

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: P192505

Luminaire Tested: **4WSL-LD2-55-UPL15-UNV-L830-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192505  
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-LD2-55-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**

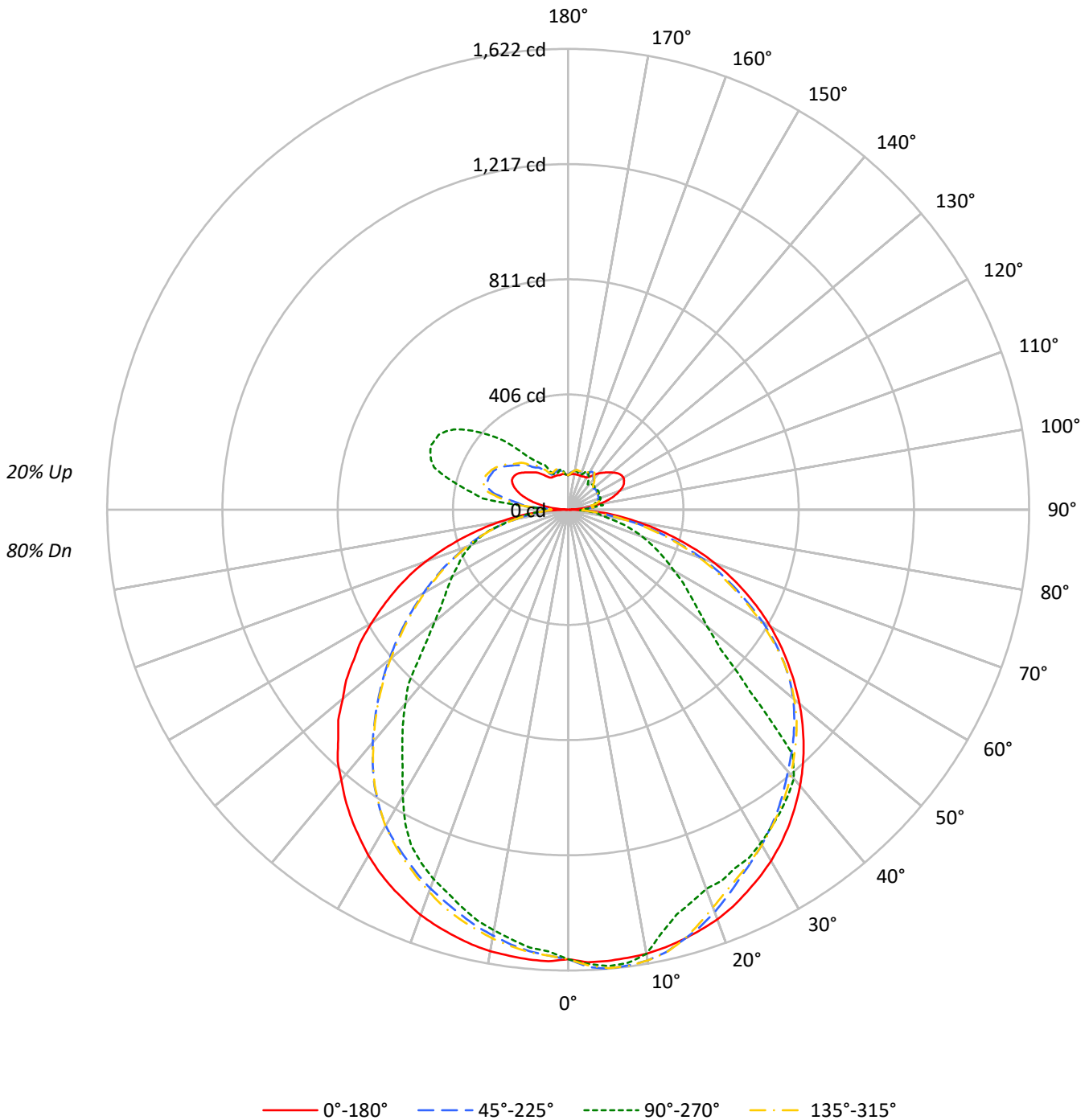
Lumens per Lamp: N/A  
Luminaire Lumens: 5598.0 lumens  
Efficiency: N/A  
Efficacy: 112.2 lumens/watt  
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35  
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')  
CIE Type: Semi-Direct

Input Watts (W): 49.9  
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

TEST NUMBER: P192505

CATALOG NUMBER: 4WSL-LD2-55-UPL15-UNV-L830-CD1-U

### Luminous Intensity Polar Plot





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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	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°	8961	8961	8961	8961
5°	9068	9171	9036	8799
10°	9131	9131	9078	8650
15°	9181	8649	9107	8489
20°	9252	8562	9153	8343
25°	9286	8696	9173	8162
30°	9338	8863	9195	7615
35°	9370	8993	9193	7034
40°	9388	9133	9187	6594
45°	9385	7260	9166	5936
50°	9363	5602	9123	5394
55°	9327	5166	9094	5238
60°	9301	4877	9054	5350
65°	9227	4723	8983	5599
70°	9084	4603	8844	5986
75°	8666	4373	8388	6361
80°	8117	3970	7879	6339
85°	8145	5194	7553	7553



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	150.5	2.7
10°-20°	427.2	7.6
20°-30°	645.6	11.5
30°-40°	776.9	13.9
40°-50°	790.1	14.1
50°-60°	687.7	12.3
60°-70°	536.5	9.6
70°-80°	331.6	5.9
80°-90°	116.7	2.1
90°-100°	109.9	2.0
100°-110°	212.7	3.8
110°-120°	232.7	4.2
120°-130°	204.1	3.6
130°-140°	152.9	2.7
140°-150°	104.7	1.9
150°-160°	66.6	1.2
160°-170°	39.0	0.7
170°-180°	12.6	0.2
0°-30°	1223.3	21.9
0°-40°	2000.2	35.7
0°-60°	3478.1	62.1
0°-90°	4462.9	79.7
90°-120°	555.3	9.9
90°-150°	1016.9	18.2
90°-180°	1135.0	20.3
0°-180°	5598.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1582	1582	1582	1582	1582	
5°	1594	1613	1589	1547	1594	152
15°	1565	1475	1553	1447	1565	443
25°	1486	1391	1467	1306	1486	686
35°	1355	1300	1329	1017	1355	848
45°	1171	906	1144	741	1171	904
55°	944	523	921	530	944	845
65°	688	352	670	418	688	680
75°	396	200	383	291	396	419
85°	125	80	116	116	125	125
90°	2	51	2	80	2	9
95°	49	84	38	167	49	51
105°	156	104	151	445	156	163
115°	216	118	216	534	216	212
125°	220	124	220	492	220	195
135°	185	124	185	360	185	144
145°	145	124	149	214	145	93
155°	129	149	127	147	129	60
165°	127	134	125	136	127	36
175°	125	131	125	127	125	12
180°	122	122	122	122	122	



TEST NUMBER: P192505

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8
2.5°	1594.5	1587.2	1610.8	1612.7	1599.9	1605.4	1605.4	1585.4	1590.9	1567.3	1570.9
5°	1594.5	1596.3	1621.7	1619.9	1612.7	1614.5	1619.9	1594.5	1589.0	1556.4	1560.0
7.5°	1590.9	1599.9	1618.1	1616.3	1609.0	1610.8	1619.9	1598.1	1583.6	1545.5	1543.6
10°	1587.2	1596.3	1610.8	1601.8	1587.2	1592.7	1610.8	1596.3	1578.1	1532.7	1521.9
12.5°	1578.1	1587.2	1594.5	1549.1	1523.7	1545.5	1596.3	1587.2	1567.3	1514.6	1500.1
15°	1565.4	1576.3	1567.3	1503.7	1474.6	1494.6	1567.3	1574.5	1552.7	1491.0	1472.8
17.5°	1550.9	1563.6	1540.0	1469.2	1447.4	1456.5	1529.1	1558.2	1536.4	1467.4	1445.6
20°	1534.6	1549.1	1507.3	1432.9	1420.2	1427.4	1489.2	1540.0	1518.2	1441.9	1418.3
22.5°	1512.8	1529.1	1469.2	1407.4	1412.9	1407.4	1452.8	1516.4	1492.8	1414.7	1387.5
25°	1485.5	1503.7	1431.0	1385.6	1391.1	1389.3	1422.0	1485.5	1467.4	1382.0	1353.0
27.5°	1458.3	1476.4	1396.5	1371.1	1380.2	1369.3	1392.9	1452.8	1438.3	1347.5	1320.3
30°	1427.4	1447.4	1362.0	1345.7	1354.8	1347.5	1363.9	1420.2	1405.6	1311.2	1283.9
32.5°	1392.9	1412.9	1325.7	1314.8	1327.5	1318.5	1329.3	1383.8	1367.5	1271.2	1238.5
35°	1354.8	1374.8	1287.6	1287.6	1300.3	1289.4	1294.8	1347.5	1329.3	1231.3	1187.7
37.5°	1313.0	1334.8	1245.8	1254.9	1269.4	1258.5	1258.5	1309.4	1287.6	1187.7	1129.6
40°	1269.4	1293.0	1202.2	1222.2	1234.9	1222.2	1218.6	1269.4	1242.2	1144.1	1069.7
42.5°	1222.2	1247.6	1162.3	1185.9	1169.5	1185.9	1176.8	1227.7	1200.4	1096.9	1007.9
45°	1171.4	1204.0	1122.3	1107.8	906.2	1096.9	1135.0	1184.1	1144.1	1051.5	946.2
47.5°	1118.7	1153.2	1078.7	973.4	728.2	962.5	1089.6	1136.8	1096.9	1002.5	884.4
50°	1062.4	1102.3	1033.3	857.2	635.6	846.3	1038.8	1087.8	1035.1	949.8	822.7
52.5°	1004.3	1047.9	982.5	757.3	573.9	746.4	984.3	1035.1	984.3	893.5	762.7
55°	944.3	989.7	922.6	664.7	523.0	662.9	920.7	978.9	920.7	837.2	702.8
57.5°	884.4	935.3	859.0	597.5	479.4	588.4	849.9	920.7	866.3	779.1	644.7
60°	820.9	868.1	790.0	524.8	430.4	523.0	779.1	860.8	799.1	719.2	588.4
62.5°	755.5	808.1	715.5	461.3	390.5	459.5	702.8	793.6	733.7	657.4	533.9
65°	688.3	739.1	644.7	410.4	352.3	406.8	632.0	724.6	670.1	595.7	483.1
67.5°	619.3	666.5	573.9	361.4	314.2	357.8	559.3	652.0	604.7	532.1	428.6
70°	548.4	592.0	501.2	314.2	277.9	312.4	488.5	577.5	533.9	466.7	379.6
72.5°	474.0	513.9	425.0	268.8	239.7	267.0	414.1	501.2	455.8	397.7	336.0
75°	395.9	434.0	354.1	223.4	199.8	221.6	343.2	419.5	383.2	334.2	285.1
77.5°	321.4	359.6	281.5	172.5	152.5	168.9	268.8	343.2	312.4	270.6	232.5
80°	248.8	279.7	207.0	128.9	121.7	128.9	201.6	263.3	241.5	212.5	181.6
82.5°	183.4	201.6	139.8	105.3	105.3	105.3	136.2	187.1	178.0	158.0	138.0
85°	125.3	125.3	94.4	79.9	79.9	79.9	92.6	110.8	116.2	105.3	105.3
87.5°	52.7	54.5	49.0	43.6	41.8	43.6	47.2	45.4	45.4	50.8	63.6
90°	1.8	23.6	40.0	49.0	50.8	47.2	36.3	21.8	1.8	30.9	56.3
92.5°	12.7	50.8	47.2	61.7	63.6	58.1	49.0	40.0	7.3	56.3	59.9
95°	49.0	59.9	92.6	94.4	83.5	79.9	90.8	56.3	38.1	76.3	152.5
97.5°	78.1	90.8	83.5	109.0	123.5	109.0	87.2	87.2	72.6	118.0	178.0
100°	107.1	96.3	85.4	94.4	109.0	96.3	81.7	96.3	101.7	138.0	217.9
102.5°	134.4	107.1	107.1	92.6	94.4	90.8	103.5	105.3	127.1	156.2	268.8
105°	156.2	110.8	112.6	105.3	103.5	105.3	112.6	112.6	150.7	172.5	292.4
107.5°	176.2	114.4	110.8	116.2	118.0	116.2	110.8	114.4	172.5	183.4	297.8
110°	192.5	116.2	112.6	116.2	121.7	116.2	112.6	118.0	190.7	194.3	301.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	207.0	118.0	116.2	114.4	119.9	114.4	116.2	121.7	205.2	199.8	301.5
115°	216.1	119.9	116.2	116.2	118.0	116.2	118.0	123.5	216.1	201.6	297.8
117.5°	221.6	123.5	118.0	119.9	121.7	119.9	118.0	127.1	223.4	208.8	296.0
120°	225.2	136.2	118.0	121.7	123.5	121.7	118.0	138.0	225.2	212.5	288.8
122.5°	223.4	141.7	119.9	121.7	125.3	121.7	119.9	143.5	223.4	210.7	279.7
125°	219.7	147.1	119.9	119.9	123.5	121.7	121.7	147.1	219.7	207.0	267.0
127.5°	212.5	159.8	119.9	121.7	121.7	121.7	121.7	158.0	212.5	208.8	254.2
130°	203.4	168.9	116.2	123.5	121.7	125.3	119.9	168.9	203.4	203.4	243.4
132.5°	194.3	172.5	116.2	123.5	123.5	125.3	118.0	172.5	194.3	196.1	232.5
135°	185.2	176.2	123.5	121.7	123.5	123.5	125.3	176.2	185.2	188.9	225.2
137.5°	176.2	178.0	132.6	116.2	121.7	118.0	136.2	178.0	178.0	178.0	214.3
140°	167.1	176.2	139.8	112.6	114.4	116.2	143.5	178.0	170.7	172.5	196.1
142.5°	156.2	170.7	145.3	121.7	112.6	125.3	148.9	176.2	159.8	167.1	187.1
145°	145.3	165.3	156.2	134.4	123.5	139.8	161.6	170.7	148.9	163.4	181.6
147.5°	136.2	156.2	158.0	141.7	136.2	147.1	163.4	163.4	138.0	156.2	168.9
150°	130.8	147.1	152.5	147.1	141.7	154.4	159.8	150.7	130.8	150.7	158.0
152.5°	128.9	139.8	139.8	154.4	152.5	161.6	147.1	143.5	127.1	145.3	143.5
155°	128.9	138.0	134.4	141.7	148.9	148.9	139.8	139.8	127.1	145.3	136.2
157.5°	127.1	139.8	134.4	132.6	136.2	139.8	139.8	141.7	127.1	141.7	136.2
160°	127.1	141.7	136.2	130.8	132.6	138.0	141.7	141.7	127.1	141.7	138.0
162.5°	127.1	138.0	138.0	132.6	132.6	139.8	141.7	139.8	127.1	138.0	141.7
165°	127.1	138.0	139.8	136.2	134.4	143.5	141.7	136.2	125.3	136.2	143.5
167.5°	127.1	134.4	141.7	138.0	138.0	143.5	143.5	134.4	125.3	130.8	143.5
170°	127.1	132.6	139.8	138.0	139.8	145.3	139.8	132.6	127.1	128.9	138.0
172.5°	127.1	128.9	136.2	138.0	138.0	141.7	136.2	128.9	127.1	125.3	132.6
175°	125.3	128.9	132.6	132.6	130.8	136.2	130.8	127.1	125.3	123.5	127.1
177.5°	123.5	125.3	128.9	128.9	125.3	128.9	125.3	123.5	123.5	121.7	125.3
180°	121.7	121.7	121.7	121.7	121.7	121.7	121.7	121.7	121.7	121.7	121.7



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1581.8	1581.8	1581.8	1581.8	1581.8	1581.8
2.5°	1569.1	1556.4	1560.0	1570.9	1569.1	1594.5
5°	1552.7	1547.3	1547.3	1563.6	1561.8	1594.5
7.5°	1534.6	1525.5	1530.9	1549.1	1554.5	1590.9
10°	1511.0	1503.7	1505.5	1532.7	1541.8	1587.2
12.5°	1487.3	1480.1	1485.5	1511.0	1523.7	1578.1
15°	1460.1	1447.4	1461.9	1489.2	1505.5	1565.4
17.5°	1427.4	1412.9	1427.4	1463.7	1483.7	1550.9
20°	1398.4	1383.8	1392.9	1431.0	1458.3	1534.6
22.5°	1365.7	1347.5	1354.8	1396.5	1431.0	1512.8
25°	1329.3	1305.7	1316.6	1362.0	1400.2	1485.5
27.5°	1282.1	1242.2	1269.4	1325.7	1362.0	1458.3
30°	1216.8	1164.1	1207.7	1285.8	1327.5	1427.4
32.5°	1140.5	1084.2	1131.4	1236.7	1287.6	1392.9
35°	1066.0	1017.0	1060.6	1185.9	1247.6	1354.8
37.5°	1000.6	955.2	995.2	1127.8	1204.0	1313.0
40°	933.5	891.7	931.6	1066.0	1160.5	1269.4
42.5°	871.7	831.8	869.9	1004.3	1113.2	1222.2
45°	806.3	740.9	802.7	940.7	1062.4	1171.4
47.5°	737.3	668.3	731.9	879.0	1011.5	1118.7
50°	673.8	612.0	670.1	815.4	957.1	1062.4
52.5°	617.5	564.8	615.6	751.8	900.8	1004.3
55°	564.8	530.3	566.6	693.7	848.1	944.3
57.5°	523.0	499.4	524.8	637.4	790.0	884.4
60°	486.7	472.2	488.5	581.1	728.2	820.9
62.5°	446.7	441.3	446.7	526.7	668.3	755.5
65°	412.2	417.7	412.2	477.6	604.7	688.3
67.5°	379.6	392.3	381.4	425.0	541.2	619.3
70°	343.2	361.4	345.0	377.7	475.8	548.4
72.5°	305.1	326.9	305.1	332.3	406.8	474.0
75°	265.1	290.6	267.0	283.3	341.4	395.9
77.5°	221.6	237.9	225.2	230.6	277.9	321.4
80°	176.2	194.3	178.0	181.6	219.7	248.8
82.5°	147.1	159.8	148.9	138.0	163.4	183.4
85°	109.0	116.2	112.6	107.1	112.6	125.3
87.5°	67.2	70.8	67.2	67.2	58.1	52.7
90°	74.5	79.9	74.5	58.1	32.7	1.8
92.5°	76.3	83.5	76.3	63.6	61.7	12.7
95°	170.7	167.1	181.6	165.3	94.4	49.0
97.5°	265.1	303.3	274.2	197.9	127.1	78.1
100°	305.1	341.4	317.8	247.0	145.3	107.1
102.5°	352.3	392.3	366.8	288.8	163.4	134.4
105°	410.4	444.9	423.1	305.1	179.8	156.2
107.5°	441.3	494.0	450.4	312.4	190.7	176.2
110°	457.6	513.9	472.2	314.2	199.8	192.5





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	470.4	524.8	481.3	314.2	203.4	207.0
115°	470.4	533.9	481.3	308.7	208.8	216.1
117.5°	470.4	528.5	481.3	303.3	216.1	221.6
120°	454.0	526.7	468.5	296.0	217.9	225.2
122.5°	441.3	512.1	450.4	286.9	217.9	223.4
125°	417.7	492.1	428.6	276.0	214.3	219.7
127.5°	392.3	463.1	401.3	263.3	216.1	212.5
130°	368.7	430.4	374.1	250.6	208.8	203.4
132.5°	337.8	394.1	343.2	241.5	201.6	194.3
135°	308.7	359.6	316.0	234.3	192.5	185.2
137.5°	277.9	323.3	285.1	219.7	183.4	176.2
140°	241.5	277.9	248.8	203.4	178.0	167.1
142.5°	217.9	237.9	225.2	196.1	170.7	156.2
145°	203.4	214.3	208.8	188.9	167.1	145.3
147.5°	188.9	199.8	194.3	174.3	158.0	136.2
150°	183.4	183.4	190.7	161.6	152.5	130.8
152.5°	163.4	178.0	170.7	147.1	148.9	128.9
155°	139.8	147.1	147.1	141.7	148.9	128.9
157.5°	130.8	136.2	138.0	141.7	145.3	127.1
160°	130.8	132.6	138.0	143.5	143.5	127.1
162.5°	134.4	132.6	141.7	147.1	139.8	127.1
165°	138.0	136.2	145.3	148.9	136.2	127.1
167.5°	141.7	141.7	148.9	147.1	132.6	127.1
170°	141.7	145.3	148.9	141.7	130.8	127.1
172.5°	136.2	138.0	141.7	132.6	125.3	127.1
175°	128.9	127.1	132.6	127.1	125.3	125.3
177.5°	125.3	119.9	125.3	123.5	121.7	123.5
180°	121.7	121.7	121.7	121.7	121.7	121.7

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