

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G51.125.2
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SUSPENSION STRAND

STRAND TENSIONS AND SAGS

6M STRAND — COPPER CONDUCTOR CABLES

Contents	Page
1. General	1
2. Tensions and Sags with Cable in Place.....	1

1. GENERAL

1.01 This section covers the approximate sags and strand tensions with the cable in place for **copper conductor cables on 6,000 pound suspension strand.**

1.02 The values of cable-in-place sags and tensions are for strand which was placed at the proper stringing tension (see G51.125.1) and with no wind or ice loads present at the time of measurement. However, wind loads alone, under average conditions, have little effect on sags and tensions.

1.03 These values apply for all copper conductor cables on 6,000 pound suspension strand regardless of conductor gauge, cable makeup, sheath material or storm loading area.

1.04 The maximum span lengths for various weights of cable in each of the storm loading areas are listed in the sections on the selection of suspension strand.

2. TENSIONS AND SAGS WITH CABLE IN PLACE

2.01 When 6,000 pound suspension strand is placed at the proper stringing tension, the approximate sags and tensions with a copper conductor cable in place will be as listed in the following tables.

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	100		125		150		175		200		225		250	
		Sag (In.)	Tens. (Lbs.)												
0.2	0	4	1600	6	1625	9	1625	12	1625	16	1650	19	1650	24	1675
	20	4	1450	7	1475	10	1475	13	1500	17	1500	21	1525	26	1550
	40	5	1300	8	1325	11	1325	14	1350	19	1375	23	1400	28	1425
	60	6	1150	8	1175	12	1200	16	1225	20	1250	25	1275	30	1300
	80	6	1000	10	1050	13	1075	18	1100	22	1150	27	1175	33	1200
	100	7	875	11	925	15	950	20	1000	25	1050	30	1075	36	1125
0.4	0	6	1650	9	1675	12	1700	17	1725	21	1775	26	1800	32	1825
	20	6	1500	10	1525	13	1575	18	1600	23	1650	28	1675	34	1725
	40	7	1350	10	1400	15	1450	19	1475	24	1525	30	1575	36	1625
	60	8	1225	12	1275	16	1325	21	1375	26	1425	32	1475	38	1525
	80	9	1100	13	1150	17	1200	23	1275	28	1325	34	1375	41	1425
	100	10	975	14	1050	19	1100	25	1175	30	1225	37	1300	43	1350
0.6	0	7	1700	11	1750	16	1800	21	1850	26	1900	32	1950	38	2000
	20	8	1550	12	1600	17	1675	22	1725	28	1800	34	1850	41	1900
	40	9	1425	13	1475	18	1550	23	1625	29	1675	36	1750	43	1825
	60	10	1300	14	1375	19	1450	25	1525	31	1575	38	1650	45	1725
	80	11	1175	15	1250	21	1350	27	1425	33	1500	40	1575	47	1650
	100	12	1075	17	1150	22	1250	28	1325	35	1400	42	1500	50	1550
0.8	0	9	1750	13	1825	18	1900	24	1975	30	2050	37	2125	44	2175
	20	9	1625	14	1700	19	1775	25	1850	32	1925	39	2025	46	2100
	40	10	1500	15	1575	21	1675	27	1750	33	1850	41	1925	48	2000
	60	11	1375	16	1475	22	1575	28	1650	35	1750	42	1825	50	1925
	80	12	1275	18	1375	24	1475	30	1575	37	1650	44	1750	52	1825
	100	13	1175	19	1275	25	1375	32	1475	39	1575	47	1675	55	1750

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	275		300		325		350		375		400		425	
		Sag (In.)	Tens. (Lbs.)												
0.2	0	29	1675	34	1700	39	1700	45	1725	52	1725	59	1750	66	1750
	20	31	1550	36	1575	42	1600	49	1600	55	1625	62	1650	69	1650
	40	33	1450	39	1475	45	1500	52	1500	59	1525	66	1550	73	1575
	60	36	1350	42	1375	48	1400	55	1425	62	1450	70	1450	78	1475
	80	39	1250	45	1275	52	1300	59	1325	66	1350	74	1375	82	1400
	100	42	1150	48	1175	55	1225	62	1250	70	1275	78	1300	86	1350
0.4	0	38	1875	44	1900	51	1950	58	1975	66	2000	74	2025	82	2075
	20	40	1775	47	1800	54	1850	61	1875	69	1925	77	1950	85	1975
	40	43	1650	49	1700	57	1750	64	1800	72	1825	80	1875	89	1900
	60	45	1575	52	1625	60	1650	67	1700	75	1750	84	1775	93	1825
	80	48	1475	55	1525	63	1575	71	1625	79	1675	88	1725	96	1750
	100	51	1400	58	1450	66	1500	74	1550	82	1600	91	1650	100	1700
0.6	0	45	2075	53	2125	60	2175	68	2225	77	2275	85	2325	95	2350
	20	48	1975	55	2025	63	2075	72	2125	80	2175	89	2225	98	2275
	40	50	1875	58	1925	66	2000	74	2050	83	2100	92	2150	101	2200
	60	52	1800	60	1850	68	1900	77	1975	86	2025	95	2075	105	2125
	80	55	1700	63	1775	71	1825	80	1900	89	1950	98	2000	108	2050
	100	57	1625	65	1700	74	1775	83	1825	92	1900	102	1950	112	2000
0.8	0	52	2250	60	2325	68	2400	77	2450	86	2525	95	2575	105	2650
	20	54	2175	62	2225	70	2300	79	2375	89	2450	98	2500	108	2575
	40	56	2075	64	2150	73	2225	82	2300	92	2350	101	2425	111	2500
	60	58	2000	67	2075	76	2150	85	2225	94	2300	104	2350	115	2425
	80	61	1925	69	2000	78	2075	88	2150	97	2225	107	2300	119	2350
	100	63	1850	72	1925	81	2000	90	2075	100	2150	111	2225	121	2300

SUSPENSION STRAND
STRAND TENSIONS AND SAGS
6M STRAND—COPPER CONDUCTOR CABLES

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	450		475		500		525		550		575		600	
		Sag (In.)	Tens. (Lbs.)												
0.2	0	73	1775	81	1775	89	1775	98	1800	107	1800	—	—		
	20	77	1675	85	1675	94	1700	102	1725	112	1725	—	—		
	40	81	1575	90	1600	98	1625	107	1650	117	1650	—	—		
	60	86	1500	94	1525	103	1550	112	1575	122	1575	—	—		
	80	90	1425	99	1450	108	1475	117	1500	127	1525	—	—		
	100	95	1375	103	1400	113	1425	122	1450	132	1450	—	—		
0.4	0	90	2100	99	2125	109	2150	—	—						
	20	94	2025	103	2050	113	2075	—	—						
	40	98	1925	107	1975	117	2000	—	—						
	60	102	1875	111	1900	121	1925	—	—						
	80	106	1800	115	1825	125	1875	—	—						
	100	110	1725	120	1775	130	1800	—	—						
0.6	0	104	2400	114	2450	—	—								
	20	108	2325	118	2375	—	—								
	40	111	2250	121	2300	—	—								
	60	115	2175	125	2225	—	—								
	80	118	2125	129	2175	—	—								
	100	122	2050	132	2100	—	—								
0.8	0	115	2700	—	—										
	20	119	2625	—	—										
	40	122	2550	—	—										
	60	125	2475	—	—										
	80	129	2425	—	—										
	100	132	2350	—	—										

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	100		125		150		175		200		225		250	
		Sag (In.)	Tens. (Lbs.)												
1.0	0	10	1800	15	1900	21	2000	27	2075	34	2175	41	2275	49	2350
	20	11	1675	16	1775	22	1875	28	1975	35	2075	43	2175	51	2275
	40	12	1575	17	1675	23	1775	30	1875	37	1975	45	2075	53	2175
	60	13	1450	18	1575	25	1675	31	1800	39	1900	47	2000	55	2100
	80	14	1350	19	1475	26	1600	33	1700	41	1825	48	1925	57	2025
	100	15	1250	21	1375	27	1500	35	1625	42	1750	50	1850	59	1950
1.2	0	11	1875	17	1975	23	2100	30	2200	37	2300	45	2425	53	2525
	20	12	1750	18	1875	24	2000	31	2100	39	2225	47	2325	55	2425
	40	13	1650	19	1775	25	1900	33	2000	40	2125	48	2250	57	2350
	60	14	1525	20	1675	27	1800	34	1925	42	2050	50	2150	59	2275
	80	15	1425	21	1575	28	1725	36	1850	43	1975	52	2075	61	2200
	100	16	1350	22	1500	29	1625	37	1750	45	1900	54	2000	63	2125
1.4	0	13	1950	18	2075	25	2200	32	2325	40	2450	48	2575	57	2675
	20	13	1825	19	1975	26	2100	34	2225	41	2350	50	2475	59	2600
	40	14	1725	20	1850	27	2000	35	2125	43	2275	52	2400	61	2525
	60	15	1625	22	1775	29	1925	36	2050	45	2175	53	2325	62	2450
	80	16	1525	23	1675	30	1825	38	1975	46	2100	55	2250	64	2350
	100	17	1425	24	1600	31	1750	39	1900	48	2050	57	2175	66	2300
1.6	0	14	2000	20	2150	27	2300	34	2425	43	2575	51	2700	60	2825
	20	14	1900	21	2050	28	2200	36	2350	44	2475	53	2625	62	2750
	40	15	1800	22	1950	29	2100	37	2250	46	2400	55	2550	64	2675
	60	16	1700	23	1875	30	2025	39	2175	47	2325	56	2475	66	2600
	80	17	1600	24	1775	32	1950	40	2100	49	2250	58	2400	68	2525
	100	18	1525	25	1700	33	1875	41	2025	50	2175	60	2325	69	2450

SUSPENSION STRAND
 STRAND TENSIONS AND SAGS
 6M STRAND—COPPER CONDUCTOR CABLES

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	275		300		325		350		375		400		425	
		Sag (In.)	Tens. (Lbs.)												
1.0	0	57	2450	66	2525	75	2600	84	2675	94	2750	104	2825	114	2900
	20	59	2350	68	2425	77	2525	87	2600	96	2675	107	2750	117	2825
	40	61	2275	70	2350	79	2450	89	2525	99	2600	110	2675	120	2750
	60	63	2200	72	2275	82	2375	92	2450	102	2525	112	2625	123	2700
	80	66	2125	75	2200	84	2300	94	2375	105	2475	115	2550	126	2625
	100	68	2050	77	2150	87	2225	97	2325	107	2400	118	2475	129	2575
1.2	0	62	2625	71	2725	80	2800	90	2900	—	—				
	20	64	2525	73	2625	83	2725	93	2825	—	—				
	40	66	2450	75	2550	85	2650	95	2750	—	—				
	60	68	2375	78	2475	87	2575	98	2675	—	—				
	80	70	2300	80	2400	90	2500	100	2600	—	—				
	100	72	2250	82	2350	92	2450	103	2550	—	—				
1.4	0	66	2800	76	2900										
	20	68	2700	78	2825										
	40	70	2625	80	2750										
	60	72	2550	82	2675										
	80	74	2475	84	2600										
	100	76	2425	86	2550										
1.6	0	—	—												
	20	—	—												
	40	—	—												
	60	—	—												
	80	—	—												
	100	—	—												

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	100		125		150		175		200		225		250	
		Sag (In.)	Tens. (Lbs.)												
1.8	0	15	2075	21	2250	29	2400	36	2550	45	2700	54	2850	—	—
	20	15	1975	22	2150	30	2300	38	2450	46	2625	56	2775	—	—
	40	16	1875	23	2050	31	2225	39	2375	48	2525	57	2675	—	—
	60	17	1775	24	1950	32	2125	40	2300	49	2450	59	2600	—	—
	80	18	1675	25	1875	33	2050	42	2225	51	2375	61	2550	—	—
	100	19	1600	26	1800	35	1975	43	2150	52	2325	62	2475	—	—
2.0	0	16	2150	22	2325	30	2500	38	2650	47	2825	57	2975	—	—
	20	16	2050	23	2225	31	2400	40	2575	49	2750	58	2900	—	—
	40	17	1950	24	2125	32	2325	41	2500	50	2675	60	2825	—	—
	60	18	1850	25	2050	34	2225	42	2425	52	2575	61	2750	—	—
	80	19	1775	27	1950	35	2150	44	2350	53	2525	63	2650	—	—
	100	20	1675	28	1900	36	2075	45	2275	55	2450	65	2625	—	—
2.2	0	16	2200	24	2400	32	2600	40	2775	49	2950	—	—		
	20	17	2100	25	2300	33	2500	41	2700	51	2875	—	—		
	40	18	2025	26	2225	34	2425	43	2600	52	2775	—	—		
	60	19	1925	27	2150	35	2350	44	2525	54	2725	—	—		
	80	20	1850	28	2050	36	2275	45	2450	55	2650	—	—		
	100	21	1750	29	1975	37	2200	47	2400	57	2575	—	—		
2.4	0	17	2275	25	2475	33	2675	42	2875	—	—				
	20	18	2175	26	2400	34	2600	43	2800	—	—				
	40	19	2075	27	2300	35	2525	44	2725	—	—				
	60	20	2000	28	2225	36	2450	46	2650	—	—				
	80	21	1925	29	2150	37	2375	47	2575	—	—				
	100	21	1850	30	2075	39	2300	48	2500	—	—				

SUSPENSION STRAND
 STRAND TENSIONS AND SAGS
 6M STRAND—COPPER CONDUCTOR CABLES

COPPER CONDUCTOR CABLE, 6M STRAND
Span Length (Feet)

Cable Weight Lbs./Ft.	Temp. (°F)	100		125		150		175		200		225		250	
		Sag (In.)	Tens. (Lbs.)												
2.6	0	18	2350	26	2575	34	2775	—	—						
	20	19	2250	27	2475	35	2700	—	—						
	40	20	2150	28	2400	36	2625	—	—						
	60	20	2075	29	2300	38	2525	—	—						
	80	21	2000	30	2225	39	2450	—	—						
	100	22	1925	31	2150	40	2400	—	—						
2.8	0	19	2400	27	2650	36	2875	—	—						
	20	20	2325	28	2550	37	2800	—	—						
	40	20	2225	29	2475	38	2700	—	—						
	60	21	2150	30	2400	39	2625	—	—						
	80	22	2050	31	2325	40	2550	—	—						
	100	23	1975	32	2250	41	2500	—	—						
3.0	0	20	2475	28	2725	—	—								
	20	20	2375	29	2650	—	—								
	40	21	2300	30	2550	—	—								
	60	22	2200	31	2475	—	—								
	80	23	2125	31	2400	—	—								
	100	24	2050	32	2325	—	—								