

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: P392661

Luminaire Tested: **MWL-4-34-45-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392661
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-4-34-45-UNV-L830-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

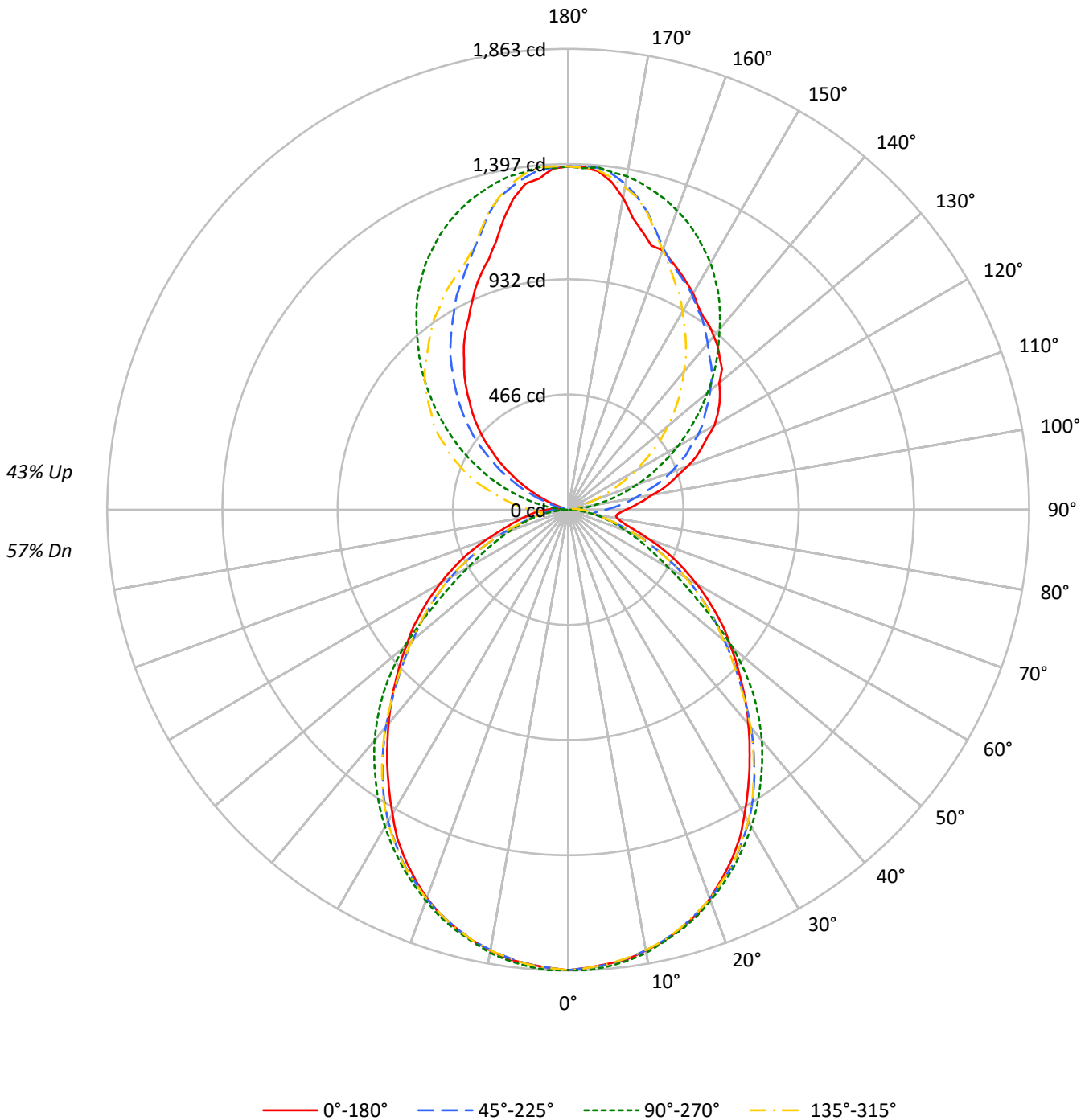
Lumens per Lamp: N/A
Luminaire Lumens: 7662.0 lumens
Efficiency: N/A
Efficacy: 96.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 79.4
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	57				
1	99	95	91	88	92	89	85	82	77	74	72	65	64	62	55	54	53	48				
2	91	83	77	72	84	78	73	68	68	64	60	58	55	52	49	47	45	41				
3	83	74	66	61	77	69	63	57	60	55	51	52	48	45	44	41	39	35				
4	76	66	58	52	71	61	54	49	53	48	44	46	42	39	39	36	34	30				
5	70	59	51	45	65	55	48	42	48	42	38	42	37	34	36	32	30	27				
6	65	53	45	39	60	50	42	37	43	38	33	38	33	30	32	29	26	23				
7	60	48	40	34	56	45	38	33	40	34	30	34	30	26	30	26	23	21				
8	56	43	36	30	52	41	34	29	36	30	26	32	27	24	27	24	21	19				
9	52	40	32	27	48	38	31	26	33	28	24	29	25	21	25	22	19	17				
10	49	37	29	25	45	35	28	24	31	25	21	27	23	19	24	20	17	16				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12022	12022	12022	12022
5°	11842	11051	11842	11051
10°	11653	10142	11653	10142
15°	11409	9279	11390	9279
20°	11080	8475	11061	8475
25°	10615	7721	10595	7721
30°	10022	6999	9994	6999
35°	9382	6277	9361	6277
40°	8783	5584	8753	5584
45°	8195	4840	8172	4840
50°	7645	3979	7620	3979
55°	7133	2974	7114	2974
60°	6545	2202	6535	2202
65°	5925	1675	5925	1675
70°	5087	1253	5103	1253
75°	4399	906	4452	906
80°	4702	578	4269	578
85°	6772	269	4621	269



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	175.4	2.3
10°-20°	494.5	6.5
20°-30°	724.9	9.5
30°-40°	820.6	10.7
40°-50°	773.1	10.1
50°-60°	617.4	8.1
60°-70°	405.9	5.3
70°-80°	207.9	2.7
80°-90°	112.2	1.5
90°-100°	125.5	1.6
100°-110°	217.2	2.8
110°-120°	369.2	4.8
120°-130°	501.3	6.5
130°-140°	571.6	7.5
140°-150°	570.0	7.4
150°-160°	496.3	6.5
160°-170°	349.1	4.6
170°-180°	130.0	1.7
0°-30°	1394.8	18.2
0°-40°	2215.4	28.9
0°-60°	3605.8	47.1
0°-90°	4331.8	56.5
90°-120°	711.9	9.3
90°-150°	2354.8	30.7
90°-180°	3330.0	43.5
0°-180°	7662.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1861	1861	1861	1861	1861	
5°	1843	1854	1843	1854	1843	175
15°	1754	1760	1751	1760	1754	494
25°	1562	1589	1559	1589	1562	718
35°	1277	1354	1274	1354	1277	799
45°	991	1060	988	1060	991	766
55°	728	641	726	641	728	652
65°	474	345	474	345	474	468
75°	245	172	248	172	245	271
85°	200	45	137	45	200	164
90°	232	2	86	2	232	128
95°	283	40	51	40	283	245
105°	429	194	16	194	429	452
115°	596	396	138	396	596	592
125°	746	621	340	621	746	666
135°	866	847	545	847	866	669
145°	952	1060	733	1060	952	600
155°	1063	1226	922	1226	1063	490
165°	1162	1334	1124	1334	1162	330
175°	1374	1389	1344	1389	1374	128
180°	1387	1387	1387	1387	1387	



TEST NUMBER: P392661

CATALOG NUMBER: MWL-4-34-45-UNV-L830-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4
2.5°	1852.8	1858.5	1853.8	1864.4	1863.4	1863.4	1853.8	1858.5	1853.7	1858.5	1853.8
5°	1843.2	1848.9	1845.2	1852.8	1853.8	1852.8	1844.1	1848.9	1843.2	1848.9	1844.1
7.5°	1832.6	1833.6	1828.8	1839.4	1839.4	1838.4	1827.8	1832.6	1832.6	1832.6	1827.8
10°	1809.6	1813.4	1808.6	1819.2	1819.2	1818.2	1807.6	1811.5	1809.6	1811.5	1807.6
12.5°	1785.7	1786.5	1783.6	1792.3	1788.4	1792.3	1783.6	1784.6	1783.6	1784.6	1783.6
15°	1754.0	1752.9	1752.0	1761.6	1759.6	1760.6	1751.0	1751.0	1751.0	1751.0	1751.0
17.5°	1718.5	1717.4	1714.5	1724.1	1725.1	1724.1	1713.6	1716.4	1715.5	1716.4	1713.6
20°	1673.3	1672.4	1674.2	1681.9	1681.9	1680.9	1673.2	1670.4	1670.4	1670.4	1673.2
22.5°	1618.6	1624.4	1626.2	1637.7	1636.8	1636.8	1625.2	1622.4	1616.6	1622.4	1625.2
25°	1562.0	1568.7	1579.2	1588.8	1588.8	1587.8	1577.3	1565.7	1559.0	1565.7	1577.3
27.5°	1499.6	1507.3	1517.7	1537.9	1536.0	1536.9	1515.8	1504.3	1496.6	1504.3	1515.8
30°	1424.7	1436.2	1458.3	1479.3	1480.3	1477.4	1455.3	1433.3	1420.8	1433.3	1455.3
32.5°	1349.8	1361.4	1388.2	1416.0	1420.8	1414.1	1385.3	1357.4	1345.9	1357.4	1385.3
35°	1276.8	1284.5	1311.4	1350.7	1353.6	1347.8	1308.5	1281.6	1273.9	1281.6	1308.5
37.5°	1203.8	1205.8	1231.7	1278.7	1287.4	1275.8	1228.8	1202.9	1201.0	1202.9	1228.8
40°	1132.8	1128.0	1150.1	1198.1	1218.2	1196.2	1146.2	1124.2	1129.0	1124.2	1146.2
42.5°	1063.7	1053.1	1060.8	1118.4	1139.5	1116.5	1057.9	1049.3	1059.9	1049.3	1057.9
45°	990.7	978.3	978.3	1030.1	1059.9	1028.2	974.3	975.4	987.9	975.4	974.3
47.5°	923.5	908.2	901.5	944.7	968.7	943.7	897.5	905.3	920.7	905.3	897.5
50°	855.4	842.9	823.7	849.6	867.9	847.7	819.8	839.0	852.5	839.0	819.8
52.5°	796.8	779.6	753.6	762.3	750.8	760.4	750.7	775.6	794.0	775.6	750.7
55°	727.7	718.1	685.5	675.9	641.3	673.9	682.5	715.1	725.8	715.1	682.5
57.5°	664.4	658.6	617.3	581.8	549.2	579.8	614.4	655.6	662.4	655.6	614.4
60°	598.1	595.2	551.1	497.3	465.7	496.3	549.1	593.2	597.2	593.2	549.1
62.5°	533.8	530.0	481.0	416.7	403.2	415.6	479.0	528.0	532.9	528.0	479.0
65°	474.3	463.7	412.9	347.6	344.6	346.5	411.8	462.7	474.3	462.7	411.8
67.5°	410.0	393.7	345.7	289.9	294.7	289.9	344.6	392.6	410.0	392.6	344.6
70°	346.5	325.4	287.0	240.9	248.6	240.9	287.0	326.5	347.6	326.5	287.0
72.5°	289.9	265.9	231.3	196.8	208.3	195.8	231.3	267.0	291.9	267.0	231.3
75°	244.8	216.9	181.4	156.5	171.8	156.5	182.4	218.0	247.8	218.0	182.4
77.5°	218.1	179.6	139.2	121.0	138.2	121.0	140.1	176.7	214.2	176.7	140.1
80°	201.1	163.6	113.4	90.2	103.7	90.2	111.4	147.9	182.6	147.9	111.4
82.5°	194.9	158.2	104.9	64.3	73.0	64.3	93.2	123.0	157.7	123.0	93.2
85°	200.2	170.3	112.1	52.9	45.1	50.9	83.7	110.6	136.6	110.6	83.7
87.5°	213.5	189.3	126.0	57.0	15.4	43.3	70.3	95.3	112.6	95.3	70.3
90°	232.4	214.0	150.8	66.0	1.9	28.8	53.9	75.9	85.5	75.9	53.9
92.5°	258.2	243.6	177.4	85.8	16.6	18.2	43.3	62.5	66.3	62.5	43.3
95°	283.0	278.1	209.0	107.6	40.1	9.7	32.7	50.9	51.0	50.9	32.7
97.5°	314.6	310.6	240.5	138.0	70.5	12.7	24.1	41.4	40.4	41.4	24.1
100°	343.2	341.2	274.9	180.2	107.7	33.3	15.5	33.8	34.7	33.8	15.5
102.5°	390.3	375.7	309.4	220.3	147.8	61.6	17.6	23.2	26.1	23.2	17.6
105°	428.7	412.1	356.3	262.3	193.8	99.8	40.1	18.4	16.4	18.4	40.1
107.5°	465.0	454.2	399.4	306.4	242.8	144.9	73.4	39.1	26.4	39.1	73.4
110°	513.0	501.3	441.6	349.5	294.7	191.9	111.5	70.5	54.8	70.5	111.5



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CATALOG NUMBER: MWL-4-34-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	560.0	551.2	480.7	394.5	347.6	242.8	158.6	109.6	94.9	109.6	158.6
115°	596.2	591.3	525.8	436.7	396.5	300.6	210.5	155.6	138.0	155.6	210.5
117.5°	634.4	633.5	559.1	479.7	455.3	352.5	258.4	201.7	183.1	201.7	258.4
120°	682.4	674.5	606.0	522.8	511.1	407.3	312.3	254.5	235.9	254.5	312.3
122.5°	715.6	710.7	645.2	564.0	564.0	463.1	363.2	305.4	285.9	305.4	363.2
125°	746.1	744.0	674.5	605.0	620.7	515.0	420.0	361.2	339.7	361.2	420.0
127.5°	773.4	776.4	712.7	651.0	678.5	568.8	475.8	411.1	388.7	411.1	475.8
130°	796.9	806.7	748.9	692.2	733.3	626.5	525.8	461.1	446.5	461.1	525.8
132.5°	842.9	837.1	786.2	734.2	792.0	679.4	578.5	511.1	494.4	511.1	578.5
135°	866.4	868.4	818.4	770.5	846.8	732.3	628.6	561.9	545.3	561.9	628.6
137.5°	894.8	889.0	844.0	814.6	897.8	783.2	677.5	615.8	589.4	615.8	677.5
140°	915.4	914.4	877.2	853.8	952.6	833.1	727.4	664.7	640.3	664.7	727.4
142.5°	937.0	942.8	910.5	896.8	1007.4	886.0	781.3	712.7	689.2	712.7	781.3
145°	951.7	964.3	943.8	950.6	1060.3	944.8	828.2	758.7	733.3	758.7	828.2
147.5°	976.1	992.8	968.3	988.8	1104.4	996.7	875.3	806.7	784.2	806.7	875.3
150°	1009.4	1017.2	1002.5	1041.7	1151.3	1054.5	923.3	852.7	830.2	852.7	923.3
152.5°	1035.9	1045.6	1028.9	1099.5	1187.6	1107.3	976.1	897.8	871.3	897.8	976.1
155°	1063.2	1067.1	1055.4	1155.3	1225.8	1159.2	1018.2	947.7	922.3	947.7	1018.2
157.5°	1088.7	1096.5	1082.8	1197.4	1259.0	1204.2	1066.2	997.7	975.1	997.7	1066.2
160°	1116.1	1116.1	1124.0	1246.4	1286.5	1243.4	1117.1	1052.5	1021.2	1052.5	1117.1
162.5°	1119.1	1137.7	1179.7	1280.6	1312.9	1277.7	1172.0	1091.6	1064.3	1091.6	1172.0
165°	1162.2	1178.8	1242.4	1311.0	1333.5	1308.0	1239.5	1156.2	1124.0	1156.2	1239.5
167.5°	1207.2	1242.4	1293.3	1345.2	1353.1	1336.4	1291.4	1233.6	1204.2	1233.6	1291.4
170°	1279.7	1311.0	1336.4	1358.0	1368.8	1359.0	1323.7	1295.3	1275.7	1295.3	1323.7
172.5°	1337.5	1358.0	1367.8	1381.4	1375.6	1370.7	1353.1	1339.4	1328.6	1339.4	1353.1
175°	1373.7	1378.5	1387.4	1382.5	1389.3	1377.6	1378.5	1385.4	1344.3	1385.4	1378.5
177.5°	1386.4	1394.2	1389.3	1380.5	1381.4	1379.5	1383.4	1387.4	1380.5	1387.4	1383.4
180°	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4



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CATALOG NUMBER: MWL-4-34-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1861.4	1861.4	1861.4	1861.4	1861.4	1861.4
2.5°	1863.4	1863.4	1864.4	1853.8	1858.5	1852.8
5°	1852.8	1853.8	1852.8	1845.2	1848.9	1843.2
7.5°	1838.4	1839.4	1839.4	1828.8	1833.6	1832.6
10°	1818.2	1819.2	1819.2	1808.6	1813.4	1809.6
12.5°	1792.3	1788.4	1792.3	1783.6	1786.5	1785.7
15°	1760.6	1759.6	1761.6	1752.0	1752.9	1754.0
17.5°	1724.1	1725.1	1724.1	1714.5	1717.4	1718.5
20°	1680.9	1681.9	1681.9	1674.2	1672.4	1673.3
22.5°	1636.8	1636.8	1637.7	1626.2	1624.4	1618.6
25°	1587.8	1588.8	1588.8	1579.2	1568.7	1562.0
27.5°	1536.9	1536.0	1537.9	1517.7	1507.3	1499.6
30°	1477.4	1480.3	1479.3	1458.3	1436.2	1424.7
32.5°	1414.1	1420.8	1416.0	1388.2	1361.4	1349.8
35°	1347.8	1353.6	1350.7	1311.4	1284.5	1276.8
37.5°	1275.8	1287.4	1278.7	1231.7	1205.8	1203.8
40°	1196.2	1218.2	1198.1	1150.1	1128.0	1132.8
42.5°	1116.5	1139.5	1118.4	1060.8	1053.1	1063.7
45°	1028.2	1059.9	1030.1	978.3	978.3	990.7
47.5°	943.7	968.7	944.7	901.5	908.2	923.5
50°	847.7	867.9	849.6	823.7	842.9	855.4
52.5°	760.4	750.8	762.3	753.6	779.6	796.8
55°	673.9	641.3	675.9	685.5	718.1	727.7
57.5°	579.8	549.2	581.8	617.3	658.6	664.4
60°	496.3	465.7	497.3	551.1	595.2	598.1
62.5°	415.6	403.2	416.7	481.0	530.0	533.8
65°	346.5	344.6	347.6	412.9	463.7	474.3
67.5°	289.9	294.7	289.9	345.7	393.7	410.0
70°	240.9	248.6	240.9	287.0	325.4	346.5
72.5°	195.8	208.3	196.8	231.3	265.9	289.9
75°	156.5	171.8	156.5	181.4	216.9	244.8
77.5°	121.0	138.2	121.0	139.2	179.6	218.1
80°	90.2	103.7	90.2	113.4	163.6	201.1
82.5°	64.3	73.0	64.3	104.9	158.2	194.9
85°	50.9	45.1	52.9	112.1	170.3	200.2
87.5°	43.3	15.4	57.0	126.0	189.3	213.5
90°	28.8	1.9	66.0	150.8	214.0	232.4
92.5°	18.2	16.6	85.8	177.4	243.6	258.2
95°	9.7	40.1	107.6	209.0	278.1	283.0
97.5°	12.7	70.5	138.0	240.5	310.6	314.6
100°	33.3	107.7	180.2	274.9	341.2	343.2
102.5°	61.6	147.8	220.3	309.4	375.7	390.3
105°	99.8	193.8	262.3	356.3	412.1	428.7
107.5°	144.9	242.8	306.4	399.4	454.2	465.0
110°	191.9	294.7	349.5	441.6	501.3	513.0



TEST NUMBER: P392661

CATALOG NUMBER: MWL-4-34-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	242.8	347.6	394.5	480.7	551.2	560.0
115°	300.6	396.5	436.7	525.8	591.3	596.2
117.5°	352.5	455.3	479.7	559.1	633.5	634.4
120°	407.3	511.1	522.8	606.0	674.5	682.4
122.5°	463.1	564.0	564.0	645.2	710.7	715.6
125°	515.0	620.7	605.0	674.5	744.0	746.1
127.5°	568.8	678.5	651.0	712.7	776.4	773.4
130°	626.5	733.3	692.2	748.9	806.7	796.9
132.5°	679.4	792.0	734.2	786.2	837.1	842.9
135°	732.3	846.8	770.5	818.4	868.4	866.4
137.5°	783.2	897.8	814.6	844.0	889.0	894.8
140°	833.1	952.6	853.8	877.2	914.4	915.4
142.5°	886.0	1007.4	896.8	910.5	942.8	937.0
145°	944.8	1060.3	950.6	943.8	964.3	951.7
147.5°	996.7	1104.4	988.8	968.3	992.8	976.1
150°	1054.5	1151.3	1041.7	1002.5	1017.2	1009.4
152.5°	1107.3	1187.6	1099.5	1028.9	1045.6	1035.9
155°	1159.2	1225.8	1155.3	1055.4	1067.1	1063.2
157.5°	1204.2	1259.0	1197.4	1082.8	1096.5	1088.7
160°	1243.4	1286.5	1246.4	1124.0	1116.1	1116.1
162.5°	1277.7	1312.9	1280.6	1179.7	1137.7	1119.1
165°	1308.0	1333.5	1311.0	1242.4	1178.8	1162.2
167.5°	1336.4	1353.1	1345.2	1293.3	1242.4	1207.2
170°	1359.0	1368.8	1358.0	1336.4	1311.0	1279.7
172.5°	1370.7	1375.6	1381.4	1367.8	1358.0	1337.5
175°	1377.6	1389.3	1382.5	1387.4	1378.5	1373.7
177.5°	1379.5	1381.4	1380.5	1389.3	1394.2	1386.4
180°	1387.4	1387.4	1387.4	1387.4	1387.4	1387.4

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