



C Rural Wire Stringing Sags

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1. Overview

- 1.01** This practice contains sag tables for stringing C rural wire, AT-7643. (This information was formerly contained in AT&T 624-710-011.)
- 1.02** This practice is reissued to convert all mathematical expressions and measurements to the metric equivalent.
- 1.03** AT&T welcomes your comments on this practice. Your comments will aid us in improving the quality and usefulness of AT&T documentation. Please use the Feedback Form provided at the back of this practice.
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2. Sag Measurements

- 2.01** The sag in C rural wire is measured by comparing the line of sight established by the wire attachments to the lowest point in the span.
- 2.02** The allowable sag for C rural wire is determined by the storm loading area, the span length, and the ambient temperature at the time of installation.
- 2.03** Figure 1 identifies the three storm loading areas based upon studies made from records of wire using companies and data from the United States Weather Bureau. The frequency, severity, and effects of ice and windstorms in various sections of the country were the elements considered in establishing the loading area zones. As a result of the weather differences, allowances must be made for the stretching of conductors in their respective loading zones when placing C rural wire.

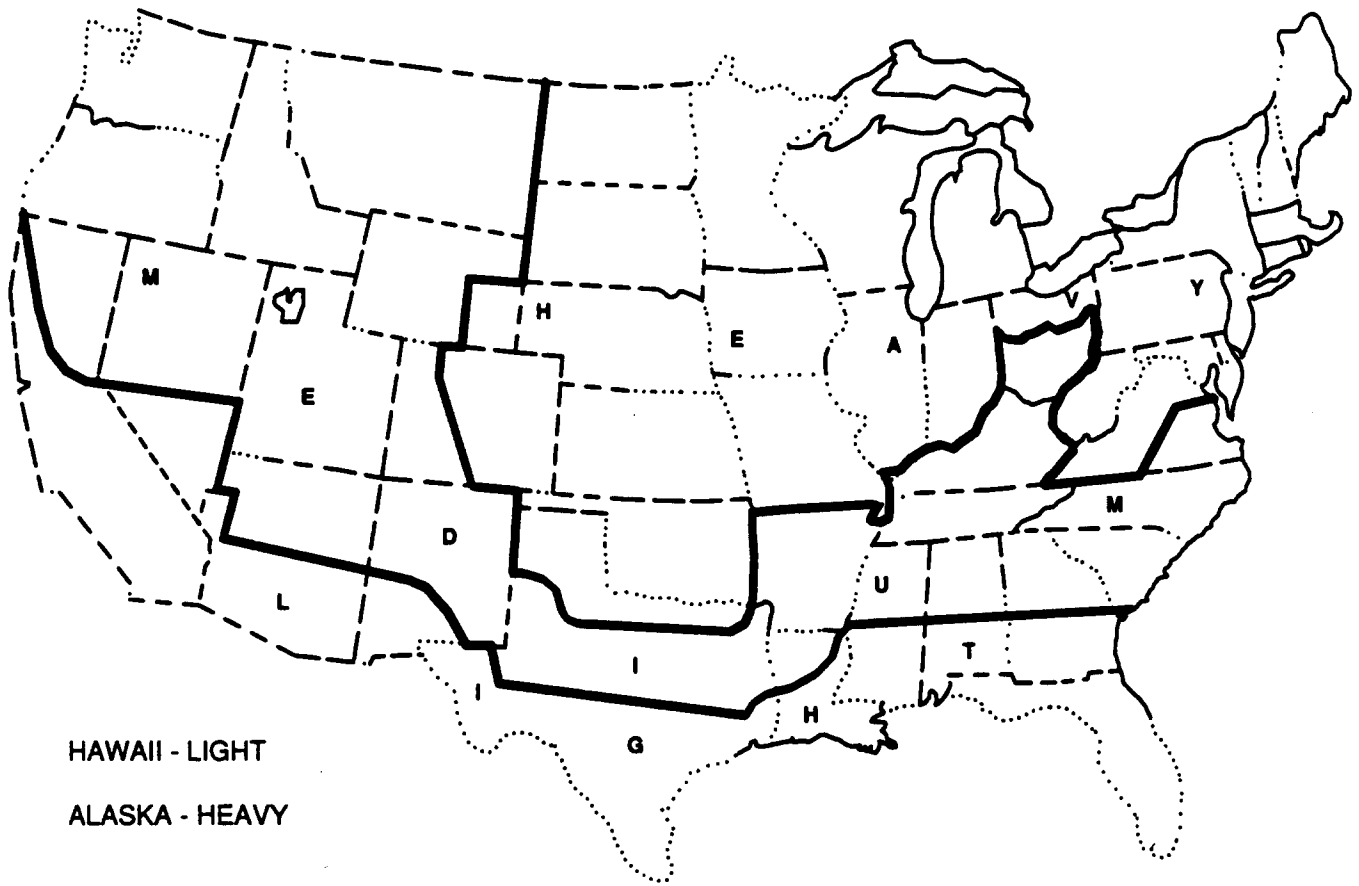


Figure 1. Storm Loading Areas

2.04 Wire tends to elongate as the temperature rises and contracts as the temperature decreases. Tables A through G provide the amount of sag in centimeters for spans from 30.49 to 182.94 meters (inches for spans from 100 to 600 feet) at temperatures ranging from -17.78 to 48.89 degrees Celsius (0 to 120 degrees Fahrenheit).

3. Index of Sag Tables

3.01 The following index indicates the sag table to be used for different average span lengths in various storm loading areas for C rural wire:

Sag Table Index

Storm Loading Area	Span Length Meters (Feet)	Table
All	30.49 - 76.22 (100 - 250)	A
Heavy	76.22 - 106.72 (250 - 350)	B
Medium and Light	76.22 - 106.72 (250 - 350)	C
Medium	106.72 - 137.21 (350 - 450)	D
Medium	137.21 - 167.70 (450 - 550)	E
Light	106.72 - 137.21 (350 - 450)	F
Light	137.21 - 182.94 (450 - 600)	G

Table A

All Loading Areas
Span Lengths - 30.49 Meters (100 Feet) to 76.23 Meters (250 Feet)

Span Length Meters (Feet)	Temperature - Degree Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
30.49 (100)	11.43 (4-1/2)	8.89 (3-1/2)	7.62 (3)	6.35 (2-1/2)	5.08 (2)
32.54 (110)	13.97 (5-1/2)	11.43 (4-1/2)	8.89 (3-1/2)	7.62 (3)	6.35 (2-1/2)
36.59 (120)	16.51 (6-1/2)	12.70 (5)	11.43 (4-1/2)	8.89 (3-1/2)	7.62 (3)
39.64 (130)	19.05 (7-1/2)	15.24 (6)	12.70 (5)	10.16 (4)	10.16 (4)
42.69 (140)	21.59 (8-1/2)	17.78 (7)	15.24 (6)	12.70 (5)	11.43 (4-1/2)
45.74 (150)	25.4 (10)	20.32 (8)	16.24 (6-1/2)	13.97 (5-1/2)	12.70 (5)
48.78 (160)	27.94 (11)	24.13 (9-1/2)	19.05 (7-1/2)	16.51 (6-1/2)	15.24 (6)
51.83 (170)	31.75 (12-1/2)	26.67 (10-1/2)	21.59 (8-1/2)	17.78 (7)	16.51 (6-1/2)
54.88 (180)	35.56 (14)	30.48 (12)	24.13 (9-1/2)	20.32 (8)	19.05 (7-1/2)
57.93 (190)	40.64 (16)	33.02 (13)	27.94 (11)	22.86 (9)	20.32 (8)
60.98 (200)	44.45 (17-1/2)	36.83 (14-1/2)	30.48 (12)	25.4 (10)	22.86 (9)
64.03 (210)	48.26 (19)	40.64 (16)	33.02 (13)	27.94 (11)	25.4 (10)
67.08 (220)	53.34 (21)	44.45 (17-1/2)	36.83 (14-1/2)	30.48 (12)	27.94 (11)
70.13 (230)	58.42 (23)	48.26 (19)	40.64 (16)	33.02 (13)	30.48 (12)
73.18 (240)	63.5 (25)	53.34 (21)	43.18 (17)	36.83 (14-1/2)	33.02 (13)
76.23 (250)	69.85 (27-1/2)	57.15 (22-1/2)	49.53 (19-1/2)	39.37 (15-1/2)	35.56 (14)

Table B

Heavy Loading Area
 Span Lengths - 76.23 Meters (250 Feet) to 106.72 Meters (350 Feet)

Span Length Meters (Feet)	Temperature - Degrees Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
76.23 (250)	39.37 (15-1/2)	34.29 (13-1/2)	30.78 (12)	27.94 (11)	24.13 (9-1/2)
79.27 (260)	43.18 (17)	36.83 (14-1/2)	33.02 (13)	29.21 (11-1/2)	26.87 (10-1/2)
82.32 (270)	45.72 (18)	40.64 (16)	35.56 (14)	31.75 (12-1/2)	27.94 (11)
85.37 (280)	49.53 (19-1/2)	43.18 (17)	38.1 (15)	34.29 (13-1/2)	30.48 (12)
88.42 (290)	53.34 (21)	45.72 (18)	40.64 (16)	36.83 (14-1/2)	33.02 (13)
91.47 (300)	57.15 (22-1/2)	49.53 (19-1/2)	43.18 (17)	39.37 (15-1/2)	35.56 (14)
94.52 (310)	60.96 (24)	53.34 (21)	45.72 (18)	41.91 (16-1/2)	38.1 (15)
97.57 (320)	64.77 (25-1/2)	55.88 (22)	48.26 (19)	44.95 (17-1/2)	40.64 (16)
100.62 (330)	69.85 (27-1/2)	59.69 (23-1/2)	52.07 (20-1/2)	48.26 (19)	43.18 (17)
103.67 (340)	73.66 (29)	63.5 (25)	55.88 (22)	50.8 (20)	45.72 (18)
106.72 (350)	77.47 (30-1/2)	67.31 (26-1/2)	58.42 (23)	53.34 (21)	48.06 (19)

Table C

Medium and Light Loading Areas
Span Lengths - 76.23 Meters (250 Feet) to 106.72 Meters (350 Feet)

Span Length Meters (Feet)	Temperature - Degrees Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
76.23 (250)	55.88 (22)	48.26 (19)	40.64 (16)	35.56 (14)	31.75 (12-1/2)
79.27 (260)	59.69 (23-1/2)	52.07 (20-1/2)	44.95 (17-1/2)	39.37 (15-1/2)	34.29 (13-1/2)
82.32 (270)	64.77 (25-1/2)	55.88 (22)	48.26 (19)	41.91 (16-1/2)	36.83 (14-1/2)
85.37 (280)	69.85 (27-1/2)	59.89 (23-1/2)	52.07 (20-1/2)	45.72 (18)	39.37 (15-1/2)
88.42 (290)	74.93 (29-1/2)	63.5 (25)	55.88 (22)	48.26 (19)	43.18 (17)
91.47 (300)	80.01 (31-1/2)	68.58 (27)	59.69 (23-1/2)	52.07 (20-1/2)	45.72 (18)
94.52 (310)	85.09 (33-1/2)	73.66 (29)	63.5 (25)	55.88 (22)	48.26 (19)
97.57 (320)	91.44 (36)	77.47 (30-1/2)	67.31 (26-1/2)	59.69 (23-1/2)	52.07 (20-1/2)
100.62 (330)	96.52 (38)	82.55 (32-1/2)	72.39 (28-1/2)	63.5 (25)	55.88 (22)
103.67 (340)	102.87 (40-1/2)	89.90 (35)	76.2 (30)	67.31 (26-1/2)	58.42 (23)
106.72 (350)	109.22 (43)	93.98 (37)	81.28 (32)	71.12 (28)	62.23 (24-1/2)

Table D

Medium Loading Area
Span Lengths - 106.72 Meters (350 Feet) to 137.21 Meters (450 Feet)

Span Length Meters (Feet)	Temperature - Degrees Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
106.72 (350)	71.12 (28)	64.77 (25-1/2)	58.42 (23)	53.34 (21)	48.26 (19)
109.77 (360)	74.93 (29-1/2)	67.31 (26-1/2)	62.23 (24-1/2)	57.15 (22-1/2)	52.07 (20-1/2)
112.82 (370)	78.74 (31)	71.12 (28)	64.77 (25-1/2)	59.69 (23-1/2)	54.61 (21-1/2)
115.87 (380)	83.82 (33)	74.93 (29-1/2)	68.58 (27)	63.5 (25)	57.15 (22-1/2)
118.92 (390)	87.63 (34-1/2)	80.01 (31-1/2)	72.39 (28-1/2)	66.04 (26)	60.96 (24)
121.97 (400)	92.71 (36-1/2)	83.82 (33)	76.2 (30)	69.85 (27-1/2)	63.5 (25)
125.01 (410)	97.79 (38-1/2)	87.63 (34-1/2)	80.01 (31-1/2)	73.66 (29)	67.31 (26-1/2)
128.06 (420)	101.60 (40)	92.71 (36-1/2)	83.82 (33)	77.47 (30-1/2)	69.85 (27-1/2)
131.11 (430)	106.68 (42)	96.52 (38)	87.63 (34-1/2)	81.28 (32)	73.66 (29)
134.16 (440)	111.76 (44)	101.60 (40)	92.71 (36-1/2)	85.09 (33-1/2)	77.47 (30-1/2)
137.21 (450)	116.84 (46)	105.41 (41-1/2)	96.52 (38)	88.90 (35)	86.01 (31-1/2)

Table E

Medium Loading Areas
Span Lengths - 137.21 Meters (450 Feet) to 167.70 Meters (550 Feet)

Span Length Meters (Feet)	Temperature - Degrees Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
137.21 (450)	92.71 (36-1/2)	85.09 (33-1/2)	77.47 (30-1/2)	72.39 (28-1/2)	68.58 (27)
140.26 (460)	96.52 (38)	88.90 (35)	80.01 (31-1/2)	76.20 (30)	71.12 (28)
143.31 (470)	101.60 (40)	92.71 (36-1/2)	83.82 (33)	80.01 (31-1/2)	73.66 (29)
146.36 (480)	105.41 (41-1/2)	97.79 (38-1/2)	87.63 (34-1/2)	82.55 (32-1/2)	77.47 (30-1/2)
149.41 (490)	109.22 (43)	101.60 (40)	91.44 (36)	86.36 (34)	80.01 (31-1/2)
152.46 (500)	114.30 (45)	105.41 (41-1/2)	95.25 (37-1/2)	90.17 (35-1/2)	83.82 (33)
155.50 (510)	119.38 (47)	109.22 (43)	99.06 (39)	93.98 (37)	87.63 (34-1/2)
158.55 (520)	123.19 (48-1/2)	114.30 (45)	102.87 (40-1/2)	97.79 (38-1/2)	90.17 (35-1/2)
161.60 (530)	128.27 (50-1/2)	118.11 (46-1/2)	106.68 (42)	101.60 (40)	93.98 (37)
164.65 (540)	133.85 (52-1/2)	123.19 (48-1/2)	110.49 (43-1/2)	105.41 (41-1/2)	97.79 (38-1/2)
167.70 (550)	138.43 (54-1/2)	127.00 (50)	115.57 (45-1/2)	109.22 (43)	101.60 (40)

Table F

Light Loading Areas
Span Lengths - 106.72 Meters (350 Feet) to 137.21 Meters (450 Feet)

Span Length Meters (Feet)	Temperature - Degrees Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
106.72 (350)	77.47 (30-1/2)	69.85 (27-1/2)	64.77 (25-1/2)	57.15 (22-1/2)	52.07 (20-1/2)
109.77 (360)	82.55 (32-1/2)	73.66 (29)	68.58 (27)	60.96 (24)	55.88 (22)
112.82 (370)	86.36 (34)	78.74 (31)	72.39 (28-1/2)	64.77 (25-1/2)	58.42 (23)
115.82 (380)	91.44 (36)	82.55 (32-1/2)	76.20 (30)	67.31 (26-1/2)	62.23 (24-1/2)
118.92 (390)	96.52 (38)	86.36 (34)	81.28 (32)	71.12 (28)	64.77 (25-1/2)
121.97 (400)	101.60 (40)	91.44 (36)	85.09 (33-1/2)	74.93 (29-1/2)	68.58 (27)
125.01 (410)	106.68 (42)	96.52 (38)	88.90 (35)	78.74 (31)	72.39 (28-1/2)
128.06 (420)	111.76 (44)	100.33 (39-1/2)	93.98 (37)	82.55 (32-1/2)	74.93 (29-1/2)
131.11 (430)	116.84 (46)	105.41 (41-1/2)	97.79 (38-1/2)	86.36 (34)	78.74 (31)
134.16 (440)	123.19 (48-1/2)	110.99 (43-1/2)	102.87 (40-1/2)	90.17 (35-1/2)	82.55 32-1/2
137.21 (450)	128.27 (50-1/2)	115.57 (45-1/2)	107.95 (42-1/2)	92.25 (37-1/2)	86.36 (34)

Table G

Light Loading Areas
Span Lengths - 137.21 Meters (450 Feet) to 182.94 Meters (600 Feet)

Span Length Meters (Feet)	Temperature - Degrees Celsius (Fahrenheit)				
	48.89 (120)	32.22 (90)	15.56 (60)	-1.11 (30)	-17.78 (0)
	Sag Centimeters (Inches)				
137.21 (450)	101.60 (40)	93.98 (37)	90.17 (35-1/2)	80.01 (31-1/2)	73.66 (29)
140.26 (460)	106.68 (42)	97.79 (38-1/2)	93.98 (37)	83.82 (33)	77.47 (30-1/2)
143.31 (470)	111.76 (44)	101.60 (40)	97.79 (38-1/2)	87.63 (34-1/2)	81.28 (32)
146.36 (480)	116.84 (46)	106.68 (42)	102.87 (40-1/2)	91.44 (36)	85.09 (33-1/2)
149.41 (490)	121.92 (48)	110.49 (43-1/2)	106.68 (42)	95.25 (37-1/2)	87.63 (34-1/2)
152.46 (500)	125.73 (49-1/2)	115.57 (45-1/2)	111.76 (44)	99.06 (39)	91.44 (36)
155.50 (510)	130.81 (51-1/2)	120.65 (47-1/2)	115.57 (45-1/2)	102.87 (40-1/2)	95.25 (37-1/2)
158.55 (520)	137.16 (54)	124.48 (49)	120.65 (47-1/2)	106.68 (42)	99.06 (39)
161.60 (530)	142.24 (56)	129.54 (51)	124.46 (49)	110.49 (43-1/2)	102.87 (40-1/2)
164.65 (540)	147.32 (58)	134.63 (53)	129.54 (51)	115.57 (45-1/2)	106.68 (42)
167.70 (550)	152.40 (60)	139.70 (55)	134.62 (53)	119.38 (47)	111.76 (44)
170.74 (560)	157.48 (62)	144.78 (57)	139.70 (55)	124.76 (49)	115.57 (45-1/2)
173.79 (570)	163.83 (64-1/2)	149.86 (59)	144.78 (57)	128.27 (50-1/2)	119.38 (47)
176.84 (580)	170.18 (67)	154.94 (61)	149.86 (59)	132.08 (52)	123.19 (48-1/2)
179.89 (590)	175.26 (69)	160.02 (63)	154.94 (61)	137.16 (54)	127.0 (50)
182.94 (600)	181.61 (71-1/2)	166.37 (65-1/2)	160.02 (63)	142.24 (56)	132.08 (52)