

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: P392676

Luminaire Tested: **MWL-4-42-45-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392676
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-L830-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8392.0 lumens
Efficiency: N/A
Efficacy: 94.4 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

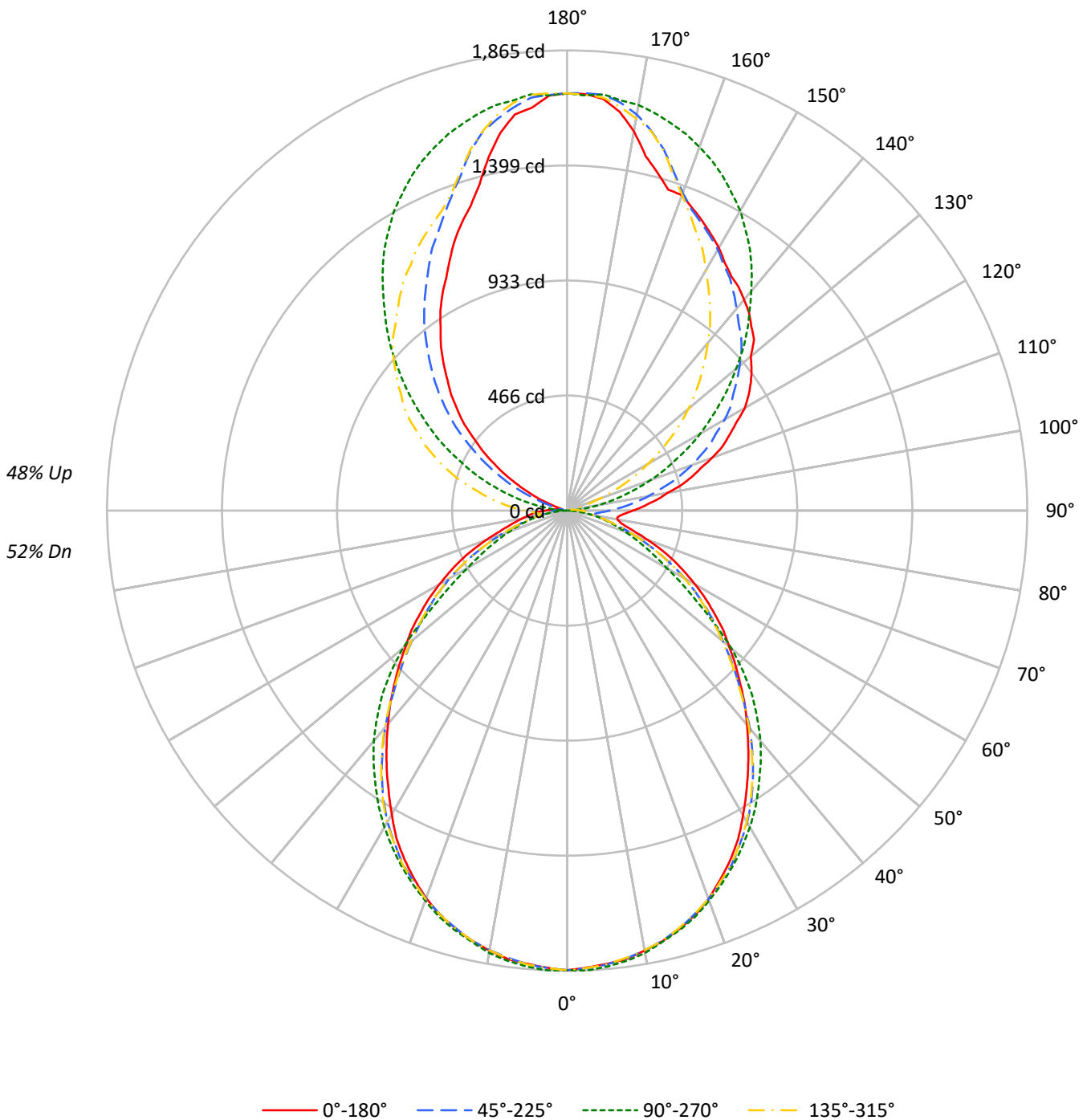
Input Watts (W): 88.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: MWL-4-42-45-UNV-L830-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°	12031	12031	12031	12031
5°	11846	11060	11846	11060
10°	11661	10150	11661	10150
15°	11421	9284	11397	9284
20°	11093	8479	11069	8479
25°	10625	7725	10602	7725
30°	10033	7002	10000	7002
35°	9393	6281	9367	6281
40°	8794	5589	8757	5589
45°	8206	4844	8176	4844
50°	7657	3982	7624	3982
55°	7142	2977	7119	2977
60°	6555	2204	6540	2204
65°	5931	1677	5931	1677
70°	5094	1255	5111	1255
75°	4406	907	4470	907
80°	4837	579	4307	579
85°	7371	270	4742	270



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	175.5	2.1
10°-20°	494.8	5.9
20°-30°	725.4	8.6
30°-40°	821.3	9.8
40°-50°	773.8	9.2
50°-60°	618.0	7.4
60°-70°	406.4	4.8
70°-80°	208.5	2.5
80°-90°	118.0	1.4
90°-100°	146.3	1.7
100°-110°	263.6	3.1
110°-120°	449.7	5.4
120°-130°	610.7	7.3
130°-140°	696.5	8.3
140°-150°	694.6	8.3
150°-160°	604.9	7.2
160°-170°	425.5	5.1
170°-180°	158.5	1.9
0°-30°	1395.8	16.6
0°-40°	2217.1	26.4
0°-60°	3608.9	43.0
0°-90°	4341.8	51.7
90°-120°	859.6	10.2
90°-150°	2861.4	34.1
90°-180°	4050.0	48.3
0°-180°	8392.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1863	1863	1863	1863	1863	
5°	1844	1855	1844	1855	1844	175
15°	1756	1761	1752	1761	1756	495
25°	1564	1590	1560	1590	1564	718
35°	1278	1354	1275	1354	1278	800
45°	992	1061	988	1061	992	767
55°	729	642	726	642	729	653
65°	475	345	475	345	475	468
75°	245	172	249	172	245	273
85°	218	45	140	45	218	176
90°	266	2	87	2	266	147
95°	334	49	52	49	334	290
105°	520	236	18	236	520	549
115°	726	483	168	483	726	721
125°	909	756	414	756	909	812
135°	1056	1032	664	1032	1056	815
145°	1160	1292	893	1292	1160	731
155°	1296	1494	1124	1494	1296	598
165°	1416	1625	1370	1625	1416	402
175°	1674	1693	1639	1693	1674	156
180°	1691	1691	1691	1691	1691	



TEST NUMBER: P392676

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8
2.5°	1853.5	1859.7	1855.3	1866.2	1865.2	1864.9	1855.3	1859.7	1854.7	1859.7	1855.3
5°	1843.9	1850.1	1846.7	1854.4	1855.3	1854.4	1845.5	1850.1	1843.9	1850.1	1845.5
7.5°	1833.5	1835.0	1830.2	1840.9	1840.9	1839.8	1829.0	1833.8	1833.5	1833.8	1829.0
10°	1810.8	1814.8	1810.0	1820.6	1820.6	1819.4	1808.9	1812.4	1810.8	1812.4	1808.9
12.5°	1787.2	1787.9	1784.9	1793.5	1789.4	1793.5	1784.9	1785.5	1784.9	1785.5	1784.9
15°	1755.8	1754.4	1753.2	1762.8	1760.6	1761.6	1752.0	1752.0	1752.2	1752.0	1752.0
17.5°	1720.3	1718.8	1715.8	1725.1	1726.0	1725.1	1714.5	1717.7	1716.7	1717.7	1714.5
20°	1675.2	1673.9	1675.5	1682.8	1682.7	1681.7	1674.2	1671.6	1671.6	1671.6	1674.2
22.5°	1620.2	1625.9	1627.5	1638.7	1637.5	1637.5	1626.2	1623.6	1617.9	1623.6	1626.2
25°	1563.5	1570.3	1580.6	1589.7	1589.5	1588.6	1578.2	1566.7	1560.0	1566.7	1578.2
27.5°	1501.1	1508.8	1519.2	1539.2	1536.8	1537.9	1516.8	1505.3	1497.6	1505.3	1516.8
30°	1426.3	1437.8	1459.9	1480.8	1481.1	1478.4	1456.3	1434.2	1421.6	1434.2	1456.3
32.5°	1351.4	1362.9	1389.8	1417.4	1421.8	1415.0	1386.2	1358.2	1346.7	1358.2	1386.2
35°	1278.3	1285.9	1312.8	1352.2	1354.4	1348.6	1309.3	1282.4	1274.7	1282.4	1309.3
37.5°	1205.3	1207.2	1233.1	1280.2	1288.3	1276.6	1229.6	1203.7	1201.8	1203.7	1229.6
40°	1134.3	1129.5	1151.6	1199.4	1219.2	1197.0	1146.8	1124.7	1129.5	1124.7	1146.8
42.5°	1065.2	1054.6	1062.1	1119.7	1140.5	1117.3	1058.4	1049.8	1060.4	1049.8	1058.4
45°	992.0	979.5	979.5	1031.4	1060.8	1029.0	974.7	975.9	988.4	975.9	974.7
47.5°	924.8	909.5	902.8	945.7	969.7	944.5	898.0	905.8	921.2	905.8	898.0
50°	856.7	844.2	825.0	850.6	868.7	848.2	820.2	839.4	853.0	839.4	820.2
52.5°	798.1	780.9	754.6	763.3	751.6	760.9	751.1	776.1	794.5	776.1	751.1
55°	728.7	719.1	686.5	676.7	641.9	674.3	682.9	715.6	726.3	715.6	682.9
57.5°	665.4	659.6	618.3	582.6	549.7	580.2	614.8	656.1	663.0	656.1	614.8
60°	599.0	596.1	551.9	497.9	466.2	496.7	549.5	593.7	597.7	593.7	549.5
62.5°	534.6	530.8	481.9	417.3	403.6	416.1	479.5	528.4	533.4	528.4	479.5
65°	474.8	464.3	413.4	348.1	345.1	347.0	412.3	463.1	474.8	463.1	412.3
67.5°	410.5	394.2	346.2	290.4	295.2	290.4	345.1	393.1	410.5	393.1	345.1
70°	347.0	325.9	287.5	241.4	249.1	241.4	287.5	327.0	348.1	327.0	287.5
72.5°	290.4	266.4	231.8	197.3	208.5	196.0	231.8	267.5	292.8	267.5	231.8
75°	245.2	217.4	181.6	156.7	172.0	156.7	182.9	218.6	248.8	218.6	182.9
77.5°	220.2	180.9	139.4	121.1	138.4	121.1	140.6	177.3	215.5	177.3	140.6
80°	206.9	167.9	114.2	90.4	103.9	90.4	111.8	148.8	184.2	148.8	111.8
82.5°	205.8	167.2	108.4	64.5	73.1	64.5	94.1	124.3	160.5	124.3	94.1
85°	217.9	185.7	120.3	53.8	45.3	51.4	85.6	113.0	140.2	113.0	85.6
87.5°	238.8	212.7	140.4	61.0	15.4	44.3	72.4	98.1	115.9	98.1	72.4
90°	266.2	245.5	172.9	74.6	2.1	29.3	54.7	77.3	87.1	77.3	54.7
92.5°	301.4	284.2	207.4	101.1	20.1	18.7	43.9	63.4	67.4	63.4	43.9
95°	334.5	328.3	248.2	129.9	48.7	10.6	33.3	51.4	51.5	51.4	33.3
97.5°	375.5	370.5	289.2	168.1	85.7	15.3	25.4	42.2	41.3	42.2	25.4
100°	412.5	410.3	333.4	219.4	131.1	40.3	17.0	35.4	36.4	35.4	17.0
102.5°	471.9	454.7	376.6	268.4	180.1	75.0	20.8	24.9	27.7	24.9	20.8
105°	520.5	501.0	434.1	319.7	236.1	121.5	48.5	21.0	17.9	21.0	48.5
107.5°	566.1	553.3	486.7	373.2	295.8	176.2	89.1	47.0	31.3	47.0	89.1
110°	624.9	610.6	537.9	425.7	358.9	233.5	135.6	85.2	66.1	85.2	135.6



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CATALOG NUMBER: MWL-4-42-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	682.2	671.4	585.7	480.6	423.3	295.6	192.9	133.0	115.1	133.0	192.9
115°	726.3	720.4	640.6	532.0	483.0	366.0	256.2	189.1	167.6	189.1	256.2
117.5°	772.9	771.7	681.2	584.5	554.6	429.3	314.7	245.2	222.5	245.2	314.7
120°	831.4	821.8	738.2	637.1	622.7	496.2	380.1	309.7	287.0	309.7	380.1
122.5°	871.9	866.0	786.0	687.2	687.2	564.2	442.2	371.8	347.9	371.8	442.2
125°	909.0	906.6	821.8	737.3	756.4	627.5	511.4	439.8	413.5	439.8	511.4
127.5°	942.4	946.0	868.4	793.2	826.8	692.9	579.5	500.7	473.2	500.7	579.5
130°	971.1	983.0	912.5	843.3	893.7	763.4	640.4	561.6	543.7	561.6	640.4
132.5°	1027.2	1020.1	957.9	894.7	965.3	827.8	704.8	622.5	602.2	622.5	704.8
135°	1055.9	1058.3	997.3	938.8	1032.1	892.3	765.7	684.6	664.2	684.6	765.7
137.5°	1090.4	1083.3	1028.4	992.6	1094.3	954.4	825.4	750.2	718.0	750.2	825.4
140°	1115.6	1114.3	1069.0	1040.3	1161.2	1015.3	886.3	809.9	780.1	809.9	886.3
142.5°	1141.8	1149.0	1109.5	1092.8	1228.0	1079.7	952.0	868.4	839.8	868.4	952.0
145°	1159.7	1175.2	1150.1	1158.5	1292.2	1151.4	1009.3	924.5	893.4	924.5	1009.3
147.5°	1189.6	1209.8	1180.0	1205.0	1346.1	1214.6	1066.6	983.0	955.6	983.0	1066.6
150°	1230.2	1239.7	1221.8	1269.5	1403.2	1285.1	1125.1	1039.2	1011.7	1039.2	1125.1
152.5°	1262.3	1274.3	1254.0	1340.0	1447.4	1349.5	1189.6	1094.1	1061.8	1094.1	1189.6
155°	1295.8	1300.5	1286.2	1408.0	1493.9	1412.7	1240.9	1154.9	1123.9	1154.9	1240.9
157.5°	1326.8	1336.4	1319.6	1459.4	1534.5	1467.7	1299.4	1215.8	1188.3	1215.8	1299.4
160°	1360.2	1360.2	1369.8	1519.0	1567.9	1515.4	1361.5	1282.7	1244.5	1282.7	1361.5
162.5°	1363.9	1386.5	1437.9	1560.8	1600.2	1557.2	1428.3	1330.4	1297.0	1330.4	1428.3
165°	1416.4	1436.6	1514.3	1597.8	1625.3	1594.2	1510.6	1409.2	1369.8	1409.2	1510.6
167.5°	1471.3	1514.3	1576.3	1639.6	1649.2	1628.9	1574.0	1503.5	1467.7	1503.5	1574.0
170°	1559.9	1597.8	1628.9	1655.1	1668.3	1656.4	1613.3	1578.7	1555.1	1578.7	1613.3
172.5°	1630.3	1655.1	1667.1	1683.8	1676.4	1670.7	1649.2	1632.5	1619.6	1632.5	1649.2
175°	1674.5	1680.2	1690.9	1685.0	1693.1	1679.0	1680.2	1688.6	1638.7	1688.6	1680.2
177.5°	1689.9	1699.3	1693.3	1682.6	1683.8	1681.4	1686.2	1690.9	1682.8	1690.9	1686.2
180°	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9



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CATALOG NUMBER: MWL-4-42-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1862.8	1862.8	1862.8	1862.8	1862.8	1862.8
2.5°	1864.9	1865.2	1866.2	1855.3	1859.7	1853.5
5°	1854.4	1855.3	1854.4	1846.7	1850.1	1843.9
7.5°	1839.8	1840.9	1840.9	1830.2	1835.0	1833.5
10°	1819.4	1820.6	1820.6	1810.0	1814.8	1810.8
12.5°	1793.5	1789.4	1793.5	1784.9	1787.9	1787.2
15°	1761.6	1760.6	1762.8	1753.2	1754.4	1755.8
17.5°	1725.1	1726.0	1725.1	1715.8	1718.8	1720.3
20°	1681.7	1682.7	1682.8	1675.5	1673.9	1675.2
22.5°	1637.5	1637.5	1638.7	1627.5	1625.9	1620.2
25°	1588.6	1589.5	1589.7	1580.6	1570.3	1563.5
27.5°	1537.9	1536.8	1539.2	1519.2	1508.8	1501.1
30°	1478.4	1481.1	1480.8	1459.9	1437.8	1426.3
32.5°	1415.0	1421.8	1417.4	1389.8	1362.9	1351.4
35°	1348.6	1354.4	1352.2	1312.8	1285.9	1278.3
37.5°	1276.6	1288.3	1280.2	1233.1	1207.2	1205.3
40°	1197.0	1219.2	1199.4	1151.6	1129.5	1134.3
42.5°	1117.3	1140.5	1119.7	1062.1	1054.6	1065.2
45°	1029.0	1060.8	1031.4	979.5	979.5	992.0
47.5°	944.5	969.7	945.7	902.8	909.5	924.8
50°	848.2	868.7	850.6	825.0	844.2	856.7
52.5°	760.9	751.6	763.3	754.6	780.9	798.1
55°	674.3	641.9	676.7	686.5	719.1	728.7
57.5°	580.2	549.7	582.6	618.3	659.6	665.4
60°	496.7	466.2	497.9	551.9	596.1	599.0
62.5°	416.1	403.6	417.3	481.9	530.8	534.6
65°	347.0	345.1	348.1	413.4	464.3	474.8
67.5°	290.4	295.2	290.4	346.2	394.2	410.5
70°	241.4	249.1	241.4	287.5	325.9	347.0
72.5°	196.0	208.5	197.3	231.8	266.4	290.4
75°	156.7	172.0	156.7	181.6	217.4	245.2
77.5°	121.1	138.4	121.1	139.4	180.9	220.2
80°	90.4	103.9	90.4	114.2	167.9	206.9
82.5°	64.5	73.1	64.5	108.4	167.2	205.8
85°	51.4	45.3	53.8	120.3	185.7	217.9
87.5°	44.3	15.4	61.0	140.4	212.7	238.8
90°	29.3	2.1	74.6	172.9	245.5	266.2
92.5°	18.7	20.1	101.1	207.4	284.2	301.4
95°	10.6	48.7	129.9	248.2	328.3	334.5
97.5°	15.3	85.7	168.1	289.2	370.5	375.5
100°	40.3	131.1	219.4	333.4	410.3	412.5
102.5°	75.0	180.1	268.4	376.6	454.7	471.9
105°	121.5	236.1	319.7	434.1	501.0	520.5
107.5°	176.2	295.8	373.2	486.7	553.3	566.1
110°	233.5	358.9	425.7	537.9	610.6	624.9



TEST NUMBER: P392676

CATALOG NUMBER: MWL-4-42-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	295.6	423.3	480.6	585.7	671.4	682.2
115°	366.0	483.0	532.0	640.6	720.4	726.3
117.5°	429.3	554.6	584.5	681.2	771.7	772.9
120°	496.2	622.7	637.1	738.2	821.8	831.4
122.5°	564.2	687.2	687.2	786.0	866.0	871.9
125°	627.5	756.4	737.3	821.8	906.6	909.0
127.5°	692.9	826.8	793.2	868.4	946.0	942.4
130°	763.4	893.7	843.3	912.5	983.0	971.1
132.5°	827.8	965.3	894.7	957.9	1020.1	1027.2
135°	892.3	1032.1	938.8	997.3	1058.3	1055.9
137.5°	954.4	1094.3	992.6	1028.4	1083.3	1090.4
140°	1015.3	1161.2	1040.3	1069.0	1114.3	1115.6
142.5°	1079.7	1228.0	1092.8	1109.5	1149.0	1141.8
145°	1151.4	1292.2	1158.5	1150.1	1175.2	1159.7
147.5°	1214.6	1346.1	1205.0	1180.0	1209.8	1189.6
150°	1285.1	1403.2	1269.5	1221.8	1239.7	1230.2
152.5°	1349.5	1447.4	1340.0	1254.0	1274.3	1262.3
155°	1412.7	1493.9	1408.0	1286.2	1300.5	1295.8
157.5°	1467.7	1534.5	1459.4	1319.6	1336.4	1326.8
160°	1515.4	1567.9	1519.0	1369.8	1360.2	1360.2
162.5°	1557.2	1600.2	1560.8	1437.9	1386.5	1363.9
165°	1594.2	1625.3	1597.8	1514.3	1436.6	1416.4
167.5°	1628.9	1649.2	1639.6	1576.3	1514.3	1471.3
170°	1656.4	1668.3	1655.1	1628.9	1597.8	1559.9
172.5°	1670.7	1676.4	1683.8	1667.1	1655.1	1630.3
175°	1679.0	1693.1	1685.0	1690.9	1680.2	1674.5
177.5°	1681.4	1683.8	1682.6	1693.3	1699.3	1689.9
180°	1690.9	1690.9	1690.9	1690.9	1690.9	1690.9

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