

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: P392673

Luminaire Tested: **MWL-4-42-33-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392673  
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-4-42-33-UNV-L830-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

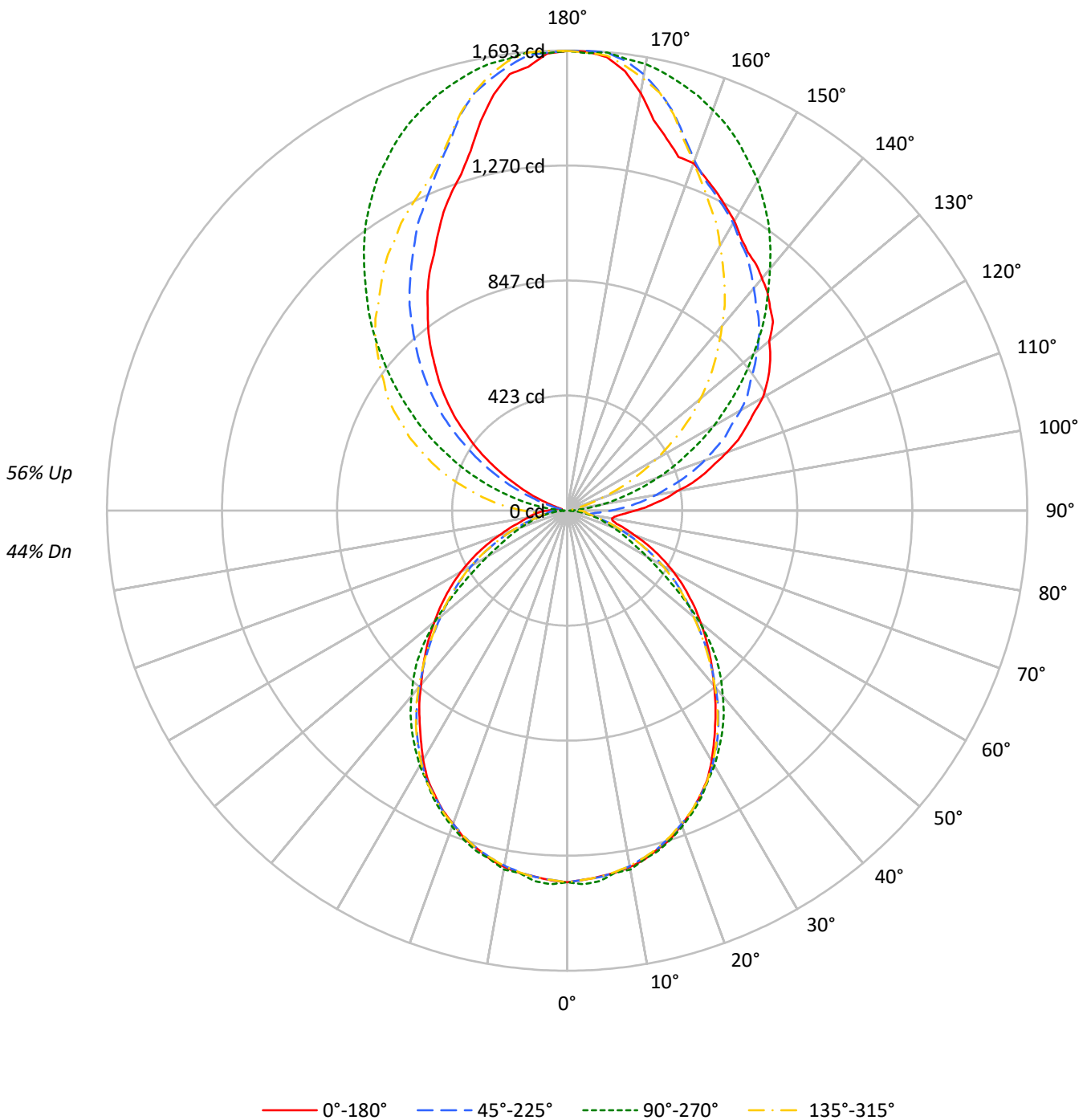
Lumens per Lamp: N/A  
Luminaire Lumens: 7262.0 lumens  
Efficiency: N/A  
Efficacy: 94.2 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 77.1  
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: P392673  
CATALOG NUMBER: MWL-4-42-33-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	50	30	10	0	
RCR																						
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44				
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43	37				
2	88	81	75	70	80	74	69	65	62	58	55	50	48	46	40	38	37	32				
3	81	71	64	58	73	66	59	54	55	50	46	45	42	39	36	33	31	27				
4	74	63	56	50	67	58	52	46	49	44	40	40	36	34	32	29	27	24				
5	68	56	49	43	62	52	45	40	44	39	34	36	32	29	29	26	24	21				
6	63	51	43	37	57	47	40	35	40	34	30	33	29	26	26	23	21	18				
7	58	46	38	33	53	42	35	31	36	31	27	30	26	23	24	21	19	16				
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	22	19	17	15				
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	21	18	15	13				
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	19	16	14	12				

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

	0°	90°	180°	270°
0°	8832	8832	8832	8832
5°	8689	8159	8689	8159
10°	8576	7474	8576	7474
15°	8386	6834	8363	6834
20°	8143	6235	8120	6235
25°	7866	5668	7842	5668
30°	7480	5124	7447	5124
35°	6981	4611	6954	4611
40°	6517	4085	6480	4085
45°	6118	3556	6087	3556
50°	5726	2909	5694	2909
55°	5356	2175	5332	2175
60°	4947	1610	4934	1610
65°	4468	1196	4468	1196
70°	3854	897	3871	897
75°	3389	659	3453	659
80°	3919	424	3385	424
85°	6495	196	3866	196



TEST NUMBER: P392673

CATALOG NUMBER: MWL-4-42-33-UNV-L830-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	128.8	1.8
10°-20°	363.2	5.0
20°-30°	533.7	7.3
30°-40°	606.5	8.4
40°-50°	571.6	7.9
50°-60°	456.2	6.3
60°-70°	301.3	4.1
70°-80°	158.1	2.2
80°-90°	98.2	1.4
90°-100°	140.8	1.9
100°-110°	263.7	3.6
110°-120°	449.5	6.2
120°-130°	610.6	8.4
130°-140°	696.4	9.6
140°-150°	694.6	9.6
150°-160°	604.8	8.3
160°-170°	425.5	5.9
170°-180°	158.5	2.2
0°-30°	1025.7	14.1
0°-40°	1632.2	22.5
0°-60°	2660.0	36.6
0°-90°	3217.6	44.3
90°-120°	854.0	11.8
90°-150°	2855.6	39.3
90°-180°	4044.0	55.7
0°-180°	7262.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1368	1368	1368	1368	1368	
5°	1352	1369	1352	1369	1352	129
15°	1289	1296	1286	1296	1289	364
25°	1158	1166	1154	1166	1158	532
35°	950	994	946	994	950	595
45°	740	779	736	779	740	571
55°	546	469	544	469	546	489
65°	358	246	358	246	358	354
75°	189	125	192	125	189	211
85°	192	33	114	33	192	152
90°	250	2	71	2	250	138
95°	327	49	44	49	327	286
105°	522	236	20	236	522	550
115°	726	483	168	483	726	721
125°	909	756	414	756	909	812
135°	1056	1032	664	1032	1056	815
145°	1160	1291	893	1291	1160	731
155°	1296	1494	1124	1494	1296	598
165°	1416	1625	1370	1625	1416	402
175°	1674	1692	1639	1692	1674	156
180°	1691	1691	1691	1691	1691	



TEST NUMBER: P392673

CATALOG NUMBER: MWL-4-42-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5
2.5°	1360.1	1359.7	1360.0	1368.0	1375.7	1366.8	1360.0	1359.7	1361.3	1359.7	1360.0
5°	1352.5	1354.9	1354.3	1362.9	1368.7	1362.9	1353.1	1354.9	1352.5	1354.9	1353.1
7.5°	1344.0	1348.3	1342.6	1351.4	1344.7	1350.2	1341.4	1347.2	1344.0	1347.2	1341.4
10°	1331.8	1332.0	1328.2	1336.8	1340.6	1335.7	1327.0	1329.6	1331.8	1329.6	1327.0
12.5°	1314.9	1309.0	1307.8	1313.6	1313.3	1313.6	1307.8	1306.6	1312.6	1306.6	1307.8
15°	1289.3	1291.7	1286.7	1292.5	1296.0	1291.2	1285.5	1289.3	1285.7	1289.3	1285.5
17.5°	1266.3	1264.8	1258.9	1262.4	1268.2	1262.4	1257.6	1263.7	1262.7	1263.7	1257.6
20°	1229.8	1231.4	1228.2	1237.5	1237.3	1236.3	1226.9	1229.1	1226.2	1229.1	1226.9
22.5°	1196.9	1198.8	1197.4	1197.1	1203.7	1196.0	1196.2	1196.5	1194.6	1196.5	1196.2
25°	1157.5	1157.5	1158.3	1168.4	1166.2	1167.2	1155.9	1154.0	1154.0	1154.0	1155.9
27.5°	1116.2	1114.3	1121.8	1128.3	1120.2	1127.1	1119.4	1110.8	1112.7	1110.8	1119.4
30°	1063.4	1065.4	1073.0	1090.1	1083.7	1087.7	1069.5	1061.8	1058.7	1061.8	1069.5
32.5°	1005.8	1013.5	1024.1	1046.9	1039.7	1044.5	1020.5	1008.8	1001.1	1008.8	1020.5
35°	950.0	952.9	969.2	997.0	994.4	993.5	965.6	949.3	946.4	949.3	965.6
37.5°	897.2	892.4	912.5	942.3	946.6	938.8	909.0	888.8	893.6	888.8	909.0
40°	840.6	841.5	850.2	885.5	891.0	883.1	845.4	836.7	835.8	836.7	845.4
42.5°	789.7	780.1	787.6	824.0	837.2	821.6	783.9	775.3	784.9	775.3	783.9
45°	739.6	727.1	728.1	759.7	778.6	757.3	723.3	723.5	735.9	723.5	723.3
47.5°	690.6	675.3	667.6	692.3	708.6	691.1	662.8	671.6	687.0	671.6	662.8
50°	640.7	626.3	611.0	626.0	634.5	623.6	606.2	621.5	637.1	621.5	606.2
52.5°	594.6	578.3	558.8	560.8	551.0	558.4	555.3	573.5	591.0	573.5	555.3
55°	546.4	532.0	508.0	492.4	469.1	490.0	504.4	528.4	544.0	528.4	504.4
57.5°	500.3	489.7	459.0	428.1	397.1	425.7	455.5	486.2	497.9	486.2	455.5
60°	452.1	443.5	407.9	363.5	340.5	362.4	405.5	441.1	450.9	441.1	405.5
62.5°	404.1	397.4	356.1	305.0	286.5	303.8	353.7	395.0	402.9	395.0	353.7
65°	357.7	347.2	305.0	257.0	246.2	255.8	303.8	346.0	357.7	346.0	303.8
67.5°	310.7	298.2	257.9	213.6	211.7	213.6	256.8	297.1	310.7	297.1	256.8
70°	262.5	250.0	214.5	177.1	178.1	177.1	214.5	251.2	263.7	251.2	214.5
72.5°	226.0	204.9	176.1	146.4	149.9	145.1	176.1	206.1	228.4	206.1	176.1
75°	188.6	165.6	138.4	116.3	125.0	116.3	139.7	166.7	192.2	166.7	139.7
77.5°	171.2	140.6	107.7	93.3	99.1	93.3	108.9	137.0	166.5	137.0	108.9
80°	167.6	132.4	87.3	70.3	76.0	70.3	84.9	113.3	144.8	113.3	84.9
82.5°	175.1	141.3	87.3	50.1	53.0	50.1	73.0	98.4	129.8	98.4	73.0
85°	192.0	162.7	103.0	42.2	32.8	39.8	68.3	89.9	114.3	89.9	68.3
87.5°	217.7	194.5	127.0	51.4	8.6	34.7	58.9	79.9	94.7	79.9	58.9
90°	249.9	230.2	162.3	68.8	2.1	23.5	44.2	61.9	70.7	61.9	44.2
92.5°	290.8	272.7	197.8	97.2	20.1	14.9	34.3	51.8	56.8	51.8	34.3
95°	326.8	319.6	242.5	128.0	48.7	8.6	27.5	42.7	43.9	42.7	27.5
97.5°	372.6	365.7	287.3	168.1	85.7	15.3	23.5	37.4	38.4	37.4	23.5
100°	411.5	408.4	333.4	219.4	131.1	40.3	17.0	33.5	35.4	33.5	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°	522.5	502.9	434.1	319.7	236.1	121.5	48.5	22.9	19.9	22.9	48.5
107.5°	568.1	553.3	486.7	372.2	295.8	175.3	89.1	47.0	33.2	47.0	89.1
110°	624.9	609.6	537.9	425.7	357.9	233.5	135.6	84.3	66.1	84.3	135.6



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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°	682.2	670.5	585.7	480.6	422.3	295.6	192.9	132.1	115.1	132.1	192.9
115°	726.3	719.4	640.6	532.0	483.0	366.0	256.2	188.1	167.6	188.1	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	737.3	637.1	622.7	496.2	379.1	309.7	287.0	309.7	379.1
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	792.3	826.8	692.0	579.5	500.7	473.2	500.7	579.5
130°	971.1	983.0	912.5	842.4	893.7	762.4	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	1291.2	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	955.5	983.0	1066.6
150°	1230.2	1239.7	1221.8	1269.5	1402.3	1285.1	1125.1	1039.2	1011.7	1039.2	1125.1
152.5°	1262.3	1274.3	1254.0	1340.0	1446.4	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	1625.2	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	1596.8	1628.9	1655.1	1668.3	1656.3	1613.3	1577.7	1555.1	1577.7	1613.3
172.5°	1630.3	1655.1	1667.1	1683.8	1675.5	1670.7	1649.2	1632.4	1619.6	1632.4	1649.2
175°	1674.5	1680.2	1690.9	1685.0	1692.2	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-4-42-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1367.5	1367.5	1367.5	1367.5	1367.5	1367.5
2.5°	1366.8	1375.7	1368.0	1360.0	1359.7	1360.1
5°	1362.9	1368.7	1362.9	1354.3	1354.9	1352.5
7.5°	1350.2	1344.7	1351.4	1342.6	1348.3	1344.0
10°	1335.7	1340.6	1336.8	1328.2	1332.0	1331.8
12.5°	1313.6	1313.3	1313.6	1307.8	1309.0	1314.9
15°	1291.2	1296.0	1292.5	1286.7	1291.7	1289.3
17.5°	1262.4	1268.2	1262.4	1258.9	1264.8	1266.3
20°	1236.3	1237.3	1237.5	1228.2	1231.4	1229.8
22.5°	1196.0	1203.7	1197.1	1197.4	1198.8	1196.9
25°	1167.2	1166.2	1168.4	1158.3	1157.5	1157.5
27.5°	1127.1	1120.2	1128.3	1121.8	1114.3	1116.2
30°	1087.7	1083.7	1090.1	1073.0	1065.4	1063.4
32.5°	1044.5	1039.7	1046.9	1024.1	1013.5	1005.8
35°	993.5	994.4	997.0	969.2	952.9	950.0
37.5°	938.8	946.6	942.3	912.5	892.4	897.2
40°	883.1	891.0	885.5	850.2	841.5	840.6
42.5°	821.6	837.2	824.0	787.6	780.1	789.7
45°	757.3	778.6	759.7	728.1	727.1	739.6
47.5°	691.1	708.6	692.3	667.6	675.3	690.6
50°	623.6	634.5	626.0	611.0	626.3	640.7
52.5°	558.4	551.0	560.8	558.8	578.3	594.6
55°	490.0	469.1	492.4	508.0	532.0	546.4
57.5°	425.7	397.1	428.1	459.0	489.7	500.3
60°	362.4	340.5	363.5	407.9	443.5	452.1
62.5°	303.8	286.5	305.0	356.1	397.4	404.1
65°	255.8	246.2	257.0	305.0	347.2	357.7
67.5°	213.6	211.7	213.6	257.9	298.2	310.7
70°	177.1	178.1	177.1	214.5	250.0	262.5
72.5°	145.1	149.9	146.4	176.1	204.9	226.0
75°	116.3	125.0	116.3	138.4	165.6	188.6
77.5°	93.3	99.1	93.3	107.7	140.6	171.2
80°	70.3	76.0	70.3	87.3	132.4	167.6
82.5°	50.1	53.0	50.1	87.3	141.3	175.1
85°	39.8	32.8	42.2	103.0	162.7	192.0
87.5°	34.7	8.6	51.4	127.0	194.5	217.7
90°	23.5	2.1	68.8	162.3	230.2	249.9
92.5°	14.9	20.1	97.2	197.8	272.7	290.8
95°	8.6	48.7	128.0	242.5	319.6	326.8
97.5°	15.3	85.7	168.1	287.3	365.7	372.6
100°	40.3	131.1	219.4	333.4	408.4	411.5
102.5°	75.0	180.1	268.4	376.6	454.7	471.9
105°	121.5	236.1	319.7	434.1	502.9	522.5
107.5°	175.3	295.8	372.2	486.7	553.3	568.1
110°	233.5	357.9	425.7	537.9	609.6	624.9





TEST NUMBER: P392673

CATALOG NUMBER: MWL-4-42-33-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	295.6	422.3	480.6	585.7	670.5	682.2
115°	366.0	483.0	532.0	640.6	719.4	726.3
117.5°	429.3	554.6	584.5	681.2	771.7	772.9
120°	496.2	622.7	637.1	737.3	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°	692.0	826.8	792.3	868.4	946.0	942.4
130°	762.4	893.7	842.4	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	1291.2	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	1402.3	1269.5	1221.8	1239.7	1230.2
152.5°	1349.5	1446.4	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	1625.2	1597.8	1514.3	1436.6	1416.4
167.5°	1628.9	1649.2	1639.6	1576.3	1514.3	1471.3
170°	1656.3	1668.3	1655.1	1628.9	1596.8	1559.9
172.5°	1670.7	1675.5	1683.8	1667.1	1655.1	1630.3
175°	1679.0	1692.2	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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