

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: P192458

Luminaire Tested: **4WSL-LD2-50-UPL8-UNV-L835-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192458
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28106)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WSL-LD2-50-UPL8-UNV-L835-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L835
Light Source: (238) 3500K CCT, 80 CRI LEDS
EL236N0119D835
Ballast/Driver: OSRAM
OT50W

Summary

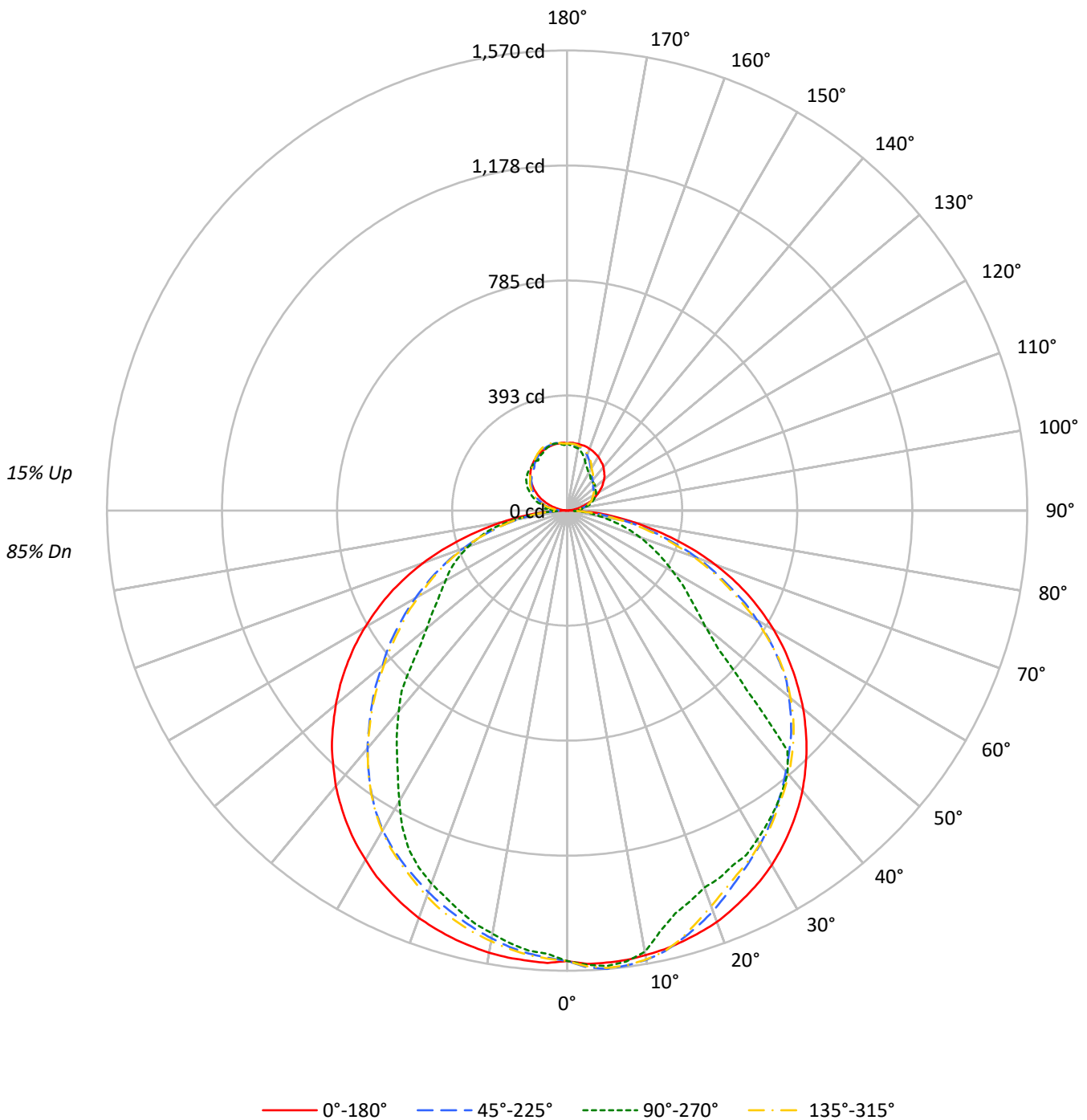
Lumens per Lamp: N/A
Luminaire Lumens: 5097.0 lumens
Efficiency: N/A
Efficacy: 113.8 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 44.8
Input Voltage (V): NR
Input Current (A_{in}): 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: P192458

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Luminous Intensity Polar Plot





TEST NUMBER: P192458

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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	50	30	10	50	30	10	50	30	10	0																
RCR																																														
0	115	115	115	115	111	111	111	111	103	103	103	95	95	95	88	88	88	85																												
1	105	101	96	92	101	97	93	90	90	87	84	83	81	79	78	76	74	71																												
2	96	88	81	75	92	84	78	73	78	73	69	73	69	65	68	65	62	59																												
3	87	77	69	62	83	74	67	61	69	63	58	64	59	55	60	56	52	50																												
4	80	68	59	53	76	66	58	52	61	55	49	57	52	47	53	49	45	42																												
5	73	61	52	45	70	59	51	44	55	48	43	51	45	41	48	43	39	37																												
6	68	55	46	40	65	53	45	39	50	43	37	47	40	36	44	38	34	32																												
7	63	49	41	35	60	48	40	34	45	38	33	42	36	32	40	35	31	28																												
8	58	45	37	31	56	44	36	30	41	34	29	39	33	28	37	31	27	25																												
9	54	41	33	28	52	40	33	27	38	31	26	36	30	26	34	29	25	23																												
10	51	38	30	25	49	37	30	25	35	28	24	33	27	23	31	26	22	21																												

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	8706	8706	8706	8706
5°	8804	8870	8767	8571
10°	8859	8792	8811	8433
15°	8926	8347	8859	8298
20°	9006	8253	8917	8164
25°	9061	8351	8958	7980
30°	9137	8481	8997	7491
35°	9182	8568	9046	6998
40°	9235	8651	9077	6607
45°	9254	6960	9095	6037
50°	9266	5409	9077	5510
55°	9247	5005	9068	5346
60°	9228	4717	9022	5425
65°	9130	4522	8932	5690
70°	8885	4360	8666	5942
75°	8320	4106	8066	6267
80°	7569	3758	7246	5957
85°	7378	4063	6630	5350



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.1	2.9
10°-20°	414.8	8.1
20°-30°	628.0	12.3
30°-40°	758.3	14.9
40°-50°	774.2	15.2
50°-60°	676.8	13.3
60°-70°	524.6	10.3
70°-80°	315.4	6.2
80°-90°	97.4	1.9
90°-100°	41.1	0.8
100°-110°	78.5	1.5
110°-120°	106.6	2.1
120°-130°	121.2	2.4
130°-140°	123.0	2.4
140°-150°	113.2	2.2
150°-160°	93.4	1.8
160°-170°	62.8	1.2
170°-180°	21.8	0.4
0°-30°	1188.9	23.3
0°-40°	1947.2	38.2
0°-60°	3398.2	66.7
0°-90°	4335.5	85.1
90°-120°	226.2	4.4
90°-150°	583.5	11.4
90°-180°	761.0	14.9
0°-180°	5097.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1537	1537	1537	1537	1537	
5°	1548	1560	1542	1507	1548	148
15°	1522	1423	1510	1415	1522	430
25°	1450	1336	1433	1277	1450	669
35°	1328	1239	1308	1012	1328	831
45°	1155	869	1135	754	1155	891
55°	936	507	918	541	936	837
65°	681	337	666	424	681	672
75°	380	188	368	286	380	403
85°	114	62	102	82	114	115
90°	2	35	2	40	2	7
95°	10	48	10	76	10	13
105°	53	81	51	102	53	56
115°	102	104	100	138	102	101
125°	146	118	143	170	146	130
135°	179	130	178	188	179	138
145°	202	138	201	199	202	127
155°	219	161	217	211	219	101
165°	229	201	227	229	229	65
175°	232	220	232	227	232	22
180°	229	229	229	229	229	



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CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7
2.5°	1548.2	1540.0	1559.7	1563.0	1551.5	1554.8	1556.4	1538.3	1544.9	1520.2	1526.8
5°	1548.2	1546.5	1569.6	1566.3	1559.7	1561.4	1566.3	1544.9	1541.6	1512.0	1516.9
7.5°	1546.5	1549.8	1564.6	1561.4	1551.5	1556.4	1564.6	1548.2	1538.3	1503.8	1502.1
10°	1540.0	1544.9	1556.4	1546.5	1528.4	1536.7	1554.8	1544.9	1531.7	1490.6	1482.4
12.5°	1533.4	1536.7	1540.0	1498.8	1469.2	1489.0	1540.0	1536.7	1521.9	1475.8	1461.0
15°	1521.9	1526.8	1513.6	1454.4	1423.2	1442.9	1510.4	1523.5	1510.4	1454.4	1436.3
17.5°	1508.7	1513.6	1485.7	1419.9	1396.8	1406.7	1472.5	1507.1	1495.5	1434.7	1411.6
20°	1493.9	1498.8	1454.4	1383.7	1368.9	1377.1	1436.3	1489.0	1479.1	1411.6	1385.3
22.5°	1472.5	1480.7	1418.2	1359.0	1357.3	1357.3	1401.8	1467.6	1457.7	1383.7	1355.7
25°	1449.5	1457.7	1382.0	1336.0	1336.0	1336.0	1370.5	1439.6	1433.0	1354.1	1326.1
27.5°	1424.8	1433.0	1349.1	1319.5	1324.4	1316.2	1344.2	1408.3	1408.3	1324.4	1294.8
30°	1396.8	1405.1	1316.2	1293.2	1296.5	1293.2	1314.6	1375.4	1375.4	1289.9	1258.6
32.5°	1363.9	1372.1	1280.0	1261.9	1268.5	1265.2	1286.6	1342.5	1344.2	1253.7	1215.8
35°	1327.7	1337.6	1242.2	1232.3	1238.9	1233.9	1248.8	1308.0	1308.0	1214.2	1166.5
37.5°	1289.9	1299.8	1202.7	1199.4	1206.0	1201.0	1212.6	1271.8	1268.5	1173.1	1113.8
40°	1248.8	1260.3	1161.6	1161.6	1169.8	1166.5	1176.4	1233.9	1227.4	1131.9	1059.5
42.5°	1202.7	1217.5	1120.4	1122.1	1112.2	1125.4	1135.2	1194.5	1181.3	1085.9	1000.3
45°	1155.0	1173.1	1080.9	1051.3	868.7	1039.8	1092.5	1155.0	1135.2	1039.8	942.7
47.5°	1104.0	1127.0	1034.9	926.3	699.2	911.5	1046.4	1105.6	1082.6	990.4	886.8
50°	1051.3	1077.6	987.2	819.3	613.7	802.9	995.4	1056.3	1029.9	939.4	822.6
52.5°	993.7	1023.4	941.1	725.6	556.1	710.8	942.7	1008.5	975.6	885.2	770.0
55°	936.2	967.4	878.6	644.9	506.7	631.8	881.9	947.7	918.1	829.2	712.4
57.5°	876.9	908.2	816.1	574.2	464.0	561.0	812.8	891.7	858.8	771.6	654.8
60°	814.4	845.7	748.6	510.0	416.3	500.2	742.0	829.2	796.3	712.4	598.9
62.5°	748.6	779.9	684.4	450.8	376.8	442.6	664.7	768.3	732.1	649.9	541.3
65°	681.1	704.2	608.7	394.9	337.3	388.3	595.6	692.7	666.3	584.1	487.0
67.5°	610.4	633.4	542.9	345.5	299.4	338.9	528.1	625.2	595.6	519.9	432.7
70°	536.4	556.1	473.8	297.8	263.2	292.9	457.4	549.5	523.2	452.4	375.1
72.5°	460.7	478.8	399.8	253.4	225.4	250.1	383.3	473.8	447.5	381.7	322.5
75°	380.1	398.2	330.7	208.9	187.6	205.7	315.9	393.2	368.5	314.2	268.2
77.5°	304.4	325.8	261.6	164.5	149.7	161.2	248.4	317.5	292.9	251.7	215.5
80°	232.0	250.1	194.1	125.0	115.2	123.4	181.0	241.9	222.1	194.1	167.8
82.5°	167.8	177.7	133.3	92.1	87.2	90.5	123.4	171.1	161.2	139.8	123.4
85°	113.5	111.9	82.3	64.2	62.5	64.2	74.0	103.7	102.0	93.8	79.0
87.5°	47.7	44.4	37.8	26.3	23.0	24.7	29.6	39.5	37.8	39.5	37.8
90°	1.6	16.5	26.3	32.9	34.6	32.9	26.3	16.5	1.6	18.1	29.6
92.5°	3.3	21.4	31.3	36.2	39.5	36.2	29.6	21.4	3.3	28.0	29.6
95°	9.9	29.6	36.2	44.4	47.7	44.4	36.2	28.0	9.9	24.7	44.4
97.5°	19.7	37.8	42.8	49.4	51.0	47.7	41.1	37.8	18.1	44.4	46.1
100°	29.6	47.7	55.9	55.9	57.6	55.9	54.3	46.1	28.0	49.4	55.9
102.5°	41.1	54.3	64.2	69.1	69.1	69.1	64.2	54.3	37.8	60.9	77.3
105°	52.6	59.2	70.7	77.3	80.6	77.3	70.7	60.9	51.0	70.7	82.3
107.5°	65.8	64.2	77.3	83.9	87.2	83.9	77.3	65.8	62.5	79.0	92.1
110°	79.0	70.7	83.9	90.5	92.1	90.5	83.9	70.7	75.7	88.8	102.0



TEST NUMBER: P192458

CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L835-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	90.5	75.7	90.5	97.1	98.7	97.1	90.5	77.3	87.2	95.4	111.9
115°	102.0	80.6	93.8	102.0	103.7	102.0	93.8	82.3	100.4	103.7	120.1
117.5°	113.5	87.2	97.1	106.9	108.6	106.9	98.7	88.8	111.9	113.5	128.3
120°	125.0	95.4	102.0	110.2	113.5	111.9	102.0	97.1	121.7	121.7	134.9
122.5°	134.9	102.0	106.9	113.5	116.8	113.5	106.9	105.3	133.3	130.0	143.1
125°	146.4	108.6	110.2	116.8	118.5	116.8	111.9	110.2	143.1	136.6	148.1
127.5°	154.7	116.8	113.5	120.1	121.7	120.1	115.2	118.5	153.0	149.7	153.0
130°	164.5	125.0	116.8	123.4	125.0	125.0	116.8	128.3	161.2	159.6	159.6
132.5°	172.8	133.3	120.1	126.7	128.3	128.3	121.7	134.9	169.5	167.8	164.5
135°	179.3	144.8	126.7	126.7	130.0	130.0	128.3	146.4	177.7	176.0	172.8
137.5°	185.9	154.7	131.6	128.3	130.0	130.0	134.9	156.3	184.3	184.3	177.7
140°	192.5	164.5	134.9	131.6	131.6	134.9	139.8	166.2	190.9	190.9	179.3
142.5°	199.1	172.8	139.8	136.6	133.3	139.8	144.8	176.0	195.8	197.4	184.3
145°	202.4	181.0	146.4	141.5	138.2	146.4	153.0	184.3	200.7	204.0	194.1
147.5°	207.3	189.2	154.7	144.8	144.8	149.7	159.6	190.9	205.7	208.9	199.1
150°	212.2	195.8	161.2	149.7	146.4	154.7	166.2	197.4	210.6	213.9	205.7
152.5°	215.5	202.4	171.1	156.3	153.0	162.9	177.7	202.4	213.9	217.2	212.2
155°	218.8	207.3	182.6	162.9	161.2	169.5	187.6	207.3	217.2	220.5	217.2
157.5°	222.1	212.2	190.9	172.8	166.2	179.3	195.8	213.9	220.5	223.8	222.1
160°	223.8	215.5	200.7	182.6	179.3	190.9	204.0	215.5	222.1	227.0	225.4
162.5°	227.0	218.8	207.3	194.1	190.9	200.7	210.6	220.5	225.4	228.7	228.7
165°	228.7	222.1	213.9	204.0	200.7	210.6	215.5	223.8	227.0	228.7	230.3
167.5°	228.7	225.4	218.8	210.6	208.9	217.2	222.1	227.0	228.7	228.7	232.0
170°	230.3	227.0	222.1	217.2	215.5	222.1	223.8	228.7	230.3	228.7	233.6
172.5°	230.3	228.7	225.4	220.5	217.2	225.4	227.0	228.7	230.3	228.7	232.0
175°	232.0	228.7	228.7	225.4	220.5	228.7	228.7	228.7	232.0	228.7	230.3
177.5°	232.0	228.7	228.7	227.0	223.8	228.7	228.7	228.7	232.0	228.7	230.3
180°	228.7	228.7	228.7	228.7	228.7	228.7	228.7	228.7	228.7	228.7	228.7



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CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L835-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1536.7	1536.7	1536.7	1536.7	1536.7	1536.7
2.5°	1525.2	1513.6	1516.9	1530.1	1525.2	1548.2
5°	1513.6	1507.1	1507.1	1521.9	1520.2	1548.2
7.5°	1495.5	1489.0	1492.3	1508.7	1512.0	1546.5
10°	1474.2	1465.9	1469.2	1492.3	1500.5	1540.0
12.5°	1451.1	1444.5	1447.8	1474.2	1485.7	1533.4
15°	1424.8	1414.9	1424.8	1452.8	1467.6	1521.9
17.5°	1395.2	1382.0	1393.5	1429.7	1447.8	1508.7
20°	1365.6	1354.1	1360.6	1400.1	1426.4	1493.9
22.5°	1336.0	1319.5	1326.1	1367.2	1400.1	1472.5
25°	1301.4	1276.7	1289.9	1334.3	1372.1	1449.5
27.5°	1255.3	1217.5	1245.5	1301.4	1339.2	1424.8
30°	1194.5	1145.1	1186.2	1261.9	1304.7	1396.8
32.5°	1127.0	1074.4	1120.4	1217.5	1268.5	1363.9
35°	1059.5	1011.8	1053.0	1168.1	1230.7	1327.7
37.5°	995.4	954.3	992.1	1115.5	1191.2	1289.9
40°	934.5	893.4	932.9	1057.9	1148.4	1248.8
42.5°	873.6	835.8	873.6	997.0	1104.0	1202.7
45°	812.8	753.5	809.5	937.8	1056.3	1155.0
47.5°	746.9	677.8	742.0	873.6	1005.3	1104.0
50°	684.4	625.2	681.1	814.4	952.6	1051.3
52.5°	630.1	582.4	626.8	753.5	898.3	993.7
55°	579.1	541.3	579.1	694.3	840.7	936.2
57.5°	533.1	508.4	534.7	643.3	781.5	876.9
60°	493.6	478.8	495.2	580.8	722.3	814.4
62.5°	455.7	454.1	457.4	531.4	659.8	748.6
65°	416.3	424.5	416.3	478.8	597.2	681.1
67.5°	376.8	393.2	380.1	426.1	529.8	610.4
70°	340.6	358.7	340.6	371.8	462.3	536.4
72.5°	299.4	322.5	299.4	320.8	391.6	460.7
75°	260.0	286.3	261.6	268.2	324.1	380.1
77.5°	217.2	241.9	222.1	217.2	261.6	304.4
80°	172.8	182.6	172.8	171.1	202.4	232.0
82.5°	120.1	128.3	120.1	125.0	148.1	167.8
85°	79.0	82.3	79.0	80.6	98.7	113.5
87.5°	32.9	32.9	32.9	41.1	44.4	47.7
90°	36.2	39.5	36.2	29.6	18.1	1.6
92.5°	37.8	41.1	37.8	32.9	21.4	3.3
95°	67.5	75.7	64.2	41.1	34.6	9.9
97.5°	54.3	59.2	55.9	47.7	42.8	19.7
100°	64.2	69.1	64.2	67.5	52.6	29.6
102.5°	75.7	79.0	77.3	79.0	64.2	41.1
105°	98.7	102.0	98.7	85.6	74.0	52.6
107.5°	105.3	113.5	106.9	95.4	83.9	65.8
110°	113.5	120.1	115.2	105.3	92.1	79.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	121.7	130.0	125.0	116.8	98.7	90.5
115°	131.6	138.2	134.9	125.0	108.6	102.0
117.5°	141.5	146.4	143.1	131.6	118.5	113.5
120°	149.7	156.3	153.0	139.8	126.7	125.0
122.5°	156.3	162.9	159.6	148.1	134.9	134.9
125°	162.9	169.5	166.2	154.7	141.5	146.4
127.5°	167.8	176.0	172.8	159.6	156.3	154.7
130°	174.4	179.3	177.7	164.5	164.5	164.5
132.5°	177.7	184.3	181.0	171.1	174.4	172.8
135°	179.3	187.6	184.3	179.3	182.6	179.3
137.5°	182.6	189.2	187.6	184.3	190.9	185.9
140°	187.6	190.9	192.5	187.6	197.4	192.5
142.5°	192.5	194.1	197.4	192.5	204.0	199.1
145°	195.8	199.1	202.4	202.4	208.9	202.4
147.5°	195.8	200.7	200.7	205.7	215.5	207.3
150°	200.7	197.4	207.3	212.2	218.8	212.2
152.5°	207.3	205.7	213.9	218.8	222.1	215.5
155°	208.9	210.6	215.5	223.8	225.4	218.8
157.5°	215.5	213.9	222.1	228.7	228.7	222.1
160°	220.5	220.5	228.7	232.0	230.3	223.8
162.5°	225.4	225.4	233.6	233.6	232.0	227.0
165°	228.7	228.7	236.9	235.3	232.0	228.7
167.5°	230.3	232.0	238.6	236.9	232.0	228.7
170°	232.0	232.0	238.6	235.3	232.0	230.3
172.5°	232.0	230.3	236.9	233.6	230.3	230.3
175°	230.3	227.0	233.6	230.3	230.3	232.0
177.5°	228.7	223.8	228.7	228.7	230.3	232.0
180°	228.7	228.7	228.7	228.7	228.7	228.7

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