

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: P392621

Luminaire Tested: **MWL-3-53-28-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392621  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-13 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-3-53-28-UNV-L840-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8115.0 lumens  
Efficiency: N/A  
Efficacy: 83.4 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

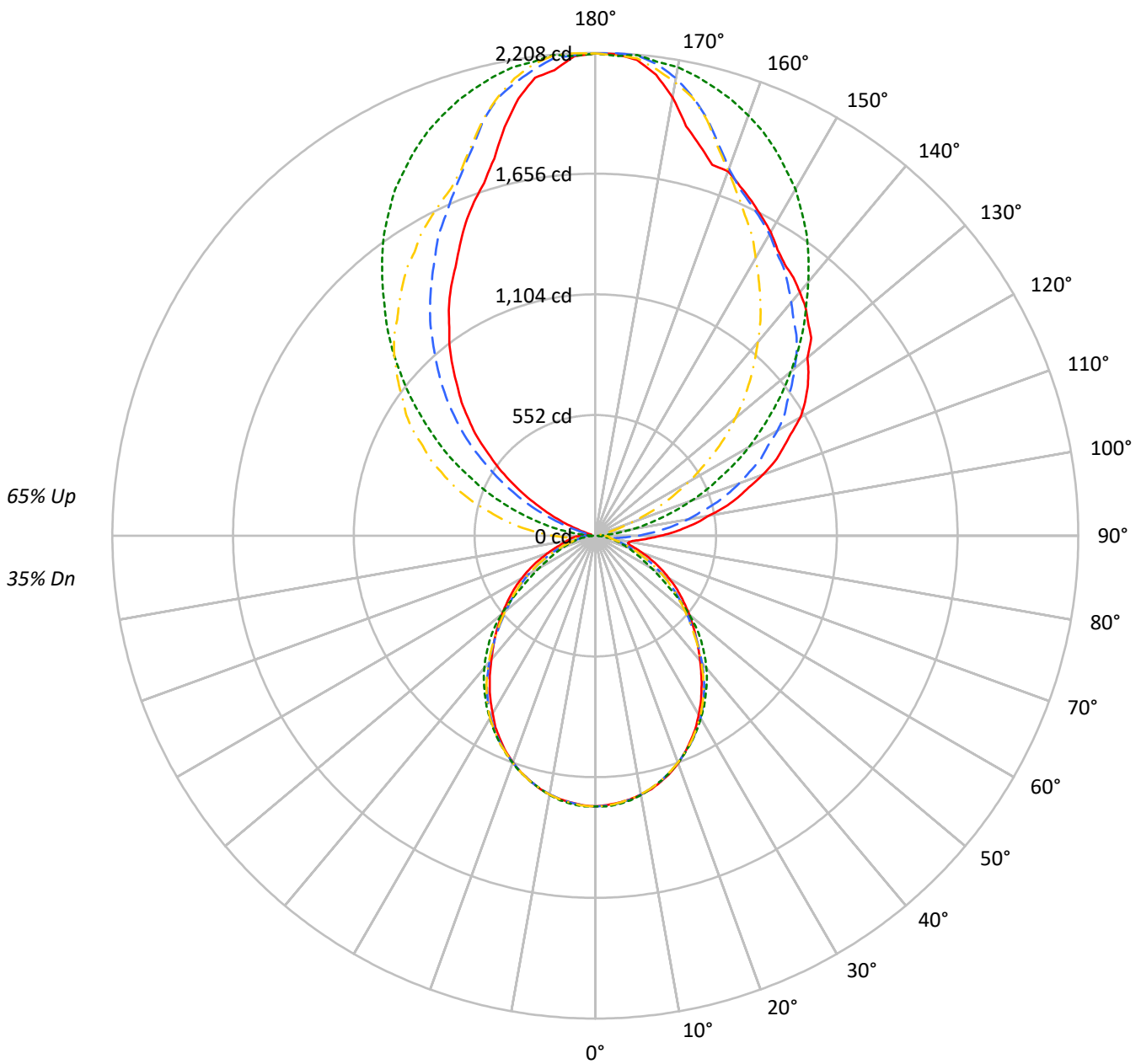
Input Watts (W): 97.3  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot



— 0°-180°    - - 45°-225°    - · - · 90°-270°    - · - · 135°-315°



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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	104	104	104	104	94	94	94	94	75	75	75		58	58	58		43	43	43	35
1	94	90	86	83	85	82	79	76	66	64	62		51	50	48		38	37	36	30
2	86	79	73	68	78	72	67	62	58	54	51		45	43	41		33	32	31	25
3	79	70	63	57	71	63	57	52	51	47	43		40	37	35		30	28	26	22
4	72	62	54	48	65	56	50	45	46	41	37		36	33	30		27	25	23	19
5	66	55	47	41	60	50	43	38	41	36	32		32	29	26		24	22	20	16
6	61	49	42	36	55	45	38	33	37	32	28		29	26	23		22	20	18	15
7	56	44	37	31	51	41	34	29	33	28	25		27	23	20		20	18	16	13
8	52	40	33	28	47	37	30	26	30	25	22		24	21	18		19	16	14	12
9	49	37	30	25	44	34	27	23	28	23	20		22	19	16		17	15	13	11
10	45	34	27	22	41	31	25	21	26	21	18		21	17	15		16	13	12	10

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

	0°	90°	180°	270°
0°	10660	10660	10660	10660
5°	10464	9789	10464	9789
10°	10253	8956	10253	8956
15°	9996	8155	9956	8155
20°	9656	7425	9615	7425
25°	9213	6740	9171	6740
30°	8694	6078	8636	6078
35°	8114	5448	8069	5448
40°	7499	4827	7437	4827
45°	6954	4176	6904	4176
50°	6440	3424	6387	3424
55°	5936	2533	5897	2533
60°	5389	1870	5368	1870
65°	4815	1413	4815	1413
70°	4157	1049	4186	1049
75°	3574	757	3677	757
80°	4413	502	3592	502
85°	7973	211	4105	211



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	116.4	1.4
10°-20°	326.8	4.0
20°-30°	477.0	5.9
30°-40°	539.2	6.6
40°-50°	504.2	6.2
50°-60°	398.1	4.9
60°-70°	260.7	3.2
70°-80°	137.1	1.7
80°-90°	98.6	1.2
90°-100°	172.3	2.1
100°-110°	340.7	4.2
110°-120°	585.4	7.2
120°-130°	795.5	9.8
130°-140°	907.5	11.2
140°-150°	905.4	11.2
150°-160°	788.6	9.7
160°-170°	554.8	6.8
170°-180°	206.6	2.5
0°-30°	920.2	11.3
0°-40°	1459.5	18.0
0°-60°	2361.8	29.1
0°-90°	2858.2	35.2
90°-120°	1098.4	13.5
90°-150°	3706.8	45.7
90°-180°	5257.0	64.8
0°-180°	8115.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1238	1238	1238	1238	1238	
5°	1225	1232	1225	1232	1225	116
15°	1163	1160	1158	1160	1163	328
25°	1032	1040	1028	1040	1032	475
35°	847	881	842	881	847	529
45°	650	686	646	686	650	502
55°	474	410	471	410	474	424
65°	307	218	307	218	307	304
75°	163	108	168	108	163	186
85°	209	27	108	27	209	160
90°	298	3	64	3	298	165
95°	411	63	42	63	411	360
105°	674	308	18	308	674	709
115°	946	629	217	629	946	939
125°	1185	986	538	986	1185	1058
135°	1376	1346	865	1346	1376	1062
145°	1512	1684	1164	1684	1512	953
155°	1689	1948	1465	1948	1689	779
165°	1847	2119	1786	2119	1847	524
175°	2184	2207	2137	2207	2184	204
180°	2205	2205	2205	2205	2205	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9
2.5°	1232.2	1235.3	1235.5	1238.0	1239.0	1236.5	1235.5	1235.3	1233.8	1235.3	1235.5
5°	1225.2	1228.3	1228.5	1229.5	1231.5	1229.5	1226.9	1228.3	1225.2	1228.3	1226.9
7.5°	1215.8	1218.9	1216.9	1219.5	1220.5	1217.9	1215.3	1217.3	1215.8	1217.3	1215.3
10°	1201.3	1202.9	1201.9	1202.9	1204.9	1201.3	1200.3	1199.8	1201.3	1199.8	1200.3
12.5°	1186.5	1184.9	1182.3	1183.3	1181.8	1183.3	1182.3	1181.8	1183.3	1181.8	1182.3
15°	1163.0	1161.9	1160.3	1162.3	1159.8	1160.8	1158.8	1158.8	1158.3	1158.8	1158.8
17.5°	1138.0	1135.9	1133.3	1134.8	1134.8	1134.8	1131.8	1134.3	1133.3	1134.3	1131.8
20°	1107.0	1107.5	1105.3	1106.8	1105.2	1105.2	1103.8	1104.3	1102.3	1104.3	1103.8
22.5°	1071.5	1073.5	1072.3	1075.8	1073.2	1074.2	1070.8	1070.3	1068.3	1070.3	1070.8
25°	1032.5	1035.5	1040.9	1041.8	1040.2	1040.2	1037.8	1030.8	1027.8	1030.8	1037.8
27.5°	992.5	995.5	1000.9	1005.3	1003.2	1003.8	997.8	990.8	987.8	990.8	997.8
30°	944.5	950.5	962.5	967.9	964.2	964.8	957.8	945.8	938.2	945.8	957.8
32.5°	898.5	903.5	916.5	926.9	924.8	923.8	911.8	897.2	892.2	897.2	911.8
35°	846.9	849.9	866.9	881.9	881.2	877.2	862.2	845.2	842.2	845.2	862.2
37.5°	795.9	796.9	814.9	835.9	836.8	831.2	810.2	792.2	791.2	792.2	810.2
40°	744.9	742.9	758.9	783.3	789.8	780.2	752.7	736.7	738.7	736.7	752.7
42.5°	696.9	689.9	702.3	730.3	738.8	727.2	697.7	683.7	690.7	683.7	697.7
45°	650.3	638.3	645.3	670.3	685.8	667.2	639.1	633.7	645.7	633.7	639.1
47.5°	604.3	593.3	590.3	609.8	627.8	608.2	584.1	588.7	599.7	588.7	584.1
50°	560.3	548.3	539.3	550.8	560.2	547.7	533.1	542.1	555.7	542.1	533.1
52.5°	516.3	505.3	489.8	491.8	487.2	488.7	485.1	499.1	511.7	499.1	485.1
55°	473.8	463.8	443.8	433.2	409.7	430.1	439.1	459.1	470.7	459.1	439.1
57.5°	433.8	424.8	399.8	374.2	348.7	371.1	395.1	420.1	430.7	420.1	395.1
60°	388.2	383.2	354.2	315.7	296.7	314.1	351.1	380.1	386.7	380.1	351.1
62.5°	348.2	342.2	309.2	266.7	251.1	265.1	306.1	339.1	346.7	339.1	306.1
65°	306.7	297.7	263.7	222.7	218.1	221.1	262.1	296.1	306.7	296.1	262.1
67.5°	265.7	256.7	224.7	187.1	184.1	187.1	223.1	255.1	265.7	255.1	223.1
70°	228.1	214.1	186.1	154.1	156.1	154.1	186.1	215.7	229.7	215.7	186.1
72.5°	194.1	174.1	153.1	127.1	130.6	125.6	153.1	175.7	197.2	175.7	153.1
75°	163.1	141.1	118.6	101.6	107.6	101.6	120.1	142.7	167.8	142.7	120.1
77.5°	152.6	121.3	92.6	80.6	88.6	80.6	94.1	116.7	146.3	116.7	94.1
80°	159.1	123.2	77.2	61.6	67.6	61.6	74.1	98.2	129.5	98.2	74.1
82.5°	175.5	142.4	83.9	43.6	46.6	43.6	65.2	86.3	116.3	86.3	65.2
85°	208.8	177.2	108.2	38.2	26.6	35.1	63.0	82.1	107.5	82.1	63.0
87.5°	249.8	225.8	145.4	53.6	7.0	31.8	56.6	76.3	89.4	76.3	56.6
90°	297.6	277.0	193.5	79.3	2.6	20.1	39.2	57.3	63.9	57.3	39.2
92.5°	357.2	334.5	245.1	120.6	25.9	13.1	31.7	46.2	51.8	46.2	31.7
95°	410.9	399.6	305.1	165.0	63.3	9.2	24.7	38.1	41.7	38.1	24.7
97.5°	471.5	461.7	366.7	219.1	111.6	19.7	22.3	33.2	35.2	33.2	22.3
100°	525.2	520.7	428.8	286.1	170.8	52.4	15.9	31.5	34.5	31.5	15.9
102.5°	607.1	584.4	488.7	350.0	234.7	97.6	24.4	23.5	27.5	23.5	24.4
105°	673.8	648.0	565.0	417.0	307.9	158.4	61.8	21.7	17.9	21.7	61.8
107.5°	735.8	720.3	633.6	485.6	385.8	228.5	114.7	59.6	37.8	59.6	114.7
110°	813.7	795.0	700.6	554.1	466.9	303.3	175.5	109.5	84.6	109.5	175.5



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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°	888.5	874.5	762.9	625.8	551.0	384.3	250.3	171.8	148.5	171.8	250.3
115°	946.2	938.4	835.6	692.8	628.9	476.2	333.9	245.1	217.0	245.1	333.9
117.5°	1006.9	1005.4	888.5	761.3	722.4	558.8	410.2	318.3	288.7	318.3	410.2
120°	1083.3	1070.8	961.8	829.9	811.2	646.0	494.3	402.4	372.8	402.4	494.3
122.5°	1136.3	1128.5	1024.1	895.3	895.3	734.8	575.4	483.4	452.3	483.4	575.4
125°	1184.6	1181.4	1070.8	960.8	985.7	817.4	665.7	572.2	538.0	572.2	665.7
127.5°	1228.2	1232.9	1131.6	1032.4	1077.6	901.6	754.5	651.7	615.9	651.7	754.5
130°	1265.6	1281.2	1189.2	1097.9	1164.9	993.5	834.0	731.2	707.8	731.2	834.0
132.5°	1338.8	1329.5	1248.4	1164.9	1258.3	1077.6	918.1	810.6	784.1	810.6	918.1
135°	1376.2	1379.3	1299.9	1223.5	1345.6	1162.7	997.6	891.6	865.2	891.6	997.6
137.5°	1421.4	1412.0	1340.4	1293.6	1426.6	1243.8	1075.5	977.3	935.3	977.3	1075.5
140°	1454.1	1452.5	1393.3	1355.9	1513.9	1323.2	1155.0	1055.2	1016.3	1055.2	1155.0
142.5°	1488.4	1497.7	1446.3	1424.5	1601.1	1407.4	1240.6	1131.6	1094.2	1131.6	1240.6
145°	1511.7	1532.0	1499.3	1510.2	1683.7	1500.8	1315.4	1204.8	1164.3	1204.8	1315.4
147.5°	1550.7	1577.2	1538.2	1571.0	1755.4	1583.4	1390.2	1281.2	1245.3	1281.2	1390.2
150°	1603.7	1616.1	1592.8	1655.1	1829.6	1675.3	1466.6	1354.4	1318.6	1354.4	1466.6
152.5°	1645.7	1661.3	1634.8	1747.0	1887.2	1759.5	1550.7	1426.1	1384.0	1426.1	1550.7
155°	1689.4	1695.6	1676.9	1835.8	1948.0	1842.1	1617.7	1505.5	1465.0	1505.5	1617.7
157.5°	1729.9	1742.3	1720.5	1902.8	2001.0	1913.7	1694.0	1585.0	1549.1	1585.0	1694.0
160°	1773.5	1773.5	1786.0	1980.7	2044.6	1976.0	1775.1	1672.2	1622.4	1672.2	1775.1
162.5°	1778.2	1807.8	1874.8	2035.3	2086.7	2030.6	1862.3	1734.6	1690.9	1734.6	1862.3
165°	1846.7	1873.2	1974.5	2083.6	2119.4	2078.9	1969.8	1837.4	1786.0	1837.4	1969.8
167.5°	1918.4	1974.5	2055.5	2138.1	2150.5	2124.1	2052.4	1960.5	1913.7	1960.5	2052.4
170°	2035.3	2083.6	2124.1	2158.3	2175.5	2159.9	2103.8	2058.6	2029.0	2058.6	2103.8
172.5°	2126.2	2158.3	2173.9	2195.7	2184.8	2178.6	2150.5	2128.7	2112.2	2128.7	2150.5
175°	2183.8	2191.1	2205.1	2197.3	2206.6	2189.5	2191.1	2202.0	2137.1	2202.0	2191.1
177.5°	2204.1	2216.0	2208.2	2194.2	2195.7	2192.6	2198.8	2205.1	2194.7	2205.1	2198.8
180°	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1237.9	1237.9	1237.9	1237.9	1237.9	1237.9
2.5°	1236.5	1239.0	1238.0	1235.5	1235.3	1232.2
5°	1229.5	1231.5	1229.5	1228.5	1228.3	1225.2
7.5°	1217.9	1220.5	1219.5	1216.9	1218.9	1215.8
10°	1201.3	1204.9	1202.9	1201.9	1202.9	1201.3
12.5°	1183.3	1181.8	1183.3	1182.3	1184.9	1186.5
15°	1160.8	1159.8	1162.3	1160.3	1161.9	1163.0
17.5°	1134.8	1134.8	1134.8	1133.3	1135.9	1138.0
20°	1105.2	1105.2	1106.8	1105.3	1107.5	1107.0
22.5°	1074.2	1073.2	1075.8	1072.3	1073.5	1071.5
25°	1040.2	1040.2	1041.8	1040.9	1035.5	1032.5
27.5°	1003.8	1003.2	1005.3	1000.9	995.5	992.5
30°	964.8	964.2	967.9	962.5	950.5	944.5
32.5°	923.8	924.8	926.9	916.5	903.5	898.5
35°	877.2	881.2	881.9	866.9	849.9	846.9
37.5°	831.2	836.8	835.9	814.9	796.9	795.9
40°	780.2	789.8	783.3	758.9	742.9	744.9
42.5°	727.2	738.8	730.3	702.3	689.9	696.9
45°	667.2	685.8	670.3	645.3	638.3	650.3
47.5°	608.2	627.8	609.8	590.3	593.3	604.3
50°	547.7	560.2	550.8	539.3	548.3	560.3
52.5°	488.7	487.2	491.8	489.8	505.3	516.3
55°	430.1	409.7	433.2	443.8	463.8	473.8
57.5°	371.1	348.7	374.2	399.8	424.8	433.8
60°	314.1	296.7	315.7	354.2	383.2	388.2
62.5°	265.1	251.1	266.7	309.2	342.2	348.2
65°	221.1	218.1	222.7	263.7	297.7	306.7
67.5°	187.1	184.1	187.1	224.7	256.7	265.7
70°	154.1	156.1	154.1	186.1	214.1	228.1
72.5°	125.6	130.6	127.1	153.1	174.1	194.1
75°	101.6	107.6	101.6	118.6	141.1	163.1
77.5°	80.6	88.6	80.6	92.6	121.3	152.6
80°	61.6	67.6	61.6	77.2	123.2	159.1
82.5°	43.6	46.6	43.6	83.9	142.4	175.5
85°	35.1	26.6	38.2	108.2	177.2	208.8
87.5°	31.8	7.0	53.6	145.4	225.8	249.8
90°	20.1	2.6	79.3	193.5	277.0	297.6
92.5°	13.1	25.9	120.6	245.1	334.5	357.2
95°	9.2	63.3	165.0	305.1	399.6	410.9
97.5°	19.7	111.6	219.1	366.7	461.7	471.5
100°	52.4	170.8	286.1	428.8	520.7	525.2
102.5°	97.6	234.7	350.0	488.7	584.4	607.1
105°	158.4	307.9	417.0	565.0	648.0	673.8
107.5°	228.5	385.8	485.6	633.6	720.3	735.8
110°	303.3	466.9	554.1	700.6	795.0	813.7





TEST NUMBER: P392621

CATALOG NUMBER: MWL-3-53-28-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	384.3	551.0	625.8	762.9	874.5	888.5
115°	476.2	628.9	692.8	835.6	938.4	946.2
117.5°	558.8	722.4	761.3	888.5	1005.4	1006.9
120°	646.0	811.2	829.9	961.8	1070.8	1083.3
122.5°	734.8	895.3	895.3	1024.1	1128.5	1136.3
125°	817.4	985.7	960.8	1070.8	1181.4	1184.6
127.5°	901.6	1077.6	1032.4	1131.6	1232.9	1228.2
130°	993.5	1164.9	1097.9	1189.2	1281.2	1265.6
132.5°	1077.6	1258.3	1164.9	1248.4	1329.5	1338.8
135°	1162.7	1345.6	1223.5	1299.9	1379.3	1376.2
137.5°	1243.8	1426.6	1293.6	1340.4	1412.0	1421.4
140°	1323.2	1513.9	1355.9	1393.3	1452.5	1454.1
142.5°	1407.4	1601.1	1424.5	1446.3	1497.7	1488.4
145°	1500.8	1683.7	1510.2	1499.3	1532.0	1511.7
147.5°	1583.4	1755.4	1571.0	1538.2	1577.2	1550.7
150°	1675.3	1829.6	1655.1	1592.8	1616.1	1603.7
152.5°	1759.5	1887.2	1747.0	1634.8	1661.3	1645.7
155°	1842.1	1948.0	1835.8	1676.9	1695.6	1689.4
157.5°	1913.7	2001.0	1902.8	1720.5	1742.3	1729.9
160°	1976.0	2044.6	1980.7	1786.0	1773.5	1773.5
162.5°	2030.6	2086.7	2035.3	1874.8	1807.8	1778.2
165°	2078.9	2119.4	2083.6	1974.5	1873.2	1846.7
167.5°	2124.1	2150.5	2138.1	2055.5	1974.5	1918.4
170°	2159.9	2175.5	2158.3	2124.1	2083.6	2035.3
172.5°	2178.6	2184.8	2195.7	2173.9	2158.3	2126.2
175°	2189.5	2206.6	2197.3	2205.1	2191.1	2183.8
177.5°	2192.6	2195.7	2194.2	2208.2	2216.0	2204.1
180°	2205.1	2205.1	2205.1	2205.1	2205.1	2205.1

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