

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: P192524

Luminaire Tested: **4WSL-LD2-75-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192524  
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-LD2-75-UPL15-UNV-L850-CD1-U  
Description: 4FT Linear Wavestream System, 15% Uplight, L850  
Light Source: (238) 5000K CCT, 80 CRI LEDS  
EL236N0119D850  
Ballast/Driver: OSRAM  
OT85W1202772A0DIML

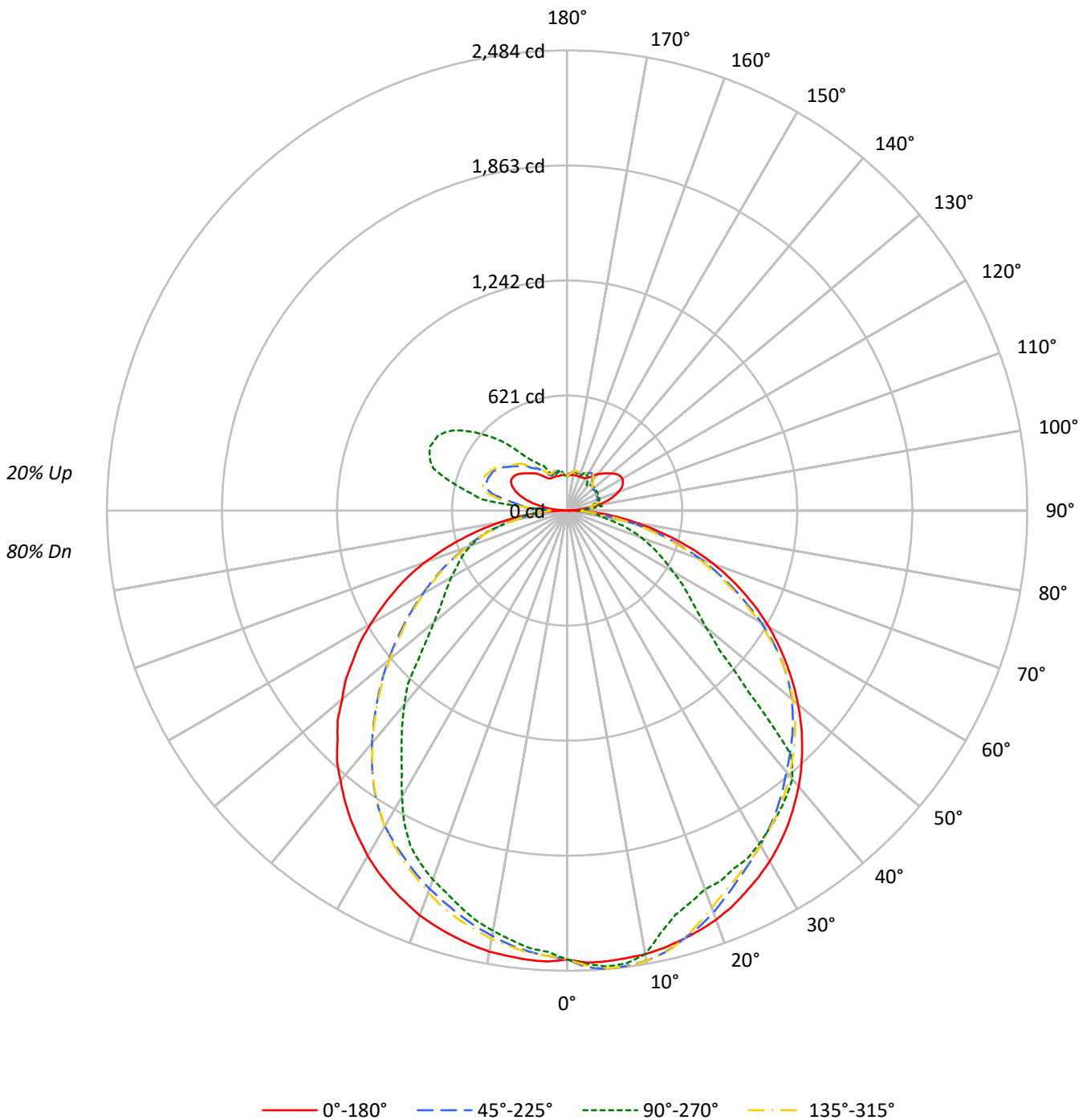
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8575.0 lumens  
Efficiency: N/A  
Efficacy: 116.0 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): 73.9  
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

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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°	13727	13727	13727	13727
5°	13890	14048	13842	13478
10°	13986	13986	13906	13250
15°	14064	13248	13950	13003
20°	14171	13115	14021	12779
25°	14224	13320	14050	12502
30°	14303	13575	14085	11664
35°	14352	13775	14083	10774
40°	14380	13989	14072	10101
45°	14376	11121	14041	9093
50°	14343	8581	13975	8263
55°	14287	7913	13931	8023
60°	14247	7470	13868	8195
65°	14133	7235	13760	8577
70°	13915	7050	13548	9170
75°	13273	6698	12849	9743
80°	12433	6081	12071	9712
85°	12474	7956	11570	11570



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	230.6	2.7
10°-20°	654.4	7.6
20°-30°	988.9	11.5
30°-40°	1190.1	13.9
40°-50°	1210.3	14.1
50°-60°	1053.5	12.3
60°-70°	821.8	9.6
70°-80°	508.0	5.9
80°-90°	178.7	2.1
90°-100°	168.3	2.0
100°-110°	325.8	3.8
110°-120°	356.5	4.2
120°-130°	312.6	3.6
130°-140°	234.2	2.7
140°-150°	160.3	1.9
150°-160°	102.1	1.2
160°-170°	59.7	0.7
170°-180°	19.2	0.2
0°-30°	1873.8	21.9
0°-40°	3063.9	35.7
0°-60°	5327.7	62.1
0°-90°	6836.3	79.7
90°-120°	850.6	9.9
90°-150°	1557.7	18.2
90°-180°	1739.0	20.3
0°-180°	8575.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2423	2423	2423	2423	2423	
5°	2442	2470	2434	2370	2442	233
15°	2398	2259	2378	2217	2398	678
25°	2276	2131	2248	2000	2276	1050
35°	2075	1992	2036	1558	2075	1298
45°	1794	1388	1752	1135	1794	1384
55°	1446	801	1410	812	1446	1294
65°	1054	540	1026	640	1054	1042
75°	606	306	587	445	606	642
85°	192	122	178	178	192	191
90°	3	78	3	122	3	14
95°	75	128	58	256	75	78
105°	239	159	231	682	239	249
115°	331	181	331	818	331	324
125°	337	189	337	754	337	299
135°	284	189	284	551	284	220
145°	222	189	228	328	222	142
155°	198	228	195	225	198	91
165°	195	206	192	209	195	55
175°	192	200	192	195	192	18
180°	186	186	186	186	186	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0
2.5°	2442.4	2431.3	2467.5	2470.3	2450.8	2459.1	2459.1	2428.5	2436.9	2400.7	2406.3
5°	2442.4	2445.2	2484.2	2481.4	2470.3	2473.0	2481.4	2442.4	2434.1	2384.0	2389.6
7.5°	2436.9	2450.8	2478.6	2475.8	2464.7	2467.5	2481.4	2448.0	2425.7	2367.3	2364.5
10°	2431.3	2445.2	2467.5	2453.6	2431.3	2439.7	2467.5	2445.2	2417.4	2347.9	2331.2
12.5°	2417.4	2431.3	2442.4	2372.9	2333.9	2367.3	2445.2	2431.3	2400.7	2320.0	2297.8
15°	2397.9	2414.6	2400.7	2303.3	2258.8	2289.4	2400.7	2411.8	2378.5	2283.9	2256.1
17.5°	2375.7	2395.1	2359.0	2250.5	2217.1	2231.0	2342.3	2386.8	2353.4	2247.7	2214.3
20°	2350.6	2372.9	2308.9	2194.9	2175.4	2186.5	2281.1	2359.0	2325.6	2208.8	2172.6
22.5°	2317.3	2342.3	2250.5	2155.9	2164.3	2155.9	2225.5	2322.8	2286.7	2167.0	2125.3
25°	2275.5	2303.3	2192.1	2122.5	2130.9	2128.1	2178.2	2275.5	2247.7	2117.0	2072.5
27.5°	2233.8	2261.6	2139.2	2100.3	2114.2	2097.5	2133.7	2225.5	2203.2	2064.1	2022.4
30°	2186.5	2217.1	2086.4	2061.3	2075.2	2064.1	2089.1	2175.4	2153.1	2008.5	1966.7
32.5°	2133.7	2164.3	2030.7	2014.0	2033.5	2019.6	2036.3	2119.7	2094.7	1947.3	1897.2
35°	2075.2	2105.8	1972.3	1972.3	1991.8	1975.1	1983.4	2064.1	2036.3	1886.1	1819.3
37.5°	2011.3	2044.6	1908.3	1922.2	1944.5	1927.8	1927.8	2005.7	1972.3	1819.3	1730.3
40°	1944.5	1980.7	1841.6	1872.2	1891.6	1872.2	1866.6	1944.5	1902.8	1752.5	1638.5
42.5°	1872.2	1911.1	1780.4	1816.5	1791.5	1816.5	1802.6	1880.5	1838.8	1680.2	1543.9
45°	1794.3	1844.3	1719.2	1696.9	1388.1	1680.2	1738.6	1813.7	1752.5	1610.7	1449.3
47.5°	1713.6	1766.5	1652.4	1491.1	1115.5	1474.4	1669.1	1741.4	1680.2	1535.6	1354.7
50°	1627.4	1688.6	1582.9	1313.0	973.6	1296.3	1591.2	1666.3	1585.6	1454.9	1260.2
52.5°	1538.3	1605.1	1505.0	1160.0	879.1	1143.3	1507.7	1585.6	1507.7	1368.7	1168.4
55°	1446.5	1516.1	1413.2	1018.1	801.2	1015.4	1410.4	1499.4	1410.4	1282.4	1076.6
57.5°	1354.7	1432.6	1315.8	915.2	734.4	901.3	1301.9	1410.4	1326.9	1193.4	987.5
60°	1257.4	1329.7	1210.1	803.9	659.3	801.2	1193.4	1318.6	1224.0	1101.6	901.3
62.5°	1157.2	1237.9	1096.0	706.6	598.1	703.8	1076.6	1215.7	1123.9	1007.0	817.9
65°	1054.3	1132.2	987.5	628.7	539.7	623.1	968.1	1109.9	1026.5	912.4	740.0
67.5°	948.6	1020.9	879.1	553.6	481.3	548.0	856.8	998.7	926.3	815.1	656.5
70°	840.1	906.9	767.8	481.3	425.6	478.5	748.3	884.6	817.9	714.9	581.4
72.5°	726.1	787.3	650.9	411.7	367.2	408.9	634.3	767.8	698.2	609.2	514.6
75°	606.4	664.9	542.5	342.2	306.0	339.4	525.8	642.6	587.0	511.9	436.7
77.5°	492.4	550.8	431.2	264.3	233.7	258.7	411.7	525.8	478.5	414.5	356.1
80°	381.1	428.4	317.1	197.5	186.4	197.5	308.8	403.4	370.0	325.5	278.2
82.5°	281.0	308.8	214.2	161.3	161.3	161.3	208.6	286.5	272.6	242.0	211.4
85°	191.9	191.9	144.7	122.4	122.4	122.4	141.9	169.7	178.0	161.3	161.3
87.5°	80.7	83.5	75.1	66.8	64.0	66.8	72.3	69.5	69.5	77.9	97.4
90°	2.8	36.2	61.2	75.1	77.9	72.3	55.6	33.4	2.8	47.3	86.2
92.5°	19.5	77.9	72.3	94.6	97.4	89.0	75.1	61.2	11.1	86.2	91.8
95°	75.1	91.8	141.9	144.7	128.0	122.4	139.1	86.2	58.4	116.8	233.7
97.5°	119.6	139.1	128.0	166.9	189.2	166.9	133.5	133.5	111.3	180.8	272.6
100°	164.1	147.4	130.7	144.7	166.9	147.4	125.2	147.4	155.8	211.4	333.8
102.5°	205.9	164.1	164.1	141.9	144.7	139.1	158.6	161.3	194.7	239.2	411.7
105°	239.2	169.7	172.5	161.3	158.6	161.3	172.5	172.5	230.9	264.3	447.9
107.5°	269.8	175.3	169.7	178.0	180.8	178.0	169.7	175.3	264.3	281.0	456.2
110°	294.9	178.0	172.5	178.0	186.4	178.0	172.5	180.8	292.1	297.7	461.8



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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°	317.1	180.8	178.0	175.3	183.6	175.3	178.0	186.4	314.3	306.0	461.8
115°	331.0	183.6	178.0	178.0	180.8	178.0	180.8	189.2	331.0	308.8	456.2
117.5°	339.4	189.2	180.8	183.6	186.4	183.6	180.8	194.7	342.2	319.9	453.4
120°	344.9	208.6	180.8	186.4	189.2	186.4	180.8	211.4	344.9	325.5	442.3
122.5°	342.2	217.0	183.6	186.4	191.9	186.4	183.6	219.8	342.2	322.7	428.4
125°	336.6	225.3	183.6	183.6	189.2	186.4	186.4	225.3	336.6	317.1	408.9
127.5°	325.5	244.8	183.6	186.4	186.4	186.4	186.4	242.0	325.5	319.9	389.5
130°	311.6	258.7	178.0	189.2	186.4	191.9	183.6	258.7	311.6	311.6	372.8
132.5°	297.7	264.3	178.0	189.2	189.2	191.9	180.8	264.3	297.7	300.4	356.1
135°	283.7	269.8	189.2	186.4	189.2	189.2	191.9	269.8	283.7	289.3	344.9
137.5°	269.8	272.6	203.1	178.0	186.4	180.8	208.6	272.6	272.6	272.6	328.3
140°	255.9	269.8	214.2	172.5	175.3	178.0	219.8	272.6	261.5	264.3	300.4
142.5°	239.2	261.5	222.5	186.4	172.5	191.9	228.1	269.8	244.8	255.9	286.5
145°	222.5	253.1	239.2	205.9	189.2	214.2	247.6	261.5	228.1	250.4	278.2
147.5°	208.6	239.2	242.0	217.0	208.6	225.3	250.4	250.4	211.4	239.2	258.7
150°	200.3	225.3	233.7	225.3	217.0	236.5	244.8	230.9	200.3	230.9	242.0
152.5°	197.5	214.2	214.2	236.5	233.7	247.6	225.3	219.8	194.7	222.5	219.8
155°	197.5	211.4	205.9	217.0	228.1	228.1	214.2	214.2	194.7	222.5	208.6
157.5°	194.7	214.2	205.9	203.1	208.6	214.2	214.2	217.0	194.7	217.0	208.6
160°	194.7	217.0	208.6	200.3	203.1	211.4	217.0	217.0	194.7	217.0	211.4
162.5°	194.7	211.4	211.4	203.1	203.1	214.2	217.0	214.2	194.7	211.4	217.0
165°	194.7	211.4	214.2	208.6	205.9	219.8	217.0	208.6	191.9	208.6	219.8
167.5°	194.7	205.9	217.0	211.4	211.4	219.8	219.8	205.9	191.9	200.3	219.8
170°	194.7	203.1	214.2	211.4	214.2	222.5	214.2	203.1	194.7	197.5	211.4
172.5°	194.7	197.5	208.6	211.4	211.4	217.0	208.6	197.5	194.7	191.9	203.1
175°	191.9	197.5	203.1	203.1	200.3	208.6	200.3	194.7	191.9	189.2	194.7
177.5°	189.2	191.9	197.5	197.5	191.9	197.5	191.9	189.2	189.2	186.4	191.9
180°	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2423.0	2423.0	2423.0	2423.0	2423.0	2423.0
2.5°	2403.5	2384.0	2389.6	2406.3	2403.5	2442.4
5°	2378.5	2370.1	2370.1	2395.1	2392.4	2442.4
7.5°	2350.6	2336.7	2345.1	2372.9	2381.2	2436.9
10°	2314.5	2303.3	2306.1	2347.9	2361.8	2431.3
12.5°	2278.3	2267.2	2275.5	2314.5	2333.9	2417.4
15°	2236.6	2217.1	2239.4	2281.1	2306.1	2397.9
17.5°	2186.5	2164.3	2186.5	2242.1	2272.7	2375.7
20°	2142.0	2119.7	2133.7	2192.1	2233.8	2350.6
22.5°	2091.9	2064.1	2075.2	2139.2	2192.1	2317.3
25°	2036.3	2000.1	2016.8	2086.4	2144.8	2275.5
27.5°	1964.0	1902.8	1944.5	2030.7	2086.4	2233.8
30°	1863.8	1783.1	1849.9	1969.5	2033.5	2186.5
32.5°	1747.0	1660.7	1733.1	1894.4	1972.3	2133.7
35°	1632.9	1557.8	1624.6	1816.5	1911.1	2075.2
37.5°	1532.8	1463.2	1524.4	1727.5	1844.3	2011.3
40°	1429.9	1365.9	1427.1	1632.9	1777.6	1944.5
42.5°	1335.3	1274.1	1332.5	1538.3	1705.3	1872.2
45°	1235.1	1135.0	1229.6	1441.0	1627.4	1794.3
47.5°	1129.4	1023.7	1121.1	1346.4	1549.5	1713.6
50°	1032.1	937.5	1026.5	1249.0	1466.0	1627.4
52.5°	945.8	865.1	943.0	1151.7	1379.8	1538.3
55°	865.1	812.3	867.9	1062.7	1299.1	1446.5
57.5°	801.2	765.0	803.9	976.4	1210.1	1354.7
60°	745.5	723.3	748.3	890.2	1115.5	1257.4
62.5°	684.3	676.0	684.3	806.7	1023.7	1157.2
65°	631.5	639.8	631.5	731.6	926.3	1054.3
67.5°	581.4	600.9	584.2	650.9	829.0	948.6
70°	525.8	553.6	528.5	578.6	728.8	840.1
72.5°	467.3	500.7	467.3	509.1	623.1	726.1
75°	406.1	445.1	408.9	434.0	523.0	606.4
77.5°	339.4	364.4	344.9	353.3	425.6	492.4
80°	269.8	297.7	272.6	278.2	336.6	381.1
82.5°	225.3	244.8	228.1	211.4	250.4	281.0
85°	166.9	178.0	172.5	164.1	172.5	191.9
87.5°	102.9	108.5	102.9	102.9	89.0	80.7
90°	114.1	122.4	114.1	89.0	50.1	2.8
92.5°	116.8	128.0	116.8	97.4	94.6	19.5
95°	261.5	255.9	278.2	253.1	144.7	75.1
97.5°	406.1	464.6	420.1	303.2	194.7	119.6
100°	467.3	523.0	486.8	378.3	222.5	164.1
102.5°	539.7	600.9	561.9	442.3	250.4	205.9
105°	628.7	681.5	648.2	467.3	275.4	239.2
107.5°	676.0	756.7	689.9	478.5	292.1	269.8
110°	701.0	787.3	723.3	481.3	306.0	294.9





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	720.5	803.9	737.2	481.3	311.6	317.1
115°	720.5	817.9	737.2	472.9	319.9	331.0
117.5°	720.5	809.5	737.2	464.6	331.0	339.4
120°	695.5	806.7	717.7	453.4	333.8	344.9
122.5°	676.0	784.5	689.9	439.5	333.8	342.2
125°	639.8	753.9	656.5	422.8	328.3	336.6
127.5°	600.9	709.4	614.8	403.4	331.0	325.5
130°	564.7	659.3	573.1	383.9	319.9	311.6
132.5°	517.4	603.7	525.8	370.0	308.8	297.7
135°	472.9	550.8	484.0	358.9	294.9	283.7
137.5°	425.6	495.2	436.7	336.6	281.0	269.8
140°	370.0	425.6	381.1	311.6	272.6	255.9
142.5°	333.8	364.4	344.9	300.4	261.5	239.2
145°	311.6	328.3	319.9	289.3	255.9	222.5
147.5°	289.3	306.0	297.7	267.1	242.0	208.6
150°	281.0	281.0	292.1	247.6	233.7	200.3
152.5°	250.4	272.6	261.5	225.3	228.1	197.5
155°	214.2	225.3	225.3	217.0	228.1	197.5
157.5°	200.3	208.6	211.4	217.0	222.5	194.7
160°	200.3	203.1	211.4	219.8	219.8	194.7
162.5°	205.9	203.1	217.0	225.3	214.2	194.7
165°	211.4	208.6	222.5	228.1	208.6	194.7
167.5°	217.0	217.0	228.1	225.3	203.1	194.7
170°	217.0	222.5	228.1	217.0	200.3	194.7
172.5°	208.6	211.4	217.0	203.1	191.9	194.7
175°	197.5	194.7	203.1	194.7	191.9	191.9
177.5°	191.9	183.6	191.9	189.2	186.4	189.2
180°	186.4	186.4	186.4	186.4	186.4	186.4

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