

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: P192503

Luminaire Tested: **4WSL-LD2-50-UPL15-UNV-L840-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192503  
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-LD2-50-UPL15-UNV-L840-CD1-U  
Description: 4FT Linear Wavestream System, 15% Uplight, L840  
Light Source: (238) 4000K CCT, 80 CRI LEDS  
EL236N0119D840  
Ballast/Driver: OSRAM  
OT50W

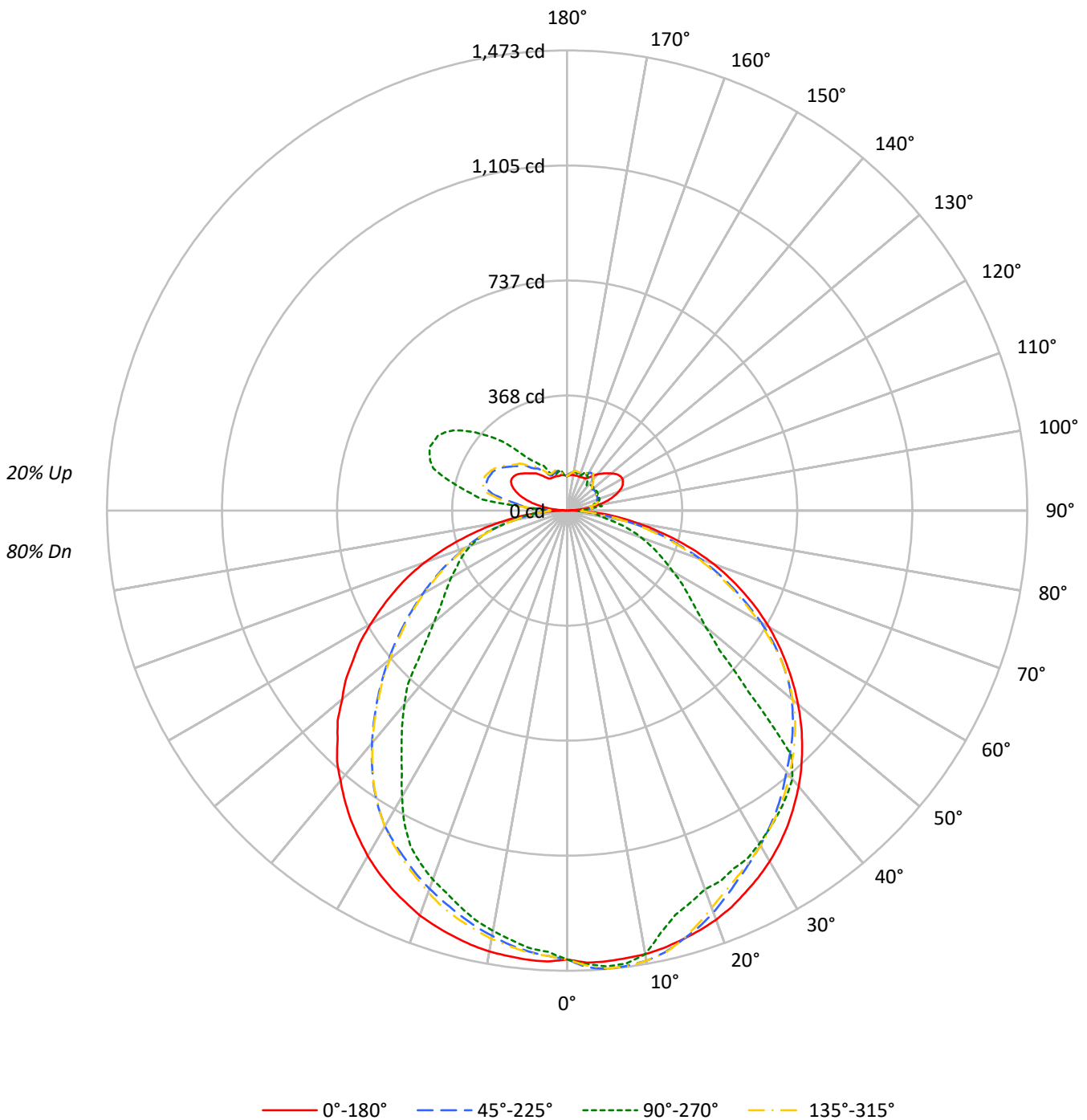
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5085.0 lumens  
Efficiency: N/A  
Efficacy: 113.5 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): 44.8  
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										
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	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°	8140	8140	8140	8140
5°	8237	8331	8208	7993
10°	8294	8294	8246	7857
15°	8340	7856	8272	7711
20°	8404	7777	8314	7578
25°	8435	7899	8332	7414
30°	8482	8050	8352	6917
35°	8511	8168	8351	6389
40°	8528	8295	8344	5990
45°	8525	6595	8327	5392
50°	8505	5089	8287	4899
55°	8472	4693	8261	4758
60°	8448	4430	8224	4860
65°	8381	4290	8160	5086
70°	8252	4181	8034	5438
75°	7871	3973	7619	5776
80°	7373	3605	7158	5758
85°	7397	4719	6864	6864



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	136.7	2.7
10°-20°	388.0	7.6
20°-30°	586.4	11.5
30°-40°	705.7	13.9
40°-50°	717.7	14.1
50°-60°	624.7	12.3
60°-70°	487.3	9.6
70°-80°	301.3	5.9
80°-90°	106.0	2.1
90°-100°	99.8	2.0
100°-110°	193.2	3.8
110°-120°	211.4	4.2
120°-130°	185.4	3.6
130°-140°	138.9	2.7
140°-150°	95.1	1.9
150°-160°	60.5	1.2
160°-170°	35.4	0.7
170°-180°	11.4	0.2
0°-30°	1111.2	21.9
0°-40°	1816.9	35.7
0°-60°	3159.4	62.1
0°-90°	4053.9	79.7
90°-120°	504.4	9.9
90°-150°	923.7	18.2
90°-180°	1031.0	20.3
0°-180°	5085.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1437	1437	1437	1437	1437	
5°	1448	1465	1443	1406	1448	138
15°	1422	1340	1410	1315	1422	402
25°	1349	1264	1333	1186	1349	623
35°	1231	1181	1208	924	1231	770
45°	1064	823	1039	673	1064	821
55°	858	475	836	482	858	767
65°	625	320	609	379	625	618
75°	360	182	348	264	360	381
85°	114	73	106	106	114	113
90°	2	46	2	73	2	9
95°	44	76	35	152	44	46
105°	142	94	137	404	142	148
115°	196	107	196	485	196	192
125°	200	112	200	447	200	177
135°	168	112	168	327	168	131
145°	132	112	135	195	132	84
155°	117	135	116	134	117	54
165°	116	122	114	124	116	33
175°	114	119	114	116	114	11
180°	110	110	110	110	110	



TEST NUMBER: P192503

CATALOG NUMBER: 4WSL-LD2-50-UPL15-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8
2.5°	1448.4	1441.8	1463.2	1464.9	1453.3	1458.3	1458.3	1440.1	1445.1	1423.6	1426.9
5°	1448.4	1450.0	1473.1	1471.5	1464.9	1466.5	1471.5	1448.4	1443.4	1413.7	1417.0
7.5°	1445.1	1453.3	1469.8	1468.2	1461.6	1463.2	1471.5	1451.7	1438.5	1403.8	1402.2
10°	1441.8	1450.0	1463.2	1455.0	1441.8	1446.7	1463.2	1450.0	1433.5	1392.3	1382.4
12.5°	1433.5	1441.8	1448.4	1407.1	1384.0	1403.8	1450.0	1441.8	1423.6	1375.8	1362.6
15°	1422.0	1431.9	1423.6	1365.9	1339.5	1357.6	1423.6	1430.2	1410.4	1354.3	1337.8
17.5°	1408.8	1420.3	1398.9	1334.5	1314.8	1323.0	1389.0	1415.4	1395.6	1332.9	1313.1
20°	1393.9	1407.1	1369.2	1301.6	1290.0	1296.6	1352.7	1398.9	1379.1	1309.8	1288.4
22.5°	1374.1	1389.0	1334.5	1278.5	1283.4	1278.5	1319.7	1377.4	1356.0	1285.1	1260.3
25°	1349.4	1365.9	1299.9	1258.7	1263.6	1262.0	1291.7	1349.4	1332.9	1255.4	1229.0
27.5°	1324.7	1341.1	1268.6	1245.5	1253.7	1243.8	1265.3	1319.7	1306.5	1224.0	1199.3
30°	1296.6	1314.8	1237.2	1222.4	1230.6	1224.0	1238.9	1290.0	1276.8	1191.0	1166.3
32.5°	1265.3	1283.4	1204.2	1194.3	1205.9	1197.6	1207.5	1257.0	1242.2	1154.7	1125.0
35°	1230.6	1248.8	1169.6	1169.6	1181.1	1171.2	1176.2	1224.0	1207.5	1118.4	1078.9
37.5°	1192.7	1212.5	1131.6	1139.9	1153.1	1143.2	1143.2	1189.4	1169.6	1078.9	1026.1
40°	1153.1	1174.5	1092.1	1110.2	1121.7	1110.2	1106.9	1153.1	1128.3	1039.3	971.6
42.5°	1110.2	1133.3	1055.8	1077.2	1062.4	1077.2	1069.0	1115.1	1090.4	996.4	915.5
45°	1064.0	1093.7	1019.5	1006.3	823.2	996.4	1031.0	1075.6	1039.3	955.1	859.5
47.5°	1016.2	1047.5	979.9	884.2	661.5	874.3	989.8	1032.7	996.4	910.6	803.4
50°	965.0	1001.3	938.6	778.6	577.4	768.7	943.6	988.1	940.3	862.8	747.3
52.5°	912.2	951.8	892.4	687.9	521.3	678.0	894.1	940.3	894.1	811.6	692.8
55°	857.8	899.0	838.0	603.8	475.1	602.1	836.4	889.1	836.4	760.5	638.4
57.5°	803.4	849.6	780.3	542.7	435.5	534.5	772.0	836.4	786.9	707.7	585.6
60°	745.6	788.5	717.6	476.7	391.0	475.1	707.7	781.9	725.8	653.3	534.5
62.5°	686.2	734.1	650.0	419.0	354.7	417.4	638.4	720.9	666.4	597.2	485.0
65°	625.2	671.4	585.6	372.8	320.0	369.5	574.1	658.2	608.7	541.1	438.8
67.5°	562.5	605.4	521.3	328.3	285.4	325.0	508.1	592.2	549.3	483.3	389.3
70°	498.2	537.8	455.3	285.4	252.4	283.7	443.8	524.6	485.0	424.0	344.8
72.5°	430.6	466.8	386.0	244.1	217.8	242.5	376.1	455.3	414.1	361.3	305.2
75°	359.6	394.3	321.7	202.9	181.5	201.3	311.8	381.1	348.1	303.5	259.0
77.5°	292.0	326.6	255.7	156.7	138.6	153.4	244.1	311.8	283.7	245.8	211.2
80°	226.0	254.0	188.1	117.1	110.5	117.1	183.1	239.2	219.4	193.0	165.0
82.5°	166.6	183.1	127.0	95.7	95.7	95.7	123.7	169.9	161.7	143.5	125.4
85°	113.8	113.8	85.8	72.6	72.6	72.6	84.1	100.6	105.6	95.7	95.7
87.5°	47.8	49.5	44.5	39.6	37.9	39.6	42.9	41.2	41.2	46.2	57.7
90°	1.6	21.4	36.3	44.5	46.2	42.9	33.0	19.8	1.6	28.0	51.1
92.5°	11.5	46.2	42.9	56.1	57.7	52.8	44.5	36.3	6.6	51.1	54.4
95°	44.5	54.4	84.1	85.8	75.9	72.6	82.5	51.1	34.6	69.3	138.6
97.5°	70.9	82.5	75.9	99.0	112.2	99.0	79.2	79.2	66.0	107.2	161.7
100°	97.3	87.4	77.5	85.8	99.0	87.4	74.2	87.4	92.4	125.4	198.0
102.5°	122.1	97.3	97.3	84.1	85.8	82.5	94.0	95.7	115.5	141.9	244.1
105°	141.9	100.6	102.3	95.7	94.0	95.7	102.3	102.3	136.9	156.7	265.6
107.5°	160.0	103.9	100.6	105.6	107.2	105.6	100.6	103.9	156.7	166.6	270.5
110°	174.9	105.6	102.3	105.6	110.5	105.6	102.3	107.2	173.2	176.5	273.8



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CATALOG NUMBER: 4WSL-LD2-50-UPL15-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	188.1	107.2	105.6	103.9	108.9	103.9	105.6	110.5	186.4	181.5	273.8
115°	196.3	108.9	105.6	105.6	107.2	105.6	107.2	112.2	196.3	183.1	270.5
117.5°	201.3	112.2	107.2	108.9	110.5	108.9	107.2	115.5	202.9	189.7	268.9
120°	204.6	123.7	107.2	110.5	112.2	110.5	107.2	125.4	204.6	193.0	262.3
122.5°	202.9	128.7	108.9	110.5	113.8	110.5	108.9	130.3	202.9	191.4	254.0
125°	199.6	133.6	108.9	108.9	112.2	110.5	110.5	133.6	199.6	188.1	242.5
127.5°	193.0	145.2	108.9	110.5	110.5	110.5	110.5	143.5	193.0	189.7	230.9
130°	184.8	153.4	105.6	112.2	110.5	113.8	108.9	153.4	184.8	184.8	221.1
132.5°	176.5	156.7	105.6	112.2	112.2	113.8	107.2	156.7	176.5	178.2	211.2
135°	168.3	160.0	112.2	110.5	112.2	112.2	113.8	160.0	168.3	171.6	204.6
137.5°	160.0	161.7	120.4	105.6	110.5	107.2	123.7	161.7	161.7	161.7	194.7
140°	151.8	160.0	127.0	102.3	103.9	105.6	130.3	161.7	155.1	156.7	178.2
142.5°	141.9	155.1	132.0	110.5	102.3	113.8	135.3	160.0	145.2	151.8	169.9
145°	132.0	150.1	141.9	122.1	112.2	127.0	146.8	155.1	135.3	148.5	165.0
147.5°	123.7	141.9	143.5	128.7	123.7	133.6	148.5	148.5	125.4	141.9	153.4
150°	118.8	133.6	138.6	133.6	128.7	140.2	145.2	136.9	118.8	136.9	143.5
152.5°	117.1	127.0	127.0	140.2	138.6	146.8	133.6	130.3	115.5	132.0	130.3
155°	117.1	125.4	122.1	128.7	135.3	135.3	127.0	127.0	115.5	132.0	123.7
157.5°	115.5	127.0	122.1	120.4	123.7	127.0	127.0	128.7	115.5	128.7	123.7
160°	115.5	128.7	123.7	118.8	120.4	125.4	128.7	128.7	115.5	128.7	125.4
162.5°	115.5	125.4	125.4	120.4	120.4	127.0	128.7	127.0	115.5	125.4	128.7
165°	115.5	125.4	127.0	123.7	122.1	130.3	128.7	123.7	113.8	123.7	130.3
167.5°	115.5	122.1	128.7	125.4	125.4	130.3	130.3	122.1	113.8	118.8	130.3
170°	115.5	120.4	127.0	125.4	127.0	132.0	127.0	120.4	115.5	117.1	125.4
172.5°	115.5	117.1	123.7	125.4	125.4	128.7	123.7	117.1	115.5	113.8	120.4
175°	113.8	117.1	120.4	120.4	118.8	123.7	118.8	115.5	113.8	112.2	115.5
177.5°	112.2	113.8	117.1	117.1	113.8	117.1	113.8	112.2	112.2	110.5	113.8
180°	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1436.8	1436.8	1436.8	1436.8	1436.8	1436.8
2.5°	1425.3	1413.7	1417.0	1426.9	1425.3	1448.4
5°	1410.4	1405.5	1405.5	1420.3	1418.7	1448.4
7.5°	1393.9	1385.7	1390.6	1407.1	1412.1	1445.1
10°	1372.5	1365.9	1367.5	1392.3	1400.5	1441.8
12.5°	1351.0	1344.4	1349.4	1372.5	1384.0	1433.5
15°	1326.3	1314.8	1328.0	1352.7	1367.5	1422.0
17.5°	1296.6	1283.4	1296.6	1329.6	1347.7	1408.8
20°	1270.2	1257.0	1265.3	1299.9	1324.7	1393.9
22.5°	1240.5	1224.0	1230.6	1268.6	1299.9	1374.1
25°	1207.5	1186.1	1196.0	1237.2	1271.9	1349.4
27.5°	1164.6	1128.3	1153.1	1204.2	1237.2	1324.7
30°	1105.3	1057.4	1097.0	1167.9	1205.9	1296.6
32.5°	1036.0	984.8	1027.7	1123.4	1169.6	1265.3
35°	968.3	923.8	963.4	1077.2	1133.3	1230.6
37.5°	908.9	867.7	904.0	1024.4	1093.7	1192.7
40°	847.9	810.0	846.3	968.3	1054.1	1153.1
42.5°	791.8	755.5	790.2	912.2	1011.2	1110.2
45°	732.4	673.0	729.1	854.5	965.0	1064.0
47.5°	669.7	607.1	664.8	798.4	918.8	1016.2
50°	612.0	555.9	608.7	740.7	869.4	965.0
52.5°	560.9	513.0	559.2	682.9	818.2	912.2
55°	513.0	481.7	514.7	630.2	770.4	857.8
57.5°	475.1	453.6	476.7	579.0	717.6	803.4
60°	442.1	428.9	443.8	527.9	661.5	745.6
62.5°	405.8	400.9	405.8	478.4	607.1	686.2
65°	374.5	379.4	374.5	433.9	549.3	625.2
67.5°	344.8	356.3	346.4	386.0	491.6	562.5
70°	311.8	328.3	313.4	343.1	432.2	498.2
72.5°	277.1	296.9	277.1	301.9	369.5	430.6
75°	240.8	263.9	242.5	257.3	310.1	359.6
77.5°	201.3	216.1	204.6	209.5	252.4	292.0
80°	160.0	176.5	161.7	165.0	199.6	226.0
82.5°	133.6	145.2	135.3	125.4	148.5	166.6
85°	99.0	105.6	102.3	97.3	102.3	113.8
87.5°	61.0	64.3	61.0	61.0	52.8	47.8
90°	67.6	72.6	67.6	52.8	29.7	1.6
92.5°	69.3	75.9	69.3	57.7	56.1	11.5
95°	155.1	151.8	165.0	150.1	85.8	44.5
97.5°	240.8	275.5	249.1	179.8	115.5	70.9
100°	277.1	310.1	288.7	224.3	132.0	97.3
102.5°	320.0	356.3	333.2	262.3	148.5	122.1
105°	372.8	404.2	384.4	277.1	163.3	141.9
107.5°	400.9	448.7	409.1	283.7	173.2	160.0
110°	415.7	466.8	428.9	285.4	181.5	174.9





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	427.3	476.7	437.2	285.4	184.8	188.1
115°	427.3	485.0	437.2	280.4	189.7	196.3
117.5°	427.3	480.0	437.2	275.5	196.3	201.3
120°	412.4	478.4	425.6	268.9	198.0	204.6
122.5°	400.9	465.2	409.1	260.6	198.0	202.9
125°	379.4	447.0	389.3	250.7	194.7	199.6
127.5°	356.3	420.7	364.6	239.2	196.3	193.0
130°	334.9	391.0	339.8	227.6	189.7	184.8
132.5°	306.8	358.0	311.8	219.4	183.1	176.5
135°	280.4	326.6	287.0	212.8	174.9	168.3
137.5°	252.4	293.6	259.0	199.6	166.6	160.0
140°	219.4	252.4	226.0	184.8	161.7	151.8
142.5°	198.0	216.1	204.6	178.2	155.1	141.9
145°	184.8	194.7	189.7	171.6	151.8	132.0
147.5°	171.6	181.5	176.5	158.4	143.5	123.7
150°	166.6	166.6	173.2	146.8	138.6	118.8
152.5°	148.5	161.7	155.1	133.6	135.3	117.1
155°	127.0	133.6	133.6	128.7	135.3	117.1
157.5°	118.8	123.7	125.4	128.7	132.0	115.5
160°	118.8	120.4	125.4	130.3	130.3	115.5
162.5°	122.1	120.4	128.7	133.6	127.0	115.5
165°	125.4	123.7	132.0	135.3	123.7	115.5
167.5°	128.7	128.7	135.3	133.6	120.4	115.5
170°	128.7	132.0	135.3	128.7	118.8	115.5
172.5°	123.7	125.4	128.7	120.4	113.8	115.5
175°	117.1	115.5	120.4	115.5	113.8	113.8
177.5°	113.8	108.9	113.8	112.2	110.5	112.2
180°	110.5	110.5	110.5	110.5	110.5	110.5

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