

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: P192527

Luminaire Tested: **4WSL-LD2-80-UPL15-UNV-L840-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192527
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-LD2-80-UPL15-UNV-L840-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L840
Light Source: (238) 4000K CCT, 80 CRI LEDS
EL236N0119D840
Ballast/Driver: OSRAM
OT85W1202772A0DIML

Summary

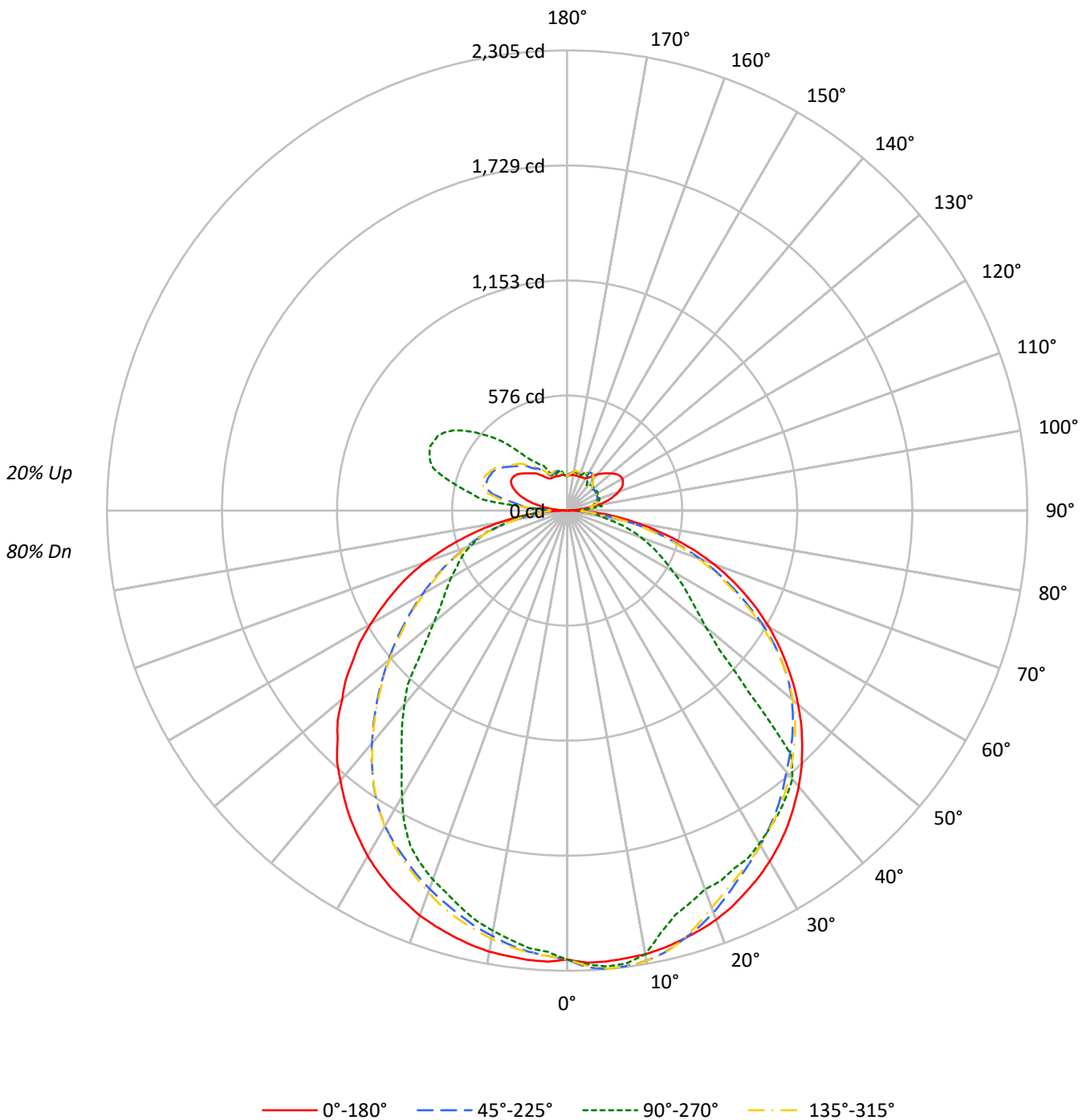
Lumens per Lamp: N/A
Luminaire Lumens: 7958.0 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 76
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	
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°	12739	12739	12739	12739
5°	12890	13037	12847	12509
10°	12980	12980	12906	12297
15°	13052	12295	12946	12068
20°	13152	12172	13012	11860
25°	13201	12362	13039	11603
30°	13274	12599	13071	10825
35°	13319	12784	13070	9998
40°	13346	12983	13060	9374
45°	13341	10321	13030	8439
50°	13311	7964	12969	7668
55°	13260	7344	12928	7445
60°	13221	6933	12870	7605
65°	13115	6713	12770	7960
70°	12915	6543	12572	8511
75°	12319	6216	11923	9042
80°	11539	5644	11203	9011
85°	11577	7384	10738	10738



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	214.0	2.7
10°-20°	607.3	7.6
20°-30°	917.7	11.5
30°-40°	1104.5	13.9
40°-50°	1123.3	14.1
50°-60°	977.7	12.3
60°-70°	762.6	9.6
70°-80°	471.5	5.9
80°-90°	165.9	2.1
90°-100°	156.2	2.0
100°-110°	302.4	3.8
110°-120°	330.9	4.2
120°-130°	290.1	3.6
130°-140°	217.3	2.7
140°-150°	148.8	1.9
150°-160°	94.7	1.2
160°-170°	55.4	0.7
170°-180°	17.9	0.2
0°-30°	1739.0	21.9
0°-40°	2843.5	35.7
0°-60°	4944.4	62.1
0°-90°	6344.4	79.7
90°-120°	789.4	9.9
90°-150°	1445.6	18.2
90°-180°	1614.0	20.3
0°-180°	7958.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2249	2249	2249	2249	2249	
5°	2267	2292	2259	2200	2267	216
15°	2225	2096	2207	2058	2225	629
25°	2112	1978	2086	1856	2112	975
35°	1926	1848	1890	1446	1926	1205
45°	1665	1288	1626	1053	1665	1284
55°	1342	744	1309	754	1342	1201
65°	978	501	953	594	978	967
75°	563	284	545	413	563	596
85°	178	114	165	165	178	178
90°	3	72	3	114	3	13
95°	70	119	54	238	70	72
105°	222	147	214	632	222	231
115°	307	168	307	759	307	301
125°	312	176	312	700	312	278
135°	263	176	263	511	263	204
145°	206	176	212	305	206	132
155°	183	212	181	209	183	85
165°	181	191	178	194	181	51
175°	178	186	178	181	178	17
180°	173	173	173	173	173	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6
2.5°	2266.7	2256.4	2289.9	2292.5	2274.4	2282.2	2282.2	2253.8	2261.5	2228.0	2233.1
5°	2266.7	2269.3	2305.4	2302.8	2292.5	2295.1	2302.8	2266.7	2259.0	2212.5	2217.6
7.5°	2261.5	2274.4	2300.3	2297.7	2287.4	2289.9	2302.8	2271.9	2251.2	2197.0	2194.4
10°	2256.4	2269.3	2289.9	2277.0	2256.4	2264.1	2289.9	2269.3	2243.5	2178.9	2163.4
12.5°	2243.5	2256.4	2266.7	2202.2	2166.0	2197.0	2269.3	2256.4	2228.0	2153.1	2132.5
15°	2225.4	2240.9	2228.0	2137.6	2096.3	2124.7	2228.0	2238.3	2207.3	2119.5	2093.7
17.5°	2204.7	2222.8	2189.2	2088.6	2057.6	2070.5	2173.8	2215.1	2184.1	2086.0	2055.0
20°	2181.5	2202.2	2142.8	2036.9	2018.9	2029.2	2117.0	2189.2	2158.3	2049.8	2016.3
22.5°	2150.5	2173.8	2088.6	2000.8	2008.5	2000.8	2065.3	2155.7	2122.1	2011.1	1972.4
25°	2111.8	2137.6	2034.3	1969.8	1977.6	1975.0	2021.4	2111.8	2086.0	1964.6	1923.3
27.5°	2073.1	2098.9	1985.3	1949.2	1962.1	1946.6	1980.1	2065.3	2044.7	1915.6	1876.9
30°	2029.2	2057.6	1936.2	1913.0	1925.9	1915.6	1938.8	2018.9	1998.2	1864.0	1825.2
32.5°	1980.1	2008.5	1884.6	1869.1	1887.2	1874.3	1889.8	1967.2	1944.0	1807.2	1760.7
35°	1925.9	1954.3	1830.4	1830.4	1848.5	1833.0	1840.7	1915.6	1889.8	1750.4	1688.4
37.5°	1866.5	1897.5	1771.0	1783.9	1804.6	1789.1	1789.1	1861.4	1830.4	1688.4	1605.8
40°	1804.6	1838.1	1709.1	1737.5	1755.5	1737.5	1732.3	1804.6	1765.9	1626.4	1520.6
42.5°	1737.5	1773.6	1652.3	1685.8	1662.6	1685.8	1672.9	1745.2	1706.5	1559.3	1432.8
45°	1665.2	1711.6	1595.5	1574.8	1288.2	1559.3	1613.5	1683.2	1626.4	1494.8	1345.0
47.5°	1590.3	1639.4	1533.5	1383.8	1035.2	1368.3	1549.0	1616.1	1559.3	1425.1	1257.3
50°	1510.3	1567.1	1469.0	1218.5	903.6	1203.1	1476.7	1546.4	1471.5	1350.2	1169.5
52.5°	1427.7	1489.6	1396.7	1076.6	815.8	1061.1	1399.3	1471.5	1399.3	1270.2	1084.3
55°	1342.5	1407.0	1311.5	944.9	743.5	942.3	1308.9	1391.5	1308.9	1190.1	999.1
57.5°	1257.3	1329.6	1221.1	849.4	681.6	836.5	1208.2	1308.9	1231.5	1107.5	916.5
60°	1166.9	1234.0	1123.0	746.1	611.9	743.5	1107.5	1223.7	1135.9	1022.3	836.5
62.5°	1074.0	1148.8	1017.2	655.7	555.1	653.2	999.1	1128.2	1043.0	934.6	759.0
65°	978.4	1050.7	916.5	583.5	500.8	578.3	898.4	1030.1	952.6	846.8	686.7
67.5°	880.3	947.5	815.8	513.8	446.6	508.6	795.2	926.8	859.7	756.4	609.3
70°	779.7	841.6	712.5	446.6	395.0	444.0	694.5	821.0	759.0	663.5	539.6
72.5°	673.8	730.6	604.1	382.1	340.8	379.5	588.6	712.5	648.0	565.4	477.6
75°	562.8	617.0	503.4	317.5	284.0	315.0	487.9	596.4	544.7	475.0	405.3
77.5°	457.0	511.2	400.2	245.3	216.9	240.1	382.1	487.9	444.0	384.7	330.5
80°	353.7	397.6	294.3	183.3	173.0	183.3	286.6	374.3	343.4	302.1	258.2
82.5°	260.7	286.6	198.8	149.7	149.7	149.7	193.6	265.9	253.0	224.6	196.2
85°	178.1	178.1	134.2	113.6	113.6	113.6	131.7	157.5	165.2	149.7	149.7
87.5°	74.9	77.4	69.7	62.0	59.4	62.0	67.1	64.5	64.5	72.3	90.4
90°	2.6	33.6	56.8	69.7	72.3	67.1	51.6	31.0	2.6	43.9	80.0
92.5°	18.1	72.3	67.1	87.8	90.4	82.6	69.7	56.8	10.3	80.0	85.2
95°	69.7	85.2	131.7	134.2	118.8	113.6	129.1	80.0	54.2	108.4	216.9
97.5°	111.0	129.1	118.8	154.9	175.6	154.9	123.9	123.9	103.3	167.8	253.0
100°	152.3	136.8	121.3	134.2	154.9	136.8	116.2	136.8	144.6	196.2	309.8
102.5°	191.0	152.3	152.3	131.7	134.2	129.1	147.2	149.7	180.7	222.0	382.1
105°	222.0	157.5	160.1	149.7	147.2	149.7	160.1	160.1	214.3	245.3	415.6
107.5°	250.4	162.6	157.5	165.2	167.8	165.2	157.5	162.6	245.3	260.7	423.4
110°	273.7	165.2	160.1	165.2	173.0	165.2	160.1	167.8	271.1	276.2	428.6



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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°	294.3	167.8	165.2	162.6	170.4	162.6	165.2	173.0	291.7	284.0	428.6
115°	307.2	170.4	165.2	165.2	167.8	165.2	167.8	175.6	307.2	286.6	423.4
117.5°	315.0	175.6	167.8	170.4	173.0	170.4	167.8	180.7	317.5	296.9	420.8
120°	320.1	193.6	167.8	173.0	175.6	173.0	167.8	196.2	320.1	302.1	410.5
122.5°	317.5	201.4	170.4	173.0	178.1	173.0	170.4	204.0	317.5	299.5	397.6
125°	312.4	209.1	170.4	170.4	175.6	173.0	173.0	209.1	312.4	294.3	379.5
127.5°	302.1	227.2	170.4	173.0	173.0	173.0	173.0	224.6	302.1	296.9	361.4
130°	289.1	240.1	165.2	175.6	173.0	178.1	170.4	240.1	289.1	289.1	345.9
132.5°	276.2	245.3	165.2	175.6	175.6	178.1	167.8	245.3	276.2	278.8	330.5
135°	263.3	250.4	175.6	173.0	175.6	175.6	178.1	250.4	263.3	268.5	320.1
137.5°	250.4	253.0	188.5	165.2	173.0	167.8	193.6	253.0	253.0	253.0	304.6
140°	237.5	250.4	198.8	160.1	162.6	165.2	204.0	253.0	242.7	245.3	278.8
142.5°	222.0	242.7	206.5	173.0	160.1	178.1	211.7	250.4	227.2	237.5	265.9
145°	206.5	234.9	222.0	191.0	175.6	198.8	229.8	242.7	211.7	232.3	258.2
147.5°	193.6	222.0	224.6	201.4	193.6	209.1	232.3	232.3	196.2	222.0	240.1
150°	185.9	209.1	216.9	209.1	201.4	219.4	227.2	214.3	185.9	214.3	224.6
152.5°	183.3	198.8	198.8	219.4	216.9	229.8	209.1	204.0	180.7	206.5	204.0
155°	183.3	196.2	191.0	201.4	211.7	211.7	198.8	198.8	180.7	206.5	193.6
157.5°	180.7	198.8	191.0	188.5	193.6	198.8	198.8	201.4	180.7	201.4	193.6
160°	180.7	201.4	193.6	185.9	188.5	196.2	201.4	201.4	180.7	201.4	196.2
162.5°	180.7	196.2	196.2	188.5	188.5	198.8	201.4	198.8	180.7	196.2	201.4
165°	180.7	196.2	198.8	193.6	191.0	204.0	201.4	193.6	178.1	193.6	204.0
167.5°	180.7	191.0	201.4	196.2	196.2	204.0	204.0	191.0	178.1	185.9	204.0
170°	180.7	188.5	198.8	196.2	198.8	206.5	198.8	188.5	180.7	183.3	196.2
172.5°	180.7	183.3	193.6	196.2	196.2	201.4	193.6	183.3	180.7	178.1	188.5
175°	178.1	183.3	188.5	188.5	185.9	193.6	185.9	180.7	178.1	175.6	180.7
177.5°	175.6	178.1	183.3	183.3	178.1	183.3	178.1	175.6	175.6	173.0	178.1
180°	173.0	173.0	173.0	173.0	173.0	173.0	173.0	173.0	173.0	173.0	173.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2248.6	2248.6	2248.6	2248.6	2248.6	2248.6
2.5°	2230.6	2212.5	2217.6	2233.1	2230.6	2266.7
5°	2207.3	2199.6	2199.6	2222.8	2220.2	2266.7
7.5°	2181.5	2168.6	2176.3	2202.2	2209.9	2261.5
10°	2147.9	2137.6	2140.2	2178.9	2191.8	2256.4
12.5°	2114.4	2104.1	2111.8	2147.9	2166.0	2243.5
15°	2075.7	2057.6	2078.2	2117.0	2140.2	2225.4
17.5°	2029.2	2008.5	2029.2	2080.8	2109.2	2204.7
20°	1987.9	1967.2	1980.1	2034.3	2073.1	2181.5
22.5°	1941.4	1915.6	1925.9	1985.3	2034.3	2150.5
25°	1889.8	1856.2	1871.7	1936.2	1990.5	2111.8
27.5°	1822.7	1765.9	1804.6	1884.6	1936.2	2073.1
30°	1729.7	1654.8	1716.8	1827.8	1887.2	2029.2
32.5°	1621.3	1541.3	1608.4	1758.1	1830.4	1980.1
35°	1515.4	1445.7	1507.7	1685.8	1773.6	1925.9
37.5°	1422.5	1358.0	1414.8	1603.2	1711.6	1866.5
40°	1327.0	1267.6	1324.4	1515.4	1649.7	1804.6
42.5°	1239.2	1182.4	1236.6	1427.7	1582.6	1737.5
45°	1146.3	1053.3	1141.1	1337.3	1510.3	1665.2
47.5°	1048.2	950.1	1040.4	1249.5	1438.0	1590.3
50°	957.8	870.0	952.6	1159.2	1360.5	1510.3
52.5°	877.8	802.9	875.2	1068.8	1280.5	1427.7
55°	802.9	753.8	805.5	986.2	1205.6	1342.5
57.5°	743.5	710.0	746.1	906.2	1123.0	1257.3
60°	691.9	671.2	694.5	826.1	1035.2	1166.9
62.5°	635.1	627.3	635.1	748.7	950.1	1074.0
65°	586.0	593.8	586.0	679.0	859.7	978.4
67.5°	539.6	557.6	542.1	604.1	769.3	880.3
70°	487.9	513.8	490.5	537.0	676.4	779.7
72.5°	433.7	464.7	433.7	472.4	578.3	673.8
75°	376.9	413.1	379.5	402.7	485.4	562.8
77.5°	315.0	338.2	320.1	327.9	395.0	457.0
80°	250.4	276.2	253.0	258.2	312.4	353.7
82.5°	209.1	227.2	211.7	196.2	232.3	260.7
85°	154.9	165.2	160.1	152.3	160.1	178.1
87.5°	95.5	100.7	95.5	95.5	82.6	74.9
90°	105.8	113.6	105.8	82.6	46.5	2.6
92.5°	108.4	118.8	108.4	90.4	87.8	18.1
95°	242.7	237.5	258.2	234.9	134.2	69.7
97.5°	376.9	431.1	389.8	281.4	180.7	111.0
100°	433.7	485.4	451.8	351.1	206.5	152.3
102.5°	500.8	557.6	521.5	410.5	232.3	191.0
105°	583.5	632.5	601.5	433.7	255.6	222.0
107.5°	627.3	702.2	640.3	444.0	271.1	250.4
110°	650.6	730.6	671.2	446.6	284.0	273.7



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	668.7	746.1	684.1	446.6	289.1	294.3
115°	668.7	759.0	684.1	438.9	296.9	307.2
117.5°	668.7	751.3	684.1	431.1	307.2	315.0
120°	645.4	748.7	666.1	420.8	309.8	320.1
122.5°	627.3	728.0	640.3	407.9	309.8	317.5
125°	593.8	699.6	609.3	392.4	304.6	312.4
127.5°	557.6	658.3	570.5	374.3	307.2	302.1
130°	524.1	611.9	531.8	356.3	296.9	289.1
132.5°	480.2	560.2	487.9	343.4	286.6	276.2
135°	438.9	511.2	449.2	333.0	273.7	263.3
137.5°	395.0	459.5	405.3	312.4	260.7	250.4
140°	343.4	395.0	353.7	289.1	253.0	237.5
142.5°	309.8	338.2	320.1	278.8	242.7	222.0
145°	289.1	304.6	296.9	268.5	237.5	206.5
147.5°	268.5	284.0	276.2	247.8	224.6	193.6
150°	260.7	260.7	271.1	229.8	216.9	185.9
152.5°	232.3	253.0	242.7	209.1	211.7	183.3
155°	198.8	209.1	209.1	201.4	211.7	183.3
157.5°	185.9	193.6	196.2	201.4	206.5	180.7
160°	185.9	188.5	196.2	204.0	204.0	180.7
162.5°	191.0	188.5	201.4	209.1	198.8	180.7
165°	196.2	193.6	206.5	211.7	193.6	180.7
167.5°	201.4	201.4	211.7	209.1	188.5	180.7
170°	201.4	206.5	211.7	201.4	185.9	180.7
172.5°	193.6	196.2	201.4	188.5	178.1	180.7
175°	183.3	180.7	188.5	180.7	178.1	178.1
177.5°	178.1	170.4	178.1	175.6	173.0	175.6
180°	173.0	173.0	173.0	173.0	173.0	173.0

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