

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: P192483

Luminaire Tested: **4WSL-LD2-80-UPL8-UNV-L840-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192483  
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-LD2-80-UPL8-UNV-L840-CD1-U  
Description: 4FT Linear Wavestream System, 8% Uplight, L840  
Light Source: (238) 4000K CCT, 80 CRI LEDS  
EL236N0119D840  
Ballast/Driver: OSRAM  
OT85W1202772A0DIML

**Summary**

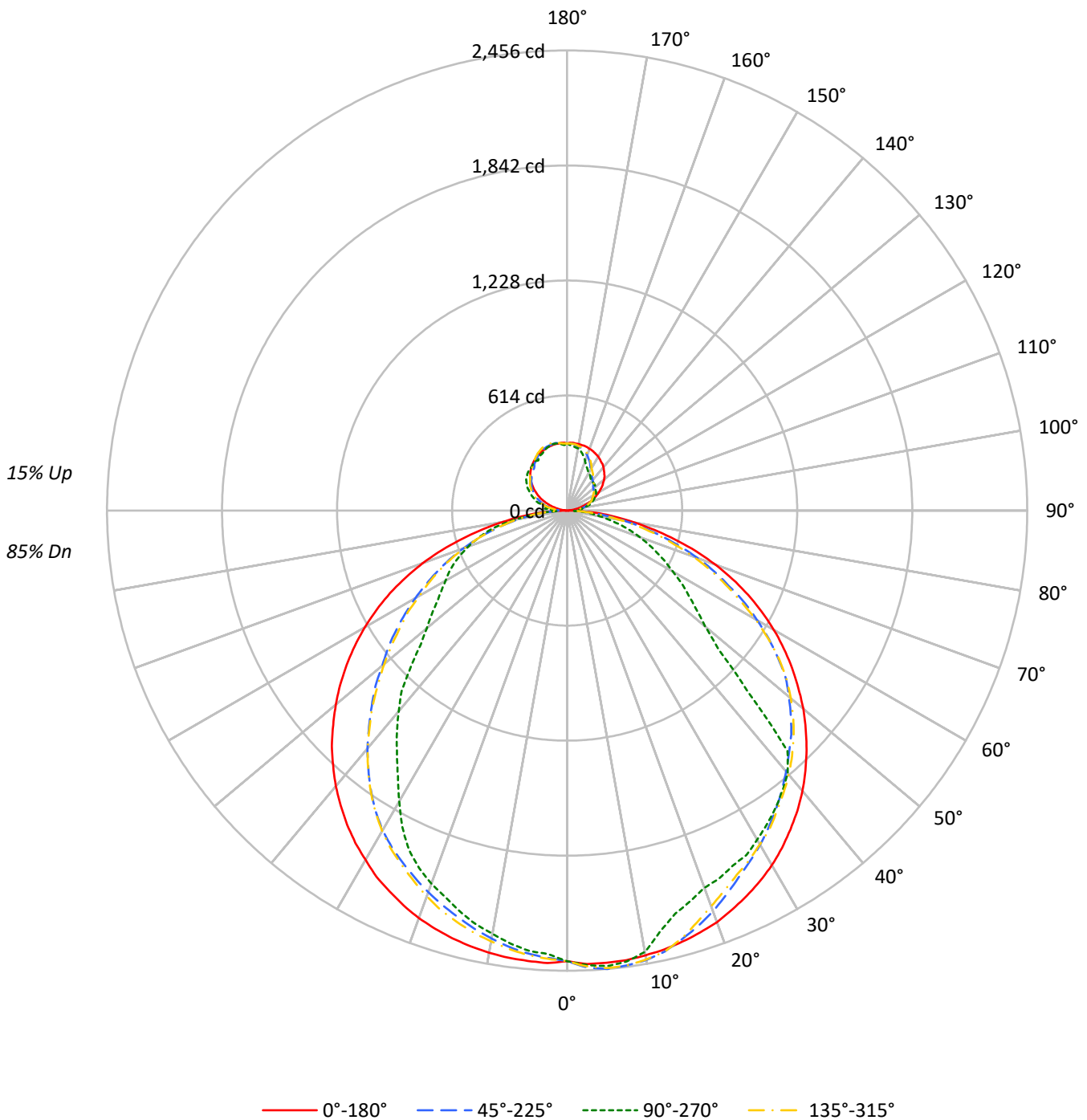
Lumens per Lamp: N/A  
Luminaire Lumens: 7976.0 lumens  
Efficiency: N/A  
Efficacy: 104.9 lumens/watt  
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36  
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')  
CIE Type: Semi-Direct

Input Watts (W): 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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CATALOG NUMBER: 4WSL-LD2-80-UPL8-UNV-L840-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	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°	13623	13623	13623	13623
5°	13778	13880	13719	13411
10°	13863	13759	13788	13196
15°	13968	13062	13862	12986
20°	14094	12914	13954	12774
25°	14178	13068	14018	12489
30°	14299	13272	14080	11722
35°	14369	13408	14156	10951
40°	14451	13537	14204	10339
45°	14481	10891	14233	9448
50°	14500	8464	14205	8622
55°	14469	7832	14189	8366
60°	14440	7381	14119	8489
65°	14288	7075	13977	8904
70°	13902	6823	13561	9297
75°	13017	6424	12623	9806
80°	11843	5879	11340	9324
85°	11544	6357	10374	8366



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	228.6	2.9
10°-20°	649.1	8.1
20°-30°	982.7	12.3
30°-40°	1186.6	14.9
40°-50°	1211.4	15.2
50°-60°	1059.1	13.3
60°-70°	820.9	10.3
70°-80°	493.6	6.2
80°-90°	152.4	1.9
90°-100°	64.2	0.8
100°-110°	122.8	1.5
110°-120°	166.8	2.1
120°-130°	189.7	2.4
130°-140°	192.4	2.4
140°-150°	177.1	2.2
150°-160°	146.1	1.8
160°-170°	98.2	1.2
170°-180°	34.1	0.4
0°-30°	1860.4	23.3
0°-40°	3047.0	38.2
0°-60°	5317.6	66.7
0°-90°	6784.4	85.1
90°-120°	353.9	4.4
90°-150°	913.1	11.4
90°-180°	1192.0	14.9
0°-180°	7976.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2405	2405	2405	2405	2405	
5°	2423	2441	2412	2358	2423	231
15°	2382	2227	2364	2214	2382	673
25°	2268	2091	2242	1998	2268	1047
35°	2078	1939	2047	1583	2078	1301
45°	1807	1359	1776	1179	1807	1394
55°	1465	793	1437	847	1465	1309
65°	1066	528	1043	664	1066	1052
75°	595	294	577	448	595	631
85°	178	98	160	129	178	179
90°	3	54	3	62	3	12
95°	15	75	15	118	15	20
105°	82	126	80	160	82	88
115°	160	162	157	216	160	158
125°	229	185	224	265	229	203
135°	281	203	278	294	281	217
145°	317	216	314	312	317	199
155°	342	252	340	330	342	158
165°	358	314	355	358	358	101
175°	363	345	363	355	363	34
180°	358	358	358	358	358	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7
2.5°	2422.7	2409.8	2440.7	2445.8	2427.8	2433.0	2435.6	2407.2	2417.5	2378.9	2389.2
5°	2422.7	2420.1	2456.1	2451.0	2440.7	2443.3	2451.0	2417.5	2412.4	2366.0	2373.8
7.5°	2420.1	2425.3	2448.4	2443.3	2427.8	2435.6	2448.4	2422.7	2407.2	2353.2	2350.6
10°	2409.8	2417.5	2435.6	2420.1	2391.8	2404.7	2433.0	2417.5	2396.9	2332.6	2319.7
12.5°	2399.5	2404.7	2409.8	2345.4	2299.1	2330.0	2409.8	2404.7	2381.5	2309.4	2286.2
15°	2381.5	2389.2	2368.6	2275.9	2227.0	2257.9	2363.5	2384.1	2363.5	2275.9	2247.6
17.5°	2360.9	2368.6	2324.8	2221.9	2185.8	2201.3	2304.2	2358.3	2340.3	2245.0	2209.0
20°	2337.7	2345.4	2275.9	2165.2	2142.0	2154.9	2247.6	2330.0	2314.5	2209.0	2167.8
22.5°	2304.2	2317.1	2219.3	2126.6	2124.0	2124.0	2193.5	2296.5	2281.1	2165.2	2121.5
25°	2268.2	2281.1	2162.6	2090.6	2090.6	2090.6	2144.6	2252.8	2242.5	2118.9	2075.1
27.5°	2229.6	2242.5	2111.2	2064.8	2072.5	2059.7	2103.4	2203.8	2203.8	2072.5	2026.2
30°	2185.8	2198.7	2059.7	2023.6	2028.8	2023.6	2057.1	2152.3	2152.3	2018.5	1969.6
32.5°	2134.3	2147.2	2003.0	1974.7	1985.0	1979.8	2013.3	2100.9	2103.4	1961.8	1902.6
35°	2077.7	2093.1	1943.8	1928.4	1938.7	1930.9	1954.1	2046.8	2046.8	1900.0	1825.4
37.5°	2018.5	2033.9	1882.0	1876.9	1887.2	1879.4	1897.5	1990.1	1985.0	1835.7	1743.0
40°	1954.1	1972.1	1817.7	1817.7	1830.5	1825.4	1840.8	1930.9	1920.6	1771.3	1658.0
42.5°	1882.0	1905.2	1753.3	1755.9	1740.4	1761.0	1776.5	1869.1	1848.5	1699.2	1565.3
45°	1807.4	1835.7	1691.5	1645.2	1359.4	1627.1	1709.5	1807.4	1776.5	1627.1	1475.2
47.5°	1727.5	1763.6	1619.4	1449.5	1094.2	1426.3	1637.4	1730.1	1694.1	1549.9	1387.7
50°	1645.2	1686.3	1544.7	1282.1	960.3	1256.4	1557.6	1652.9	1611.7	1470.1	1287.3
52.5°	1555.0	1601.4	1472.7	1135.4	870.2	1112.2	1475.2	1578.2	1526.7	1385.1	1204.9
55°	1464.9	1513.9	1374.8	1009.2	793.0	988.6	1380.0	1483.0	1436.6	1297.6	1114.8
57.5°	1372.2	1421.2	1277.0	898.5	726.0	877.9	1271.8	1395.4	1343.9	1207.5	1024.7
60°	1274.4	1323.3	1171.4	798.1	651.4	782.7	1161.1	1297.6	1246.1	1114.8	937.1
62.5°	1171.4	1220.3	1071.0	705.4	589.6	692.6	1040.1	1202.3	1145.7	1017.0	847.0
65°	1065.9	1101.9	952.6	617.9	527.8	607.6	932.0	1083.9	1042.7	914.0	762.1
67.5°	955.2	991.2	849.6	540.7	468.6	530.4	826.4	978.3	932.0	813.6	677.1
70°	839.3	870.2	741.5	466.0	411.9	458.3	715.7	859.9	818.7	708.0	587.0
72.5°	720.9	749.2	625.6	396.5	352.7	391.3	599.9	741.5	700.3	597.3	504.6
75°	594.7	623.0	517.5	327.0	293.5	321.8	494.3	615.3	576.7	491.7	419.7
77.5°	476.3	509.8	409.4	257.5	234.3	252.3	388.8	496.9	458.3	393.9	337.3
80°	363.0	391.3	303.8	195.7	180.2	193.1	283.2	378.5	347.6	303.8	262.6
82.5°	262.6	278.1	208.5	144.2	136.5	141.6	193.1	267.8	252.3	218.8	193.1
85°	177.6	175.1	128.7	100.4	97.8	100.4	115.9	162.2	159.6	146.8	123.6
87.5°	74.7	69.5	59.2	41.2	36.0	38.6	46.3	61.8	59.2	61.8	59.2
90°	2.6	25.7	41.2	51.5	54.1	51.5	41.2	25.7	2.6	28.3	46.3
92.5°	5.1	33.5	48.9	56.6	61.8	56.6	46.3	33.5	5.1	43.8	46.3
95°	15.4	46.3	56.6	69.5	74.7	69.5	56.6	43.8	15.4	38.6	69.5
97.5°	30.9	59.2	66.9	77.2	79.8	74.7	64.4	59.2	28.3	69.5	72.1
100°	46.3	74.7	87.5	87.5	90.1	87.5	85.0	72.1	43.8	77.2	87.5
102.5°	64.4	85.0	100.4	108.1	108.1	108.1	100.4	85.0	59.2	95.3	121.0
105°	82.4	92.7	110.7	121.0	126.2	121.0	110.7	95.3	79.8	110.7	128.7
107.5°	103.0	100.4	121.0	131.3	136.5	131.3	121.0	103.0	97.8	123.6	144.2
110°	123.6	110.7	131.3	141.6	144.2	141.6	131.3	110.7	118.4	139.0	159.6



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CATALOG NUMBER: 4WSL-LD2-80-UPL8-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	141.6	118.4	141.6	151.9	154.5	151.9	141.6	121.0	136.5	149.3	175.1
115°	159.6	126.2	146.8	159.6	162.2	159.6	146.8	128.7	157.0	162.2	187.9
117.5°	177.6	136.5	151.9	167.3	169.9	167.3	154.5	139.0	175.1	177.6	200.8
120°	195.7	149.3	159.6	172.5	177.6	175.1	159.6	151.9	190.5	190.5	211.1
122.5°	211.1	159.6	167.3	177.6	182.8	177.6	167.3	164.8	208.5	203.4	224.0
125°	229.1	169.9	172.5	182.8	185.4	182.8	175.1	172.5	224.0	213.7	231.7
127.5°	242.0	182.8	177.6	187.9	190.5	187.9	180.2	185.4	239.4	234.3	239.4
130°	257.5	195.7	182.8	193.1	195.7	195.7	182.8	200.8	252.3	249.7	249.7
132.5°	270.3	208.5	187.9	198.2	200.8	200.8	190.5	211.1	265.2	262.6	257.5
135°	280.6	226.6	198.2	198.2	203.4	203.4	200.8	229.1	278.1	275.5	270.3
137.5°	290.9	242.0	206.0	200.8	203.4	203.4	211.1	244.6	288.4	288.4	278.1
140°	301.2	257.5	211.1	206.0	206.0	211.1	218.8	260.0	298.7	298.7	280.6
142.5°	311.5	270.3	218.8	213.7	208.5	218.8	226.6	275.5	306.4	308.9	288.4
145°	316.7	283.2	229.1	221.4	216.3	229.1	239.4	288.4	314.1	319.2	303.8
147.5°	324.4	296.1	242.0	226.6	226.6	234.3	249.7	298.7	321.8	327.0	311.5
150°	332.1	306.4	252.3	234.3	229.1	242.0	260.0	308.9	329.5	334.7	321.8
152.5°	337.3	316.7	267.8	244.6	239.4	254.9	278.1	316.7	334.7	339.8	332.1
155°	342.4	324.4	285.8	254.9	252.3	265.2	293.5	324.4	339.8	345.0	339.8
157.5°	347.6	332.1	298.7	270.3	260.0	280.6	306.4	334.7	345.0	350.1	347.6
160°	350.1	337.3	314.1	285.8	280.6	298.7	319.2	337.3	347.6	355.3	352.7
162.5°	355.3	342.4	324.4	303.8	298.7	314.1	329.5	345.0	352.7	357.9	357.9
165°	357.9	347.6	334.7	319.2	314.1	329.5	337.3	350.1	355.3	357.9	360.4
167.5°	357.9	352.7	342.4	329.5	327.0	339.8	347.6	355.3	357.9	357.9	363.0
170°	360.4	355.3	347.6	339.8	337.3	347.6	350.1	357.9	360.4	357.9	365.6
172.5°	360.4	357.9	352.7	345.0	339.8	352.7	355.3	357.9	360.4	357.9	363.0
175°	363.0	357.9	357.9	352.7	345.0	357.9	357.9	357.9	363.0	357.9	360.4
177.5°	363.0	357.9	357.9	355.3	350.1	357.9	357.9	357.9	363.0	357.9	360.4
180°	357.9	357.9	357.9	357.9	357.9	357.9	357.9	357.9	357.9	357.9	357.9



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2404.7	2404.7	2404.7	2404.7	2404.7	2404.7
2.5°	2386.6	2368.6	2373.8	2394.4	2386.6	2422.7
5°	2368.6	2358.3	2358.3	2381.5	2378.9	2422.7
7.5°	2340.3	2330.0	2335.1	2360.9	2366.0	2420.1
10°	2306.8	2293.9	2299.1	2335.1	2348.0	2409.8
12.5°	2270.8	2260.5	2265.6	2306.8	2324.8	2399.5
15°	2229.6	2214.1	2229.6	2273.4	2296.5	2381.5
17.5°	2183.2	2162.6	2180.7	2237.3	2265.6	2360.9
20°	2136.9	2118.9	2129.2	2191.0	2232.2	2337.7
22.5°	2090.6	2064.8	2075.1	2139.5	2191.0	2304.2
25°	2036.5	1997.9	2018.5	2088.0	2147.2	2268.2
27.5°	1964.4	1905.2	1949.0	2036.5	2095.7	2229.6
30°	1869.1	1791.9	1856.3	1974.7	2041.6	2185.8
32.5°	1763.6	1681.2	1753.3	1905.2	1985.0	2134.3
35°	1658.0	1583.4	1647.7	1827.9	1925.8	2077.7
37.5°	1557.6	1493.3	1552.5	1745.6	1864.0	2018.5
40°	1462.4	1398.0	1459.8	1655.5	1797.1	1954.1
42.5°	1367.1	1307.9	1367.1	1560.2	1727.5	1882.0
45°	1271.8	1179.2	1266.7	1467.5	1652.9	1807.4
47.5°	1168.9	1060.7	1161.1	1367.1	1573.1	1727.5
50°	1071.0	978.3	1065.9	1274.4	1490.7	1645.2
52.5°	986.1	911.4	980.9	1179.2	1405.7	1555.0
55°	906.3	847.0	906.3	1086.5	1315.6	1464.9
57.5°	834.2	795.5	836.7	1006.7	1222.9	1372.2
60°	772.4	749.2	774.9	908.8	1130.2	1274.4
62.5°	713.2	710.6	715.7	831.6	1032.4	1171.4
65°	651.4	664.2	651.4	749.2	934.6	1065.9
67.5°	589.6	615.3	594.7	666.8	829.0	955.2
70°	532.9	561.3	532.9	581.9	723.5	839.3
72.5°	468.6	504.6	468.6	502.0	612.7	720.9
75°	406.8	448.0	409.4	419.7	507.2	594.7
77.5°	339.8	378.5	347.6	339.8	409.4	476.3
80°	270.3	285.8	270.3	267.8	316.7	363.0
82.5°	187.9	200.8	187.9	195.7	231.7	262.6
85°	123.6	128.7	123.6	126.2	154.5	177.6
87.5°	51.5	51.5	51.5	64.4	69.5	74.7
90°	56.6	61.8	56.6	46.3	28.3	2.6
92.5°	59.2	64.4	59.2	51.5	33.5	5.1
95°	105.6	118.4	100.4	64.4	54.1	15.4
97.5°	85.0	92.7	87.5	74.7	66.9	30.9
100°	100.4	108.1	100.4	105.6	82.4	46.3
102.5°	118.4	123.6	121.0	123.6	100.4	64.4
105°	154.5	159.6	154.5	133.9	115.9	82.4
107.5°	164.8	177.6	167.3	149.3	131.3	103.0
110°	177.6	187.9	180.2	164.8	144.2	123.6





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	190.5	203.4	195.7	182.8	154.5	141.6
115°	206.0	216.3	211.1	195.7	169.9	159.6
117.5°	221.4	229.1	224.0	206.0	185.4	177.6
120°	234.3	244.6	239.4	218.8	198.2	195.7
122.5°	244.6	254.9	249.7	231.7	211.1	211.1
125°	254.9	265.2	260.0	242.0	221.4	229.1
127.5°	262.6	275.5	270.3	249.7	244.6	242.0
130°	272.9	280.6	278.1	257.5	257.5	257.5
132.5°	278.1	288.4	283.2	267.8	272.9	270.3
135°	280.6	293.5	288.4	280.6	285.8	280.6
137.5°	285.8	296.1	293.5	288.4	298.7	290.9
140°	293.5	298.7	301.2	293.5	308.9	301.2
142.5°	301.2	303.8	308.9	301.2	319.2	311.5
145°	306.4	311.5	316.7	316.7	327.0	316.7
147.5°	306.4	314.1	314.1	321.8	337.3	324.4
150°	314.1	308.9	324.4	332.1	342.4	332.1
152.5°	324.4	321.8	334.7	342.4	347.6	337.3
155°	327.0	329.5	337.3	350.1	352.7	342.4
157.5°	337.3	334.7	347.6	357.9	357.9	347.6
160°	345.0	345.0	357.9	363.0	360.4	350.1
162.5°	352.7	352.7	365.6	365.6	363.0	355.3
165°	357.9	357.9	370.7	368.2	363.0	357.9
167.5°	360.4	363.0	373.3	370.7	363.0	357.9
170°	363.0	363.0	373.3	368.2	363.0	360.4
172.5°	363.0	360.4	370.7	365.6	360.4	360.4
175°	360.4	355.3	365.6	360.4	360.4	363.0
177.5°	357.9	350.1	357.9	357.9	360.4	363.0
180°	357.9	357.9	357.9	357.9	357.9	357.9

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