

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: P192457

Luminaire Tested: **4WSL-LD2-50-UPL8-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192457
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-L830-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L830
Light Source: (238) 3000K CCT, 80 CRI LEDS
EL236N0119D830
Ballast/Driver: OSRAM
OT50W

Summary

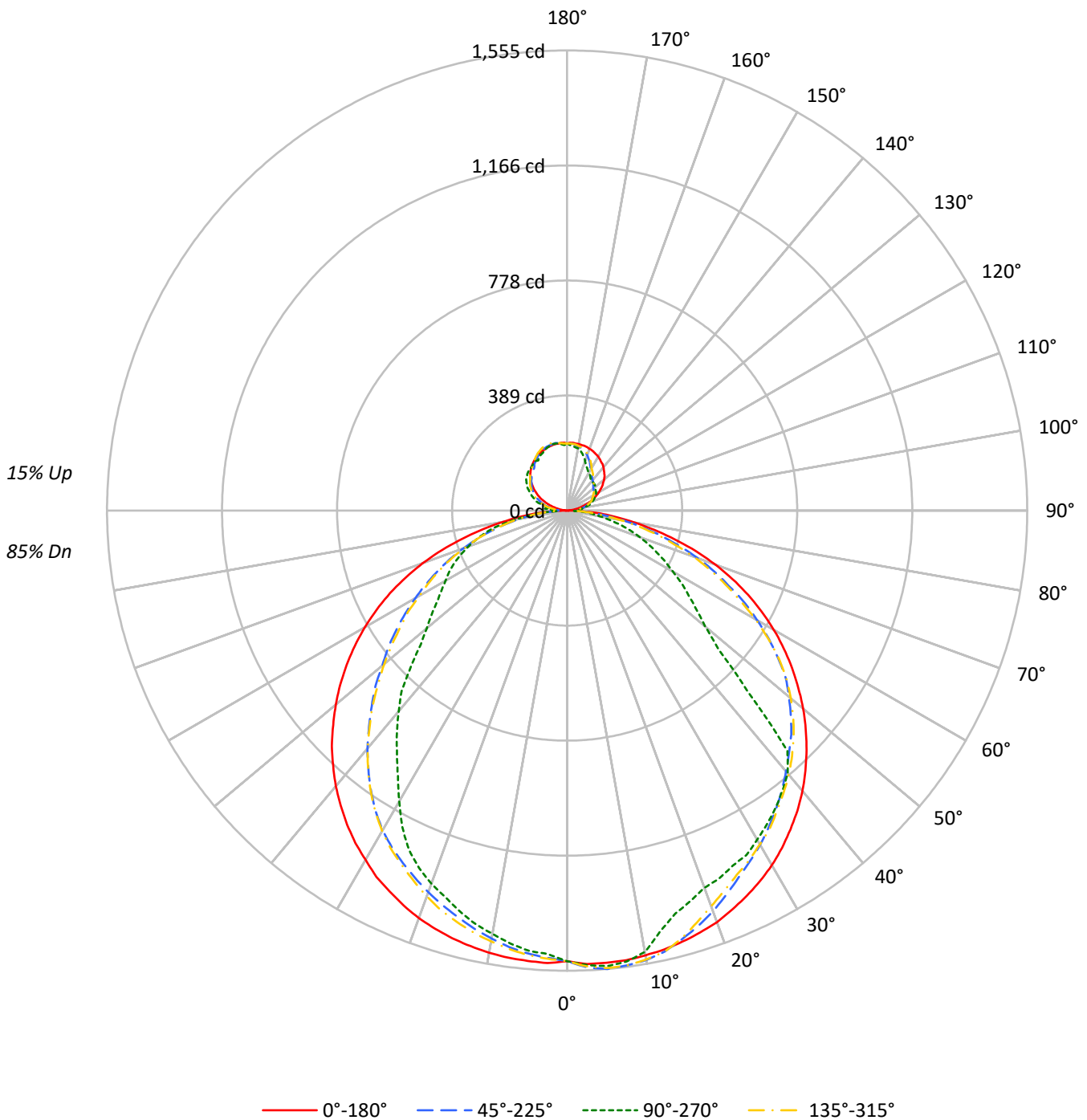
Lumens per Lamp: N/A
Luminaire Lumens: 5050.0 lumens
Efficiency: N/A
Efficacy: 112.7 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 44.8
Input Voltage (V): NR
Input Current (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

TEST NUMBER: P192457

CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L830-CD1-U

Luminous Intensity Polar Plot





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CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L830-CD1-U

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	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°	8625	8625	8625	8625
5°	8723	8788	8686	8492
10°	8777	8712	8730	8355
15°	8843	8270	8776	8222
20°	8923	8176	8835	8088
25°	8977	8274	8875	7907
30°	9053	8403	8915	7421
35°	9098	8489	8962	6933
40°	9150	8571	8993	6546
45°	9168	6896	9012	5982
50°	9180	5359	8993	5459
55°	9161	4959	8984	5297
60°	9143	4673	8940	5375
65°	9047	4480	8850	5638
70°	8802	4320	8587	5887
75°	8243	4067	7992	6208
80°	7497	3722	7181	5902
85°	7313	4024	6572	5298



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.7	2.9
10°-20°	411.0	8.1
20°-30°	622.2	12.3
30°-40°	751.3	14.9
40°-50°	767.0	15.2
50°-60°	670.6	13.3
60°-70°	519.8	10.3
70°-80°	312.5	6.2
80°-90°	96.5	1.9
90°-100°	40.7	0.8
100°-110°	77.8	1.5
110°-120°	105.6	2.1
120°-130°	120.1	2.4
130°-140°	121.8	2.4
140°-150°	112.1	2.2
150°-160°	92.5	1.8
160°-170°	62.2	1.2
170°-180°	21.6	0.4
0°-30°	1177.9	23.3
0°-40°	1929.2	38.2
0°-60°	3366.8	66.7
0°-90°	4295.6	85.1
90°-120°	224.1	4.4
90°-150°	578.1	11.4
90°-180°	754.0	14.9
0°-180°	5050.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1522	1522	1522	1522	1522	
5°	1534	1545	1527	1493	1534	146
15°	1508	1410	1496	1402	1508	426
25°	1436	1324	1420	1265	1436	663
35°	1316	1228	1296	1002	1316	824
45°	1144	861	1125	747	1144	883
55°	928	502	910	536	928	829
65°	675	334	660	421	675	666
75°	377	186	365	284	377	400
85°	112	62	101	82	112	114
90°	2	34	2	39	2	7
95°	10	47	10	75	10	12
105°	52	80	50	101	52	56
115°	101	103	99	137	101	100
125°	145	117	142	168	145	129
135°	178	129	176	186	178	137
145°	200	137	199	197	200	126
155°	217	160	215	209	217	100
165°	227	199	225	227	227	64
175°	230	218	230	225	230	22
180°	227	227	227	227	227	



TEST NUMBER: P192457

CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5
2.5°	1533.9	1525.8	1545.3	1548.6	1537.2	1540.4	1542.1	1524.1	1530.7	1506.2	1512.7
5°	1533.9	1532.3	1555.1	1551.8	1545.3	1547.0	1551.8	1530.7	1527.4	1498.1	1502.9
7.5°	1532.3	1535.5	1550.2	1547.0	1537.2	1542.1	1550.2	1533.9	1524.1	1489.9	1488.3
10°	1525.8	1530.7	1542.1	1532.3	1514.4	1522.5	1540.4	1530.7	1517.6	1476.9	1468.7
12.5°	1519.2	1522.5	1525.8	1485.0	1455.7	1475.2	1525.8	1522.5	1507.8	1462.2	1447.5
15°	1507.8	1512.7	1499.7	1441.0	1410.0	1429.6	1496.4	1509.5	1496.4	1441.0	1423.1
17.5°	1494.8	1499.7	1472.0	1406.8	1383.9	1393.7	1458.9	1493.2	1481.8	1421.4	1398.6
20°	1480.1	1485.0	1441.0	1370.9	1356.2	1364.4	1423.1	1475.2	1465.5	1398.6	1372.5
22.5°	1458.9	1467.1	1405.1	1346.5	1344.8	1344.8	1388.8	1454.0	1444.3	1370.9	1343.2
25°	1436.1	1444.3	1369.3	1323.6	1323.6	1323.6	1357.9	1426.3	1419.8	1341.6	1313.9
27.5°	1411.7	1419.8	1336.7	1307.3	1312.2	1304.1	1331.8	1395.4	1395.4	1312.2	1282.9
30°	1383.9	1392.1	1304.1	1281.3	1284.5	1281.3	1302.4	1362.8	1362.8	1278.0	1247.0
32.5°	1351.3	1359.5	1268.2	1250.3	1256.8	1253.5	1274.7	1330.2	1331.8	1242.1	1204.6
35°	1315.5	1325.3	1230.7	1220.9	1227.5	1222.6	1237.2	1295.9	1295.9	1203.0	1155.7
37.5°	1278.0	1287.8	1191.6	1188.3	1194.9	1190.0	1201.4	1260.1	1256.8	1162.3	1103.6
40°	1237.2	1248.7	1150.8	1150.8	1159.0	1155.7	1165.5	1222.6	1216.0	1121.5	1049.8
42.5°	1191.6	1206.3	1110.1	1111.7	1101.9	1115.0	1124.8	1183.4	1170.4	1075.9	991.1
45°	1144.3	1162.3	1071.0	1041.6	860.7	1030.2	1082.4	1144.3	1124.8	1030.2	934.0
47.5°	1093.8	1116.6	1025.3	917.7	692.8	903.1	1036.7	1095.4	1072.6	981.3	878.6
50°	1041.6	1067.7	978.1	811.8	608.0	795.5	986.2	1046.5	1020.4	930.8	815.0
52.5°	984.6	1013.9	932.4	718.9	551.0	704.2	934.0	999.2	966.6	877.0	762.9
55°	927.5	958.5	870.5	639.0	502.1	626.0	873.7	938.9	909.6	821.6	705.8
57.5°	868.8	899.8	808.5	568.9	459.7	555.9	805.3	883.5	850.9	764.5	648.8
60°	806.9	837.9	741.7	505.3	412.4	495.5	735.2	821.6	789.0	705.8	593.4
62.5°	741.7	772.7	678.1	446.6	373.3	438.5	658.6	761.3	725.4	643.9	536.3
65°	674.9	697.7	603.1	391.2	334.2	384.7	590.1	686.3	660.2	578.7	482.5
67.5°	604.8	627.6	537.9	342.3	296.7	335.8	523.3	619.4	590.1	515.1	428.7
70°	531.4	551.0	469.5	295.0	260.8	290.2	453.2	544.5	518.4	448.3	371.7
72.5°	456.4	474.4	396.1	251.0	223.3	247.8	379.8	469.5	443.4	378.2	319.5
75°	376.6	394.5	327.6	207.0	185.8	203.8	313.0	389.6	365.1	311.3	265.7
77.5°	301.6	322.8	259.2	163.0	148.3	159.7	246.1	314.6	290.2	249.4	213.5
80°	229.8	247.8	192.4	123.9	114.1	122.3	179.3	239.6	220.1	192.4	166.3
82.5°	166.3	176.0	132.0	91.3	86.4	89.7	122.3	169.5	159.7	138.6	122.3
85°	112.5	110.8	81.5	63.6	61.9	63.6	73.4	102.7	101.1	92.9	78.2
87.5°	47.3	44.0	37.5	26.1	22.8	24.5	29.3	39.1	37.5	39.1	37.5
90°	1.6	16.3	26.1	32.6	34.2	32.6	26.1	16.3	1.6	17.9	29.3
92.5°	3.3	21.2	31.0	35.9	39.1	35.9	29.3	21.2	3.3	27.7	29.3
95°	9.8	29.3	35.9	44.0	47.3	44.0	35.9	27.7	9.8	24.5	44.0
97.5°	19.6	37.5	42.4	48.9	50.5	47.3	40.8	37.5	17.9	44.0	45.6
100°	29.3	47.3	55.4	55.4	57.1	55.4	53.8	45.6	27.7	48.9	55.4
102.5°	40.8	53.8	63.6	68.5	68.5	68.5	63.6	53.8	37.5	60.3	76.6
105°	52.2	58.7	70.1	76.6	79.9	76.6	70.1	60.3	50.5	70.1	81.5
107.5°	65.2	63.6	76.6	83.1	86.4	83.1	76.6	65.2	61.9	78.2	91.3
110°	78.2	70.1	83.1	89.7	91.3	89.7	83.1	70.1	75.0	88.0	101.1



TEST NUMBER: P192457

CATALOG NUMBER: 4WSL-LD2-50-UPL8-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°	89.7	75.0	89.7	96.2	97.8	96.2	89.7	76.6	86.4	94.5	110.8
115°	101.1	79.9	92.9	101.1	102.7	101.1	92.9	81.5	99.4	102.7	119.0
117.5°	112.5	86.4	96.2	106.0	107.6	106.0	97.8	88.0	110.8	112.5	127.1
120°	123.9	94.5	101.1	109.2	112.5	110.8	101.1	96.2	120.6	120.6	133.7
122.5°	133.7	101.1	106.0	112.5	115.7	112.5	106.0	104.3	132.0	128.8	141.8
125°	145.1	107.6	109.2	115.7	117.4	115.7	110.8	109.2	141.8	135.3	146.7
127.5°	153.2	115.7	112.5	119.0	120.6	119.0	114.1	117.4	151.6	148.3	151.6
130°	163.0	123.9	115.7	122.3	123.9	123.9	115.7	127.1	159.7	158.1	158.1
132.5°	171.2	132.0	119.0	125.5	127.1	127.1	120.6	133.7	167.9	166.3	163.0
135°	177.7	143.4	125.5	125.5	128.8	128.8	127.1	145.1	176.0	174.4	171.2
137.5°	184.2	153.2	130.4	127.1	128.8	128.8	133.7	154.9	182.6	182.6	176.0
140°	190.7	163.0	133.7	130.4	130.4	133.7	138.6	164.6	189.1	189.1	177.7
142.5°	197.2	171.2	138.6	135.3	132.0	138.6	143.4	174.4	194.0	195.6	182.6
145°	200.5	179.3	145.1	140.2	136.9	145.1	151.6	182.6	198.9	202.1	192.4
147.5°	205.4	187.5	153.2	143.4	143.4	148.3	158.1	189.1	203.8	207.0	197.2
150°	210.3	194.0	159.7	148.3	145.1	153.2	164.6	195.6	208.7	211.9	203.8
152.5°	213.5	200.5	169.5	154.9	151.6	161.4	176.0	200.5	211.9	215.2	210.3
155°	216.8	205.4	180.9	161.4	159.7	167.9	185.8	205.4	215.2	218.4	215.2
157.5°	220.1	210.3	189.1	171.2	164.6	177.7	194.0	211.9	218.4	221.7	220.1
160°	221.7	213.5	198.9	180.9	177.7	189.1	202.1	213.5	220.1	225.0	223.3
162.5°	225.0	216.8	205.4	192.4	189.1	198.9	208.7	218.4	223.3	226.6	226.6
165°	226.6	220.1	211.9	202.1	198.9	208.7	213.5	221.7	225.0	226.6	228.2
167.5°	226.6	223.3	216.8	208.7	207.0	215.2	220.1	225.0	226.6	226.6	229.8
170°	228.2	225.0	220.1	215.2	213.5	220.1	221.7	226.6	228.2	226.6	231.5
172.5°	228.2	226.6	223.3	218.4	215.2	223.3	225.0	226.6	228.2	226.6	229.8
175°	229.8	226.6	226.6	223.3	218.4	226.6	226.6	226.6	229.8	226.6	228.2
177.5°	229.8	226.6	226.6	225.0	221.7	226.6	226.6	226.6	229.8	226.6	228.2
180°	226.6	226.6	226.6	226.6	226.6	226.6	226.6	226.6	226.6	226.6	226.6



TEST NUMBER: P192457

CATALOG NUMBER: 4WSL-LD2-50-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1522.5	1522.5	1522.5	1522.5	1522.5	1522.5
2.5°	1511.1	1499.7	1502.9	1516.0	1511.1	1533.9
5°	1499.7	1493.2	1493.2	1507.8	1506.2	1533.9
7.5°	1481.8	1475.2	1478.5	1494.8	1498.1	1532.3
10°	1460.6	1452.4	1455.7	1478.5	1486.6	1525.8
12.5°	1437.7	1431.2	1434.5	1460.6	1472.0	1519.2
15°	1411.7	1401.9	1411.7	1439.4	1454.0	1507.8
17.5°	1382.3	1369.3	1380.7	1416.6	1434.5	1494.8
20°	1353.0	1341.6	1348.1	1387.2	1413.3	1480.1
22.5°	1323.6	1307.3	1313.9	1354.6	1387.2	1458.9
25°	1289.4	1265.0	1278.0	1322.0	1359.5	1436.1
27.5°	1243.8	1206.3	1234.0	1289.4	1326.9	1411.7
30°	1183.4	1134.5	1175.3	1250.3	1292.7	1383.9
32.5°	1116.6	1064.5	1110.1	1206.3	1256.8	1351.3
35°	1049.8	1002.5	1043.3	1157.4	1219.3	1315.5
37.5°	986.2	945.5	982.9	1105.2	1180.2	1278.0
40°	925.9	885.1	924.3	1048.1	1137.8	1237.2
42.5°	865.6	828.1	865.6	987.8	1093.8	1191.6
45°	805.3	746.6	802.0	929.2	1046.5	1144.3
47.5°	740.1	671.6	735.2	865.6	996.0	1093.8
50°	678.1	619.4	674.9	806.9	943.8	1041.6
52.5°	624.3	577.1	621.1	746.6	890.0	984.6
55°	573.8	536.3	573.8	687.9	833.0	927.5
57.5°	528.1	503.7	529.8	637.4	774.3	868.8
60°	489.0	474.4	490.7	575.4	715.6	806.9
62.5°	451.5	449.9	453.2	526.5	653.7	741.7
65°	412.4	420.6	412.4	474.4	591.7	674.9
67.5°	373.3	389.6	376.6	422.2	524.9	604.8
70°	337.4	355.4	337.4	368.4	458.1	531.4
72.5°	296.7	319.5	296.7	317.9	388.0	456.4
75°	257.6	283.6	259.2	265.7	321.1	376.6
77.5°	215.2	239.6	220.1	215.2	259.2	301.6
80°	171.2	180.9	171.2	169.5	200.5	229.8
82.5°	119.0	127.1	119.0	123.9	146.7	166.3
85°	78.2	81.5	78.2	79.9	97.8	112.5
87.5°	32.6	32.6	32.6	40.8	44.0	47.3
90°	35.9	39.1	35.9	29.3	17.9	1.6
92.5°	37.5	40.8	37.5	32.6	21.2	3.3
95°	66.8	75.0	63.6	40.8	34.2	9.8
97.5°	53.8	58.7	55.4	47.3	42.4	19.6
100°	63.6	68.5	63.6	66.8	52.2	29.3
102.5°	75.0	78.2	76.6	78.2	63.6	40.8
105°	97.8	101.1	97.8	84.8	73.4	52.2
107.5°	104.3	112.5	106.0	94.5	83.1	65.2
110°	112.5	119.0	114.1	104.3	91.3	78.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	120.6	128.8	123.9	115.7	97.8	89.7
115°	130.4	136.9	133.7	123.9	107.6	101.1
117.5°	140.2	145.1	141.8	130.4	117.4	112.5
120°	148.3	154.9	151.6	138.6	125.5	123.9
122.5°	154.9	161.4	158.1	146.7	133.7	133.7
125°	161.4	167.9	164.6	153.2	140.2	145.1
127.5°	166.3	174.4	171.2	158.1	154.9	153.2
130°	172.8	177.7	176.0	163.0	163.0	163.0
132.5°	176.0	182.6	179.3	169.5	172.8	171.2
135°	177.7	185.8	182.6	177.7	180.9	177.7
137.5°	180.9	187.5	185.8	182.6	189.1	184.2
140°	185.8	189.1	190.7	185.8	195.6	190.7
142.5°	190.7	192.4	195.6	190.7	202.1	197.2
145°	194.0	197.2	200.5	200.5	207.0	200.5
147.5°	194.0	198.9	198.9	203.8	213.5	205.4
150°	198.9	195.6	205.4	210.3	216.8	210.3
152.5°	205.4	203.8	211.9	216.8	220.1	213.5
155°	207.0	208.7	213.5	221.7	223.3	216.8
157.5°	213.5	211.9	220.1	226.6	226.6	220.1
160°	218.4	218.4	226.6	229.8	228.2	221.7
162.5°	223.3	223.3	231.5	231.5	229.8	225.0
165°	226.6	226.6	234.7	233.1	229.8	226.6
167.5°	228.2	229.8	236.4	234.7	229.8	226.6
170°	229.8	229.8	236.4	233.1	229.8	228.2
172.5°	229.8	228.2	234.7	231.5	228.2	228.2
175°	228.2	225.0	231.5	228.2	228.2	229.8
177.5°	226.6	221.7	226.6	226.6	228.2	229.8
180°	226.6	226.6	226.6	226.6	226.6	226.6

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