

capability
by

COAXIAL CABLE CONDUCTORS

Coaxial cable center conductors are selected for their mechanical and/or electrical properties. They may be solid or stranded wires or in some instances a tube. The solid wire results in lowest cable attenuation. Stranding increases cable flexibility but also increases attenuation. Materials used are Copper, Copperweld, Cadmium Bronze, Aluminum and Nichrome or Karma.

The outer conductor can be of the conventional

wire braid design, or it can be a metal tube. The braid is used because it allows a flexible construction and tubular construction is used where a high degree of shielding is required. This latter construction also contributes to lower cable attenuation.

Two adjacent braids provide more effective shielding action than one braid but they are not as good in this respect as two braids separated by a dielectric such as is found in triaxial constructions.

WIRE CHART

Table of Standard Annealed Bare Copper Wire Using American Wire Gauge (B & S)

Gauge (AWG) or (B & S)	DIA. Inches (Nom.)	AREA Circular Mils	WEIGHT Pounds per M'	LENGTH Feet per Lb.	RESISTANCE AT 68° F		
					Ohms per M'	Feet per Ohm	Ohms per Lb.
0000	4.000	201850	640.5	1.561	0.0001	20400	0.0007652
000	4.000	197610	507.9	1.968	0.0001	16180	0.001217
00	3.942	193100	402.8	2.482	0.0001	12830	0.001525
0	3.249	149500	319.5	3.130	0.0001	10100	0.001976
1	3.003	130950	255.3	3.947	0.0001	8070	0.002491
2	2.776	105700	200.9	4.977	0.0001	6400	0.003127
3	2.594	82540	159.3	6.276	0.0001	5170	0.003937
4	2.423	67400	126.4	7.914	0.0001	4025	0.004946
	2.30	52900	100.1	9.286	0.0001	3405	0.006177
5	1.819	33100	60.2	16.61	0.0001	2192	0.010127
6	1.620	25750	46.4	21.56	0.0001	1635	0.013452
7	1.443	20120	36.0	27.78	0.0001	1265	0.017355
8	1.285	15510	27.9	35.84	0.0001	982	0.02257
	1.18	11940	21.9	45.66	0.0001	760	0.02927
9	1.144	11050	20.6	48.54	0.0001	712	0.03149
10	1.019	9010	16.7	59.88	0.0001	585	0.03917
11	0.9074	7254	13.6	73.44	0.0001	480	0.04853
12	0.8041	5830	10.9	91.30	0.0001	395	0.06015
13	0.7156	4678	8.6	116.3	0.0001	320	0.07500
14	0.6408	3750	6.8	147.0	0.0001	265	0.09427
15	0.5707	2974	5.3	188.7	0.0001	220	0.11900
16	0.5062	2360	4.1	243.9	0.0001	180	0.15000
17	0.4478	1870	3.2	312.5	0.0001	145	0.18900
18	0.4019	1470	2.5	395.7	0.0001	120	0.23700
19	0.3593	1150	1.9	500.0	0.0001	100	0.29400
20	0.3194	902	1.5	633.3	0.0001	80	0.36750
21	0.2816	700	1.1	818.2	0.0001	65	0.46150
22	0.2463	542	0.8	1044.4	0.0001	55	0.58200
23	0.2137	419	0.6	1369.6	0.0001	45	0.73500
24	0.1840	324	0.4	1770.0	0.0001	38	0.92250
25	0.1573	250	0.3	2266.7	0.0001	32	1.15500
26	0.1330	192	0.2	2916.7	0.0001	27	1.44000
27	0.1114	149	0.1	3633.3	0.0001	23	1.81500
28	0.0924	117	0.0	4545.5	0.0001	20	2.29500
29	0.0756	92	0.0	5696.4	0.0001	17	2.91000
30	0.0619	72	0.0	7125.0	0.0001	15	3.67500
31	0.0504	57	0.0	8854.2	0.0001	13	4.63500
32	0.0410	44	0.0	11000.0	0.0001	11	5.85000
33	0.0336	35	0.0	13714.3	0.0001	9	7.42500
34	0.0276	28	0.0	17143.0	0.0001	8	9.37500
35	0.0228	22	0.0	21454.5	0.0001	7	11.85000
36	0.0191	17	0.0	27023.8	0.0001	6	14.85000
37	0.0158	13	0.0	33469.2	0.0001	5	18.45000
38	0.0129	10	0.0	41454.5	0.0001	4	23.17500
39	0.0104	8	0.0	50909.1	0.0001	3	29.25000
40	0.0084	6	0.0	62500.0	0.0001	2	36.75000
41	0.0068	5	0.0	76363.6	0.0001	2	45.45000
42	0.0055	4	0.0	92727.3	0.0001	1	56.25000
43	0.0044	3	0.0	111363.6	0.0001	1	69.75000
44	0.0035	2	0.0	134545.5	0.0001	1	85.50000
45	0.0028	1	0.0	163636.4	0.0001	1	104.25000
46	0.0022	1	0.0	200000.0	0.0001	1	125.25000

STANDARD WIRE STRANDINGS

Used in RG/U CABLES

A. W. GAUGE	O. D.	STRANDING
22	.030	7/30
22	.030	27/36
21	.034	19/.0071
20	.037	7/28
20	.035	10/30
18	.046	7/.0152
18	.048	7/26
17	.054	7/25
16	.060	7/24
16	.060	7/.020
16	.058	19/.0117
16	.058	26/30
15	.067	7/.022
14	.073	19/.0147
13	.085	7/21
12	.096	7/20
7	.162	7/.054

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	Inches (Nom.)	Sq. mils	Pounds per 10'	Feet per Lb.	Ohms per M'	Feet per Ohm	Ohms per Lb.
000	4.62	21160	640.5	1.561	0.4901	10400	0.007652
00	4.096	16460	507.9	1.968	0.6180	16180	0.01217
0	3.548	12310	402.6	2.482	0.7793	12830	0.01995
1	3.159	10550	339.5	3.130	0.9827	10180	0.03076
2	2.933	9260	293.3	3.947	1.239	8070	0.04851
3	2.676	8070	250.9	4.972	1.563	6400	0.07778
4	2.422	7050	215.3	6.276	1.970	5075	0.1237
5	2.179	6200	186.4	7.914	2.485	4025	0.1966
6	1.944	5500	160.1	9.286	3.133	3125	0.2837
7	1.720	4900	139.4	10.99	3.921	2531	0.4032
8	1.509	4380	123.4	12.58	4.922	2007	0.5525
9	1.312	3930	110.8	14.43	6.282	1592	0.7527
10	1.134	3550	99.6	16.57	8.01	1242	1.0176
11	1.019	3220	89.5	19.1	10.15	985	1.316
12	0.910	2930	80.2	22.2	12.80	781	1.671
13	0.812	2680	72.5	25.9	16.14	615	2.117
14	0.726	2460	65.9	30.3	20.36	491	2.665
15	0.650	2270	60.2	34.9	25.67	389	3.462
16	0.583	2100	55.4	40.0	32.37	309	4.537
17	0.524	1950	51.3	46.8	40.81	245	5.986
18	0.473	1820	47.7	54.5	51.47	194	7.943
19	0.428	1710	44.5	62.9	64.30	151	10.42
20	0.389	1610	41.8	72.2	81.83	122	13.83
21	0.354	1520	39.4	82.7	103.2	96	18.33
22	0.323	1440	37.1	94.6	130.1	77	24.15
23	0.294	1370	35.0	108.0	164.1	61	31.60
24	0.269	1310	33.1	123.0	206.3	49	41.36
25	0.246	1260	31.4	139.8	260.5	39	54.62
26	0.225	1220	29.9	158.9	329.0	30	71.71
27	0.206	1180	28.5	180.5	414.5	24	93.82
28	0.188	1150	27.2	205.1	522.7	19	123.6
29	0.172	1120	26.0	233.0	659.1	15	163.4
30	0.157	1090	24.9	264.3	831.6	12	213.2
31	0.143	1060	23.9	300.0	1049	9	280.0
32	0.130	1030	23.0	341.0	1373	7	368.0
33	0.118	1000	22.1	388.0	1773	5	485.0
34	0.107	970	21.3	442.0	2304	4	638.0
35	0.097	940	20.5	504.0	2999	3	848.0
36	0.088	910	19.7	576.0	3911	2	1130.0
37	0.080	880	19.0	656.0	5099	1	1500.0
38	0.073	850	18.3	744.0	6811	1	2000.0
39	0.067	820	17.6	840.0	9099	1	2680.0
40	0.062	790	17.0	956.0	12200	1	3580.0
41	0.057	760	16.4	1096.0	16200	1	4800.0
42	0.053	730	15.8	1264.0	21400	1	6280.0
43	0.049	700	15.2	1464.0	28400	1	8200.0
44	0.046	670	14.7	1696.0	37800	1	10800.0
45	0.043	640	14.2	1968.0	50400	1	14400.0
46	0.040	610	13.7	2288.0	67200	1	19200.0

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