

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: P192471

Luminaire Tested: **4WSL-LD2-65-UPL8-UNV-L840-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192471
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-L840-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L840
Light Source: (238) 4000K CCT, 80 CRI LEDS
EL236N0119D840
Ballast/Driver: OSRAM
OT85W1202772A0DIML

Summary

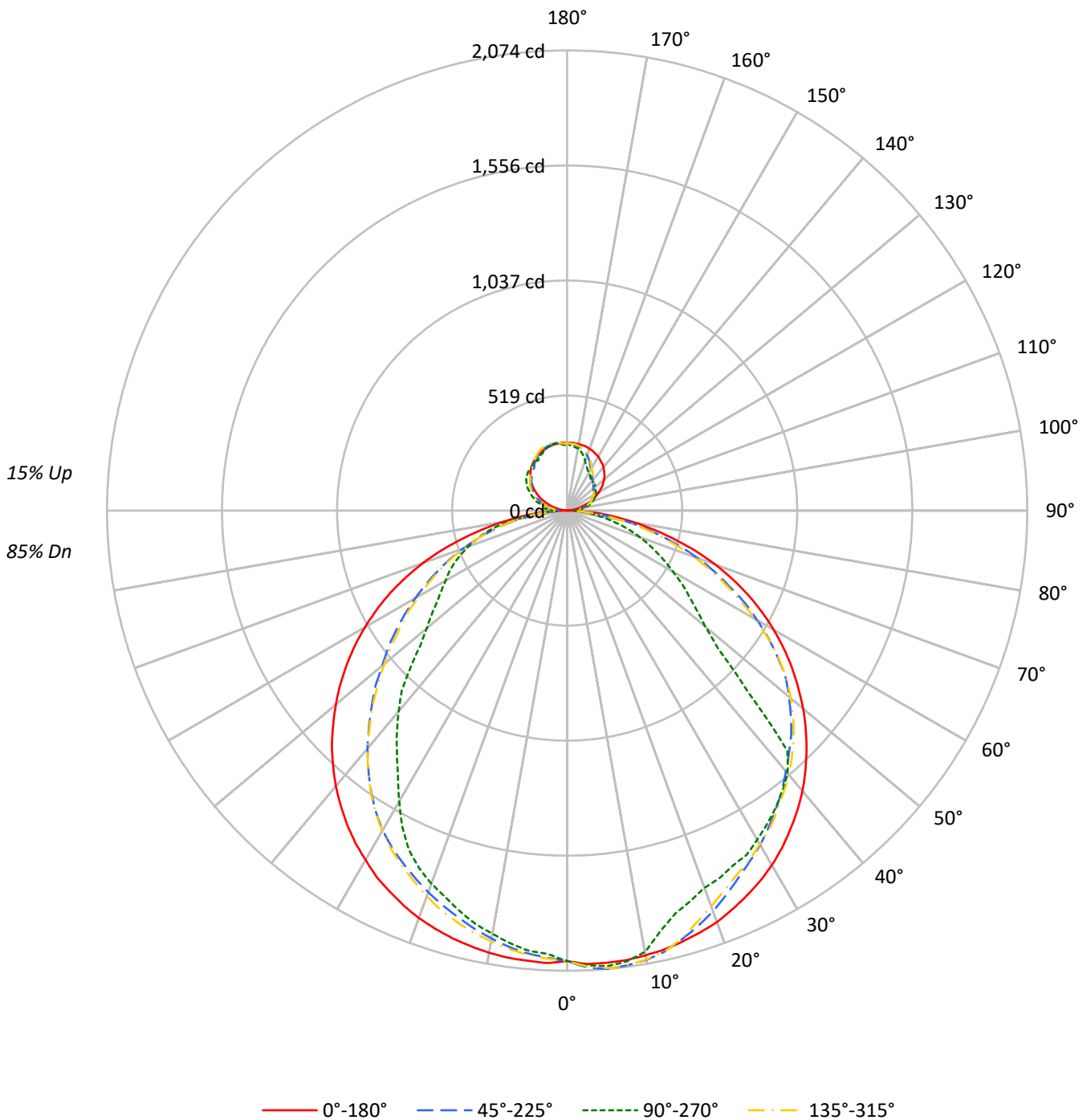
Lumens per Lamp: N/A
Luminaire Lumens: 6735.0 lumens
Efficiency: N/A
Efficacy: 108.8 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

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

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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	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°	11503	11503	11503	11503
5°	11634	11720	11584	11325
10°	11706	11618	11643	11143
15°	11794	11029	11705	10965
20°	11901	10905	11783	10787
25°	11972	11035	11836	10545
30°	12074	11206	11889	9898
35°	12133	11321	11953	9247
40°	12203	11431	11994	8730
45°	12227	9197	12019	7977
50°	12244	7147	11994	7281
55°	12218	6614	11982	7064
60°	12193	6232	11922	7168
65°	12065	5975	11803	7519
70°	11739	5761	11451	7850
75°	10993	5424	10660	8281
80°	9999	4965	9575	7872
85°	9750	5369	8762	7066



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	193.0	2.9
10°-20°	548.1	8.1
20°-30°	829.8	12.3
30°-40°	1002.0	14.9
40°-50°	1023.0	15.2
50°-60°	894.3	13.3
60°-70°	693.2	10.3
70°-80°	416.8	6.2
80°-90°	128.7	1.9
90°-100°	54.2	0.8
100°-110°	103.7	1.5
110°-120°	140.9	2.1
120°-130°	160.2	2.4
130°-140°	162.5	2.4
140°-150°	149.5	2.2
150°-160°	123.4	1.8
160°-170°	83.0	1.2
170°-180°	28.8	0.4
0°-30°	1570.9	23.3
0°-40°	2572.9	38.2
0°-60°	4490.2	66.7
0°-90°	5728.8	85.1
90°-120°	298.8	4.4
90°-150°	771.0	11.4
90°-180°	1006.0	14.9
0°-180°	6735.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2030	2030	2030	2030	2030	
5°	2046	2061	2037	1991	2046	195
15°	2011	1880	1996	1870	2011	569
25°	1915	1765	1894	1687	1915	884
35°	1754	1637	1728	1337	1754	1098
45°	1526	1148	1500	996	1526	1177
55°	1237	670	1213	715	1237	1106
65°	900	446	880	561	900	888
75°	502	248	487	378	502	533
85°	150	83	135	109	150	151
90°	2	46	2	52	2	10
95°	13	63	13	100	13	17
105°	70	106	67	135	70	75
115°	135	137	133	183	135	133
125°	194	156	189	224	194	172
135°	237	172	235	248	237	183
145°	267	183	265	263	267	168
155°	289	213	287	278	289	133
165°	302	265	300	302	302	85
175°	306	291	306	300	306	29
180°	302	302	302	302	302	



TEST NUMBER: P192471

CATALOG NUMBER: 4WSL-LD2-65-UPL8-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5
2.5°	2045.7	2034.9	2060.9	2065.3	2050.1	2054.4	2056.6	2032.7	2041.4	2008.8	2017.5
5°	2045.7	2043.6	2074.0	2069.6	2060.9	2063.1	2069.6	2041.4	2037.0	1997.9	2004.4
7.5°	2043.6	2047.9	2067.5	2063.1	2050.1	2056.6	2067.5	2045.7	2032.7	1987.0	1984.9
10°	2034.9	2041.4	2056.6	2043.6	2019.6	2030.5	2054.4	2041.4	2024.0	1969.6	1958.8
12.5°	2026.2	2030.5	2034.9	1980.5	1941.4	1967.5	2034.9	2030.5	2010.9	1950.1	1930.5
15°	2010.9	2017.5	2000.1	1921.8	1880.5	1906.6	1995.7	2013.1	1995.7	1921.8	1897.9
17.5°	1993.6	2000.1	1963.1	1876.2	1845.7	1858.8	1945.7	1991.4	1976.2	1895.7	1865.3
20°	1974.0	1980.5	1921.8	1828.3	1808.8	1819.6	1897.9	1967.5	1954.4	1865.3	1830.5
22.5°	1945.7	1956.6	1874.0	1795.7	1793.5	1793.5	1852.2	1939.2	1926.2	1828.3	1791.4
25°	1915.3	1926.2	1826.2	1765.3	1765.3	1765.3	1810.9	1902.2	1893.5	1789.2	1752.2
27.5°	1882.7	1893.5	1782.7	1743.5	1750.1	1739.2	1776.2	1860.9	1860.9	1750.1	1710.9
30°	1845.7	1856.6	1739.2	1708.8	1713.1	1708.8	1737.0	1817.5	1817.5	1704.4	1663.1
32.5°	1802.2	1813.1	1691.4	1667.5	1676.1	1671.8	1700.1	1774.0	1776.2	1656.6	1606.6
35°	1754.4	1767.5	1641.4	1628.3	1637.0	1630.5	1650.1	1728.3	1728.3	1604.4	1541.4
37.5°	1704.4	1717.5	1589.2	1584.8	1593.5	1587.0	1602.2	1680.5	1676.1	1550.1	1471.8
40°	1650.1	1665.3	1534.8	1534.8	1545.7	1541.4	1554.4	1630.5	1621.8	1495.7	1400.1
42.5°	1589.2	1608.8	1480.5	1482.7	1469.6	1487.0	1500.1	1578.3	1560.9	1434.8	1321.8
45°	1526.1	1550.1	1428.3	1389.2	1147.9	1374.0	1443.5	1526.1	1500.1	1374.0	1245.7
47.5°	1458.8	1489.2	1367.4	1224.0	923.9	1204.4	1382.7	1460.9	1430.5	1308.7	1171.8
50°	1389.2	1424.0	1304.4	1082.6	810.9	1060.9	1315.3	1395.7	1360.9	1241.4	1087.0
52.5°	1313.1	1352.2	1243.5	958.7	734.8	939.2	1245.7	1332.7	1289.2	1169.6	1017.4
55°	1237.0	1278.3	1160.9	852.2	669.6	834.8	1165.3	1252.2	1213.1	1095.7	941.3
57.5°	1158.7	1200.0	1078.3	758.7	613.1	741.3	1074.0	1178.3	1134.8	1019.6	865.2
60°	1076.1	1117.4	989.2	673.9	550.0	660.9	980.5	1095.7	1052.2	941.3	791.3
62.5°	989.2	1030.5	904.4	595.7	497.8	584.8	878.3	1015.3	967.4	858.7	715.2
65°	900.0	930.5	804.4	521.8	445.7	513.1	787.0	915.3	880.5	771.8	643.5
67.5°	806.6	837.0	717.4	456.5	395.7	447.8	697.9	826.1	787.0	687.0	571.8
70°	708.7	734.8	626.1	393.5	347.8	387.0	604.4	726.1	691.3	597.8	495.7
72.5°	608.7	632.6	528.3	334.8	297.8	330.4	506.5	626.1	591.3	504.4	426.1
75°	502.2	526.1	437.0	276.1	247.8	271.7	417.4	519.6	487.0	415.2	354.4
77.5°	402.2	430.5	345.7	217.4	197.8	213.1	328.3	419.6	387.0	332.6	284.8
80°	306.5	330.4	256.5	165.2	152.2	163.0	239.1	319.6	293.5	256.5	221.7
82.5°	221.7	234.8	176.1	121.7	115.2	119.6	163.0	226.1	213.1	184.8	163.0
85°	150.0	147.8	108.7	84.8	82.6	84.8	97.8	137.0	134.8	123.9	104.4
87.5°	63.0	58.7	50.0	34.8	30.4	32.6	39.1	52.2	50.0	52.2	50.0
90°	2.2	21.7	34.8	43.5	45.7	43.5	34.8	21.7	2.2	23.9	39.1
92.5°	4.3	28.3	41.3	47.8	52.2	47.8	39.1	28.3	4.3	37.0	39.1
95°	13.0	39.1	47.8	58.7	63.0	58.7	47.8	37.0	13.0	32.6	58.7
97.5°	26.1	50.0	56.5	65.2	67.4	63.0	54.3	50.0	23.9	58.7	60.9
100°	39.1	63.0	73.9	73.9	76.1	73.9	71.7	60.9	37.0	65.2	73.9
102.5°	54.3	71.7	84.8	91.3	91.3	91.3	84.8	71.7	50.0	80.4	102.2
105°	69.6	78.3	93.5	102.2	106.5	102.2	93.5	80.4	67.4	93.5	108.7
107.5°	87.0	84.8	102.2	110.9	115.2	110.9	102.2	87.0	82.6	104.4	121.7
110°	104.4	93.5	110.9	119.6	121.7	119.6	110.9	93.5	100.0	117.4	134.8



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CATALOG NUMBER: 4WSL-LD2-65-UPL8-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	119.6	100.0	119.6	128.3	130.4	128.3	119.6	102.2	115.2	126.1	147.8
115°	134.8	106.5	123.9	134.8	137.0	134.8	123.9	108.7	132.6	137.0	158.7
117.5°	150.0	115.2	128.3	141.3	143.5	141.3	130.4	117.4	147.8	150.0	169.6
120°	165.2	126.1	134.8	145.7	150.0	147.8	134.8	128.3	160.9	160.9	178.3
122.5°	178.3	134.8	141.3	150.0	154.4	150.0	141.3	139.1	176.1	171.7	189.1
125°	193.5	143.5	145.7	154.4	156.5	154.4	147.8	145.7	189.1	180.4	195.7
127.5°	204.4	154.4	150.0	158.7	160.9	158.7	152.2	156.5	202.2	197.8	202.2
130°	217.4	165.2	154.4	163.0	165.2	165.2	154.4	169.6	213.1	210.9	210.9
132.5°	228.3	176.1	158.7	167.4	169.6	169.6	160.9	178.3	223.9	221.7	217.4
135°	237.0	191.3	167.4	167.4	171.7	171.7	169.6	193.5	234.8	232.6	228.3
137.5°	245.7	204.4	173.9	169.6	171.7	171.7	178.3	206.5	243.5	243.5	234.8
140°	254.4	217.4	178.3	173.9	173.9	178.3	184.8	219.6	252.2	252.2	237.0
142.5°	263.1	228.3	184.8	180.4	176.1	184.8	191.3	232.6	258.7	260.9	243.5
145°	267.4	239.1	193.5	187.0	182.6	193.5	202.2	243.5	265.2	269.6	256.5
147.5°	273.9	250.0	204.4	191.3	191.3	197.8	210.9	252.2	271.7	276.1	263.1
150°	280.4	258.7	213.1	197.8	193.5	204.4	219.6	260.9	278.3	282.6	271.7
152.5°	284.8	267.4	226.1	206.5	202.2	215.2	234.8	267.4	282.6	287.0	280.4
155°	289.1	273.9	241.3	215.2	213.1	223.9	247.8	273.9	287.0	291.3	287.0
157.5°	293.5	280.4	252.2	228.3	219.6	237.0	258.7	282.6	291.3	295.7	293.5
160°	295.7	284.8	265.2	241.3	237.0	252.2	269.6	284.8	293.5	300.0	297.8
162.5°	300.0	289.1	273.9	256.5	252.2	265.2	278.3	291.3	297.8	302.2	302.2
165°	302.2	293.5	282.6	269.6	265.2	278.3	284.8	295.7	300.0	302.2	304.4
167.5°	302.2	297.8	289.1	278.3	276.1	287.0	293.5	300.0	302.2	302.2	306.5
170°	304.4	300.0	293.5	287.0	284.8	293.5	295.7	302.2	304.4	302.2	308.7
172.5°	304.4	302.2	297.8	291.3	287.0	297.8	300.0	302.2	304.4	302.2	306.5
175°	306.5	302.2	302.2	297.8	291.3	302.2	302.2	302.2	306.5	302.2	304.4
177.5°	306.5	302.2	302.2	300.0	295.7	302.2	302.2	302.2	306.5	302.2	304.4
180°	302.2	302.2	302.2	302.2	302.2	302.2	302.2	302.2	302.2	302.2	302.2



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CATALOG NUMBER: 4WSL-LD2-65-UPL8-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2030.5	2030.5	2030.5	2030.5	2030.5	2030.5
2.5°	2015.3	2000.1	2004.4	2021.8	2015.3	2045.7
5°	2000.1	1991.4	1991.4	2010.9	2008.8	2045.7
7.5°	1976.2	1967.5	1971.8	1993.6	1997.9	2043.6
10°	1947.9	1937.0	1941.4	1971.8	1982.7	2034.9
12.5°	1917.5	1908.8	1913.1	1947.9	1963.1	2026.2
15°	1882.7	1869.6	1882.7	1919.6	1939.2	2010.9
17.5°	1843.5	1826.2	1841.4	1889.2	1913.1	1993.6
20°	1804.4	1789.2	1797.9	1850.1	1884.9	1974.0
22.5°	1765.3	1743.5	1752.2	1806.6	1850.1	1945.7
25°	1719.6	1687.0	1704.4	1763.1	1813.1	1915.3
27.5°	1658.8	1608.8	1645.7	1719.6	1769.6	1882.7
30°	1578.3	1513.1	1567.4	1667.5	1724.0	1845.7
32.5°	1489.2	1419.6	1480.5	1608.8	1676.1	1802.2
35°	1400.1	1337.0	1391.4	1543.5	1626.1	1754.4
37.5°	1315.3	1260.9	1310.9	1474.0	1574.0	1704.4
40°	1234.8	1180.5	1232.7	1397.9	1517.4	1650.1
42.5°	1154.4	1104.4	1154.4	1317.4	1458.8	1589.2
45°	1074.0	995.7	1069.6	1239.2	1395.7	1526.1
47.5°	987.0	895.7	980.5	1154.4	1328.3	1458.8
50°	904.4	826.1	900.0	1076.1	1258.7	1389.2
52.5°	832.6	769.6	828.3	995.7	1187.0	1313.1
55°	765.2	715.2	765.2	917.4	1110.9	1237.0
57.5°	704.4	671.8	706.5	850.0	1032.6	1158.7
60°	652.2	632.6	654.4	767.4	954.4	1076.1
62.5°	602.2	600.0	604.4	702.2	871.8	989.2
65°	550.0	560.9	550.0	632.6	789.2	900.0
67.5°	497.8	519.6	502.2	563.1	700.0	806.6
70°	450.0	473.9	450.0	491.3	610.9	708.7
72.5°	395.7	426.1	395.7	423.9	517.4	608.7
75°	343.5	378.3	345.7	354.4	428.3	502.2
77.5°	287.0	319.6	293.5	287.0	345.7	402.2
80°	228.3	241.3	228.3	226.1	267.4	306.5
82.5°	158.7	169.6	158.7	165.2	195.7	221.7
85°	104.4	108.7	104.4	106.5	130.4	150.0
87.5°	43.5	43.5	43.5	54.3	58.7	63.0
90°	47.8	52.2	47.8	39.1	23.9	2.2
92.5°	50.0	54.3	50.0	43.5	28.3	4.3
95°	89.1	100.0	84.8	54.3	45.7	13.0
97.5°	71.7	78.3	73.9	63.0	56.5	26.1
100°	84.8	91.3	84.8	89.1	69.6	39.1
102.5°	100.0	104.4	102.2	104.4	84.8	54.3
105°	130.4	134.8	130.4	113.0	97.8	69.6
107.5°	139.1	150.0	141.3	126.1	110.9	87.0
110°	150.0	158.7	152.2	139.1	121.7	104.4



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	160.9	171.7	165.2	154.4	130.4	119.6
115°	173.9	182.6	178.3	165.2	143.5	134.8
117.5°	187.0	193.5	189.1	173.9	156.5	150.0
120°	197.8	206.5	202.2	184.8	167.4	165.2
122.5°	206.5	215.2	210.9	195.7	178.3	178.3
125°	215.2	223.9	219.6	204.4	187.0	193.5
127.5°	221.7	232.6	228.3	210.9	206.5	204.4
130°	230.4	237.0	234.8	217.4	217.4	217.4
132.5°	234.8	243.5	239.1	226.1	230.4	228.3
135°	237.0	247.8	243.5	237.0	241.3	237.0
137.5°	241.3	250.0	247.8	243.5	252.2	245.7
140°	247.8	252.2	254.4	247.8	260.9	254.4
142.5°	254.4	256.5	260.9	254.4	269.6	263.1
145°	258.7	263.1	267.4	267.4	276.1	267.4
147.5°	258.7	265.2	265.2	271.7	284.8	273.9
150°	265.2	260.9	273.9	280.4	289.1	280.4
152.5°	273.9	271.7	282.6	289.1	293.5	284.8
155°	276.1	278.3	284.8	295.7	297.8	289.1
157.5°	284.8	282.6	293.5	302.2	302.2	293.5
160°	291.3	291.3	302.2	306.5	304.4	295.7
162.5°	297.8	297.8	308.7	308.7	306.5	300.0
165°	302.2	302.2	313.1	310.9	306.5	302.2
167.5°	304.4	306.5	315.2	313.1	306.5	302.2
170°	306.5	306.5	315.2	310.9	306.5	304.4
172.5°	306.5	304.4	313.1	308.7	304.4	304.4
175°	304.4	300.0	308.7	304.4	304.4	306.5
177.5°	302.2	295.7	302.2	302.2	304.4	306.5
180°	302.2	302.2	302.2	302.2	302.2	302.2

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