

Section 13. Coaxial Cable

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Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

Mil-C-17 Coaxial Cables

Construction: Various constructions

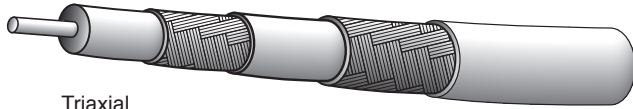
MIL-C-17 Coaxial Cables - including M17/176-00001 Twinaxial Data Bus Cable



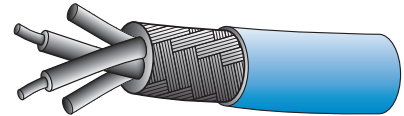
Single Braid



Double Braid



Triaxial



Twinax

				Attenuation (dB/100 ft)						
M17 Part	Impedance (ohms)	Capacitance (pF/ft)	Max Voltage	100 MHz Typ/Max	400 MHz Typ/Max	1 GHz Typ/Max	2.4 GHz Typ/Max	5 GHz Typ/Max	10 GHz Typ/Max	Max Frequency (GHz)
M17/60-RG142	50 +/-2	29.4	1900	4.0 / 5.5	8.1 / 11.7	13.4 / 19.2	21.3 / 30.4	33.3 / 48.7		12.4
M17/93-RG178	50 +/-2	29.4	1000	13.0 / 16.0	27.2 / 33.0	44.2 / 52.0	61.9 / 83.3			
M17/94-RG179	75 +/-3	19.4	1200	8.0 / 9.2	15.5 / 21.0	26.7 / 30.7				
M17/95-RG180	95 +/-5	17.4	1500	5.7 / 6.6	11.7 / 17.4	19.2 / 23.0				
M17/111-RG303	50 +/-2	29.4	1900	3.5 / 3.9	7.2 / 8.0	13.5 / 15.0				
M17/112-RG304	50 +/-2	29.4	3000	2.4 / 2.7	5.8 / 6.4	10.0 / 11.1				8.0
M17/113-RG316	50 +/-2	29.4	1200	7.6 / 11.0	16.0 / 21.0	26.2 / 38.0	41.2 / 55.4			3.0
M17/127-RG393	50 +/-2	29.4	1500	2.3 / 2.5	4.4 / 5.0	7.7 / 9.2	12.4 / 14.2	21.3 / 26.8	30.1 / 37.9	11.0
M17/128-RG400	50 +/-2	29.4	1900	4.3 / 4.5	8.6 / 10.5	14.1 / 18.1	22.6 / 30.2	35.6 / 52.1	61.6 / 78.0	12.4
M17/131-RG403	50 +/-2	29.4	1000		33.3 / 37.0					10.0
M17/152-00001	50 +/-2	29.4	1200	8.1 / 11.5	17.8 / 24.0	29.6 / 40.0	43.1 / 58.3	100.0 / 110.0	153.0 / 170.0	12.4
M17/158-00001**	50 +/-2	29.4	1900		8.1 / 9.5					
M17/169-00001**	50 +/-2	29.4	1000		27.2 / 29.0					
M17/170-00001**	50 +/-2	29.4	1900		7.7 / 8.6					
M17/172-00001**	50 +/-2	29.4	1200		15.5 / 21.0					
M17/175-00001**	50 +/-2	29.4	1900		8.6 / 10.5					
M17/176-00002	77 +/-7	19.0	1000							
RG187 A/U	75 +/-3	19.4	1200		15.5 / 21.0					
RG188 A/U	50 +/-2	29.4	1200	7.6 / 11.0	16.0 / 21.0	26.2 / 38.0	41.2 / 55.4			3.0
RG195 A/U	95 +/-5	17.4	1500		11.7 / 17.4					
RG196 A/U	50 +/-2	29.4	1000	13.0 / 16.0	27.2 / 33.0	44.2 / 52.0	41.7 / 56.1			3.0

** DSCC has removed these part numbers from MIL-DTL-17.

UL Approvals for many of the MIL-C-17 cables listed are available upon request.

“Maximum frequencies” are those as referenced on individual slant sheets of the MIL-C-17 specification. No values are given above 400MHz for unswept constructions because MIL-C-17 specification recommends these cables should not be used above this frequency.

Complete catalog available online at:
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Coaxial Cable

RG-59 Plenum

Construction: RG-59 Plenum 20 AWG Solid .032" BC. **Insulation:** BC 95% BC Braid Shield. **Jacket:** White Low Smoke PVC Jacket.

Applications:

Surveillance & CCTV Plenum Rated

Technical Data:

See Chart for Nominal Attenuation

 Temperature: 75°C	 Approvals: • RoHS • CMP	PN#: KLTCL2PRG-59/U-9B
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UL/ ETL NEC TYPE	COND. (STRAND)	NOMINAL CORE OD & TYPE		SHIELD MTRL	NOMINAL OD		NOM. IMP.	NOM. VEL. OF PROP.	NOMINAL CAPACITANCE		NOMINAL ATTENUATION		
		INCH	mm		INCH	mm			pF/FT	pF/m			
											MHz	100 FT.	100 m

RG 59 PLENUM 20 AWG Solid .032" BC 95% BC Braid Shield White Low Smoke PVC Jacket

CMP	20 AWG (solid) .032" BC	.135	3.43	BC Braid 95% Shield Coverage	.193	4.90	75					See Chart		
		FFEP												

PN# CL2PR66-59/U-9B

CCTV

Construction: Siamese RG 59 Plenum 20 AWG Solid .032" BC.

Insulation: 95% BC BS + 18 AWG (7 Str) BC 2 Conductor Blk + Wht Jkt. **Jacket:** White LS PVC.

Features:

Plenum

Technical Data:

See Chart for Nominal Attenuation

 Temperature: 75°C	 Color Code: Black	 Approvals: RoHS	PN#: KLTCL2PRG59-CCTV-18/2
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UL/ ETL NEC TYPE	COND. (STRAND)	NOMINAL CORE OD & TYPE		SHIELD MTRL	NOMINAL OD		NOM. IMP.	NOM. VEL. OF PROP.	NOMINAL CAPACITANCE		NOMINAL ATTENUATION		
		INCH	mm		INCH	mm			pF/FT	pF/m	dB/ MHz	dB/ 100 FT.	dB/ 100 m

Siamese RG 59 PLENUM 20 AWG Solid .032" BC 95% BC BS + 18 AWG (7 Str.) BC 2 Cond. Blk + Wht. LS PVC

CMP	20 AWG (solid) .032" BC	.140	3.56	BC Braid 95% Shield Coverage	.199	5.05	75	84%	15.8	51.8	See Chart
		FFEP			x	x					
	18 AWG (7 Str. BC) 2 Conductor	.059	1.50	Unshld	.383	9.72					
		PVC									

PN# CL2PRG59-CCTV-18/2

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Security CCTV Cable

Construction: RG 59 20 AWG Solid .032" BC 95%. **Insulation:** BC Braid Shield. **Jacket:** Black PVC Jacket.

Applications:

Security CCTV Cable

Technical Data:

See Chart for Nominal Attenuation



Temperature:
75°C



Approvals:
RoHS

PN#:

KLTRG-59/U-CCTV-0B

UL/ ETL NEC TYPE	COND. (STRAND)	NOMINAL CORE OD & TYPE		SHIELD MTRL	NOMINAL OD		NOM. IMP.	NOM. VEL. OF PROP.	NOMINAL CAPACITANCE		NOMINAL ATTENUATION		
		INCH	mm		INCH	mm			pF/FT	pF/m			
											dB/ MHz	dB/ 100 FT.	dB/ 100 m

RG 59 20 AWG Solid .032" BC 95% BC Braid Shield Black PVC Jacket

CM	20 AWG (solid) .032" BC	.145	3.68	BC Braid 95% Shield Coverage	.240	6.10	75	82%	16.2	53.2	See Chart
		FPE									

RG-59/U-CCTV-0B

RG 6 Plenum

Construction: 18 AWG Solid .040" BCCS. **Insulation:** 60% AL Braid Shield. **Jacket:** White Low Smoke PVC Jacket.

Applications:

Broadband CATV Coaxial cable

Technical Data:

See Chart for Nominal Attenuation



Temperature:
75°C



Approvals:
• RoHS
• CATVP
• CMP

PN#:

CL2PRG-6-QUAD-9

UL/ ETL NEC TYPE	COND. (STRAND) NOM. DCR	NOMINAL CORE OD & TYPE		SHIELD MTRL NOM DCR	NOMINAL OD		NOM. IMP.	NOM. VEL. OF PROP.	NOMINAL CAPACITANCE		NOMINAL ATTENUATION		
		INCH	mm		INCH	mm			pF/FT	pF/m			
											dB/ MHz	dB/ 100 FT.	dB/ 100 m

RG 6 PLENUM 18 AWG Solid .040" BCCS 60% AL Braid Shield White Low Smoke PVC Jacket

CATVP CMP	18 AWG (solid) .040" BCCS 28.0Ω/M' 91.9Ω/km	.170	4.32	AL Foil + AL Braid 60% Shield Coverage 9.0Ω/M' 29.5Ω/km	.230	5.97	75	84%	16.3	53.5	See Chart
		FFEP									

CL2PR6-6-QUAD-9

Please contact your sales representative for detailed information at sales@lapptannehill.com

Coaxial Cable

RG 59/U Type

Construction: Copper per ASTM B-3, Copper-clad steel per ASTM B-869.

Insulation: Solid and cellular polyethylene (PE) designs or foam fluoropolymer (FEP) design. **Shield:** Bare copper braid. **Jacket:** Premium Black PVC.

Applications:

- Suitable for RF signal transmission
- CATV
- MATV
- CCTV†
- Local Area Network
- Digital video
- Monitor/VDT display

Technical Data:



Color Code:

Twisted pair color code:
black and red



Approvals:

- UL CL2
- CATV
- CM CSA CMG
- 1354

PN#:

C1142

CATALOG NUMBER	AWG SIZE NOM. DCR	INSULATION MATERIAL		SHIELD COVERAGE NOM SHLD DCR	NOMINAL O.D.		NOMINAL CAPACITANCE		VELOCITY OF PROPAGATION, %	NOMINAL IMPEDANCE, Ω	NOMINAL ATTENUATION	
		INCHES	mm		INCHES	mm	pF/ft	pF/m			MHz	dB/100'
C1142† RG 59/U Type UL CL2, CATV, CM CSA CMG 1354 	20 Ga. Solid Bare Copper 10.1 Ω/Mft.	Foam PE		95% Bare Copper Braid 2.6 Ω/Mft.	Black PVC		16.20	53.15	78	71	1	0.25
											10	0.78
		0.1463.71			0.2345.94						50	1.97
											100	2.79
											200	3.97
											500	6.35
											1000	9.15
											1450	11.02
											1800	12.28
											2200	13.57
											3000	15.85

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RG-58 C/U Coaxial Cable

Construction: 21 AWG (19/.007) Stranded Tinned Copper.

Dielectric: Solid Polyethylene color natural. **Shielding:** 95% Tinned Copper Braid. **Jacket:** PVC (Non-Contaminating Type IIA), Black.

Applications:

- Suitable for RF signal transmission
- CATV
- MATV
- CCTV†
- Local Area Network
- Digital video
- Monitor/VDT display

Technical Data:

Flame rating: UL-1581 VW-1 Vertical Flame Test

Applicable NEC Article: 725

 **Temperature:**
75°C

 **Rated Voltage:**
1900 RMS

 **Approvals:**

- UL LISTED AS CL2X
- UL RECOGNIZED COMPONENT AWM STYLE 1354

Construction Parameters:

	<u>Wall (in)*</u>	<u>OD (in)*</u>
Conductors:		0.035
Dielectric:	0.041	0.116
Shielding:		0.138
Jacket:	0.029	0.195

Electrical Properties:

	<u>VALUE*</u>
Conductor Resistance (ohms/Kft)	11
Impedance (ohms):	50 ± 2
Capacitance (pF/ft):	30.8
Velocity of Propagation (%):	66 ± 1
Attenuation (Max db/100 ft):	
50 MHz	3.3
100 MHz	4.9
200 MHz	7.3
400 MHz	11.5
900 MHz	20.0

Cable Cross-section:

(NOT TO SCALE)



Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

Coaxial Cable

Belden 9311 Coax – RG-58A/U Type

Construction: 20 AWG stranded (19x32) .037" tinned copper conductor.

Insulation: Foam polyethylene insulation, Duobond® II + tinned copper braid shield (55% coverage).

Jacket: Black PVC jacket.

Technical Data:

Nominal Characteristic Impedance:	52 Ohms
UL Flame Test:	UL1685 UL Loading
NEC/(UL) Specification:	CM
CEC/C(UL) Specification:	CM
AWM Specification:	UL Style 1354 (30 V 80°C)
EU CE Mark (Y/N):	No
EU RoHS Compliant (Y/N):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	1/1/2004

INSULATION:

Insulation Material	FPE - Foam Polyethylene
Insulation Diameter	.114 in.

OUTER SHIELD:

Outer Shield Material Trade Name	Duobond® II
Outer Shield Type	Tape/Braid
Outer Shield % Coverage	100%
Outer Shield Material:	

Layer Number	Trade Name	Type	Material	% Coverage (%)
1	Bonded Duofoil®	Tape	Aluminum Foil-Polyester Tape-Aluminum Foil	100
2		Braid	TC - Tinned Copper	55

OUTER JACKET:

Outer Jacket Material	PVC - Polyvinyl Chloride
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OVERALL NOMINAL DIAMETER:

Overall Nominal Diameter	.193 in.
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ELECTRICAL CHARACTERISTICS:

Nominal Characteristics Impedance	52 Ohms
Nominal Inductance	0.065 μ H/ft
Nominal Capacitance Conductor to Shield	26.0 pF/ft
Nominal Velocity of Propagation	75%
Nominal Delay	1.36 ns/ft
Nominal Conductor DC Resistance @ 20°C	8.8 Ohms/1000 ft
Nominal Outer Shield DC Resistance @ 20°C	17 Ohms/1000 ft
Nominal Attenuation:	

Description	Frequency (MHz)	Start Frequency (MHz)	Stop Frequency (MHz)	Nominal Attenuation (dB/100 ft.)
	1			0.5
	10			1.5
	50			2.9
	100			4.0
	200			5.7
	400			8.5
	700			12.2
	900			14.5
	1000			15.8

Maximum Operating Voltage - UL	300 V RMS (CM), 30 V RMS (US AWM Style 1354)
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Belden 9240 Coax 75 Ohm

Construction: 20 AWG solid .032" bare copper-covered steel conductor.

Insulation: Foam polyethylene insulation. **Shield:** Bare copper braid shield (80% coverage). **Jacket:** PVC. jacket

Technical Data:

EU CE Mark:	No
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	1/1/2004
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes
Maximum Recommended Pulling Tension:	76 lbs
Minimum Bend Radius (Install) / Minor Axis	2.500 in
Temperature	-40°C To +75°C

Nominal Characteristic Impedance (Ohm)	Nominal Inductance (μH/ft)	Nominal Capacitance Conductor to Shield (pF/ft)	Nominal Velocity of Propagation VP (%)	Nominal Delay (ns/ft)	Nominal Conductor DC Resistance DCR @ 20°C (Ohm/1000 ft)	Nominal Outer Shield DC Resistance DCR @ 20°C (Ohm/1000 ft)	Nominal Attenuation	
							Freq. (MHz)	Attenuation (dB/100 ft)
75	.097	17.3	78	1.3	44.5	5.6	1	.6
							10	1.0
							50	2.1
							100	3.0
							200	4.5
							400	6.6
							700	8.9
							900	10.1
							1000	10.9

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Alpha 9058C RG-58C/U

Construction: 20 (19/.0072) AWG TC. **Insulation:** 0.040" Wall, Nom. Polyethylene(PE).
Shield: TC BRAID Shield,95% Coverage, Min. **Jacket:** 0.028" Wall, Nom., Type IIA PVC, BLACK. Diameter: 0.195+/- 0.004 (in)
Additional Information:
MIL-C-17/28B RG 58C/U

Technical Data:

 **Temperature:**
-20°C to 60°C

Physical & Mechanical Properties

Bend Radius	10X Cable Diameter
Pull Tension	12.3 Lbs, Maximum

Electrical Properties (For Engineering purposes only)

Voltage Rating	1400 V RMS
Characteristics Impedance	50 +/-2
Ground Capacitance	30.8 pf/ft @ 1 kHz, Nominal
Velocity of Propagation	66%
Conductor DCR	11.5/1000 ft @ 20°C, Nominal
OA Shield DCR	4.5/1000 ft @ 20°C, Nominal
Voltage Withstanding	5 kV, Minimum
Corona Extinction	1.9 kV, Minimum
Attenuation, Max dB/100ft	4 @ 50 MHz 5.8 @ 100 MHz 17 @ 400 MHz 28 @ 1 GHz

Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

