

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: P192474

Luminaire Tested: **4WSL-LD2-70-UPL8-UNV-L835-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192474  
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-L835-CD1-U  
Description: 4FT Linear Wavestream System, 8% Uplight, L835  
Light Source: (238) 3500K CCT, 80 CRI LEDS  
EL236N0119D835  
Ballast/Driver: OSRAM  
OT85W1202772A0DIML

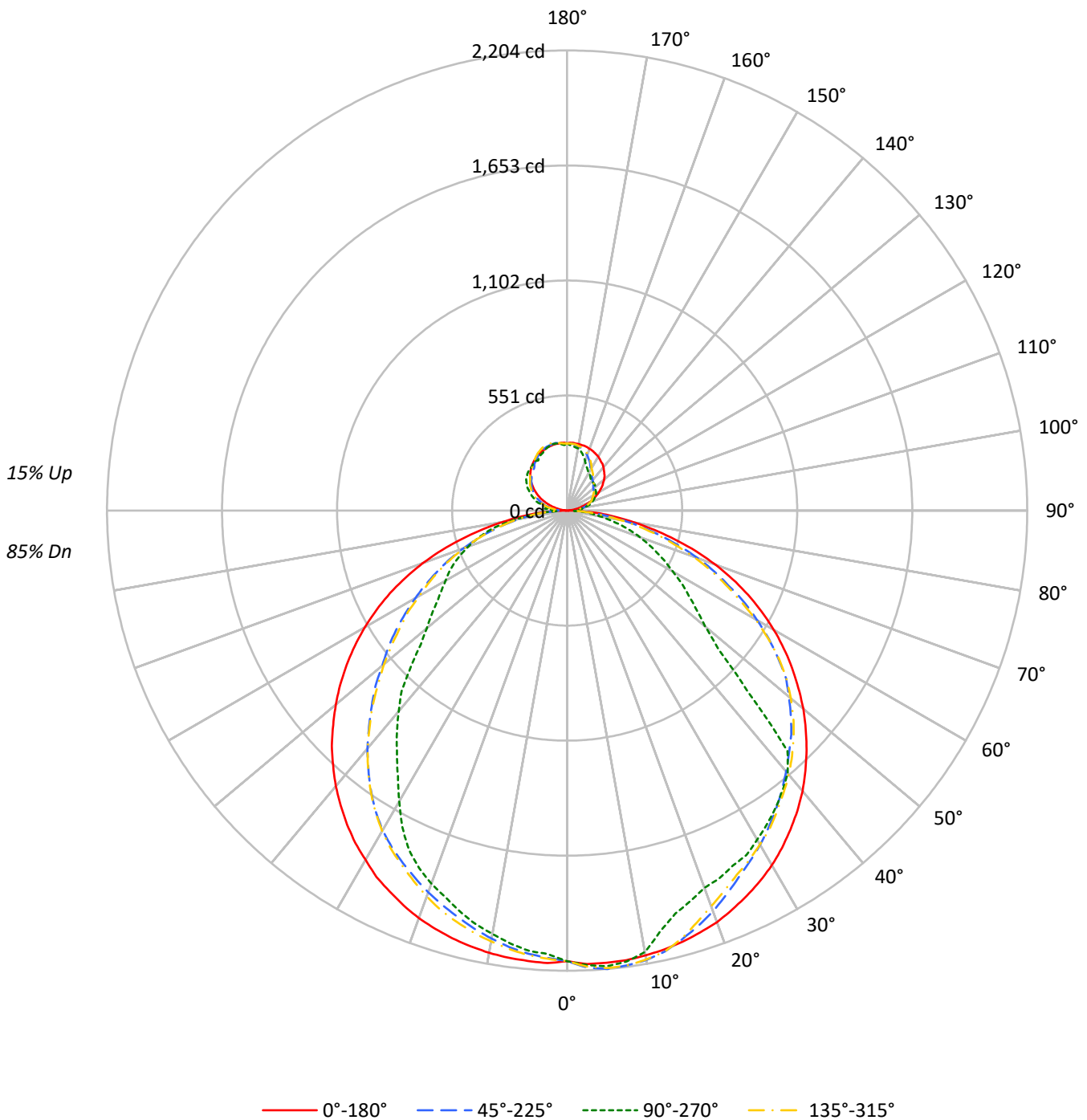
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7158.0 lumens  
Efficiency: N/A  
Efficacy: 104.2 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





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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°	12226	12226	12226	12226
5°	12364	12456	12312	12036
10°	12441	12348	12374	11843
15°	12535	11722	12440	11654
20°	12648	11590	12523	11464
25°	12724	11728	12580	11208
30°	12832	11910	12636	10520
35°	12895	12032	12704	9828
40°	12969	12149	12747	9278
45°	12995	9774	12773	8478
50°	13012	7595	12748	7738
55°	12985	7028	12734	7509
60°	12959	6624	12671	7619
65°	12823	6350	12544	7991
70°	12476	6124	12171	8343
75°	11682	5765	11330	8799
80°	10629	5275	10176	8368
85°	10361	5707	9315	7508



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	205.1	2.9
10°-20°	582.6	8.1
20°-30°	881.9	12.3
30°-40°	1064.9	14.9
40°-50°	1087.2	15.2
50°-60°	950.5	13.3
60°-70°	736.7	10.3
70°-80°	442.9	6.2
80°-90°	136.7	1.9
90°-100°	57.7	0.8
100°-110°	110.2	1.5
110°-120°	149.7	2.1
120°-130°	170.2	2.4
130°-140°	172.7	2.4
140°-150°	158.9	2.2
150°-160°	131.1	1.8
160°-170°	88.2	1.2
170°-180°	30.6	0.4
0°-30°	1669.6	23.3
0°-40°	2734.5	38.2
0°-60°	4772.2	66.7
0°-90°	6088.6	85.1
90°-120°	317.6	4.4
90°-150°	819.4	11.4
90°-180°	1069.0	14.9
0°-180°	7158.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2158	2158	2158	2158	2158	
5°	2174	2190	2165	2116	2174	207
15°	2137	1999	2121	1987	2137	604
25°	2036	1876	2012	1793	2036	939
35°	1865	1740	1837	1421	1865	1167
45°	1622	1220	1594	1058	1622	1251
55°	1315	712	1289	760	1315	1175
65°	957	474	936	596	957	944
75°	534	263	518	402	534	566
85°	159	88	143	116	159	161
90°	2	48	2	56	2	10
95°	14	67	14	106	14	18
105°	74	113	72	143	74	79
115°	143	146	141	194	143	142
125°	206	166	201	238	206	182
135°	252	182	250	263	252	194
145°	284	194	282	280	284	179
155°	307	226	305	296	307	142
165°	321	282	319	321	321	91
175°	326	310	326	319	326	31
180°	321	321	321	321	321	



TEST NUMBER: P192474

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0
2.5°	2174.2	2162.7	2190.4	2195.0	2178.8	2183.5	2185.8	2160.3	2169.6	2134.9	2144.2
5°	2174.2	2171.9	2204.3	2199.6	2190.4	2192.7	2199.6	2169.6	2165.0	2123.4	2130.3
7.5°	2171.9	2176.5	2197.3	2192.7	2178.8	2185.8	2197.3	2174.2	2160.3	2111.8	2109.5
10°	2162.7	2169.6	2185.8	2171.9	2146.5	2158.0	2183.5	2169.6	2151.1	2093.3	2081.8
12.5°	2153.4	2158.0	2162.7	2104.9	2063.3	2091.0	2162.7	2158.0	2137.2	2072.5	2051.8
15°	2137.2	2144.2	2125.7	2042.5	1998.6	2026.3	2121.1	2139.6	2121.1	2042.5	2017.1
17.5°	2118.8	2125.7	2086.4	1994.0	1961.6	1975.5	2067.9	2116.4	2100.3	2014.8	1982.4
20°	2098.0	2104.9	2042.5	1943.2	1922.4	1933.9	2017.1	2091.0	2077.2	1982.4	1945.5
22.5°	2067.9	2079.5	1991.7	1908.5	1906.2	1906.2	1968.6	2061.0	2047.1	1943.2	1903.9
25°	2035.6	2047.1	1940.8	1876.2	1876.2	1876.2	1924.7	2021.7	2012.5	1901.6	1862.3
27.5°	2000.9	2012.5	1894.6	1853.0	1860.0	1848.4	1887.7	1977.8	1977.8	1860.0	1818.4
30°	1961.6	1973.2	1848.4	1816.1	1820.7	1816.1	1846.1	1931.6	1931.6	1811.5	1767.6
32.5°	1915.4	1927.0	1797.6	1772.2	1781.4	1776.8	1806.8	1885.4	1887.7	1760.6	1707.5
35°	1864.6	1878.5	1744.5	1730.6	1739.8	1732.9	1753.7	1836.9	1836.9	1705.2	1638.2
37.5°	1811.5	1825.3	1689.0	1684.4	1693.6	1686.7	1702.9	1786.0	1781.4	1647.4	1564.2
40°	1753.7	1769.9	1631.2	1631.2	1642.8	1638.2	1652.0	1732.9	1723.7	1589.6	1488.0
42.5°	1689.0	1709.8	1573.5	1575.8	1561.9	1580.4	1594.3	1677.4	1659.0	1525.0	1404.8
45°	1622.0	1647.4	1518.0	1476.4	1220.0	1460.3	1534.2	1622.0	1594.3	1460.3	1323.9
47.5°	1550.4	1582.7	1453.3	1300.8	982.0	1280.0	1469.5	1552.7	1520.3	1390.9	1245.4
50°	1476.4	1513.4	1386.3	1150.6	861.8	1127.5	1397.9	1483.4	1446.4	1319.3	1155.3
52.5°	1395.6	1437.2	1321.6	1018.9	781.0	998.2	1323.9	1416.4	1370.1	1243.1	1081.3
55°	1314.7	1358.6	1233.8	905.7	711.6	887.2	1238.4	1330.9	1289.3	1164.5	1000.5
57.5°	1231.5	1275.4	1146.0	806.4	651.6	787.9	1141.4	1252.3	1206.1	1083.6	919.6
60°	1143.7	1187.6	1051.3	716.3	584.6	702.4	1042.1	1164.5	1118.3	1000.5	841.0
62.5°	1051.3	1095.2	961.2	633.1	529.1	621.5	933.5	1079.0	1028.2	912.7	760.2
65°	956.6	988.9	854.9	554.5	473.7	545.3	836.4	972.7	935.8	820.2	683.9
67.5°	857.2	889.6	762.5	485.2	420.5	476.0	741.7	878.0	836.4	730.1	607.7
70°	753.2	781.0	665.4	418.2	369.7	411.3	642.3	771.7	734.8	635.4	526.8
72.5°	646.9	672.4	561.5	355.8	316.5	351.2	538.4	665.4	628.5	536.0	452.9
75°	533.7	559.1	464.4	293.4	263.4	288.8	443.6	552.2	517.6	441.3	376.6
77.5°	427.4	457.5	367.4	231.1	210.3	226.4	348.9	445.9	411.3	353.5	302.7
80°	325.8	351.2	272.6	175.6	161.7	173.3	254.2	339.6	311.9	272.6	235.7
82.5°	235.7	249.5	187.2	129.4	122.5	127.1	173.3	240.3	226.4	196.4	173.3
85°	159.4	157.1	115.5	90.1	87.8	90.1	104.0	145.6	143.3	131.7	110.9
87.5°	67.0	62.4	53.1	37.0	32.3	34.7	41.6	55.5	53.1	55.5	53.1
90°	2.3	23.1	37.0	46.2	48.5	46.2	37.0	23.1	2.3	25.4	41.6
92.5°	4.6	30.0	43.9	50.8	55.5	50.8	41.6	30.0	4.6	39.3	41.6
95°	13.9	41.6	50.8	62.4	67.0	62.4	50.8	39.3	13.9	34.7	62.4
97.5°	27.7	53.1	60.1	69.3	71.6	67.0	57.8	53.1	25.4	62.4	64.7
100°	41.6	67.0	78.6	78.6	80.9	78.6	76.2	64.7	39.3	69.3	78.6
102.5°	57.8	76.2	90.1	97.0	97.0	97.0	90.1	76.2	53.1	85.5	108.6
105°	73.9	83.2	99.4	108.6	113.2	108.6	99.4	85.5	71.6	99.4	115.5
107.5°	92.4	90.1	108.6	117.8	122.5	117.8	108.6	92.4	87.8	110.9	129.4
110°	110.9	99.4	117.8	127.1	129.4	127.1	117.8	99.4	106.3	124.8	143.3



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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°	127.1	106.3	127.1	136.3	138.6	136.3	127.1	108.6	122.5	134.0	157.1
115°	143.3	113.2	131.7	143.3	145.6	143.3	131.7	115.5	140.9	145.6	168.7
117.5°	159.4	122.5	136.3	150.2	152.5	150.2	138.6	124.8	157.1	159.4	180.2
120°	175.6	134.0	143.3	154.8	159.4	157.1	143.3	136.3	171.0	171.0	189.5
122.5°	189.5	143.3	150.2	159.4	164.0	159.4	150.2	147.9	187.2	182.5	201.0
125°	205.6	152.5	154.8	164.0	166.4	164.0	157.1	154.8	201.0	191.8	207.9
127.5°	217.2	164.0	159.4	168.7	171.0	168.7	161.7	166.4	214.9	210.3	214.9
130°	231.1	175.6	164.0	173.3	175.6	175.6	164.0	180.2	226.4	224.1	224.1
132.5°	242.6	187.2	168.7	177.9	180.2	180.2	171.0	189.5	238.0	235.7	231.1
135°	251.8	203.3	177.9	177.9	182.5	182.5	180.2	205.6	249.5	247.2	242.6
137.5°	261.1	217.2	184.8	180.2	182.5	182.5	189.5	219.5	258.8	258.8	249.5
140°	270.3	231.1	189.5	184.8	184.8	189.5	196.4	233.4	268.0	268.0	251.8
142.5°	279.6	242.6	196.4	191.8	187.2	196.4	203.3	247.2	275.0	277.3	258.8
145°	284.2	254.2	205.6	198.7	194.1	205.6	214.9	258.8	281.9	286.5	272.6
147.5°	291.1	265.7	217.2	203.3	203.3	210.3	224.1	268.0	288.8	293.4	279.6
150°	298.1	275.0	226.4	210.3	205.6	217.2	233.4	277.3	295.7	300.4	288.8
152.5°	302.7	284.2	240.3	219.5	214.9	228.7	249.5	284.2	300.4	305.0	298.1
155°	307.3	291.1	256.5	228.7	226.4	238.0	263.4	291.1	305.0	309.6	305.0
157.5°	311.9	298.1	268.0	242.6	233.4	251.8	275.0	300.4	309.6	314.2	311.9
160°	314.2	302.7	281.9	256.5	251.8	268.0	286.5	302.7	311.9	318.9	316.5
162.5°	318.9	307.3	291.1	272.6	268.0	281.9	295.7	309.6	316.5	321.2	321.2
165°	321.2	311.9	300.4	286.5	281.9	295.7	302.7	314.2	318.9	321.2	323.5
167.5°	321.2	316.5	307.3	295.7	293.4	305.0	311.9	318.9	321.2	321.2	325.8
170°	323.5	318.9	311.9	305.0	302.7	311.9	314.2	321.2	323.5	321.2	328.1
172.5°	323.5	321.2	316.5	309.6	305.0	316.5	318.9	321.2	323.5	321.2	325.8
175°	325.8	321.2	321.2	316.5	309.6	321.2	321.2	321.2	325.8	321.2	323.5
177.5°	325.8	321.2	321.2	318.9	314.2	321.2	321.2	321.2	325.8	321.2	323.5
180°	321.2	321.2	321.2	321.2	321.2	321.2	321.2	321.2	321.2	321.2	321.2



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2158.0	2158.0	2158.0	2158.0	2158.0	2158.0
2.5°	2141.9	2125.7	2130.3	2148.8	2141.9	2174.2
5°	2125.7	2116.4	2116.4	2137.2	2134.9	2174.2
7.5°	2100.3	2091.0	2095.7	2118.8	2123.4	2171.9
10°	2070.2	2058.7	2063.3	2095.7	2107.2	2162.7
12.5°	2037.9	2028.6	2033.3	2070.2	2086.4	2153.4
15°	2000.9	1987.1	2000.9	2040.2	2061.0	2137.2
17.5°	1959.3	1940.8	1957.0	2007.9	2033.3	2118.8
20°	1917.7	1901.6	1910.8	1966.3	2003.2	2098.0
22.5°	1876.2	1853.0	1862.3	1920.1	1966.3	2067.9
25°	1827.6	1793.0	1811.5	1873.8	1927.0	2035.6
27.5°	1762.9	1709.8	1749.1	1827.6	1880.8	2000.9
30°	1677.4	1608.1	1665.9	1772.2	1832.3	1961.6
32.5°	1582.7	1508.8	1573.5	1709.8	1781.4	1915.4
35°	1488.0	1421.0	1478.7	1640.5	1728.3	1864.6
37.5°	1397.9	1340.1	1393.3	1566.5	1672.8	1811.5
40°	1312.4	1254.6	1310.1	1485.7	1612.8	1753.7
42.5°	1226.9	1173.8	1226.9	1400.2	1550.4	1689.0
45°	1141.4	1058.2	1136.8	1317.0	1483.4	1622.0
47.5°	1049.0	951.9	1042.1	1226.9	1411.7	1550.4
50°	961.2	878.0	956.6	1143.7	1337.8	1476.4
52.5°	884.9	817.9	880.3	1058.2	1261.6	1395.6
55°	813.3	760.2	813.3	975.0	1180.7	1314.7
57.5°	748.6	714.0	750.9	903.4	1097.5	1231.5
60°	693.2	672.4	695.5	815.6	1014.3	1143.7
62.5°	640.0	637.7	642.3	746.3	926.5	1051.3
65°	584.6	596.1	584.6	672.4	838.7	956.6
67.5°	529.1	552.2	533.7	598.4	744.0	857.2
70°	478.3	503.7	478.3	522.2	649.3	753.2
72.5°	420.5	452.9	420.5	450.6	549.9	646.9
75°	365.1	402.0	367.4	376.6	455.2	533.7
77.5°	305.0	339.6	311.9	305.0	367.4	427.4
80°	242.6	256.5	242.6	240.3	284.2	325.8
82.5°	168.7	180.2	168.7	175.6	207.9	235.7
85°	110.9	115.5	110.9	113.2	138.6	159.4
87.5°	46.2	46.2	46.2	57.8	62.4	67.0
90°	50.8	55.5	50.8	41.6	25.4	2.3
92.5°	53.1	57.8	53.1	46.2	30.0	4.6
95°	94.7	106.3	90.1	57.8	48.5	13.9
97.5°	76.2	83.2	78.6	67.0	60.1	27.7
100°	90.1	97.0	90.1	94.7	73.9	41.6
102.5°	106.3	110.9	108.6	110.9	90.1	57.8
105°	138.6	143.3	138.6	120.1	104.0	73.9
107.5°	147.9	159.4	150.2	134.0	117.8	92.4
110°	159.4	168.7	161.7	147.9	129.4	110.9





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	171.0	182.5	175.6	164.0	138.6	127.1
115°	184.8	194.1	189.5	175.6	152.5	143.3
117.5°	198.7	205.6	201.0	184.8	166.4	159.4
120°	210.3	219.5	214.9	196.4	177.9	175.6
122.5°	219.5	228.7	224.1	207.9	189.5	189.5
125°	228.7	238.0	233.4	217.2	198.7	205.6
127.5°	235.7	247.2	242.6	224.1	219.5	217.2
130°	244.9	251.8	249.5	231.1	231.1	231.1
132.5°	249.5	258.8	254.2	240.3	244.9	242.6
135°	251.8	263.4	258.8	251.8	256.5	251.8
137.5°	256.5	265.7	263.4	258.8	268.0	261.1
140°	263.4	268.0	270.3	263.4	277.3	270.3
142.5°	270.3	272.6	277.3	270.3	286.5	279.6
145°	275.0	279.6	284.2	284.2	293.4	284.2
147.5°	275.0	281.9	281.9	288.8	302.7	291.1
150°	281.9	277.3	291.1	298.1	307.3	298.1
152.5°	291.1	288.8	300.4	307.3	311.9	302.7
155°	293.4	295.7	302.7	314.2	316.5	307.3
157.5°	302.7	300.4	311.9	321.2	321.2	311.9
160°	309.6	309.6	321.2	325.8	323.5	314.2
162.5°	316.5	316.5	328.1	328.1	325.8	318.9
165°	321.2	321.2	332.7	330.4	325.8	321.2
167.5°	323.5	325.8	335.0	332.7	325.8	321.2
170°	325.8	325.8	335.0	330.4	325.8	323.5
172.5°	325.8	323.5	332.7	328.1	323.5	323.5
175°	323.5	318.9	328.1	323.5	323.5	325.8
177.5°	321.2	314.2	321.2	321.2	323.5	325.8
180°	321.2	321.2	321.2	321.2	321.2	321.2

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