

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: P192472

Luminaire Tested: **4WSL-LD2-65-UPL8-UNV-L850-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192472  
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-LD2-65-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

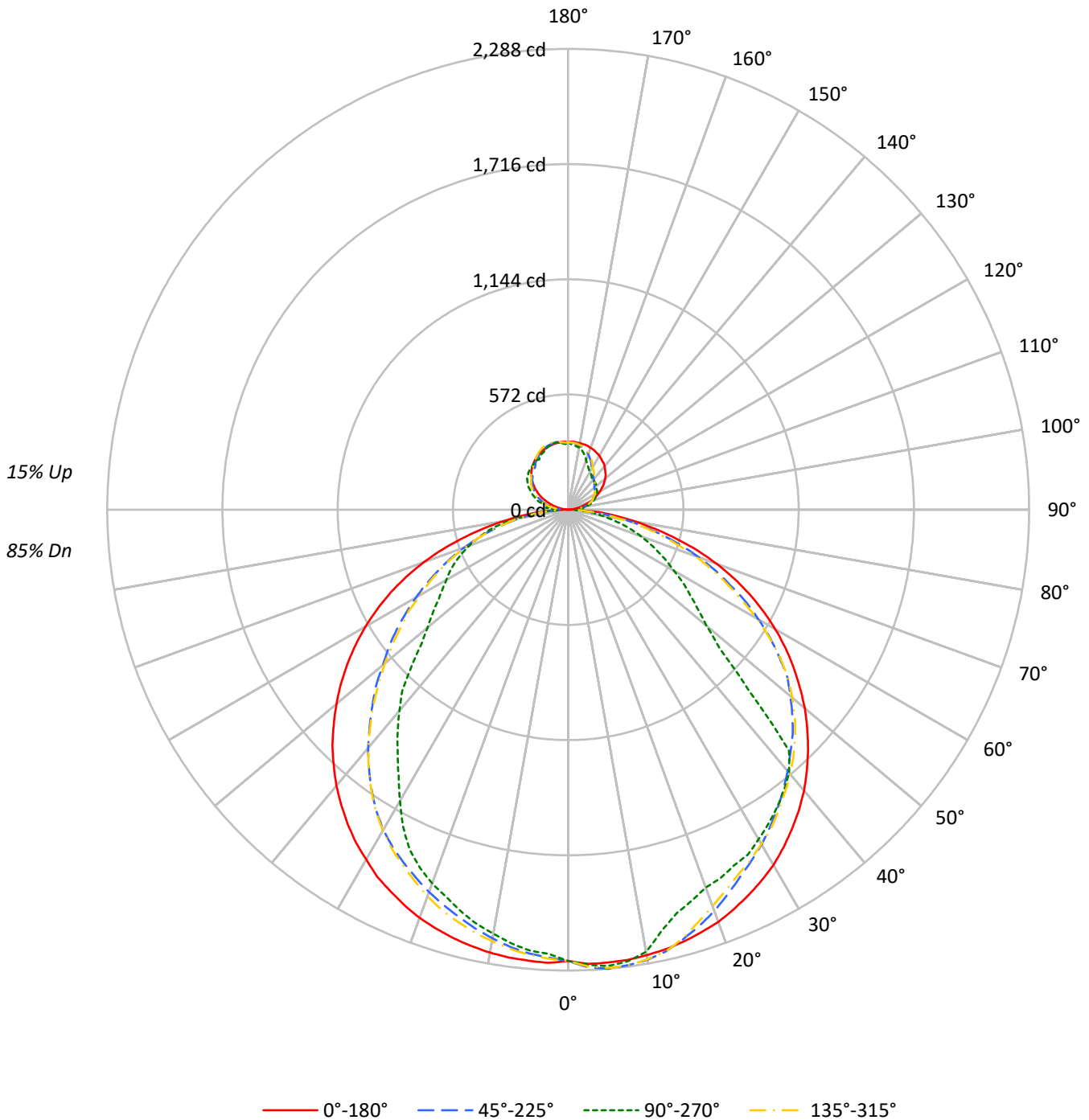
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7431.0 lumens  
Efficiency: N/A  
Efficacy: 120.0 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): 61.9  
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: P192472

CATALOG NUMBER: 4WSL-LD2-65-UPL8-UNV-L850-CD1-U

### Luminous Intensity Polar Plot





TEST NUMBER: P192472

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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°	12692	12692	12692	12692
5°	12836	12931	12781	12495
10°	12915	12819	12846	12294
15°	13013	12169	12915	12098
20°	13131	12032	13001	11901
25°	13209	12175	13059	11635
30°	13322	12364	13118	10921
35°	13387	12492	13188	10202
40°	13464	12612	13233	9633
45°	13491	10147	13260	8802
50°	13508	7885	13234	8034
55°	13480	7297	13220	7795
60°	13453	6876	13154	7909
65°	13311	6591	13023	8296
70°	12953	6357	12635	8661
75°	12129	5984	11761	9136
80°	11034	5478	10564	8688
85°	10758	5922	9666	7794



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	213.0	2.9
10°-20°	604.8	8.1
20°-30°	915.5	12.3
30°-40°	1105.5	14.9
40°-50°	1128.7	15.2
50°-60°	986.8	13.3
60°-70°	764.8	10.3
70°-80°	459.8	6.2
80°-90°	142.0	1.9
90°-100°	59.9	0.8
100°-110°	114.4	1.5
110°-120°	155.4	2.1
120°-130°	176.7	2.4
130°-140°	179.3	2.4
140°-150°	165.0	2.2
150°-160°	136.1	1.8
160°-170°	91.5	1.2
170°-180°	31.8	0.4
0°-30°	1733.3	23.3
0°-40°	2838.8	38.2
0°-60°	4954.2	66.7
0°-90°	6320.9	85.1
90°-120°	329.7	4.4
90°-150°	850.7	11.4
90°-180°	1110.0	14.9
0°-180°	7431.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2240	2240	2240	2240	2240	
5°	2257	2274	2248	2197	2257	215
15°	2219	2075	2202	2063	2219	627
25°	2113	1948	2089	1861	2113	975
35°	1936	1806	1907	1475	1936	1212
45°	1684	1266	1655	1099	1684	1299
55°	1365	739	1338	789	1365	1220
65°	993	492	972	619	993	980
75°	554	273	537	417	554	588
85°	166	91	149	120	166	167
90°	2	50	2	58	2	11
95°	14	70	14	110	14	18
105°	77	118	74	149	77	82
115°	149	151	146	202	149	147
125°	214	173	209	247	214	189
135°	262	190	259	273	262	202
145°	295	202	293	290	295	185
155°	319	235	317	307	319	147
165°	333	293	331	333	333	94
175°	338	321	338	331	338	32
180°	333	333	333	333	333	



TEST NUMBER: P192472

CATALOG NUMBER: 4WSL-LD2-65-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°	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3
2.5°	2257.1	2245.1	2273.9	2278.7	2261.9	2266.7	2269.1	2242.7	2252.3	2216.4	2226.0
5°	2257.1	2254.7	2288.3	2283.5	2273.9	2276.3	2283.5	2252.3	2247.5	2204.4	2211.6
7.5°	2254.7	2259.5	2281.1	2276.3	2261.9	2269.1	2281.1	2257.1	2242.7	2192.4	2190.0
10°	2245.1	2252.3	2269.1	2254.7	2228.4	2240.3	2266.7	2252.3	2233.1	2173.2	2161.2
12.5°	2235.5	2240.3	2245.1	2185.2	2142.0	2170.8	2245.1	2240.3	2218.8	2151.6	2130.0
15°	2218.8	2226.0	2206.8	2120.4	2074.8	2103.6	2202.0	2221.2	2202.0	2120.4	2094.0
17.5°	2199.6	2206.8	2166.0	2070.0	2036.5	2050.9	2146.8	2197.2	2180.4	2091.6	2058.0
20°	2178.0	2185.2	2120.4	2017.3	1995.7	2007.7	2094.0	2170.8	2156.4	2058.0	2019.7
22.5°	2146.8	2158.8	2067.6	1981.3	1978.9	1978.9	2043.7	2139.6	2125.2	2017.3	1976.5
25°	2113.2	2125.2	2014.9	1947.7	1947.7	1947.7	1998.1	2098.8	2089.2	1974.1	1933.3
27.5°	2077.2	2089.2	1966.9	1923.7	1930.9	1918.9	1959.7	2053.2	2053.2	1930.9	1887.7
30°	2036.5	2048.5	1918.9	1885.3	1890.1	1885.3	1916.5	2005.3	2005.3	1880.5	1835.0
32.5°	1988.5	2000.5	1866.2	1839.8	1849.4	1844.6	1875.7	1957.3	1959.7	1827.8	1772.6
35°	1935.7	1950.1	1811.0	1796.6	1806.2	1799.0	1820.6	1906.9	1906.9	1770.2	1700.6
37.5°	1880.5	1894.9	1753.4	1748.6	1758.2	1751.0	1767.8	1854.2	1849.4	1710.2	1623.9
40°	1820.6	1837.4	1693.5	1693.5	1705.4	1700.6	1715.0	1799.0	1789.4	1650.3	1544.7
42.5°	1753.4	1775.0	1633.5	1635.9	1621.5	1640.7	1655.1	1741.4	1722.2	1583.1	1458.4
45°	1683.9	1710.2	1575.9	1532.7	1266.5	1516.0	1592.7	1683.9	1655.1	1516.0	1374.4
47.5°	1609.5	1643.1	1508.8	1350.4	1019.4	1328.9	1525.5	1611.9	1578.3	1444.0	1292.9
50°	1532.7	1571.1	1439.2	1194.5	894.7	1170.5	1451.2	1539.9	1501.6	1369.6	1199.3
52.5°	1448.8	1492.0	1372.0	1057.8	810.7	1036.2	1374.4	1470.4	1422.4	1290.5	1122.6
55°	1364.8	1410.4	1280.9	940.3	738.8	921.1	1285.7	1381.6	1338.5	1208.9	1038.6
57.5°	1278.5	1324.1	1189.7	837.1	676.4	817.9	1184.9	1300.1	1252.1	1125.0	954.7
60°	1187.3	1232.9	1091.4	743.6	606.9	729.2	1081.8	1208.9	1160.9	1038.6	873.1
62.5°	1091.4	1137.0	997.8	657.2	549.3	645.2	969.1	1120.2	1067.4	947.5	789.2
65°	993.0	1026.6	887.5	575.7	491.7	566.1	868.3	1009.8	971.5	851.5	710.0
67.5°	889.9	923.5	791.6	503.7	436.6	494.1	770.0	911.5	868.3	758.0	630.8
70°	782.0	810.7	690.8	434.2	383.8	427.0	666.8	801.2	762.8	659.6	546.9
72.5°	671.6	698.0	582.9	369.4	328.6	364.6	558.9	690.8	652.4	556.5	470.1
75°	554.1	580.5	482.1	304.6	273.4	299.8	460.5	573.3	537.3	458.1	391.0
77.5°	443.8	474.9	381.4	239.9	218.3	235.1	362.2	462.9	427.0	367.0	314.2
80°	338.2	364.6	283.0	182.3	167.9	179.9	263.9	352.6	323.8	283.0	244.7
82.5°	244.7	259.1	194.3	134.3	127.1	131.9	179.9	249.5	235.1	203.9	179.9
85°	165.5	163.1	119.9	93.5	91.1	93.5	107.9	151.1	148.7	136.7	115.1
87.5°	69.6	64.8	55.2	38.4	33.6	36.0	43.2	57.6	55.2	57.6	55.2
90°	2.4	24.0	38.4	48.0	50.4	48.0	38.4	24.0	2.4	26.4	43.2
92.5°	4.8	31.2	45.6	52.8	57.6	52.8	43.2	31.2	4.8	40.8	43.2
95°	14.4	43.2	52.8	64.8	69.6	64.8	52.8	40.8	14.4	36.0	64.8
97.5°	28.8	55.2	62.4	72.0	74.4	69.6	60.0	55.2	26.4	64.8	67.2
100°	43.2	69.6	81.6	81.6	84.0	81.6	79.2	67.2	40.8	72.0	81.6
102.5°	60.0	79.2	93.5	100.7	100.7	100.7	93.5	79.2	55.2	88.8	112.7
105°	76.8	86.4	103.1	112.7	117.5	112.7	103.1	88.8	74.4	103.1	119.9
107.5°	95.9	93.5	112.7	122.3	127.1	122.3	112.7	95.9	91.1	115.1	134.3
110°	115.1	103.1	122.3	131.9	134.3	131.9	122.3	103.1	110.3	129.5	148.7



TEST NUMBER: P192472

CATALOG NUMBER: 4WSL-LD2-65-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°	131.9	110.3	131.9	141.5	143.9	141.5	131.9	112.7	127.1	139.1	163.1
115°	148.7	117.5	136.7	148.7	151.1	148.7	136.7	119.9	146.3	151.1	175.1
117.5°	165.5	127.1	141.5	155.9	158.3	155.9	143.9	129.5	163.1	165.5	187.1
120°	182.3	139.1	148.7	160.7	165.5	163.1	148.7	141.5	177.5	177.5	196.7
122.5°	196.7	148.7	155.9	165.5	170.3	165.5	155.9	153.5	194.3	189.5	208.7
125°	213.5	158.3	160.7	170.3	172.7	170.3	163.1	160.7	208.7	199.1	215.9
127.5°	225.5	170.3	165.5	175.1	177.5	175.1	167.9	172.7	223.1	218.3	223.1
130°	239.9	182.3	170.3	179.9	182.3	182.3	170.3	187.1	235.1	232.7	232.7
132.5°	251.9	194.3	175.1	184.7	187.1	187.1	177.5	196.7	247.1	244.7	239.9
135°	261.5	211.1	184.7	184.7	189.5	189.5	187.1	213.5	259.1	256.7	251.9
137.5°	271.0	225.5	191.9	187.1	189.5	189.5	196.7	227.9	268.6	268.6	259.1
140°	280.6	239.9	196.7	191.9	191.9	196.7	203.9	242.3	278.2	278.2	261.5
142.5°	290.2	251.9	203.9	199.1	194.3	203.9	211.1	256.7	285.4	287.8	268.6
145°	295.0	263.9	213.5	206.3	201.5	213.5	223.1	268.6	292.6	297.4	283.0
147.5°	302.2	275.8	225.5	211.1	211.1	218.3	232.7	278.2	299.8	304.6	290.2
150°	309.4	285.4	235.1	218.3	213.5	225.5	242.3	287.8	307.0	311.8	299.8
152.5°	314.2	295.0	249.5	227.9	223.1	237.5	259.1	295.0	311.8	316.6	309.4
155°	319.0	302.2	266.3	237.5	235.1	247.1	273.4	302.2	316.6	321.4	316.6
157.5°	323.8	309.4	278.2	251.9	242.3	261.5	285.4	311.8	321.4	326.2	323.8
160°	326.2	314.2	292.6	266.3	261.5	278.2	297.4	314.2	323.8	331.0	328.6
162.5°	331.0	319.0	302.2	283.0	278.2	292.6	307.0	321.4	328.6	333.4	333.4
165°	333.4	323.8	311.8	297.4	292.6	307.0	314.2	326.2	331.0	333.4	335.8
167.5°	333.4	328.6	319.0	307.0	304.6	316.6	323.8	331.0	333.4	333.4	338.2
170°	335.8	331.0	323.8	316.6	314.2	323.8	326.2	333.4	335.8	333.4	340.6
172.5°	335.8	333.4	328.6	321.4	316.6	328.6	331.0	333.4	335.8	333.4	338.2
175°	338.2	333.4	333.4	328.6	321.4	333.4	333.4	333.4	338.2	333.4	335.8
177.5°	338.2	333.4	333.4	331.0	326.2	333.4	333.4	333.4	338.2	333.4	335.8
180°	333.4	333.4	333.4	333.4	333.4	333.4	333.4	333.4	333.4	333.4	333.4



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2240.3	2240.3	2240.3	2240.3	2240.3	2240.3
2.5°	2223.6	2206.8	2211.6	2230.8	2223.6	2257.1
5°	2206.8	2197.2	2197.2	2218.8	2216.4	2257.1
7.5°	2180.4	2170.8	2175.6	2199.6	2204.4	2254.7
10°	2149.2	2137.2	2142.0	2175.6	2187.6	2245.1
12.5°	2115.6	2106.0	2110.8	2149.2	2166.0	2235.5
15°	2077.2	2062.8	2077.2	2118.0	2139.6	2218.8
17.5°	2034.1	2014.9	2031.7	2084.4	2110.8	2199.6
20°	1990.9	1974.1	1983.7	2041.3	2079.6	2178.0
22.5°	1947.7	1923.7	1933.3	1993.3	2041.3	2146.8
25°	1897.3	1861.4	1880.5	1945.3	2000.5	2113.2
27.5°	1830.2	1775.0	1815.8	1897.3	1952.5	2077.2
30°	1741.4	1669.5	1729.4	1839.8	1902.1	2036.5
32.5°	1643.1	1566.3	1633.5	1775.0	1849.4	1988.5
35°	1544.7	1475.2	1535.1	1703.0	1794.2	1935.7
37.5°	1451.2	1391.2	1446.4	1626.3	1736.6	1880.5
40°	1362.4	1302.5	1360.0	1542.3	1674.3	1820.6
42.5°	1273.7	1218.5	1273.7	1453.6	1609.5	1753.4
45°	1184.9	1098.6	1180.1	1367.2	1539.9	1683.9
47.5°	1089.0	988.2	1081.8	1273.7	1465.6	1609.5
50°	997.8	911.5	993.0	1187.3	1388.8	1532.7
52.5°	918.7	849.1	913.9	1098.6	1309.7	1448.8
55°	844.3	789.2	844.3	1012.2	1225.7	1364.8
57.5°	777.2	741.2	779.6	937.9	1139.4	1278.5
60°	719.6	698.0	722.0	846.7	1053.0	1187.3
62.5°	664.4	662.0	666.8	774.8	961.9	1091.4
65°	606.9	618.9	606.9	698.0	870.7	993.0
67.5°	549.3	573.3	554.1	621.3	772.4	889.9
70°	496.5	522.9	496.5	542.1	674.0	782.0
72.5°	436.6	470.1	436.6	467.7	570.9	671.6
75°	379.0	417.4	381.4	391.0	472.5	554.1
77.5°	316.6	352.6	323.8	316.6	381.4	443.8
80°	251.9	266.3	251.9	249.5	295.0	338.2
82.5°	175.1	187.1	175.1	182.3	215.9	244.7
85°	115.1	119.9	115.1	117.5	143.9	165.5
87.5°	48.0	48.0	48.0	60.0	64.8	69.6
90°	52.8	57.6	52.8	43.2	26.4	2.4
92.5°	55.2	60.0	55.2	48.0	31.2	4.8
95°	98.3	110.3	93.5	60.0	50.4	14.4
97.5°	79.2	86.4	81.6	69.6	62.4	28.8
100°	93.5	100.7	93.5	98.3	76.8	43.2
102.5°	110.3	115.1	112.7	115.1	93.5	60.0
105°	143.9	148.7	143.9	124.7	107.9	76.8
107.5°	153.5	165.5	155.9	139.1	122.3	95.9
110°	165.5	175.1	167.9	153.5	134.3	115.1





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	177.5	189.5	182.3	170.3	143.9	131.9
115°	191.9	201.5	196.7	182.3	158.3	148.7
117.5°	206.3	213.5	208.7	191.9	172.7	165.5
120°	218.3	227.9	223.1	203.9	184.7	182.3
122.5°	227.9	237.5	232.7	215.9	196.7	196.7
125°	237.5	247.1	242.3	225.5	206.3	213.5
127.5°	244.7	256.7	251.9	232.7	227.9	225.5
130°	254.3	261.5	259.1	239.9	239.9	239.9
132.5°	259.1	268.6	263.9	249.5	254.3	251.9
135°	261.5	273.4	268.6	261.5	266.3	261.5
137.5°	266.3	275.8	273.4	268.6	278.2	271.0
140°	273.4	278.2	280.6	273.4	287.8	280.6
142.5°	280.6	283.0	287.8	280.6	297.4	290.2
145°	285.4	290.2	295.0	295.0	304.6	295.0
147.5°	285.4	292.6	292.6	299.8	314.2	302.2
150°	292.6	287.8	302.2	309.4	319.0	309.4
152.5°	302.2	299.8	311.8	319.0	323.8	314.2
155°	304.6	307.0	314.2	326.2	328.6	319.0
157.5°	314.2	311.8	323.8	333.4	333.4	323.8
160°	321.4	321.4	333.4	338.2	335.8	326.2
162.5°	328.6	328.6	340.6	340.6	338.2	331.0
165°	333.4	333.4	345.4	343.0	338.2	333.4
167.5°	335.8	338.2	347.8	345.4	338.2	333.4
170°	338.2	338.2	347.8	343.0	338.2	335.8
172.5°	338.2	335.8	345.4	340.6	335.8	335.8
175°	335.8	331.0	340.6	335.8	335.8	338.2
177.5°	333.4	326.2	333.4	333.4	335.8	338.2
180°	333.4	333.4	333.4	333.4	333.4	333.4

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