

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: P392659

Luminaire Tested: **MWL-4-34-33-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392659
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-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

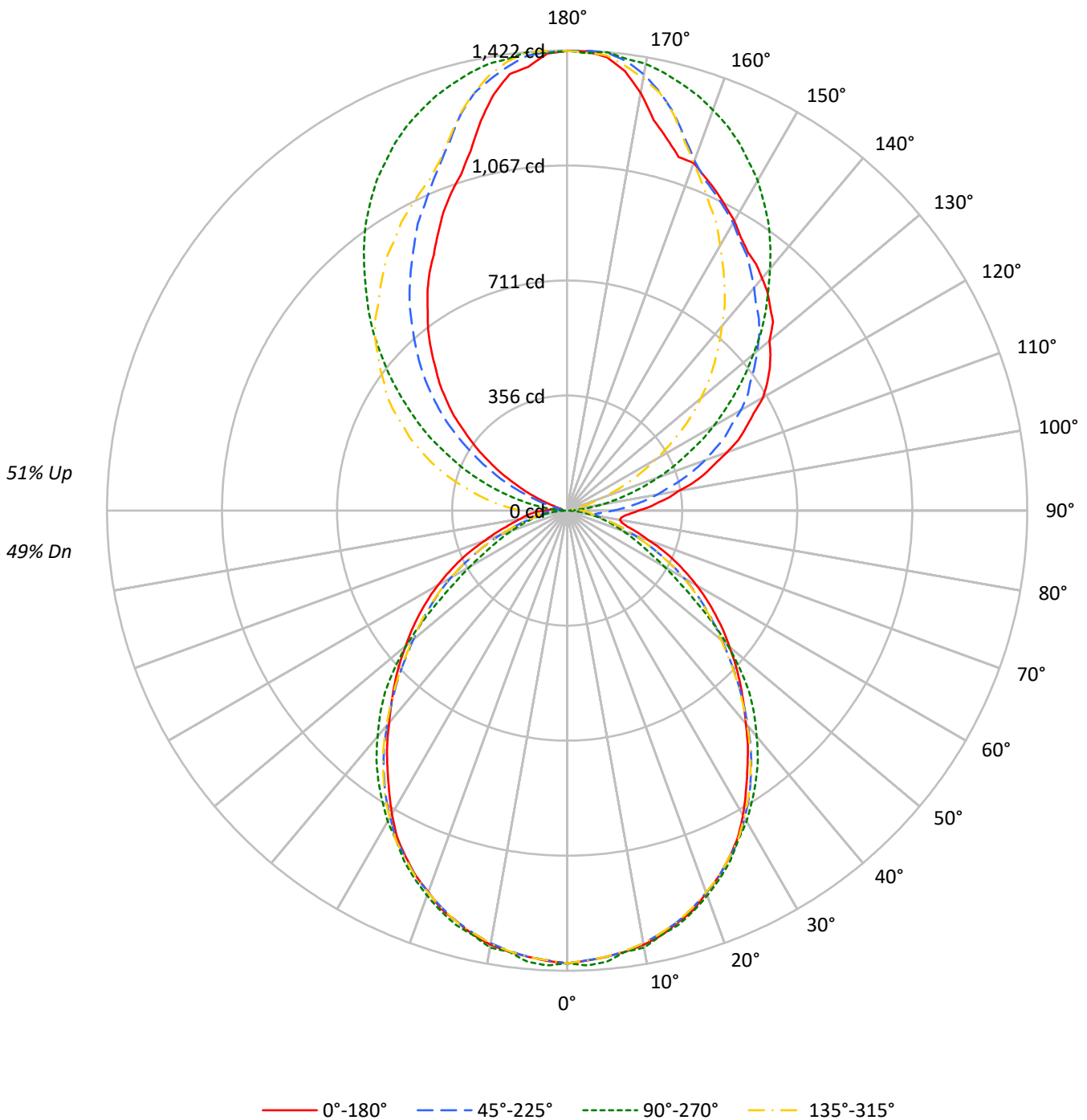
Lumens per Lamp: N/A
Luminaire Lumens: 6688.0 lumens
Efficiency: N/A
Efficacy: 98.9 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

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



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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	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°	9033	9033	9033	9033
5°	8891	8345	8891	8345
10°	8773	7644	8773	7644
15°	8574	6992	8555	6992
20°	8326	6379	8305	6379
25°	8044	5799	8023	5799
30°	7648	5242	7620	5242
35°	7137	4718	7115	4718
40°	6661	4177	6630	4177
45°	6253	3636	6229	3636
50°	5852	2974	5825	2974
55°	5473	2224	5454	2224
60°	5055	1645	5046	1645
65°	4568	1223	4568	1223
70°	3939	916	3955	916
75°	3461	674	3516	674
80°	3872	433	3428	433
85°	6038	199	3833	199



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.7	2.0
10°-20°	371.6	5.6
20°-30°	545.9	8.2
30°-40°	620.3	9.3
40°-50°	584.5	8.7
50°-60°	466.4	7.0
60°-70°	307.9	4.6
70°-80°	161.3	2.4
80°-90°	94.6	1.4
90°-100°	122.9	1.8
100°-110°	222.4	3.3
110°-120°	377.8	5.6
120°-130°	513.2	7.7
130°-140°	585.2	8.8
140°-150°	583.6	8.7
150°-160°	508.1	7.6
160°-170°	357.4	5.3
170°-180°	133.1	2.0
0°-30°	1049.2	15.7
0°-40°	1669.5	25.0
0°-60°	2720.4	40.7
0°-90°	3284.2	49.1
90°-120°	723.2	10.8
90°-150°	2405.2	36.0
90°-180°	3404.0	50.9
0°-180°	6688.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1399	1399	1399	1399	1399	
5°	1384	1400	1384	1400	1384	131
15°	1318	1326	1315	1326	1318	372
25°	1184	1193	1180	1193	1184	544
35°	971	1017	968	1017	971	608
45°	756	796	753	796	756	584
55°	558	480	556	480	558	500
65°	366	252	366	252	366	361
75°	193	128	196	128	193	215
85°	178	33	113	33	178	144
90°	221	2	71	2	221	122
95°	282	41	44	41	282	246
105°	441	198	19	198	441	464
115°	610	406	141	406	610	606
125°	764	636	348	636	764	682
135°	887	867	558	867	887	685
145°	974	1085	751	1085	974	614
155°	1089	1255	944	1255	1089	502
165°	1190	1365	1151	1365	1190	338
175°	1406	1422	1376	1422	1406	131
180°	1420	1420	1420	1420	1420	



TEST NUMBER: P392659

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7
2.5°	1391.8	1390.8	1390.9	1398.8	1406.7	1397.8	1390.9	1390.8	1392.8	1390.8	1390.9
5°	1384.0	1385.9	1385.0	1393.9	1399.8	1393.9	1384.0	1385.9	1384.0	1385.9	1384.0
7.5°	1375.1	1379.0	1373.2	1382.1	1375.2	1381.0	1372.2	1378.1	1375.1	1378.1	1372.2
10°	1362.3	1362.3	1358.4	1367.3	1371.2	1366.3	1357.4	1360.4	1362.3	1360.4	1357.4
12.5°	1344.7	1338.8	1337.8	1343.7	1343.7	1343.7	1337.8	1336.8	1342.7	1336.8	1337.8
15°	1318.2	1321.1	1316.1	1322.0	1326.0	1321.1	1315.2	1319.1	1315.2	1319.1	1315.2
17.5°	1294.6	1293.5	1287.6	1291.6	1297.5	1291.6	1286.7	1292.6	1291.6	1292.6	1286.7
20°	1257.3	1259.2	1256.2	1266.0	1266.0	1265.0	1255.2	1257.2	1254.2	1257.2	1255.2
22.5°	1223.9	1225.8	1224.7	1224.7	1231.6	1223.8	1223.8	1223.8	1221.8	1223.8	1223.8
25°	1183.6	1183.6	1184.4	1195.3	1193.3	1194.3	1182.5	1180.5	1180.5	1180.5	1182.5
27.5°	1141.3	1139.3	1147.1	1154.0	1146.1	1153.0	1145.1	1136.3	1138.2	1136.3	1145.1
30°	1087.2	1089.2	1097.1	1114.7	1108.8	1112.7	1094.0	1086.2	1083.2	1086.2	1094.0
32.5°	1028.3	1036.1	1046.9	1070.4	1063.6	1068.5	1043.9	1032.1	1024.2	1032.1	1043.9
35°	971.2	974.1	990.8	1019.3	1017.4	1016.4	987.9	971.2	968.2	971.2	987.9
37.5°	917.1	912.2	932.8	963.3	968.2	960.4	929.9	909.2	914.2	909.2	929.9
40°	859.1	860.1	868.9	905.3	911.2	903.3	865.0	856.2	855.2	856.2	865.0
42.5°	807.0	797.2	805.1	842.4	856.2	840.4	802.1	793.3	803.1	793.3	802.1
45°	755.9	743.1	744.1	776.6	796.2	774.6	740.1	740.2	753.0	740.2	740.1
47.5°	705.8	690.1	682.2	707.8	724.5	706.8	678.2	687.1	702.8	687.1	678.2
50°	654.7	639.9	624.2	639.9	648.8	638.0	620.2	635.9	651.7	635.9	620.2
52.5°	607.5	590.8	571.1	573.1	563.3	571.1	568.1	586.8	604.6	586.8	568.1
55°	558.4	543.6	519.0	503.3	479.7	501.3	516.0	540.6	556.4	540.6	516.0
57.5°	511.2	500.4	468.9	437.5	406.0	435.4	465.9	497.3	509.2	497.3	465.9
60°	462.0	453.2	416.8	371.6	348.0	370.5	414.8	451.1	461.1	451.1	414.8
62.5°	412.9	406.0	363.8	311.7	292.9	310.6	361.7	404.0	411.9	404.0	361.7
65°	365.7	354.9	311.7	262.5	251.6	261.4	310.6	353.8	365.7	353.8	310.6
67.5°	317.6	304.8	263.5	218.2	216.2	218.2	262.4	303.7	317.6	303.7	262.4
70°	268.3	255.5	219.2	180.8	181.8	180.8	219.2	256.6	269.4	256.6	219.2
72.5°	231.0	209.3	179.9	149.4	153.3	148.4	179.9	210.4	233.0	210.4	179.9
75°	192.6	169.1	141.5	118.9	127.8	118.9	142.5	170.1	195.7	170.1	142.5
77.5°	173.2	142.6	110.1	95.3	101.2	95.3	111.1	139.7	169.2	139.7	111.1
80°	165.6	131.1	88.6	71.7	77.6	71.7	86.5	115.1	146.6	115.1	86.5
82.5°	168.1	135.4	85.8	51.1	54.1	51.1	73.8	99.4	130.0	99.4	73.8
85°	178.5	150.8	97.1	42.4	33.4	40.3	68.0	89.6	113.3	89.6	68.0
87.5°	197.0	175.1	115.3	48.6	8.8	34.5	58.2	78.9	93.7	78.9	58.2
90°	221.2	203.4	143.6	61.7	2.0	23.6	44.3	62.0	70.9	62.0	44.3
92.5°	253.6	237.7	171.8	83.9	17.0	14.7	34.5	52.2	57.1	52.2	34.5
95°	281.9	275.9	208.1	108.2	41.1	8.0	27.6	43.2	44.3	43.2	27.6
97.5°	319.1	313.1	244.2	141.3	72.1	13.0	22.7	37.4	38.4	37.4	22.7
100°	350.4	347.3	281.5	184.5	110.3	34.1	15.8	32.6	34.6	32.6	15.8
102.5°	399.6	384.7	316.8	225.6	151.4	63.1	18.0	23.8	26.7	23.8	18.0
105°	440.9	423.9	364.8	268.6	198.4	102.2	41.1	20.8	18.8	20.8	41.1
107.5°	478.1	465.1	409.0	312.7	248.6	147.3	75.2	40.0	29.0	40.0	75.2
110°	525.2	512.3	452.1	357.9	300.8	196.5	114.2	71.2	56.1	71.2	114.2



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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°	573.4	563.4	492.2	404.0	354.9	248.6	162.4	111.3	97.2	111.3	162.4
115°	610.5	604.5	538.3	447.1	406.0	307.7	215.5	158.3	141.3	158.3	215.5
117.5°	649.6	648.6	572.4	491.1	466.2	360.9	264.6	206.5	187.4	206.5	264.6
120°	698.7	690.7	619.5	535.3	523.3	417.0	318.7	260.6	241.6	260.6	318.7
122.5°	732.7	727.7	660.6	577.4	577.4	474.1	371.9	312.7	292.7	312.7	371.9
125°	763.9	761.8	690.7	619.5	635.5	527.3	430.0	369.8	347.8	369.8	430.0
127.5°	791.9	794.9	729.8	665.6	694.7	581.4	487.2	421.0	398.0	421.0	487.2
130°	816.0	826.0	766.8	707.8	750.8	640.5	538.3	472.2	457.1	472.2	538.3
132.5°	863.0	857.1	805.0	751.8	811.0	695.7	592.4	523.3	506.2	523.3	592.4
135°	887.1	889.2	838.0	788.9	867.1	749.8	643.6	575.4	558.4	575.4	643.6
137.5°	916.2	910.2	864.1	834.1	919.3	801.9	693.7	630.5	603.5	630.5	693.7
140°	937.3	936.3	898.1	874.2	975.4	853.0	744.8	680.6	655.6	680.6	744.8
142.5°	959.4	965.4	932.2	918.2	1031.5	907.2	799.9	729.8	705.7	729.8	799.9
145°	974.4	987.4	966.3	973.3	1084.7	967.3	848.0	776.9	750.8	776.9	848.0
147.5°	999.5	1016.5	991.4	1012.4	1130.8	1020.5	896.2	826.0	802.9	826.0	896.2
150°	1033.5	1041.5	1026.5	1066.6	1177.9	1079.7	945.3	873.1	850.1	873.1	945.3
152.5°	1060.6	1070.6	1053.5	1125.8	1215.0	1133.7	999.5	919.3	892.1	919.3	999.5
155°	1088.6	1092.6	1080.7	1182.9	1255.1	1186.9	1042.5	970.4	944.3	970.4	1042.5
157.5°	1114.8	1122.7	1108.7	1226.0	1289.1	1233.0	1091.7	1021.5	998.4	1021.5	1091.7
160°	1142.8	1142.8	1150.8	1276.1	1317.2	1273.1	1143.8	1077.6	1045.6	1077.6	1143.8
162.5°	1145.8	1164.9	1207.9	1311.2	1344.3	1308.2	1200.0	1117.7	1089.7	1117.7	1200.0
165°	1189.9	1207.0	1272.1	1342.3	1365.4	1339.2	1269.1	1183.9	1150.8	1183.9	1269.1
167.5°	1236.0	1272.1	1324.2	1377.4	1385.4	1368.3	1322.2	1263.1	1233.0	1263.1	1322.2
170°	1310.2	1341.3	1368.3	1390.5	1401.5	1391.4	1355.4	1325.3	1306.2	1325.3	1355.4
172.5°	1369.4	1390.5	1400.5	1414.4	1407.5	1403.4	1385.4	1371.4	1360.4	1371.4	1385.4
175°	1406.5	1411.5	1420.5	1415.5	1421.5	1410.5	1411.5	1418.5	1376.4	1418.5	1411.5
177.5°	1419.5	1427.5	1422.5	1413.4	1414.4	1412.5	1416.5	1420.5	1413.4	1420.5	1416.5
180°	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1398.7	1398.7	1398.7	1398.7	1398.7	1398.7
2.5°	1397.8	1406.7	1398.8	1390.9	1390.8	1391.8
5°	1393.9	1399.8	1393.9	1385.0	1385.9	1384.0
7.5°	1381.0	1375.2	1382.1	1373.2	1379.0	1375.1
10°	1366.3	1371.2	1367.3	1358.4	1362.3	1362.3
12.5°	1343.7	1343.7	1343.7	1337.8	1338.8	1344.7
15°	1321.1	1326.0	1322.0	1316.1	1321.1	1318.2
17.5°	1291.6	1297.5	1291.6	1287.6	1293.5	1294.6
20°	1265.0	1266.0	1266.0	1256.2	1259.2	1257.3
22.5°	1223.8	1231.6	1224.7	1224.7	1225.8	1223.9
25°	1194.3	1193.3	1195.3	1184.4	1183.6	1183.6
27.5°	1153.0	1146.1	1154.0	1147.1	1139.3	1141.3
30°	1112.7	1108.8	1114.7	1097.1	1089.2	1087.2
32.5°	1068.5	1063.6	1070.4	1046.9	1036.1	1028.3
35°	1016.4	1017.4	1019.3	990.8	974.1	971.2
37.5°	960.4	968.2	963.3	932.8	912.2	917.1
40°	903.3	911.2	905.3	868.9	860.1	859.1
42.5°	840.4	856.2	842.4	805.1	797.2	807.0
45°	774.6	796.2	776.6	744.1	743.1	755.9
47.5°	706.8	724.5	707.8	682.2	690.1	705.8
50°	638.0	648.8	639.9	624.2	639.9	654.7
52.5°	571.1	563.3	573.1	571.1	590.8	607.5
55°	501.3	479.7	503.3	519.0	543.6	558.4
57.5°	435.4	406.0	437.5	468.9	500.4	511.2
60°	370.5	348.0	371.6	416.8	453.2	462.0
62.5°	310.6	292.9	311.7	363.8	406.0	412.9
65°	261.4	251.6	262.5	311.7	354.9	365.7
67.5°	218.2	216.2	218.2	263.5	304.8	317.6
70°	180.8	181.8	180.8	219.2	255.5	268.3
72.5°	148.4	153.3	149.4	179.9	209.3	231.0
75°	118.9	127.8	118.9	141.5	169.1	192.6
77.5°	95.3	101.2	95.3	110.1	142.6	173.2
80°	71.7	77.6	71.7	88.6	131.1	165.6
82.5°	51.1	54.1	51.1	85.8	135.4	168.1
85°	40.3	33.4	42.4	97.1	150.8	178.5
87.5°	34.5	8.8	48.6	115.3	175.1	197.0
90°	23.6	2.0	61.7	143.6	203.4	221.2
92.5°	14.7	17.0	83.9	171.8	237.7	253.6
95°	8.0	41.1	108.2	208.1	275.9	281.9
97.5°	13.0	72.1	141.3	244.2	313.1	319.1
100°	34.1	110.3	184.5	281.5	347.3	350.4
102.5°	63.1	151.4	225.6	316.8	384.7	399.6
105°	102.2	198.4	268.6	364.8	423.9	440.9
107.5°	147.3	248.6	312.7	409.0	465.1	478.1
110°	196.5	300.8	357.9	452.1	512.3	525.2



TEST NUMBER: P392659

CATALOG NUMBER: MWL-4-34-33-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	248.6	354.9	404.0	492.2	563.4	573.4
115°	307.7	406.0	447.1	538.3	604.5	610.5
117.5°	360.9	466.2	491.1	572.4	648.6	649.6
120°	417.0	523.3	535.3	619.5	690.7	698.7
122.5°	474.1	577.4	577.4	660.6	727.7	732.7
125°	527.3	635.5	619.5	690.7	761.8	763.9
127.5°	581.4	694.7	665.6	729.8	794.9	791.9
130°	640.5	750.8	707.8	766.8	826.0	816.0
132.5°	695.7	811.0	751.8	805.0	857.1	863.0
135°	749.8	867.1	788.9	838.0	889.2	887.1
137.5°	801.9	919.3	834.1	864.1	910.2	916.2
140°	853.0	975.4	874.2	898.1	936.3	937.3
142.5°	907.2	1031.5	918.2	932.2	965.4	959.4
145°	967.3	1084.7	973.3	966.3	987.4	974.4
147.5°	1020.5	1130.8	1012.4	991.4	1016.5	999.5
150°	1079.7	1177.9	1066.6	1026.5	1041.5	1033.5
152.5°	1133.7	1215.0	1125.8	1053.5	1070.6	1060.6
155°	1186.9	1255.1	1182.9	1080.7	1092.6	1088.6
157.5°	1233.0	1289.1	1226.0	1108.7	1122.7	1114.8
160°	1273.1	1317.2	1276.1	1150.8	1142.8	1142.8
162.5°	1308.2	1344.3	1311.2	1207.9	1164.9	1145.8
165°	1339.2	1365.4	1342.3	1272.1	1207.0	1189.9
167.5°	1368.3	1385.4	1377.4	1324.2	1272.1	1236.0
170°	1391.4	1401.5	1390.5	1368.3	1341.3	1310.2
172.5°	1403.4	1407.5	1414.4	1400.5	1390.5	1369.4
175°	1410.5	1421.5	1415.5	1420.5	1411.5	1406.5
177.5°	1412.5	1414.4	1413.4	1422.5	1427.5	1419.5
180°	1420.5	1420.5	1420.5	1420.5	1420.5	1420.5

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