

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: P192501

Luminaire Tested: **4WSL-LD2-50-UPL15-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192501
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-L830-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L830
Light Source: (238) 3000K CCT, 80 CRI LEDS
EL236N0119D830
Ballast/Driver: OSRAM
OT50W

Summary

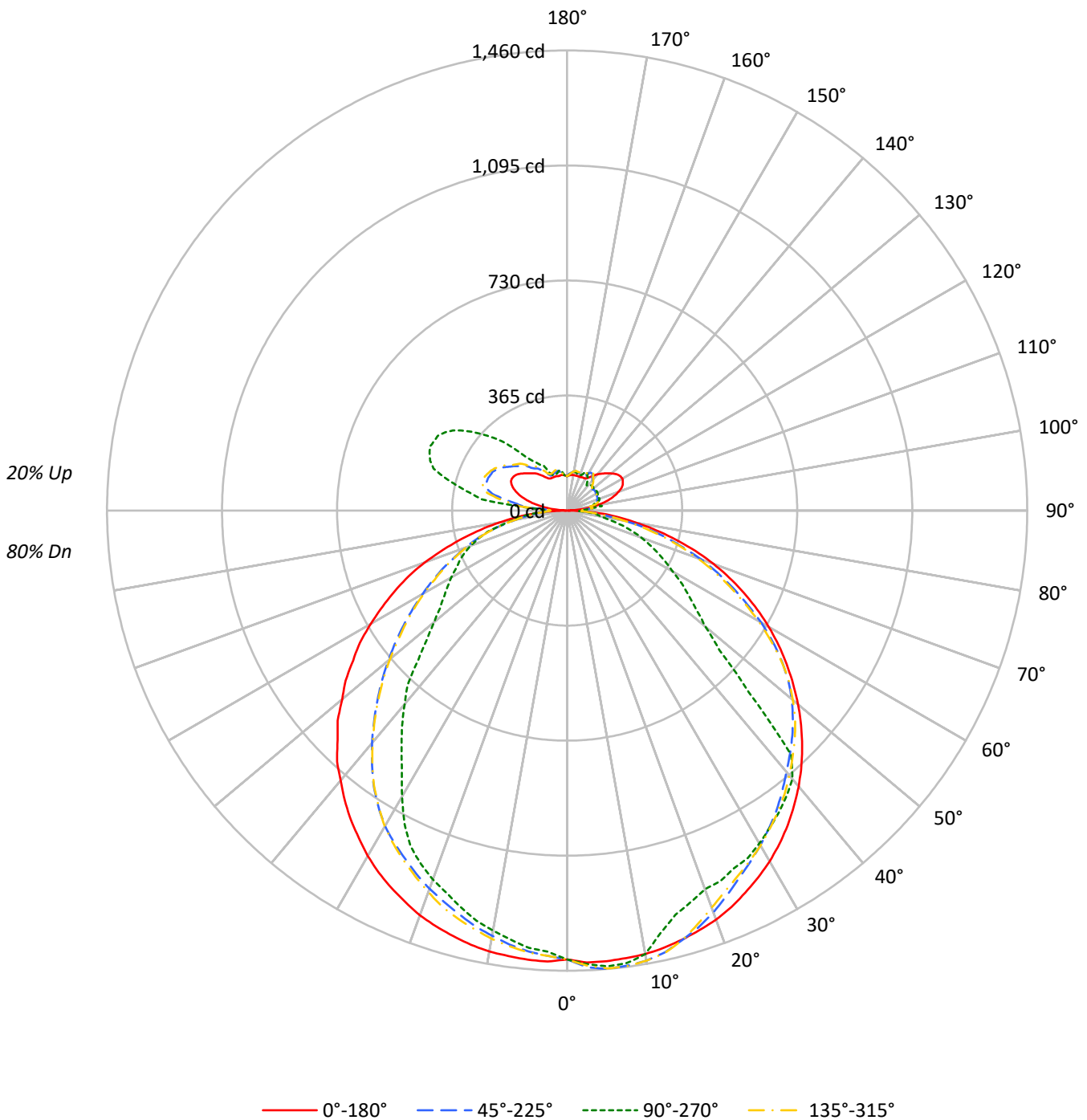
Lumens per Lamp: N/A
Luminaire Lumens: 5039.0 lumens
Efficiency: N/A
Efficacy: 112.5 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	8066	8066	8066	8066
5°	8162	8255	8134	7921
10°	8219	8219	8172	7786
15°	8264	7785	8198	7642
20°	8328	7707	8239	7509
25°	8359	7827	8256	7347
30°	8405	7978	8277	6854
35°	8434	8094	8276	6331
40°	8451	8221	8269	5936
45°	8448	6535	8251	5344
50°	8428	5042	8212	4855
55°	8395	4650	8186	4714
60°	8372	4389	8150	4815
65°	8306	4251	8086	5040
70°	8178	4143	7961	5388
75°	7801	3936	7549	5726
80°	7308	3572	7093	5706
85°	7332	4674	6799	6799



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	135.5	2.7
10°-20°	384.5	7.6
20°-30°	581.1	11.5
30°-40°	699.4	13.9
40°-50°	711.2	14.1
50°-60°	619.1	12.3
60°-70°	482.9	9.6
70°-80°	298.5	5.9
80°-90°	105.0	2.1
90°-100°	98.9	2.0
100°-110°	191.5	3.8
110°-120°	209.5	4.2
120°-130°	183.7	3.6
130°-140°	137.6	2.7
140°-150°	94.2	1.9
150°-160°	60.0	1.2
160°-170°	35.1	0.7
170°-180°	11.3	0.2
0°-30°	1101.1	21.9
0°-40°	1800.5	35.7
0°-60°	3130.8	62.1
0°-90°	4017.3	79.7
90°-120°	499.9	9.9
90°-150°	915.4	18.2
90°-180°	1022.0	20.3
0°-180°	5039.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1424	1424	1424	1424	1424	
5°	1435	1452	1430	1393	1435	137
15°	1409	1327	1398	1303	1409	398
25°	1337	1252	1321	1175	1337	617
35°	1220	1170	1197	915	1220	763
45°	1054	816	1030	667	1054	813
55°	850	471	829	477	850	760
65°	620	317	603	376	620	612
75°	356	180	345	262	356	377
85°	113	72	105	105	113	112
90°	2	46	2	72	2	8
95°	44	75	34	150	44	46
105°	141	93	136	400	141	147
115°	194	106	194	481	194	190
125°	198	111	198	443	198	176
135°	167	111	167	324	167	129
145°	131	111	134	193	131	83
155°	116	134	114	132	116	54
165°	114	121	113	123	114	32
175°	113	118	113	114	113	11
180°	110	110	110	110	110	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8
2.5°	1435.3	1428.7	1450.0	1451.6	1440.2	1445.1	1445.1	1427.1	1432.0	1410.8	1414.0
5°	1435.3	1436.9	1459.8	1458.2	1451.6	1453.3	1458.2	1435.3	1430.4	1400.9	1404.2
7.5°	1432.0	1440.2	1456.5	1454.9	1448.3	1450.0	1458.2	1438.5	1425.5	1391.1	1389.5
10°	1428.7	1436.9	1450.0	1441.8	1428.7	1433.6	1450.0	1436.9	1420.6	1379.7	1369.9
12.5°	1420.6	1428.7	1435.3	1394.4	1371.5	1391.1	1436.9	1428.7	1410.8	1363.3	1350.3
15°	1409.1	1418.9	1410.8	1353.5	1327.4	1345.4	1410.8	1417.3	1397.7	1342.1	1325.7
17.5°	1396.0	1407.5	1386.2	1322.5	1302.9	1311.0	1376.4	1402.6	1383.0	1320.8	1301.2
20°	1381.3	1394.4	1356.8	1289.8	1278.3	1284.9	1340.5	1386.2	1366.6	1298.0	1276.7
22.5°	1361.7	1376.4	1322.5	1266.9	1271.8	1266.9	1307.8	1365.0	1343.7	1273.4	1248.9
25°	1337.2	1353.5	1288.1	1247.3	1252.2	1250.5	1280.0	1337.2	1320.8	1244.0	1217.9
27.5°	1312.7	1329.0	1257.1	1234.2	1242.4	1232.6	1253.8	1307.8	1294.7	1213.0	1188.4
30°	1284.9	1302.9	1226.0	1211.3	1219.5	1213.0	1227.7	1278.3	1265.3	1180.3	1155.7
32.5°	1253.8	1271.8	1193.3	1183.5	1195.0	1186.8	1196.6	1245.6	1230.9	1144.3	1114.9
35°	1219.5	1237.5	1159.0	1159.0	1170.4	1160.6	1165.5	1213.0	1196.6	1108.3	1069.1
37.5°	1181.9	1201.5	1121.4	1129.6	1142.7	1132.9	1132.9	1178.6	1159.0	1069.1	1016.8
40°	1142.7	1163.9	1082.2	1100.2	1111.6	1100.2	1096.9	1142.7	1118.1	1029.9	962.8
42.5°	1100.2	1123.0	1046.2	1067.5	1052.8	1067.5	1059.3	1105.1	1080.5	987.4	907.3
45°	1054.4	1083.8	1010.2	997.2	815.7	987.4	1021.7	1065.8	1029.9	946.5	851.7
47.5°	1007.0	1038.0	971.0	876.2	655.5	866.4	980.8	1023.3	987.4	902.4	796.1
50°	956.3	992.3	930.1	771.6	572.1	761.8	935.1	979.2	931.8	855.0	740.5
52.5°	904.0	943.2	884.4	681.7	516.6	671.9	886.0	931.8	886.0	804.3	686.6
55°	850.0	890.9	830.4	598.3	470.8	596.7	828.8	881.1	828.8	753.6	632.6
57.5°	796.1	841.9	773.2	537.8	431.6	529.6	765.0	828.8	779.8	701.3	580.3
60°	738.9	781.4	711.1	472.4	387.4	470.8	701.3	774.9	719.3	647.3	529.6
62.5°	680.0	727.4	644.1	415.2	351.5	413.6	632.6	714.4	660.4	591.8	480.6
65°	619.6	665.3	580.3	369.4	317.1	366.2	568.9	652.2	603.2	536.2	434.8
67.5°	557.4	599.9	516.6	325.3	282.8	322.0	503.5	586.9	544.4	479.0	385.8
70°	493.7	532.9	451.2	282.8	250.1	281.2	439.7	519.8	480.6	420.1	341.7
72.5°	426.7	462.6	382.5	241.9	215.8	240.3	372.7	451.2	410.3	358.0	302.4
75°	356.4	390.7	318.8	201.1	179.8	199.4	309.0	377.6	344.9	300.8	256.6
77.5°	289.3	323.7	253.4	155.3	137.3	152.0	241.9	309.0	281.2	243.6	209.2
80°	224.0	251.7	186.4	116.1	109.5	116.1	181.5	237.0	217.4	191.3	163.5
82.5°	165.1	181.5	125.9	94.8	94.8	94.8	122.6	168.4	160.2	142.2	124.2
85°	112.8	112.8	85.0	71.9	71.9	71.9	83.4	99.7	104.6	94.8	94.8
87.5°	47.4	49.0	44.1	39.2	37.6	39.2	42.5	40.9	40.9	45.8	57.2
90°	1.6	21.3	36.0	44.1	45.8	42.5	32.7	19.6	1.6	27.8	50.7
92.5°	11.4	45.8	42.5	55.6	57.2	52.3	44.1	36.0	6.5	50.7	53.9
95°	44.1	53.9	83.4	85.0	75.2	71.9	81.7	50.7	34.3	68.7	137.3
97.5°	70.3	81.7	75.2	98.1	111.2	98.1	78.5	78.5	65.4	106.3	160.2
100°	96.4	86.6	76.8	85.0	98.1	86.6	73.6	86.6	91.5	124.2	196.2
102.5°	121.0	96.4	96.4	83.4	85.0	81.7	93.2	94.8	114.4	140.6	241.9
105°	140.6	99.7	101.4	94.8	93.2	94.8	101.4	101.4	135.7	155.3	263.2
107.5°	158.6	103.0	99.7	104.6	106.3	104.6	99.7	103.0	155.3	165.1	268.1
110°	173.3	104.6	101.4	104.6	109.5	104.6	101.4	106.3	171.6	174.9	271.4



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CATALOG NUMBER: 4WSL-LD2-50-UPL15-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	186.4	106.3	104.6	103.0	107.9	103.0	104.6	109.5	184.7	179.8	271.4
115°	194.5	107.9	104.6	104.6	106.3	104.6	106.3	111.2	194.5	181.5	268.1
117.5°	199.4	111.2	106.3	107.9	109.5	107.9	106.3	114.4	201.1	188.0	266.5
120°	202.7	122.6	106.3	109.5	111.2	109.5	106.3	124.2	202.7	191.3	259.9
122.5°	201.1	127.5	107.9	109.5	112.8	109.5	107.9	129.1	201.1	189.6	251.7
125°	197.8	132.4	107.9	107.9	111.2	109.5	109.5	132.4	197.8	186.4	240.3
127.5°	191.3	143.9	107.9	109.5	109.5	109.5	109.5	142.2	191.3	188.0	228.9
130°	183.1	152.0	104.6	111.2	109.5	112.8	107.9	152.0	183.1	183.1	219.1
132.5°	174.9	155.3	104.6	111.2	111.2	112.8	106.3	155.3	174.9	176.5	209.2
135°	166.7	158.6	111.2	109.5	111.2	111.2	112.8	158.6	166.7	170.0	202.7
137.5°	158.6	160.2	119.3	104.6	109.5	106.3	122.6	160.2	160.2	160.2	192.9
140°	150.4	158.6	125.9	101.4	103.0	104.6	129.1	160.2	153.7	155.3	176.5
142.5°	140.6	153.7	130.8	109.5	101.4	112.8	134.0	158.6	143.9	150.4	168.4
145°	130.8	148.8	140.6	121.0	111.2	125.9	145.5	153.7	134.0	147.1	163.5
147.5°	122.6	140.6	142.2	127.5	122.6	132.4	147.1	147.1	124.2	140.6	152.0
150°	117.7	132.4	137.3	132.4	127.5	138.9	143.9	135.7	117.7	135.7	142.2
152.5°	116.1	125.9	125.9	138.9	137.3	145.5	132.4	129.1	114.4	130.8	129.1
155°	116.1	124.2	121.0	127.5	134.0	134.0	125.9	125.9	114.4	130.8	122.6
157.5°	114.4	125.9	121.0	119.3	122.6	125.9	125.9	127.5	114.4	127.5	122.6
160°	114.4	127.5	122.6	117.7	119.3	124.2	127.5	127.5	114.4	127.5	124.2
162.5°	114.4	124.2	124.2	119.3	119.3	125.9	127.5	125.9	114.4	124.2	127.5
165°	114.4	124.2	125.9	122.6	121.0	129.1	127.5	122.6	112.8	122.6	129.1
167.5°	114.4	121.0	127.5	124.2	124.2	129.1	129.1	121.0	112.8	117.7	129.1
170°	114.4	119.3	125.9	124.2	125.9	130.8	125.9	119.3	114.4	116.1	124.2
172.5°	114.4	116.1	122.6	124.2	124.2	127.5	122.6	116.1	114.4	112.8	119.3
175°	112.8	116.1	119.3	119.3	117.7	122.6	117.7	114.4	112.8	111.2	114.4
177.5°	111.2	112.8	116.1	116.1	112.8	116.1	112.8	111.2	111.2	109.5	112.8
180°	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1423.8	1423.8	1423.8	1423.8	1423.8	1423.8
2.5°	1412.4	1400.9	1404.2	1414.0	1412.4	1435.3
5°	1397.7	1392.8	1392.8	1407.5	1405.8	1435.3
7.5°	1381.3	1373.2	1378.1	1394.4	1399.3	1432.0
10°	1360.1	1353.5	1355.2	1379.7	1387.9	1428.7
12.5°	1338.8	1332.3	1337.2	1360.1	1371.5	1420.6
15°	1314.3	1302.9	1315.9	1340.5	1355.2	1409.1
17.5°	1284.9	1271.8	1284.9	1317.6	1335.6	1396.0
20°	1258.7	1245.6	1253.8	1288.1	1312.7	1381.3
22.5°	1229.3	1213.0	1219.5	1257.1	1288.1	1361.7
25°	1196.6	1175.4	1185.2	1226.0	1260.4	1337.2
27.5°	1154.1	1118.1	1142.7	1193.3	1226.0	1312.7
30°	1095.3	1047.8	1087.1	1157.4	1195.0	1284.9
32.5°	1026.6	975.9	1018.4	1113.2	1159.0	1253.8
35°	959.6	915.4	954.7	1067.5	1123.0	1219.5
37.5°	900.7	859.9	895.8	1015.2	1083.8	1181.9
40°	840.2	802.6	838.6	959.6	1044.6	1142.7
42.5°	784.7	748.7	783.0	904.0	1002.1	1100.2
45°	725.8	667.0	722.5	846.8	956.3	1054.4
47.5°	663.7	601.6	658.8	791.2	910.5	1007.0
50°	606.5	550.9	603.2	734.0	861.5	956.3
52.5°	555.8	508.4	554.2	676.8	810.8	904.0
55°	508.4	477.3	510.0	624.5	763.4	850.0
57.5°	470.8	449.5	472.4	573.8	711.1	796.1
60°	438.1	425.0	439.7	523.1	655.5	738.9
62.5°	402.1	397.2	402.1	474.1	601.6	680.0
65°	371.1	376.0	371.1	429.9	544.4	619.6
67.5°	341.7	353.1	343.3	382.5	487.1	557.4
70°	309.0	325.3	310.6	340.0	428.3	493.7
72.5°	274.6	294.2	274.6	299.2	366.2	426.7
75°	238.7	261.6	240.3	255.0	307.3	356.4
77.5°	199.4	214.1	202.7	207.6	250.1	289.3
80°	158.6	174.9	160.2	163.5	197.8	224.0
82.5°	132.4	143.9	134.0	124.2	147.1	165.1
85°	98.1	104.6	101.4	96.4	101.4	112.8
87.5°	60.5	63.8	60.5	60.5	52.3	47.4
90°	67.0	71.9	67.0	52.3	29.4	1.6
92.5°	68.7	75.2	68.7	57.2	55.6	11.4
95°	153.7	150.4	163.5	148.8	85.0	44.1
97.5°	238.7	273.0	246.8	178.2	114.4	70.3
100°	274.6	307.3	286.1	222.3	130.8	96.4
102.5°	317.1	353.1	330.2	259.9	147.1	121.0
105°	369.4	400.5	380.9	274.6	161.8	140.6
107.5°	397.2	444.6	405.4	281.2	171.6	158.6
110°	411.9	462.6	425.0	282.8	179.8	173.3



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	423.4	472.4	433.2	282.8	183.1	186.4
115°	423.4	480.6	433.2	277.9	188.0	194.5
117.5°	423.4	475.7	433.2	273.0	194.5	199.4
120°	408.7	474.1	421.8	266.5	196.2	202.7
122.5°	397.2	461.0	405.4	258.3	196.2	201.1
125°	376.0	443.0	385.8	248.5	192.9	197.8
127.5°	353.1	416.8	361.3	237.0	194.5	191.3
130°	331.8	387.4	336.7	225.6	188.0	183.1
132.5°	304.1	354.7	309.0	217.4	181.5	174.9
135°	277.9	323.7	284.4	210.9	173.3	166.7
137.5°	250.1	291.0	256.6	197.8	165.1	158.6
140°	217.4	250.1	224.0	183.1	160.2	150.4
142.5°	196.2	214.1	202.7	176.5	153.7	140.6
145°	183.1	192.9	188.0	170.0	150.4	130.8
147.5°	170.0	179.8	174.9	156.9	142.2	122.6
150°	165.1	165.1	171.6	145.5	137.3	117.7
152.5°	147.1	160.2	153.7	132.4	134.0	116.1
155°	125.9	132.4	132.4	127.5	134.0	116.1
157.5°	117.7	122.6	124.2	127.5	130.8	114.4
160°	117.7	119.3	124.2	129.1	129.1	114.4
162.5°	121.0	119.3	127.5	132.4	125.9	114.4
165°	124.2	122.6	130.8	134.0	122.6	114.4
167.5°	127.5	127.5	134.0	132.4	119.3	114.4
170°	127.5	130.8	134.0	127.5	117.7	114.4
172.5°	122.6	124.2	127.5	119.3	112.8	114.4
175°	116.1	114.4	119.3	114.4	112.8	112.8
177.5°	112.8	107.9	112.8	111.2	109.5	111.2
180°	109.5	109.5	109.5	109.5	109.5	109.5

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