

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: P392530

Luminaire Tested: **MWL-2-28-38-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392530
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-2-28-38-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

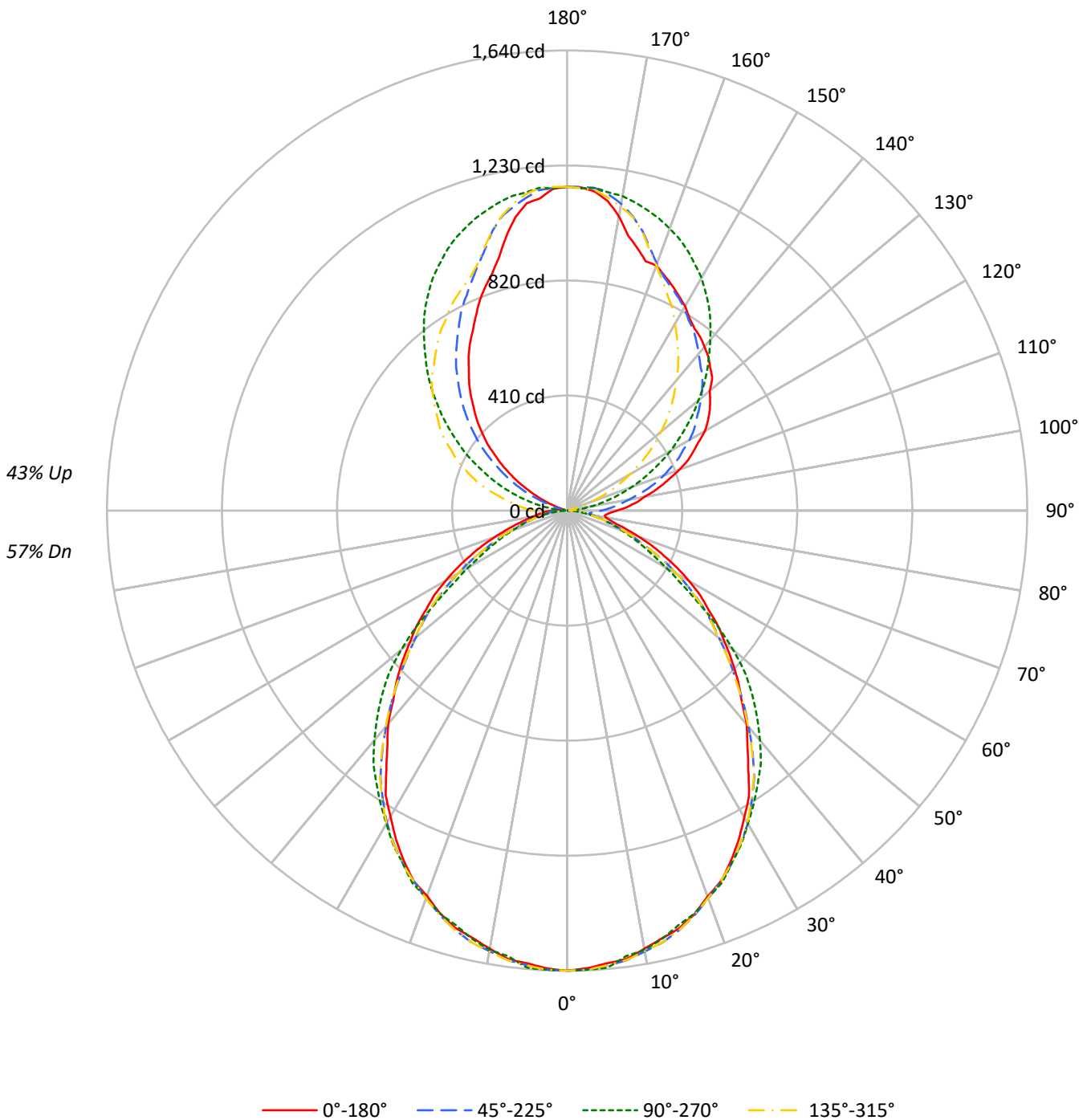
Lumens per Lamp: N/A
Luminaire Lumens: 6486.0 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 75.1
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



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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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63	57
1	100	96	92	88	93	89	86	83	77	75	73	66	64	63	56	55	54	49
2	91	84	78	73	85	79	73	69	68	64	61	59	56	53	50	48	46	42
3	84	74	67	61	78	70	63	58	61	56	52	52	49	46	45	42	40	36
4	77	66	58	52	71	62	55	50	54	49	45	47	43	39	40	37	35	31
5	71	59	51	45	66	56	48	43	49	43	39	42	38	35	36	33	30	27
6	65	53	45	39	61	50	43	38	44	38	34	38	34	30	33	30	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	31	27	30	27	24	22
8	56	44	36	31	52	41	34	30	37	31	27	32	28	24	28	24	22	19
9	52	40	33	28	49	38	31	27	34	28	24	30	25	22	26	22	20	18
10	49	37	30	25	46	35	28	24	31	26	22	28	23	20	24	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	21179	21179	21179	21179
5°	20628	19501	20628	19501
10°	20061	17722	20061	17722
15°	19527	16134	19494	16134
20°	18698	14795	18666	14795
25°	17918	13480	17887	13480
30°	16807	12181	16764	12181
35°	15485	10988	15452	10988
40°	14292	9797	14245	9797
45°	13024	8532	12987	8532
50°	11829	7086	11790	7086
55°	10660	5259	10630	5259
60°	9497	3863	9480	3863
65°	8038	2873	8038	2873
70°	6494	2102	6514	2102
75°	5040	1477	5110	1477
80°	4736	935	4211	935
85°	6272	390	3954	390



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.2	2.4
10°-20°	433.7	6.7
20°-30°	636.3	9.8
30°-40°	721.6	11.1
40°-50°	673.5	10.4
50°-60°	529.0	8.2
60°-70°	329.5	5.1
70°-80°	159.7	2.5
80°-90°	85.2	1.3
90°-100°	99.8	1.5
100°-110°	178.3	2.7
110°-120°	306.9	4.7
120°-130°	417.0	6.4
130°-140°	475.7	7.3
140°-150°	474.3	7.3
150°-160°	413.0	6.4
160°-170°	290.3	4.5
170°-180°	108.1	1.7
0°-30°	1224.2	18.9
0°-40°	1945.7	30.0
0°-60°	3148.2	48.5
0°-90°	3722.6	57.4
90°-120°	585.0	9.0
90°-150°	1952.0	30.1
90°-180°	2763.0	42.6
0°-180°	6486.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1640	1640	1640	1640	1640	
5°	1620	1636	1620	1636	1620	154
15°	1542	1530	1539	1530	1542	433
25°	1379	1387	1377	1387	1379	633
35°	1125	1185	1123	1185	1125	706
45°	862	934	859	934	862	664
55°	614	567	612	567	614	553
65°	380	296	380	296	380	379
75°	180	140	182	140	180	200
85°	143	33	90	33	143	116
90°	177	2	55	2	177	98
95°	229	34	36	34	229	198
105°	350	161	8	161	350	370
115°	496	330	115	330	496	491
125°	620	517	283	517	620	554
135°	721	706	454	706	721	557
145°	792	882	610	882	792	499
155°	885	1019	768	1019	885	408
165°	967	1108	936	1108	967	274
175°	1141	1154	1117	1154	1141	106
180°	1154	1154	1154	1154	1154	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7
2.5°	1632.4	1629.2	1637.6	1632.6	1637.5	1631.8	1637.6	1629.2	1633.2	1629.2	1637.6
5°	1619.9	1624.3	1627.9	1625.0	1635.6	1625.0	1627.1	1624.3	1619.9	1624.3	1627.1
7.5°	1612.0	1615.5	1616.5	1612.4	1601.8	1611.7	1615.6	1614.7	1612.0	1614.7	1615.6
10°	1585.7	1598.1	1595.2	1591.4	1589.4	1590.5	1594.4	1596.5	1585.7	1596.5	1594.4
12.5°	1561.2	1564.3	1576.0	1567.3	1563.6	1567.3	1576.0	1562.6	1559.5	1562.6	1576.0
15°	1541.8	1538.2	1547.0	1537.3	1529.8	1536.5	1546.2	1536.5	1539.2	1536.5	1546.2
17.5°	1507.9	1502.4	1511.2	1510.4	1506.6	1510.4	1510.4	1501.5	1505.4	1501.5	1510.4
20°	1463.4	1472.2	1470.6	1472.7	1468.1	1472.0	1469.8	1470.6	1460.9	1470.6	1469.8
22.5°	1430.7	1428.7	1430.0	1433.1	1438.1	1432.3	1429.2	1427.1	1429.0	1427.1	1429.2
25°	1379.4	1376.5	1388.3	1385.7	1386.9	1384.9	1386.7	1374.1	1377.0	1374.1	1386.7
27.5°	1323.3	1321.4	1339.0	1342.0	1342.4	1341.2	1337.4	1319.0	1320.9	1319.0	1337.4
30°	1262.4	1267.3	1287.6	1289.7	1288.2	1288.1	1285.2	1264.8	1259.2	1264.8	1285.2
32.5°	1206.4	1202.5	1224.7	1240.4	1237.8	1238.7	1222.3	1199.3	1203.2	1199.3	1222.3
35°	1125.3	1130.2	1162.1	1181.4	1184.8	1179.0	1159.7	1127.7	1122.9	1127.7	1159.7
37.5°	1054.7	1058.6	1084.7	1123.4	1134.3	1121.0	1082.3	1056.2	1052.3	1056.2	1082.3
40°	995.8	984.2	1006.4	1051.9	1068.6	1050.4	1003.1	980.9	992.5	980.9	1003.1
42.5°	920.4	915.5	929.2	979.4	1002.8	977.9	926.7	912.2	917.1	912.2	926.7
45°	861.5	847.9	849.9	901.1	934.2	899.6	846.7	845.5	859.1	845.5	846.7
47.5°	798.6	781.2	779.3	821.1	862.6	820.3	776.1	778.8	796.2	778.8	776.1
50°	734.8	726.1	706.8	736.9	772.9	735.3	703.6	722.9	732.4	722.9	703.6
52.5°	679.7	668.1	646.1	664.4	674.3	662.8	643.6	664.9	677.3	664.9	643.6
55°	614.2	609.3	584.2	585.3	567.1	583.7	581.8	606.9	612.5	606.9	581.8
57.5°	562.9	556.1	518.4	501.2	478.1	499.6	516.0	553.7	561.3	553.7	516.0
60°	500.3	492.5	450.9	420.1	408.5	419.3	449.3	490.9	499.4	490.9	449.3
62.5°	441.3	432.6	388.1	348.6	343.9	347.8	386.5	430.9	440.4	430.9	386.5
65°	380.5	366.0	321.5	288.6	295.6	287.8	320.7	365.2	380.5	365.2	320.7
67.5°	326.3	304.1	270.2	239.5	250.1	239.5	269.5	303.3	326.3	303.3	269.5
70°	270.4	246.3	222.1	196.9	208.6	196.9	222.1	247.0	271.2	247.0	222.1
72.5°	221.1	198.9	178.6	161.2	170.9	160.3	178.6	199.7	222.8	199.7	178.6
75°	179.5	155.4	138.1	127.4	140.0	127.4	138.9	156.1	182.0	156.1	138.9
77.5°	154.1	130.5	103.3	99.4	111.0	99.4	104.1	128.1	150.8	128.1	104.1
80°	138.9	120.7	82.6	74.3	83.9	74.3	80.9	107.7	123.5	107.7	80.9
82.5°	135.3	122.1	78.8	52.0	55.9	52.0	69.0	92.8	104.3	92.8	69.0
85°	143.1	132.9	86.1	42.0	32.7	40.3	62.5	83.4	90.2	83.4	62.5
87.5°	156.8	153.4	100.8	45.4	9.7	34.0	54.5	75.3	73.1	75.3	54.5
90°	176.9	174.6	122.4	52.8	1.7	21.9	42.0	59.9	55.0	59.9	42.0
92.5°	205.9	199.1	144.7	66.4	14.0	10.3	33.4	48.7	46.6	48.7	33.4
95°	229.0	225.1	169.1	85.6	33.5	4.3	22.7	36.5	36.3	36.5	22.7
97.5°	257.0	250.0	193.3	114.8	58.7	10.7	13.5	26.5	29.4	26.5	13.5
100°	278.1	272.5	223.1	149.8	89.6	27.8	7.6	17.1	21.9	17.1	7.6
102.5°	314.7	303.1	255.4	183.1	122.9	51.3	13.1	10.3	12.3	10.3	13.1
105°	349.9	338.5	296.2	218.0	161.2	83.1	33.6	11.7	7.6	11.7	33.6
107.5°	384.9	376.8	332.0	254.8	201.8	120.7	61.3	32.0	20.6	32.0	61.3
110°	425.5	415.8	367.0	290.5	245.0	159.6	93.0	58.0	45.1	58.0	93.0



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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°	464.6	457.2	399.5	328.0	288.9	202.0	132.0	90.6	78.3	90.6	132.0
115°	495.6	490.6	436.9	363.0	329.6	249.9	175.1	128.8	115.1	128.8	175.1
117.5°	527.3	526.6	465.5	398.7	378.3	293.0	215.9	167.9	152.5	167.9	215.9
120°	567.2	560.7	503.7	435.5	425.7	339.5	259.8	211.8	196.4	211.8	259.8
122.5°	594.8	590.8	536.2	469.6	469.6	385.9	302.1	254.1	237.8	254.1	302.1
125°	620.0	618.4	560.7	503.7	516.8	428.9	349.2	300.5	282.6	300.5	349.2
127.5°	642.8	645.2	592.4	541.2	564.7	472.9	395.6	342.0	323.2	342.0	395.6
130°	663.3	670.4	622.5	575.3	610.3	520.8	437.0	383.4	372.1	383.4	437.0
132.5°	701.5	696.6	653.3	611.2	660.0	565.7	481.0	425.8	412.0	425.8	481.0
135°	721.0	722.6	681.2	641.3	705.5	609.6	523.4	468.2	454.3	468.2	523.4
137.5°	744.6	739.6	702.2	677.9	747.8	651.9	564.1	512.8	490.9	512.8	564.1
140°	761.6	760.8	729.9	710.4	793.3	693.3	605.5	553.5	533.1	553.5	605.5
142.5°	779.5	784.4	757.5	746.2	838.8	737.2	650.2	593.4	573.8	593.4	650.2
145°	791.7	802.3	785.2	790.9	882.0	786.1	689.3	631.6	610.4	631.6	689.3
147.5°	812.1	825.9	805.5	822.6	919.4	829.1	728.3	671.4	652.7	671.4	728.3
150°	840.7	847.2	835.0	866.5	957.6	877.0	769.1	710.5	691.9	710.5	769.1
152.5°	862.6	870.8	856.9	914.5	987.6	921.0	813.0	748.0	726.0	748.0	813.0
155°	885.4	888.6	877.9	960.9	1019.4	964.1	847.0	789.4	768.3	789.4	847.0
157.5°	906.5	913.0	900.6	995.8	1047.0	1001.5	886.8	830.9	812.2	830.9	886.8
160°	929.3	929.3	934.8	1036.5	1068.8	1034.0	929.2	876.5	850.5	876.5	929.2
162.5°	931.7	946.2	981.2	1064.9	1090.7	1062.5	974.7	908.0	886.2	908.0	974.7
165°	967.4	980.3	1033.2	1090.1	1107.8	1087.6	1030.8	961.6	935.7	961.6	1030.8
167.5°	1003.9	1033.2	1075.4	1117.6	1124.1	1110.2	1073.8	1025.8	1001.5	1025.8	1073.8
170°	1064.9	1090.1	1110.2	1129.1	1138.1	1130.0	1099.7	1077.1	1061.6	1077.1	1099.7
172.5°	1111.9	1129.1	1136.3	1148.6	1142.9	1139.7	1124.1	1113.7	1104.5	1113.7	1124.1
175°	1141.0	1145.2	1153.6	1149.5	1154.3	1145.3	1146.2	1151.0	1116.6	1151.0	1146.2
177.5°	1152.6	1158.2	1155.1	1148.8	1149.6	1148.0	1150.3	1152.6	1147.7	1152.6	1150.3
180°	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6



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CATALOG NUMBER: MWL-2-28-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1639.7	1639.7	1639.7	1639.7	1639.7	1639.7
2.5°	1631.8	1637.5	1632.6	1637.6	1629.2	1632.4
5°	1625.0	1635.6	1625.0	1627.9	1624.3	1619.9
7.5°	1611.7	1601.8	1612.4	1616.5	1615.5	1612.0
10°	1590.5	1589.4	1591.4	1595.2	1598.1	1585.7
12.5°	1567.3	1563.6	1567.3	1576.0	1564.3	1561.2
15°	1536.5	1529.8	1537.3	1547.0	1538.2	1541.8
17.5°	1510.4	1506.6	1510.4	1511.2	1502.4	1507.9
20°	1472.0	1468.1	1472.7	1470.6	1472.2	1463.4
22.5°	1432.3	1438.1	1433.1	1430.0	1428.7	1430.7
25°	1384.9	1386.9	1385.7	1388.3	1376.5	1379.4
27.5°	1341.2	1342.4	1342.0	1339.0	1321.4	1323.3
30°	1288.1	1288.2	1289.7	1287.6	1267.3	1262.4
32.5°	1238.7	1237.8	1240.4	1224.7	1202.5	1206.4
35°	1179.0	1184.8	1181.4	1162.1	1130.2	1125.3
37.5°	1121.0	1134.3	1123.4	1084.7	1058.6	1054.7
40°	1050.4	1068.6	1051.9	1006.4	984.2	995.8
42.5°	977.9	1002.8	979.4	929.2	915.5	920.4
45°	899.6	934.2	901.1	849.9	847.9	861.5
47.5°	820.3	862.6	821.1	779.3	781.2	798.6
50°	735.3	772.9	736.9	706.8	726.1	734.8
52.5°	662.8	674.3	664.4	646.1	668.1	679.7
55°	583.7	567.1	585.3	584.2	609.3	614.2
57.5°	499.6	478.1	501.2	518.4	556.1	562.9
60°	419.3	408.5	420.1	450.9	492.5	500.3
62.5°	347.8	343.9	348.6	388.1	432.6	441.3
65°	287.8	295.6	288.6	321.5	366.0	380.5
67.5°	239.5	250.1	239.5	270.2	304.1	326.3
70°	196.9	208.6	196.9	222.1	246.3	270.4
72.5°	160.3	170.9	161.2	178.6	198.9	221.1
75°	127.4	140.0	127.4	138.1	155.4	179.5
77.5°	99.4	111.0	99.4	103.3	130.5	154.1
80°	74.3	83.9	74.3	82.6	120.7	138.9
82.5°	52.0	55.9	52.0	78.8	122.1	135.3
85°	40.3	32.7	42.0	86.1	132.9	143.1
87.5°	34.0	9.7	45.4	100.8	153.4	156.8
90°	21.9	1.7	52.8	122.4	174.6	176.9
92.5°	10.3	14.0	66.4	144.7	199.1	205.9
95°	4.3	33.5	85.6	169.1	225.1	229.0
97.5°	10.7	58.7	114.8	193.3	250.0	257.0
100°	27.8	89.6	149.8	223.1	272.5	278.1
102.5°	51.3	122.9	183.1	255.4	303.1	314.7
105°	83.1	161.2	218.0	296.2	338.5	349.9
107.5°	120.7	201.8	254.8	332.0	376.8	384.9
110°	159.6	245.0	290.5	367.0	415.8	425.5



TEST NUMBER: P392530

CATALOG NUMBER: MWL-2-28-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	202.0	288.9	328.0	399.5	457.2	464.6
115°	249.9	329.6	363.0	436.9	490.6	495.6
117.5°	293.0	378.3	398.7	465.5	526.6	527.3
120°	339.5	425.7	435.5	503.7	560.7	567.2
122.5°	385.9	469.6	469.6	536.2	590.8	594.8
125°	428.9	516.8	503.7	560.7	618.4	620.0
127.5°	472.9	564.7	541.2	592.4	645.2	642.8
130°	520.8	610.3	575.3	622.5	670.4	663.3
132.5°	565.7	660.0	611.2	653.3	696.6	701.5
135°	609.6	705.5	641.3	681.2	722.6	721.0
137.5°	651.9	747.8	677.9	702.2	739.6	744.6
140°	693.3	793.3	710.4	729.9	760.8	761.6
142.5°	737.2	838.8	746.2	757.5	784.4	779.5
145°	786.1	882.0	790.9	785.2	802.3	791.7
147.5°	829.1	919.4	822.6	805.5	825.9	812.1
150°	877.0	957.6	866.5	835.0	847.2	840.7
152.5°	921.0	987.6	914.5	856.9	870.8	862.6
155°	964.1	1019.4	960.9	877.9	888.6	885.4
157.5°	1001.5	1047.0	995.8	900.6	913.0	906.5
160°	1034.0	1068.8	1036.5	934.8	929.3	929.3
162.5°	1062.5	1090.7	1064.9	981.2	946.2	931.7
165°	1087.6	1107.8	1090.1	1033.2	980.3	967.4
167.5°	1110.2	1124.1	1117.6	1075.4	1033.2	1003.9
170°	1130.0	1138.1	1129.1	1110.2	1090.1	1064.9
172.5°	1139.7	1142.9	1148.6	1136.3	1129.1	1111.9
175°	1145.3	1154.3	1149.5	1153.6	1145.2	1141.0
177.5°	1148.0	1149.6	1148.8	1155.1	1158.2	1152.6
180°	1153.6	1153.6	1153.6	1153.6	1153.6	1153.6

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