

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: P192476

Luminaire Tested: **4WSL-LD2-70-UPL8-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192476
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-LD2-70-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
OT85W1202772A0DIML

Summary

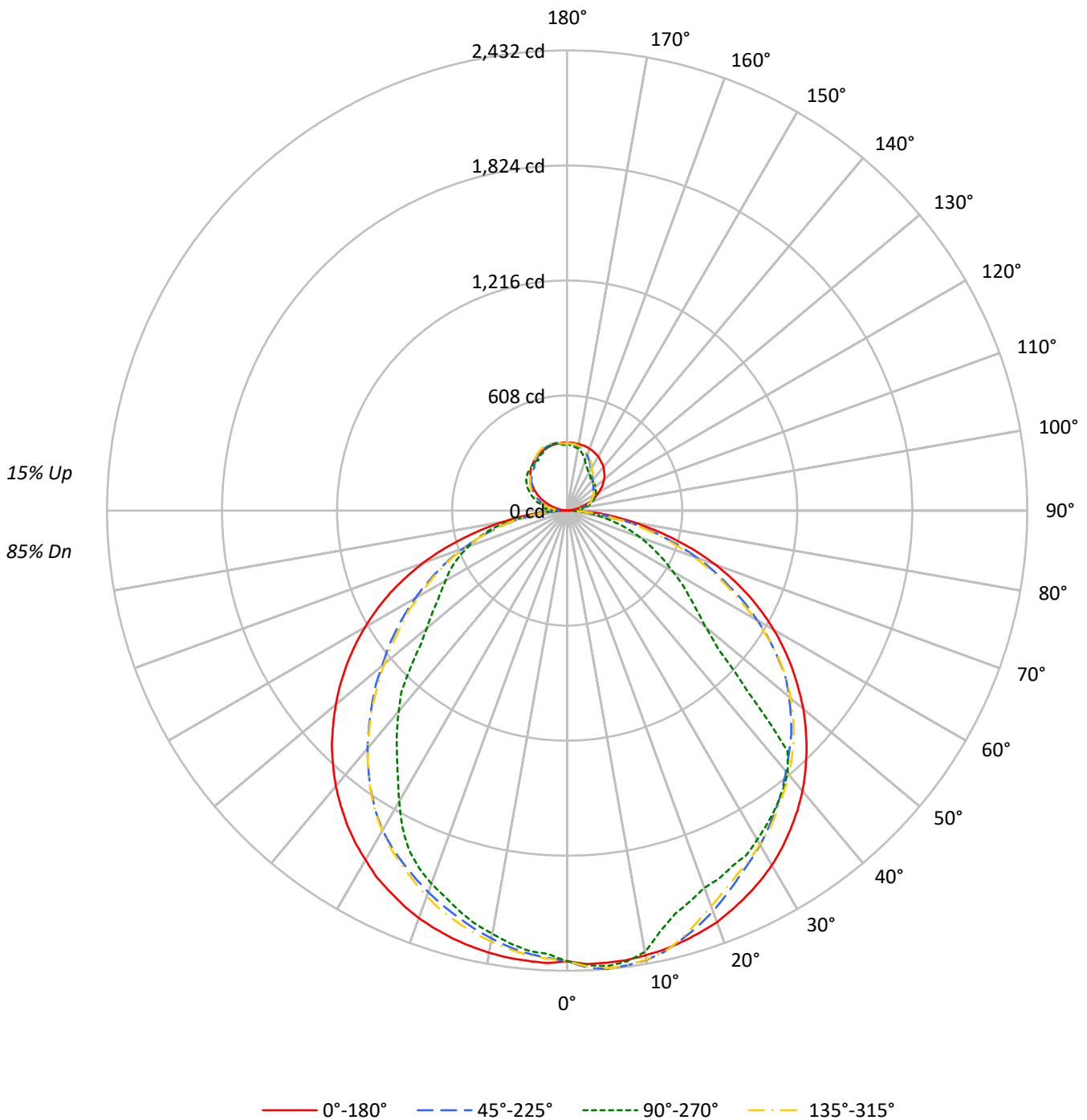
Lumens per Lamp: N/A
Luminaire Lumens: 7898.0 lumens
Efficiency: N/A
Efficacy: 115.0 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 68.7
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: P192476

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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°	13489	13489	13489	13489
5°	13643	13744	13585	13281
10°	13727	13624	13654	13067
15°	13831	12934	13726	12859
20°	13956	12788	13817	12650
25°	14039	12940	13880	12366
30°	14159	13141	13942	11607
35°	14229	13277	14017	10844
40°	14310	13405	14065	10237
45°	14339	10785	14094	9355
50°	14358	8381	14065	8539
55°	14328	7755	14051	8285
60°	14299	7308	13981	8406
65°	14149	7005	13841	8817
70°	13766	6756	13428	9206
75°	12890	6361	12501	9710
80°	11729	5824	11229	9233
85°	11434	6299	10277	8288



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	226.3	2.9
10°-20°	642.8	8.1
20°-30°	973.1	12.3
30°-40°	1175.0	14.9
40°-50°	1199.6	15.2
50°-60°	1048.8	13.3
60°-70°	812.9	10.3
70°-80°	488.7	6.2
80°-90°	150.9	1.9
90°-100°	63.6	0.8
100°-110°	121.6	1.5
110°-120°	165.2	2.1
120°-130°	187.8	2.4
130°-140°	190.5	2.4
140°-150°	175.3	2.2
150°-160°	144.7	1.8
160°-170°	97.3	1.2
170°-180°	33.8	0.4
0°-30°	1842.2	23.3
0°-40°	3017.2	38.2
0°-60°	5265.6	66.7
0°-90°	6718.1	85.1
90°-120°	350.5	4.4
90°-150°	904.2	11.4
90°-180°	1180.0	14.9
0°-180°	7898.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2381	2381	2381	2381	2381	
5°	2399	2417	2389	2335	2399	229
15°	2358	2205	2340	2192	2358	667
25°	2246	2070	2220	1978	2246	1037
35°	2057	1920	2027	1568	2057	1288
45°	1790	1346	1759	1168	1790	1380
55°	1451	785	1423	839	1451	1297
65°	1056	523	1032	658	1056	1041
75°	589	291	571	444	589	625
85°	176	97	158	128	176	177
90°	2	54	2	61	2	12
95°	15	74	15	117	15	19
105°	82	125	79	158	82	87
115°	158	161	156	214	158	156
125°	227	184	222	263	227	201
135°	278	201	275	291	278	215
145°	314	214	311	308	314	197
155°	339	250	336	326	339	157
165°	354	311	352	354	354	100
175°	360	342	360	352	360	34
180°	354	354	354	354	354	



TEST NUMBER: P192476

CATALOG NUMBER: 4WSL-LD2-70-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°	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1
2.5°	2399.0	2386.2	2416.8	2421.9	2404.1	2409.2	2411.7	2383.7	2393.9	2355.6	2365.8
5°	2399.0	2396.4	2432.1	2427.0	2416.8	2419.4	2427.0	2393.9	2388.8	2342.9	2350.5
7.5°	2396.4	2401.5	2424.5	2419.4	2404.1	2411.7	2424.5	2399.0	2383.7	2330.2	2327.6
10°	2386.2	2393.9	2411.7	2396.4	2368.4	2381.1	2409.2	2393.9	2373.5	2309.8	2297.0
12.5°	2376.0	2381.1	2386.2	2322.5	2276.6	2307.2	2386.2	2381.1	2358.2	2286.8	2263.9
15°	2358.2	2365.8	2345.4	2253.7	2205.2	2235.8	2340.3	2360.7	2340.3	2253.7	2225.6
17.5°	2337.8	2345.4	2302.1	2200.1	2164.4	2179.7	2281.7	2335.3	2317.4	2223.1	2187.4
20°	2314.9	2322.5	2253.7	2144.0	2121.1	2133.8	2225.6	2307.2	2291.9	2187.4	2146.6
22.5°	2281.7	2294.5	2197.6	2105.8	2103.3	2103.3	2172.1	2274.1	2258.8	2144.0	2100.7
25°	2246.0	2258.8	2141.5	2070.1	2070.1	2070.1	2123.6	2230.7	2220.5	2098.2	2054.8
27.5°	2207.8	2220.5	2090.5	2044.6	2052.3	2039.5	2082.9	2182.3	2182.3	2052.3	2006.4
30°	2164.4	2177.2	2039.5	2003.8	2008.9	2003.8	2037.0	2131.3	2131.3	1998.7	1950.3
32.5°	2113.5	2126.2	1983.4	1955.4	1965.6	1960.5	1993.6	2080.3	2082.9	1942.6	1884.0
35°	2057.4	2072.7	1924.8	1909.5	1919.7	1912.0	1935.0	2026.8	2026.8	1881.5	1807.5
37.5°	1998.7	2014.0	1863.6	1858.5	1868.7	1861.1	1878.9	1970.7	1965.6	1817.7	1725.9
40°	1935.0	1952.8	1799.9	1799.9	1812.6	1807.5	1822.8	1912.0	1901.9	1754.0	1641.8
42.5°	1863.6	1886.6	1736.1	1738.7	1723.4	1743.8	1759.1	1850.9	1830.5	1682.6	1550.0
45°	1789.7	1817.7	1675.0	1629.1	1346.1	1611.2	1692.8	1789.7	1759.1	1611.2	1460.8
47.5°	1710.6	1746.3	1603.6	1435.3	1083.5	1412.4	1621.4	1713.2	1677.5	1534.7	1374.1
50°	1629.1	1669.9	1529.6	1269.6	950.9	1244.1	1542.4	1636.7	1595.9	1455.7	1274.7
52.5°	1539.8	1585.7	1458.3	1124.3	861.7	1101.3	1460.8	1562.8	1511.8	1371.6	1193.1
55°	1450.6	1499.0	1361.4	999.4	785.2	979.0	1366.5	1468.5	1422.6	1284.9	1103.9
57.5°	1358.8	1407.3	1264.5	889.7	718.9	869.3	1259.4	1381.8	1330.8	1195.7	1014.7
60°	1262.0	1310.4	1160.0	790.3	645.0	775.0	1149.8	1284.9	1233.9	1103.9	928.0
62.5°	1160.0	1208.4	1060.6	698.5	583.8	685.8	1030.0	1190.6	1134.5	1007.0	838.8
65°	1055.5	1091.1	943.3	611.9	522.6	601.7	922.9	1073.3	1032.5	905.0	754.6
67.5°	945.8	981.5	841.3	535.4	464.0	525.2	818.4	968.8	922.9	805.6	670.5
70°	831.1	861.7	734.2	461.4	407.9	453.8	708.7	851.5	810.7	701.1	581.3
72.5°	713.8	741.9	619.5	392.6	349.3	387.5	594.0	734.2	693.4	591.5	499.7
75°	588.9	617.0	512.4	323.8	290.6	318.7	489.5	609.3	571.1	486.9	415.6
77.5°	471.6	504.8	405.4	254.9	232.0	249.8	385.0	492.0	453.8	390.1	334.0
80°	359.5	387.5	300.8	193.8	178.5	191.2	280.4	374.8	344.2	300.8	260.0
82.5°	260.0	275.3	206.5	142.8	135.1	140.2	191.2	265.1	249.8	216.7	191.2
85°	175.9	173.4	127.5	99.4	96.9	99.4	114.7	160.6	158.1	145.3	122.4
87.5°	73.9	68.8	58.6	40.8	35.7	38.2	45.9	61.2	58.6	61.2	58.6
90°	2.5	25.5	40.8	51.0	53.5	51.0	40.8	25.5	2.5	28.0	45.9
92.5°	5.1	33.1	48.4	56.1	61.2	56.1	45.9	33.1	5.1	43.3	45.9
95°	15.3	45.9	56.1	68.8	73.9	68.8	56.1	43.3	15.3	38.2	68.8
97.5°	30.6	58.6	66.3	76.5	79.0	73.9	63.7	58.6	28.0	68.8	71.4
100°	45.9	73.9	86.7	86.7	89.2	86.7	84.1	71.4	43.3	76.5	86.7
102.5°	63.7	84.1	99.4	107.1	107.1	107.1	99.4	84.1	58.6	94.3	119.8
105°	81.6	91.8	109.6	119.8	124.9	119.8	109.6	94.3	79.0	109.6	127.5
107.5°	102.0	99.4	119.8	130.0	135.1	130.0	119.8	102.0	96.9	122.4	142.8
110°	122.4	109.6	130.0	140.2	142.8	140.2	130.0	109.6	117.3	137.7	158.1



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CATALOG NUMBER: 4WSL-LD2-70-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°	140.2	117.3	140.2	150.4	153.0	150.4	140.2	119.8	135.1	147.9	173.4
115°	158.1	124.9	145.3	158.1	160.6	158.1	145.3	127.5	155.5	160.6	186.1
117.5°	175.9	135.1	150.4	165.7	168.3	165.7	153.0	137.7	173.4	175.9	198.9
120°	193.8	147.9	158.1	170.8	175.9	173.4	158.1	150.4	188.7	188.7	209.1
122.5°	209.1	158.1	165.7	175.9	181.0	175.9	165.7	163.2	206.5	201.4	221.8
125°	226.9	168.3	170.8	181.0	183.6	181.0	173.4	170.8	221.8	211.6	229.4
127.5°	239.6	181.0	175.9	186.1	188.7	186.1	178.5	183.6	237.1	232.0	237.1
130°	254.9	193.8	181.0	191.2	193.8	193.8	181.0	198.9	249.8	247.3	247.3
132.5°	267.7	206.5	186.1	196.3	198.9	198.9	188.7	209.1	262.6	260.0	254.9
135°	277.9	224.3	196.3	196.3	201.4	201.4	198.9	226.9	275.3	272.8	267.7
137.5°	288.1	239.6	204.0	198.9	201.4	201.4	209.1	242.2	285.5	285.5	275.3
140°	298.3	254.9	209.1	204.0	204.0	209.1	216.7	257.5	295.7	295.7	277.9
142.5°	308.5	267.7	216.7	211.6	206.5	216.7	224.3	272.8	303.4	305.9	285.5
145°	313.6	280.4	226.9	219.2	214.1	226.9	237.1	285.5	311.0	316.1	300.8
147.5°	321.2	293.2	239.6	224.3	224.3	232.0	247.3	295.7	318.7	323.8	308.5
150°	328.9	303.4	249.8	232.0	226.9	239.6	257.5	305.9	326.3	331.4	318.7
152.5°	334.0	313.6	265.1	242.2	237.1	252.4	275.3	313.6	331.4	336.5	328.9
155°	339.1	321.2	283.0	252.4	249.8	262.6	290.6	321.2	336.5	341.6	336.5
157.5°	344.2	328.9	295.7	267.7	257.5	277.9	303.4	331.4	341.6	346.7	344.2
160°	346.7	334.0	311.0	283.0	277.9	295.7	316.1	334.0	344.2	351.8	349.3
162.5°	351.8	339.1	321.2	300.8	295.7	311.0	326.3	341.6	349.3	354.4	354.4
165°	354.4	344.2	331.4	316.1	311.0	326.3	334.0	346.7	351.8	354.4	356.9
167.5°	354.4	349.3	339.1	326.3	323.8	336.5	344.2	351.8	354.4	354.4	359.5
170°	356.9	351.8	344.2	336.5	334.0	344.2	346.7	354.4	356.9	354.4	362.0
172.5°	356.9	354.4	349.3	341.6	336.5	349.3	351.8	354.4	356.9	354.4	359.5
175°	359.5	354.4	354.4	349.3	341.6	354.4	354.4	354.4	359.5	354.4	356.9
177.5°	359.5	354.4	354.4	351.8	346.7	354.4	354.4	354.4	359.5	354.4	356.9
180°	354.4	354.4	354.4	354.4	354.4	354.4	354.4	354.4	354.4	354.4	354.4



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CATALOG NUMBER: 4WSL-LD2-70-UPL8-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2381.1	2381.1	2381.1	2381.1	2381.1	2381.1
2.5°	2363.3	2345.4	2350.5	2370.9	2363.3	2399.0
5°	2345.4	2335.3	2335.3	2358.2	2355.6	2399.0
7.5°	2317.4	2307.2	2312.3	2337.8	2342.9	2396.4
10°	2284.3	2271.5	2276.6	2312.3	2325.1	2386.2
12.5°	2248.6	2238.4	2243.5	2284.3	2302.1	2376.0
15°	2207.8	2192.5	2207.8	2251.1	2274.1	2358.2
17.5°	2161.9	2141.5	2159.3	2215.4	2243.5	2337.8
20°	2116.0	2098.2	2108.4	2169.5	2210.3	2314.9
22.5°	2070.1	2044.6	2054.8	2118.6	2169.5	2281.7
25°	2016.6	1978.3	1998.7	2067.6	2126.2	2246.0
27.5°	1945.2	1886.6	1929.9	2016.6	2075.2	2207.8
30°	1850.9	1774.4	1838.1	1955.4	2021.7	2164.4
32.5°	1746.3	1664.8	1736.1	1886.6	1965.6	2113.5
35°	1641.8	1567.9	1631.6	1810.1	1907.0	2057.4
37.5°	1542.4	1478.7	1537.3	1728.5	1845.8	1998.7
40°	1448.1	1384.3	1445.5	1639.3	1779.5	1935.0
42.5°	1353.7	1295.1	1353.7	1544.9	1710.6	1863.6
45°	1259.4	1167.6	1254.3	1453.2	1636.7	1789.7
47.5°	1157.4	1050.4	1149.8	1353.7	1557.7	1710.6
50°	1060.6	968.8	1055.5	1262.0	1476.1	1629.1
52.5°	976.4	902.5	971.3	1167.6	1392.0	1539.8
55°	897.4	838.8	897.4	1075.8	1302.7	1450.6
57.5°	826.0	787.8	828.6	996.8	1211.0	1358.8
60°	764.8	741.9	767.4	899.9	1119.2	1262.0
62.5°	706.2	703.6	708.7	823.5	1022.3	1160.0
65°	645.0	657.7	645.0	741.9	925.4	1055.5
67.5°	583.8	609.3	588.9	660.3	820.9	945.8
70°	527.7	555.8	527.7	576.2	716.4	831.1
72.5°	464.0	499.7	464.0	497.1	606.8	713.8
75°	402.8	443.6	405.4	415.6	502.2	588.9
77.5°	336.5	374.8	344.2	336.5	405.4	471.6
80°	267.7	283.0	267.7	265.1	313.6	359.5
82.5°	186.1	198.9	186.1	193.8	229.4	260.0
85°	122.4	127.5	122.4	124.9	153.0	175.9
87.5°	51.0	51.0	51.0	63.7	68.8	73.9
90°	56.1	61.2	56.1	45.9	28.0	2.5
92.5°	58.6	63.7	58.6	51.0	33.1	5.1
95°	104.5	117.3	99.4	63.7	53.5	15.3
97.5°	84.1	91.8	86.7	73.9	66.3	30.6
100°	99.4	107.1	99.4	104.5	81.6	45.9
102.5°	117.3	122.4	119.8	122.4	99.4	63.7
105°	153.0	158.1	153.0	132.6	114.7	81.6
107.5°	163.2	175.9	165.7	147.9	130.0	102.0
110°	175.9	186.1	178.5	163.2	142.8	122.4



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	188.7	201.4	193.8	181.0	153.0	140.2
115°	204.0	214.1	209.1	193.8	168.3	158.1
117.5°	219.2	226.9	221.8	204.0	183.6	175.9
120°	232.0	242.2	237.1	216.7	196.3	193.8
122.5°	242.2	252.4	247.3	229.4	209.1	209.1
125°	252.4	262.6	257.5	239.6	219.2	226.9
127.5°	260.0	272.8	267.7	247.3	242.2	239.6
130°	270.2	277.9	275.3	254.9	254.9	254.9
132.5°	275.3	285.5	280.4	265.1	270.2	267.7
135°	277.9	290.6	285.5	277.9	283.0	277.9
137.5°	283.0	293.2	290.6	285.5	295.7	288.1
140°	290.6	295.7	298.3	290.6	305.9	298.3
142.5°	298.3	300.8	305.9	298.3	316.1	308.5
145°	303.4	308.5	313.6	313.6	323.8	313.6
147.5°	303.4	311.0	311.0	318.7	334.0	321.2
150°	311.0	305.9	321.2	328.9	339.1	328.9
152.5°	321.2	318.7	331.4	339.1	344.2	334.0
155°	323.8	326.3	334.0	346.7	349.3	339.1
157.5°	334.0	331.4	344.2	354.4	354.4	344.2
160°	341.6	341.6	354.4	359.5	356.9	346.7
162.5°	349.3	349.3	362.0	362.0	359.5	351.8
165°	354.4	354.4	367.1	364.6	359.5	354.4
167.5°	356.9	359.5	369.7	367.1	359.5	354.4
170°	359.5	359.5	369.7	364.6	359.5	356.9
172.5°	359.5	356.9	367.1	362.0	356.9	356.9
175°	356.9	351.8	362.0	356.9	356.9	359.5
177.5°	354.4	346.7	354.4	354.4	356.9	359.5
180°	354.4	354.4	354.4	354.4	354.4	354.4

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