

### Application

This standard applies of tree wire and messenger supported spacer cable and CCX etc. These conductors are intended primarily for the distribution of electrical energy under normal conditions of overhead (aerial) installations. They are considered as covered conductors therefore the cables carry no voltage rating. The conductors must be installed on insulators and/or spacers adequate for the service voltage. The user may want to give consideration to the dielectric compatibility of the covering, insulator, spacer and tree wire.

### Description

The conductors are stranded, circular compressed aluminum, aluminum-alloy, copper, ACSR or ACSR/AW etc. The conductor screen is the extruded Semi-conducting conductor shield in Black. The inner Insulation is mainly natural color thermoplastic polyethylene (PE) or cross-linked polyethylene (XLPE). And the outer Insulation is mainly thermoplastic polyethylene (PE) or cross-linked polyethylene (XLPE) in Black or Grey or Red with Weather or UV resistant. This standard covers both thermoplastic and cross linked polyethylene constructions, rated for 75°C or 90°C normal service temperature.

### Specifications

- ANSI/ICEA S-121-733 Tree Wire and Messenger Supported Spacer Cable
- NTC 5909 Cables De Potencia Cubiertos(Semiaislados) No Apantallados De 15000 Voltios-46000 Voltios,Para Uso En Lineas Aéreas De Distribución De Energía Eléctrica
- BS EN 50397-1 Covered Conductors for Overhead Lines and the Related Accessories for Rated Voltages above 1 kV a.c. and Not Exceeding 36 kV a.c.— Part 1: Covered conductors

### Parameter

#### ANSI/ICEA S-121-733

#### 15kV Tree Wire

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 15kV ACSR/XLPE/HDPE</b>							
6	6/1	0.38	1.91	1.91	13.6	5.28	188
4	6/1	0.38	1.91	1.91	14.8	8.3	238
3	6/1	0.38	1.91	1.91	15.6	10.2	271
2	6/1	0.38	1.91	1.91	16.5	12.7	313
1	6/1	0.38	1.91	1.91	17.4	15.6	362
1/0	6/1	0.38	1.91	1.91	18.5	19.4	424
2/0	6/1	0.38	1.91	1.91	19.6	23.3	496
3/0	6/1	0.38	1.91	1.91	20.7	29.4	584
4/0	6/1	0.38	1.91	1.91	22.4	37.1	699
266.8	18/1	0.38	1.91	1.91	23.7	30.3	713
336.4	18/1	0.38	1.91	1.91	25.2	38.2	847

Size ( kcmil)	Number of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 15kV AAAC/XLPE/HDPE</b>							
48.69	7	0.38	1.91	1.91	15.2	7.83	223
77.47	7	0.38	1.91	1.91	16.8	12.4	286
123.3	7	0.38	1.91	1.91	19	18.9	383

155.4	7	0.38	1.91	1.91	20.1	23.8	443
195.7	7	0.38	1.91	1.91	21.5	30	521
246.9	7	0.38	1.91	1.91	23	37.8	614
312.8	19	0.38	1.91	1.91	24.9	46.5	740
394.5	19	0.38	1.91	1.91	27.4	58.6	892
465.4	19	0.38	1.91	1.91	28.4	69.2	1008
559.5	19	0.51	1.91	1.91	30.4	83.1	1168
652.4	19	0.51	1.91	1.91	31.8	97	1320
740.8	37	0.51	1.91	1.91	33.3	107	1463

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated Strength	Weight
		Conductor Shield	Inner Layer	Outer Layer			
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 15kV AAC/XLPE/HDPE</b>							
4	7	0.38	1.91	1.91	14.4	3.52	204
2	7	0.38	1.91	1.91	15.8	5.39	259
1/0	7	0.38	1.91	1.91	17.7	7.96	341
2/0	7	0.38	1.91	1.91	18.6	9.99	394
3/0	7	0.38	1.91	1.91	19.7	12.15	459
4/0	7	0.38	1.91	1.91	21.1	15.3	541
266.8	19	0.38	1.91	1.91	23	19.89	648
336.4	19	0.38	1.91	1.91	24.9	24.57	775
397.5	19	0.38	1.91	1.91	26.1	28.44	878
477	19	0.38	1.91	1.91	27.9	33.3	1017
556.5	37	0.51	1.91	1.91	30.1	39.87	1161
636	37	0.51	1.91	1.91	31.5	45.36	1295
795	37	0.51	2.03	2.03	34.2	55.62	1557

**25kV Tree Wire**

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable diameter	Rated Strength	Weight
		Conductor Shield	Inner Layer	Outer Layer			
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 25kV ACSR/XLPE/HDPE</b>							
1/0	6/1	0.38	3.18	3.18	23.6	19.4	586
2/0	6/1	0.38	3.18	3.18	24.7	23.3	666
3/0	6/1	0.38	3.18	3.18	25.8	29.4	763
4/0	6/1	0.38	3.18	3.18	27.5	37.1	891
266.8	18/1	0.38	3.18	3.18	28.6	30.3	913
336.4	18/1	0.38	3.18	3.18	30.1	38.2	1058

Size ( kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated Strength	Weight
		Conductor Shield	Inner Layer	Outer Layer			
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 25kV AAAC/XLPE/HDPE</b>							
48.69	7	0.38	3.18	3.18	20.1	7.83	358
77.47	7	0.38	3.18	3.18	21.7	12.4	434

123.3	7	0.38	3.18	3.18	23.9	18.9	547
155.4	7	0.38	3.18	3.18	25	23.8	616
195.7	7	0.38	3.18	3.18	26.4	30	704
246.9	7	0.38	3.18	3.18	27.9	37.8	809
312.8	19	0.38	3.18	3.18	29.6	46.5	939
394.5	19	0.38	3.18	3.18	32.1	58.6	1109
465.4	19	0.38	3.18	3.18	33.1	69.2	1232
559.5	19	0.51	3.18	3.18	35.1	83.1	1407
652.4	19	0.51	3.18	3.18	36.5	97	1569
740.8	37	0.51	3.18	3.18	38	107	1723
927.2	37	0.51	3.18	3.18	40.9	135	2050

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 25kV AAC/XLPE/HDPE</b>							
1/0	7	0.38	3.18	3.18	22.8	7.96	497
2/0	7	0.38	3.18	3.18	23.7	9.99	556
3/0	7	0.38	3.18	3.18	24.8	12.15	630
4/0	7	0.38	3.18	3.18	26.2	15.3	723
266.8	19	0.38	3.18	3.18	27.7	19.89	833
336.4	19	0.38	3.18	3.18	29.6	24.57	973
397.5	19	0.38	3.18	3.18	30.8	28.44	1086
477	19	0.38	3.18	3.18	32.6	33.3	1237
556.5	37	0.51	3.18	3.18	34.8	39.87	1398
636	37	0.51	3.18	3.18	36.2	45.36	1542
795	37	0.51	3.18	3.18	38.9	55.62	1824

**35kV Tree Wire**

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 35kV ACSR/XLPE/HDPE</b>							
1/0	6/1	0.38	4.45	3.18	26.1	19.4	682
2/0	6/1	0.38	4.45	3.18	27.2	23.3	767
3/0	6/1	0.38	4.45	3.18	28.4	29.4	868
4/0	6/1	0.38	4.45	3.18	30	37.1	1002
266.8	18/1	0.38	4.45	3.18	31.1	30.3	1028
336.4	18/1	0.38	4.45	3.18	32.6	38.2	1179

Size ( kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 35kV AAAC/XLPE/HDPE</b>							
48.69	7	0.38	4.45	3.18	22.6	7.83	441

77.47	7	0.38	4.45	3.18	24.2	12.4	523
123.3	7	0.38	4.45	3.18	26.4	18.9	644
155.4	7	0.38	4.45	3.18	27.5	23.8	718
195.7	7	0.38	4.45	3.18	28.9	30	811
246.9	7	0.38	4.45	3.18	30.4	37.8	922
312.8	19	0.38	4.45	3.18	32.1	46.5	1059
394.5	19	0.38	4.45	3.18	34.6	58.6	1238
465.4	19	0.38	4.45	3.18	35.6	69.2	1365
559.5	19	0.51	4.45	3.18	37.6	83.1	1547
652.4	19	0.51	4.45	3.18	39	97	1715
740.8	37	0.51	4.45	3.18	40.5	107	1874
927.2	37	0.51	4.45	3.18	43.4	135	2213

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 35kV AAC/XLPE/HDPE</b>							
1/0	7	0.38	4.45	3.18	25.3	7.96	590
2/0	7	0.38	4.45	3.18	26.2	9.99	653
3/0	7	0.38	4.45	3.18	27.3	12.15	731
4/0	7	0.38	4.45	3.18	28.7	15.3	829
266.8	19	0.38	4.45	3.18	30.2	19.89	946
336.4	19	0.38	4.45	3.18	32.1	24.57	1094
397.5	19	0.38	4.45	3.18	33.3	28.44	1210
477	19	0.38	4.45	3.18	35.1	33.3	1369
556.5	37	0.51	4.45	3.18	37.3	39.87	1538
636	37	0.51	4.45	3.18	38.8	45.36	1688
795	37	0.51	4.45	3.18	41.4	55.62	1980

**46kV Tree Wire**

Size (kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
<b>3-Layer 46kV AAAC/XLPE/HDPE</b>							
48.69	7	0.38	5.72	4.45	27.7	7.83	640
77.47	7	0.38	5.72	4.45	29.3	12.4	734
123.3	7	0.38	5.72	4.45	31.5	18.9	873
155.4	7	0.38	5.72	4.45	32.6	23.8	955
195.7	7	0.38	5.72	4.45	34	30	1060
246.9	7	0.38	5.72	4.45	35.5	37.8	1182
312.8	19	0.38	5.72	4.45	37.2	46.5	1332
394.5	19	0.38	5.72	4.45	39.7	58.6	1531
465.4	19	0.38	5.72	4.45	40.7	69.2	1666
559.5	19	0.51	5.72	4.45	42.7	83.1	1864
652.4	19	0.51	5.72	4.45	44.1	97	2043
740.8	37	0.51	5.72	4.45	45.6	107	2214
927.2	37	0.51	5.72	4.45	48.5	135	2575

Size (AWG or kcmil)	No. of Wires	Covering Thickness			Cable Diameter	Rated	Weight
		Conductor Shield	Inner Layer	Outer Layer		Strength	
	No.	mm	mm	mm	mm	kN	kg/km
3-Layer 46kV AAC/XLPE/HDPE							
1/0	7	0.38	5.72	4.45	30.4	7.96	810
2/0	7	0.38	5.72	4.45	31.3	9.99	880
3/0	7	0.38	5.72	4.45	32.4	12.15	968
4/0	7	0.38	5.72	4.45	33.8	15.3	1077
266.8	19	0.38	5.72	4.45	35.3	19.89	1205
336.4	19	0.38	5.72	4.45	37.2	24.57	1367
397.5	19	0.38	5.72	4.45	38.4	28.44	1494
477	19	0.38	5.72	4.45	40.2	33.3	1666
556.5	37	0.51	5.72	4.45	42.4	39.87	1853
636	37	0.51	5.72	4.45	43.9	45.36	2014
795	37	0.51	5.72	4.45	46.5	55.62	2326