

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: P392678

Luminaire Tested: **MWL-4-42-45-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392678
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-L940-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7965.6 lumens
Efficiency: N/A
Efficacy: 88.7 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

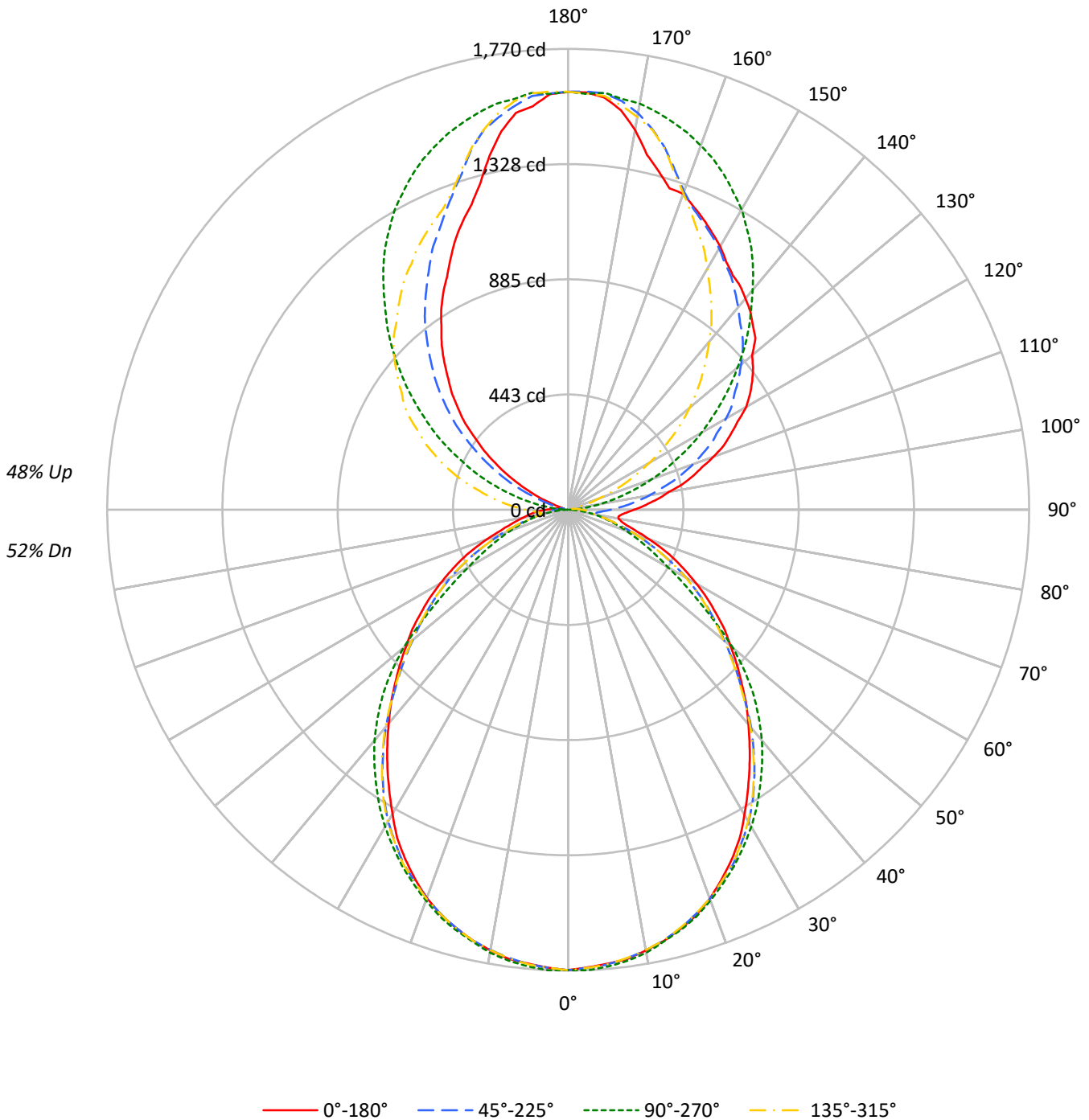
Input Watts (W): 89.789
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: MWL-4-42-45-UNV-L940-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	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°	11420	11420	11420	11420
5°	11244	10499	11244	10499
10°	11069	9634	11069	9634
15°	10841	8812	10818	8812
20°	10529	8048	10507	8048
25°	10086	7332	10063	7332
30°	9523	6646	9492	6646
35°	8916	5962	8891	5962
40°	8347	5305	8312	5305
45°	7789	4598	7761	4598
50°	7268	3780	7237	3780
55°	6780	2825	6757	2825
60°	6221	2092	6208	2092
65°	5630	1592	5630	1592
70°	4836	1191	4852	1191
75°	4183	861	4244	861
80°	4592	550	4087	550
85°	6995	256	4502	256



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	166.6	2.1
10°-20°	469.7	5.9
20°-30°	688.6	8.6
30°-40°	779.6	9.8
40°-50°	734.5	9.2
50°-60°	586.6	7.4
60°-70°	385.7	4.8
70°-80°	197.9	2.5
80°-90°	112.0	1.4
90°-100°	138.9	1.7
100°-110°	250.2	3.1
110°-120°	426.8	5.4
120°-130°	579.7	7.3
130°-140°	661.1	8.3
140°-150°	659.3	8.3
150°-160°	574.1	7.2
160°-170°	403.8	5.1
170°-180°	150.4	1.9
0°-30°	1324.9	16.6
0°-40°	2104.4	26.4
0°-60°	3425.5	43.0
0°-90°	4121.2	51.7
90°-120°	815.9	10.2
90°-150°	2716.0	34.1
90°-180°	3844.0	48.3
0°-180°	7965.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1768	1768	1768	1768	1768	
5°	1750	1761	1750	1761	1750	166
15°	1667	1671	1663	1671	1667	469
25°	1484	1509	1481	1509	1484	682
35°	1213	1286	1210	1286	1213	759
45°	942	1007	938	1007	942	728
55°	692	609	689	609	692	620
65°	451	328	451	328	451	444
75°	233	163	236	163	233	259
85°	207	43	133	43	207	167
90°	253	2	83	2	253	140
95°	318	46	49	46	318	276
105°	494	224	17	224	494	521
115°	689	458	159	458	689	684
125°	863	718	392	718	863	771
135°	1002	980	630	980	1002	774
145°	1101	1226	848	1226	1101	694
155°	1230	1418	1067	1418	1230	567
165°	1344	1543	1300	1543	1344	381
175°	1589	1607	1555	1607	1589	148
180°	1605	1605	1605	1605	1605	



TEST NUMBER: P392678

CATALOG NUMBER: MWL-4-42-45-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2
2.5°	1759.3	1765.3	1761.1	1771.4	1770.4	1770.2	1761.1	1765.3	1760.4	1765.3	1761.1
5°	1750.2	1756.1	1752.9	1760.2	1761.1	1760.2	1751.8	1756.1	1750.2	1756.1	1751.8
7.5°	1740.4	1741.7	1737.2	1747.4	1747.4	1746.3	1736.1	1740.7	1740.4	1740.7	1736.1
10°	1718.8	1722.6	1718.1	1728.1	1728.1	1727.0	1717.0	1720.3	1718.8	1720.3	1717.0
12.5°	1696.4	1697.1	1694.2	1702.4	1698.5	1702.4	1694.2	1694.8	1694.2	1694.8	1694.2
15°	1666.6	1665.2	1664.1	1673.2	1671.1	1672.1	1662.9	1662.9	1663.2	1662.9	1662.9
17.5°	1632.9	1631.5	1628.6	1637.4	1638.3	1637.4	1627.4	1630.4	1629.5	1630.4	1627.4
20°	1590.1	1588.9	1590.3	1597.3	1597.2	1596.2	1589.1	1586.7	1586.7	1586.7	1589.1
22.5°	1537.8	1543.3	1544.8	1555.4	1554.3	1554.3	1543.6	1541.1	1535.7	1541.1	1543.6
25°	1484.1	1490.5	1500.3	1509.0	1508.8	1507.9	1498.0	1487.1	1480.7	1487.1	1498.0
27.5°	1424.9	1432.2	1442.0	1460.9	1458.7	1459.8	1439.7	1428.8	1421.5	1428.8	1439.7
30°	1353.8	1364.7	1385.7	1405.6	1405.8	1403.3	1382.3	1361.4	1349.3	1361.4	1382.3
32.5°	1282.7	1293.7	1319.2	1345.4	1349.5	1343.1	1315.8	1289.2	1278.3	1289.2	1315.8
35°	1213.3	1220.6	1246.1	1283.5	1285.6	1280.1	1242.7	1217.2	1209.9	1217.2	1242.7
37.5°	1144.1	1145.9	1170.5	1215.1	1222.9	1211.8	1167.1	1142.5	1140.7	1142.5	1167.1
40°	1076.6	1072.1	1093.0	1138.4	1157.3	1136.1	1088.5	1067.5	1072.1	1067.5	1088.5
42.5°	1011.0	1001.0	1008.1	1062.8	1082.6	1060.5	1004.7	996.5	1006.5	996.5	1004.7
45°	941.6	929.8	929.8	979.0	1006.9	976.7	925.2	926.3	938.2	926.3	925.2
47.5°	877.8	863.3	856.9	897.6	920.4	896.5	852.3	859.8	874.4	859.8	852.3
50°	813.2	801.3	783.1	807.4	824.5	805.1	778.5	796.8	809.7	796.8	778.5
52.5°	757.6	741.2	716.3	724.5	713.4	722.2	712.9	736.6	754.1	736.6	712.9
55°	691.7	682.6	651.6	642.3	609.3	640.0	648.2	679.2	689.4	679.2	648.2
57.5°	631.6	626.1	586.9	553.0	521.8	550.8	583.6	622.7	629.3	622.7	583.6
60°	568.5	565.8	523.9	472.6	442.5	471.5	521.6	563.5	567.3	563.5	521.6
62.5°	507.5	503.8	457.4	396.1	383.1	395.0	455.1	501.6	506.3	501.6	455.1
65°	450.7	440.7	392.4	330.5	327.5	329.4	391.3	439.6	450.7	439.6	391.3
67.5°	389.7	374.2	328.6	275.6	280.2	275.6	327.5	373.1	389.7	373.1	327.5
70°	329.4	309.3	272.9	229.1	236.4	229.1	272.9	310.4	330.5	310.4	272.9
72.5°	275.6	252.8	220.0	187.2	197.9	186.0	220.0	253.9	277.9	253.9	220.0
75°	232.8	206.4	172.4	148.7	163.3	148.7	173.6	207.5	236.2	207.5	173.6
77.5°	209.0	171.7	132.3	115.0	131.4	115.0	133.5	168.3	204.5	168.3	133.5
80°	196.4	159.4	108.4	85.8	98.6	85.8	106.1	141.2	174.8	141.2	106.1
82.5°	195.3	158.7	102.9	61.2	69.4	61.2	89.3	118.0	152.3	118.0	89.3
85°	206.8	176.3	114.2	51.0	43.0	48.7	81.3	107.2	133.1	107.2	81.3
87.5°	226.7	201.9	133.3	57.9	14.6	42.1	68.7	93.1	110.0	93.1	68.7
90°	252.6	233.1	164.1	70.8	2.0	27.8	51.9	73.3	82.6	73.3	51.9
92.5°	286.1	269.8	196.9	95.9	19.0	17.8	41.6	60.1	64.0	60.1	41.6
95°	317.5	311.6	235.6	123.3	46.2	10.0	31.6	48.7	48.9	48.7	31.6
97.5°	356.4	351.7	274.5	159.5	81.4	14.5	24.1	40.1	39.2	40.1	24.1
100°	391.5	389.5	316.4	208.3	124.5	38.3	16.1	33.6	34.5	33.6	16.1
102.5°	447.9	431.6	357.4	254.7	170.9	71.2	19.8	23.6	26.3	23.6	19.8
105°	494.1	475.5	412.0	303.5	224.1	115.3	46.0	20.0	17.0	20.0	46.0
107.5°	537.4	525.2	461.9	354.2	280.8	167.3	84.6	44.6	29.7	44.6	84.6
110°	593.1	579.6	510.6	404.1	340.7	221.7	128.7	80.9	62.8	80.9	128.7



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CATALOG NUMBER: MWL-4-42-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	647.5	637.3	556.0	456.2	401.8	280.6	183.1	126.3	109.2	126.3	183.1
115°	689.4	683.8	608.1	504.9	458.5	347.4	243.2	179.5	159.1	179.5	243.2
117.5°	733.6	732.5	646.6	554.8	526.4	407.5	298.7	232.8	211.2	232.8	298.7
120°	789.2	780.1	700.7	604.7	591.0	470.9	360.8	293.9	272.4	293.9	360.8
122.5°	827.6	822.0	746.1	652.3	652.3	535.5	419.7	352.9	330.2	352.9	419.7
125°	862.8	860.5	780.1	699.8	717.9	595.6	485.4	417.5	392.5	417.5	485.4
127.5°	894.5	897.9	824.3	752.9	784.8	657.7	550.0	475.2	449.2	475.2	550.0
130°	921.8	933.1	866.2	800.5	848.3	724.6	607.9	533.1	516.0	533.1	607.9
132.5°	975.0	968.2	909.3	849.2	916.3	785.7	669.0	590.8	571.6	590.8	669.0
135°	1002.2	1004.5	946.6	891.1	979.7	847.0	726.8	649.8	630.5	649.8	726.8
137.5°	1035.0	1028.3	976.2	942.2	1038.7	905.9	783.5	712.1	681.5	712.1	783.5
140°	1058.9	1057.7	1014.7	987.5	1102.2	963.7	841.3	768.8	740.5	768.8	841.3
142.5°	1083.8	1090.6	1053.1	1037.3	1165.6	1024.8	903.6	824.3	797.1	824.3	903.6
145°	1100.8	1115.5	1091.7	1099.6	1226.5	1092.9	958.0	877.6	848.1	877.6	958.0
147.5°	1129.1	1148.4	1120.0	1143.8	1277.7	1152.9	1012.4	933.1	907.0	933.1	1012.4
150°	1167.7	1176.7	1159.7	1205.0	1331.9	1219.8	1067.9	986.4	960.3	986.4	1067.9
152.5°	1198.2	1209.6	1190.3	1271.9	1373.8	1280.9	1129.1	1038.5	1007.9	1038.5	1129.1
155°	1230.0	1234.4	1220.9	1336.5	1418.0	1341.0	1177.9	1096.2	1066.8	1096.2	1177.9
157.5°	1259.4	1268.5	1252.6	1385.2	1456.6	1393.2	1233.4	1154.0	1127.9	1154.0	1233.4
160°	1291.1	1291.1	1300.2	1441.8	1488.3	1438.4	1292.3	1217.5	1181.2	1217.5	1292.3
162.5°	1294.6	1316.1	1364.8	1481.5	1518.9	1478.1	1355.7	1262.8	1231.1	1262.8	1355.7
165°	1344.4	1363.6	1437.4	1516.6	1542.7	1513.2	1433.9	1337.6	1300.2	1337.6	1433.9
167.5°	1396.5	1437.4	1496.2	1556.3	1565.4	1546.1	1494.0	1427.1	1393.2	1427.1	1494.0
170°	1480.6	1516.6	1546.1	1571.0	1583.5	1572.2	1531.4	1498.5	1476.1	1498.5	1531.4
172.5°	1547.5	1571.0	1582.4	1598.3	1591.2	1585.8	1565.4	1549.5	1537.3	1549.5	1565.4
175°	1589.4	1594.8	1605.0	1599.3	1607.1	1593.7	1594.8	1602.8	1555.4	1602.8	1594.8
177.5°	1604.1	1612.9	1607.3	1597.1	1598.3	1596.0	1600.5	1605.0	1597.3	1605.0	1600.5
180°	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0



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CATALOG NUMBER: MWL-4-42-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1768.2	1768.2	1768.2	1768.2	1768.2	1768.2
2.5°	1770.2	1770.4	1771.4	1761.1	1765.3	1759.3
5°	1760.2	1761.1	1760.2	1752.9	1756.1	1750.2
7.5°	1746.3	1747.4	1747.4	1737.2	1741.7	1740.4
10°	1727.0	1728.1	1728.1	1718.1	1722.6	1718.8
12.5°	1702.4	1698.5	1702.4	1694.2	1697.1	1696.4
15°	1672.1	1671.1	1673.2	1664.1	1665.2	1666.6
17.5°	1637.4	1638.3	1637.4	1628.6	1631.5	1632.9
20°	1596.2	1597.2	1597.3	1590.3	1588.9	1590.1
22.5°	1554.3	1554.3	1555.4	1544.8	1543.3	1537.8
25°	1507.9	1508.8	1509.0	1500.3	1490.5	1484.1
27.5°	1459.8	1458.7	1460.9	1442.0	1432.2	1424.9
30°	1403.3	1405.8	1405.6	1385.7	1364.7	1353.8
32.5°	1343.1	1349.5	1345.4	1319.2	1293.7	1282.7
35°	1280.1	1285.6	1283.5	1246.1	1220.6	1213.3
37.5°	1211.8	1222.9	1215.1	1170.5	1145.9	1144.1
40°	1136.1	1157.3	1138.4	1093.0	1072.1	1076.6
42.5°	1060.5	1082.6	1062.8	1008.1	1001.0	1011.0
45°	976.7	1006.9	979.0	929.8	929.8	941.6
47.5°	896.5	920.4	897.6	856.9	863.3	877.8
50°	805.1	824.5	807.4	783.1	801.3	813.2
52.5°	722.2	713.4	724.5	716.3	741.2	757.6
55°	640.0	609.3	642.3	651.6	682.6	691.7
57.5°	550.8	521.8	553.0	586.9	626.1	631.6
60°	471.5	442.5	472.6	523.9	565.8	568.5
62.5°	395.0	383.1	396.1	457.4	503.8	507.5
65°	329.4	327.5	330.5	392.4	440.7	450.7
67.5°	275.6	280.2	275.6	328.6	374.2	389.7
70°	229.1	236.4	229.1	272.9	309.3	329.4
72.5°	186.0	197.9	187.2	220.0	252.8	275.6
75°	148.7	163.3	148.7	172.4	206.4	232.8
77.5°	115.0	131.4	115.0	132.3	171.7	209.0
80°	85.8	98.6	85.8	108.4	159.4	196.4
82.5°	61.2	69.4	61.2	102.9	158.7	195.3
85°	48.7	43.0	51.0	114.2	176.3	206.8
87.5°	42.1	14.6	57.9	133.3	201.9	226.7
90°	27.8	2.0	70.8	164.1	233.1	252.6
92.5°	17.8	19.0	95.9	196.9	269.8	286.1
95°	10.0	46.2	123.3	235.6	311.6	317.5
97.5°	14.5	81.4	159.5	274.5	351.7	356.4
100°	38.3	124.5	208.3	316.4	389.5	391.5
102.5°	71.2	170.9	254.7	357.4	431.6	447.9
105°	115.3	224.1	303.5	412.0	475.5	494.1
107.5°	167.3	280.8	354.2	461.9	525.2	537.4
110°	221.7	340.7	404.1	510.6	579.6	593.1



TEST NUMBER: P392678

CATALOG NUMBER: MWL-4-42-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	280.6	401.8	456.2	556.0	637.3	647.5
115°	347.4	458.5	504.9	608.1	683.8	689.4
117.5°	407.5	526.4	554.8	646.6	732.5	733.6
120°	470.9	591.0	604.7	700.7	780.1	789.2
122.5°	535.5	652.3	652.3	746.1	822.0	827.6
125°	595.6	717.9	699.8	780.1	860.5	862.8
127.5°	657.7	784.8	752.9	824.3	897.9	894.5
130°	724.6	848.3	800.5	866.2	933.1	921.8
132.5°	785.7	916.3	849.2	909.3	968.2	975.0
135°	847.0	979.7	891.1	946.6	1004.5	1002.2
137.5°	905.9	1038.7	942.2	976.2	1028.3	1035.0
140°	963.7	1102.2	987.5	1014.7	1057.7	1058.9
142.5°	1024.8	1165.6	1037.3	1053.1	1090.6	1083.8
145°	1092.9	1226.5	1099.6	1091.7	1115.5	1100.8
147.5°	1152.9	1277.7	1143.8	1120.0	1148.4	1129.1
150°	1219.8	1331.9	1205.0	1159.7	1176.7	1167.7
152.5°	1280.9	1373.8	1271.9	1190.3	1209.6	1198.2
155°	1341.0	1418.0	1336.5	1220.9	1234.4	1230.0
157.5°	1393.2	1456.6	1385.2	1252.6	1268.5	1259.4
160°	1438.4	1488.3	1441.8	1300.2	1291.1	1291.1
162.5°	1478.1	1518.9	1481.5	1364.8	1316.1	1294.6
165°	1513.2	1542.7	1516.6	1437.4	1363.6	1344.4
167.5°	1546.1	1565.4	1556.3	1496.2	1437.4	1396.5
170°	1572.2	1583.5	1571.0	1546.1	1516.6	1480.6
172.5°	1585.8	1591.2	1598.3	1582.4	1571.0	1547.5
175°	1593.7	1607.1	1599.3	1605.0	1594.8	1589.4
177.5°	1596.0	1598.3	1597.1	1607.3	1612.9	1604.1
180°	1605.0	1605.0	1605.0	1605.0	1605.0	1605.0

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