

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: P392658

Luminaire Tested: **MWL-4-34-33-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392658  
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-4-34-33-UNV-L830-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

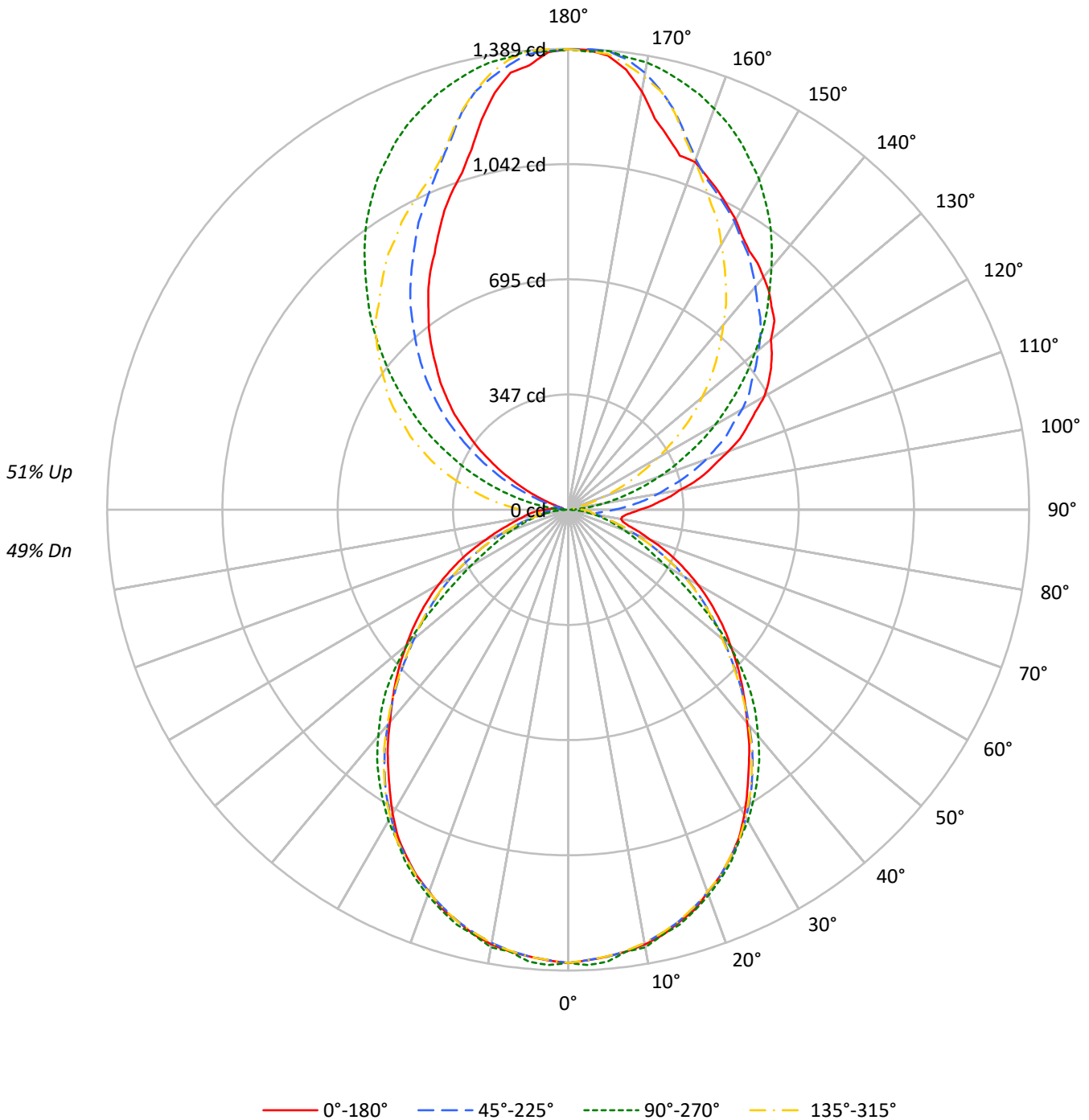
Lumens per Lamp: N/A  
Luminaire Lumens: 6532.0 lumens  
Efficiency: N/A  
Efficacy: 96.6 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 67.6  
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: P392658  
CATALOG NUMBER: MWL-4-34-33-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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55	49
1	98	93	90	86	90	86	83	80	73	70	68	60	59	57	49	48	47	42
2	89	82	76	71	82	76	70	66	64	60	57	53	51	48	43	42	40	35
3	82	72	65	59	75	67	61	56	57	52	48	47	44	41	39	36	34	30
4	75	64	56	50	69	59	53	47	51	45	41	42	39	35	35	32	30	26
5	69	57	49	43	63	53	46	41	45	40	36	38	34	31	32	29	26	23
6	63	51	43	38	58	48	41	36	41	36	31	35	30	27	29	26	23	20
7	59	47	39	33	54	43	36	31	37	32	28	32	27	24	26	23	21	18
8	54	42	35	29	50	39	33	28	34	29	25	29	25	22	24	21	19	16
9	51	39	31	26	47	36	29	25	31	26	22	27	23	20	22	19	17	15
10	47	35	28	24	44	33	27	22	29	24	20	25	21	18	21	18	15	13

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

	0°	90°	180°	270°
0°	8823	8823	8823	8823
5°	8684	8150	8684	8150
10°	8569	7466	8569	7466
15°	8375	6829	8355	6829
20°	8131	6231	8112	6231
25°	7856	5664	7836	5664
30°	7470	5120	7442	5120
35°	6970	4608	6948	4608
40°	6506	4080	6475	4080
45°	6107	3551	6083	3551
50°	5715	2905	5689	2905
55°	5345	2173	5326	2173
60°	4938	1607	4927	1607
65°	4462	1194	4462	1194
70°	3848	895	3863	895
75°	3380	658	3434	658
80°	3781	423	3348	423
85°	5896	194	3745	194



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	128.6	2.0
10°-20°	362.9	5.6
20°-30°	533.2	8.2
30°-40°	605.8	9.3
40°-50°	570.8	8.7
50°-60°	455.6	7.0
60°-70°	300.7	4.6
70°-80°	157.5	2.4
80°-90°	92.4	1.4
90°-100°	120.1	1.8
100°-110°	217.2	3.3
110°-120°	369.0	5.6
120°-130°	501.2	7.7
130°-140°	571.6	8.8
140°-150°	570.0	8.7
150°-160°	496.3	7.6
160°-170°	349.1	5.3
170°-180°	130.0	2.0
0°-30°	1024.7	15.7
0°-40°	1630.5	25.0
0°-60°	2656.9	40.7
0°-90°	3207.5	49.1
90°-120°	706.3	10.8
90°-150°	2349.1	36.0
90°-180°	3324.0	50.9
0°-180°	6532.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1366	1366	1366	1366	1366	
5°	1352	1367	1352	1367	1352	128
15°	1288	1295	1284	1295	1288	363
25°	1156	1166	1153	1166	1156	531
35°	948	994	946	994	948	594
45°	738	778	735	778	738	570
55°	545	468	543	468	545	488
65°	357	246	357	246	357	353
75°	188	125	191	125	188	210
85°	174	33	111	33	174	140
90°	216	2	69	2	216	120
95°	275	40	43	40	275	240
105°	431	194	18	194	431	453
115°	596	396	138	396	596	592
125°	746	621	340	621	746	666
135°	866	847	545	847	866	669
145°	952	1059	733	1059	952	600
155°	1063	1226	922	1226	1063	490
165°	1162	1334	1124	1334	1162	330
175°	1374	1388	1344	1388	1374	128
180°	1387	1387	1387	1387	1387	



TEST NUMBER: P392658

CATALOG NUMBER: MWL-4-34-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1
2.5°	1359.4	1358.4	1358.5	1366.2	1373.9	1365.2	1358.5	1358.4	1360.3	1358.4	1358.5
5°	1351.7	1353.6	1352.7	1361.4	1367.1	1361.4	1351.7	1353.6	1351.7	1353.6	1351.7
7.5°	1343.0	1346.9	1341.1	1349.9	1343.1	1348.8	1340.2	1345.9	1343.0	1345.9	1340.2
10°	1330.6	1330.6	1326.7	1335.4	1339.2	1334.4	1325.8	1328.6	1330.6	1328.6	1325.8
12.5°	1313.4	1307.5	1306.6	1312.3	1312.3	1312.3	1306.6	1305.6	1311.4	1305.6	1306.6
15°	1287.5	1290.2	1285.4	1291.2	1295.0	1290.2	1284.5	1288.3	1284.5	1288.3	1284.5
17.5°	1264.4	1263.4	1257.6	1261.4	1267.2	1261.4	1256.6	1262.4	1261.4	1262.4	1256.6
20°	1227.9	1229.9	1226.9	1236.5	1236.5	1235.5	1225.9	1227.9	1225.0	1227.9	1225.9
22.5°	1195.3	1197.2	1196.2	1196.2	1202.9	1195.2	1195.2	1195.2	1193.3	1195.2	1195.2
25°	1156.0	1156.0	1156.8	1167.4	1165.5	1166.4	1154.9	1153.0	1153.0	1153.0	1154.9
27.5°	1114.7	1112.8	1120.3	1127.1	1119.4	1126.1	1118.4	1109.8	1111.7	1109.8	1118.4
30°	1061.9	1063.8	1071.5	1088.7	1082.9	1086.7	1068.5	1060.8	1057.9	1060.8	1068.5
32.5°	1004.3	1012.0	1022.5	1045.5	1038.7	1043.5	1019.5	1008.0	1000.3	1008.0	1019.5
35°	948.5	951.4	967.7	995.5	993.6	992.7	964.8	948.5	945.6	948.5	964.8
37.5°	895.7	890.9	911.1	940.8	945.6	938.0	908.2	888.0	892.8	888.0	908.2
40°	839.1	840.0	848.7	884.2	890.0	882.3	844.8	836.2	835.2	836.2	844.8
42.5°	788.2	778.6	786.3	822.8	836.2	820.8	783.4	774.8	784.4	774.8	783.4
45°	738.3	725.8	726.8	758.4	777.6	756.5	722.8	722.9	735.4	722.9	722.8
47.5°	689.3	674.0	666.3	691.2	707.6	690.3	662.4	671.1	686.4	671.1	662.4
50°	639.4	625.0	609.7	625.0	633.7	623.1	605.7	621.1	636.5	621.1	605.7
52.5°	593.3	577.0	557.8	559.7	550.1	557.8	554.8	573.1	590.5	573.1	554.8
55°	545.3	530.9	506.9	491.6	468.5	489.6	504.0	528.0	543.4	528.0	504.0
57.5°	499.3	488.7	458.0	427.3	396.5	425.3	455.0	485.7	497.3	485.7	455.0
60°	451.3	442.6	407.1	363.0	339.9	361.9	405.1	440.6	450.3	440.6	405.1
62.5°	403.3	396.5	355.3	304.4	286.1	303.3	353.3	394.5	402.3	394.5	353.3
65°	357.2	346.6	304.4	256.4	245.7	255.3	303.3	345.6	357.2	345.6	303.3
67.5°	310.2	297.7	257.4	213.1	211.2	213.1	256.3	296.6	310.2	296.6	256.3
70°	262.1	249.6	214.1	176.6	177.6	176.6	214.1	250.6	263.1	250.6	214.1
72.5°	225.6	204.5	175.7	145.9	149.7	144.9	175.7	205.5	227.6	205.5	175.7
75°	188.1	165.1	138.2	116.2	124.8	116.2	139.2	166.2	191.1	166.2	139.2
77.5°	169.1	139.3	107.5	93.1	98.9	93.1	108.5	136.4	165.2	136.4	108.5
80°	161.7	128.1	86.5	70.1	75.8	70.1	84.5	112.4	143.2	112.4	84.5
82.5°	164.1	132.3	83.8	49.9	52.8	49.9	72.1	97.0	127.0	97.0	72.1
85°	174.3	147.3	94.8	41.4	32.6	39.4	66.4	87.5	110.7	87.5	66.4
87.5°	192.4	171.1	112.6	47.4	8.6	33.7	56.8	77.1	91.5	77.1	56.8
90°	216.1	198.6	140.2	60.3	1.9	23.0	43.3	60.6	69.2	60.6	43.3
92.5°	247.7	232.1	167.8	82.0	16.6	14.4	33.7	51.0	55.8	51.0	33.7
95°	275.3	269.5	203.2	105.7	40.1	7.8	27.0	42.2	43.3	42.2	27.0
97.5°	311.7	305.8	238.5	138.0	70.5	12.7	22.2	36.6	37.5	36.6	22.2
100°	342.2	339.2	274.9	180.2	107.7	33.3	15.5	31.9	33.8	31.9	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°	430.6	414.0	356.3	262.3	193.8	99.8	40.1	20.4	18.3	20.4	40.1
107.5°	466.9	454.2	399.4	305.5	242.8	143.9	73.4	39.1	28.3	39.1	73.4
110°	513.0	500.3	441.6	349.5	293.7	191.9	111.5	69.5	54.8	69.5	111.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	560.0	550.2	480.7	394.5	346.6	242.8	158.6	108.7	94.9	108.7	158.6
115°	596.2	590.4	525.8	436.7	396.5	300.6	210.5	154.6	138.0	154.6	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	605.0	522.8	511.1	407.3	311.3	254.5	236.0	254.5	311.3
122.5°	715.6	710.7	645.2	564.0	564.0	463.1	363.2	305.5	285.9	305.5	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	712.8	650.1	678.5	567.8	475.8	411.1	388.7	411.1	475.8
130°	796.9	806.7	748.9	691.2	733.3	625.6	525.8	461.2	446.5	461.2	525.8
132.5°	842.9	837.1	786.2	734.3	792.0	679.4	578.6	511.1	494.4	511.1	578.6
135°	866.4	868.5	818.4	770.5	846.9	732.3	628.6	561.9	545.3	561.9	628.6
137.5°	894.9	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	664.8	640.3	664.8	727.4
142.5°	937.0	942.8	910.5	896.8	1007.5	886.0	781.3	712.8	689.2	712.8	781.3
145°	951.7	964.3	943.8	950.6	1059.4	944.8	828.2	758.7	733.3	758.7	828.2
147.5°	976.2	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	1002.6	1041.7	1150.4	1054.5	923.3	852.7	830.2	852.7	923.3
152.5°	1035.9	1045.7	1029.0	1099.5	1186.7	1107.3	976.2	897.8	871.3	897.8	976.2
155°	1063.2	1067.2	1055.4	1155.3	1225.8	1159.2	1018.2	947.7	922.3	947.7	1018.2
157.5°	1088.8	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	1179.8	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	1345.3	1353.1	1336.4	1291.4	1233.6	1204.2	1233.6	1291.4
170°	1279.7	1310.0	1336.4	1358.0	1368.8	1359.0	1323.7	1294.4	1275.8	1294.4	1323.7
172.5°	1337.5	1358.0	1367.8	1381.4	1374.6	1370.7	1353.1	1339.4	1328.6	1339.4	1353.1
175°	1373.7	1378.6	1387.4	1382.5	1388.4	1377.6	1378.6	1385.4	1344.3	1385.4	1378.6
177.5°	1386.4	1394.2	1389.3	1380.5	1381.4	1379.5	1383.5	1387.4	1380.5	1387.4	1383.5
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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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1366.1	1366.1	1366.1	1366.1	1366.1	1366.1
2.5°	1365.2	1373.9	1366.2	1358.5	1358.4	1359.4
5°	1361.4	1367.1	1361.4	1352.7	1353.6	1351.7
7.5°	1348.8	1343.1	1349.9	1341.1	1346.9	1343.0
10°	1334.4	1339.2	1335.4	1326.7	1330.6	1330.6
12.5°	1312.3	1312.3	1312.3	1306.6	1307.5	1313.4
15°	1290.2	1295.0	1291.2	1285.4	1290.2	1287.5
17.5°	1261.4	1267.2	1261.4	1257.6	1263.4	1264.4
20°	1235.5	1236.5	1236.5	1226.9	1229.9	1227.9
22.5°	1195.2	1202.9	1196.2	1196.2	1197.2	1195.3
25°	1166.4	1165.5	1167.4	1156.8	1156.0	1156.0
27.5°	1126.1	1119.4	1127.1	1120.3	1112.8	1114.7
30°	1086.7	1082.9	1088.7	1071.5	1063.8	1061.9
32.5°	1043.5	1038.7	1045.5	1022.5	1012.0	1004.3
35°	992.7	993.6	995.5	967.7	951.4	948.5
37.5°	938.0	945.6	940.8	911.1	890.9	895.7
40°	882.3	890.0	884.2	848.7	840.0	839.1
42.5°	820.8	836.2	822.8	786.3	778.6	788.2
45°	756.5	777.6	758.4	726.8	725.8	738.3
47.5°	690.3	707.6	691.2	666.3	674.0	689.3
50°	623.1	633.7	625.0	609.7	625.0	639.4
52.5°	557.8	550.1	559.7	557.8	577.0	593.3
55°	489.6	468.5	491.6	506.9	530.9	545.3
57.5°	425.3	396.5	427.3	458.0	488.7	499.3
60°	361.9	339.9	363.0	407.1	442.6	451.3
62.5°	303.3	286.1	304.4	355.3	396.5	403.3
65°	255.3	245.7	256.4	304.4	346.6	357.2
67.5°	213.1	211.2	213.1	257.4	297.7	310.2
70°	176.6	177.6	176.6	214.1	249.6	262.1
72.5°	144.9	149.7	145.9	175.7	204.5	225.6
75°	116.2	124.8	116.2	138.2	165.1	188.1
77.5°	93.1	98.9	93.1	107.5	139.3	169.1
80°	70.1	75.8	70.1	86.5	128.1	161.7
82.5°	49.9	52.8	49.9	83.8	132.3	164.1
85°	39.4	32.6	41.4	94.8	147.3	174.3
87.5°	33.7	8.6	47.4	112.6	171.1	192.4
90°	23.0	1.9	60.3	140.2	198.6	216.1
92.5°	14.4	16.6	82.0	167.8	232.1	247.7
95°	7.8	40.1	105.7	203.2	269.5	275.3
97.5°	12.7	70.5	138.0	238.5	305.8	311.7
100°	33.3	107.7	180.2	274.9	339.2	342.2
102.5°	61.6	147.8	220.3	309.4	375.7	390.3
105°	99.8	193.8	262.3	356.3	414.0	430.6
107.5°	143.9	242.8	305.5	399.4	454.2	466.9
110°	191.9	293.7	349.5	441.6	500.3	513.0





TEST NUMBER: P392658

CATALOG NUMBER: MWL-4-34-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	242.8	346.6	394.5	480.7	550.2	560.0
115°	300.6	396.5	436.7	525.8	590.4	596.2
117.5°	352.5	455.3	479.7	559.1	633.5	634.4
120°	407.3	511.1	522.8	605.0	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°	567.8	678.5	650.1	712.8	776.4	773.4
130°	625.6	733.3	691.2	748.9	806.7	796.9
132.5°	679.4	792.0	734.3	786.2	837.1	842.9
135°	732.3	846.9	770.5	818.4	868.5	866.4
137.5°	783.2	897.8	814.6	844.0	889.0	894.9
140°	833.1	952.6	853.8	877.2	914.4	915.4
142.5°	886.0	1007.5	896.8	910.5	942.8	937.0
145°	944.8	1059.4	950.6	943.8	964.3	951.7
147.5°	996.7	1104.4	988.8	968.3	992.8	976.2
150°	1054.5	1150.4	1041.7	1002.6	1017.2	1009.4
152.5°	1107.3	1186.7	1099.5	1029.0	1045.7	1035.9
155°	1159.2	1225.8	1155.3	1055.4	1067.2	1063.2
157.5°	1204.2	1259.0	1197.4	1082.8	1096.5	1088.8
160°	1243.4	1286.5	1246.4	1124.0	1116.1	1116.1
162.5°	1277.7	1312.9	1280.6	1179.8	1137.7	1119.1
165°	1308.0	1333.5	1311.0	1242.4	1178.8	1162.2
167.5°	1336.4	1353.1	1345.3	1293.3	1242.4	1207.2
170°	1359.0	1368.8	1358.0	1336.4	1310.0	1279.7
172.5°	1370.7	1374.6	1381.4	1367.8	1358.0	1337.5
175°	1377.6	1388.4	1382.5	1387.4	1378.6	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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