

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: P392485

Luminaire Tested: **MWL-2-13-38-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392485  
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-L835-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

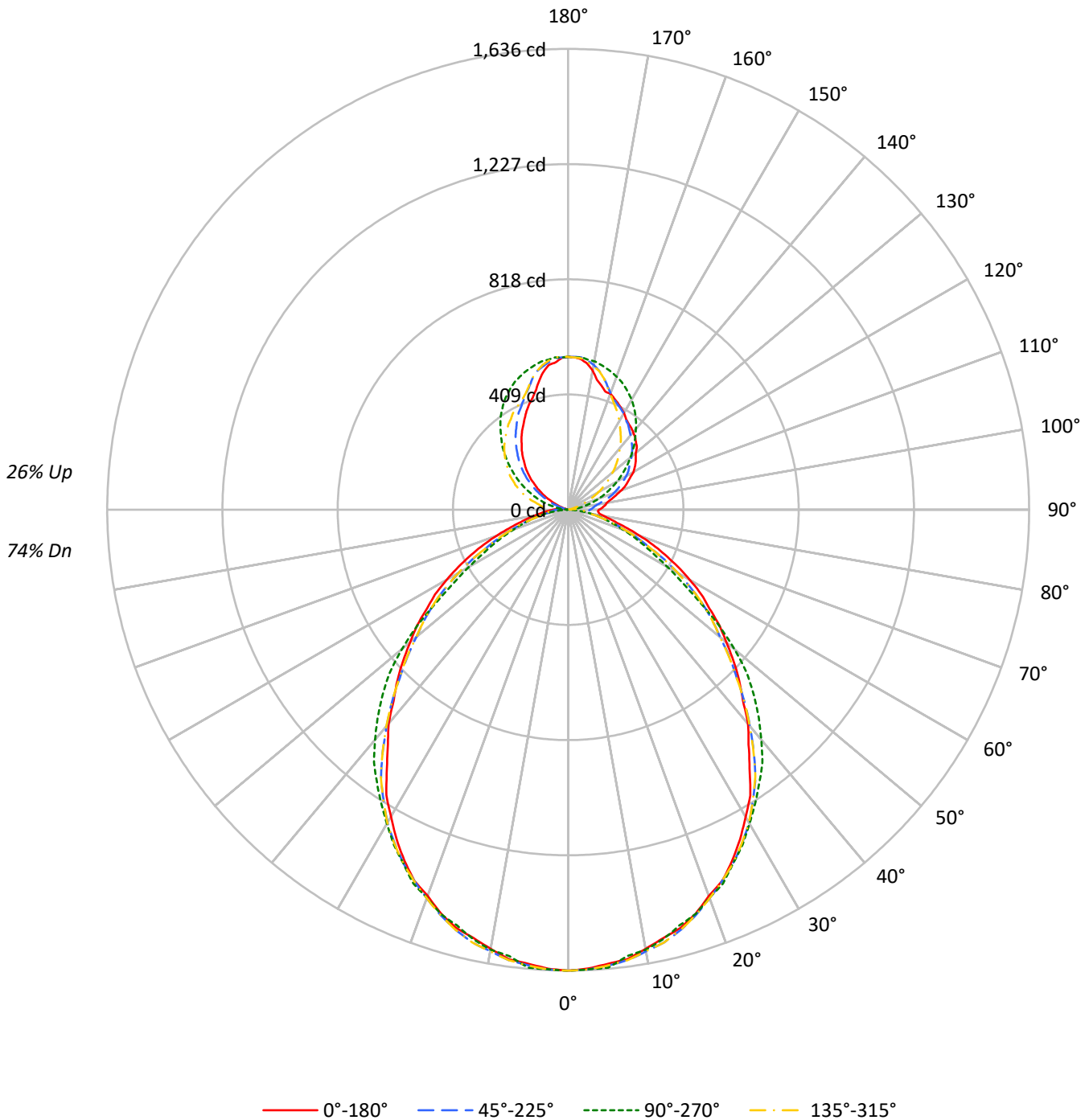
Lumens per Lamp: N/A  
Luminaire Lumens: 5016.0 lumens  
Efficiency: N/A  
Efficacy: 92.5 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: Semi-Direct

Input Watts (W): 54.2  
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: P392485  
CATALOG NUMBER: MWL-2-13-38-UNV-L835-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	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°	21138	21138	21138	21138
5°	20603	19459	20603	19459
10°	20027	17687	20027	17687
15°	19474	16110	19462	16110
20°	18645	14776	18632	14776
25°	17873	13462	17857	13462
30°	16760	12164	16740	12164
35°	15443	10971	15427	10971
40°	14248	9776	14225	9776
45°	12984	8512	12966	8512
50°	11787	7070	11769	7070
55°	10622	5247	10608	5247
60°	9463	3850	9456	3850
65°	8011	2864	8011	2864
70°	6473	2093	6482	2093
75°	5017	1472	5048	1472
80°	4337	931	4095	931
85°	4716	385	3634	385



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.9	3.1
10°-20°	433.0	8.6
20°-30°	635.1	12.7
30°-40°	720.0	14.4
40°-50°	671.9	13.4
50°-60°	527.6	10.5
60°-70°	328.4	6.5
70°-80°	158.4	3.2
80°-90°	73.5	1.5
90°-100°	57.9	1.2
100°-110°	84.9	1.7
110°-120°	145.0	2.9
120°-130°	196.7	3.9
130°-140°	224.4	4.5
140°-150°	223.5	4.5
150°-160°	194.6	3.9
160°-170°	136.6	2.7
170°-180°	50.8	1.0
0°-30°	1221.9	24.4
0°-40°	1941.9	38.7
0°-60°	3141.4	62.6
0°-90°	3701.7	73.8
90°-120°	287.7	5.7
90°-150°	932.4	18.6
90°-180°	1314.0	26.2
0°-180°	5016.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1636	1636	1636	1636	1636	
5°	1618	1632	1618	1632	1618	154
15°	1538	1528	1537	1528	1538	432
25°	1376	1385	1375	1385	1376	632
35°	1122	1183	1121	1183	1122	704
45°	859	932	858	932	859	662
55°	612	566	611	566	612	551
65°	379	295	379	295	379	378
75°	179	140	180	140	179	197
85°	108	32	83	32	108	92
90°	109	1	52	1	109	61
95°	125	16	35	16	125	106
105°	165	76	5	76	165	176
115°	234	156	56	156	234	232
125°	292	244	134	244	292	261
135°	340	333	215	333	340	262
145°	373	415	288	415	373	235
155°	417	480	362	480	417	192
165°	456	520	441	520	456	129
175°	536	543	524	543	536	50
180°	542	542	542	542	542	



TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L835-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5
2.5°	1630.5	1626.5	1634.0	1628.5	1633.3	1628.2	1634.0	1626.5	1630.9	1626.5	1634.0
5°	1618.0	1621.6	1624.3	1621.4	1632.1	1621.4	1624.0	1621.6	1618.0	1621.6	1624.0
7.5°	1609.7	1612.4	1613.3	1608.9	1598.2	1608.5	1612.9	1612.0	1609.7	1612.0	1612.9
10°	1583.0	1595.0	1592.1	1588.2	1586.3	1587.8	1591.7	1594.2	1583.0	1594.2	1591.7
12.5°	1557.6	1561.1	1573.3	1564.6	1561.3	1564.6	1573.3	1560.3	1556.9	1560.3	1573.3
15°	1537.6	1535.0	1544.3	1534.6	1527.5	1534.2	1543.9	1534.2	1536.6	1534.2	1543.9
17.5°	1503.8	1499.2	1508.5	1508.1	1504.3	1508.1	1508.1	1498.9	1502.7	1498.9	1508.1
20°	1459.3	1468.7	1467.9	1470.4	1466.2	1470.1	1467.5	1467.9	1458.3	1467.9	1467.5
22.5°	1427.1	1425.2	1427.3	1430.8	1436.2	1430.4	1426.9	1424.4	1426.4	1424.4	1426.9
25°	1375.9	1373.0	1385.2	1383.4	1385.0	1383.0	1384.4	1371.8	1374.7	1371.8	1384.4
27.5°	1319.8	1317.9	1335.9	1339.3	1340.5	1339.0	1335.1	1316.7	1318.7	1316.7	1335.1
30°	1258.9	1263.7	1284.0	1286.6	1286.4	1285.8	1282.9	1262.6	1257.4	1262.6	1282.9
32.5°	1202.8	1199.0	1221.2	1237.3	1235.5	1236.5	1220.0	1197.4	1201.3	1197.4	1220.0
35°	1122.2	1127.0	1159.0	1178.3	1182.9	1177.1	1157.8	1125.9	1121.1	1125.9	1157.8
37.5°	1051.6	1055.5	1081.6	1120.3	1132.1	1119.1	1080.4	1054.3	1050.5	1054.3	1080.4
40°	992.7	981.1	1003.3	1049.3	1066.3	1048.5	1001.8	979.5	991.1	979.5	1001.8
42.5°	917.3	912.4	926.5	976.8	1000.6	976.0	925.4	910.9	915.7	910.9	925.4
45°	858.9	845.3	847.3	898.5	932.0	897.7	845.7	844.2	857.7	844.2	845.7
47.5°	796.0	778.6	776.7	818.8	860.4	818.5	775.1	777.5	794.9	777.5	775.1
50°	732.2	723.5	704.2	734.7	771.1	734.0	702.6	722.0	731.1	722.0	702.6
52.5°	677.1	665.5	643.9	662.2	672.5	661.5	642.7	664.0	676.0	664.0	642.7
55°	612.0	607.1	582.0	583.5	565.7	582.8	580.8	606.0	611.2	606.0	580.8
57.5°	560.7	554.0	516.2	499.4	476.8	498.7	515.1	552.8	559.9	552.8	515.1
60°	498.5	490.7	449.2	418.8	407.2	418.4	448.4	490.0	498.1	490.0	448.4
62.5°	439.5	430.8	386.3	347.3	343.0	346.9	385.5	430.0	439.1	430.0	385.5
65°	379.2	364.7	320.2	287.3	294.7	286.9	319.8	364.3	379.2	364.3	319.8
67.5°	325.0	302.8	269.0	238.6	249.2	238.6	268.6	302.4	325.0	302.4	268.6
70°	269.5	245.4	221.2	196.1	207.7	196.1	221.2	245.8	269.9	245.8	221.2
72.5°	220.2	198.0	177.7	160.3	170.5	159.9	177.7	198.4	221.0	198.4	177.7
75°	178.7	154.5	137.7	127.0	139.6	127.0	138.1	154.9	179.8	154.9	138.1
77.5°	149.8	128.0	102.9	99.0	110.6	99.0	103.2	126.8	148.3	126.8	103.2
80°	127.2	112.0	80.8	73.9	83.5	73.9	80.0	106.0	120.1	106.0	80.0
82.5°	113.2	103.9	71.8	51.6	55.5	51.6	67.3	90.3	98.7	90.3	67.3
85°	107.6	101.9	69.6	40.2	32.3	39.4	58.5	78.6	82.9	78.6	58.5
87.5°	105.9	106.2	71.9	37.2	9.7	31.9	50.2	69.7	66.6	69.7	50.2
90°	109.1	111.1	77.9	35.6	1.4	21.1	40.2	57.4	52.0	57.4	40.2
92.5°	119.1	117.5	84.3	35.8	7.1	9.5	32.1	47.0	44.5	47.0	32.1
95°	125.3	123.9	90.0	40.6	16.2	2.5	21.5	35.6	35.0	35.6	21.5
97.5°	134.3	129.4	95.1	54.3	28.0	5.5	11.0	24.7	27.6	24.7	11.0
100°	138.5	133.3	105.6	70.7	42.4	13.5	4.6	13.7	18.6	13.7	4.6
102.5°	150.5	144.0	120.2	86.3	58.1	24.6	6.7	7.0	8.9	7.0	6.7
105°	164.9	159.6	139.8	102.7	76.0	39.4	16.8	6.5	4.6	6.5	16.8
107.5°	181.4	177.5	156.6	120.4	95.0	57.5	29.8	16.0	10.7	16.0	29.8
110°	200.4	195.8	173.0	137.2	115.8	75.8	44.6	28.2	22.1	28.2	44.6



TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	218.7	215.2	188.2	154.7	136.4	95.6	62.8	43.4	37.7	43.4	62.8
115°	233.8	230.9	205.7	171.0	155.5	118.1	83.0	61.4	55.5	61.4	83.0
117.5°	248.6	248.2	219.6	187.8	178.3	138.3	102.7	80.2	73.0	80.2	102.7
120°	267.2	264.2	237.5	205.5	201.0	160.6	123.3	100.8	93.6	100.8	123.3
122.5°	280.2	278.3	252.8	221.6	221.6	182.3	143.1	120.6	113.0	120.6	143.1
125°	292.0	291.3	264.2	237.5	243.6	202.5	165.1	142.3	133.9	142.3	165.1
127.5°	302.7	303.9	279.0	255.0	266.1	223.0	186.9	161.7	152.9	161.7	186.9
130°	312.7	315.6	293.1	271.1	287.4	245.6	206.3	181.2	176.4	181.2	206.3
132.5°	330.6	328.4	307.6	288.4	311.3	267.1	226.9	201.6	195.1	201.6	226.9
135°	339.8	340.6	321.2	302.5	332.6	287.6	247.3	221.4	214.9	221.4	247.3
137.5°	350.8	348.6	331.0	319.6	352.4	307.4	266.3	242.3	232.0	242.3	266.3
140°	358.9	358.5	344.0	334.9	373.7	326.9	285.8	261.3	251.8	261.3	285.8
142.5°	367.3	369.5	356.9	351.6	395.0	347.5	306.7	280.0	270.9	280.0	306.7
145°	373.0	377.9	369.9	372.6	415.2	370.3	324.9	298.0	288.0	298.0	324.9
147.5°	382.4	388.9	379.5	387.5	432.7	390.5	343.3	316.6	307.8	316.6	343.3
150°	396.4	399.5	393.8	408.0	450.7	413.0	362.9	335.5	326.7	335.5	362.9
152.5°	406.7	410.5	404.0	430.5	464.7	433.5	383.4	353.0	342.7	353.0	383.4
155°	417.3	418.9	413.3	452.2	479.6	453.7	398.9	372.4	362.5	372.4	398.9
157.5°	427.2	430.3	424.0	468.6	492.6	471.2	417.5	391.8	383.0	391.8	417.5
160°	437.9	437.9	440.0	487.6	502.2	486.5	437.4	413.2	401.0	413.2	437.4
162.5°	439.1	445.3	461.7	501.0	512.6	499.8	458.6	427.4	417.7	427.4	458.6
165°	455.8	461.3	486.1	512.8	520.5	511.6	484.9	452.5	440.9	452.5	484.9
167.5°	472.4	486.1	505.9	525.1	528.1	521.7	505.1	482.7	471.2	482.7	505.1
170°	501.0	512.8	521.7	531.0	535.2	531.4	516.7	506.7	499.4	506.7	516.7
172.5°	522.4	531.0	533.8	540.1	537.5	536.0	528.1	523.8	519.1	523.8	528.1
175°	535.6	538.1	542.4	540.5	542.8	538.7	539.1	540.7	524.2	540.7	539.1
177.5°	541.5	544.2	543.2	540.8	541.1	540.4	540.9	541.5	539.2	541.5	540.9
180°	542.4	542.4	542.4	542.4	542.4	542.4	542.4	542.4	542.4	542.4	542.4



TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1636.5	1636.5	1636.5	1636.5	1636.5	1636.5
2.5°	1628.2	1633.3	1628.5	1634.0	1626.5	1630.5
5°	1621.4	1632.1	1621.4	1624.3	1621.6	1618.0
7.5°	1608.5	1598.2	1608.9	1613.3	1612.4	1609.7
10°	1587.8	1586.3	1588.2	1592.1	1595.0	1583.0
12.5°	1564.6	1561.3	1564.6	1573.3	1561.1	1557.6
15°	1534.2	1527.5	1534.6	1544.3	1535.0	1537.6
17.5°	1508.1	1504.3	1508.1	1508.5	1499.2	1503.8
20°	1470.1	1466.2	1470.4	1467.9	1468.7	1459.3
22.5°	1430.4	1436.2	1430.8	1427.3	1425.2	1427.1
25°	1383.0	1385.0	1383.4	1385.2	1373.0	1375.9
27.5°	1339.0	1340.5	1339.3	1335.9	1317.9	1319.8
30°	1285.8	1286.4	1286.6	1284.0	1263.7	1258.9
32.5°	1236.5	1235.5	1237.3	1221.2	1199.0	1202.8
35°	1177.1	1182.9	1178.3	1159.0	1127.0	1122.2
37.5°	1119.1	1132.1	1120.3	1081.6	1055.5	1051.6
40°	1048.5	1066.3	1049.3	1003.3	981.1	992.7
42.5°	976.0	1000.6	976.8	926.5	912.4	917.3
45°	897.7	932.0	898.5	847.3	845.3	858.9
47.5°	818.5	860.4	818.8	776.7	778.6	796.0
50°	734.0	771.1	734.7	704.2	723.5	732.2
52.5°	661.5	672.5	662.2	643.9	665.5	677.1
55°	582.8	565.7	583.5	582.0	607.1	612.0
57.5°	498.7	476.8	499.4	516.2	554.0	560.7
60°	418.4	407.2	418.8	449.2	490.7	498.5
62.5°	346.9	343.0	347.3	386.3	430.8	439.5
65°	286.9	294.7	287.3	320.2	364.7	379.2
67.5°	238.6	249.2	238.6	269.0	302.8	325.0
70°	196.1	207.7	196.1	221.2	245.4	269.5
72.5°	159.9	170.5	160.3	177.7	198.0	220.2
75°	127.0	139.6	127.0	137.7	154.5	178.7
77.5°	99.0	110.6	99.0	102.9	128.0	149.8
80°	73.9	83.5	73.9	80.8	112.0	127.2
82.5°	51.6	55.5	51.6	71.8	103.9	113.2
85°	39.4	32.3	40.2	69.6	101.9	107.6
87.5°	31.9	9.7	37.2	71.9	106.2	105.9
90°	21.1	1.4	35.6	77.9	111.1	109.1
92.5°	9.5	7.1	35.8	84.3	117.5	119.1
95°	2.5	16.2	40.6	90.0	123.9	125.3
97.5°	5.5	28.0	54.3	95.1	129.4	134.3
100°	13.5	42.4	70.7	105.6	133.3	138.5
102.5°	24.6	58.1	86.3	120.2	144.0	150.5
105°	39.4	76.0	102.7	139.8	159.6	164.9
107.5°	57.5	95.0	120.4	156.6	177.5	181.4
110°	75.8	115.8	137.2	173.0	195.8	200.4





TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	95.6	136.4	154.7	188.2	215.2	218.7
115°	118.1	155.5	171.0	205.7	230.9	233.8
117.5°	138.3	178.3	187.8	219.6	248.2	248.6
120°	160.6	201.0	205.5	237.5	264.2	267.2
122.5°	182.3	221.6	221.6	252.8	278.3	280.2
125°	202.5	243.6	237.5	264.2	291.3	292.0
127.5°	223.0	266.1	255.0	279.0	303.9	302.7
130°	245.6	287.4	271.1	293.1	315.6	312.7
132.5°	267.1	311.3	288.4	307.6	328.4	330.6
135°	287.6	332.6	302.5	321.2	340.6	339.8
137.5°	307.4	352.4	319.6	331.0	348.6	350.8
140°	326.9	373.7	334.9	344.0	358.5	358.9
142.5°	347.5	395.0	351.6	356.9	369.5	367.3
145°	370.3	415.2	372.6	369.9	377.9	373.0
147.5°	390.5	432.7	387.5	379.5	388.9	382.4
150°	413.0	450.7	408.0	393.8	399.5	396.4
152.5°	433.5	464.7	430.5	404.0	410.5	406.7
155°	453.7	479.6	452.2	413.3	418.9	417.3
157.5°	471.2	492.6	468.6	424.0	430.3	427.2
160°	486.5	502.2	487.6	440.0	437.9	437.9
162.5°	499.8	512.6	501.0	461.7	445.3	439.1
165°	511.6	520.5	512.8	486.1	461.3	455.8
167.5°	521.7	528.1	525.1	505.9	486.1	472.4
170°	531.4	535.2	531.0	521.7	512.8	501.0
172.5°	536.0	537.5	540.1	533.8	531.0	522.4
175°	538.7	542.8	540.5	542.4	538.1	535.6
177.5°	540.4	541.1	540.8	543.2	544.2	541.5
180°	542.4	542.4	542.4	542.4	542.4	542.4

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