

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: METALUX

Report Number: P192492

Luminaire Tested: **4WSL-LD2-35-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192492  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28105)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 4WSL-LD2-35-UPL15-UNV-L850-CD1-U  
Description: 4FT Linear Wavestream System, 15% Uplight, L850  
Light Source: (238) 5000K CCT, 80 CRI LEDS  
EL236N0119D850  
Ballast/Driver: OSRAM  
OT30W

**Summary**

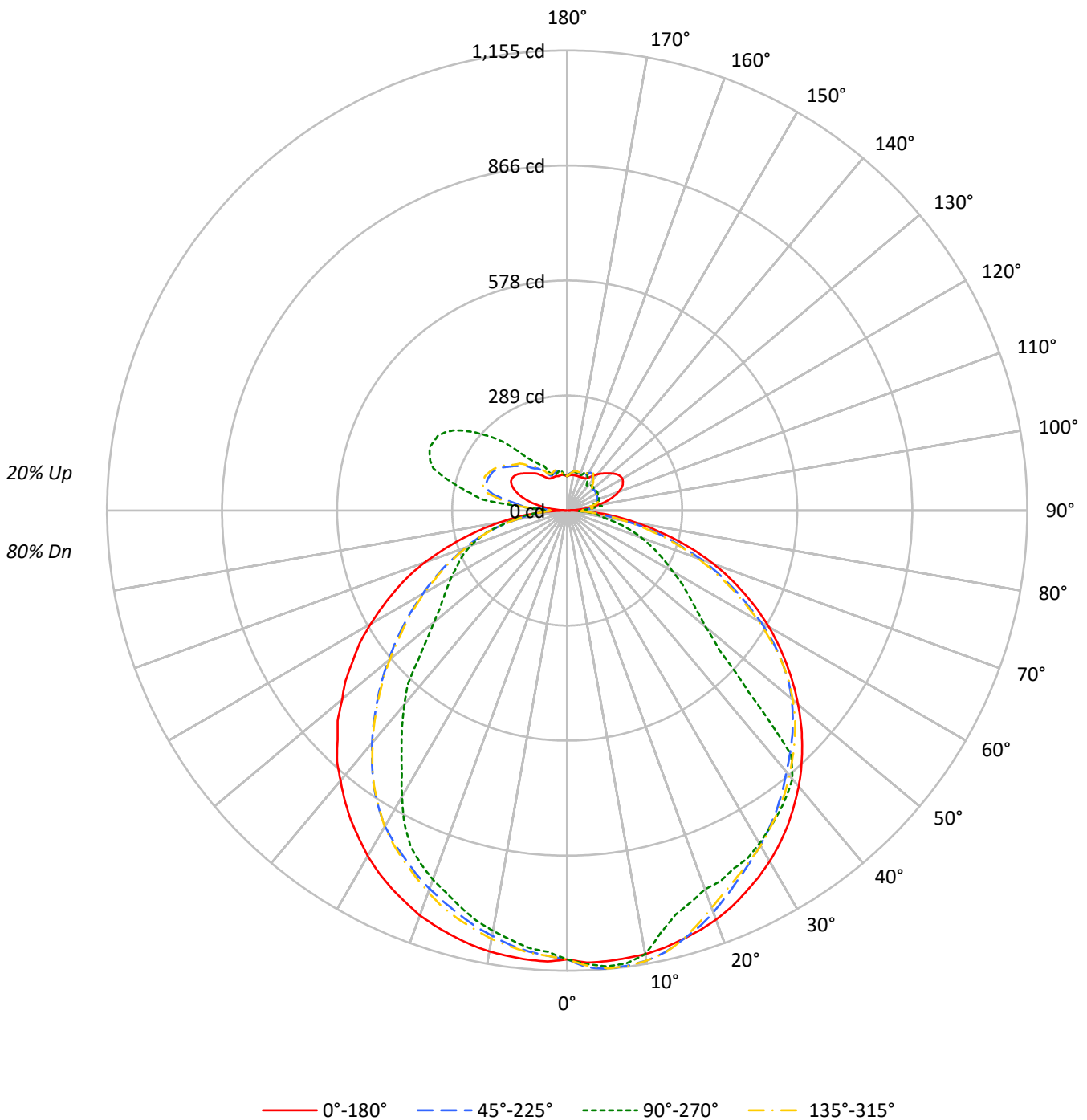
Lumens per Lamp: N/A  
Luminaire Lumens: 3987.0 lumens  
Efficiency: N/A  
Efficacy: 130.3 lumens/watt  
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35  
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')  
CIE Type: Semi-Direct

Input Watts (W): 30.6  
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

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CATALOG NUMBER: 4WSL-LD2-35-UPL15-UNV-L850-CD1-U

### 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	114	114	114	114	109	109	109	109	100	100	100	91	91	91	83	83	83	80
1	104	99	95	91	99	95	91	88	87	84	81	80	77	75	73	71	70	66
2	94	86	80	74	90	83	77	72	76	71	67	70	66	62	64	61	58	55
3	86	76	68	62	82	73	66	60	67	61	56	61	57	53	56	53	49	46
4	79	67	59	52	75	64	57	51	59	53	48	55	49	45	50	46	42	40
5	72	60	51	45	69	58	50	44	53	46	41	49	43	39	45	41	37	34
6	67	54	45	39	64	52	44	38	48	41	36	44	39	34	41	36	32	30
7	62	49	40	34	59	47	39	33	44	37	32	40	35	30	38	33	29	26
8	58	44	36	30	55	43	35	30	40	33	28	37	31	27	34	29	26	24
9	54	41	33	27	51	39	32	27	37	30	26	34	28	24	32	27	23	21
10	50	37	30	25	48	36	29	24	34	27	23	32	26	22	30	25	21	19

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

	0°	90°	180°	270°
0°	6382	6382	6382	6382
5°	6458	6532	6436	6267
10°	6503	6503	6466	6161
15°	6539	6160	6486	6046
20°	6589	6098	6519	5942
25°	6613	6193	6533	5813
30°	6650	6312	6549	5424
35°	6673	6405	6548	5009
40°	6686	6504	6543	4697
45°	6684	5171	6529	4228
50°	6669	3990	6498	3842
55°	6643	3679	6477	3731
60°	6624	3473	6448	3810
65°	6571	3363	6398	3988
70°	6470	3278	6299	4264
75°	6173	3115	5973	4529
80°	5781	2829	5611	4515
85°	5798	3699	5382	5382



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	107.2	2.7
10°-20°	304.3	7.6
20°-30°	459.8	11.5
30°-40°	553.3	13.9
40°-50°	562.8	14.1
50°-60°	489.8	12.3
60°-70°	382.1	9.6
70°-80°	236.2	5.9
80°-90°	83.1	2.1
90°-100°	78.3	2.0
100°-110°	151.5	3.8
110°-120°	165.8	4.2
120°-130°	145.3	3.6
130°-140°	108.9	2.7
140°-150°	74.5	1.9
150°-160°	47.5	1.2
160°-170°	27.7	0.7
170°-180°	8.9	0.2
0°-30°	871.2	21.9
0°-40°	1424.6	35.7
0°-60°	2477.2	62.1
0°-90°	3178.6	79.7
90°-120°	395.5	9.9
90°-150°	724.3	18.2
90°-180°	808.0	20.3
0°-180°	3987.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1127	1127	1127	1127	1127	
5°	1136	1149	1132	1102	1136	108
15°	1115	1050	1106	1031	1115	315
25°	1058	991	1045	930	1058	488
35°	965	926	947	724	965	604
45°	834	645	815	528	834	644
55°	673	372	656	378	673	602
65°	490	251	477	298	490	484
75°	282	142	273	207	282	299
85°	89	57	83	83	89	89
90°	1	36	1	57	1	7
95°	35	60	27	119	35	36
105°	111	74	107	317	111	116
115°	154	84	154	380	154	151
125°	156	88	156	350	156	139
135°	132	88	132	256	132	102
145°	104	88	106	153	104	66
155°	92	106	90	105	92	42
165°	90	96	89	97	90	26
175°	89	93	89	90	89	9
180°	87	87	87	87	87	



TEST NUMBER: P192492

CATALOG NUMBER: 4WSL-LD2-35-UPL15-UNV-L850-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6
2.5°	1135.6	1130.5	1147.3	1148.6	1139.5	1143.4	1143.4	1129.2	1133.0	1116.2	1118.8
5°	1135.6	1136.9	1155.0	1153.7	1148.6	1149.9	1153.7	1135.6	1131.7	1108.5	1111.1
7.5°	1133.0	1139.5	1152.4	1151.1	1146.0	1147.3	1153.7	1138.2	1127.9	1100.7	1099.4
10°	1130.5	1136.9	1147.3	1140.8	1130.5	1134.3	1147.3	1136.9	1124.0	1091.7	1083.9
12.5°	1124.0	1130.5	1135.6	1103.3	1085.2	1100.7	1136.9	1130.5	1116.2	1078.7	1068.4
15°	1114.9	1122.7	1116.2	1071.0	1050.3	1064.5	1116.2	1121.4	1105.9	1061.9	1049.0
17.5°	1104.6	1113.6	1096.8	1046.4	1030.9	1037.3	1089.1	1109.8	1094.2	1045.1	1029.6
20°	1092.9	1103.3	1073.5	1020.5	1011.5	1016.6	1060.6	1096.8	1081.3	1027.0	1010.2
22.5°	1077.4	1089.1	1046.4	1002.4	1006.3	1002.4	1034.7	1080.0	1063.2	1007.6	988.2
25°	1058.0	1071.0	1019.2	986.9	990.8	989.5	1012.8	1058.0	1045.1	984.3	963.6
27.5°	1038.6	1051.6	994.6	976.5	983.0	975.2	992.1	1034.7	1024.4	959.7	940.3
30°	1016.6	1030.9	970.1	958.4	964.9	959.7	971.4	1011.5	1001.1	933.9	914.5
32.5°	992.1	1006.3	944.2	936.4	945.5	939.0	946.8	985.6	973.9	905.4	882.1
35°	964.9	979.1	917.0	917.0	926.1	918.3	922.2	959.7	946.8	876.9	845.9
37.5°	935.1	950.7	887.3	893.8	904.1	896.3	896.3	932.6	917.0	845.9	804.5
40°	904.1	920.9	856.2	870.5	879.5	870.5	867.9	904.1	884.7	814.9	761.8
42.5°	870.5	888.6	827.8	844.6	833.0	844.6	838.1	874.4	855.0	781.2	717.9
45°	834.3	857.5	799.3	789.0	645.4	781.2	808.4	843.3	814.9	748.9	673.9
47.5°	796.8	821.3	768.3	693.3	518.7	685.5	776.1	809.7	781.2	714.0	629.9
50°	756.7	785.1	736.0	610.5	452.7	602.7	739.8	774.8	737.3	676.5	585.9
52.5°	715.3	746.3	699.7	539.4	408.7	531.6	701.0	737.3	701.0	636.4	543.2
55°	672.6	704.9	657.1	473.4	372.5	472.1	655.8	697.2	655.8	596.3	500.6
57.5°	629.9	666.1	611.8	425.5	341.5	419.1	605.3	655.8	617.0	554.9	459.2
60°	584.6	618.3	562.6	373.8	306.5	372.5	554.9	613.1	569.1	512.2	419.1
62.5°	538.1	575.6	509.6	328.5	278.1	327.2	500.6	565.2	522.5	468.2	380.3
65°	490.2	526.4	459.2	292.3	250.9	289.7	450.1	516.1	477.3	424.2	344.1
67.5°	441.1	474.7	408.7	257.4	223.8	254.8	398.4	464.3	430.7	379.0	305.2
70°	390.6	421.7	357.0	223.8	197.9	222.5	347.9	411.3	380.3	332.4	270.3
72.5°	337.6	366.0	302.7	191.4	170.7	190.1	294.9	357.0	324.6	283.3	239.3
75°	282.0	309.1	252.2	159.1	142.3	157.8	244.5	298.8	272.9	238.0	203.1
77.5°	228.9	256.1	200.5	122.9	108.6	120.3	191.4	244.5	222.5	192.7	165.6
80°	177.2	199.2	147.5	91.8	86.7	91.8	143.6	187.5	172.0	151.3	129.3
82.5°	130.6	143.6	99.6	75.0	75.0	75.0	97.0	133.2	126.8	112.5	98.3
85°	89.2	89.2	67.3	56.9	56.9	56.9	66.0	78.9	82.8	75.0	75.0
87.5°	37.5	38.8	34.9	31.0	29.7	31.0	33.6	32.3	32.3	36.2	45.3
90°	1.3	16.8	28.5	34.9	36.2	33.6	25.9	15.5	1.3	22.0	40.1
92.5°	9.1	36.2	33.6	44.0	45.3	41.4	34.9	28.5	5.2	40.1	42.7
95°	34.9	42.7	66.0	67.3	59.5	56.9	64.7	40.1	27.2	54.3	108.6
97.5°	55.6	64.7	59.5	77.6	88.0	77.6	62.1	62.1	51.7	84.1	126.8
100°	76.3	68.6	60.8	67.3	77.6	68.6	58.2	68.6	72.4	98.3	155.2
102.5°	95.7	76.3	76.3	66.0	67.3	64.7	73.7	75.0	90.5	111.2	191.4
105°	111.2	78.9	80.2	75.0	73.7	75.0	80.2	80.2	107.4	122.9	208.2
107.5°	125.5	81.5	78.9	82.8	84.1	82.8	78.9	81.5	122.9	130.6	212.1
110°	137.1	82.8	80.2	82.8	86.7	82.8	80.2	84.1	135.8	138.4	214.7



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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°	147.5	84.1	82.8	81.5	85.4	81.5	82.8	86.7	146.2	142.3	214.7
115°	153.9	85.4	82.8	82.8	84.1	82.8	84.1	88.0	153.9	143.6	212.1
117.5°	157.8	88.0	84.1	85.4	86.7	85.4	84.1	90.5	159.1	148.7	210.8
120°	160.4	97.0	84.1	86.7	88.0	86.7	84.1	98.3	160.4	151.3	205.7
122.5°	159.1	100.9	85.4	86.7	89.2	86.7	85.4	102.2	159.1	150.0	199.2
125°	156.5	104.8	85.4	85.4	88.0	86.7	86.7	104.8	156.5	147.5	190.1
127.5°	151.3	113.8	85.4	86.7	86.7	86.7	86.7	112.5	151.3	148.7	181.1
130°	144.9	120.3	82.8	88.0	86.7	89.2	85.4	120.3	144.9	144.9	173.3
132.5°	138.4	122.9	82.8	88.0	88.0	89.2	84.1	122.9	138.4	139.7	165.6
135°	131.9	125.5	88.0	86.7	88.0	88.0	89.2	125.5	131.9	134.5	160.4
137.5°	125.5	126.8	94.4	82.8	86.7	84.1	97.0	126.8	126.8	126.8	152.6
140°	119.0	125.5	99.6	80.2	81.5	82.8	102.2	126.8	121.6	122.9	139.7
142.5°	111.2	121.6	103.5	86.7	80.2	89.2	106.1	125.5	113.8	119.0	133.2
145°	103.5	117.7	111.2	95.7	88.0	99.6	115.1	121.6	106.1	116.4	129.3
147.5°	97.0	111.2	112.5	100.9	97.0	104.8	116.4	116.4	98.3	111.2	120.3
150°	93.1	104.8	108.6	104.8	100.9	109.9	113.8	107.4	93.1	107.4	112.5
152.5°	91.8	99.6	99.6	109.9	108.6	115.1	104.8	102.2	90.5	103.5	102.2
155°	91.8	98.3	95.7	100.9	106.1	106.1	99.6	99.6	90.5	103.5	97.0
157.5°	90.5	99.6	95.7	94.4	97.0	99.6	99.6	100.9	90.5	100.9	97.0
160°	90.5	100.9	97.0	93.1	94.4	98.3	100.9	100.9	90.5	100.9	98.3
162.5°	90.5	98.3	98.3	94.4	94.4	99.6	100.9	99.6	90.5	98.3	100.9
165°	90.5	98.3	99.6	97.0	95.7	102.2	100.9	97.0	89.2	97.0	102.2
167.5°	90.5	95.7	100.9	98.3	98.3	102.2	102.2	95.7	89.2	93.1	102.2
170°	90.5	94.4	99.6	98.3	99.6	103.5	99.6	94.4	90.5	91.8	98.3
172.5°	90.5	91.8	97.0	98.3	98.3	100.9	97.0	91.8	90.5	89.2	94.4
175°	89.2	91.8	94.4	94.4	93.1	97.0	93.1	90.5	89.2	88.0	90.5
177.5°	88.0	89.2	91.8	91.8	89.2	91.8	89.2	88.0	88.0	86.7	89.2
180°	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6
2.5°	1117.5	1108.5	1111.1	1118.8	1117.5	1135.6
5°	1105.9	1102.0	1102.0	1113.6	1112.3	1135.6
7.5°	1092.9	1086.5	1090.4	1103.3	1107.2	1133.0
10°	1076.1	1071.0	1072.2	1091.7	1098.1	1130.5
12.5°	1059.3	1054.1	1058.0	1076.1	1085.2	1124.0
15°	1039.9	1030.9	1041.2	1060.6	1072.2	1114.9
17.5°	1016.6	1006.3	1016.6	1042.5	1056.7	1104.6
20°	995.9	985.6	992.1	1019.2	1038.6	1092.9
22.5°	972.7	959.7	964.9	994.6	1019.2	1077.4
25°	946.8	930.0	937.7	970.1	997.2	1058.0
27.5°	913.2	884.7	904.1	944.2	970.1	1038.6
30°	866.6	829.1	860.1	915.7	945.5	1016.6
32.5°	812.3	772.2	805.8	880.8	917.0	992.1
35°	759.2	724.3	755.4	844.6	888.6	964.9
37.5°	712.7	680.3	708.8	803.2	857.5	935.1
40°	664.8	635.1	663.5	759.2	826.5	904.1
42.5°	620.8	592.4	619.6	715.3	792.9	870.5
45°	574.3	527.7	571.7	670.0	756.7	834.3
47.5°	525.1	476.0	521.3	626.0	720.4	796.8
50°	479.9	435.9	477.3	580.7	681.6	756.7
52.5°	439.8	402.3	438.5	535.5	641.5	715.3
55°	402.3	377.7	403.5	494.1	604.0	672.6
57.5°	372.5	355.7	373.8	454.0	562.6	629.9
60°	346.6	336.3	347.9	413.9	518.7	584.6
62.5°	318.2	314.3	318.2	375.1	476.0	538.1
65°	293.6	297.5	293.6	340.2	430.7	490.2
67.5°	270.3	279.4	271.6	302.7	385.4	441.1
70°	244.5	257.4	245.8	269.0	338.9	390.6
72.5°	217.3	232.8	217.3	236.7	289.7	337.6
75°	188.8	206.9	190.1	201.8	243.2	282.0
77.5°	157.8	169.4	160.4	164.3	197.9	228.9
80°	125.5	138.4	126.8	129.3	156.5	177.2
82.5°	104.8	113.8	106.1	98.3	116.4	130.6
85°	77.6	82.8	80.2	76.3	80.2	89.2
87.5°	47.9	50.4	47.9	47.9	41.4	37.5
90°	53.0	56.9	53.0	41.4	23.3	1.3
92.5°	54.3	59.5	54.3	45.3	44.0	9.1
95°	121.6	119.0	129.3	117.7	67.3	34.9
97.5°	188.8	216.0	195.3	141.0	90.5	55.6
100°	217.3	243.2	226.3	175.9	103.5	76.3
102.5°	250.9	279.4	261.3	205.7	116.4	95.7
105°	292.3	316.9	301.4	217.3	128.0	111.2
107.5°	314.3	351.8	320.8	222.5	135.8	125.5
110°	325.9	366.0	336.3	223.8	142.3	137.1





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	335.0	373.8	342.8	223.8	144.9	147.5
115°	335.0	380.3	342.8	219.9	148.7	153.9
117.5°	335.0	376.4	342.8	216.0	153.9	157.8
120°	323.4	375.1	333.7	210.8	155.2	160.4
122.5°	314.3	364.7	320.8	204.4	155.2	159.1
125°	297.5	350.5	305.2	196.6	152.6	156.5
127.5°	279.4	329.8	285.8	187.5	153.9	151.3
130°	262.6	306.5	266.4	178.5	148.7	144.9
132.5°	240.6	280.7	244.5	172.0	143.6	138.4
135°	219.9	256.1	225.1	166.9	137.1	131.9
137.5°	197.9	230.2	203.1	156.5	130.6	125.5
140°	172.0	197.9	177.2	144.9	126.8	119.0
142.5°	155.2	169.4	160.4	139.7	121.6	111.2
145°	144.9	152.6	148.7	134.5	119.0	103.5
147.5°	134.5	142.3	138.4	124.2	112.5	97.0
150°	130.6	130.6	135.8	115.1	108.6	93.1
152.5°	116.4	126.8	121.6	104.8	106.1	91.8
155°	99.6	104.8	104.8	100.9	106.1	91.8
157.5°	93.1	97.0	98.3	100.9	103.5	90.5
160°	93.1	94.4	98.3	102.2	102.2	90.5
162.5°	95.7	94.4	100.9	104.8	99.6	90.5
165°	98.3	97.0	103.5	106.1	97.0	90.5
167.5°	100.9	100.9	106.1	104.8	94.4	90.5
170°	100.9	103.5	106.1	100.9	93.1	90.5
172.5°	97.0	98.3	100.9	94.4	89.2	90.5
175°	91.8	90.5	94.4	90.5	89.2	89.2
177.5°	89.2	85.4	89.2	88.0	86.7	88.0
180°	86.7	86.7	86.7	86.7	86.7	86.7

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