

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: P392700

Luminaire Tested: **MWL-4-66-25-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392700  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-1 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-4-66-25-UNV-L830-EDD  
Description: MWL 4FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

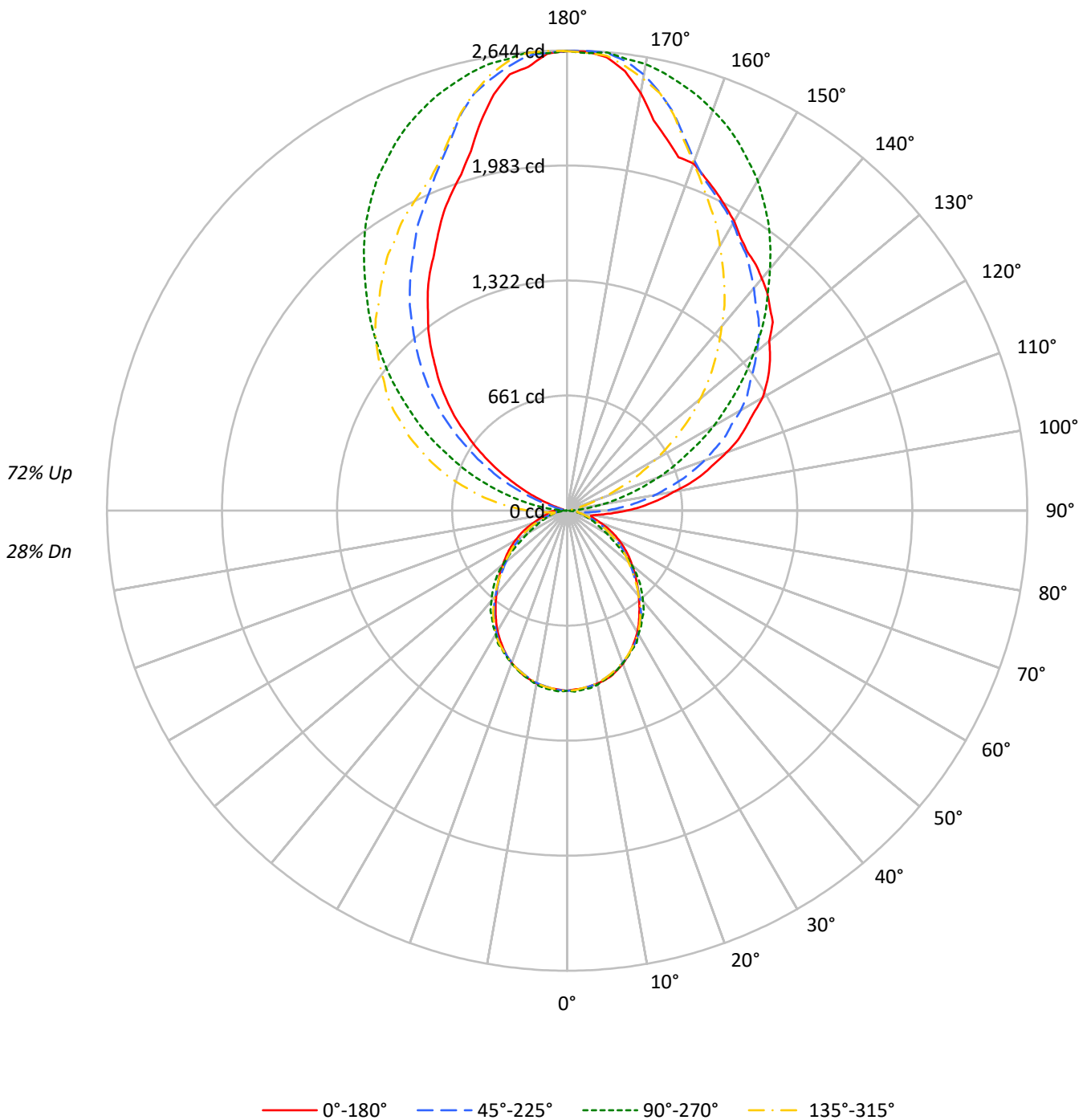
Lumens per Lamp: N/A  
Luminaire Lumens: 8760.0 lumens  
Efficiency: N/A  
Efficacy: 81.0 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 108.1  
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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### 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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28				
1	93	89	85	81	83	79	76	73	62	60	58	46	45	44	32	31	30	24				
2	85	77	72	67	75	70	65	60	55	51	48	41	39	37	28	27	26	20				
3	77	68	61	56	69	61	55	51	48	44	41	36	33	31	25	23	22	17				
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	22	21	19	15				
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	20	18	17	13				
6	60	48	40	35	53	43	37	32	34	30	26	26	23	20	18	16	15	11				
7	55	43	36	30	49	39	33	28	31	26	23	24	20	18	17	15	13	10				
8	51	39	32	27	46	35	29	25	28	24	20	22	18	16	15	13	12	9				
9	47	36	28	24	42	32	26	22	26	21	18	20	17	14	14	12	11	8				
10	44	33	26	21	40	30	24	19	24	19	16	18	15	13	13	11	10	8				

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

	0°	90°	180°	270°
0°	6686	6686	6686	6686
5°	6584	6160	6584	6160
10°	6494	5660	6494	5660
15°	6397	5166	6360	5166
20°	6207	4705	6170	4705
25°	5953	4286	5914	4286
30°	5675	3874	5623	3874
35°	5308	3493	5267	3493
40°	4960	3105	4903	3105
45°	4635	2699	4588	2699
50°	4347	2208	4296	2208
55°	4090	1659	4053	1659
60°	3789	1233	3769	1233
65°	3439	914	3439	914
70°	2986	686	3013	686
75°	2638	500	2737	500
80°	3579	326	2750	326
85°	7611	148	3508	148



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	97.6	1.1
10°-20°	275.2	3.1
20°-30°	404.4	4.6
30°-40°	460.1	5.3
40°-50°	433.3	4.9
50°-60°	347.8	4.0
60°-70°	231.5	2.6
70°-80°	123.1	1.4
80°-90°	100.7	1.1
90°-100°	199.9	2.3
100°-110°	407.5	4.7
110°-120°	700.7	8.0
120°-130°	952.4	10.9
130°-140°	1086.5	12.4
140°-150°	1083.9	12.4
150°-160°	944.0	10.8
160°-170°	664.1	7.6
170°-180°	247.4	2.8
0°-30°	777.2	8.9
0°-40°	1237.2	14.1
0°-60°	2018.3	23.0
0°-90°	2473.6	28.2
90°-120°	1308.1	14.9
90°-150°	4430.9	50.6
90°-180°	6286.0	71.8
0°-180°	8760.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1035	1035	1035	1035	1035	
5°	1025	1033	1025	1033	1025	97
15°	983	980	978	980	983	276
25°	876	882	870	882	876	403
35°	722	753	717	753	722	452
45°	560	591	555	591	560	434
55°	417	358	414	358	417	373
65°	275	188	275	188	275	272
75°	147	95	152	95	147	168
85°	225	25	104	25	225	170
90°	341	2	61	2	341	188
95°	478	76	36	76	478	422
105°	807	368	22	368	807	848
115°	1132	753	259	753	1132	1124
125°	1418	1181	644	1181	1418	1266
135°	1647	1612	1035	1612	1647	1271
145°	1810	2017	1394	2017	1810	1141
155°	2022	2332	1754	2332	2022	933
165°	2211	2537	2138	2537	2211	627
175°	2615	2643	2559	2643	2615	244
180°	2640	2640	2640	2640	2640	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3
2.5°	1028.8	1030.6	1032.3	1044.8	1041.0	1042.9	1032.3	1030.6	1030.6	1030.6	1032.3
5°	1024.9	1026.8	1025.6	1034.3	1033.3	1034.3	1023.8	1026.8	1024.9	1026.8	1023.8
7.5°	1017.2	1019.0	1018.0	1025.6	1028.5	1023.8	1016.2	1017.2	1017.2	1017.2	1016.2
10°	1008.5	1009.4	1007.5	1013.2	1015.2	1011.4	1005.6	1005.6	1008.5	1005.6	1005.6
12.5°	997.8	998.8	989.3	995.1	995.1	995.1	989.3	995.1	994.1	995.1	989.3
15°	983.4	975.8	972.1	980.7	979.7	978.8	970.1	972.1	977.8	972.1	970.1
17.5°	959.4	958.5	953.8	957.7	957.7	957.7	951.9	956.7	953.8	956.7	951.9
20°	937.3	935.4	931.7	935.6	933.8	933.8	929.8	931.7	931.7	931.7	929.8
22.5°	907.6	910.4	905.8	908.7	909.8	906.9	903.9	906.8	903.9	906.8	903.9
25°	875.9	876.8	878.9	882.8	881.9	881.0	875.1	871.3	870.3	871.3	875.1
27.5°	841.3	845.2	852.9	859.7	860.8	857.8	849.2	839.6	835.8	839.6	849.2
30°	806.8	806.8	817.3	824.1	819.5	820.4	811.8	801.2	799.4	801.2	811.8
32.5°	766.5	766.5	780.8	793.4	789.7	789.7	775.3	759.1	759.1	759.1	775.3
35°	722.4	725.3	738.7	757.9	753.3	752.3	733.1	719.7	716.8	719.7	733.1
37.5°	681.1	679.2	694.6	716.6	723.4	711.1	689.0	673.6	675.6	673.6	689.0
40°	639.8	636.0	647.5	671.6	677.4	667.9	640.0	628.5	632.4	628.5	640.0
42.5°	600.5	593.8	598.7	624.6	634.2	620.8	593.0	586.3	593.0	586.3	593.0
45°	560.3	552.6	550.7	578.5	591.0	574.8	543.2	546.9	554.6	546.9	543.2
47.5°	525.7	515.2	507.5	523.8	541.1	522.0	500.0	509.5	520.1	509.5	500.0
50°	486.4	477.7	467.2	473.9	481.7	470.1	459.7	470.2	480.7	470.2	459.7
52.5°	453.7	443.2	426.9	427.8	419.3	424.1	421.3	435.7	448.1	435.7	421.3
55°	417.3	407.7	389.4	377.0	357.8	373.3	383.8	402.1	413.5	402.1	383.8
57.5°	382.7	376.0	352.0	328.1	304.1	324.3	346.4	370.4	379.0	370.4	346.4
60°	346.3	339.6	312.7	275.3	260.9	273.5	309.0	335.9	344.4	335.9	309.0
62.5°	311.8	307.0	275.3	233.1	218.8	231.2	271.5	303.2	309.8	303.2	271.5
65°	275.3	267.6	237.9	195.6	188.0	193.8	236.0	265.8	275.3	265.8	236.0
67.5°	238.8	231.1	201.4	164.0	163.1	164.0	199.6	229.3	238.8	229.3	199.6
70°	203.4	191.9	165.0	136.2	136.2	136.2	165.0	193.7	205.2	193.7	165.0
72.5°	172.7	158.3	135.2	113.2	115.1	111.2	135.2	160.1	176.4	160.1	135.2
75°	146.8	128.5	106.4	90.1	94.9	90.1	108.4	130.3	152.3	130.3	108.4
77.5°	139.6	113.0	83.4	70.9	76.7	70.9	85.3	107.3	132.2	107.3	85.3
80°	153.1	120.8	70.8	53.7	58.5	53.7	67.1	91.0	117.6	91.0	67.1
82.5°	182.5	147.4	81.7	38.3	41.2	38.3	59.3	80.3	111.6	80.3	59.3
85°	225.0	191.9	114.1	36.3	24.9	32.5	60.0	78.1	103.7	78.1	60.0
87.5°	278.6	252.3	160.5	57.5	7.7	31.4	54.1	73.2	86.6	73.2	54.1
90°	340.8	315.5	221.9	90.9	1.8	20.1	37.2	52.5	61.0	52.5	37.2
92.5°	413.3	388.1	285.2	142.1	30.8	13.3	29.6	43.0	47.7	43.0	29.6
95°	478.4	466.3	359.7	197.8	75.5	11.3	23.8	33.5	36.3	33.5	23.8
97.5°	553.8	545.4	436.0	262.1	133.4	23.3	23.7	32.4	31.5	32.4	23.7
100°	621.8	618.9	514.1	342.4	204.3	62.5	19.8	33.1	34.1	33.1	19.8
102.5°	722.3	698.0	585.8	418.8	280.8	116.6	29.9	26.4	28.3	26.4	29.9
105°	807.1	779.0	676.3	499.0	368.5	189.4	73.7	29.1	21.7	29.1	73.7
107.5°	882.5	862.0	758.4	581.1	461.7	273.4	137.2	70.9	46.7	70.9	137.2
110°	973.9	951.5	838.5	663.2	558.7	362.8	209.9	130.6	100.8	130.6	209.9



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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°	1063.4	1046.6	913.2	749.1	659.5	459.9	299.5	205.2	177.3	205.2	299.5
115°	1132.4	1123.1	1000.0	829.2	752.7	570.0	399.3	293.0	259.4	293.0	399.3
117.5°	1205.2	1203.3	1063.4	912.3	864.6	669.8	490.7	380.6	345.2	380.6	490.7
120°	1296.6	1281.7	1151.1	994.4	972.0	774.2	591.5	481.4	446.0	481.4	591.5
122.5°	1360.0	1350.7	1225.6	1072.7	1072.7	880.6	688.4	578.3	541.1	578.3	688.4
125°	1417.8	1414.1	1281.7	1151.1	1180.9	979.4	796.6	684.7	643.7	684.7	796.6
127.5°	1470.0	1475.7	1354.5	1236.9	1291.0	1080.2	902.9	779.8	736.9	779.8	902.9
130°	1514.9	1533.5	1423.5	1315.2	1395.4	1190.2	998.1	875.0	847.0	875.0	998.1
132.5°	1602.5	1591.4	1494.3	1395.4	1507.4	1291.0	1098.9	970.1	938.4	970.1	1098.9
135°	1647.3	1651.1	1555.9	1464.5	1611.9	1391.7	1194.0	1067.1	1035.4	1067.1	1194.0
137.5°	1701.4	1690.2	1604.4	1548.5	1708.8	1488.7	1287.3	1169.7	1119.4	1169.7	1287.3
140°	1740.6	1738.7	1667.9	1623.0	1813.4	1583.9	1382.4	1263.0	1216.3	1263.0	1382.4
142.5°	1781.6	1793.8	1731.2	1705.1	1917.8	1684.7	1485.0	1355.4	1309.6	1355.4	1485.0
145°	1809.6	1833.8	1794.7	1807.7	2016.7	1796.6	1574.6	1442.1	1393.6	1442.1	1574.6
147.5°	1856.3	1888.0	1841.3	1880.5	2102.5	1895.4	1664.1	1533.5	1490.6	1533.5	1664.1
150°	1919.6	1934.6	1906.6	1981.3	2190.1	2005.4	1755.5	1621.2	1578.3	1621.2	1755.5
152.5°	1970.0	1988.6	1957.0	2091.3	2259.2	2106.2	1856.3	1707.0	1656.6	1707.0	1856.3
155°	2022.2	2029.7	2007.4	2197.6	2332.0	2205.1	1936.4	1802.1	1753.7	1802.1	1936.4
157.5°	2070.8	2085.7	2059.6	2277.9	2395.3	2290.9	2027.9	1897.3	1854.4	1897.3	2027.9
160°	2123.0	2123.0	2137.9	2371.1	2447.7	2365.5	2124.8	2001.8	1942.1	2001.8	2124.8
162.5°	2128.6	2164.0	2244.3	2436.4	2497.9	2430.9	2229.4	2076.4	2024.2	2076.4	2229.4
165°	2210.7	2242.4	2363.7	2494.2	2537.1	2488.6	2358.1	2199.5	2137.9	2199.5	2358.1
167.5°	2296.5	2363.7	2460.7	2559.6	2574.4	2542.8	2457.0	2346.9	2290.9	2346.9	2457.0
170°	2436.4	2494.2	2542.8	2583.8	2604.3	2585.7	2518.5	2464.4	2428.9	2464.4	2518.5
172.5°	2545.6	2583.8	2602.5	2628.6	2616.5	2608.0	2574.4	2548.3	2528.8	2548.3	2574.4
175°	2614.6	2622.9	2639.7	2630.4	2642.6	2621.1	2622.9	2636.0	2558.6	2636.0	2622.9
177.5°	2638.8	2652.8	2643.5	2626.7	2629.5	2624.8	2632.3	2639.7	2627.6	2639.7	2632.3
180°	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1035.3	1035.3	1035.3	1035.3	1035.3	1035.3
2.5°	1042.9	1041.0	1044.8	1032.3	1030.6	1028.8
5°	1034.3	1033.3	1034.3	1025.6	1026.8	1024.9
7.5°	1023.8	1028.5	1025.6	1018.0	1019.0	1017.2
10°	1011.4	1015.2	1013.2	1007.5	1009.4	1008.5
12.5°	995.1	995.1	995.1	989.3	998.8	997.8
15°	978.8	979.7	980.7	972.1	975.8	983.4
17.5°	957.7	957.7	957.7	953.8	958.5	959.4
20°	933.8	933.8	935.6	931.7	935.4	937.3
22.5°	906.9	909.8	908.7	905.8	910.4	907.6
25°	881.0	881.9	882.8	878.9	876.8	875.9
27.5°	857.8	860.8	859.7	852.9	845.2	841.3
30°	820.4	819.5	824.1	817.3	806.8	806.8
32.5°	789.7	789.7	793.4	780.8	766.5	766.5
35°	752.3	753.3	757.9	738.7	725.3	722.4
37.5°	711.1	723.4	716.6	694.6	679.2	681.1
40°	667.9	677.4	671.6	647.5	636.0	639.8
42.5°	620.8	634.2	624.6	598.7	593.8	600.5
45°	574.8	591.0	578.5	550.7	552.6	560.3
47.5°	522.0	541.1	523.8	507.5	515.2	525.7
50°	470.1	481.7	473.9	467.2	477.7	486.4
52.5°	424.1	419.3	427.8	426.9	443.2	453.7
55°	373.3	357.8	377.0	389.4	407.7	417.3
57.5°	324.3	304.1	328.1	352.0	376.0	382.7
60°	273.5	260.9	275.3	312.7	339.6	346.3
62.5°	231.2	218.8	233.1	275.3	307.0	311.8
65°	193.8	188.0	195.6	237.9	267.6	275.3
67.5°	164.0	163.1	164.0	201.4	231.1	238.8
70°	136.2	136.2	136.2	165.0	191.9	203.4
72.5°	111.2	115.1	113.2	135.2	158.3	172.7
75°	90.1	94.9	90.1	106.4	128.5	146.8
77.5°	70.9	76.7	70.9	83.4	113.0	139.6
80°	53.7	58.5	53.7	70.8	120.8	153.1
82.5°	38.3	41.2	38.3	81.7	147.4	182.5
85°	32.5	24.9	36.3	114.1	191.9	225.0
87.5°	31.4	7.7	57.5	160.5	252.3	278.6
90°	20.1	1.8	90.9	221.9	315.5	340.8
92.5°	13.3	30.8	142.1	285.2	388.1	413.3
95°	11.3	75.5	197.8	359.7	466.3	478.4
97.5°	23.3	133.4	262.1	436.0	545.4	553.8
100°	62.5	204.3	342.4	514.1	618.9	621.8
102.5°	116.6	280.8	418.8	585.8	698.0	722.3
105°	189.4	368.5	499.0	676.3	779.0	807.1
107.5°	273.4	461.7	581.1	758.4	862.0	882.5
110°	362.8	558.7	663.2	838.5	951.5	973.9





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	459.9	659.5	749.1	913.2	1046.6	1063.4
115°	570.0	752.7	829.2	1000.0	1123.1	1132.4
117.5°	669.8	864.6	912.3	1063.4	1203.3	1205.2
120°	774.2	972.0	994.4	1151.1	1281.7	1296.6
122.5°	880.6	1072.7	1072.7	1225.6	1350.7	1360.0
125°	979.4	1180.9	1151.1	1281.7	1414.1	1417.8
127.5°	1080.2	1291.0	1236.9	1354.5	1475.7	1470.0
130°	1190.2	1395.4	1315.2	1423.5	1533.5	1514.9
132.5°	1291.0	1507.4	1395.4	1494.3	1591.4	1602.5
135°	1391.7	1611.9	1464.5	1555.9	1651.1	1647.3
137.5°	1488.7	1708.8	1548.5	1604.4	1690.2	1701.4
140°	1583.9	1813.4	1623.0	1667.9	1738.7	1740.6
142.5°	1684.7	1917.8	1705.1	1731.2	1793.8	1781.6
145°	1796.6	2016.7	1807.7	1794.7	1833.8	1809.6
147.5°	1895.4	2102.5	1880.5	1841.3	1888.0	1856.3
150°	2005.4	2190.1	1981.3	1906.6	1934.6	1919.6
152.5°	2106.2	2259.2	2091.3	1957.0	1988.6	1970.0
155°	2205.1	2332.0	2197.6	2007.4	2029.7	2022.2
157.5°	2290.9	2395.3	2277.9	2059.6	2085.7	2070.8
160°	2365.5	2447.7	2371.1	2137.9	2123.0	2123.0
162.5°	2430.9	2497.9	2436.4	2244.3	2164.0	2128.6
165°	2488.6	2537.1	2494.2	2363.7	2242.4	2210.7
167.5°	2542.8	2574.4	2559.6	2460.7	2363.7	2296.5
170°	2585.7	2604.3	2583.8	2542.8	2494.2	2436.4
172.5°	2608.0	2616.5	2628.6	2602.5	2583.8	2545.6
175°	2621.1	2642.6	2630.4	2639.7	2622.9	2614.6
177.5°	2624.8	2629.5	2626.7	2643.5	2652.8	2638.8
180°	2639.7	2639.7	2639.7	2639.7	2639.7	2639.7

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