

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: P392486

Luminaire Tested: **MWL-2-13-38-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392486  
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-2-13-38-UNV-L940-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

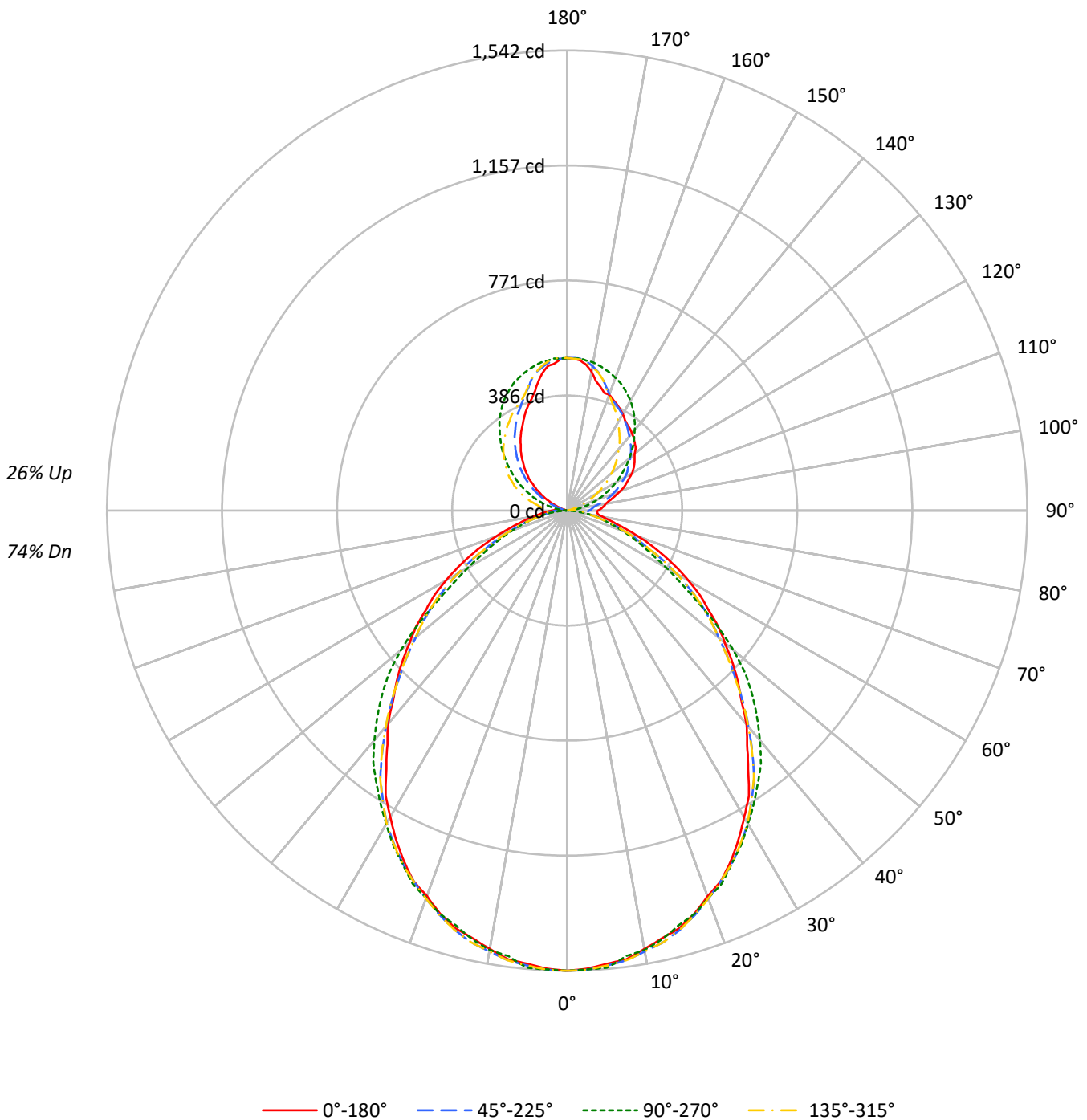
Lumens per Lamp: N/A  
Luminaire Lumens: 4727.0 lumens  
Efficiency: N/A  
Efficacy: 86.3 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: Semi-Direct

Input Watts (W): 54.742  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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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CATALOG NUMBER: MWL-2-13-38-UNV-L940-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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74
1	104	99	95	92	98	95	91	88	86	83	81	77	75	74	70	68	67	63
2	95	88	81	76	90	83	78	73	76	71	68	69	65	62	62	60	57	54
3	87	78	70	64	82	74	67	62	67	62	58	61	57	54	56	52	50	46
4	80	69	61	55	76	66	59	53	60	55	50	55	50	46	50	46	43	40
5	74	62	54	48	70	59	52	46	54	48	44	50	45	41	45	41	38	35
6	68	56	48	42	65	54	46	41	49	43	38	45	40	36	41	37	34	31
7	63	51	43	37	60	49	41	36	45	39	34	41	36	32	38	34	30	28
8	59	46	39	33	56	45	37	32	41	35	31	38	33	29	35	31	27	25
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	28	25	23
10	52	39	32	27	49	38	31	26	35	29	25	33	27	24	30	26	23	21

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

	0°	90°	180°	270°
0°	19919	19919	19919	19919
5°	19414	18336	19414	18336
10°	18872	16667	18872	16667
15°	18352	15181	18339	15181
20°	17571	13924	17558	13924
25°	16843	12686	16829	12686
30°	15794	11462	15775	11462
35°	14552	10338	14537	10338
40°	13425	9213	13405	9213
45°	12235	8021	12218	8021
50°	11108	6662	11090	6662
55°	10007	4944	9995	4944
60°	8918	3629	8911	3629
65°	7548	2699	7548	2699
70°	6101	1972	6110	1972
75°	4728	1388	4759	1388
80°	4088	877	3860	877
85°	4444	362	3423	362



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	145.0	3.1
10°-20°	408.0	8.6
20°-30°	598.5	12.7
30°-40°	678.5	14.4
40°-50°	633.1	13.4
50°-60°	497.2	10.5
60°-70°	309.5	6.5
70°-80°	149.3	3.2
80°-90°	69.2	1.5
90°-100°	54.6	1.2
100°-110°	80.0	1.7
110°-120°	136.6	2.9
120°-130°	185.4	3.9
130°-140°	211.5	4.5
140°-150°	210.7	4.5
150°-160°	183.4	3.9
160°-170°	128.7	2.7
170°-180°	47.9	1.0
0°-30°	1151.5	24.4
0°-40°	1830.0	38.7
0°-60°	2960.3	62.6
0°-90°	3488.3	73.8
90°-120°	271.2	5.7
90°-150°	878.7	18.6
90°-180°	1239.0	26.2
0°-180°	4727.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1542	1542	1542	1542	1542	
5°	1525	1538	1525	1538	1525	145
15°	1449	1439	1448	1439	1449	407
25°	1297	1305	1296	1305	1297	595
35°	1058	1115	1056	1115	1058	663
45°	809	878	808	878	809	624
55°	577	533	576	533	577	519
65°	357	278	357	278	357	356
75°	168	132	170	132	168	186
85°	101	30	78	30	101	87
90°	103	1	49	1	103	57
95°	118	15	33	15	118	100
105°	155	72	4	72	155	166
115°	220	146	52	146	220	218
125°	275	230	126	230	275	246
135°	320	313	202	313	320	247
145°	352	391	271	391	352	222
155°	393	452	342	452	393	181
165°	430	490	416	490	430	122
175°	505	512	494	512	505	47
180°	511	511	511	511	511	



TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L940-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1
2.5°	1536.5	1532.7	1539.8	1534.6	1539.1	1534.3	1539.8	1532.7	1536.8	1532.7	1539.8
5°	1524.6	1528.1	1530.6	1527.9	1537.9	1527.9	1530.3	1528.1	1524.6	1528.1	1530.3
7.5°	1516.8	1519.4	1520.3	1516.1	1506.0	1515.7	1519.9	1519.0	1516.8	1519.0	1519.9
10°	1491.7	1503.0	1500.3	1496.7	1494.8	1496.3	1499.9	1502.3	1491.7	1502.3	1499.9
12.5°	1467.9	1471.2	1482.6	1474.4	1471.3	1474.4	1482.6	1470.4	1467.1	1470.4	1482.6
15°	1449.0	1446.6	1455.3	1446.2	1439.4	1445.8	1454.9	1445.8	1448.0	1445.8	1454.9
17.5°	1417.1	1412.8	1421.6	1421.2	1417.6	1421.2	1421.2	1412.5	1416.1	1412.5	1421.2
20°	1375.2	1384.1	1383.3	1385.7	1381.7	1385.3	1383.0	1383.3	1374.2	1383.3	1383.0
22.5°	1344.9	1343.1	1345.1	1348.3	1353.4	1348.0	1344.7	1342.3	1344.1	1342.3	1344.7
25°	1296.6	1293.9	1305.3	1303.7	1305.2	1303.3	1304.6	1292.8	1295.5	1292.8	1304.6
27.5°	1243.7	1241.9	1258.9	1262.1	1263.2	1261.8	1258.1	1240.8	1242.6	1240.8	1258.1
30°	1186.3	1190.9	1210.0	1212.4	1212.2	1211.7	1208.9	1189.8	1184.9	1189.8	1208.9
32.5°	1133.5	1129.9	1150.8	1165.9	1164.3	1165.2	1149.7	1128.4	1132.0	1128.4	1149.7
35°	1057.5	1062.1	1092.1	1110.4	1114.7	1109.3	1091.0	1061.0	1056.4	1061.0	1091.0
37.5°	991.0	994.6	1019.2	1055.7	1066.8	1054.6	1018.2	993.6	989.9	993.6	1018.2
40°	935.4	924.5	945.4	988.8	1004.9	988.1	944.0	923.0	934.0	923.0	944.0
42.5°	864.4	859.8	873.1	920.5	942.9	919.8	872.0	858.3	862.9	858.3	872.0
45°	809.3	796.6	798.4	846.7	878.2	846.0	796.9	795.5	808.2	795.5	796.9
47.5°	750.1	733.7	731.9	771.6	810.8	771.2	730.4	732.6	749.0	732.6	730.4
50°	690.0	681.8	663.6	692.3	726.6	691.6	662.1	680.3	688.9	680.3	662.1
52.5°	638.0	627.1	606.7	624.0	633.7	623.3	605.6	625.7	637.0	625.7	605.6
55°	576.6	572.1	548.4	549.8	533.1	549.1	547.3	571.0	575.9	571.0	547.3
57.5°	528.3	522.0	486.5	470.7	449.4	469.9	485.4	520.9	527.6	520.9	485.4
60°	469.8	462.5	423.3	394.7	383.8	394.3	422.6	461.7	469.4	461.7	422.6
62.5°	414.2	406.0	364.1	327.3	323.3	326.9	363.3	405.3	413.8	405.3	363.3
65°	357.3	343.7	301.8	270.8	277.7	270.4	301.4	343.3	357.3	343.3	301.4
67.5°	306.3	285.4	253.5	224.9	234.9	224.9	253.1	285.0	306.3	285.0	253.1
70°	254.0	231.2	208.5	184.8	195.7	184.8	208.5	231.6	254.4	231.6	208.5
72.5°	207.5	186.6	167.5	151.1	160.7	150.7	167.5	187.0	208.3	187.0	167.5
75°	168.4	145.6	129.7	119.7	131.6	119.7	130.1	146.0	169.5	146.0	130.1
77.5°	141.1	120.6	96.9	93.3	104.2	93.3	97.3	119.5	139.8	119.5	97.3
80°	119.9	105.6	76.2	69.6	78.7	69.6	75.4	99.9	113.2	99.9	75.4
82.5°	106.7	97.9	67.7	48.7	52.3	48.7	63.4	85.1	93.0	85.1	63.4
85°	101.4	96.0	65.6	37.9	30.4	37.2	55.1	74.1	78.1	74.1	55.1
87.5°	99.8	100.1	67.8	35.1	9.1	30.1	47.3	65.7	62.8	65.7	47.3
90°	102.9	104.7	73.4	33.5	1.3	19.9	37.9	54.1	49.0	54.1	37.9
92.5°	112.2	110.7	79.4	33.7	6.7	8.9	30.2	44.3	41.9	44.3	30.2
95°	118.1	116.8	84.8	38.3	15.3	2.4	20.2	33.5	33.0	33.5	20.2
97.5°	126.6	122.0	89.7	51.2	26.4	5.2	10.4	23.3	26.1	23.3	10.4
100°	130.6	125.6	99.5	66.6	40.0	12.8	4.4	12.9	17.5	12.9	4.4
102.5°	141.9	135.8	113.2	81.4	54.8	23.1	6.3	6.6	8.4	6.6	6.3
105°	155.4	150.4	131.7	96.8	71.6	37.2	15.9	6.1	4.4	6.1	15.9
107.5°	170.9	167.3	147.6	113.4	89.6	54.2	28.1	15.1	10.1	15.1	28.1
110°	188.9	184.5	163.0	129.3	109.1	71.4	42.0	26.6	20.9	26.6	42.0



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CATALOG NUMBER: MWL-2-13-38-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	206.1	202.8	177.4	145.8	128.6	90.1	59.2	40.9	35.5	40.9	59.2
115°	220.3	217.6	193.9	161.2	146.5	111.3	78.3	57.9	52.3	57.9	78.3
117.5°	234.2	233.9	207.0	177.0	168.0	130.4	96.8	75.6	68.8	75.6	96.8
120°	251.8	249.0	223.9	193.7	189.4	151.3	116.2	95.0	88.2	95.0	116.2
122.5°	264.0	262.3	238.3	208.8	208.8	171.8	134.8	113.6	106.5	113.6	134.8
125°	275.2	274.5	249.0	223.9	229.6	190.9	155.6	134.1	126.2	134.1	155.6
127.5°	285.3	286.4	262.9	240.3	250.8	210.2	176.1	152.4	144.1	152.4	176.1
130°	294.7	297.5	276.2	255.5	270.9	231.4	194.4	170.7	166.3	170.7	194.4
132.5°	311.6	309.5	289.9	271.8	293.4	251.7	213.8	190.0	183.9	190.0	213.8
135°	320.3	321.0	302.7	285.1	313.4	271.1	233.1	208.6	202.5	208.6	233.1
137.5°	330.6	328.5	312.0	301.2	332.1	289.7	251.0	228.3	218.7	228.3	251.0
140°	338.2	337.8	324.2	315.6	352.2	308.0	269.3	246.3	237.3	246.3	269.3
142.5°	346.1	348.2	336.4	331.4	372.3	327.4	289.0	263.9	255.3	263.9	289.0
145°	351.5	356.1	348.6	351.1	391.3	349.0	306.2	280.8	271.4	280.8	306.2
147.5°	360.4	366.5	357.6	365.2	407.8	368.0	323.5	298.4	290.1	298.4	323.5
150°	373.6	376.5	371.1	384.5	424.8	389.2	342.0	316.2	307.9	316.2	342.0
152.5°	383.3	386.9	380.7	405.7	438.0	408.5	361.3	332.6	323.0	332.6	361.3
155°	393.3	394.8	389.5	426.1	452.0	427.6	375.9	351.0	341.7	351.0	375.9
157.5°	402.6	405.5	399.6	441.6	464.2	444.1	393.5	369.3	361.0	369.3	393.5
160°	412.7	412.7	414.6	459.6	473.3	458.5	412.2	389.4	377.9	389.4	412.2
162.5°	413.8	419.7	435.1	472.1	483.1	471.0	432.2	402.8	393.7	402.8	432.2
165°	429.6	434.8	458.1	483.2	490.5	482.2	457.0	426.5	415.6	426.5	457.0
167.5°	445.2	458.1	476.8	494.9	497.7	491.6	476.0	454.9	444.1	454.9	476.0
170°	472.1	483.2	491.6	500.5	504.3	500.7	487.0	477.5	470.7	477.5	487.0
172.5°	492.4	500.5	503.0	508.9	506.5	505.0	497.7	493.6	489.2	493.6	497.7
175°	504.7	507.0	511.1	509.3	511.5	507.6	507.9	509.5	494.0	509.5	507.9
177.5°	510.2	512.8	511.9	509.6	509.9	509.2	509.7	510.2	508.0	510.2	509.7
180°	511.1	511.1	511.1	511.1	511.1	511.1	511.1	511.1	511.1	511.1	511.1



TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1542.1	1542.1	1542.1	1542.1	1542.1	1542.1
2.5°	1534.3	1539.1	1534.6	1539.8	1532.7	1536.5
5°	1527.9	1537.9	1527.9	1530.6	1528.1	1524.6
7.5°	1515.7	1506.0	1516.1	1520.3	1519.4	1516.8
10°	1496.3	1494.8	1496.7	1500.3	1503.0	1491.7
12.5°	1474.4	1471.3	1474.4	1482.6	1471.2	1467.9
15°	1445.8	1439.4	1446.2	1455.3	1446.6	1449.0
17.5°	1421.2	1417.6	1421.2	1421.6	1412.8	1417.1
20°	1385.3	1381.7	1385.7	1383.3	1384.1	1375.2
22.5°	1348.0	1353.4	1348.3	1345.1	1343.1	1344.9
25°	1303.3	1305.2	1303.7	1305.3	1293.9	1296.6
27.5°	1261.8	1263.2	1262.1	1258.9	1241.9	1243.7
30°	1211.7	1212.2	1212.4	1210.0	1190.9	1186.3
32.5°	1165.2	1164.3	1165.9	1150.8	1129.9	1133.5
35°	1109.3	1114.7	1110.4	1092.1	1062.1	1057.5
37.5°	1054.6	1066.8	1055.7	1019.2	994.6	991.0
40°	988.1	1004.9	988.8	945.4	924.5	935.4
42.5°	919.8	942.9	920.5	873.1	859.8	864.4
45°	846.0	878.2	846.7	798.4	796.6	809.3
47.5°	771.2	810.8	771.6	731.9	733.7	750.1
50°	691.6	726.6	692.3	663.6	681.8	690.0
52.5°	623.3	633.7	624.0	606.7	627.1	638.0
55°	549.1	533.1	549.8	548.4	572.1	576.6
57.5°	469.9	449.4	470.7	486.5	522.0	528.3
60°	394.3	383.8	394.7	423.3	462.5	469.8
62.5°	326.9	323.3	327.3	364.1	406.0	414.2
65°	270.4	277.7	270.8	301.8	343.7	357.3
67.5°	224.9	234.9	224.9	253.5	285.4	306.3
70°	184.8	195.7	184.8	208.5	231.2	254.0
72.5°	150.7	160.7	151.1	167.5	186.6	207.5
75°	119.7	131.6	119.7	129.7	145.6	168.4
77.5°	93.3	104.2	93.3	96.9	120.6	141.1
80°	69.6	78.7	69.6	76.2	105.6	119.9
82.5°	48.7	52.3	48.7	67.7	97.9	106.7
85°	37.2	30.4	37.9	65.6	96.0	101.4
87.5°	30.1	9.1	35.1	67.8	100.1	99.8
90°	19.9	1.3	33.5	73.4	104.7	102.9
92.5°	8.9	6.7	33.7	79.4	110.7	112.2
95°	2.4	15.3	38.3	84.8	116.8	118.1
97.5°	5.2	26.4	51.2	89.7	122.0	126.6
100°	12.8	40.0	66.6	99.5	125.6	130.6
102.5°	23.1	54.8	81.4	113.2	135.8	141.9
105°	37.2	71.6	96.8	131.7	150.4	155.4
107.5°	54.2	89.6	113.4	147.6	167.3	170.9
110°	71.4	109.1	129.3	163.0	184.5	188.9





TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	90.1	128.6	145.8	177.4	202.8	206.1
115°	111.3	146.5	161.2	193.9	217.6	220.3
117.5°	130.4	168.0	177.0	207.0	233.9	234.2
120°	151.3	189.4	193.7	223.9	249.0	251.8
122.5°	171.8	208.8	208.8	238.3	262.3	264.0
125°	190.9	229.6	223.9	249.0	274.5	275.2
127.5°	210.2	250.8	240.3	262.9	286.4	285.3
130°	231.4	270.9	255.5	276.2	297.5	294.7
132.5°	251.7	293.4	271.8	289.9	309.5	311.6
135°	271.1	313.4	285.1	302.7	321.0	320.3
137.5°	289.7	332.1	301.2	312.0	328.5	330.6
140°	308.0	352.2	315.6	324.2	337.8	338.2
142.5°	327.4	372.3	331.4	336.4	348.2	346.1
145°	349.0	391.3	351.1	348.6	356.1	351.5
147.5°	368.0	407.8	365.2	357.6	366.5	360.4
150°	389.2	424.8	384.5	371.1	376.5	373.6
152.5°	408.5	438.0	405.7	380.7	386.9	383.3
155°	427.6	452.0	426.1	389.5	394.8	393.3
157.5°	444.1	464.2	441.6	399.6	405.5	402.6
160°	458.5	473.3	459.6	414.6	412.7	412.7
162.5°	471.0	483.1	472.1	435.1	419.7	413.8
165°	482.2	490.5	483.2	458.1	434.8	429.6
167.5°	491.6	497.7	494.9	476.8	458.1	445.2
170°	500.7	504.3	500.5	491.6	483.2	472.1
172.5°	505.0	506.5	508.9	503.0	500.5	492.4
175°	507.6	511.5	509.3	511.1	507.0	504.7
177.5°	509.2	509.9	509.6	511.9	512.8	510.2
180°	511.1	511.1	511.1	511.1	511.1	511.1

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