

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: P392542

Luminaire Tested: **MWL-2-35-31-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392542
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-2-35-31-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6453.0 lumens
Efficiency: N/A
Efficacy: 86.0 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

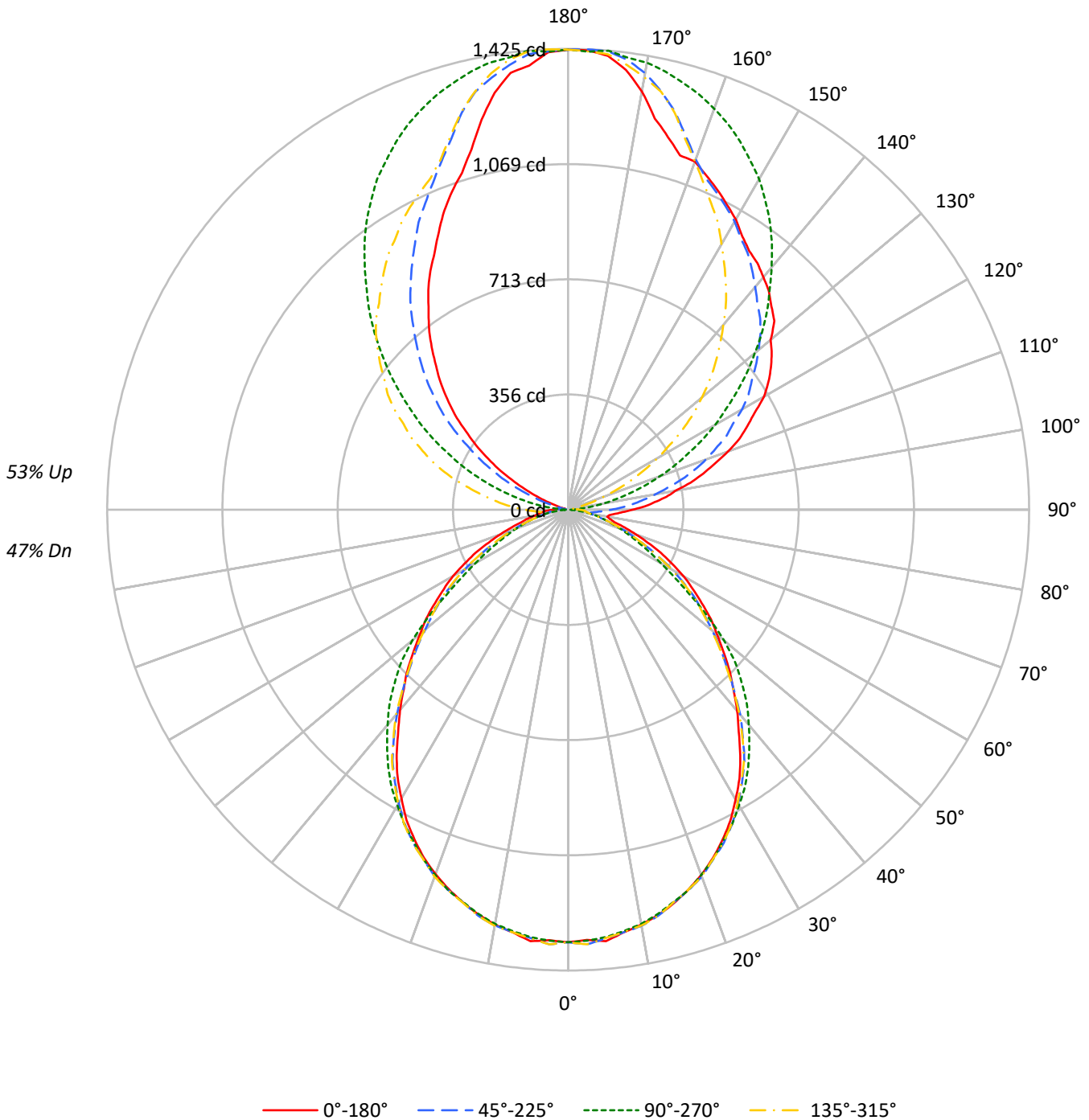
Input Watts (W): 75
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	98	98	98	98	82	82	82	67	67	67	54	54	54	47																				
1	97	93	89	86	89	86	83	80	72	70	68	59	58	56	48	47	46	40																				
2	89	82	76	71	82	75	70	66	64	60	57	53	50	48	43	41	39	34																				
3	81	72	65	59	75	67	61	56	56	52	48	47	44	41	38	36	34	30																				
4	75	64	56	51	68	59	53	47	50	45	41	42	38	35	34	32	29	26																				
5	69	57	49	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23																				
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20																				
7	59	47	39	33	54	43	36	31	37	32	28	31	27	24	26	23	20	18																				
8	54	42	35	30	50	39	33	28	34	29	25	29	25	22	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	36	28	24	44	33	27	22	29	24	20	24	20	18	20	17	15	13																				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	17276	17276	17276	17276
5°	17055	15819	17055	15819
10°	16479	14503	16479	14503
15°	15960	13247	15922	13247
20°	15359	12113	15321	12113
25°	14649	10997	14610	10997
30°	13777	9985	13725	9985
35°	12763	8996	12722	8996
40°	11661	7962	11603	7962
45°	10673	6934	10628	6934
50°	9668	5764	9620	5764
55°	8746	4278	8711	4278
60°	7823	3128	7802	3128
65°	6661	2322	6661	2322
70°	5344	1725	5366	1725
75°	4130	1203	4214	1203
80°	4187	765	3536	765
85°	6364	323	3506	323



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.1	2.0
10°-20°	354.8	5.5
20°-30°	520.4	8.1
30°-40°	590.5	9.2
40°-50°	551.0	8.5
50°-60°	432.4	6.7
60°-70°	270.0	4.2
70°-80°	131.3	2.0
80°-90°	79.1	1.2
90°-100°	114.6	1.8
100°-110°	219.3	3.4
110°-120°	378.1	5.9
120°-130°	513.9	8.0
130°-140°	586.2	9.1
140°-150°	584.7	9.1
150°-160°	509.2	7.9
160°-170°	358.0	5.5
170°-180°	133.3	2.1
0°-30°	1001.3	15.5
0°-40°	1591.8	24.7
0°-60°	2575.1	39.9
0°-90°	3055.6	47.4
90°-120°	712.0	11.0
90°-150°	2396.9	37.1
90°-180°	3397.0	52.6
0°-180°	6453.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1338	1338	1338	1338	1338	
5°	1339	1327	1339	1327	1339	126
15°	1260	1256	1257	1256	1260	355
25°	1128	1131	1125	1131	1128	518
35°	928	970	924	970	928	579
45°	706	759	703	759	706	544
55°	504	461	502	461	504	452
65°	315	239	315	239	315	312
75°	147	114	150	114	147	167
85°	145	27	80	27	145	114
90°	198	2	48	2	198	110
95°	269	41	31	41	269	235
105°	432	199	9	199	432	455
115°	610	407	140	407	610	606
125°	765	636	348	636	765	683
135°	888	869	559	869	888	686
145°	976	1087	752	1087	976	615
155°	1091	1257	947	1257	1091	503
165°	1193	1367	1154	1367	1193	338
175°	1409	1425	1379	1425	1409	131
180°	1423	1423	1423	1423	1423	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5
2.5°	1331.6	1340.3	1345.2	1332.6	1333.6	1331.7	1345.2	1340.3	1332.5	1340.3	1345.2
5°	1339.3	1330.6	1330.7	1329.7	1326.8	1329.7	1329.7	1330.6	1339.3	1330.6	1329.7
7.5°	1318.0	1324.9	1318.1	1317.2	1314.3	1316.2	1317.1	1323.8	1318.0	1323.8	1317.1
10°	1302.6	1307.5	1306.5	1299.8	1300.7	1298.7	1305.5	1305.5	1302.6	1305.5	1305.5
12.5°	1284.3	1287.2	1286.1	1278.4	1280.3	1278.4	1286.1	1285.2	1282.3	1285.2	1286.1
15°	1260.1	1259.1	1258.1	1255.2	1256.1	1254.2	1257.1	1257.1	1257.1	1257.1	1257.1
17.5°	1233.0	1235.0	1233.9	1233.9	1233.9	1233.9	1232.9	1233.9	1230.0	1233.9	1232.9
20°	1202.1	1206.9	1207.8	1202.0	1202.0	1201.0	1206.8	1204.9	1199.1	1204.9	1206.8
22.5°	1167.3	1168.3	1170.1	1162.4	1170.1	1161.4	1169.1	1166.2	1165.3	1166.2	1169.1
25°	1127.7	1128.6	1137.3	1132.4	1131.4	1131.4	1135.3	1125.6	1124.7	1125.6	1135.3
27.5°	1085.1	1085.1	1096.7	1092.7	1096.6	1091.8	1094.7	1082.1	1082.1	1082.1	1094.7
30°	1034.8	1043.5	1050.3	1063.8	1056.0	1061.8	1047.3	1040.5	1030.9	1040.5	1047.3
32.5°	985.5	990.4	1000.0	1009.7	1016.4	1007.7	997.0	986.4	981.6	986.4	997.0
35°	927.5	927.5	949.7	968.1	970.0	965.1	946.8	924.5	924.5	924.5	946.8
37.5°	865.6	867.6	886.9	914.9	919.7	911.9	883.9	864.6	862.6	864.6	883.9
40°	812.5	808.6	827.0	862.6	868.4	860.7	822.9	804.5	808.4	804.5	822.9
42.5°	756.4	750.6	759.2	803.7	818.2	801.7	756.2	746.5	752.3	746.5	756.2
45°	706.0	694.4	696.3	737.9	759.2	736.0	692.4	691.4	703.0	691.4	692.4
47.5°	650.9	647.0	639.3	666.4	701.2	665.4	635.3	644.0	647.9	644.0	635.3
50°	600.6	592.9	581.3	603.5	628.7	601.5	577.3	588.9	597.6	588.9	577.3
52.5°	556.1	549.4	527.1	540.7	545.5	538.6	524.1	545.4	553.1	545.4	524.1
55°	503.9	503.0	480.7	474.0	461.3	471.9	477.7	500.0	501.9	500.0	477.7
57.5°	457.5	455.6	423.7	412.1	388.8	410.0	420.7	452.6	455.5	452.6	420.7
60°	412.1	405.3	370.5	342.4	330.8	341.4	368.5	403.3	411.0	403.3	368.5
62.5°	361.8	357.9	315.4	285.3	282.4	284.4	313.4	355.9	360.7	355.9	313.4
65°	315.3	300.8	265.0	237.9	238.9	237.0	264.1	299.8	315.3	299.8	264.1
67.5°	266.0	251.5	220.5	195.4	203.1	195.4	219.6	250.5	266.0	250.5	219.6
70°	222.5	203.1	179.9	159.6	171.2	159.6	179.9	204.1	223.4	204.1	179.9
72.5°	182.8	162.5	145.1	130.6	140.2	129.6	145.1	163.5	184.9	163.5	145.1
75°	147.1	128.7	112.2	104.4	114.1	104.4	113.2	129.7	150.1	129.7	113.2
77.5°	131.9	108.5	85.1	81.2	92.8	81.2	86.1	105.5	127.8	105.5	86.1
80°	122.8	105.2	68.8	60.9	68.6	60.9	66.8	89.1	103.7	89.1	66.8
82.5°	128.6	114.7	70.2	43.5	47.4	43.5	58.2	78.5	90.4	78.5	58.2
85°	145.2	134.2	82.7	36.0	27.1	33.9	53.5	72.9	80.0	72.9	53.5
87.5°	168.7	162.6	105.0	43.2	7.7	29.2	47.8	66.2	65.4	66.2	47.8
90°	198.2	193.1	134.4	56.6	1.9	18.5	35.0	51.4	47.7	51.4	35.0
92.5°	236.6	227.5	165.7	79.0	17.0	9.8	28.1	41.8	39.8	41.8	28.1
95°	269.0	263.0	201.1	105.4	41.1	5.0	20.4	30.1	31.0	30.1	20.4
97.5°	306.4	299.4	234.7	141.5	72.2	13.1	12.8	23.4	25.3	23.4	12.8
100°	336.9	333.0	274.1	184.7	110.4	34.1	8.0	17.7	20.6	17.7	8.0
102.5°	387.3	372.4	315.3	225.9	151.6	63.2	16.0	10.9	13.8	10.9	16.0
105°	431.7	417.6	364.4	269.1	198.8	102.4	40.1	14.0	9.0	14.0	40.1
107.5°	474.8	464.8	409.6	313.3	249.0	147.5	75.2	39.1	25.0	39.1	75.2
110°	525.1	513.0	452.8	357.4	301.2	195.8	114.4	71.3	55.1	71.3	114.4



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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°	573.3	564.3	492.9	404.5	355.4	249.0	162.6	111.4	96.3	111.4	162.6
115°	610.4	605.4	539.1	447.8	406.6	308.1	215.8	158.6	140.5	158.6	215.8
117.5°	649.5	648.6	573.3	491.9	466.8	361.4	265.0	205.7	186.7	205.7	265.0
120°	698.8	690.7	620.4	536.1	524.0	417.6	319.3	260.0	240.9	260.0	319.3
122.5°	733.8	727.9	660.7	578.3	578.3	474.8	371.5	312.2	293.1	312.2	371.5
125°	765.0	763.0	691.7	620.4	636.5	528.1	430.6	370.4	348.3	370.4	430.6
127.5°	793.1	796.1	730.9	667.6	696.7	583.3	487.9	421.6	398.5	421.6	487.9
130°	817.2	827.2	768.0	709.8	753.0	642.5	539.1	472.8	457.7	472.8	539.1
132.5°	864.4	858.4	806.2	753.0	813.2	696.7	593.3	524.0	506.9	524.0	593.3
135°	888.5	890.5	839.3	790.1	869.4	751.0	644.5	576.3	559.1	576.3	644.5
137.5°	917.6	911.6	865.4	835.3	921.6	803.2	694.7	631.5	604.4	631.5	694.7
140°	938.7	937.7	899.6	875.5	977.9	854.4	745.9	681.6	656.6	681.6	745.9
142.5°	960.8	966.9	933.7	919.7	1034.1	908.6	801.1	730.9	706.8	730.9	801.1
145°	975.9	989.9	967.8	974.9	1087.3	968.8	849.4	779.0	751.9	779.0	849.4
147.5°	1002.0	1019.0	993.9	1014.0	1133.6	1022.1	898.5	828.2	805.1	828.2	898.5
150°	1036.1	1044.1	1029.0	1068.3	1180.7	1081.3	947.7	875.4	852.3	875.4	947.7
152.5°	1063.2	1073.2	1056.2	1127.5	1217.9	1135.5	1002.0	921.6	894.5	921.6	1002.0
155°	1091.3	1095.4	1083.3	1184.7	1257.0	1188.8	1045.1	972.9	946.8	972.9	1045.1
157.5°	1117.4	1125.4	1110.4	1227.9	1291.1	1234.9	1093.3	1024.0	1000.9	1024.0	1093.3
160°	1145.5	1145.5	1152.6	1278.1	1319.3	1275.1	1145.5	1080.3	1048.1	1080.3	1145.5
162.5°	1148.5	1167.6	1209.8	1313.2	1346.4	1310.2	1201.8	1120.4	1092.3	1120.4	1201.8
165°	1192.7	1208.8	1274.0	1344.3	1367.4	1341.3	1271.0	1185.8	1153.6	1185.8	1271.0
167.5°	1238.9	1274.0	1326.2	1379.5	1387.5	1370.4	1324.3	1265.0	1235.8	1265.0	1324.3
170°	1313.2	1344.3	1370.4	1392.6	1403.6	1393.5	1357.4	1328.3	1309.2	1328.3	1357.4
172.5°	1371.5	1392.6	1402.6	1416.6	1409.6	1405.6	1387.5	1373.5	1362.5	1373.5	1387.5
175°	1408.6	1413.7	1422.6	1418.7	1424.7	1413.7	1413.7	1420.7	1378.6	1420.7	1413.7
177.5°	1421.7	1428.7	1424.7	1416.6	1417.6	1415.6	1418.7	1421.7	1415.7	1421.7	1418.7
180°	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1337.5	1337.5	1337.5	1337.5	1337.5	1337.5
2.5°	1331.7	1333.6	1332.6	1345.2	1340.3	1331.6
5°	1329.7	1326.8	1329.7	1330.7	1330.6	1339.3
7.5°	1316.2	1314.3	1317.2	1318.1	1324.9	1318.0
10°	1298.7	1300.7	1299.8	1306.5	1307.5	1302.6
12.5°	1278.4	1280.3	1278.4	1286.1	1287.2	1284.3
15°	1254.2	1256.1	1255.2	1258.1	1259.1	1260.1
17.5°	1233.9	1233.9	1233.9	1233.9	1235.0	1233.0
20°	1201.0	1202.0	1202.0	1207.8	1206.9	1202.1
22.5°	1161.4	1170.1	1162.4	1170.1	1168.3	1167.3
25°	1131.4	1131.4	1132.4	1137.3	1128.6	1127.7
27.5°	1091.8	1096.6	1092.7	1096.7	1085.1	1085.1
30°	1061.8	1056.0	1063.8	1050.3	1043.5	1034.8
32.5°	1007.7	1016.4	1009.7	1000.0	990.4	985.5
35°	965.1	970.0	968.1	949.7	927.5	927.5
37.5°	911.9	919.7	914.9	886.9	867.6	865.6
40°	860.7	868.4	862.6	827.0	808.6	812.5
42.5°	801.7	818.2	803.7	759.2	750.6	756.4
45°	736.0	759.2	737.9	696.3	694.4	706.0
47.5°	665.4	701.2	666.4	639.3	647.0	650.9
50°	601.5	628.7	603.5	581.3	592.9	600.6
52.5°	538.6	545.5	540.7	527.1	549.4	556.1
55°	471.9	461.3	474.0	480.7	503.0	503.9
57.5°	410.0	388.8	412.1	423.7	455.6	457.5
60°	341.4	330.8	342.4	370.5	405.3	412.1
62.5°	284.4	282.4	285.3	315.4	357.9	361.8
65°	237.0	238.9	237.9	265.0	300.8	315.3
67.5°	195.4	203.1	195.4	220.5	251.5	266.0
70°	159.6	171.2	159.6	179.9	203.1	222.5
72.5°	129.6	140.2	130.6	145.1	162.5	182.8
75°	104.4	114.1	104.4	112.2	128.7	147.1
77.5°	81.2	92.8	81.2	85.1	108.5	131.9
80°	60.9	68.6	60.9	68.8	105.2	122.8
82.5°	43.5	47.4	43.5	70.2	114.7	128.6
85°	33.9	27.1	36.0	82.7	134.2	145.2
87.5°	29.2	7.7	43.2	105.0	162.6	168.7
90°	18.5	1.9	56.6	134.4	193.1	198.2
92.5°	9.8	17.0	79.0	165.7	227.5	236.6
95°	5.0	41.1	105.4	201.1	263.0	269.0
97.5°	13.1	72.2	141.5	234.7	299.4	306.4
100°	34.1	110.4	184.7	274.1	333.0	336.9
102.5°	63.2	151.6	225.9	315.3	372.4	387.3
105°	102.4	198.8	269.1	364.4	417.6	431.7
107.5°	147.5	249.0	313.3	409.6	464.8	474.8
110°	195.8	301.2	357.4	452.8	513.0	525.1



TEST NUMBER: P392542

CATALOG NUMBER: MWL-2-35-31-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	249.0	355.4	404.5	492.9	564.3	573.3
115°	308.1	406.6	447.8	539.1	605.4	610.4
117.5°	361.4	466.8	491.9	573.3	648.6	649.5
120°	417.6	524.0	536.1	620.4	690.7	698.8
122.5°	474.8	578.3	578.3	660.7	727.9	733.8
125°	528.1	636.5	620.4	691.7	763.0	765.0
127.5°	583.3	696.7	667.6	730.9	796.1	793.1
130°	642.5	753.0	709.8	768.0	827.2	817.2
132.5°	696.7	813.2	753.0	806.2	858.4	864.4
135°	751.0	869.4	790.1	839.3	890.5	888.5
137.5°	803.2	921.6	835.3	865.4	911.6	917.6
140°	854.4	977.9	875.5	899.6	937.7	938.7
142.5°	908.6	1034.1	919.7	933.7	966.9	960.8
145°	968.8	1087.3	974.9	967.8	989.9	975.9
147.5°	1022.1	1133.6	1014.0	993.9	1019.0	1002.0
150°	1081.3	1180.7	1068.3	1029.0	1044.1	1036.1
152.5°	1135.5	1217.9	1127.5	1056.2	1073.2	1063.2
155°	1188.8	1257.0	1184.7	1083.3	1095.4	1091.3
157.5°	1234.9	1291.1	1227.9	1110.4	1125.4	1117.4
160°	1275.1	1319.3	1278.1	1152.6	1145.5	1145.5
162.5°	1310.2	1346.4	1313.2	1209.8	1167.6	1148.5
165°	1341.3	1367.4	1344.3	1274.0	1208.8	1192.7
167.5°	1370.4	1387.5	1379.5	1326.2	1274.0	1238.9
170°	1393.5	1403.6	1392.6	1370.4	1344.3	1313.2
172.5°	1405.6	1409.6	1416.6	1402.6	1392.6	1371.5
175°	1413.7	1424.7	1418.7	1422.6	1413.7	1408.6
177.5°	1415.6	1417.6	1416.6	1424.7	1428.7	1421.7
180°	1422.6	1422.6	1422.6	1422.6	1422.6	1422.6

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