

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: P392501

Luminaire Tested: **MWL-2-18-38-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392501
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-2-18-38-UNV-L840-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

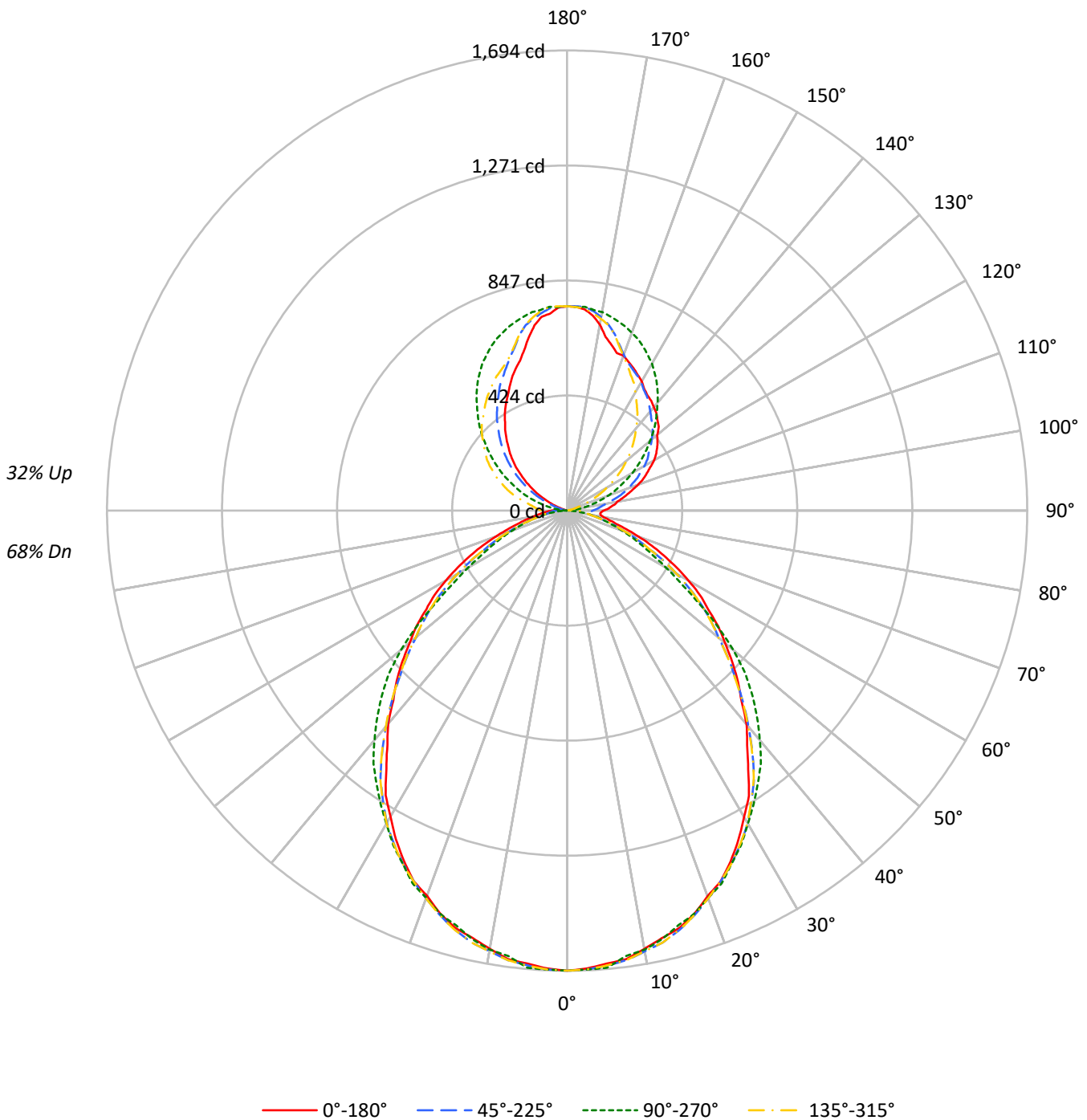
Lumens per Lamp: N/A
Luminaire Lumens: 5647.1 lumens
Efficiency: N/A
Efficacy: 95.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 58.9
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	50	30	10	0	
RCR																						
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	73	73	73	68				
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62	58				
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	55	53	50				
3	86	76	69	63	81	72	66	61	65	60	56	58	54	51	52	49	46	43				
4	79	68	60	54	74	65	58	52	58	52	48	52	48	44	47	43	40	37				
5	73	61	53	47	68	58	51	45	52	46	42	47	42	39	42	38	35	33				
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	39	34	31	29				
7	62	50	42	36	59	48	40	35	43	37	33	39	34	30	35	31	28	26				
8	58	46	38	32	55	43	36	31	40	34	29	36	31	27	33	28	25	23				
9	54	42	34	29	51	40	33	28	36	31	26	33	28	25	30	26	23	21				
10	51	38	31	26	48	37	30	26	34	28	24	31	26	22	28	24	21	19				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	21876	21876	21876	21876
5°	21317	20139	21317	20139
10°	20724	18304	20724	18304
15°	20159	16669	20139	16669
20°	19302	15288	19282	15288
25°	18499	13928	18478	13928
30°	17349	12585	17321	12585
35°	15985	11352	15963	11352
40°	14749	10117	14719	10117
45°	13441	8809	13417	8809
50°	12205	7316	12180	7316
55°	10997	5431	10979	5431
60°	9797	3987	9788	3987
65°	8294	2965	8294	2965
70°	6703	2168	6715	2168
75°	5197	1524	5239	1524
80°	4613	964	4269	964
85°	5365	399	3857	399



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.2	2.8
10°-20°	448.0	7.9
20°-30°	657.2	11.6
30°-40°	745.1	13.2
40°-50°	695.4	12.3
50°-60°	546.2	9.7
60°-70°	340.0	6.0
70°-80°	164.3	2.9
80°-90°	79.7	1.4
90°-100°	73.0	1.3
100°-110°	117.0	2.1
110°-120°	200.5	3.6
120°-130°	272.3	4.8
130°-140°	310.6	5.5
140°-150°	309.5	5.5
150°-160°	269.5	4.8
160°-170°	189.3	3.4
170°-180°	70.4	1.2
0°-30°	1264.5	22.4
0°-40°	2009.6	35.6
0°-60°	3251.2	57.6
0°-90°	3835.1	67.9
90°-120°	390.4	6.9
90°-150°	1282.8	22.7
90°-180°	1812.0	32.1
0°-180°	5647.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1694	1694	1694	1694	1694	
5°	1674	1689	1674	1689	1674	159
15°	1592	1580	1590	1580	1592	447
25°	1424	1433	1422	1433	1424	654
35°	1162	1224	1160	1224	1162	728
45°	889	964	888	964	889	686
55°	634	586	633	586	634	570
65°	393	305	393	305	393	391
75°	185	144	187	144	185	205
85°	122	34	88	34	122	103
90°	134	2	55	2	134	75
95°	162	22	37	22	162	138
105°	228	105	6	105	228	243
115°	324	215	76	215	324	321
125°	404	337	185	337	404	361
135°	470	460	297	460	470	363
145°	517	575	399	575	517	326
155°	578	665	502	665	578	267
165°	631	722	611	722	631	179
175°	743	752	727	752	743	69
180°	752	752	752	752	752	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6
2.5°	1687.0	1683.1	1691.1	1685.7	1690.7	1685.1	1691.1	1683.1	1687.5	1683.1	1691.1
5°	1674.0	1678.1	1681.1	1678.1	1689.1	1678.1	1680.6	1678.1	1674.0	1678.1	1680.6
7.5°	1665.5	1668.6	1669.6	1665.1	1654.1	1664.6	1669.1	1668.1	1665.5	1668.1	1669.1
10°	1638.1	1650.6	1647.6	1643.6	1641.6	1643.1	1647.1	1649.5	1638.1	1649.5	1647.1
12.5°	1612.1	1615.6	1628.1	1619.1	1615.5	1619.1	1628.1	1614.5	1611.1	1614.5	1628.1
15°	1591.7	1588.6	1598.1	1588.1	1580.5	1587.5	1597.5	1587.5	1590.1	1587.5	1597.5
17.5°	1556.7	1551.6	1561.1	1560.5	1556.5	1560.5	1560.5	1551.1	1555.1	1551.1	1560.5
20°	1510.7	1520.1	1519.1	1521.5	1517.0	1521.0	1518.5	1519.1	1509.1	1519.1	1518.5
22.5°	1477.1	1475.1	1477.1	1480.5	1486.0	1480.0	1476.5	1474.1	1476.1	1474.1	1476.5
25°	1424.1	1421.1	1433.6	1431.5	1433.0	1431.0	1432.5	1419.5	1422.5	1419.5	1432.5
27.5°	1366.1	1364.1	1382.6	1386.1	1387.0	1385.5	1381.5	1362.5	1364.5	1362.5	1381.5
30°	1303.1	1308.1	1329.1	1331.6	1331.0	1330.5	1327.5	1306.5	1301.0	1306.5	1327.5
32.5°	1245.1	1241.1	1264.1	1280.6	1278.5	1279.5	1262.5	1239.0	1243.0	1239.0	1262.5
35°	1161.6	1166.6	1199.6	1219.6	1224.0	1218.0	1198.0	1165.0	1160.0	1165.0	1198.0
37.5°	1088.6	1092.6	1119.6	1159.6	1171.5	1158.0	1118.0	1091.0	1087.0	1091.0	1118.0
40°	1027.6	1015.6	1038.6	1086.1	1103.5	1085.0	1036.5	1013.5	1025.5	1013.5	1036.5
42.5°	949.6	944.6	959.1	1011.1	1035.5	1010.0	957.5	942.5	947.5	942.5	957.5
45°	889.1	875.1	877.1	930.1	964.5	929.0	875.0	873.5	887.5	873.5	875.0
47.5°	824.1	806.1	804.1	847.5	890.5	847.0	802.0	804.5	822.5	804.5	802.0
50°	758.2	749.2	729.2	760.6	798.0	759.6	727.1	747.1	756.6	747.1	727.1
52.5°	701.2	689.2	666.6	685.6	696.1	684.6	665.1	687.1	699.6	687.1	665.1
55°	633.6	628.6	602.6	604.1	585.6	603.1	601.1	627.1	632.6	627.1	601.1
57.5°	580.6	573.6	534.6	517.1	493.6	516.1	533.1	572.1	579.6	572.1	533.1
60°	516.1	508.1	465.1	433.6	421.6	433.1	464.1	507.1	515.6	507.1	464.1
62.5°	455.1	446.1	400.1	359.6	355.1	359.1	399.1	445.1	454.6	445.1	399.1
65°	392.6	377.6	331.6	297.6	305.1	297.1	331.1	377.1	392.6	377.1	331.1
67.5°	336.6	313.6	278.6	247.1	258.1	247.1	278.1	313.1	336.6	313.1	278.1
70°	279.1	254.1	229.1	203.1	215.1	203.1	229.1	254.6	279.6	254.6	229.1
72.5°	228.1	205.1	184.1	166.1	176.5	165.5	184.1	205.6	229.1	205.6	184.1
75°	185.1	160.1	142.5	131.5	144.5	131.5	143.1	160.6	186.6	160.6	143.1
77.5°	156.3	133.2	106.5	102.5	114.5	102.5	107.1	131.6	154.2	131.6	107.1
80°	135.3	118.6	84.1	76.5	86.5	76.5	83.1	110.1	125.2	110.1	83.1
82.5°	124.0	113.2	76.5	53.5	57.5	53.5	70.1	94.2	103.9	94.2	70.1
85°	122.4	115.1	77.1	42.1	33.5	41.1	61.8	82.8	88.0	82.8	61.8
87.5°	125.4	124.7	83.4	41.1	10.0	33.6	53.3	73.9	70.9	73.9	53.3
90°	134.0	134.8	94.5	42.2	1.5	22.1	42.1	60.2	54.7	60.2	42.1
92.5°	150.3	147.0	106.1	46.6	9.5	10.1	33.6	49.1	46.6	49.1	33.6
95°	161.9	159.8	117.8	56.0	22.2	3.1	22.6	37.1	36.6	37.1	22.6
97.5°	177.2	171.6	129.1	75.1	38.6	7.3	12.2	26.1	29.1	26.1	12.2
100°	186.9	181.3	145.9	97.8	58.7	18.5	5.7	15.2	20.2	15.2	5.7
102.5°	207.0	198.7	166.6	119.5	80.3	33.8	8.9	8.2	10.2	8.2	8.9
105°	228.4	221.0	193.5	142.2	105.2	54.4	22.6	8.3	5.7	8.3	22.6
107.5°	251.1	245.8	216.8	166.5	131.7	79.2	40.6	21.6	14.2	21.6	40.6
110°	277.6	271.2	239.5	189.8	160.2	104.6	61.2	38.5	30.0	38.5	61.2



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CATALOG NUMBER: MWL-2-18-38-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	303.0	298.2	260.7	214.1	188.7	132.1	86.6	59.7	51.7	59.7	86.6
115°	323.5	319.9	285.0	236.9	215.2	163.3	114.7	84.5	76.0	84.5	114.7
117.5°	344.2	343.6	304.0	260.1	246.9	191.4	141.6	110.4	100.3	110.4	141.6
120°	370.1	365.9	328.8	284.4	278.1	222.0	170.1	138.9	128.9	138.9	170.1
122.5°	388.1	385.4	350.0	306.6	306.6	252.1	197.7	166.4	155.9	166.4	197.7
125°	404.5	403.4	365.9	328.8	337.3	280.2	228.3	196.6	185.0	196.6	228.3
127.5°	419.3	420.9	386.5	353.2	368.5	308.7	258.5	223.6	211.4	223.6	258.5
130°	433.0	437.3	406.1	375.4	398.1	339.9	285.5	250.6	243.6	250.6	285.5
132.5°	457.8	454.7	426.2	399.1	430.9	369.5	314.0	278.5	269.5	278.5	314.0
135°	470.5	471.6	444.6	418.7	460.5	398.1	342.0	306.0	297.0	306.0	342.0
137.5°	485.9	482.7	458.4	442.5	488.0	425.6	368.4	335.1	320.8	335.1	368.4
140°	497.0	496.5	476.4	463.7	517.6	452.6	395.4	361.6	348.3	361.6	395.4
142.5°	508.6	511.8	494.3	486.9	547.2	481.1	424.5	387.5	374.8	387.5	424.5
145°	516.6	523.4	512.3	516.0	575.3	512.9	449.9	412.4	398.6	412.4	449.9
147.5°	529.8	538.8	525.5	536.7	599.6	540.9	475.3	438.3	426.1	438.3	475.3
150°	548.8	553.0	545.1	565.2	624.5	572.1	502.2	464.1	452.0	464.1	502.2
152.5°	563.0	568.3	559.3	596.4	644.0	600.7	530.8	488.5	474.2	488.5	530.8
155°	577.9	580.0	572.6	626.6	664.7	628.7	552.5	515.4	501.7	515.4	552.5
157.5°	591.6	595.8	587.4	649.3	682.6	653.0	578.4	542.4	530.3	542.4	578.4
160°	606.4	606.4	609.7	675.8	696.5	674.2	606.0	572.0	555.1	572.0	606.0
162.5°	608.0	617.1	639.8	694.3	710.7	692.7	635.6	592.2	578.4	592.2	635.6
165°	631.3	639.3	673.7	710.7	721.8	709.1	672.1	627.1	610.7	627.1	672.1
167.5°	654.6	673.7	701.2	728.2	732.4	723.4	700.1	668.9	653.0	668.9	700.1
170°	694.3	710.7	723.4	736.1	741.9	736.6	716.6	702.2	692.2	702.2	716.6
172.5°	724.5	736.1	740.4	748.8	745.1	742.9	732.4	726.0	719.7	726.0	732.4
175°	743.1	746.2	751.9	749.3	752.5	746.7	747.2	749.9	727.2	749.9	747.2
177.5°	750.9	754.6	753.0	749.2	749.8	748.7	749.8	750.9	747.8	750.9	749.8
180°	751.9	751.9	751.9	751.9	751.9	751.9	751.9	751.9	751.9	751.9	751.9



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CATALOG NUMBER: MWL-2-18-38-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1693.6	1693.6	1693.6	1693.6	1693.6	1693.6
2.5°	1685.1	1690.7	1685.7	1691.1	1683.1	1687.0
5°	1678.1	1689.1	1678.1	1681.1	1678.1	1674.0
7.5°	1664.6	1654.1	1665.1	1669.6	1668.6	1665.5
10°	1643.1	1641.6	1643.6	1647.6	1650.6	1638.1
12.5°	1619.1	1615.5	1619.1	1628.1	1615.6	1612.1
15°	1587.5	1580.5	1588.1	1598.1	1588.6	1591.7
17.5°	1560.5	1556.5	1560.5	1561.1	1551.6	1556.7
20°	1521.0	1517.0	1521.5	1519.1	1520.1	1510.7
22.5°	1480.0	1486.0	1480.5	1477.1	1475.1	1477.1
25°	1431.0	1433.0	1431.5	1433.6	1421.1	1424.1
27.5°	1385.5	1387.0	1386.1	1382.6	1364.1	1366.1
30°	1330.5	1331.0	1331.6	1329.1	1308.1	1303.1
32.5°	1279.5	1278.5	1280.6	1264.1	1241.1	1245.1
35°	1218.0	1224.0	1219.6	1199.6	1166.6	1161.6
37.5°	1158.0	1171.5	1159.6	1119.6	1092.6	1088.6
40°	1085.0	1103.5	1086.1	1038.6	1015.6	1027.6
42.5°	1010.0	1035.5	1011.1	959.1	944.6	949.6
45°	929.0	964.5	930.1	877.1	875.1	889.1
47.5°	847.0	890.5	847.5	804.1	806.1	824.1
50°	759.6	798.0	760.6	729.2	749.2	758.2
52.5°	684.6	696.1	685.6	666.6	689.2	701.2
55°	603.1	585.6	604.1	602.6	628.6	633.6
57.5°	516.1	493.6	517.1	534.6	573.6	580.6
60°	433.1	421.6	433.6	465.1	508.1	516.1
62.5°	359.1	355.1	359.6	400.1	446.1	455.1
65°	297.1	305.1	297.6	331.6	377.6	392.6
67.5°	247.1	258.1	247.1	278.6	313.6	336.6
70°	203.1	215.1	203.1	229.1	254.1	279.1
72.5°	165.5	176.5	166.1	184.1	205.1	228.1
75°	131.5	144.5	131.5	142.5	160.1	185.1
77.5°	102.5	114.5	102.5	106.5	133.2	156.3
80°	76.5	86.5	76.5	84.1	118.6	135.3
82.5°	53.5	57.5	53.5	76.5	113.2	124.0
85°	41.1	33.5	42.1	77.1	115.1	122.4
87.5°	33.6	10.0	41.1	83.4	124.7	125.4
90°	22.1	1.5	42.2	94.5	134.8	134.0
92.5°	10.1	9.5	46.6	106.1	147.0	150.3
95°	3.1	22.2	56.0	117.8	159.8	161.9
97.5°	7.3	38.6	75.1	129.1	171.6	177.2
100°	18.5	58.7	97.8	145.9	181.3	186.9
102.5°	33.8	80.3	119.5	166.6	198.7	207.0
105°	54.4	105.2	142.2	193.5	221.0	228.4
107.5°	79.2	131.7	166.5	216.8	245.8	251.1
110°	104.6	160.2	189.8	239.5	271.2	277.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	132.1	188.7	214.1	260.7	298.2	303.0
115°	163.3	215.2	236.9	285.0	319.9	323.5
117.5°	191.4	246.9	260.1	304.0	343.6	344.2
120°	222.0	278.1	284.4	328.8	365.9	370.1
122.5°	252.1	306.6	306.6	350.0	385.4	388.1
125°	280.2	337.3	328.8	365.9	403.4	404.5
127.5°	308.7	368.5	353.2	386.5	420.9	419.3
130°	339.9	398.1	375.4	406.1	437.3	433.0
132.5°	369.5	430.9	399.1	426.2	454.7	457.8
135°	398.1	460.5	418.7	444.6	471.6	470.5
137.5°	425.6	488.0	442.5	458.4	482.7	485.9
140°	452.6	517.6	463.7	476.4	496.5	497.0
142.5°	481.1	547.2	486.9	494.3	511.8	508.6
145°	512.9	575.3	516.0	512.3	523.4	516.6
147.5°	540.9	599.6	536.7	525.5	538.8	529.8
150°	572.1	624.5	565.2	545.1	553.0	548.8
152.5°	600.7	644.0	596.4	559.3	568.3	563.0
155°	628.7	664.7	626.6	572.6	580.0	577.9
157.5°	653.0	682.6	649.3	587.4	595.8	591.6
160°	674.2	696.5	675.8	609.7	606.4	606.4
162.5°	692.7	710.7	694.3	639.8	617.1	608.0
165°	709.1	721.8	710.7	673.7	639.3	631.3
167.5°	723.4	732.4	728.2	701.2	673.7	654.6
170°	736.6	741.9	736.1	723.4	710.7	694.3
172.5°	742.9	745.1	748.8	740.4	736.1	724.5
175°	746.7	752.5	749.3	751.9	746.2	743.1
177.5°	748.7	749.8	749.2	753.0	754.6	750.9
180°	751.9	751.9	751.9	751.9	751.9	751.9

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