

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: P392663

Luminaire Tested: **MWL-4-34-45-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392663
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-L940-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

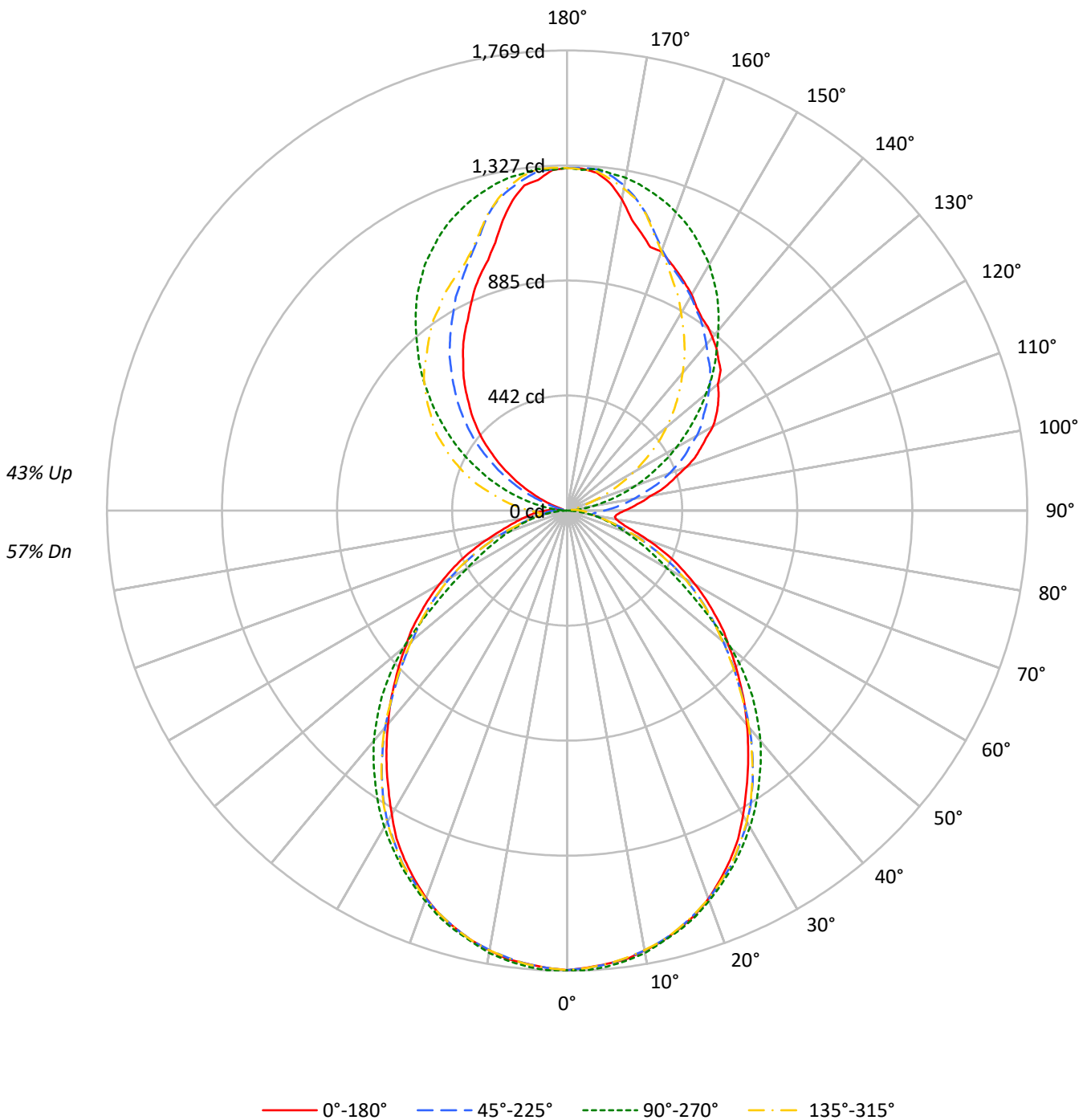
Lumens per Lamp: N/A
Luminaire Lumens: 7272.3 lumens
Efficiency: N/A
Efficacy: 90.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 80.194
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	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°	11410	11410	11410	11410
5°	11239	10489	11239	10489
10°	11060	9626	11060	9626
15°	10829	8807	10810	8807
20°	10517	8043	10498	8043
25°	10075	7329	10056	7329
30°	9513	6643	9486	6643
35°	8905	5957	8885	5957
40°	8336	5301	8307	5301
45°	7778	4594	7756	4594
50°	7257	3776	7232	3776
55°	6770	2823	6752	2823
60°	6212	2090	6202	2090
65°	5624	1590	5624	1590
70°	4829	1189	4843	1189
75°	4174	860	4226	860
80°	4463	549	4052	549
85°	6430	255	4384	255



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	166.4	2.3
10°-20°	469.3	6.5
20°-30°	688.1	9.5
30°-40°	778.9	10.7
40°-50°	733.7	10.1
50°-60°	586.0	8.1
60°-70°	385.2	5.3
70°-80°	197.3	2.7
80°-90°	106.5	1.5
90°-100°	119.1	1.6
100°-110°	206.1	2.8
110°-120°	350.5	4.8
120°-130°	475.8	6.5
130°-140°	542.5	7.5
140°-150°	541.0	7.4
150°-160°	471.1	6.5
160°-170°	331.3	4.6
170°-180°	123.4	1.7
0°-30°	1323.8	18.2
0°-40°	2102.7	28.9
0°-60°	3422.4	47.1
0°-90°	4111.5	56.5
90°-120°	675.7	9.3
90°-150°	2235.0	30.7
90°-180°	3161.0	43.5
0°-180°	7272.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1767	1767	1767	1767	1767	
5°	1749	1760	1749	1760	1749	166
15°	1665	1670	1662	1670	1665	469
25°	1482	1508	1480	1508	1482	681
35°	1212	1285	1209	1285	1212	758
45°	940	1006	938	1006	940	727
55°	691	609	689	609	691	619
65°	450	327	450	327	450	444
75°	232	163	235	163	232	257
85°	190	43	130	43	190	156
90°	221	2	81	2	221	122
95°	269	38	48	38	269	232
105°	407	184	16	184	407	429
115°	566	376	131	376	566	562
125°	708	589	322	589	708	632
135°	822	804	518	804	822	635
145°	903	1006	696	1006	903	569
155°	1009	1164	875	1164	1009	465
165°	1103	1266	1067	1266	1103	313
175°	1304	1319	1276	1319	1304	122
180°	1317	1317	1317	1317	1317	



TEST NUMBER: P392663

CATALOG NUMBER: MWL-4-34-45-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7
2.5°	1758.5	1764.0	1759.5	1769.5	1768.6	1768.6	1759.5	1764.0	1759.4	1764.0	1759.5
5°	1749.4	1754.9	1751.3	1758.6	1759.5	1758.6	1750.3	1754.9	1749.4	1754.9	1750.3
7.5°	1739.4	1740.3	1735.7	1745.8	1745.8	1744.8	1734.8	1739.4	1739.4	1739.4	1734.8
10°	1717.5	1721.2	1716.6	1726.6	1726.6	1725.7	1715.7	1719.3	1717.5	1719.3	1715.7
12.5°	1694.8	1695.6	1692.9	1701.1	1697.5	1701.1	1692.9	1693.8	1692.9	1693.8	1692.9
15°	1664.8	1663.8	1662.8	1672.0	1670.1	1671.0	1661.9	1661.9	1661.9	1661.9	1661.9
17.5°	1631.1	1630.0	1627.3	1636.4	1637.3	1636.4	1626.4	1629.1	1628.2	1629.1	1626.4
20°	1588.2	1587.3	1589.0	1596.3	1596.3	1595.4	1588.1	1585.4	1585.4	1585.4	1588.1
22.5°	1536.3	1541.8	1543.5	1554.4	1553.5	1553.5	1542.6	1539.9	1534.4	1539.9	1542.6
25°	1482.5	1488.9	1498.9	1508.0	1508.0	1507.1	1497.0	1486.1	1479.7	1486.1	1497.0
27.5°	1423.3	1430.6	1440.5	1459.7	1457.9	1458.8	1438.7	1427.8	1420.5	1427.8	1438.7
30°	1352.3	1363.2	1384.1	1404.1	1405.0	1402.3	1381.3	1360.4	1348.5	1360.4	1381.3
32.5°	1281.2	1292.1	1317.6	1344.0	1348.5	1342.1	1314.8	1288.4	1277.5	1288.4	1314.8
35°	1211.9	1219.1	1244.7	1282.0	1284.7	1279.3	1241.9	1216.4	1209.1	1216.4	1241.9
37.5°	1142.6	1144.4	1169.0	1213.7	1221.9	1210.9	1166.3	1141.7	1139.9	1141.7	1166.3
40°	1075.2	1070.6	1091.6	1137.1	1156.3	1135.3	1087.9	1067.0	1071.5	1067.0	1087.9
42.5°	1009.6	999.6	1006.9	1061.5	1081.6	1059.7	1004.1	995.9	1005.9	995.9	1004.1
45°	940.3	928.5	928.5	977.7	1005.9	975.9	924.8	925.8	937.6	925.8	924.8
47.5°	876.6	862.0	855.6	896.6	919.4	895.7	851.9	859.3	873.8	859.3	851.9
50°	811.9	800.0	781.8	806.4	823.7	804.6	778.1	796.3	809.1	796.3	778.1
52.5°	756.3	739.9	715.3	723.5	712.6	721.7	712.5	736.2	753.6	736.2	712.5
55°	690.7	681.6	650.6	641.5	608.7	639.6	647.8	678.8	688.9	678.8	647.8
57.5°	630.6	625.1	585.9	552.2	521.2	550.3	583.1	622.3	628.8	622.3	583.1
60°	567.7	565.0	523.1	472.0	442.0	471.0	521.1	563.1	566.8	563.1	521.1
62.5°	506.7	503.0	456.6	395.5	382.7	394.5	454.6	501.1	505.8	501.1	454.6
65°	450.2	440.2	391.9	329.9	327.1	328.9	390.9	439.2	450.2	439.2	390.9
67.5°	389.1	373.6	328.1	275.2	279.7	275.2	327.1	372.6	389.1	372.6	327.1
70°	328.9	308.9	272.4	228.7	236.0	228.7	272.4	309.9	329.9	309.9	272.4
72.5°	275.2	252.4	219.6	186.8	197.7	185.9	219.6	253.4	277.1	253.4	219.6
75°	232.3	205.9	172.2	148.5	163.1	148.5	173.1	206.9	235.2	206.9	173.1
77.5°	207.0	170.5	132.1	114.8	131.2	114.8	133.0	167.7	203.3	167.7	133.0
80°	190.9	155.3	107.6	85.6	98.4	85.6	105.7	140.4	173.3	140.4	105.7
82.5°	185.0	150.1	99.6	61.0	69.2	61.0	88.5	116.7	149.7	116.7	88.5
85°	190.1	161.6	106.4	50.2	42.8	48.3	79.4	105.0	129.6	105.0	79.4
87.5°	202.6	179.7	119.6	54.1	14.6	41.1	66.7	90.5	106.9	90.5	66.7
90°	220.6	203.1	143.1	62.7	1.8	27.3	51.1	72.1	81.2	72.1	51.1
92.5°	245.1	231.2	168.4	81.5	15.8	17.3	41.1	59.3	63.0	59.3	41.1
95°	268.6	263.9	198.3	102.1	38.1	9.2	31.1	48.3	48.4	48.3	31.1
97.5°	298.6	294.8	228.2	131.0	66.9	12.0	22.9	39.3	38.4	39.3	22.9
100°	325.7	323.8	260.9	171.0	102.2	31.6	14.7	32.1	33.0	32.1	14.7
102.5°	370.5	356.6	293.6	209.1	140.3	58.5	16.7	22.0	24.8	22.0	16.7
105°	406.9	391.1	338.2	249.0	184.0	94.8	38.1	17.5	15.6	17.5	38.1
107.5°	441.3	431.1	379.1	290.8	230.4	137.5	69.7	37.1	25.1	37.1	69.7
110°	486.9	475.8	419.1	331.7	279.7	182.1	105.9	66.9	52.0	66.9	105.9



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CATALOG NUMBER: MWL-4-34-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	531.5	523.2	456.3	374.5	329.9	230.4	150.5	104.0	90.1	104.0	150.5
115°	565.9	561.2	499.0	414.5	376.4	285.3	199.8	147.7	131.0	147.7	199.8
117.5°	602.1	601.2	530.6	455.3	432.1	334.6	245.3	191.4	173.7	191.4	245.3
120°	647.7	640.2	575.2	496.2	485.1	386.6	296.4	241.5	223.9	241.5	296.4
122.5°	679.2	674.6	612.4	535.3	535.3	439.5	344.8	289.9	271.3	289.9	344.8
125°	708.1	706.2	640.2	574.3	589.1	488.8	398.6	342.8	322.4	342.8	398.6
127.5°	734.1	736.9	676.5	617.9	644.0	539.8	451.6	390.2	368.9	390.2	451.6
130°	756.4	765.7	710.8	657.0	696.0	594.7	499.0	437.7	423.8	437.7	499.0
132.5°	800.0	794.5	746.2	696.9	751.7	644.9	549.1	485.1	469.2	485.1	549.1
135°	822.4	824.3	776.8	731.3	803.8	695.1	596.6	533.4	517.6	533.4	596.6
137.5°	849.3	843.8	801.0	773.2	852.2	743.4	643.1	584.5	559.4	584.5	643.1
140°	868.8	867.9	832.6	810.3	904.2	790.7	690.4	630.9	607.7	630.9	690.4
142.5°	889.3	894.9	864.2	851.1	956.2	840.9	741.5	676.5	654.2	676.5	741.5
145°	903.3	915.3	895.8	902.3	1006.4	896.7	786.1	720.1	696.0	720.1	786.1
147.5°	926.5	942.3	919.0	938.5	1048.2	946.0	830.7	765.7	744.3	765.7	830.7
150°	958.0	965.5	951.6	988.7	1092.8	1000.8	876.3	809.3	788.0	809.3	876.3
152.5°	983.2	992.5	976.6	1043.6	1127.2	1051.0	926.5	852.2	827.0	852.2	926.5
155°	1009.1	1012.9	1001.8	1096.5	1163.5	1100.2	966.4	899.5	875.4	899.5	966.4
157.5°	1033.4	1040.7	1027.7	1136.5	1195.0	1143.0	1012.0	946.9	925.5	946.9	1012.0
160°	1059.3	1059.3	1066.8	1183.0	1221.1	1180.1	1060.2	998.9	969.2	998.9	1060.2
162.5°	1062.2	1079.8	1119.7	1215.5	1246.1	1212.7	1112.4	1036.1	1010.1	1036.1	1112.4
165°	1103.1	1118.8	1179.2	1244.3	1265.7	1241.5	1176.4	1097.4	1066.8	1097.4	1176.4
167.5°	1145.8	1179.2	1227.5	1276.8	1284.3	1268.4	1225.7	1170.9	1143.0	1170.9	1225.7
170°	1214.6	1244.3	1268.4	1288.9	1299.1	1289.8	1256.4	1229.4	1210.9	1229.4	1256.4
172.5°	1269.4	1288.9	1298.2	1311.2	1305.6	1301.0	1284.3	1271.3	1261.1	1271.3	1284.3
175°	1303.8	1308.4	1316.8	1312.2	1318.6	1307.5	1308.4	1314.9	1275.9	1314.9	1308.4
177.5°	1315.9	1323.3	1318.6	1310.3	1311.2	1309.3	1313.1	1316.8	1310.3	1316.8	1313.1
180°	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8



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CATALOG NUMBER: MWL-4-34-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1766.7	1766.7	1766.7	1766.7	1766.7	1766.7
2.5°	1768.6	1768.6	1769.5	1759.5	1764.0	1758.5
5°	1758.6	1759.5	1758.6	1751.3	1754.9	1749.4
7.5°	1744.8	1745.8	1745.8	1735.7	1740.3	1739.4
10°	1725.7	1726.6	1726.6	1716.6	1721.2	1717.5
12.5°	1701.1	1697.5	1701.1	1692.9	1695.6	1694.8
15°	1671.0	1670.1	1672.0	1662.8	1663.8	1664.8
17.5°	1636.4	1637.3	1636.4	1627.3	1630.0	1631.1
20°	1595.4	1596.3	1596.3	1589.0	1587.3	1588.2
22.5°	1553.5	1553.5	1554.4	1543.5	1541.8	1536.3
25°	1507.1	1508.0	1508.0	1498.9	1488.9	1482.5
27.5°	1458.8	1457.9	1459.7	1440.5	1430.6	1423.3
30°	1402.3	1405.0	1404.1	1384.1	1363.2	1352.3
32.5°	1342.1	1348.5	1344.0	1317.6	1292.1	1281.2
35°	1279.3	1284.7	1282.0	1244.7	1219.1	1211.9
37.5°	1210.9	1221.9	1213.7	1169.0	1144.4	1142.6
40°	1135.3	1156.3	1137.1	1091.6	1070.6	1075.2
42.5°	1059.7	1081.6	1061.5	1006.9	999.6	1009.6
45°	975.9	1005.9	977.7	928.5	928.5	940.3
47.5°	895.7	919.4	896.6	855.6	862.0	876.6
50°	804.6	823.7	806.4	781.8	800.0	811.9
52.5°	721.7	712.6	723.5	715.3	739.9	756.3
55°	639.6	608.7	641.5	650.6	681.6	690.7
57.5°	550.3	521.2	552.2	585.9	625.1	630.6
60°	471.0	442.0	472.0	523.1	565.0	567.7
62.5°	394.5	382.7	395.5	456.6	503.0	506.7
65°	328.9	327.1	329.9	391.9	440.2	450.2
67.5°	275.2	279.7	275.2	328.1	373.6	389.1
70°	228.7	236.0	228.7	272.4	308.9	328.9
72.5°	185.9	197.7	186.8	219.6	252.4	275.2
75°	148.5	163.1	148.5	172.2	205.9	232.3
77.5°	114.8	131.2	114.8	132.1	170.5	207.0
80°	85.6	98.4	85.6	107.6	155.3	190.9
82.5°	61.0	69.2	61.0	99.6	150.1	185.0
85°	48.3	42.8	50.2	106.4	161.6	190.1
87.5°	41.1	14.6	54.1	119.6	179.7	202.6
90°	27.3	1.8	62.7	143.1	203.1	220.6
92.5°	17.3	15.8	81.5	168.4	231.2	245.1
95°	9.2	38.1	102.1	198.3	263.9	268.6
97.5°	12.0	66.9	131.0	228.2	294.8	298.6
100°	31.6	102.2	171.0	260.9	323.8	325.7
102.5°	58.5	140.3	209.1	293.6	356.6	370.5
105°	94.8	184.0	249.0	338.2	391.1	406.9
107.5°	137.5	230.4	290.8	379.1	431.1	441.3
110°	182.1	279.7	331.7	419.1	475.8	486.9



TEST NUMBER: P392663

CATALOG NUMBER: MWL-4-34-45-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	230.4	329.9	374.5	456.3	523.2	531.5
115°	285.3	376.4	414.5	499.0	561.2	565.9
117.5°	334.6	432.1	455.3	530.6	601.2	602.1
120°	386.6	485.1	496.2	575.2	640.2	647.7
122.5°	439.5	535.3	535.3	612.4	674.6	679.2
125°	488.8	589.1	574.3	640.2	706.2	708.1
127.5°	539.8	644.0	617.9	676.5	736.9	734.1
130°	594.7	696.0	657.0	710.8	765.7	756.4
132.5°	644.9	751.7	696.9	746.2	794.5	800.0
135°	695.1	803.8	731.3	776.8	824.3	822.4
137.5°	743.4	852.2	773.2	801.0	843.8	849.3
140°	790.7	904.2	810.3	832.6	867.9	868.8
142.5°	840.9	956.2	851.1	864.2	894.9	889.3
145°	896.7	1006.4	902.3	895.8	915.3	903.3
147.5°	946.0	1048.2	938.5	919.0	942.3	926.5
150°	1000.8	1092.8	988.7	951.6	965.5	958.0
152.5°	1051.0	1127.2	1043.6	976.6	992.5	983.2
155°	1100.2	1163.5	1096.5	1001.8	1012.9	1009.1
157.5°	1143.0	1195.0	1136.5	1027.7	1040.7	1033.4
160°	1180.1	1221.1	1183.0	1066.8	1059.3	1059.3
162.5°	1212.7	1246.1	1215.5	1119.7	1079.8	1062.2
165°	1241.5	1265.7	1244.3	1179.2	1118.8	1103.1
167.5°	1268.4	1284.3	1276.8	1227.5	1179.2	1145.8
170°	1289.8	1299.1	1288.9	1268.4	1244.3	1214.6
172.5°	1301.0	1305.6	1311.2	1298.2	1288.9	1269.4
175°	1307.5	1318.6	1312.2	1316.8	1308.4	1303.8
177.5°	1309.3	1311.2	1310.3	1318.6	1323.3	1315.9
180°	1316.8	1316.8	1316.8	1316.8	1316.8	1316.8

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