

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: P192520

Luminaire Tested: **4WSL-LD2-70-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192520
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-LD2-70-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

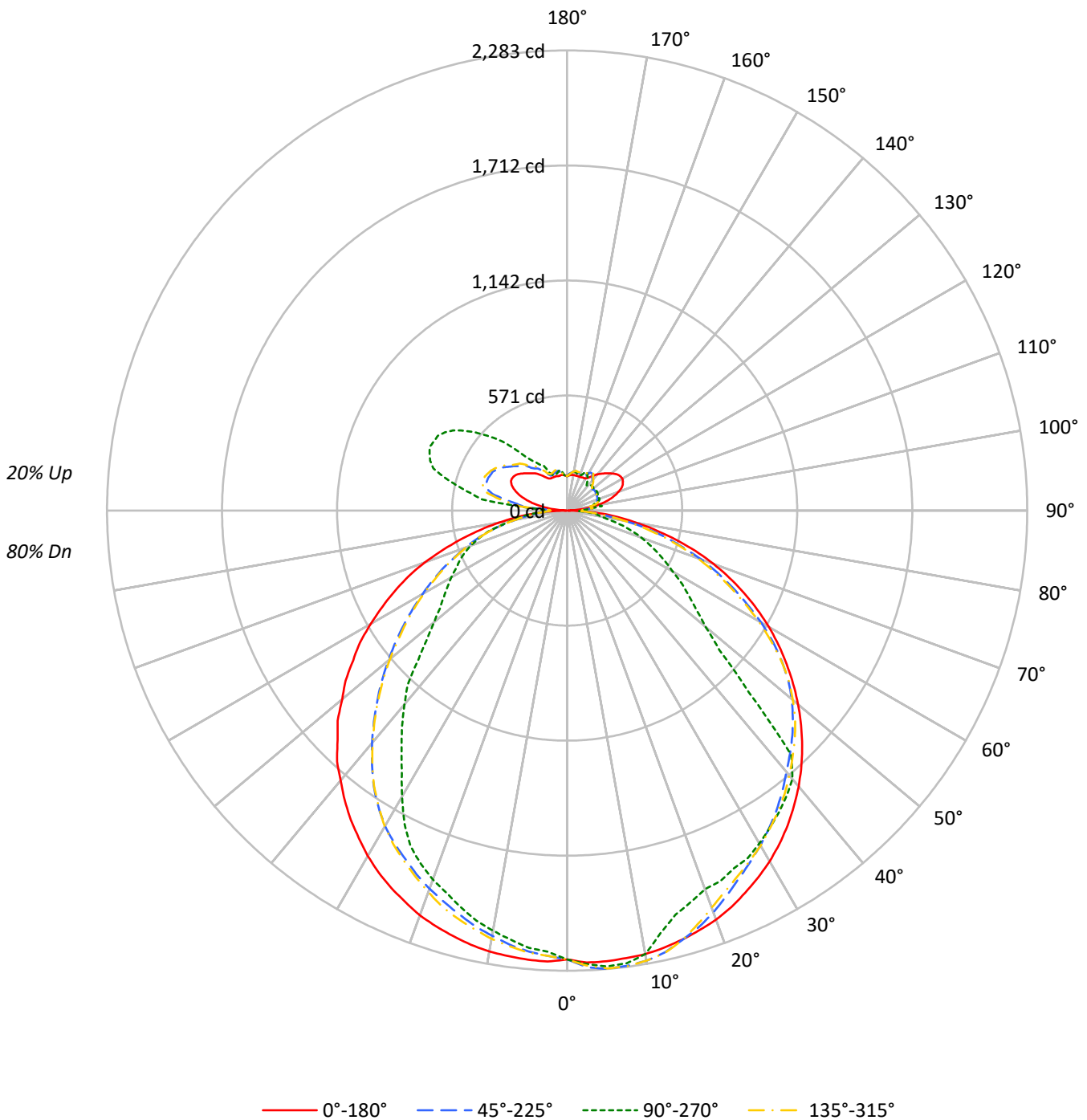
Lumens per Lamp: N/A
Luminaire Lumens: 7880.0 lumens
Efficiency: N/A
Efficacy: 114.7 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 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





TEST NUMBER: P192520

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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°	12614	12614	12614	12614
5°	12764	12909	12720	12386
10°	12853	12853	12779	12177
15°	12924	12175	12819	11949
20°	13023	12052	12884	11743
25°	13071	12240	12911	11489
30°	13144	12475	12943	10719
35°	13189	12659	12942	9901
40°	13215	12855	12931	9283
45°	13211	10220	12903	8356
50°	13181	7885	12842	7593
55°	13130	7271	12802	7373
60°	13092	6865	12744	7531
65°	12988	6648	12645	7882
70°	12787	6478	12449	8426
75°	12199	6155	11807	8952
80°	11425	5589	11092	8923
85°	11466	7313	10634	10634



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	211.9	2.7
10°-20°	601.3	7.6
20°-30°	908.7	11.5
30°-40°	1093.7	13.9
40°-50°	1112.2	14.1
50°-60°	968.1	12.3
60°-70°	755.2	9.6
70°-80°	466.8	5.9
80°-90°	164.3	2.1
90°-100°	154.6	2.0
100°-110°	299.4	3.8
110°-120°	327.6	4.2
120°-130°	287.2	3.6
130°-140°	215.2	2.7
140°-150°	147.3	1.9
150°-160°	93.8	1.2
160°-170°	54.8	0.7
170°-180°	17.7	0.2
0°-30°	1721.9	21.9
0°-40°	2815.6	35.7
0°-60°	4895.9	62.1
0°-90°	6282.2	79.7
90°-120°	781.7	9.9
90°-150°	1431.4	18.2
90°-180°	1598.0	20.3
0°-180°	7880.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2227	2227	2227	2227	2227	
5°	2244	2270	2237	2178	2244	214
15°	2204	2076	2186	2037	2204	623
25°	2091	1958	2066	1838	2091	965
35°	1907	1830	1871	1432	1907	1193
45°	1649	1276	1610	1043	1649	1272
55°	1329	736	1296	746	1329	1189
65°	969	496	943	588	969	957
75°	557	281	539	409	557	590
85°	176	112	164	164	176	176
90°	3	72	3	112	3	13
95°	69	118	54	235	69	72
105°	220	146	212	626	220	229
115°	304	166	304	752	304	298
125°	309	174	309	693	309	275
135°	261	174	261	506	261	202
145°	204	174	210	302	204	130
155°	182	210	179	207	182	84
165°	179	189	176	192	179	51
175°	176	184	176	179	176	17
180°	171	171	171	171	171	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6
2.5°	2244.5	2234.3	2267.5	2270.0	2252.2	2259.8	2259.8	2231.7	2239.4	2206.1	2211.2
5°	2244.5	2247.0	2282.8	2280.3	2270.0	2272.6	2280.3	2244.5	2236.8	2190.8	2195.9
7.5°	2239.4	2252.2	2277.7	2275.2	2264.9	2267.5	2280.3	2249.6	2229.1	2175.5	2172.9
10°	2234.3	2247.0	2267.5	2254.7	2234.3	2241.9	2267.5	2247.0	2221.5	2157.6	2142.2
12.5°	2221.5	2234.3	2244.5	2180.6	2144.8	2175.5	2247.0	2234.3	2206.1	2132.0	2111.6
15°	2203.6	2218.9	2206.1	2116.7	2075.8	2103.9	2206.1	2216.4	2185.7	2098.8	2073.2
17.5°	2183.1	2201.0	2167.8	2068.1	2037.4	2050.2	2152.5	2193.4	2162.7	2065.5	2034.9
20°	2160.1	2180.6	2121.8	2017.0	1999.1	2009.3	2096.2	2167.8	2137.1	2029.7	1996.5
22.5°	2129.4	2152.5	2068.1	1981.2	1988.8	1981.2	2045.1	2134.6	2101.3	1991.4	1953.1
25°	2091.1	2116.7	2014.4	1950.5	1958.2	1955.6	2001.6	2091.1	2065.5	1945.4	1904.5
27.5°	2052.8	2078.3	1965.8	1930.0	1942.8	1927.5	1960.7	2045.1	2024.6	1896.8	1858.5
30°	2009.3	2037.4	1917.3	1894.3	1907.0	1896.8	1919.8	1999.1	1978.6	1845.7	1807.3
32.5°	1960.7	1988.8	1866.1	1850.8	1868.7	1855.9	1871.3	1947.9	1924.9	1789.4	1743.4
35°	1907.0	1935.2	1812.5	1812.5	1830.4	1815.0	1822.7	1896.8	1871.3	1733.2	1671.9
37.5°	1848.2	1878.9	1753.7	1766.4	1786.9	1771.6	1771.6	1843.1	1812.5	1671.9	1590.1
40°	1786.9	1820.1	1692.3	1720.4	1738.3	1720.4	1715.3	1786.9	1748.5	1610.5	1505.7
42.5°	1720.4	1756.2	1636.1	1669.3	1646.3	1669.3	1656.5	1728.1	1689.8	1544.0	1418.8
45°	1648.9	1694.9	1579.8	1559.4	1275.6	1544.0	1597.7	1666.7	1610.5	1480.1	1331.9
47.5°	1574.7	1623.3	1518.5	1370.2	1025.1	1354.9	1533.8	1600.3	1544.0	1411.1	1244.9
50°	1495.5	1551.7	1454.6	1206.6	894.7	1191.3	1462.2	1531.3	1457.1	1337.0	1158.0
52.5°	1413.7	1475.0	1383.0	1066.0	807.8	1050.7	1385.5	1457.1	1385.5	1257.7	1073.7
55°	1329.3	1393.2	1298.6	935.6	736.2	933.1	1296.1	1377.9	1296.1	1178.5	989.3
57.5°	1244.9	1316.5	1209.2	841.0	674.9	828.3	1196.4	1296.1	1219.4	1096.7	907.5
60°	1155.5	1221.9	1112.0	738.8	605.9	736.2	1096.7	1211.7	1124.8	1012.3	828.3
62.5°	1063.4	1137.6	1007.2	649.3	549.6	646.8	989.3	1117.1	1032.8	925.4	751.6
65°	968.9	1040.4	907.5	577.7	495.9	572.6	889.6	1020.0	943.3	838.5	680.0
67.5°	871.7	938.2	807.8	508.7	442.2	503.6	787.4	917.7	851.3	749.0	603.3
70°	772.0	833.4	705.6	442.2	391.1	439.7	687.7	812.9	751.6	657.0	534.3
72.5°	667.2	723.4	598.2	378.3	337.4	375.8	582.8	705.6	641.6	559.8	472.9
75°	557.3	611.0	498.5	314.4	281.2	311.9	483.2	590.5	539.4	470.4	401.3
77.5°	452.5	506.2	396.2	242.9	214.7	237.7	378.3	483.2	439.7	380.9	327.2
80°	350.2	393.7	291.4	181.5	171.3	181.5	283.8	370.7	340.0	299.1	255.6
82.5°	258.2	283.8	196.8	148.3	148.3	148.3	191.7	263.3	250.5	222.4	194.3
85°	176.4	176.4	132.9	112.5	112.5	112.5	130.4	155.9	163.6	148.3	148.3
87.5°	74.1	76.7	69.0	61.4	58.8	61.4	66.5	63.9	63.9	71.6	89.5
90°	2.6	33.2	56.2	69.0	71.6	66.5	51.1	30.7	2.6	43.5	79.2
92.5°	17.9	71.6	66.5	86.9	89.5	81.8	69.0	56.2	10.2	79.2	84.4
95°	69.0	84.4	130.4	132.9	117.6	112.5	127.8	79.2	53.7	107.4	214.7
97.5°	109.9	127.8	117.6	153.4	173.8	153.4	122.7	122.7	102.3	166.2	250.5
100°	150.8	135.5	120.1	132.9	153.4	135.5	115.0	135.5	143.2	194.3	306.8
102.5°	189.2	150.8	150.8	130.4	132.9	127.8	145.7	148.3	178.9	219.8	378.3
105°	219.8	155.9	158.5	148.3	145.7	148.3	158.5	158.5	212.2	242.9	411.6
107.5°	248.0	161.1	155.9	163.6	166.2	163.6	155.9	161.1	242.9	258.2	419.2
110°	271.0	163.6	158.5	163.6	171.3	163.6	158.5	166.2	268.4	273.5	424.4



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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°	291.4	166.2	163.6	161.1	168.7	161.1	163.6	171.3	288.9	281.2	424.4
115°	304.2	168.7	163.6	163.6	166.2	163.6	166.2	173.8	304.2	283.8	419.2
117.5°	311.9	173.8	166.2	168.7	171.3	168.7	166.2	178.9	314.4	294.0	416.7
120°	317.0	191.7	166.2	171.3	173.8	171.3	166.2	194.3	317.0	299.1	406.5
122.5°	314.4	199.4	168.7	171.3	176.4	171.3	168.7	202.0	314.4	296.5	393.7
125°	309.3	207.1	168.7	168.7	173.8	171.3	171.3	207.1	309.3	291.4	375.8
127.5°	299.1	225.0	168.7	171.3	171.3	171.3	171.3	222.4	299.1	294.0	357.9
130°	286.3	237.7	163.6	173.8	171.3	176.4	168.7	237.7	286.3	286.3	342.6
132.5°	273.5	242.9	163.6	173.8	173.8	176.4	166.2	242.9	273.5	276.1	327.2
135°	260.7	248.0	173.8	171.3	173.8	173.8	176.4	248.0	260.7	265.9	317.0
137.5°	248.0	250.5	186.6	163.6	171.3	166.2	191.7	250.5	250.5	250.5	301.7
140°	235.2	248.0	196.8	158.5	161.1	163.6	202.0	250.5	240.3	242.9	276.1
142.5°	219.8	240.3	204.5	171.3	158.5	176.4	209.6	248.0	225.0	235.2	263.3
145°	204.5	232.6	219.8	189.2	173.8	196.8	227.5	240.3	209.6	230.1	255.6
147.5°	191.7	219.8	222.4	199.4	191.7	207.1	230.1	230.1	194.3	219.8	237.7
150°	184.1	207.1	214.7	207.1	199.4	217.3	225.0	212.2	184.1	212.2	222.4
152.5°	181.5	196.8	196.8	217.3	214.7	227.5	207.1	202.0	178.9	204.5	202.0
155°	181.5	194.3	189.2	199.4	209.6	209.6	196.8	196.8	178.9	204.5	191.7
157.5°	178.9	196.8	189.2	186.6	191.7	196.8	196.8	199.4	178.9	199.4	191.7
160°	178.9	199.4	191.7	184.1	186.6	194.3	199.4	199.4	178.9	199.4	194.3
162.5°	178.9	194.3	194.3	186.6	186.6	196.8	199.4	196.8	178.9	194.3	199.4
165°	178.9	194.3	196.8	191.7	189.2	202.0	199.4	191.7	176.4	191.7	202.0
167.5°	178.9	189.2	199.4	194.3	194.3	202.0	202.0	189.2	176.4	184.1	202.0
170°	178.9	186.6	196.8	194.3	196.8	204.5	196.8	186.6	178.9	181.5	194.3
172.5°	178.9	181.5	191.7	194.3	194.3	199.4	191.7	181.5	178.9	176.4	186.6
175°	176.4	181.5	186.6	186.6	184.1	191.7	184.1	178.9	176.4	173.8	178.9
177.5°	173.8	176.4	181.5	181.5	176.4	181.5	176.4	173.8	173.8	171.3	176.4
180°	171.3	171.3	171.3	171.3	171.3	171.3	171.3	171.3	171.3	171.3	171.3



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2226.6	2226.6	2226.6	2226.6	2226.6	2226.6
2.5°	2208.7	2190.8	2195.9	2211.2	2208.7	2244.5
5°	2185.7	2178.0	2178.0	2201.0	2198.5	2244.5
7.5°	2160.1	2147.3	2155.0	2180.6	2188.2	2239.4
10°	2126.9	2116.7	2119.2	2157.6	2170.3	2234.3
12.5°	2093.7	2083.4	2091.1	2126.9	2144.8	2221.5
15°	2055.3	2037.4	2057.9	2096.2	2119.2	2203.6
17.5°	2009.3	1988.8	2009.3	2060.4	2088.5	2183.1
20°	1968.4	1947.9	1960.7	2014.4	2052.8	2160.1
22.5°	1922.4	1896.8	1907.0	1965.8	2014.4	2129.4
25°	1871.3	1838.0	1853.4	1917.3	1971.0	2091.1
27.5°	1804.8	1748.5	1786.9	1866.1	1917.3	2052.8
30°	1712.8	1638.6	1700.0	1809.9	1868.7	2009.3
32.5°	1605.4	1526.1	1592.6	1740.9	1812.5	1960.7
35°	1500.6	1431.6	1492.9	1669.3	1756.2	1907.0
37.5°	1408.6	1344.6	1400.9	1587.5	1694.9	1848.2
40°	1314.0	1255.2	1311.4	1500.6	1633.5	1786.9
42.5°	1227.1	1170.8	1224.5	1413.7	1567.0	1720.4
45°	1135.0	1043.0	1129.9	1324.2	1495.5	1648.9
47.5°	1037.9	940.7	1030.2	1237.3	1423.9	1574.7
50°	948.4	861.5	943.3	1147.8	1347.2	1495.5
52.5°	869.2	795.0	866.6	1058.3	1268.0	1413.7
55°	795.0	746.5	797.6	976.5	1193.8	1329.3
57.5°	736.2	703.0	738.8	897.3	1112.0	1244.9
60°	685.1	664.7	687.7	818.0	1025.1	1155.5
62.5°	628.9	621.2	628.9	741.3	940.7	1063.4
65°	580.3	588.0	580.3	672.3	851.3	968.9
67.5°	534.3	552.2	536.8	598.2	761.8	871.7
70°	483.2	508.7	485.7	531.7	669.8	772.0
72.5°	429.5	460.1	429.5	467.8	572.6	667.2
75°	373.2	409.0	375.8	398.8	480.6	557.3
77.5°	311.9	334.9	317.0	324.7	391.1	452.5
80°	248.0	273.5	250.5	255.6	309.3	350.2
82.5°	207.1	225.0	209.6	194.3	230.1	258.2
85°	153.4	163.6	158.5	150.8	158.5	176.4
87.5°	94.6	99.7	94.6	94.6	81.8	74.1
90°	104.8	112.5	104.8	81.8	46.0	2.6
92.5°	107.4	117.6	107.4	89.5	86.9	17.9
95°	240.3	235.2	255.6	232.6	132.9	69.0
97.5°	373.2	426.9	386.0	278.6	178.9	109.9
100°	429.5	480.6	447.4	347.7	204.5	150.8
102.5°	495.9	552.2	516.4	406.5	230.1	189.2
105°	577.7	626.3	595.6	429.5	253.1	219.8
107.5°	621.2	695.3	634.0	439.7	268.4	248.0
110°	644.2	723.4	664.7	442.2	281.2	271.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	662.1	738.8	677.4	442.2	286.3	291.4
115°	662.1	751.6	677.4	434.6	294.0	304.2
117.5°	662.1	743.9	677.4	426.9	304.2	311.9
120°	639.1	741.3	659.5	416.7	306.8	317.0
122.5°	621.2	720.9	634.0	403.9	306.8	314.4
125°	588.0	692.8	603.3	388.6	301.7	309.3
127.5°	552.2	651.9	565.0	370.7	304.2	299.1
130°	518.9	605.9	526.6	352.8	294.0	286.3
132.5°	475.5	554.7	483.2	340.0	283.8	273.5
135°	434.6	506.2	444.8	329.8	271.0	260.7
137.5°	391.1	455.0	401.3	309.3	258.2	248.0
140°	340.0	391.1	350.2	286.3	250.5	235.2
142.5°	306.8	334.9	317.0	276.1	240.3	219.8
145°	286.3	301.7	294.0	265.9	235.2	204.5
147.5°	265.9	281.2	273.5	245.4	222.4	191.7
150°	258.2	258.2	268.4	227.5	214.7	184.1
152.5°	230.1	250.5	240.3	207.1	209.6	181.5
155°	196.8	207.1	207.1	199.4	209.6	181.5
157.5°	184.1	191.7	194.3	199.4	204.5	178.9
160°	184.1	186.6	194.3	202.0	202.0	178.9
162.5°	189.2	186.6	199.4	207.1	196.8	178.9
165°	194.3	191.7	204.5	209.6	191.7	178.9
167.5°	199.4	199.4	209.6	207.1	186.6	178.9
170°	199.4	204.5	209.6	199.4	184.1	178.9
172.5°	191.7	194.3	199.4	186.6	176.4	178.9
175°	181.5	178.9	186.6	178.9	176.4	176.4
177.5°	176.4	168.7	176.4	173.8	171.3	173.8
180°	171.3	171.3	171.3	171.3	171.3	171.3

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