

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: P192456

Luminaire Tested: **4WSL-LD2-45-UPL8-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192456
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-LD2-45-UPL8-UNV-L850-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L850
Light Source: (238) 5000K CCT, 80 CRI LEDS
EL236N0119D850
Ballast/Driver: OSRAM
OT50W

Summary

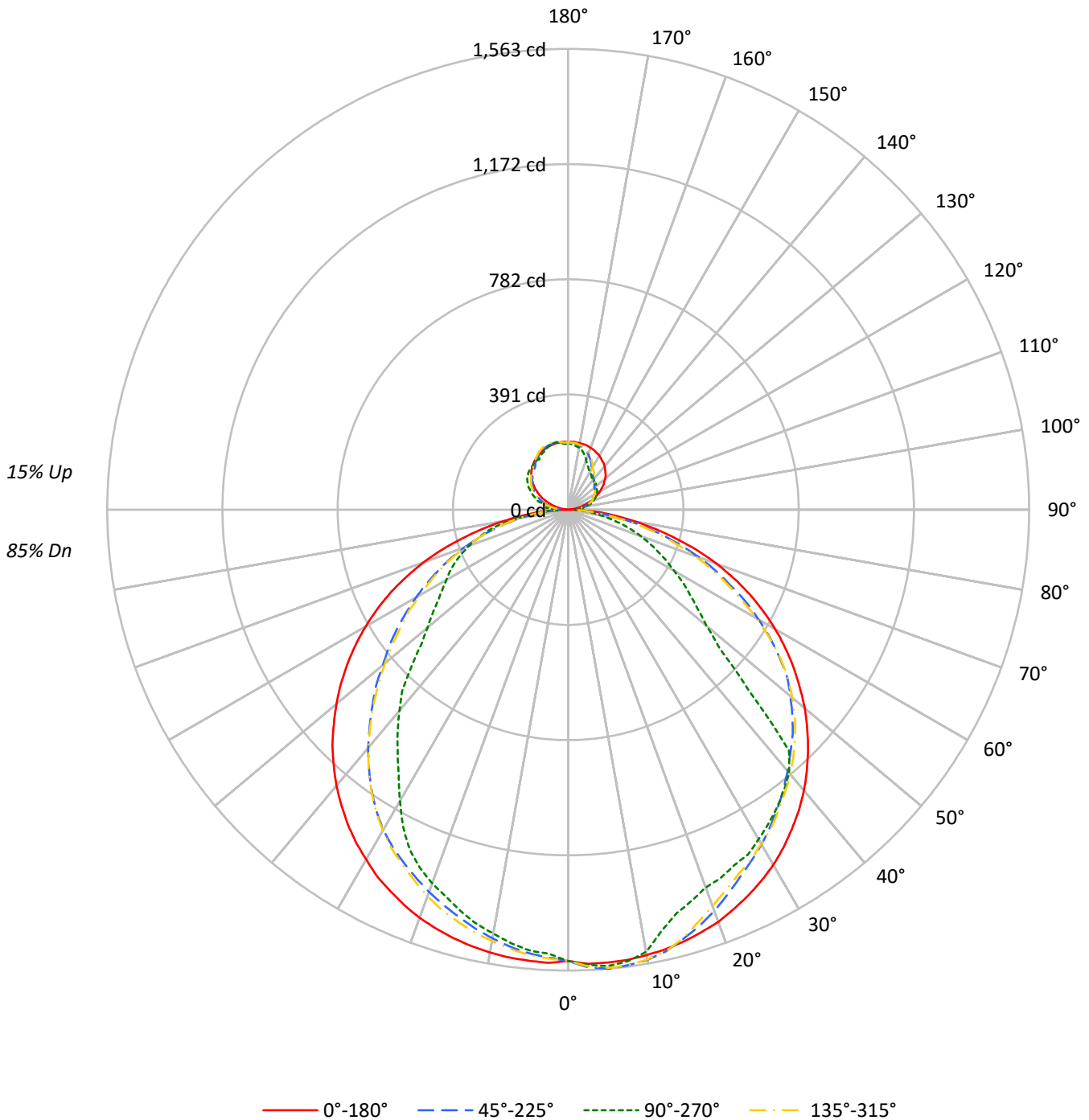
Lumens per Lamp: N/A
Luminaire Lumens: 5076.0 lumens
Efficiency: N/A
Efficacy: 127.2 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 39.9
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





TEST NUMBER: P192456

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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	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°	8669	8669	8669	8669
5°	8768	8833	8731	8535
10°	8822	8757	8775	8398
15°	8889	8313	8822	8264
20°	8969	8218	8880	8130
25°	9023	8316	8921	7948
30°	9100	8446	8961	7460
35°	9145	8533	9009	6969
40°	9197	8616	9039	6580
45°	9215	6931	9058	6012
50°	9228	5387	9040	5487
55°	9208	4985	9031	5325
60°	9189	4696	8985	5402
65°	9093	4503	8896	5666
70°	8847	4343	8630	5917
75°	8285	4089	8033	6240
80°	7536	3742	7217	5934
85°	7352	4050	6604	5324



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.5	2.9
10°-20°	413.1	8.1
20°-30°	625.4	12.3
30°-40°	755.2	14.9
40°-50°	771.0	15.2
50°-60°	674.1	13.3
60°-70°	522.4	10.3
70°-80°	314.1	6.2
80°-90°	97.0	1.9
90°-100°	40.9	0.8
100°-110°	78.2	1.5
110°-120°	106.2	2.1
120°-130°	120.7	2.4
130°-140°	122.4	2.4
140°-150°	112.7	2.2
150°-160°	93.0	1.8
160°-170°	62.5	1.2
170°-180°	21.7	0.4
0°-30°	1184.0	23.3
0°-40°	1939.1	38.2
0°-60°	3384.2	66.7
0°-90°	4317.7	85.1
90°-120°	225.2	4.4
90°-150°	581.1	11.4
90°-180°	758.0	14.9
0°-180°	5076.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1530	1530	1530	1530	1530	
5°	1542	1553	1535	1501	1542	147
15°	1516	1417	1504	1409	1516	428
25°	1444	1330	1427	1272	1444	666
35°	1322	1234	1303	1008	1322	828
45°	1150	865	1131	750	1150	887
55°	932	505	914	539	932	833
65°	678	336	664	423	678	669
75°	378	187	367	285	378	402
85°	113	62	102	82	113	114
90°	2	34	2	39	2	7
95°	10	48	10	75	10	12
105°	52	80	51	102	52	56
115°	102	103	100	138	102	101
125°	146	118	142	169	146	129
135°	179	129	177	187	179	138
145°	202	138	200	198	202	127
155°	218	161	216	210	218	101
165°	228	200	226	228	228	64
175°	231	220	231	226	231	22
180°	228	228	228	228	228	



TEST NUMBER: P192456

CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3
2.5°	1541.8	1533.6	1553.3	1556.6	1545.1	1548.4	1550.0	1532.0	1538.5	1514.0	1520.5
5°	1541.8	1540.2	1563.1	1559.8	1553.3	1554.9	1559.8	1538.5	1535.3	1505.8	1510.7
7.5°	1540.2	1543.5	1558.2	1554.9	1545.1	1550.0	1558.2	1541.8	1532.0	1497.6	1495.9
10°	1533.6	1538.5	1550.0	1540.2	1522.2	1530.3	1548.4	1538.5	1525.4	1484.5	1476.3
12.5°	1527.1	1530.3	1533.6	1492.7	1463.2	1482.8	1533.6	1530.3	1515.6	1469.7	1455.0
15°	1515.6	1520.5	1507.4	1448.4	1417.3	1437.0	1504.1	1517.2	1504.1	1448.4	1430.4
17.5°	1502.5	1507.4	1479.6	1414.0	1391.1	1400.9	1466.4	1500.9	1489.4	1428.8	1405.8
20°	1487.7	1492.7	1448.4	1378.0	1363.2	1371.4	1430.4	1482.8	1473.0	1405.8	1379.6
22.5°	1466.4	1474.6	1412.4	1353.4	1351.7	1351.7	1396.0	1461.5	1451.7	1378.0	1350.1
25°	1443.5	1451.7	1376.3	1330.4	1330.4	1330.4	1364.9	1433.7	1427.1	1348.5	1320.6
27.5°	1418.9	1427.1	1343.6	1314.1	1319.0	1310.8	1338.6	1402.5	1402.5	1319.0	1289.5
30°	1391.1	1399.3	1310.8	1287.8	1291.1	1287.8	1309.1	1369.8	1369.8	1284.6	1253.4
32.5°	1358.3	1366.5	1274.7	1256.7	1263.3	1260.0	1281.3	1337.0	1338.6	1248.5	1210.8
35°	1322.3	1332.1	1237.1	1227.2	1233.8	1228.9	1243.6	1302.6	1302.6	1209.2	1161.7
37.5°	1284.6	1294.4	1197.7	1194.5	1201.0	1196.1	1207.6	1266.5	1263.3	1168.2	1109.3
40°	1243.6	1255.1	1156.8	1156.8	1165.0	1161.7	1171.5	1228.9	1222.3	1127.3	1055.2
42.5°	1197.7	1212.5	1115.8	1117.4	1107.6	1120.7	1130.6	1189.5	1176.4	1081.4	996.2
45°	1150.2	1168.2	1076.5	1047.0	865.1	1035.5	1088.0	1150.2	1130.6	1035.5	938.9
47.5°	1099.4	1122.4	1030.6	922.5	696.4	907.7	1042.1	1101.1	1078.1	986.4	883.1
50°	1047.0	1073.2	983.1	816.0	611.2	799.6	991.3	1051.9	1025.7	935.6	819.2
52.5°	989.6	1019.1	937.2	722.6	553.8	707.8	938.9	1004.4	971.6	881.5	766.8
55°	932.3	963.4	875.0	642.3	504.7	629.2	878.2	943.8	914.3	825.8	709.5
57.5°	873.3	904.4	812.7	571.8	462.1	558.7	809.4	888.1	855.3	768.4	652.1
60°	811.0	842.2	745.5	507.9	414.5	498.1	739.0	825.8	793.0	709.5	596.4
62.5°	745.5	776.6	681.6	448.9	375.2	440.8	661.9	765.2	729.1	647.2	539.1
65°	678.3	701.3	606.2	393.2	335.9	386.7	593.1	689.8	663.6	581.7	485.0
67.5°	607.9	630.8	540.7	344.1	298.2	337.5	526.0	622.6	593.1	517.8	430.9
70°	534.1	553.8	471.9	296.6	262.2	291.7	455.5	547.3	521.0	450.6	373.6
72.5°	458.8	476.8	398.2	252.3	224.5	249.0	381.8	471.9	445.7	380.1	321.1
75°	378.5	396.5	329.3	208.1	186.8	204.8	314.6	391.6	367.0	313.0	267.1
77.5°	303.1	324.4	260.5	163.8	149.1	160.6	247.4	316.2	291.7	250.7	214.6
80°	231.0	249.0	193.3	124.5	114.7	122.9	180.2	240.9	221.2	193.3	167.1
82.5°	167.1	177.0	132.7	91.8	86.8	90.1	122.9	170.4	160.6	139.3	122.9
85°	113.1	111.4	81.9	63.9	62.3	63.9	73.7	103.2	101.6	93.4	78.6
87.5°	47.5	44.2	37.7	26.2	22.9	24.6	29.5	39.3	37.7	39.3	37.7
90°	1.6	16.4	26.2	32.8	34.4	32.8	26.2	16.4	1.6	18.0	29.5
92.5°	3.3	21.3	31.1	36.0	39.3	36.0	29.5	21.3	3.3	27.9	29.5
95°	9.8	29.5	36.0	44.2	47.5	44.2	36.0	27.9	9.8	24.6	44.2
97.5°	19.7	37.7	42.6	49.2	50.8	47.5	41.0	37.7	18.0	44.2	45.9
100°	29.5	47.5	55.7	55.7	57.3	55.7	54.1	45.9	27.9	49.2	55.7
102.5°	41.0	54.1	63.9	68.8	68.8	68.8	63.9	54.1	37.7	60.6	77.0
105°	52.4	59.0	70.5	77.0	80.3	77.0	70.5	60.6	50.8	70.5	81.9
107.5°	65.5	63.9	77.0	83.6	86.8	83.6	77.0	65.5	62.3	78.6	91.8
110°	78.6	70.5	83.6	90.1	91.8	90.1	83.6	70.5	75.4	88.5	101.6



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CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	90.1	75.4	90.1	96.7	98.3	96.7	90.1	77.0	86.8	95.0	111.4
115°	101.6	80.3	93.4	101.6	103.2	101.6	93.4	81.9	99.9	103.2	119.6
117.5°	113.1	86.8	96.7	106.5	108.1	106.5	98.3	88.5	111.4	113.1	127.8
120°	124.5	95.0	101.6	109.8	113.1	111.4	101.6	96.7	121.2	121.2	134.4
122.5°	134.4	101.6	106.5	113.1	116.3	113.1	106.5	104.9	132.7	129.4	142.5
125°	145.8	108.1	109.8	116.3	118.0	116.3	111.4	109.8	142.5	136.0	147.5
127.5°	154.0	116.3	113.1	119.6	121.2	119.6	114.7	118.0	152.4	149.1	152.4
130°	163.8	124.5	116.3	122.9	124.5	124.5	116.3	127.8	160.6	158.9	158.9
132.5°	172.0	132.7	119.6	126.2	127.8	127.8	121.2	134.4	168.8	167.1	163.8
135°	178.6	144.2	126.2	126.2	129.4	129.4	127.8	145.8	177.0	175.3	172.0
137.5°	185.1	154.0	131.1	127.8	129.4	129.4	134.4	155.7	183.5	183.5	177.0
140°	191.7	163.8	134.4	131.1	131.1	134.4	139.3	165.5	190.1	190.1	178.6
142.5°	198.3	172.0	139.3	136.0	132.7	139.3	144.2	175.3	195.0	196.6	183.5
145°	201.5	180.2	145.8	140.9	137.6	145.8	152.4	183.5	199.9	203.2	193.3
147.5°	206.4	188.4	154.0	144.2	144.2	149.1	158.9	190.1	204.8	208.1	198.3
150°	211.4	195.0	160.6	149.1	145.8	154.0	165.5	196.6	209.7	213.0	204.8
152.5°	214.6	201.5	170.4	155.7	152.4	162.2	177.0	201.5	213.0	216.3	211.4
155°	217.9	206.4	181.9	162.2	160.6	168.8	186.8	206.4	216.3	219.6	216.3
157.5°	221.2	211.4	190.1	172.0	165.5	178.6	195.0	213.0	219.6	222.8	221.2
160°	222.8	214.6	199.9	181.9	178.6	190.1	203.2	214.6	221.2	226.1	224.5
162.5°	226.1	217.9	206.4	193.3	190.1	199.9	209.7	219.6	224.5	227.7	227.7
165°	227.7	221.2	213.0	203.2	199.9	209.7	214.6	222.8	226.1	227.7	229.4
167.5°	227.7	224.5	217.9	209.7	208.1	216.3	221.2	226.1	227.7	227.7	231.0
170°	229.4	226.1	221.2	216.3	214.6	221.2	222.8	227.7	229.4	227.7	232.7
172.5°	229.4	227.7	224.5	219.6	216.3	224.5	226.1	227.7	229.4	227.7	231.0
175°	231.0	227.7	227.7	224.5	219.6	227.7	227.7	227.7	231.0	227.7	229.4
177.5°	231.0	227.7	227.7	226.1	222.8	227.7	227.7	227.7	231.0	227.7	229.4
180°	227.7	227.7	227.7	227.7	227.7	227.7	227.7	227.7	227.7	227.7	227.7



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CATALOG NUMBER: 4WSL-LD2-45-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1530.3	1530.3	1530.3	1530.3	1530.3	1530.3
2.5°	1518.9	1507.4	1510.7	1523.8	1518.9	1541.8
5°	1507.4	1500.9	1500.9	1515.6	1514.0	1541.8
7.5°	1489.4	1482.8	1486.1	1502.5	1505.8	1540.2
10°	1468.1	1459.9	1463.2	1486.1	1494.3	1533.6
12.5°	1445.1	1438.6	1441.9	1468.1	1479.6	1527.1
15°	1418.9	1409.1	1418.9	1446.8	1461.5	1515.6
17.5°	1389.4	1376.3	1387.8	1423.8	1441.9	1502.5
20°	1359.9	1348.5	1355.0	1394.4	1420.6	1487.7
22.5°	1330.4	1314.1	1320.6	1361.6	1394.4	1466.4
25°	1296.0	1271.5	1284.6	1328.8	1366.5	1443.5
27.5°	1250.2	1212.5	1240.3	1296.0	1333.7	1418.9
30°	1189.5	1140.4	1181.3	1256.7	1299.3	1391.1
32.5°	1122.4	1069.9	1115.8	1212.5	1263.3	1358.3
35°	1055.2	1007.7	1048.6	1163.3	1225.6	1322.3
37.5°	991.3	950.3	988.0	1110.9	1186.3	1284.6
40°	930.7	889.7	929.0	1053.5	1143.7	1243.6
42.5°	870.0	832.4	870.0	992.9	1099.4	1197.7
45°	809.4	750.4	806.1	933.9	1051.9	1150.2
47.5°	743.9	675.1	739.0	870.0	1001.1	1099.4
50°	681.6	622.6	678.3	811.0	948.7	1047.0
52.5°	627.5	580.0	624.3	750.4	894.6	989.6
55°	576.7	539.1	576.7	691.4	837.3	932.3
57.5°	530.9	506.3	532.5	640.6	778.3	873.3
60°	491.5	476.8	493.2	578.4	719.3	811.0
62.5°	453.9	452.2	455.5	529.2	657.0	745.5
65°	414.5	422.7	414.5	476.8	594.8	678.3
67.5°	375.2	391.6	378.5	424.4	527.6	607.9
70°	339.2	357.2	339.2	370.3	460.4	534.1
72.5°	298.2	321.1	298.2	319.5	390.0	458.8
75°	258.9	285.1	260.5	267.1	322.8	378.5
77.5°	216.3	240.9	221.2	216.3	260.5	303.1
80°	172.0	181.9	172.0	170.4	201.5	231.0
82.5°	119.6	127.8	119.6	124.5	147.5	167.1
85°	78.6	81.9	78.6	80.3	98.3	113.1
87.5°	32.8	32.8	32.8	41.0	44.2	47.5
90°	36.0	39.3	36.0	29.5	18.0	1.6
92.5°	37.7	41.0	37.7	32.8	21.3	3.3
95°	67.2	75.4	63.9	41.0	34.4	9.8
97.5°	54.1	59.0	55.7	47.5	42.6	19.7
100°	63.9	68.8	63.9	67.2	52.4	29.5
102.5°	75.4	78.6	77.0	78.6	63.9	41.0
105°	98.3	101.6	98.3	85.2	73.7	52.4
107.5°	104.9	113.1	106.5	95.0	83.6	65.5
110°	113.1	119.6	114.7	104.9	91.8	78.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	121.2	129.4	124.5	116.3	98.3	90.1
115°	131.1	137.6	134.4	124.5	108.1	101.6
117.5°	140.9	145.8	142.5	131.1	118.0	113.1
120°	149.1	155.7	152.4	139.3	126.2	124.5
122.5°	155.7	162.2	158.9	147.5	134.4	134.4
125°	162.2	168.8	165.5	154.0	140.9	145.8
127.5°	167.1	175.3	172.0	158.9	155.7	154.0
130°	173.7	178.6	177.0	163.8	163.8	163.8
132.5°	177.0	183.5	180.2	170.4	173.7	172.0
135°	178.6	186.8	183.5	178.6	181.9	178.6
137.5°	181.9	188.4	186.8	183.5	190.1	185.1
140°	186.8	190.1	191.7	186.8	196.6	191.7
142.5°	191.7	193.3	196.6	191.7	203.2	198.3
145°	195.0	198.3	201.5	201.5	208.1	201.5
147.5°	195.0	199.9	199.9	204.8	214.6	206.4
150°	199.9	196.6	206.4	211.4	217.9	211.4
152.5°	206.4	204.8	213.0	217.9	221.2	214.6
155°	208.1	209.7	214.6	222.8	224.5	217.9
157.5°	214.6	213.0	221.2	227.7	227.7	221.2
160°	219.6	219.6	227.7	231.0	229.4	222.8
162.5°	224.5	224.5	232.7	232.7	231.0	226.1
165°	227.7	227.7	235.9	234.3	231.0	227.7
167.5°	229.4	231.0	237.6	235.9	231.0	227.7
170°	231.0	231.0	237.6	234.3	231.0	229.4
172.5°	231.0	229.4	235.9	232.7	229.4	229.4
175°	229.4	226.1	232.7	229.4	229.4	231.0
177.5°	227.7	222.8	227.7	227.7	229.4	231.0
180°	227.7	227.7	227.7	227.7	227.7	227.7

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