

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: P192512

Luminaire Tested: **4WSL-LD2-60-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192512
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-LD2-60-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
OT50W

Summary

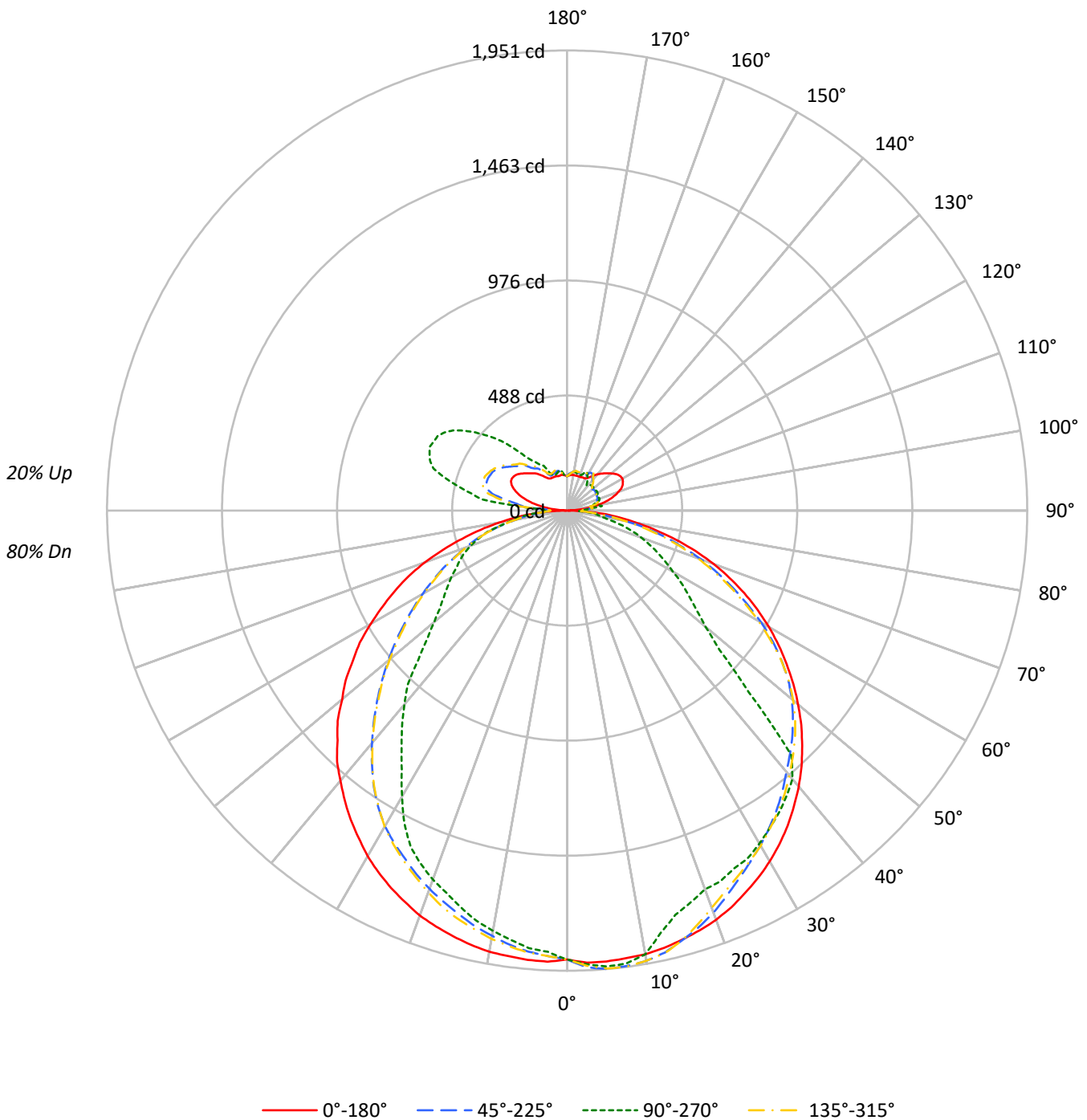
Lumens per Lamp: N/A
Luminaire Lumens: 6736.0 lumens
Efficiency: N/A
Efficacy: 119.9 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 56.2
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: P192512

CATALOG NUMBER: 4WSL-LD2-60-UPL15-UNV-L850-CD1-U

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°	10783	10783	10783	10783
5°	10911	11035	10874	10588
10°	10987	10987	10924	10409
15°	11048	10407	10958	10215
20°	11132	10303	11014	10039
25°	11173	10463	11037	9821
30°	11236	10664	11065	9163
35°	11274	10821	11063	8463
40°	11297	10990	11054	7935
45°	11293	8736	11030	7143
50°	11267	6741	10978	6490
55°	11223	6216	10943	6303
60°	11191	5868	10894	6438
65°	11102	5682	10810	6737
70°	10931	5537	10642	7204
75°	10428	5262	10093	7652
80°	9768	4776	9481	7628
85°	9802	6253	9094	9094



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	181.1	2.7
10°-20°	514.0	7.6
20°-30°	776.8	11.5
30°-40°	934.9	13.9
40°-50°	950.8	14.1
50°-60°	827.6	12.3
60°-70°	645.5	9.6
70°-80°	399.1	5.9
80°-90°	140.4	2.1
90°-100°	132.2	2.0
100°-110°	255.9	3.8
110°-120°	280.1	4.2
120°-130°	245.5	3.6
130°-140°	184.0	2.7
140°-150°	125.9	1.9
150°-160°	80.2	1.2
160°-170°	46.9	0.7
170°-180°	15.1	0.2
0°-30°	1472.0	21.9
0°-40°	2406.8	35.7
0°-60°	4185.2	62.1
0°-90°	5370.2	79.7
90°-120°	668.2	9.9
90°-150°	1223.6	18.2
90°-180°	1366.0	20.3
0°-180°	6736.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1903	1903	1903	1903	1903	
5°	1919	1940	1912	1862	1919	183
15°	1884	1774	1868	1742	1884	532
25°	1788	1674	1766	1571	1788	825
35°	1630	1565	1600	1224	1630	1020
45°	1410	1090	1377	892	1410	1087
55°	1136	629	1108	638	1136	1016
65°	828	424	806	503	828	818
75°	476	240	461	350	476	505
85°	151	96	140	140	151	150
90°	2	61	2	96	2	11
95°	59	100	46	201	59	61
105°	188	125	181	535	188	196
115°	260	142	260	642	260	255
125°	264	149	264	592	264	235
135°	223	149	223	433	223	173
145°	175	149	179	258	175	111
155°	155	179	153	177	155	72
165°	153	162	151	164	153	43
175°	151	157	151	153	151	14
180°	146	146	146	146	146	



TEST NUMBER: P192512

CATALOG NUMBER: 4WSL-LD2-60-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3
2.5°	1918.6	1909.9	1938.3	1940.5	1925.2	1931.7	1931.7	1907.7	1914.3	1885.9	1890.2
5°	1918.6	1920.8	1951.4	1949.2	1940.5	1942.7	1949.2	1918.6	1912.1	1872.7	1877.1
7.5°	1914.3	1925.2	1947.0	1944.9	1936.1	1938.3	1949.2	1923.0	1905.5	1859.6	1857.4
10°	1909.9	1920.8	1938.3	1927.4	1909.9	1916.4	1938.3	1920.8	1899.0	1844.3	1831.2
12.5°	1899.0	1909.9	1918.6	1864.0	1833.4	1859.6	1920.8	1909.9	1885.9	1822.5	1805.0
15°	1883.7	1896.8	1885.9	1809.4	1774.4	1798.4	1885.9	1894.6	1868.4	1794.1	1772.2
17.5°	1866.2	1881.5	1853.1	1767.9	1741.6	1752.6	1840.0	1874.9	1848.7	1765.7	1739.4
20°	1846.5	1864.0	1813.7	1724.1	1708.9	1717.6	1791.9	1853.1	1826.9	1735.1	1706.7
22.5°	1820.3	1840.0	1767.9	1693.6	1700.1	1693.6	1748.2	1824.7	1796.3	1702.3	1669.5
25°	1787.5	1809.4	1722.0	1667.3	1673.9	1671.7	1711.0	1787.5	1765.7	1663.0	1628.0
27.5°	1754.7	1776.6	1680.4	1649.8	1660.8	1647.7	1676.1	1748.2	1730.7	1621.4	1588.7
30°	1717.6	1741.6	1638.9	1619.3	1630.2	1621.4	1641.1	1708.9	1691.4	1577.7	1545.0
32.5°	1676.1	1700.1	1595.2	1582.1	1597.4	1586.5	1599.6	1665.1	1645.5	1529.7	1490.3
35°	1630.2	1654.2	1549.3	1549.3	1564.6	1551.5	1558.1	1621.4	1599.6	1481.6	1429.1
37.5°	1579.9	1606.1	1499.1	1510.0	1527.5	1514.4	1514.4	1575.6	1549.3	1429.1	1359.2
40°	1527.5	1555.9	1446.6	1470.7	1486.0	1470.7	1466.3	1527.5	1494.7	1376.7	1287.1
42.5°	1470.7	1501.3	1398.5	1427.0	1407.3	1427.0	1416.0	1477.2	1444.4	1319.9	1212.8
45°	1409.5	1448.8	1350.5	1333.0	1090.4	1319.9	1365.8	1424.8	1376.7	1265.2	1138.5
47.5°	1346.1	1387.6	1298.0	1171.3	876.3	1158.2	1311.1	1368.0	1319.9	1206.2	1064.2
50°	1278.4	1326.4	1243.4	1031.4	764.8	1018.3	1250.0	1309.0	1245.6	1142.9	989.9
52.5°	1208.4	1260.9	1182.2	911.2	690.5	898.1	1184.4	1245.6	1184.4	1075.1	917.8
55°	1136.3	1191.0	1110.1	799.8	629.3	797.6	1107.9	1177.8	1107.9	1007.4	845.7
57.5°	1064.2	1125.4	1033.6	718.9	576.9	708.0	1022.7	1107.9	1042.4	937.5	775.8
60°	987.7	1044.5	950.6	631.5	517.9	629.3	937.5	1035.8	961.5	865.4	708.0
62.5°	909.1	972.4	861.0	555.0	469.8	552.9	845.7	954.9	882.8	791.1	642.5
65°	828.2	889.4	775.8	493.9	423.9	489.5	760.5	871.9	806.4	716.8	581.3
67.5°	745.2	802.0	690.5	434.9	378.0	430.5	673.1	784.5	727.7	640.3	515.7
70°	659.9	712.4	603.1	378.0	334.3	375.9	587.8	694.9	642.5	561.6	456.7
72.5°	570.3	618.4	511.3	323.4	288.5	321.2	498.2	603.1	548.5	478.6	404.3
75°	476.4	522.3	426.1	268.8	240.4	266.6	413.0	504.8	461.1	402.1	343.1
77.5°	386.8	432.7	338.7	207.6	183.6	203.2	323.4	413.0	375.9	325.6	279.7
80°	299.4	336.5	249.1	155.2	146.4	155.2	242.6	316.9	290.6	255.7	218.5
82.5°	220.7	242.6	168.3	126.7	126.7	126.7	163.9	225.1	214.2	190.1	166.1
85°	150.8	150.8	113.6	96.2	96.2	96.2	111.4	133.3	139.9	126.7	126.7
87.5°	63.4	65.6	59.0	52.4	50.3	52.4	56.8	54.6	54.6	61.2	76.5
90°	2.2	28.4	48.1	59.0	61.2	56.8	43.7	26.2	2.2	37.1	67.7
92.5°	15.3	61.2	56.8	74.3	76.5	69.9	59.0	48.1	8.7	67.7	72.1
95°	59.0	72.1	111.4	113.6	100.5	96.2	109.3	67.7	45.9	91.8	183.6
97.5°	94.0	109.3	100.5	131.1	148.6	131.1	104.9	104.9	87.4	142.0	214.2
100°	128.9	115.8	102.7	113.6	131.1	115.8	98.3	115.8	122.4	166.1	262.2
102.5°	161.7	128.9	128.9	111.4	113.6	109.3	124.6	126.7	153.0	187.9	323.4
105°	187.9	133.3	135.5	126.7	124.6	126.7	135.5	135.5	181.4	207.6	351.8
107.5°	212.0	137.7	133.3	139.9	142.0	139.9	133.3	137.7	207.6	220.7	358.4
110°	231.6	139.9	135.5	139.9	146.4	139.9	135.5	142.0	229.4	233.8	362.7



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CATALOG NUMBER: 4WSL-LD2-60-UPL15-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°	249.1	142.0	139.9	137.7	144.2	137.7	139.9	146.4	246.9	240.4	362.7
115°	260.0	144.2	139.9	139.9	142.0	139.9	142.0	148.6	260.0	242.6	358.4
117.5°	266.6	148.6	142.0	144.2	146.4	144.2	142.0	153.0	268.8	251.3	356.2
120°	271.0	163.9	142.0	146.4	148.6	146.4	142.0	166.1	271.0	255.7	347.5
122.5°	268.8	170.4	144.2	146.4	150.8	146.4	144.2	172.6	268.8	253.5	336.5
125°	264.4	177.0	144.2	144.2	148.6	146.4	146.4	177.0	264.4	249.1	321.2
127.5°	255.7	192.3	144.2	146.4	146.4	146.4	146.4	190.1	255.7	251.3	305.9
130°	244.7	203.2	139.9	148.6	146.4	150.8	144.2	203.2	244.7	244.7	292.8
132.5°	233.8	207.6	139.9	148.6	148.6	150.8	142.0	207.6	233.8	236.0	279.7
135°	222.9	212.0	148.6	146.4	148.6	148.6	150.8	212.0	222.9	227.3	271.0
137.5°	212.0	214.2	159.5	139.9	146.4	142.0	163.9	214.2	214.2	214.2	257.9
140°	201.0	212.0	168.3	135.5	137.7	139.9	172.6	214.2	205.4	207.6	236.0
142.5°	187.9	205.4	174.8	146.4	135.5	150.8	179.2	212.0	192.3	201.0	225.1
145°	174.8	198.9	187.9	161.7	148.6	168.3	194.5	205.4	179.2	196.7	218.5
147.5°	163.9	187.9	190.1	170.4	163.9	177.0	196.7	196.7	166.1	187.9	203.2
150°	157.3	177.0	183.6	177.0	170.4	185.7	192.3	181.4	157.3	181.4	190.1
152.5°	155.2	168.3	168.3	185.7	183.6	194.5	177.0	172.6	153.0	174.8	172.6
155°	155.2	166.1	161.7	170.4	179.2	179.2	168.3	168.3	153.0	174.8	163.9
157.5°	153.0	168.3	161.7	159.5	163.9	168.3	168.3	170.4	153.0	170.4	163.9
160°	153.0	170.4	163.9	157.3	159.5	166.1	170.4	170.4	153.0	170.4	166.1
162.5°	153.0	166.1	166.1	159.5	159.5	168.3	170.4	168.3	153.0	166.1	170.4
165°	153.0	166.1	168.3	163.9	161.7	172.6	170.4	163.9	150.8	163.9	172.6
167.5°	153.0	161.7	170.4	166.1	166.1	172.6	172.6	161.7	150.8	157.3	172.6
170°	153.0	159.5	168.3	166.1	168.3	174.8	168.3	159.5	153.0	155.2	166.1
172.5°	153.0	155.2	163.9	166.1	166.1	170.4	163.9	155.2	153.0	150.8	159.5
175°	150.8	155.2	159.5	159.5	157.3	163.9	157.3	153.0	150.8	148.6	153.0
177.5°	148.6	150.8	155.2	155.2	150.8	155.2	150.8	148.6	148.6	146.4	150.8
180°	146.4	146.4	146.4	146.4	146.4	146.4	146.4	146.4	146.4	146.4	146.4



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CATALOG NUMBER: 4WSL-LD2-60-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1903.3	1903.3	1903.3	1903.3	1903.3	1903.3
2.5°	1888.0	1872.7	1877.1	1890.2	1888.0	1918.6
5°	1868.4	1861.8	1861.8	1881.5	1879.3	1918.6
7.5°	1846.5	1835.6	1842.1	1864.0	1870.6	1914.3
10°	1818.1	1809.4	1811.6	1844.3	1855.3	1909.9
12.5°	1789.7	1781.0	1787.5	1818.1	1833.4	1899.0
15°	1756.9	1741.6	1759.1	1791.9	1811.6	1883.7
17.5°	1717.6	1700.1	1717.6	1761.3	1785.3	1866.2
20°	1682.6	1665.1	1676.1	1722.0	1754.7	1846.5
22.5°	1643.3	1621.4	1630.2	1680.4	1722.0	1820.3
25°	1599.6	1571.2	1584.3	1638.9	1684.8	1787.5
27.5°	1542.8	1494.7	1527.5	1595.2	1638.9	1754.7
30°	1464.1	1400.7	1453.2	1547.1	1597.4	1717.6
32.5°	1372.3	1304.6	1361.4	1488.1	1549.3	1676.1
35°	1282.7	1223.7	1276.2	1427.0	1501.3	1630.2
37.5°	1204.1	1149.4	1197.5	1357.0	1448.8	1579.9
40°	1123.2	1072.9	1121.0	1282.7	1396.4	1527.5
42.5°	1048.9	1000.8	1046.7	1208.4	1339.5	1470.7
45°	970.2	891.6	965.9	1131.9	1278.4	1409.5
47.5°	887.2	804.2	880.6	1057.7	1217.2	1346.1
50°	810.7	736.4	806.4	981.2	1151.6	1278.4
52.5°	743.0	679.6	740.8	904.7	1083.9	1208.4
55°	679.6	638.1	681.8	834.8	1020.5	1136.3
57.5°	629.3	600.9	631.5	767.0	950.6	1064.2
60°	585.6	568.2	587.8	699.3	876.3	987.7
62.5°	537.6	531.0	537.6	633.7	804.2	909.1
65°	496.0	502.6	496.0	574.7	727.7	828.2
67.5°	456.7	472.0	458.9	511.3	651.2	745.2
70°	413.0	434.9	415.2	454.5	572.5	659.9
72.5°	367.1	393.3	367.1	399.9	489.5	570.3
75°	319.0	349.6	321.2	340.9	410.8	476.4
77.5°	266.6	286.3	271.0	277.5	334.3	386.8
80°	212.0	233.8	214.2	218.5	264.4	299.4
82.5°	177.0	192.3	179.2	166.1	196.7	220.7
85°	131.1	139.9	135.5	128.9	135.5	150.8
87.5°	80.9	85.2	80.9	80.9	69.9	63.4
90°	89.6	96.2	89.6	69.9	39.3	2.2
92.5°	91.8	100.5	91.8	76.5	74.3	15.3
95°	205.4	201.0	218.5	198.9	113.6	59.0
97.5°	319.0	364.9	330.0	238.2	153.0	94.0
100°	367.1	410.8	382.4	297.2	174.8	128.9
102.5°	423.9	472.0	441.4	347.5	196.7	161.7
105°	493.9	535.4	509.2	367.1	216.3	187.9
107.5°	531.0	594.4	541.9	375.9	229.4	212.0
110°	550.7	618.4	568.2	378.0	240.4	231.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	566.0	631.5	579.1	378.0	244.7	249.1
115°	566.0	642.5	579.1	371.5	251.3	260.0
117.5°	566.0	635.9	579.1	364.9	260.0	266.6
120°	546.3	633.7	563.8	356.2	262.2	271.0
122.5°	531.0	616.2	541.9	345.3	262.2	268.8
125°	502.6	592.2	515.7	332.2	257.9	264.4
127.5°	472.0	557.2	482.9	316.9	260.0	255.7
130°	443.6	517.9	450.2	301.6	251.3	244.7
132.5°	406.5	474.2	413.0	290.6	242.6	233.8
135°	371.5	432.7	380.2	281.9	231.6	222.9
137.5°	334.3	389.0	343.1	264.4	220.7	212.0
140°	290.6	334.3	299.4	244.7	214.2	201.0
142.5°	262.2	286.3	271.0	236.0	205.4	187.9
145°	244.7	257.9	251.3	227.3	201.0	174.8
147.5°	227.3	240.4	233.8	209.8	190.1	163.9
150°	220.7	220.7	229.4	194.5	183.6	157.3
152.5°	196.7	214.2	205.4	177.0	179.2	155.2
155°	168.3	177.0	177.0	170.4	179.2	155.2
157.5°	157.3	163.9	166.1	170.4	174.8	153.0
160°	157.3	159.5	166.1	172.6	172.6	153.0
162.5°	161.7	159.5	170.4	177.0	168.3	153.0
165°	166.1	163.9	174.8	179.2	163.9	153.0
167.5°	170.4	170.4	179.2	177.0	159.5	153.0
170°	170.4	174.8	179.2	170.4	157.3	153.0
172.5°	163.9	166.1	170.4	159.5	150.8	153.0
175°	155.2	153.0	159.5	153.0	150.8	150.8
177.5°	150.8	144.2	150.8	148.6	146.4	148.6
180°	146.4	146.4	146.4	146.4	146.4	146.4

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