

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: P392610

Luminaire Tested: **MWL-3-44-28-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392610  
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-3-44-28-UNV-L830-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

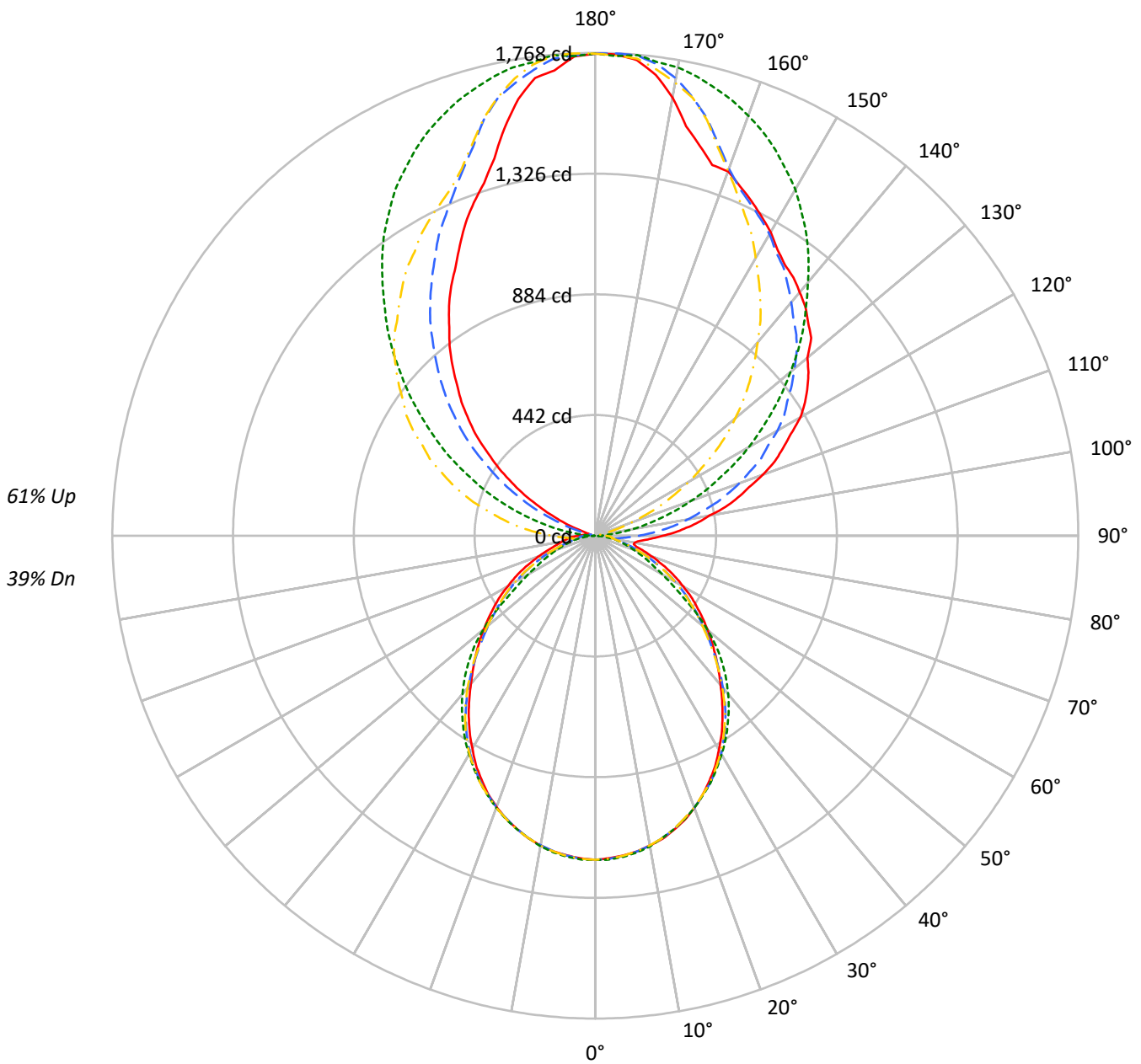
Lumens per Lamp: N/A  
Luminaire Lumens: 6944.0 lumens  
Efficiency: N/A  
Efficacy: 84.1 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 82.6  
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: P392610  
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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	50	30	10	0	
RCR																						
0	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39				
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33				
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	36	35	33	28				
3	80	70	63	58	72	64	58	53	53	48	45	42	39	37	32	30	29	24				
4	73	62	55	49	66	57	51	45	47	42	38	38	34	32	29	27	25	21				
5	67	56	48	42	61	51	44	39	42	37	33	34	30	27	26	24	22	18				
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19	16				
7	57	45	37	32	52	42	35	30	35	29	26	28	24	21	22	19	17	15				
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	20	18	16	13				
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12				
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	17	15	13	11				

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

	0°	90°	180°	270°
0°	10217	10217	10217	10217
5°	10036	9380	10036	9380
10°	9830	8585	9830	8585
15°	9577	7818	9544	7818
20°	9250	7121	9217	7121
25°	8826	6464	8792	6464
30°	8327	5828	8281	5828
35°	7772	5224	7736	5224
40°	7181	4626	7131	4626
45°	6660	4001	6619	4001
50°	6165	3281	6122	3281
55°	5683	2427	5651	2427
60°	5160	1790	5142	1790
65°	4609	1354	4609	1354
70°	3982	1004	4004	1004
75°	3421	724	3502	724
80°	4050	480	3393	480
85°	6873	200	3780	200



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	111.6	1.6
10°-20°	313.3	4.5
20°-30°	457.2	6.6
30°-40°	516.8	7.4
40°-50°	483.2	7.0
50°-60°	381.3	5.5
60°-70°	249.6	3.6
70°-80°	130.9	1.9
80°-90°	87.9	1.3
90°-100°	141.3	2.0
100°-110°	273.3	3.9
110°-120°	468.8	6.8
120°-130°	636.9	9.2
130°-140°	726.5	10.5
140°-150°	724.8	10.4
150°-160°	631.3	9.1
160°-170°	444.1	6.4
170°-180°	165.4	2.4
0°-30°	882.1	12.7
0°-40°	1398.9	20.1
0°-60°	2263.4	32.6
0°-90°	2731.7	39.3
90°-120°	883.4	12.7
90°-150°	2971.5	42.8
90°-180°	4212.0	60.7
0°-180°	6944.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1186	1186	1186	1186	1186	
5°	1175	1180	1175	1180	1175	111
15°	1114	1112	1110	1112	1114	314
25°	989	998	985	998	989	455
35°	811	845	808	845	811	507
45°	623	657	619	657	623	481
55°	454	392	451	392	454	406
65°	294	209	294	209	294	291
75°	156	103	160	103	156	176
85°	180	25	99	25	180	140
90°	247	2	60	2	247	137
95°	335	51	39	51	335	293
105°	540	247	16	247	540	569
115°	758	504	174	504	758	752
125°	948	789	431	789	948	847
135°	1102	1077	693	1077	1102	850
145°	1210	1348	932	1348	1210	763
155°	1352	1559	1173	1559	1352	624
165°	1478	1696	1430	1696	1478	419
175°	1748	1766	1710	1766	1748	163
180°	1765	1765	1765	1765	1765	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5
2.5°	1181.8	1184.3	1183.9	1186.1	1187.1	1184.9	1183.9	1184.3	1183.1	1184.3	1183.9
5°	1175.1	1177.6	1177.2	1178.2	1180.1	1178.2	1176.0	1177.6	1175.1	1177.6	1176.0
7.5°	1165.8	1168.3	1166.4	1168.6	1169.5	1167.3	1165.1	1167.0	1165.8	1167.0	1165.1
10°	1151.7	1152.9	1152.0	1152.9	1154.9	1151.7	1150.7	1150.4	1151.7	1150.4	1150.7
12.5°	1136.9	1135.7	1133.5	1134.4	1133.2	1134.4	1133.5	1133.2	1134.4	1133.2	1133.5
15°	1114.2	1113.6	1112.3	1114.3	1112.0	1113.0	1111.1	1111.1	1110.4	1111.1	1111.1
17.5°	1090.2	1088.6	1086.4	1088.0	1088.0	1088.0	1085.2	1087.4	1086.4	1087.4	1085.2
20°	1060.4	1061.1	1059.5	1061.2	1059.9	1059.9	1058.3	1058.6	1056.7	1058.6	1058.3
22.5°	1026.5	1028.4	1027.9	1031.4	1029.2	1030.2	1026.6	1025.9	1024.0	1025.9	1026.6
25°	989.1	992.0	997.4	998.8	997.5	997.5	994.9	988.2	985.3	988.2	994.9
27.5°	950.7	953.6	959.0	963.5	962.0	962.3	956.5	949.8	946.9	949.8	956.5
30°	904.6	910.4	921.9	927.4	924.6	924.9	918.1	906.6	899.6	906.6	918.1
32.5°	860.5	865.3	877.7	888.0	886.5	885.5	874.0	860.3	855.5	860.3	874.0
35°	811.2	814.1	830.4	844.8	844.9	841.1	826.7	810.3	807.5	810.3	826.7
37.5°	762.3	763.2	780.5	800.7	802.0	796.9	776.8	759.5	758.5	759.5	776.8
40°	713.3	711.4	726.7	750.5	756.9	748.0	721.7	706.4	708.3	706.4	721.7
42.5°	667.2	660.5	672.7	699.6	707.9	697.1	669.0	655.5	662.2	655.5	669.0
45°	622.8	611.3	618.0	642.0	657.1	639.5	613.0	607.5	619.0	607.5	613.0
47.5°	578.6	568.1	565.2	584.1	601.4	582.9	560.2	564.3	574.9	564.3	560.2
50°	536.4	524.9	516.2	527.5	536.8	525.0	511.2	519.9	532.6	519.9	511.2
52.5°	494.2	483.6	468.9	470.8	466.7	468.3	465.2	478.6	490.4	478.6	465.2
55°	453.6	444.0	424.8	414.9	392.5	412.4	421.0	440.2	451.1	440.2	421.0
57.5°	415.2	406.5	382.5	358.2	333.9	355.7	378.8	402.8	412.7	402.8	378.8
60°	371.7	366.9	339.0	302.3	284.0	301.0	336.5	364.4	370.4	364.4	336.5
62.5°	333.3	327.5	295.8	255.2	240.6	254.0	293.3	325.0	332.0	325.0	293.3
65°	293.6	285.0	252.4	213.0	208.9	211.8	251.1	283.7	293.6	283.7	251.1
67.5°	254.3	245.6	214.9	179.1	176.2	179.1	213.7	244.4	254.3	244.4	213.7
70°	218.5	205.0	178.2	147.4	149.4	147.4	178.2	206.3	219.7	206.3	178.2
72.5°	185.8	166.6	146.5	121.5	125.1	120.3	146.5	167.9	188.3	167.9	146.5
75°	156.1	135.0	113.6	97.2	103.0	97.2	114.8	136.2	159.8	136.2	114.8
77.5°	144.0	115.0	88.6	77.1	84.8	77.1	89.8	111.3	139.0	111.3	89.8
80°	146.0	113.3	73.1	58.8	64.6	58.8	70.6	93.3	122.3	93.3	70.6
82.5°	155.7	126.3	76.6	41.6	44.4	41.6	61.6	81.4	108.4	81.4	61.6
85°	180.0	152.1	94.5	35.7	25.2	33.2	58.3	76.1	99.0	76.1	58.3
87.5°	210.5	189.7	122.9	46.7	6.7	29.3	51.8	70.0	82.1	70.0	51.8
90°	246.6	229.4	160.1	66.2	2.2	18.8	36.7	53.6	59.6	53.6	36.7
92.5°	292.9	274.1	200.5	98.1	20.9	12.1	29.7	43.4	48.5	43.4	29.7
95°	334.8	325.4	247.4	132.6	50.9	7.9	22.9	36.1	39.3	36.1	22.9
97.5°	381.9	373.8	295.6	175.6	89.5	15.9	20.0	30.9	32.8	30.9	20.0
100°	423.9	419.8	343.9	229.1	136.9	42.1	13.5	28.2	31.1	28.2	13.5
102.5°	488.2	469.4	391.3	280.3	188.0	78.2	19.7	20.5	24.4	20.5	19.7
105°	540.4	519.1	452.3	333.9	246.6	126.9	49.6	17.9	15.5	17.9	49.6
107.5°	589.2	576.7	507.2	388.8	309.0	183.1	92.0	48.1	30.6	48.1	92.0
110°	651.6	636.6	560.9	443.6	373.8	242.9	140.6	87.9	68.0	87.9	140.6



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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°	711.4	700.2	610.7	501.0	441.2	307.7	200.4	137.8	119.1	137.8	200.4
115°	757.6	751.3	669.1	554.6	503.5	381.3	267.5	196.4	174.0	196.4	267.5
117.5°	806.2	805.0	711.4	609.4	578.2	447.3	328.6	255.0	231.3	255.0	328.6
120°	867.3	857.3	770.0	664.3	649.4	517.2	396.0	322.3	298.7	322.3	396.0
122.5°	909.7	903.5	819.9	716.7	716.7	588.2	460.8	387.2	362.3	387.2	460.8
125°	948.3	945.9	857.3	769.1	789.0	654.4	533.1	458.3	430.9	458.3	533.1
127.5°	983.2	987.0	906.0	826.4	862.6	721.7	604.2	521.9	493.2	521.9	604.2
130°	1013.2	1025.7	952.0	878.8	932.4	795.3	667.8	585.4	566.8	585.4	667.8
132.5°	1071.8	1064.3	999.4	932.4	1007.2	862.6	735.1	649.1	627.9	649.1	735.1
135°	1101.7	1104.2	1040.6	979.5	1077.0	930.9	798.7	713.9	692.8	713.9	798.7
137.5°	1137.9	1130.4	1073.1	1035.6	1141.9	995.7	861.0	782.5	748.8	782.5	861.0
140°	1164.1	1162.8	1115.4	1085.5	1211.7	1059.3	924.7	844.8	813.7	844.8	924.7
142.5°	1191.5	1199.0	1157.8	1140.4	1281.6	1126.6	993.2	906.0	876.0	906.0	993.2
145°	1210.1	1226.4	1200.2	1208.9	1347.6	1201.4	1053.1	964.5	932.2	964.5	1053.1
147.5°	1241.3	1262.6	1231.4	1257.6	1405.0	1267.5	1112.9	1025.7	997.0	1025.7	1112.9
150°	1283.8	1293.8	1275.0	1325.0	1464.5	1341.1	1174.1	1084.2	1055.6	1084.2	1174.1
152.5°	1317.5	1329.8	1308.7	1398.5	1510.7	1408.5	1241.3	1141.6	1107.9	1141.6	1241.3
155°	1352.3	1357.3	1342.3	1469.5	1559.4	1474.5	1295.0	1205.2	1172.8	1205.2	1295.0
157.5°	1384.8	1394.7	1377.3	1523.2	1601.7	1531.9	1356.1	1268.8	1240.1	1268.8	1356.1
160°	1419.7	1419.7	1429.7	1585.5	1636.6	1581.7	1420.9	1338.6	1298.7	1338.6	1420.9
162.5°	1423.4	1447.1	1500.7	1629.1	1670.3	1625.4	1490.7	1388.5	1353.6	1388.5	1490.7
165°	1478.2	1499.5	1580.5	1667.8	1696.5	1664.1	1576.8	1470.8	1429.7	1470.8	1576.8
167.5°	1535.6	1580.5	1645.4	1711.4	1721.4	1700.3	1642.9	1569.3	1531.9	1569.3	1642.9
170°	1629.1	1667.8	1700.3	1727.6	1741.4	1728.9	1684.1	1647.9	1624.2	1647.9	1684.1
172.5°	1701.8	1727.6	1740.1	1757.6	1748.8	1743.9	1721.4	1703.9	1690.6	1703.9	1721.4
175°	1747.9	1753.8	1765.1	1758.8	1766.3	1752.6	1753.8	1762.6	1710.4	1762.6	1753.8
177.5°	1764.1	1773.8	1767.6	1756.3	1757.6	1755.1	1760.1	1765.1	1756.6	1765.1	1760.1
180°	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1186.5	1186.5	1186.5	1186.5	1186.5	1186.5
2.5°	1184.9	1187.1	1186.1	1183.9	1184.3	1181.8
5°	1178.2	1180.1	1178.2	1177.2	1177.6	1175.1
7.5°	1167.3	1169.5	1168.6	1166.4	1168.3	1165.8
10°	1151.7	1154.9	1152.9	1152.0	1152.9	1151.7
12.5°	1134.4	1133.2	1134.4	1133.5	1135.7	1136.9
15°	1113.0	1112.0	1114.3	1112.3	1113.6	1114.2
17.5°	1088.0	1088.0	1088.0	1086.4	1088.6	1090.2
20°	1059.9	1059.9	1061.2	1059.5	1061.1	1060.4
22.5°	1030.2	1029.2	1031.4	1027.9	1028.4	1026.5
25°	997.5	997.5	998.8	997.4	992.0	989.1
27.5°	962.3	962.0	963.5	959.0	953.6	950.7
30°	924.9	924.6	927.4	921.9	910.4	904.6
32.5°	885.5	886.5	888.0	877.7	865.3	860.5
35°	841.1	844.9	844.8	830.4	814.1	811.2
37.5°	796.9	802.0	800.7	780.5	763.2	762.3
40°	748.0	756.9	750.5	726.7	711.4	713.3
42.5°	697.1	707.9	699.6	672.7	660.5	667.2
45°	639.5	657.1	642.0	618.0	611.3	622.8
47.5°	582.9	601.4	584.1	565.2	568.1	578.6
50°	525.0	536.8	527.5	516.2	524.9	536.4
52.5°	468.3	466.7	470.8	468.9	483.6	494.2
55°	412.4	392.5	414.9	424.8	444.0	453.6
57.5°	355.7	333.9	358.2	382.5	406.5	415.2
60°	301.0	284.0	302.3	339.0	366.9	371.7
62.5°	254.0	240.6	255.2	295.8	327.5	333.3
65°	211.8	208.9	213.0	252.4	285.0	293.6
67.5°	179.1	176.2	179.1	214.9	245.6	254.3
70°	147.4	149.4	147.4	178.2	205.0	218.5
72.5°	120.3	125.1	121.5	146.5	166.6	185.8
75°	97.2	103.0	97.2	113.6	135.0	156.1
77.5°	77.1	84.8	77.1	88.6	115.0	144.0
80°	58.8	64.6	58.8	73.1	113.3	146.0
82.5°	41.6	44.4	41.6	76.6	126.3	155.7
85°	33.2	25.2	35.7	94.5	152.1	180.0
87.5°	29.3	6.7	46.7	122.9	189.7	210.5
90°	18.8	2.2	66.2	160.1	229.4	246.6
92.5°	12.1	20.9	98.1	200.5	274.1	292.9
95°	7.9	50.9	132.6	247.4	325.4	334.8
97.5°	15.9	89.5	175.6	295.6	373.8	381.9
100°	42.1	136.9	229.1	343.9	419.8	423.9
102.5°	78.2	188.0	280.3	391.3	469.4	488.2
105°	126.9	246.6	333.9	452.3	519.1	540.4
107.5°	183.1	309.0	388.8	507.2	576.7	589.2
110°	242.9	373.8	443.6	560.9	636.6	651.6





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	307.7	441.2	501.0	610.7	700.2	711.4
115°	381.3	503.5	554.6	669.1	751.3	757.6
117.5°	447.3	578.2	609.4	711.4	805.0	806.2
120°	517.2	649.4	664.3	770.0	857.3	867.3
122.5°	588.2	716.7	716.7	819.9	903.5	909.7
125°	654.4	789.0	769.1	857.3	945.9	948.3
127.5°	721.7	862.6	826.4	906.0	987.0	983.2
130°	795.3	932.4	878.8	952.0	1025.7	1013.2
132.5°	862.6	1007.2	932.4	999.4	1064.3	1071.8
135°	930.9	1077.0	979.5	1040.6	1104.2	1101.7
137.5°	995.7	1141.9	1035.6	1073.1	1130.4	1137.9
140°	1059.3	1211.7	1085.5	1115.4	1162.8	1164.1
142.5°	1126.6	1281.6	1140.4	1157.8	1199.0	1191.5
145°	1201.4	1347.6	1208.9	1200.2	1226.4	1210.1
147.5°	1267.5	1405.0	1257.6	1231.4	1262.6	1241.3
150°	1341.1	1464.5	1325.0	1275.0	1293.8	1283.8
152.5°	1408.5	1510.7	1398.5	1308.7	1329.8	1317.5
155°	1474.5	1559.4	1469.5	1342.3	1357.3	1352.3
157.5°	1531.9	1601.7	1523.2	1377.3	1394.7	1384.8
160°	1581.7	1636.6	1585.5	1429.7	1419.7	1419.7
162.5°	1625.4	1670.3	1629.1	1500.7	1447.1	1423.4
165°	1664.1	1696.5	1667.8	1580.5	1499.5	1478.2
167.5°	1700.3	1721.4	1711.4	1645.4	1580.5	1535.6
170°	1728.9	1741.4	1727.6	1700.3	1667.8	1629.1
172.5°	1743.9	1748.8	1757.6	1740.1	1727.6	1701.8
175°	1752.6	1766.3	1758.8	1765.1	1753.8	1747.9
177.5°	1755.1	1757.6	1756.3	1767.6	1773.8	1764.1
180°	1765.1	1765.1	1765.1	1765.1	1765.1	1765.1

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