

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-L940-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-L940-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

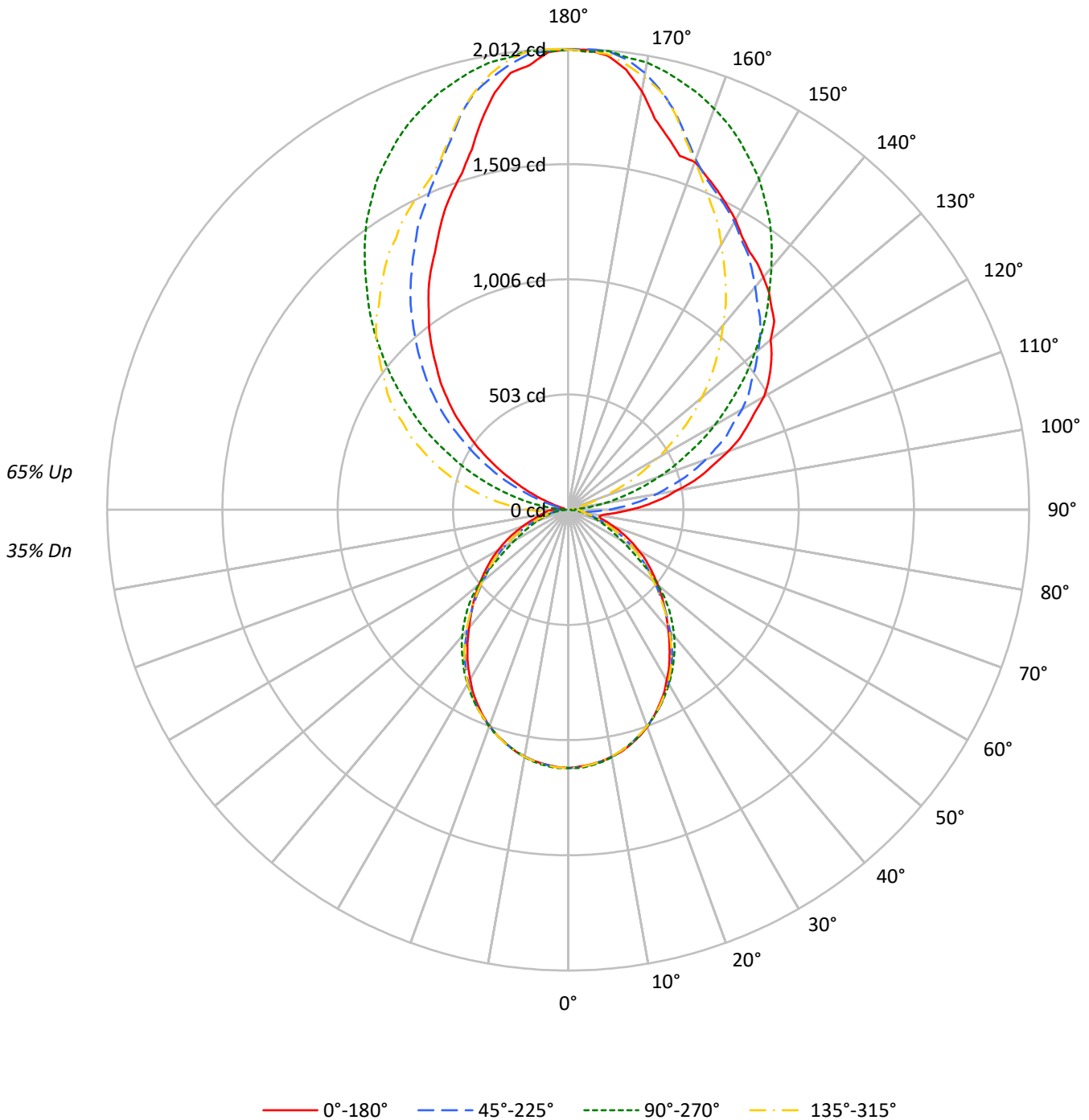
Lumens per Lamp: N/A  
Luminaire Lumens: 7393.6 lumens  
Efficiency: N/A  
Efficacy: 75.2 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 98.273  
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	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°	9712	9712	9712	9712
5°	9533	8918	9533	8918
10°	9341	8160	9341	8160
15°	9107	7430	9070	7430
20°	8798	6765	8760	6765
25°	8394	6141	8356	6141
30°	7921	5538	7869	5538
35°	7392	4964	7351	4964
40°	6833	4398	6776	4398
45°	6336	3804	6291	3804
50°	5868	3120	5819	3120
55°	5408	2308	5373	2308
60°	4910	1704	4891	1704
65°	4386	1288	4386	1288
70°	3787	955	3814	955
75°	3256	689	3350	689
80°	4022	458	3273	458
85°	7263	192	3738	192



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	106.1	1.4
10°-20°	297.8	4.0
20°-30°	434.6	5.9
30°-40°	491.3	6.6
40°-50°	459.4	6.2
50°-60°	362.7	4.9
60°-70°	237.5	3.2
70°-80°	124.9	1.7
80°-90°	89.8	1.2
90°-100°	157.0	2.1
100°-110°	310.4	4.2
110°-120°	533.4	7.2
120°-130°	724.8	9.8
130°-140°	826.9	11.2
140°-150°	824.9	11.2
150°-160°	718.5	9.7
160°-170°	505.5	6.8
170°-180°	188.3	2.5
0°-30°	838.4	11.3
0°-40°	1329.7	18.0
0°-60°	2151.8	29.1
0°-90°	2604.1	35.2
90°-120°	1000.8	13.5
90°-150°	3377.3	45.7
90°-180°	4789.0	64.8
0°-180°	7393.6	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1128	1128	1128	1128	1128	
5°	1116	1122	1116	1122	1116	106
15°	1060	1057	1055	1057	1060	298
25°	941	948	936	948	941	433
35°	772	803	767	803	772	482
45°	592	625	588	625	592	458
55°	432	373	429	373	432	387
65°	279	199	279	199	279	277
75°	149	98	153	98	149	169
85°	190	24	98	24	190	146
90°	271	2	58	2	271	150
95°	374	58	38	58	374	328
105°	614	280	16	280	614	646
115°	862	573	198	573	862	855
125°	1079	898	490	898	1079	964
135°	1254	1226	788	1226	1254	968
145°	1377	1534	1061	1534	1377	868
155°	1539	1775	1335	1775	1539	710
165°	1682	1931	1627	1931	1682	477
175°	1990	2010	1947	2010	1990	186
180°	2009	2009	2009	2009	2009	



TEST NUMBER: P392621

CATALOG NUMBER: MWL-3-53-28-UNV-L940-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9
2.5°	1122.7	1125.5	1125.7	1127.9	1128.9	1126.6	1125.7	1125.5	1124.1	1125.5	1125.7
5°	1116.3	1119.1	1119.3	1120.2	1122.0	1120.2	1117.8	1119.1	1116.3	1119.1	1117.8
7.5°	1107.7	1110.5	1108.7	1111.1	1112.0	1109.6	1107.3	1109.1	1107.7	1109.1	1107.3
10°	1094.5	1096.0	1095.1	1096.0	1097.8	1094.5	1093.6	1093.1	1094.5	1093.1	1093.6
12.5°	1081.0	1079.6	1077.2	1078.1	1076.7	1078.1	1077.2	1076.7	1078.1	1076.7	1077.2
15°	1059.6	1058.6	1057.1	1059.0	1056.7	1057.6	1055.8	1055.8	1055.3	1055.8	1055.8
17.5°	1036.8	1034.9	1032.5	1033.9	1033.9	1033.9	1031.2	1033.5	1032.5	1033.5	1031.2
20°	1008.6	1009.0	1007.0	1008.4	1006.9	1006.9	1005.7	1006.1	1004.3	1006.1	1005.7
22.5°	976.2	978.1	977.0	980.2	977.8	978.7	975.6	975.2	973.3	975.2	975.6
25°	940.7	943.4	948.4	949.2	947.7	947.7	945.5	939.2	936.4	939.2	945.5
27.5°	904.3	907.0	911.9	915.9	914.0	914.6	909.1	902.7	900.0	902.7	909.1
30°	860.5	866.0	876.9	881.9	878.5	879.0	872.7	861.7	854.8	861.7	872.7
32.5°	818.6	823.2	835.0	844.5	842.6	841.7	830.7	817.4	812.9	817.4	830.7
35°	771.6	774.3	789.8	803.5	802.9	799.2	785.6	770.1	767.3	770.1	785.6
37.5°	725.1	726.1	742.5	761.6	762.4	757.3	738.2	721.8	720.9	721.8	738.2
40°	678.7	676.9	691.4	713.7	719.6	710.8	685.8	671.2	673.0	671.2	685.8
42.5°	634.9	628.6	639.9	665.4	673.1	662.6	635.7	622.9	629.3	622.9	635.7
45°	592.5	581.6	587.9	610.7	624.8	607.9	582.3	577.4	588.3	577.4	582.3
47.5°	550.6	540.6	537.8	555.6	572.0	554.1	532.2	536.4	546.4	536.4	532.2
50°	510.5	499.6	491.4	501.8	510.4	499.0	485.7	493.9	506.3	493.9	485.7
52.5°	470.4	460.4	446.3	448.1	443.9	445.3	442.0	454.7	466.2	454.7	442.0
55°	431.7	422.6	404.3	394.7	373.3	391.9	400.1	418.3	428.9	418.3	400.1
57.5°	395.2	387.0	364.3	340.9	317.7	338.1	360.0	382.8	392.4	382.8	360.0
60°	353.7	349.1	322.7	287.6	270.3	286.2	319.9	346.3	352.3	346.3	319.9
62.5°	317.2	311.8	281.7	243.0	228.8	241.5	278.9	309.0	315.9	309.0	278.9
65°	279.4	271.2	240.3	202.9	198.7	201.4	238.8	269.8	279.4	269.8	238.8
67.5°	242.1	233.9	204.7	170.5	167.7	170.5	203.3	232.4	242.1	232.4	203.3
70°	207.8	195.1	169.6	140.4	142.2	140.4	169.6	196.5	209.3	196.5	169.6
72.5°	176.8	158.6	139.5	115.8	119.0	114.4	139.5	160.1	179.7	160.1	139.5
75°	148.6	128.6	108.1	92.6	98.0	92.6	109.4	130.0	152.9	130.0	109.4
77.5°	139.0	110.5	84.4	73.4	80.7	73.4	85.7	106.3	133.3	106.3	85.7
80°	145.0	112.2	70.3	56.1	61.6	56.1	67.5	89.5	118.0	89.5	67.5
82.5°	159.9	129.7	76.4	39.7	42.5	39.7	59.4	78.6	106.0	78.6	59.4
85°	190.2	161.4	98.6	34.8	24.2	32.0	57.4	74.8	97.9	74.8	57.4
87.5°	227.6	205.7	132.5	48.8	6.4	29.0	51.6	69.5	81.5	69.5	51.6
90°	271.1	252.4	176.3	72.3	2.4	18.3	35.7	52.2	58.2	52.2	35.7
92.5°	325.4	304.8	223.3	109.9	23.6	11.9	28.9	42.1	47.2	42.1	28.9
95°	374.4	364.1	278.0	150.3	57.7	8.4	22.5	34.7	38.0	34.7	22.5
97.5°	429.6	420.7	334.1	199.6	101.7	17.9	20.3	30.2	32.1	30.2	20.3
100°	478.5	474.4	390.7	260.7	155.6	47.7	14.5	28.7	31.4	28.7	14.5
102.5°	553.1	532.4	445.3	318.9	213.8	88.9	22.2	21.4	25.1	21.4	22.2
105°	613.9	590.4	514.8	379.9	280.5	144.3	56.3	19.8	16.3	19.8	56.3
107.5°	670.4	656.3	577.3	442.4	351.5	208.2	104.5	54.3	34.4	54.3	104.5
110°	741.4	724.3	638.3	504.8	425.4	276.3	159.9	99.8	77.1	99.8	159.9



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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°	809.5	796.8	695.1	570.2	502.0	350.1	228.0	156.5	135.3	156.5	228.0
115°	862.1	855.0	761.3	631.2	573.0	433.9	304.2	223.3	197.7	223.3	304.2
117.5°	917.4	916.0	809.5	693.6	658.2	509.1	373.7	290.0	263.0	290.0	373.7
120°	987.0	975.6	876.3	756.1	739.1	588.6	450.4	366.6	339.7	366.6	450.4
122.5°	1035.3	1028.2	933.1	815.7	815.7	669.5	524.2	440.4	412.1	440.4	524.2
125°	1079.3	1076.4	975.6	875.4	898.1	744.7	606.5	521.3	490.2	521.3	606.5
127.5°	1119.0	1123.3	1031.0	940.6	981.8	821.4	687.4	593.8	561.1	593.8	687.4
130°	1153.1	1167.3	1083.5	1000.3	1061.3	905.2	759.9	666.2	644.9	666.2	759.9
132.5°	1219.8	1211.3	1137.4	1061.3	1146.4	981.8	836.5	738.5	714.4	738.5	836.5
135°	1253.9	1256.7	1184.3	1114.7	1226.0	1059.3	908.9	812.3	788.3	812.3	908.9
137.5°	1295.0	1286.5	1221.2	1178.6	1299.8	1133.2	979.9	890.4	852.2	890.4	979.9
140°	1324.8	1323.4	1269.4	1235.4	1379.3	1205.6	1052.3	961.4	926.0	961.4	1052.3
142.5°	1356.1	1364.6	1317.7	1297.9	1458.8	1282.3	1130.3	1031.0	996.9	1031.0	1130.3
145°	1377.3	1395.8	1366.0	1375.9	1534.0	1367.4	1198.5	1097.7	1060.8	1097.7	1198.5
147.5°	1412.8	1437.0	1401.5	1431.3	1599.3	1442.6	1266.6	1167.3	1134.6	1167.3	1266.6
150°	1461.1	1472.4	1451.2	1508.0	1666.9	1526.4	1336.2	1234.0	1201.4	1234.0	1336.2
152.5°	1499.4	1513.6	1489.5	1591.7	1719.4	1603.1	1412.8	1299.3	1261.0	1299.3	1412.8
155°	1539.2	1544.9	1527.8	1672.6	1774.8	1678.3	1473.9	1371.7	1334.8	1371.7	1473.9
157.5°	1576.1	1587.4	1567.5	1733.6	1823.1	1743.6	1543.4	1444.1	1411.4	1444.1	1543.4
160°	1615.8	1615.8	1627.2	1804.6	1862.8	1800.3	1617.3	1523.5	1478.2	1523.5	1617.3
162.5°	1620.1	1647.1	1708.1	1854.4	1901.2	1850.1	1696.7	1580.4	1540.6	1580.4	1696.7
165°	1682.5	1706.7	1799.0	1898.4	1931.0	1894.1	1794.7	1674.1	1627.2	1674.1	1794.7
167.5°	1747.9	1799.0	1872.8	1948.0	1959.3	1935.3	1869.9	1786.2	1743.6	1786.2	1869.9
170°	1854.4	1898.4	1935.3	1966.4	1982.1	1967.9	1916.8	1875.6	1848.6	1875.6	1916.8
172.5°	1937.2	1966.4	1980.6	2000.5	1990.6	1984.9	1959.3	1939.5	1924.4	1939.5	1959.3
175°	1989.7	1996.3	2009.1	2002.0	2010.4	1994.9	1996.3	2006.2	1947.1	2006.2	1996.3
177.5°	2008.2	2019.0	2011.9	1999.1	2000.5	1997.7	2003.3	2009.1	1999.6	2009.1	2003.3
180°	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1



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CATALOG NUMBER: MWL-3-53-28-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1127.9	1127.9	1127.9	1127.9	1127.9	1127.9
2.5°	1126.6	1128.9	1127.9	1125.7	1125.5	1122.7
5°	1120.2	1122.0	1120.2	1119.3	1119.1	1116.3
7.5°	1109.6	1112.0	1111.1	1108.7	1110.5	1107.7
10°	1094.5	1097.8	1096.0	1095.1	1096.0	1094.5
12.5°	1078.1	1076.7	1078.1	1077.2	1079.6	1081.0
15°	1057.6	1056.7	1059.0	1057.1	1058.6	1059.6
17.5°	1033.9	1033.9	1033.9	1032.5	1034.9	1036.8
20°	1006.9	1006.9	1008.4	1007.0	1009.0	1008.6
22.5°	978.7	977.8	980.2	977.0	978.1	976.2
25°	947.7	947.7	949.2	948.4	943.4	940.7
27.5°	914.6	914.0	915.9	911.9	907.0	904.3
30°	879.0	878.5	881.9	876.9	866.0	860.5
32.5°	841.7	842.6	844.5	835.0	823.2	818.6
35°	799.2	802.9	803.5	789.8	774.3	771.6
37.5°	757.3	762.4	761.6	742.5	726.1	725.1
40°	710.8	719.6	713.7	691.4	676.9	678.7
42.5°	662.6	673.1	665.4	639.9	628.6	634.9
45°	607.9	624.8	610.7	587.9	581.6	592.5
47.5°	554.1	572.0	555.6	537.8	540.6	550.6
50°	499.0	510.4	501.8	491.4	499.6	510.5
52.5°	445.3	443.9	448.1	446.3	460.4	470.4
55°	391.9	373.3	394.7	404.3	422.6	431.7
57.5°	338.1	317.7	340.9	364.3	387.0	395.2
60°	286.2	270.3	287.6	322.7	349.1	353.7
62.5°	241.5	228.8	243.0	281.7	311.8	317.2
65°	201.4	198.7	202.9	240.3	271.2	279.4
67.5°	170.5	167.7	170.5	204.7	233.9	242.1
70°	140.4	142.2	140.4	169.6	195.1	207.8
72.5°	114.4	119.0	115.8	139.5	158.6	176.8
75°	92.6	98.0	92.6	108.1	128.6	148.6
77.5°	73.4	80.7	73.4	84.4	110.5	139.0
80°	56.1	61.6	56.1	70.3	112.2	145.0
82.5°	39.7	42.5	39.7	76.4	129.7	159.9
85°	32.0	24.2	34.8	98.6	161.4	190.2
87.5°	29.0	6.4	48.8	132.5	205.7	227.6
90°	18.3	2.4	72.3	176.3	252.4	271.1
92.5°	11.9	23.6	109.9	223.3	304.8	325.4
95°	8.4	57.7	150.3	278.0	364.1	374.4
97.5°	17.9	101.7	199.6	334.1	420.7	429.6
100°	47.7	155.6	260.7	390.7	474.4	478.5
102.5°	88.9	213.8	318.9	445.3	532.4	553.1
105°	144.3	280.5	379.9	514.8	590.4	613.9
107.5°	208.2	351.5	442.4	577.3	656.3	670.4
110°	276.3	425.4	504.8	638.3	724.3	741.4





TEST NUMBER: P392621

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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	350.1	502.0	570.2	695.1	796.8	809.5
115°	433.9	573.0	631.2	761.3	855.0	862.1
117.5°	509.1	658.2	693.6	809.5	916.0	917.4
120°	588.6	739.1	756.1	876.3	975.6	987.0
122.5°	669.5	815.7	815.7	933.1	1028.2	1035.3
125°	744.7	898.1	875.4	975.6	1076.4	1079.3
127.5°	821.4	981.8	940.6	1031.0	1123.3	1119.0
130°	905.2	1061.3	1000.3	1083.5	1167.3	1153.1
132.5°	981.8	1146.4	1061.3	1137.4	1211.3	1219.8
135°	1059.3	1226.0	1114.7	1184.3	1256.7	1253.9
137.5°	1133.2	1299.8	1178.6	1221.2	1286.5	1295.0
140°	1205.6	1379.3	1235.4	1269.4	1323.4	1324.8
142.5°	1282.3	1458.8	1297.9	1317.7	1364.6	1356.1
145°	1367.4	1534.0	1375.9	1366.0	1395.8	1377.3
147.5°	1442.6	1599.3	1431.3	1401.5	1437.0	1412.8
150°	1526.4	1666.9	1508.0	1451.2	1472.4	1461.1
152.5°	1603.1	1719.4	1591.7	1489.5	1513.6	1499.4
155°	1678.3	1774.8	1672.6	1527.8	1544.9	1539.2
157.5°	1743.6	1823.1	1733.6	1567.5	1587.4	1576.1
160°	1800.3	1862.8	1804.6	1627.2	1615.8	1615.8
162.5°	1850.1	1901.2	1854.4	1708.1	1647.1	1620.1
165°	1894.1	1931.0	1898.4	1799.0	1706.7	1682.5
167.5°	1935.3	1959.3	1948.0	1872.8	1799.0	1747.9
170°	1967.9	1982.1	1966.4	1935.3	1898.4	1854.4
172.5°	1984.9	1990.6	2000.5	1980.6	1966.4	1937.2
175°	1994.9	2010.4	2002.0	2009.1	1996.3	1989.7
177.5°	1997.7	2000.5	1999.1	2011.9	2019.0	2008.2
180°	2009.1	2009.1	2009.1	2009.1	2009.1	2009.1

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