

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: P392600

Luminaire Tested: **MWL-3-37-33-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392600  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-13 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-3-37-33-UNV-L840-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

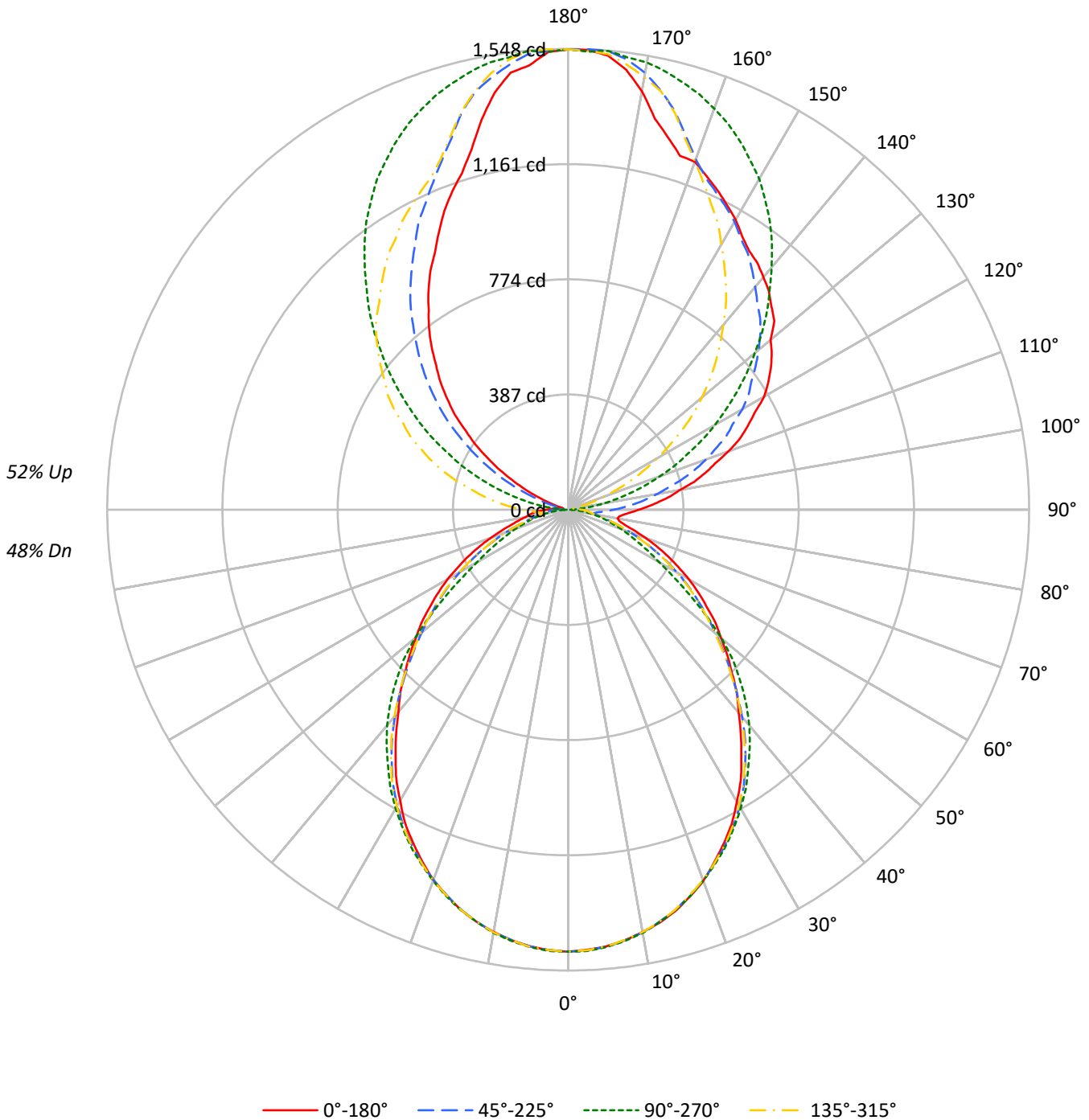
Lumens per Lamp: N/A  
Luminaire Lumens: 7105.2 lumens  
Efficiency: N/A  
Efficacy: 99.2 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 71.6  
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



TEST NUMBER: P392600  
CATALOG NUMBER: MWL-3-37-33-UNV-L840-EDD

### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	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	50	30	10	0														
RCR																																						
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54	48																				
1	97	93	89	86	89	86	83	80	72	70	68	60	58	56	48	47	46	41																				
2	89	82	76	71	82	75	70	66	64	60	57	53	50	48	43	41	39	35																				
3	81	72	65	59	75	67	60	55	56	52	48	47	44	41	38	36	34	30																				
4	75	64	56	50	68	59	53	47	50	45	41	42	38	35	34	32	29	26																				
5	69	57	49	43	63	53	46	41	45	40	36	38	34	31	31	28	26	23																				
6	63	51	43	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20																				
7	59	46	39	33	54	43	36	31	37	32	28	31	27	24	26	23	20	18																				
8	54	42	35	29	50	39	33	28	34	28	25	29	25	21	24	21	18	16																				
9	51	39	31	26	47	36	29	25	31	26	22	26	22	19	22	19	17	15																				
10	47	35	28	24	44	33	27	22	29	24	20	24	20	18	21	17	15	13																				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	12784	12784	12784	12784
5°	12575	11722	12575	11722
10°	12295	10731	12295	10731
15°	11988	9791	11961	9791
20°	11573	8911	11546	8911
25°	11036	8096	11007	8096
30°	10427	7302	10387	7302
35°	9711	6519	9680	6519
40°	8966	5779	8923	5779
45°	8325	4984	8290	4984
50°	7696	4104	7658	4104
55°	7110	3069	7082	3069
60°	6503	2227	6487	2227
65°	5798	1673	5798	1673
70°	4997	1264	5017	1264
75°	4277	915	4350	915
80°	4674	588	4097	588
85°	7160	255	4452	255



TEST NUMBER: P392600

CATALOG NUMBER: MWL-3-37-33-UNV-L840-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	139.6	2.0
10°-20°	392.0	5.5
20°-30°	572.0	8.1
30°-40°	646.5	9.1
40°-50°	604.7	8.5
50°-60°	477.4	6.7
60°-70°	312.3	4.4
70°-80°	163.1	2.3
80°-90°	97.4	1.4
90°-100°	131.6	1.9
100°-110°	240.9	3.4
110°-120°	410.9	5.8
120°-130°	558.3	7.9
130°-140°	636.7	9.0
140°-150°	635.0	8.9
150°-160°	553.0	7.8
160°-170°	389.0	5.5
170°-180°	144.9	2.0
0°-30°	1103.6	15.5
0°-40°	1750.1	24.6
0°-60°	2832.2	39.9
0°-90°	3404.9	47.9
90°-120°	783.4	11.0
90°-150°	2613.3	36.8
90°-180°	3700.0	52.1
0°-180°	7105.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1485	1485	1485	1485	1485	
5°	1472	1475	1472	1475	1472	140
15°	1395	1392	1392	1392	1395	392
25°	1237	1249	1234	1249	1237	569
35°	1014	1054	1010	1054	1014	634
45°	779	818	775	818	779	602
55°	568	496	565	496	568	509
65°	369	258	369	258	369	366
75°	195	130	198	130	195	218
85°	188	32	117	32	188	150
90°	236	2	73	2	236	131
95°	306	45	47	45	306	266
105°	476	216	17	216	476	502
115°	665	441	154	441	665	659
125°	831	692	378	692	831	742
135°	965	944	607	944	965	745
145°	1060	1181	817	1181	1060	668
155°	1185	1366	1027	1366	1185	546
165°	1295	1486	1252	1486	1295	367
175°	1531	1547	1498	1547	1531	143
180°	1546	1546	1546	1546	1546	



TEST NUMBER: P392600

CATALOG NUMBER: MWL-3-37-33-UNV-L840-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6
2.5°	1479.4	1482.6	1480.7	1481.8	1483.8	1480.7	1480.7	1482.6	1480.5	1482.6	1480.7
5°	1472.4	1474.6	1473.7	1473.7	1474.7	1473.7	1472.6	1474.6	1472.4	1474.6	1472.6
7.5°	1458.5	1461.6	1458.6	1460.7	1460.7	1459.6	1457.6	1460.6	1458.5	1460.6	1457.6
10°	1440.6	1443.6	1441.6	1441.6	1443.6	1440.6	1440.6	1441.5	1440.6	1441.5	1440.6
12.5°	1420.7	1420.6	1417.6	1419.6	1418.5	1419.6	1417.6	1418.5	1418.6	1418.5	1417.6
15°	1394.8	1392.6	1391.6	1392.6	1392.5	1391.5	1390.5	1390.5	1391.6	1390.5	1390.5
17.5°	1361.8	1362.6	1358.6	1361.5	1361.5	1361.5	1357.5	1361.6	1358.6	1361.6	1357.5
20°	1326.8	1325.7	1324.6	1326.5	1326.4	1325.4	1323.5	1323.6	1323.6	1323.6	1323.5
22.5°	1281.7	1284.7	1285.6	1289.5	1288.4	1288.4	1284.5	1282.6	1279.6	1282.6	1284.5
25°	1236.7	1241.7	1244.6	1250.5	1249.4	1249.4	1242.5	1238.5	1233.5	1238.5	1242.5
27.5°	1189.7	1190.7	1199.6	1208.6	1204.4	1207.5	1197.5	1187.5	1186.5	1187.5	1197.5
30°	1132.7	1137.7	1150.7	1160.6	1158.4	1158.5	1147.5	1134.5	1128.4	1134.5	1147.5
32.5°	1078.7	1080.7	1097.7	1109.6	1110.5	1107.5	1094.5	1076.4	1074.4	1076.4	1094.5
35°	1013.6	1018.6	1036.6	1057.6	1054.4	1054.4	1033.4	1015.4	1010.4	1015.4	1033.4
37.5°	952.6	955.6	975.6	1001.6	1001.5	998.4	972.4	952.4	949.4	952.4	972.4
40°	890.6	889.6	908.6	937.6	945.5	935.4	904.3	885.3	886.3	885.3	904.3
42.5°	838.6	826.6	839.6	871.6	884.5	869.4	836.3	822.3	834.3	822.3	836.3
45°	778.6	766.6	773.6	803.6	818.5	801.4	769.2	763.3	775.3	763.3	769.2
47.5°	724.6	709.6	708.6	730.5	751.5	729.4	704.2	706.3	721.3	706.3	704.2
50°	669.6	655.6	645.6	660.5	671.4	658.3	641.2	651.2	666.3	651.2	641.2
52.5°	622.6	603.6	586.5	590.5	582.4	588.3	583.2	599.2	619.3	599.2	583.2
55°	567.5	555.5	531.5	518.4	496.3	516.2	528.2	552.2	565.3	552.2	528.2
57.5°	518.5	507.5	478.5	447.4	416.3	445.2	475.2	504.2	516.3	504.2	475.2
60°	468.4	457.4	422.4	377.3	353.3	376.2	420.2	455.2	467.3	455.2	420.2
62.5°	416.4	409.4	369.4	318.3	304.2	317.2	367.2	407.2	415.3	407.2	367.2
65°	369.3	357.3	316.3	267.3	258.2	266.2	315.2	356.2	369.3	356.2	315.2
67.5°	321.3	306.3	267.3	222.2	221.2	222.2	266.2	305.2	321.3	305.2	266.2
70°	274.2	257.2	221.2	184.2	188.2	184.2	221.2	258.3	275.3	258.3	221.2
72.5°	233.2	210.2	181.2	151.2	155.1	150.1	181.2	211.3	235.4	211.3	181.2
75°	195.2	169.2	144.1	121.1	130.1	121.1	145.2	170.3	198.5	170.3	145.2
77.5°	175.9	142.6	111.1	95.1	104.1	95.1	112.2	139.3	171.6	139.3	112.2
80°	168.5	133.8	90.4	73.1	79.1	73.1	88.2	116.4	147.7	116.4	88.2
82.5°	172.7	138.9	87.5	52.1	56.1	52.1	74.4	99.6	131.2	99.6	74.4
85°	187.5	157.6	99.5	42.4	32.1	40.2	67.8	91.0	116.6	91.0	67.8
87.5°	208.9	186.0	122.2	49.7	9.0	34.5	59.9	81.2	96.4	81.2	59.9
90°	236.4	217.5	152.5	64.7	2.1	23.2	44.4	63.6	72.6	63.6	44.4
92.5°	271.5	254.4	185.9	89.5	18.5	14.2	36.3	52.4	57.5	52.4	36.3
95°	306.1	297.5	224.8	116.6	44.7	7.4	28.3	44.2	47.3	44.2	28.3
97.5°	346.1	337.7	262.9	153.9	78.5	14.1	21.6	37.4	40.4	37.4	21.6
100°	379.7	374.6	304.0	200.8	120.0	37.0	14.6	31.7	35.7	31.7	14.6
102.5°	433.0	415.9	343.8	245.6	164.8	68.7	18.4	22.7	26.7	22.7	18.4
105°	476.4	456.1	397.3	292.6	216.1	111.3	44.6	17.1	16.6	17.1	44.6
107.5°	517.3	505.4	445.4	340.6	270.7	160.4	81.7	42.4	28.1	42.4	81.7
110°	571.9	557.8	492.3	388.7	327.5	212.9	124.3	77.3	60.9	77.3	124.3



TEST NUMBER: P392600

CATALOG NUMBER: MWL-3-37-33-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	624.4	613.5	536.0	438.9	386.5	269.6	176.7	121.0	105.6	121.0	176.7
115°	664.8	658.3	586.2	485.9	441.1	334.1	234.6	172.4	153.7	172.4	234.6
117.5°	706.4	705.3	623.4	533.9	506.6	391.9	288.1	223.7	202.9	223.7	288.1
120°	759.9	751.1	674.7	582.0	568.8	453.1	347.1	282.6	261.9	282.6	347.1
122.5°	797.0	791.5	718.4	628.8	628.8	516.3	403.9	339.4	317.6	339.4	403.9
125°	830.8	828.7	751.1	674.7	692.2	574.2	467.2	401.7	377.7	401.7	467.2
127.5°	861.4	864.7	793.7	724.9	756.6	633.2	529.4	457.4	432.3	457.4	529.4
130°	887.6	898.5	834.1	770.8	817.7	697.6	585.1	513.1	496.7	513.1	585.1
132.5°	938.9	932.4	875.6	817.7	883.3	756.6	644.1	568.8	550.2	568.8	644.1
135°	965.2	967.3	911.6	858.1	944.4	815.6	699.8	625.5	607.0	625.5	699.8
137.5°	996.8	990.3	940.0	907.3	1001.2	872.3	754.4	685.6	656.1	685.6	754.4
140°	1019.8	1018.7	977.2	951.0	1062.3	928.0	810.1	740.2	712.9	740.2	810.1
142.5°	1043.8	1050.3	1014.3	999.0	1123.5	987.0	870.2	793.7	767.5	793.7	870.2
145°	1060.2	1074.4	1051.4	1059.1	1181.4	1052.5	922.6	845.0	816.6	845.0	922.6
147.5°	1087.5	1106.0	1078.7	1101.7	1231.6	1110.4	975.0	898.5	873.4	898.5	975.0
150°	1124.6	1133.3	1116.9	1160.6	1282.9	1174.8	1028.5	949.9	924.8	949.9	1028.5
152.5°	1154.1	1165.0	1146.4	1225.1	1323.3	1233.8	1087.5	1000.1	970.6	1000.1	1087.5
155°	1184.7	1189.0	1175.9	1287.3	1365.9	1291.7	1134.4	1055.8	1027.4	1055.8	1134.4
157.5°	1213.0	1221.8	1206.5	1334.3	1403.1	1341.9	1187.9	1111.5	1086.4	1111.5	1187.9
160°	1243.6	1243.6	1252.4	1388.9	1433.6	1385.6	1244.7	1172.6	1137.7	1172.6	1244.7
162.5°	1246.9	1267.6	1314.6	1427.1	1463.1	1423.8	1305.9	1216.3	1185.7	1216.3	1305.9
165°	1294.9	1313.5	1384.5	1460.9	1486.0	1457.7	1381.2	1288.4	1252.4	1288.4	1381.2
167.5°	1345.2	1384.5	1441.3	1499.2	1507.9	1489.3	1439.1	1374.7	1341.9	1374.7	1439.1
170°	1427.1	1460.9	1489.3	1513.4	1525.4	1514.4	1475.1	1443.5	1422.7	1443.5	1475.1
172.5°	1490.5	1513.4	1524.3	1539.6	1531.9	1527.5	1507.9	1492.6	1480.7	1492.6	1507.9
175°	1530.9	1536.3	1546.1	1540.7	1547.2	1535.2	1536.3	1543.9	1498.2	1543.9	1536.3
177.5°	1545.1	1553.8	1548.3	1538.5	1539.6	1537.4	1541.7	1546.1	1538.6	1546.1	1541.7
180°	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1



TEST NUMBER: P392600

CATALOG NUMBER: MWL-3-37-33-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1484.6	1484.6	1484.6	1484.6	1484.6	1484.6
2.5°	1480.7	1483.8	1481.8	1480.7	1482.6	1479.4
5°	1473.7	1474.7	1473.7	1473.7	1474.6	1472.4
7.5°	1459.6	1460.7	1460.7	1458.6	1461.6	1458.5
10°	1440.6	1443.6	1441.6	1441.6	1443.6	1440.6
12.5°	1419.6	1418.5	1419.6	1417.6	1420.6	1420.7
15°	1391.5	1392.5	1392.6	1391.6	1392.6	1394.8
17.5°	1361.5	1361.5	1361.5	1358.6	1362.6	1361.8
20°	1325.4	1326.4	1326.5	1324.6	1325.7	1326.8
22.5°	1288.4	1288.4	1289.5	1285.6	1284.7	1281.7
25°	1249.4	1249.4	1250.5	1244.6	1241.7	1236.7
27.5°	1207.5	1204.4	1208.6	1199.6	1190.7	1189.7
30°	1158.5	1158.4	1160.6	1150.7	1137.7	1132.7
32.5°	1107.5	1110.5	1109.6	1097.7	1080.7	1078.7
35°	1054.4	1054.4	1057.6	1036.6	1018.6	1013.6
37.5°	998.4	1001.5	1001.6	975.6	955.6	952.6
40°	935.4	945.5	937.6	908.6	889.6	890.6
42.5°	869.4	884.5	871.6	839.6	826.6	838.6
45°	801.4	818.5	803.6	773.6	766.6	778.6
47.5°	729.4	751.5	730.5	708.6	709.6	724.6
50°	658.3	671.4	660.5	645.6	655.6	669.6
52.5°	588.3	582.4	590.5	586.5	603.6	622.6
55°	516.2	496.3	518.4	531.5	555.5	567.5
57.5°	445.2	416.3	447.4	478.5	507.5	518.5
60°	376.2	353.3	377.3	422.4	457.4	468.4
62.5°	317.2	304.2	318.3	369.4	409.4	416.4
65°	266.2	258.2	267.3	316.3	357.3	369.3
67.5°	222.2	221.2	222.2	267.3	306.3	321.3
70°	184.2	188.2	184.2	221.2	257.2	274.2
72.5°	150.1	155.1	151.2	181.2	210.2	233.2
75°	121.1	130.1	121.1	144.1	169.2	195.2
77.5°	95.1	104.1	95.1	111.1	142.6	175.9
80°	73.1	79.1	73.1	90.4	133.8	168.5
82.5°	52.1	56.1	52.1	87.5	138.9	172.7
85°	40.2	32.1	42.4	99.5	157.6	187.5
87.5°	34.5	9.0	49.7	122.2	186.0	208.9
90°	23.2	2.1	64.7	152.5	217.5	236.4
92.5°	14.2	18.5	89.5	185.9	254.4	271.5
95°	7.4	44.7	116.6	224.8	297.5	306.1
97.5°	14.1	78.5	153.9	262.9	337.7	346.1
100°	37.0	120.0	200.8	304.0	374.6	379.7
102.5°	68.7	164.8	245.6	343.8	415.9	433.0
105°	111.3	216.1	292.6	397.3	456.1	476.4
107.5°	160.4	270.7	340.6	445.4	505.4	517.3
110°	212.9	327.5	388.7	492.3	557.8	571.9





TEST NUMBER: P392600

CATALOG NUMBER: MWL-3-37-33-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	269.6	386.5	438.9	536.0	613.5	624.4
115°	334.1	441.1	485.9	586.2	658.3	664.8
117.5°	391.9	506.6	533.9	623.4	705.3	706.4
120°	453.1	568.8	582.0	674.7	751.1	759.9
122.5°	516.3	628.8	628.8	718.4	791.5	797.0
125°	574.2	692.2	674.7	751.1	828.7	830.8
127.5°	633.2	756.6	724.9	793.7	864.7	861.4
130°	697.6	817.7	770.8	834.1	898.5	887.6
132.5°	756.6	883.3	817.7	875.6	932.4	938.9
135°	815.6	944.4	858.1	911.6	967.3	965.2
137.5°	872.3	1001.2	907.3	940.0	990.3	996.8
140°	928.0	1062.3	951.0	977.2	1018.7	1019.8
142.5°	987.0	1123.5	999.0	1014.3	1050.3	1043.8
145°	1052.5	1181.4	1059.1	1051.4	1074.4	1060.2
147.5°	1110.4	1231.6	1101.7	1078.7	1106.0	1087.5
150°	1174.8	1282.9	1160.6	1116.9	1133.3	1124.6
152.5°	1233.8	1323.3	1225.1	1146.4	1165.0	1154.1
155°	1291.7	1365.9	1287.3	1175.9	1189.0	1184.7
157.5°	1341.9	1403.1	1334.3	1206.5	1221.8	1213.0
160°	1385.6	1433.6	1388.9	1252.4	1243.6	1243.6
162.5°	1423.8	1463.1	1427.1	1314.6	1267.6	1246.9
165°	1457.7	1486.0	1460.9	1384.5	1313.5	1294.9
167.5°	1489.3	1507.9	1499.2	1441.3	1384.5	1345.2
170°	1514.4	1525.4	1513.4	1489.3	1460.9	1427.1
172.5°	1527.5	1531.9	1539.6	1524.3	1513.4	1490.5
175°	1535.2	1547.2	1540.7	1546.1	1536.3	1530.9
177.5°	1537.4	1539.6	1538.5	1548.3	1553.8	1545.1
180°	1546.1	1546.1	1546.1	1546.1	1546.1	1546.1

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