	1228.1	1248.4	1225.6	1174.2	1151.6	1156.5	1151.6	1174.2
42.5°	1090.7	1079.9	1087.5	1146.5	1167.8	1144.0	1083.8	1075.0	1085.8	1075.0	1083.8
45°	1015.8	1003.0	1003.0	1056.1	1086.3	1053.6	998.1	999.3	1012.1	999.3	998.1
47.5°	947.0	931.3	924.4	968.3	992.9	967.1	919.5	927.5	943.3	927.5	919.5
50°	877.2	864.4	844.8	871.0	889.5	868.6	839.9	859.5	873.5	859.5	839.9
52.5°	817.2	799.6	772.7	781.6	769.6	779.1	769.1	794.6	813.5	794.6	769.1
55°	746.2	736.4	702.9	692.9	657.2	690.5	699.3	732.7	743.7	732.7	699.3
57.5°	681.3	675.4	633.2	596.6	562.9	594.1	629.5	671.8	678.9	671.8	629.5
60°	613.3	610.4	565.1	509.8	477.4	508.6	562.7	607.9	612.0	607.9	562.7
62.5°	547.5	543.5	493.4	427.2	413.3	426.1	490.9	541.1	546.2	541.1	490.9
65°	486.2	475.4	423.3	356.5	353.3	355.3	422.1	474.2	486.2	474.2	422.1
67.5°	420.4	403.7	354.5	297.3	302.2	297.3	353.3	402.5	420.4	402.5	353.3
70°	355.3	333.7	294.4	247.2	255.1	247.2	294.4	334.9	356.5	334.9	294.4
72.5°	297.3	272.7	237.4	202.0	213.5	200.7	237.4	273.9	299.8	273.9	237.4
75°	251.1	222.6	186.0	160.4	176.1	160.4	187.2	223.8	254.8	223.8	187.2
77.5°	225.5	185.3	142.7	124.0	141.7	124.0	144.0	181.5	220.7	181.5	144.0
80°	211.9	171.9	117.0	92.6	106.3	92.6	114.5	152.3	188.6	152.3	114.5
82.5°	210.7	171.2	111.0	66.0	74.9	66.0	96.3	127.3	164.3	127.3	96.3
85°	223.1	190.2	123.2	55.0	46.4	52.6	87.7	115.7	143.6	115.7	87.7
87.5°	244.5	217.8	143.8	62.5	15.7	45.4	74.1	100.4	118.6	100.4	74.1
90°	272.5	251.4	177.0	76.4	2.2	30.0	56.0	79.1	89.1	79.1	56.0
92.5°	308.6	291.0	212.4	103.5	20.5	19.2	44.9	64.9	69.0	64.9	44.9
95°	342.5	336.1	254.2	133.0	49.8	10.8	34.1	52.6	52.8	52.6	34.1
97.5°	384.5	379.4	296.1	172.1	87.8	15.6	26.0	43.2	42.3	43.2	26.0
100°	422.3	420.2	341.3	224.7	134.3	41.3	17.4	36.3	37.3	36.3	17.4
102.5°	483.2	465.6	385.6	274.8	184.4	76.8	21.3	25.5	28.4	25.5	21.3
105°	533.0	513.0	444.4	327.4	241.8	124.4	49.6	21.5	18.4	21.5	49.6
107.5°	579.7	566.5	498.3	382.1	302.9	180.5	91.2	48.2	32.0	48.2	91.2
110°	639.8	625.2	550.8	435.9	367.5	239.1	138.9	87.3	67.7	87.3	138.9



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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°	698.5	687.5	599.7	492.1	433.4	302.7	197.6	136.2	117.8	136.2	197.6
115°	743.7	737.6	656.0	544.7	494.6	374.8	262.3	193.6	171.6	193.6	262.3
117.5°	791.4	790.2	697.5	598.5	567.9	439.6	322.3	251.1	227.8	251.1	322.3
120°	851.4	841.5	755.9	652.3	637.6	508.0	389.2	317.1	293.9	317.1	389.2
122.5°	892.8	886.7	804.9	703.6	703.6	577.7	452.8	380.7	356.2	380.7	452.8
125°	930.8	928.3	841.5	754.9	774.5	642.5	523.7	450.3	423.4	450.3	523.7
127.5°	965.0	968.6	889.2	812.2	846.6	709.5	593.4	512.7	484.5	512.7	593.4
130°	994.4	1006.5	934.4	863.5	915.1	781.7	655.8	575.1	556.7	575.1	655.8
132.5°	1051.8	1044.5	980.9	916.1	988.5	847.6	721.7	637.4	616.6	637.4	721.7
135°	1081.1	1083.6	1021.2	961.3	1056.9	913.7	784.0	701.0	680.1	701.0	784.0
137.5°	1116.5	1109.3	1053.0	1016.4	1120.5	977.3	845.2	768.2	735.2	768.2	845.2
140°	1142.3	1141.0	1094.6	1065.2	1189.0	1039.6	907.6	829.3	798.8	829.3	907.6
142.5°	1169.1	1176.5	1136.1	1119.0	1257.4	1105.5	974.8	889.2	859.9	889.2	974.8
145°	1187.5	1203.3	1177.7	1186.2	1323.1	1178.9	1033.5	946.7	914.8	946.7	1033.5
147.5°	1218.1	1238.8	1208.2	1233.9	1378.4	1243.7	1092.2	1006.5	978.4	1006.5	1092.2
150°	1259.6	1269.4	1251.1	1299.9	1436.8	1315.9	1152.0	1064.0	1035.9	1064.0	1152.0
152.5°	1292.6	1304.8	1284.0	1372.1	1482.1	1381.8	1218.1	1120.3	1087.2	1120.3	1218.1
155°	1326.9	1331.7	1317.0	1441.8	1529.7	1446.6	1270.6	1182.6	1150.8	1182.6	1270.6
157.5°	1358.6	1368.4	1351.2	1494.3	1571.3	1502.9	1330.5	1244.9	1216.8	1244.9	1330.5
160°	1392.8	1392.8	1402.6	1555.4	1605.5	1551.7	1394.1	1313.4	1274.3	1313.4	1394.1
162.5°	1396.5	1419.7	1472.3	1598.2	1638.5	1594.5	1462.5	1362.2	1328.0	1362.2	1462.5
165°	1450.3	1471.0	1550.6	1636.1	1664.2	1632.4	1546.8	1442.9	1402.6	1442.9	1546.8
167.5°	1506.5	1550.6	1614.1	1678.9	1688.7	1667.9	1611.7	1539.6	1502.9	1539.6	1611.7
170°	1597.2	1636.1	1667.9	1694.7	1708.2	1696.0	1652.0	1616.5	1592.3	1616.5	1652.0
172.5°	1669.4	1694.7	1707.0	1724.1	1716.6	1710.7	1688.7	1671.5	1658.4	1671.5	1688.7
175°	1714.6	1720.4	1731.4	1725.3	1733.7	1719.2	1720.4	1729.0	1677.9	1729.0	1720.4
177.5°	1730.4	1740.0	1733.9	1722.9	1724.1	1721.7	1726.6	1731.4	1723.1	1731.4	1726.6
180°	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1907.4	1907.4	1907.4	1907.4	1907.4	1907.4
2.5°	1909.6	1909.9	1910.9	1899.8	1904.3	1897.9
5°	1898.8	1899.8	1898.8	1890.9	1894.5	1888.1
7.5°	1883.8	1885.0	1885.0	1874.0	1878.9	1877.5
10°	1863.0	1864.2	1864.2	1853.4	1858.3	1854.2
12.5°	1836.5	1832.2	1836.5	1827.6	1830.8	1830.0
15°	1803.7	1802.8	1805.0	1795.2	1796.4	1797.8
17.5°	1766.4	1767.4	1766.4	1756.9	1760.0	1761.5
20°	1722.0	1723.0	1723.1	1715.6	1714.0	1715.3
22.5°	1676.8	1676.8	1677.9	1666.4	1664.9	1659.0
25°	1626.6	1627.6	1627.8	1618.5	1607.9	1601.0
27.5°	1574.7	1573.6	1576.0	1555.6	1545.0	1537.1
30°	1513.8	1516.6	1516.3	1494.8	1472.2	1460.4
32.5°	1448.9	1455.8	1451.4	1423.1	1395.6	1383.8
35°	1380.9	1386.8	1384.6	1344.3	1316.7	1308.9
37.5°	1307.2	1319.2	1310.8	1262.7	1236.1	1234.2
40°	1225.6	1248.4	1228.1	1179.1	1156.5	1161.4
42.5°	1144.0	1167.8	1146.5	1087.5	1079.9	1090.7
45°	1053.6	1086.3	1056.1	1003.0	1003.0	1015.8
47.5°	967.1	992.9	968.3	924.4	931.3	947.0
50°	868.6	889.5	871.0	844.8	864.4	877.2
52.5°	779.1	769.6	781.6	772.7	799.6	817.2
55°	690.5	657.2	692.9	702.9	736.4	746.2
57.5°	594.1	562.9	596.6	633.2	675.4	681.3
60°	508.6	477.4	509.8	565.1	610.4	613.3
62.5°	426.1	413.3	427.2	493.4	543.5	547.5
65°	355.3	353.3	356.5	423.3	475.4	486.2
67.5°	297.3	302.2	297.3	354.5	403.7	420.4
70°	247.2	255.1	247.2	294.4	333.7	355.3
72.5°	200.7	213.5	202.0	237.4	272.7	297.3
75°	160.4	176.1	160.4	186.0	222.6	251.1
77.5°	124.0	141.7	124.0	142.7	185.3	225.5
80°	92.6	106.3	92.6	117.0	171.9	211.9
82.5°	66.0	74.9	66.0	111.0	171.2	210.7
85°	52.6	46.4	55.0	123.2	190.2	223.1
87.5°	45.4	15.7	62.5	143.8	217.8	244.5
90°	30.0	2.2	76.4	177.0	251.4	272.5
92.5°	19.2	20.5	103.5	212.4	291.0	308.6
95°	10.8	49.8	133.0	254.2	336.1	342.5
97.5°	15.6	87.8	172.1	296.1	379.4	384.5
100°	41.3	134.3	224.7	341.3	420.2	422.3
102.5°	76.8	184.4	274.8	385.6	465.6	483.2
105°	124.4	241.8	327.4	444.4	513.0	533.0
107.5°	180.5	302.9	382.1	498.3	566.5	579.7
110°	239.1	367.5	435.9	550.8	625.2	639.8



TEST NUMBER: P392677

CATALOG NUMBER: MWL-4-42-45-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	302.7	433.4	492.1	599.7	687.5	698.5
115°	374.8	494.6	544.7	656.0	737.6	743.7
117.5°	439.6	567.9	598.5	697.5	790.2	791.4
120°	508.0	637.6	652.3	755.9	841.5	851.4
122.5°	577.7	703.6	703.6	804.9	886.7	892.8
125°	642.5	774.5	754.9	841.5	928.3	930.8
127.5°	709.5	846.6	812.2	889.2	968.6	965.0
130°	781.7	915.1	863.5	934.4	1006.5	994.4
132.5°	847.6	988.5	916.1	980.9	1044.5	1051.8
135°	913.7	1056.9	961.3	1021.2	1083.6	1081.1
137.5°	977.3	1120.5	1016.4	1053.0	1109.3	1116.5
140°	1039.6	1189.0	1065.2	1094.6	1141.0	1142.3
142.5°	1105.5	1257.4	1119.0	1136.1	1176.5	1169.1
145°	1178.9	1323.1	1186.2	1177.7	1203.3	1187.5
147.5°	1243.7	1378.4	1233.9	1208.2	1238.8	1218.1
150°	1315.9	1436.8	1299.9	1251.1	1269.4	1259.6
152.5°	1381.8	1482.1	1372.1	1284.0	1304.8	1292.6
155°	1446.6	1529.7	1441.8	1317.0	1331.7	1326.9
157.5°	1502.9	1571.3	1494.3	1351.2	1368.4	1358.6
160°	1551.7	1605.5	1555.4	1402.6	1392.8	1392.8
162.5°	1594.5	1638.5	1598.2	1472.3	1419.7	1396.5
165°	1632.4	1664.2	1636.1	1550.6	1471.0	1450.3
167.5°	1667.9	1688.7	1678.9	1614.1	1550.6	1506.5
170°	1696.0	1708.2	1694.7	1667.9	1636.1	1597.2
172.5°	1710.7	1716.6	1724.1	1707.0	1694.7	1669.4
175°	1719.2	1733.7	1725.3	1731.4	1720.4	1714.6
177.5°	1721.7	1724.1	1722.9	1733.9	1740.0	1730.4
180°	1731.4	1731.4	1731.4	1731.4	1731.4	1731.4

(END OF REPORT)