

## RG Cable Descriptions

RG-/U Number	Conductor inches	Dielectric inches	Shields	Jacket inches	Armor inches	Weight lbs/foot	Impedance ohms	Capacitance pF/foot	Max Oper. Voltage vms	Temperature Range °C	Comments
303	SCCS 0.039	PTFE 0.116	1:SC	FEP-IX .170	NA	0.030	50	29.4	1,900	-55 +200	Use M17/111-RG303
304	SCCS 0.059	PTFE 0.185	2:SC	FEP-IX .280	NA	0.088	50	29.4	3,000	-55 +200	Use M17/112-RG304
305	BC Tube .360 ID - .430 OD	FEP 1.570	BC Tube 1.830	PE-III A 1.990	NA		75	19.5	2,720	-55 +80	Times does not supply
306A	BC 0.173	Foam PE 0.801	Al.Tube .875	PE-III A 1.015	NA	0.545	75	16.9	5,700	-55 +80	Per Mil-C-23806
307	SC 19/.0058 0.029	Foam PE 0.146	2:SC PUR Int	PE-111A 0.270	NA	0.070	75	16.9	1,000	-55 +80	Use M17/116-RG307
307A	BC 19/.0058 0.029	Foam PE 0.146	2:SC PUR Int	PE-111A 0.270	NA	0.070	75	16.9	1,000	-55 +80	Use M17/116-RG307
308-315	BEAD SUPPORTED RIGID LINES, See MIL-R-9671										Times does not supply
316	SCCS 7/.0067 0.0210	PTFE 0.060	1:SC	FEP-IX 0.102	NA	0.012	50	29.4	1,200	-55 +80	Use M17/113-RG316
317	2: BC 7/.0290 0.0870	FEP 0.446	1:TC	Neprene 0.710	NA		95	15.4	10,000	-55 +80	Water blocked
318	BC Tube 0.287 id - 0.358 od	PE Helix 0.795	Corr.BC Tube 1.005	PE-III A 1.125	NA	0.530	50	22.0	44KW peak	-55 +80	
319	BC Tube 0.588 id - 0.688 od	PE Helix 1.570	Corr. BC Tube 1.830	PE-III A 2.000	NA	1.040	50	22.0	145 KW peak	-55 +80	Times does not supply
320	WAVE GUIDE									-55 +80	Times does not supply
321	Corr.BC Tube 1.1400	PE Helix	Corr. BC Tube	None	NA	1.210	50	21.7	320 KW peak	-55 +80	Times does not supply
322	Corr.BC Tube 1.1400	PE Helix	Corr. BC Tube	PE 3.040	NA	1.780	50	21.7	320 KW peak	-55 +80	Times does not supply
323	BC Tube .312	Foam PE 0.3120	Corr. BC Tube	PE 1.060	NA	0.420	50	25.4	1,480	-55 +80	Use Times M17/227-00001
324	BC Tube .312	Foam PE 0.3120	Corr. BC Tube	None	NA	0.320	50	25.4	1,480	-55 +80	Use Times M17/227-00001
325	SCCAL190.020 0.1000	PE Spine 0.260	2:SC Strip	PUR 0.350	NA	0.100	50	26.3	750	-55 +80	Low loss
326	SCCAL190.040 0.2000	PE Spine 0.550	2:SC Strip	PUR 0.697	NA	0.240	50	26.3	1,700	-55 +80	Low loss
327	SCCAL190.064 0.3200	PE Spine 0.840	2:SC Strip	PUR 1.010	NA	0.550	50	26.3	2,500	-55 +80	Low loss
328	TCBraid 0.4850	Rubber,HJH 1.065	3:TC,G,STC	Neoprene 1.460	NA	1.469	25	85.0	20,000	-55 +80	Times does not supply
329	TC19/0117 0.0585	Rubber,HJH 0.380	3:TC,G,STC	Neoprene 0.700	NA	0.353	50	50.0	15,000	-55 +80	Times does not supply
330	SC	FOAM PE	1:SC		NA		50	25.0			Times does not supply
331	CCA 0.1620	FOAM PE 0.450	Al. Tube .500	PE-III A 0.600	NA	0.187	50	25.4	2,500	-55 +80	Use Times M17/225-00001
332	BC 0.280	FOAM PE 0.801	Al. Tube .875	None	NA	0.466	50	25.4	4,500	-55 +80	Use Times M17/227-00001



# MATERIALS ABBREVIATIONS LEGEND

## CONDUCTORS & BRAID MATERIALS

AL	Aluminum
BC	Bare Copper
BeCu	Beryllium-Copper Alloy 172
BCCAl	Bare Copper Clad Aluminum
CCS	Bare Copper Clad Steel
GS	Galvanized Steel
HR	High Resistance Wire
MW	Magnet Wire
NC	Nickel Covered Copper
SA	Silver Covered Alloy
SC	Silver Covered Copper
SCBeCu	Silver Covered Beryllium Copper
SCCadBr	Silver Covered Cadmium Bronze
SCCAI	Silver Covered Copper Clad Aluminum
SCCS	Silver Covered Copper Clad Steel
SNCCS	Silver Covered Nickel Covered Copper Clad Steel
SCS	Silver Covered Copper Strip
TC	Tinned Copper
TCCS	Tinned Copper Clad Steel

## DIELECTRIC MATERIALS

PE	Solid Low Density Polyethylene
PTFE	Solid Polytetrafluoroethylene
LDTFE	Low Density PTFE
Foam PE	Gas Injected Foam PE
FEP	Solid Fluorinated Ethylene Propylene
CPT	Conductive PTFE
CPE	Conductive Polyethylene (Type A-5 per MIL-C-17)
Rubber	per MIL-C-17 (obsolete)
MGO	Magnesium Oxide

## INTERLAYER MATERIALS

PE	Solid Polyethylene
PTFE	Solid Polytetrafluoroethylene
MY	Polyester
KP	Polyimide
ALMY	Aluminum-Polyester Laminate
ALKP	Aluminum-Polyimide Laminate
CPC	Copper-Polyester-Copper Laminate

## JACKET MATERIALS

E-CTFE	Ethylene Chlorotrifluoroethylene Type XI per MIL-C-17
ETFE	Ethylene Tetrafluoroethylene Copolymer Type X per MIL-C-17
FEP	Fluorinated Ethylene Propylene Type IX per MIN-C-17
FG Braid	Fiberglass; Impregnated Type V per MIL-C-17
PE	Clear Polyethylene Type III per MIL-C-17
LS/LT	Low Smoke/Low Toxicity (XLPE)
PE	Polyethylene, black HMW Type IIIA per MIL-C-17
PFA	Perfluoroalkoxy Type XIII per MIL-C-17
PTFE	Polytetrafluoroethylene Type VIIA per MIL-C-17
PUR	Polyurethane, black Type XII per MIL-C-17
PVC-I	Polyvinyl Chloride, black (contaminating) Type 1 per MIL-C-17
PVC-II	Polyvinyl Chloride, grey (non-contaminating) Type II per MIL-C-17
PVC-IIA	Polyvinyl Chloride, black (non-contaminating) Type IIA per MIL-C-17
Rubber	Per MIL-C-17 (obsolete)
SIL/DAC	Dacron Braid over Silicone Rubber Type VI per MIL-C-17
TPE	Thermo Plastic Elastomer
XLPE	Crosslinked Polyolefin Type XIV per MIL-C-17

# COAXIAL CABLE EQUATIONS LEGEND

Symbol	Definition	Units
$\alpha$	= Attenuation in dB/100 feet	dB/100 feet
$\epsilon$	= Dielectric constant	
$\Gamma$	= Reflection coefficient	
$\phi$	= Electrical length	degrees
<b>C</b>	= capacitance	pF/foot
<b>L</b>	= Inductance	uH/foot
<b>Zo</b>	= Impedance	ohms
<b>Vp</b>	= Velocity of propagation	%
<b>df</b>	= Dissipation factor	
<b>Td</b>	= Time delay	nS/foot
<b>F</b>	= Frequency	MHz
<b>PTC</b>	= Phase temperature coefficient	ppm/C
$\Delta T$	= Change in temperature (t2 t0 t1)	C
<b>LTH</b>	= Length	feet
$\Delta\phi$	= Change in electrical length (t1 to t2)	degrees
<b>D</b>	= dielectric diameter	inches
<b>d</b>	= center conductor diameter	inches
<b>ds</b>	= Braid wire size	inches
<b>Fbd</b>	= Braid factor	

Symbol	Definition	Units
<b>Fco</b>	= Cutoff frequency	GHz
<b>C</b>	= Braid carriers	
<b>N</b>	= Braid ends per carrier	
<b>t</b>	= Flat strip thickness	inches
<b>w</b>	= Flat strip width	inches
<b>SRL</b>	= Return loss	dB
<b>VSWR</b>	= Voltage standing wave ratio	
<b>FWD</b>	= Forward power	dB
<b>RFL</b>	= Reflected power	dB
<b>MML</b>	= Mismatch loss	dB
<b>ME</b>	= Match efficiency	%
<b>ks</b>	= 1.0 for solid center conductor = 0.939 for 7 strand center conductor = 0.97 for 19 strand center conductor	
<b>log</b>	= logarithm to base 10	
<b>ln</b>	= logarithm to base e	
<b>k<sub>1</sub></b>	= resistive loss constant	
<b>k<sub>2</sub></b>	= dielectric loss constant	

# GENERAL ELECTRICAL PROPERTIES

	Cable Type	Impedance (ohms)	Capacitance (p/F/foot)	Velocity (%)	Dielectric Constant	Time Delay (nS/foot)
<b>50 OHM</b>	Solid Polyethylene	50	30.8	65.9	2.30	1.54
	Foam PE	50	24.5	83.0	1.45	1.22
	Foam PE	50	24.2	84.0	1.42	1.21
	Foam PE	50	23.9	85.0	1.38	1.20
	Foam PE	50	23.6	86.0	1.35	1.18
	Foam PE	50	23.3	87.0	1.32	1.17
	Foam PE	50	23.1	88.0	1.29	1.16
	Solid PTFE	50	29.2	69.5	2.07	1.46
	Tape PTFE	50	28.6	71.0	1.98	1.43
	Low Density PTFE	50	26.7	76.0	1.73	1.34
	Low Density PTFE	50	25.4	80.0	1.56	1.27
<b>75 OHM</b>	Solid Polyethylene	75	20.6	65.9	2.30	1.54
	Foam PE	75	16.3	83.0	1.45	1.22
	Foam PE	75	16.1	84.0	1.42	1.21
	Foam PE	75	15.9	85.0	1.38	1.20
	Foam PE	75	15.8	86.0	1.35	1.18
	Foam PE	75	15.6	87.0	1.32	1.17
	Foam PE	75	15.4	88.0	1.29	1.16
	Solid PTFE	75	19.5	69.5	2.07	1.46
	Low Density PTFE	75	17.8	76.0	1.73	1.34
	Low Density PTFE	75	16.9	80.0	1.56	1.27
	<b>MISC</b>	Solid Polyethylene	95	16.2	65.9	2.30
Foam PE		95	12.6	85.0	1.38	1.20
Air Spaced PE		95	12.6	85.0	1.38	1.20
Solid PTFE		95	15.4	69.5	2.07	1.46
Air Spaced PE		125	09.6	85.0	1.38	1.20
Air Spaced PE		185	06.5	85.0	1.38	1.20

# PROPERTIES OF WIRE AND CABLE INSULATING MATERIALS

Material	Dielectric Constant	Dissipation Factor	Volume-Resistivity (ohm-cm)	Operating Temperature (Range °C)
PTFE	2.07	0.0003	10 <sup>19</sup> th	-75 to +250
Polyethylene	2.3	0.0003	10 <sup>16</sup> th	-65 to +80
Foam Polyethylene	1.29 - 1.64	0.0001	10 <sup>12</sup> th	-65 to +100
Polyvinylchloride	3.0 - 8.0	0.07 - 0.16	2 x 10 <sup>12</sup> th	-50 to +105
Polyamide	3.5 - 4.6	0.03 - 0.4	4 x 10 <sup>14</sup> th	-60 to +120
Silicone Rubber	2.1 - 3.5	0.007 - 0.016	10 <sup>13</sup> th	-70 to +250
Ethylene Propylene	2.24	0.00046	10 <sup>17</sup> th	-40 to +105
FEP	2.1	0.0007	10 <sup>18</sup> th	-70 to +200
Low Density PTFE	1.38 - 1.73	0.00005	10 <sup>19</sup> th	-75 to +250
Foam FEP	1.45	0.0007	10 <sup>18</sup> th	-75 to +200
Polyimide	3.0 - 3.5	0.002 - 0.003	10 <sup>13</sup> th	-75 to +300
PFA	2.1	0.001	10 <sup>16</sup> th	-75 to +260
ETFE	2.6	0.005	10 <sup>16</sup> th	-75 to +150
ECTFE	2.5	0.0015	10 <sup>16</sup> th	-65 to +150
PVDF	7.8	0.02	10 <sup>14</sup> th	-75 to +125