

Semi-Rigid

COAXIAL CABLES



MICRO-COAX <<<<
AN AMPHENOL COMPANY

Semi-Rigid Coaxial Cables

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We offer more semi-rigid coaxial cable options than any other cable. Cables with a large range of impedances, diameters, materials, and finishes are available for immediate delivery. Semi-rigid cable comes as close as possible to the ideal coaxial cable and should be the first choice by any RF/microwave engineer.

MIL-DTL-17 Qualified Cables

We offer a full range of MIL-DTL-17-qualified cables. These cables undergo additional testing to ensure they are fully capable of satisfying the most demanding military applications.

Copper 50 Ω Cables

Diameters from 0.013" to 0.390" in lengths up to 20' on select cables. Many standard connectors are available from numerous suppliers.

Dimensionally Stable “DS” 50 Ω Cables

Our dimensionally stable semi-rigid cable utilize a unique solid PTFE dielectric that provides significantly improved thermal stability compared to traditional solid PTFE semi-rigid cables. The improved thermal stability reduces the need for temperature preconditioning

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and virtually eliminates the dielectric protrusion when soldering. All other mechanical and electrical performances are equal or better than the traditional solid PTFE equivalents.

Low-Loss & Ultra-Low-Loss 50 Ω Cables

When even better performance is required, our Low-Loss and Ultra-Low-Loss Semi-Rigid Coaxial Cables typically lower the attenuation by another 20% and extend the operating temperature to 250 °C.

Aluminum 50 Ω Cables

Available in both standard and low-loss versions, aluminum-jacketed cables offer easier bending and significant weight reduction.

Stainless Steel 50 Ω Cables

Stainless steel cables satisfy cryogenic or medical applications where low thermal conductivity or hypoallergenic properties are required.

Non-50 Ω Cables

Available in impedances from 5 to 100 Ω ranging in diameters from 0.020" to 0.250".

Custom Made-to-Order Cables

Our semi-rigid cables have been tested to the toughest requirements and built with a large spectrum of materials at every size imaginable and at almost any impedance. Contact us if you cannot find the semi-rigid cable you need in this catalog. We may already have the special cable you need – or can build your custom configuration.

Features & Benefits

Semi-rigid coaxial cables are available in a wide variety of sizes, materials, and characteristic impedances. To be considered a semi-rigid coaxial cable, the cable must employ a solid metallic tube for the outer conductor. Most semi-rigid coaxial cables are less than 0.250" in diameter; however, some select cables are as large as 0.500". A silver-plated copper-center conductor, PTFE dielectric, and copper outer conductor are the most common materials. Impedances are available from 5 to 100 Ω. Typical maximum operating temperatures range from 125 °C to 250 °C. Semi-rigid coaxial cables are used to transmit and receive microwave signals up to 110 GHz. These cables are the best pure microwave transmission medium available in the world.

Because semi-rigid coaxial cables can be precisely formed, they allow maximum packaging efficiency with no wasted space. While semi-rigid cables will hold their shape once formed, most are still pliable enough to provide some flexibility during system integration. Semi-rigid coaxial cables are the benchmark against which all other coaxial cables are compared.

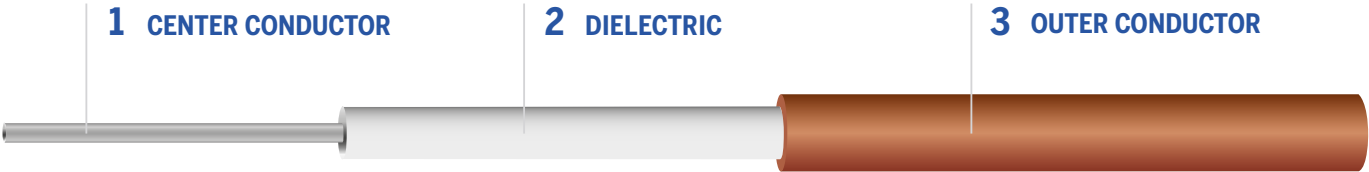
- RF shielding in excess of -130 dB
- Lowest attenuation & lightest weight for any given geometry
- Unequaled impedance control & VSWR performance
- Smallest overall diameters available in a microwave cable
- Very tight bend radii allow utilization in the tightest configurations
- Environmentally sealed with no concern for jacket cuts or abrasions
- Numerous connector options available off the shelf from many different suppliers



Typical Applications

Semi-rigid coaxial cable finds applications from very low frequencies through 110 GHz.

Almost any system operating above 500 MHz and in need of good operational performance and total shielding should use semi-rigid coaxial cable, including defense electronics, test and measurement instrumentation, medical electronics, telecommunications, and space flight systems, among other precision applications. In componentry, semi-rigid coaxial cable is used in oscillators, amplifiers, printed circuit boards, delay lines, and capacitor sections.



1 Center Conductor

Function

The center conductor is either a solid or stranded metal wire that acts as the primary electrical signal carrier for any coaxial cable. Most attenuation occurs at the surface of the center conductor due to the “skin effect” of microwave signals, making the finish or plating a very important element. Stranded center conductors are generally only used in flexible cable constructions for added flexibility and longer flex life. In comparison, solid center conductors have lower attenuation and tend to be more amplitude-stable with flexure, while stranded center conductors tend to be more phasestable with flexure. For larger semi-rigid cables, a tubular center conductor can be substituted. The tubular

center conductor reduces weight and thermal conductivity without any impact on the electrical performance.

Materials

Silver-plated copper (SPC) per ASTM B-298 and silverplated copper-clad steel, also referred to as silver-plated copper weld (SPCW) per ASTM B-501, are the two most common center conductor materials. Silver plating, besides being an excellent electrical conductor, prevents oxidization during manufacture and improves the solderability of the finished cable. Stainless steel and beryllium copper are also used when low thermal conductivity is a priority. Other materials, including many copper alloys, are available upon special request.

Material	DC Resistance (Ω · in 2/ft)	Microwave Frequency Conductivity Compared to Copper (Ratio)	Thermal Conductivity	Used with “Pin-Less” Connector	Magnetic	Ease of Soldering	RoHS Compliant
Silver-Plated Copper	10.4	1.0:1	Very High	No	No	Excellent	Yes
Silver-Plated Copper-Clad Steel	93.1	1.0:1	Low	Yes	Yes	Excellent	Yes
Stainless Steel	464.6	44.8:1	Very Low	No	Slightly	Poor	Yes
Silver-Plated Beryllium Copper	47.7	1.0:1	Low	No	No	Excellent	Yes

2 Dielectric

Function

The insulating material between the center and outer conductor maintains the spacing and geometry of the cable and ensures mechanical integrity during forming and bending. Most transmission losses are caused either directly or indirectly by the dielectric. Cables with a low dielectric constant, while offering lower bulk dielectric losses, also require a larger center conductor diameter to maintain the same characteristic impedance. The larger center conductor can significantly lower the overall cable attenuation. In addition, the dielectric determines the velocity of propagation, temperature range, power rating, phase and amplitude stability, and contributes to cable flexibility.

Materials

The most commonly used dielectric for high-performance microwave coaxial cable is Polytetrafluoroethylene (PTFE), in both full-density and low-density (aka low-loss or microporous) forms. PTFE is an excellent choice for a cable dielectric due to its low reactivity to chemicals, an operating temperature that can withstand the heat of

soldering, and low dielectric constant that is stable at microwave frequencies. Full-density PTFE meets all the requirements of MIL-DTL-17, Type F-1. Most cables utilize full-density PTFE in the solid form. Low-density and ultra-low-density PTFE utilizes the same base material as the full-density version; it is just less dense. As a result of the lower density, both the dielectric constant and dissipation factor are reduced, leading to an overall lowering of the cable attenuation. Low-density PTFE is also much more thermally stable than solid PTFE. The trade-off is that anytime the dielectric density is reduced, the mechanical integrity is also reduced. As a result, cables employing a low-density dielectric will have larger minimum bend radii than the solid full-density versions.

Fluorinated Ethylene Propylene (FEP) and Perfluoroalkoxy (PFA) are two other dielectrics that are often used when very thin walls are required, such as those on low-impedance cables. Both FEP and PFA have properties that are similar to PTFE. Other materials, including polyethylene, are available upon special request.

Material	Constant	Velocity of Propagation	Dissipation Factor	Phase Stability vs. Temperature	Maximum Service Temperature °C	Thermal Stability	RoHS Compliant
Solid PTFE	2.03	70 %	0.0002	Good	260	Good	Yes
Low-Density PTFE	1.70	77 %	0.0001	Very Good	260	Excellent	Yes
Ultra-Low-Density PTFE	1.45	83 %	0.0001	Very Good	260	Excellent	Yes
FEP	2.05	70 %	0.0010	Good	204	Good	Yes
PFA	2.06	70 %	0.0003	Good	260	Good	Yes

3 Outer Conductor

Function

The outer conductor serves many purposes. It controls RF leakage and is the electrical shield that contributes to cable attenuation. Through precision

mechanical tolerances, the outer conductor minimizes return loss (VSWR) by maintaining a constant characteristic impedance. The outer conductor is the

Cable Construction

primary strength member that keeps connectors firmly attached to the cable. It often provides environmental protection and determines the cable’s flexibility.

Materials

The most commonly used materials are copper and

aluminum because of their low DC resistance. These materials can be in many forms, such as tube for semi-rigid cable, tin-coated braid for conformable cable, or a foil in high-performance flexible cables. Material selection typically involves trade-offs between electrical performance, size, and flexibility.

Material	DC Resistance (Ω · in 2/ft)	Microwave Frequency Conductivity Compared to Copper (Ratio)	Thermal Conductivity	Weight	Magnetic	Ease of Soldering	RoHS Compliant
Copper	10.4	1.0:1	Very High	Very High	No	Excellent	Yes
Aluminum	18.3	1.8:1	High	Low	No	Poor	Yes
Stainless Steel 304	464.6	44.8:1	Very Low	High	Slightly	Poor	Yes

Plating and Finishes

Copper and aluminum conductors are often plated for additional corrosion protection and solderability. The most common plating materials, tin and silver, are very soft and ductile.

Silver, which has superior electrical conductive properties along with being very corrosive-resistant to atmospheric oxygen, is vulnerable to tarnish by atmospheric sulfides and nitrates. Silver-plating is the preferred inner conductor plating and is part of the conductive path inside the cable. For semi-rigid cables, silver-plating the outer conductor is not recommended for high humidity or saltwater environments due to its

susceptibility to galvanic corrosion.
Tin is economical and corrosion-resistant, has excellent solderability, and is the preferred plating for semi-rigid cable outer conductors. Tin plating can be prone to tin “whiskers,” which are electrically conductive, crystalline tin structures. These whiskers sometimes grow from surfaces where tin is used as a final finish. They have been observed to increase to lengths of several millimeters and can cause short circuits by bridging closely spaced circuit elements maintained at different electrical potentials.
Other plating and finishes are available by special request.

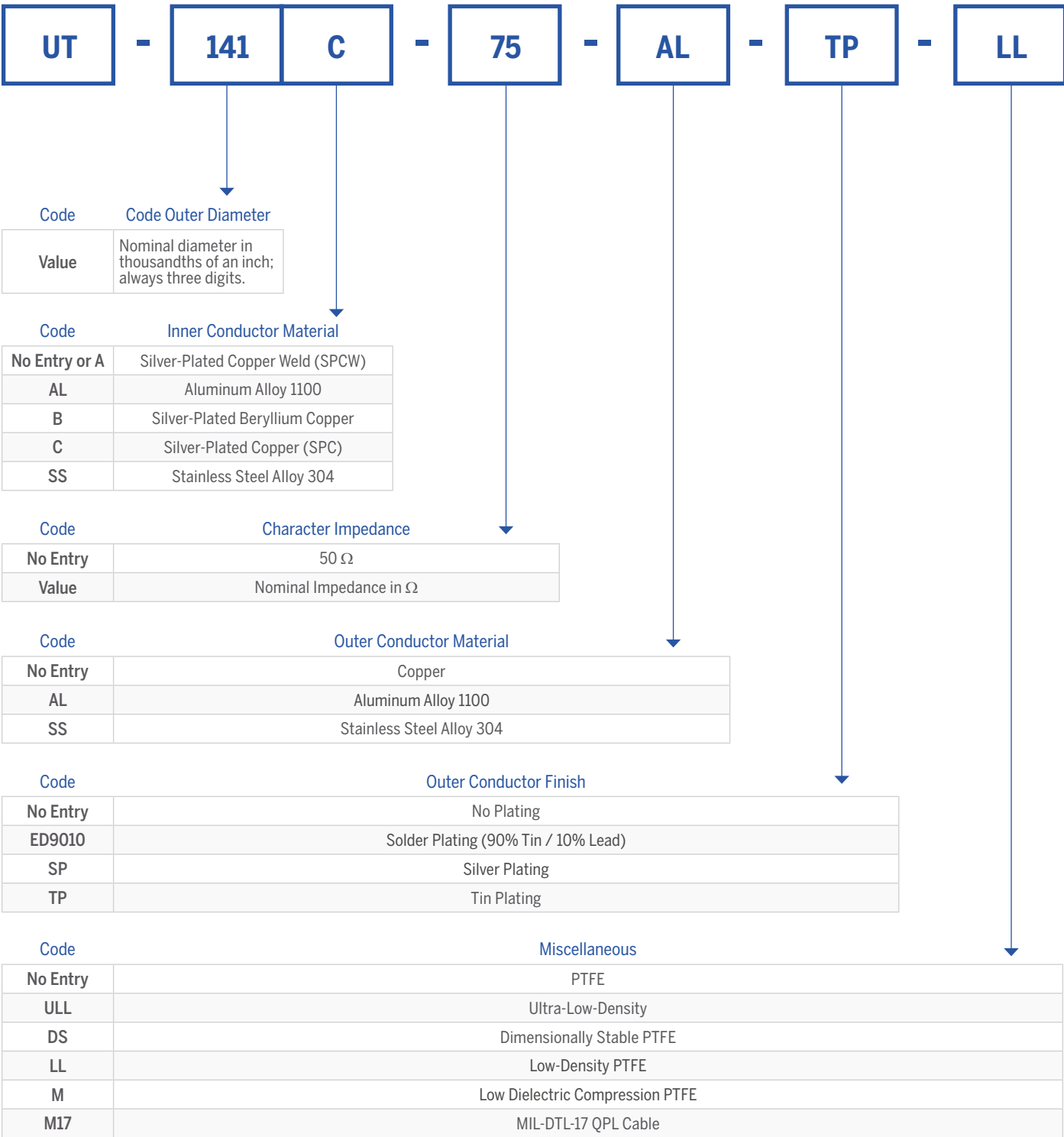
Plating Selection

Material	Specification	Part Number Suffix	Remarks	RoHS Compliant
Silver	ASTM B-700	SP	• Excellent corrosion protection & solderability • Not susceptible to silver whiskers • Not recommended for high humidity or saltwater environments	Yes
Tin	ASTM B-545	TP	• Lowest cost • Excellent corrosion protection • Improves solderability • Low melting point of 220 ° C • Susceptible to tin whiskers	Yes
Tin-Lead (90/10)	SAE- AMS-P-81728	EDS9010	• Very good corrosion protection & solderability • Low melting point of 220 ° C • Not susceptible to tin whiskers	No

Part Number Designation

The UT part number designation is easy to understand because it is simple and short, especially for standard

cable. Some part numbers for standard cable have been shortened. Materials for component parts are indicated under individual cable specifications.



Standard 50 Ω Copper 1/8

Feature low attenuation and VSWR covering the entire microwave spectrum. With numerous connector options available off-the-shelf, this family of cables is one of the most versatile available today. They meet the demands of package density and provide total shielding for eleimination of signal loss and noise.

MICRO-COAX AN AMPHENOL COMPANY Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-013	UT-020	UT-034	UT-034-TP	UT-034-SP
MIL-DTL-17 Description	-	-	UT-034-M17	UT-034-TP-M17	-
MIL-DTL-17 Part Number	-	-	M17/154-00001	M17/154-00002	-

Dimensions

Outer Conductor Diameter	in	0.013	0.023	0.034	0.034	0.034
	mm	0.330	0.5842	0.864	0.864	0.864
Dielectric Diameter	in	-	-	0.026	0.026	-
	mm	-	-	0.660	0.660	-
Center Conductor Diameter	in	0.0031	0.0050	0.0080	0.0080	0.0080
	mm	0.0787	0.1270	0.2032	0.2032	0.2032
Length (Maximum)	ft	10	10	15	15	15
	m	3.05	3.05	4.57	4.57	4.57

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None	None	None	Tin	Silver
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	SPCW	SPCW	SPCW	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	150	150	150	150	150
Operating Temperature (Max.)	°C	125	125	125	125	125
Inside Bend Radius (Minimum)	in	0.050	0.050	0.050	0.050	0.050
	mm	1.270	1.270	1.270	1.270	1.270
Weight	lbs/100ft	0.03	0.10	0.22	0.22	0.22
	kg/100m	0.05	0.15	0.33	0.33	0.33

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 5.0	50.0 ± 2.0	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	300	500	750	750	700
Voltage Withstanding @ 60 Hz	VRMS	900	1500	2000	2000	2100
Higher Order Mode Frequency	GHz	402	239	155	155	155

Attenuation (dB/100 ft, Typical)	0.5 GHz	87.8	51.6	34.0	34.0	34.0
	1.0 GHz	124.4	73.3	48.3	48.3	48.3
	5.0 GHz	280.5	166.1	110.4	110.4	110.4
	10.0 GHz	399.1	237.4	158.5	158.5	158.5
	18.0 GHz	539.3	322.3	216.5	216.5	216.5
	26.5 GHz	658.2	394.9	266.6	266.6	266.6
	40.0 GHz	814.9	491.4	333.7	333.7	333.7
	50.0 GHz	915.5	553.8	377.5	377.5	377.5
	65.0 GHz	1,050.4	638.1	437.0	437.0	437.0
	90.0 GHz	1,247.3	762.1	525.5	525.5	525.5

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	6.4	17.2	35.7	30.5	28.5
	1.0 GHz	4.5	12.1	25.2	21.5	20.0
	5.0 GHz	2.0	5.4	11.1	9.5	8.8
	10.0 GHz	1.4	3.8	7.7	6.6	6.2
	18.0 GHz	1.0	2.8	5.7	4.8	4.5
	26.5 GHz	0.9	2.3	4.6	3.9	3.7
	40.0 GHz	0.7	1.8	3.7	3.2	3.0
	50.0 GHz	0.6	1.6	3.3	2.8	2.6
	65.0 GHz	0.5	1.4	2.8	2.45	2.3
	90.0 GHz	0.5	1.2	2.4	2.0	1.9

Standard 50 Ω Copper 2/8

MICRO-COAX AN AMPHENOL COMPANY Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-034C	UT-047	UT-047-TP	UT-047-SP	UT-047C
MIL-DTL-17 Description	-	UT-047-M17	UT-047-TP-M17	-	-
MIL-DTL-17 Part Number	-	M17/151-00001	M17/151-00002	-	-

Dimensions

Outer Conductor Diameter	in	0.034	0.047	0.047	0.047	0.047
	mm	0.864	1.194	1.194	1.194	1.194
Dielectric Diameter	in	-	0.037	0.037	-	-
	mm	-	0.940	0.940	-	-
Center Conductor Diameter	in	0.0080	0.0113	0.0113	0.0113	0.0113
	mm	0.2032	0.2870	0.2870	0.2870	0.2870
Length (Maximum)	ft	15	20	20	20	20
	m	4.57	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None	None	Tin	Silver	None
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPC	SPCW	SPCW	SPCW	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	150	175	175	175	175
Operating Temperature (Max.)	°C	125	150	150	150	150
Inside Bend Radius (Minimum)	in	0.063	0.050	0.050	0.050	0.125
	mm	1.600	1.270	1.270	1.270	3.175
Weight	lbs/100ft	0.22	0.40	0.40	0.40	0.40
	kg/100m	0.33	0.60	0.60	0.60	0.60

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 3.0	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 2.5
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	700	1000	1000	1000	1000
Voltage Withstanding @ 60 Hz	VRMS	2100	3000	3000	3000	3000
Higher Order Mode Frequency	GHz	155	109	109	109	109

Attenuation (dB/100 ft, Typical)	0.5 GHz	34.0	24.0	24.0	24.0	24.0
	1.0 GHz	48.3	34.2	34.2	34.2	34.2
	5.0 GHz	110.4	78.8	78.8	78.8	78.8
	10.0 GHz	158.5	113.8	113.8	113.8	113.8
	18.0 GHz	216.5	156.5	156.5	156.5	156.5
	26.5 GHz	266.6	193.8	193.8	193.8	193.8
	40.0 GHz	333.7	244.2	244.2	244.2	244.2
	50.0 GHz	377.5	277.5	277.5	277.5	277.5
	65.0 GHz	437.0	323.0	323.0	323.0	323.0
	90.0 GHz	525.5	391.3	391.3	391.3	391.3

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	35.7	80.5	67.5	62.2	80.5
	1.0 GHz	25.2	56.6	47.4	43.8	56.6
	5.0 GHz	11.1	24.7	20.7	19.1	24.7
	10.0 GHz	7.7	17.2	14.4	13.3	17.2
	18.0 GHz	5.7	12.6	10.5	9.7	12.6
	26.5 GHz	4.6	10.2	8.5	7.9	10.2
	40.0 GHz	3.7	8.1	6.8	6.3	8.1
	50.0 GHz	3.3	7.2	6.0	5.5	7.2
	65.0 GHz	2.8	6.2	5.2	4.8	6.2
	90.0 GHz	2.4	5.1	4.3	4.0	5.1

Standard 50 Ω Copper3/8



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-056	UT-056-STR	UT-070C	UT-085	UT-085-TP
MIL-DTL-17 Description	-	-	-	UT-085-M17	UT-085-TP-M17
MIL-DTL-17 Part Number	-	-	-	M17/133-00006	M17/133-00007

Dimensions

Outer Conductor Diameter	in	0.056	0.056	0.070	0.0865	0.0865
	mm	1.422	1.422	1.778	2.1971	2.1971
Dielectric Diameter	in	-	-	-	0.066	0.066
	mm	-	-	-	1.676	1.676
Center Conductor Diameter	in	0.0113	7x0.0040	0.0179	0.0201	0.0201
	mm	0.2870	7x0.1016	0.4547	0.5105	0.5105
Length (Maximum)	ft	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None	None	None	None	Tin
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	Stranded SPCW	SPC	SPCW	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	200	200	135	175	175
Operating Temperature (Max.)	°C	175	175	100	125	125
Inside Bend Radius (Minimum)	in	0.125	0.063	0.125	0.050	0.050
	mm	3.175	1.600	3.175	1.270	1.270
Weight	lbs/100ft	0.70	0.72	0.80	1.42	1.42
	kg/100m	1.05	1.08	1.20	2.13	2.13

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 2.5	50.0 ± 4.0	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1000	1000	1600	1500	1500
Voltage Withstanding @ 60 Hz	VRMS	3000	3000	4800	5400	5400
Higher Order Mode Frequency	GHz	109	111	68	61	61

Attenuation (dB/100 ft, Typical)	0.5 GHz	24.0	24.7	15.2	13.6	13.6
	1.0 GHz	34.2	35.2	21.7	19.5	19.5
	5.0 GHz	78.8	81.0	50.9	46.0	46.0
	10.0 GHz	113.8	117.0	74.4	67.4	67.4
	18.0 GHz	156.5	160.8	103.7	94.3	94.3
	26.5 GHz	193.8	199.0	129.7	118.3	118.3
	40.0 GHz	244.2	250.6	165.5	151.5	151.5
	50.0 GHz	277.5	284.6	189.4	173.8	173.8
	65.0 GHz	323.0	331.2	222.6	-	-
	90.0 GHz	391.3	400.9	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	110.4	107.3	124.0	232.0	190.3
	1.0 GHz	77.6	75.4	86.9	162.5	133.2
	5.0 GHz	34.0	33.0	37.4	69.8	57.2
	10.0 GHz	23.6	23.0	25.7	47.9	39.3
	18.0 GHz	17.3	16.8	18.6	34.6	28.3
	26.5 GHz	14.0	13.6	14.9	27.7	22.7
	40.0 GHz	11.2	10.9	11.8	21.8	17.9
	50.0 GHz	9.9	9.6	10.3	19.1	15.7
	65.0 GHz	8.5	8.3	8.8	-	-
	90.0 GHz	7.1	6.9	-	-	-

Standard 50 Ω Copper4/8



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-085-SP	UT-085C	UT-085C-TP	UT-085C-SP	UT-085C-H
MIL-DTL-17 Description	UT-085-SP-M17	UT-085C-M17	UT-085C-TP-M17	-	UT-085C-H-M17
MIL-DTL-17 Part Number	M17/133-00016	M17/133-00008	M17/133-00009	-	M17/133-00002

Dimensions

Outer Conductor Diameter	in	0.0865	0.0865	0.0865	0.0865	0.0865
	mm	2.197	2.197	2.197	2.1971	2.1971
Dielectric Diameter	in	0.066	0.066	0.066	-	0.066
	mm	1.676	1.676	1.676	-	1.676
Center Conductor Diameter	in	0.0201	0.0201	0.0201	0.0201	0.0201
	mm	0.5105	0.5105	0.5105	0.5105	0.5105
Length (Maximum)	ft	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	Silver	None	Tin	Silver	None
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	SPC	SPC	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	175	175	175	175
Operating Temperature (Max.)	°C	125	125	125	125	125
Inside Bend Radius (Minimum)	in	0.050	0.050	0.050	0.050	0.125
	mm	1.270	1.270	1.270	1.270	3.175
Weight	lbs/100ft	1.42	1.43	1.43	1.43	1.43
	kg/100m	2.13	2.15	2.15	2.15	2.15

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.0	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1500	1500	1500	1500	1500
Voltage Withstanding @ 60 Hz	VRMS	5400	5400	5400	5400	5400
Higher Order Mode Frequency	GHz	61	61	61	61	61

Attenuation (dB/100 ft, Typical)	0.5 GHz	13.6	13.6	13.6	13.6	13.6
	1.0 GHz	19.5	19.5	19.5	19.5	19.5
	5.0 GHz	46.0	46.0	46.0	46.0	46.0
	10.0 GHz	67.4	67.4	67.4	67.4	67.4
	18.0 GHz	94.3	94.3	94.3	94.3	94.3
	26.5 GHz	118.3	118.3	118.3	118.3	118.3
	40.0 GHz	151.5	151.5	151.5	151.5	151.5
	50.0 GHz	173.8	173.8	173.8	173.8	173.8
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	173.5	232.0	190.3	173.5	232.0
	1.0 GHz	121.5	162.5	133.2	121.5	162.5
	5.0 GHz	52.2	69.8	57.2	52.2	69.8
	10.0 GHz	35.8	47.9	39.3	35.8	47.9
	18.0 GHz	25.8	34.6	28.3	25.8	34.6
	26.5 GHz	20.7	27.7	22.7	20.7	27.7
	40.0 GHz	16.3	21.8	17.9	16.3	21.8
	50.0 GHz	14.3	19.1	15.7	14.3	19.1
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Standard 50 Ω Copper5/8



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-085C-H-TP	UT-085-H	UT-085-H-TP	UT-141A	UT-141A-TP
MIL-DTL-17 Description	UT-085C-H-TP-M17	UT-085-H-M17	UT-085-H-TP-M17	UT-141-SA-M17	UT-141-SA-TP-M17
MIL-DTL-17 Part Number	M17/133-00003	M17/133-RG-405	M17/133-00001	M17/130-00004	M17/130-00005

Dimensions

Outer Conductor Diameter	in	0.0865	0.0865	0.0865	0.141	0.141
	mm	2.1971	2.1971	2.1971	3.581	3.581
Dielectric Diameter	in	0.066	0.066	0.066	0.1175	0.1175
	mm	1.676	1.676	1.676	2.9845	2.985
Center Conductor Diameter	in	0.0201	0.0201	0.0201	0.0362	0.0362
	mm	0.5105	0.5105	0.5105	0.9195	0.9195
Length (Maximum)	ft	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	Tin	None	Tin	None	Tin
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPC	SPCW	SPCW	SPCW	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	175	175	175	175
Operating Temperature (Max.)	°C	125	125	125	125	125
Inside Bend Radius (Minimum)	in	0.125	0.125	0.125	0.075	0.075
	mm	3.175	3.175	3.175	1.905	1.905
Weight	lbs/100ft	1.43	1.42	1.42	3.29	3.29
	kg/100m	2.15	2.13	2.13	4.94	4.94

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1500	1500	1500	1900	1900
Voltage Withstanding @ 60 Hz	VRMS	5400	5000	5000	5000	5000
Higher Order Mode Frequency	GHz	61	61	61	34	34

Attenuation (dB/100 ft, Typical)	0.5 GHz	13.6	13.6	13.6	7.6	7.6
	1.0 GHz	19.5	19.5	19.5	11.3	11.3
	5.0 GHz	46.0	46.0	46.0	27.6	27.6
	10.0 GHz	67.4	67.4	67.4	41.6	41.6
	18.0 GHz	94.3	94.3	94.3	59.6	59.6
	26.5 GHz	118.3	118.3	118.3	76.2	76.2
	40.0 GHz	151.5	151.5	151.5	-	-
	50.0 GHz	173.8	173.8	173.8	-	-
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	190.3	232.0	190.3	600.4	483.5
	1.0 GHz	133.2	162.5	133.2	450.0	336.2
	5.0 GHz	57.2	69.8	57.2	180.0	140.4
	10.0 GHz	39.3	47.9	39.3	120.0	94.6
	18.0 GHz	28.3	34.6	28.3	83.0	66.8
	26.5 GHz	22.7	27.7	22.7	65.6	52.7
	40.0 GHz	17.9	21.8	17.9	-	-
	50.0 GHz	15.7	19.1	15.7	-	-
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Standard 50 Ω Copper6/8



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-141A-SP	UT-141C	UT-141C-TP	UT-141C-SP	UT-141A-HA
MIL-DTL-17 Description	UT-141-SA-SP-M17	-	-	-	UT-141A-HA-M17
MIL-DTL-17 Part Number	M17/130-00012	-	-	-	M17/130-RG402

Dimensions

Outer Conductor Diameter	in	0.141	0.141	0.141	0.141	0.141
	mm	3.581	3.581	3.581	3.581	3.581
Dielectric Diameter	in	0.1175	-	-	-	0.1175
	mm	2.985	-	-	-	2.985
Center Conductor Diameter	in	0.0362	0.0362	0.0362	0.0362	0.0362
	mm	0.9195	0.9195	0.9195	0.9195	0.9195
Length (Maximum)	ft	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	Silver	None	Tin	Silver	None
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	SPC	SPC	SPC	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	175	175	175	175
Operating Temperature (Max.)	°C	125	125	125	125	125
Inside Bend Radius (Minimum)	in	0.075	0.075	0.075	0.075	0.25
	mm	1.905	1.905	1.905	1.905	6.35
Weight	lbs/100ft	3.29	3.32	3.32	3.32	3.29
	kg/100m	4.94	4.94	4.94	4.94	4.94

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1900	3200	3200	3200	1900
Voltage Withstanding @ 60 Hz	VRMS	5000	9600	9600	9600	5000
Higher Order Mode Frequency	GHz	34	34	34	34	34

Attenuation (dB/100 ft, Typical)	0.5 GHz	7.6	7.6	7.6	7.6	7.6
	1.0 GHz	11.3	11.3	11.3	11.3	11.3
	5.0 GHz	27.6	27.6	27.6	27.6	27.6
	10.0 GHz	41.6	41.6	41.6	41.6	41.6
	18.0 GHz	59.6	59.6	59.6	59.6	59.6
	26.5 GHz	76.2	76.2	76.2	76.2	76.2
	40.0 GHz	-	-	-	-	-
	50.0 GHz	-	-	-	-	-
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	436.4	600.4	483.5	436.4	600.4
	1.0 GHz	303.4	450.0	336.2	303.4	450.0
	5.0 GHz	126.7	180.0	140.4	126.7	180.0
	10.0 GHz	85.3	120.0	94.6	85.3	120.0
	18.0 GHz	60.3	83.0	66.8	60.3	83.0
	26.5 GHz	47.6	65.6	52.7	47.6	65.6
	40.0 GHz	-	-	-	-	-
	50.0 GHz	-	-	-	-	-
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Standard 50 Ω Copper7/8

MICRO-COAXAN AMPHENOL COMPANY

Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-141A-H-TP	UT-215	UT-215-TP	UT-250C-SP	UT-250C
MIL-DTL-17 Description	UT-141A-HA-TP-M17	-	-	-	UT-250A-M17
MIL-DTL-17 Part Number	M17/130-00001	-	-	-	M17/129-RG-401

Dimensions

Outer Conductor Diameter	in	0.141	0.215	0.215	0.250	0.250
	mm	3.581	5.461	5.461	6.350	6.350
Dielectric Diameter	in	0.1175	-	-	-	0.209
	mm	2.985	-	-	-	5.309
Center Conductor Diameter	in	0.0362	0.0571	0.0571	0.0641	0.0641
	mm	0.9195	1.4503	1.4503	1.6281	1.6281
Length (Maximum)	ft	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	Tin	None	Tin	Silver	None
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	SPCW	SPCW	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	150	150	150	150
Operating Temperature (Max.)	°C	125	125	125	100	100
Inside Bend Radius (Minimum)	in	0.25	0.375	0.375	0.125	0.125
	mm	6.35	9.525	9.525	3.175	3.175
Weight	lbs/100ft	3.29	7.17	7.17	10.38	10.38
	kg/100m	4.94	10.76	10.76	15.58	15.58

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.0	50.0 ± 2.0	50.0 ± 2.0	50.0 ± 0.5	50.0 ± 0.5
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1900	5000	5000	5600	3000
Voltage Withstanding @ 60 Hz	VRMS	5000	15000	15000	16800	16800
Higher Order Mode Frequency	GHz	34	22	22	19	19

Attenuation (dB/100 ft, Typical)	0.5 GHz	7.6	5.1	5.1	4.3	4.3
	1.0 GHz	11.3	7.5	7.5	6.7	6.7
	5.0 GHz	27.6	19.1	19.1	17.4	17.4
	10.0 GHz	41.6	29.4	29.4	27.0	27.0
	18.0 GHz	59.6	43.3	43.3	40.0	40.0
	26.5 GHz	76.2	-	-	-	-
	40.0 GHz	-	-	-	-	-
	50.0 GHz	-	-	-	-	-
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	483.5	1,053.7	844.1	951.8	1,780.0
	1.0 GHz	336.2	725.6	581.2	653.3	914.8
	5.0 GHz	140.4	292.3	234.0	260.0	364.5
	10.0 GHz	94.6	192.4	154.0	169.8	238.3
	18.0 GHz	66.8	132.7	106.1	116.3	163.2
	26.5 GHz	52.7	-	-	-	-
	40.0 GHz	-	-	-	-	-
	50.0 GHz	-	-	-	-	-
	65.0 GHz	-	-	-	-	-
	90.0 GHz	-	-	-	-	-

Standard 50 Ω Copper8/8

MICRO-COAXAN AMPHENOL COMPANY

Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-250C-TP	UT-325C	UT-390C
MIL-DTL-17 Description	UT-250A-TP-M17	-	-
MIL-DTL-17 Part Number	M17/129-00001	-	-

Dimensions

Outer Conductor Diameter	in	0.250	0.325	0.390
	mm	6.350	8.255	9.906
Dielectric Diameter	in	0.209	-	-
	mm	5.309	-	-
Center Conductor Diameter	in	0.0641	7 x 0.0312	0.1020
	mm	1.6281	7 x 0.7925	2.5908
Length (Maximum)	ft	20	20	20
	m	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper
Outer Conductor Plating	Tin	None	None
Dielectric	PTFE	PTFE	PTFE
Center Conductor	SPC	Stranded SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	150	125	175
Operating Temperature (Max.)	°C	100	90	90
Inside Bend Radius (Minimum)	in	0.125	0.750	0.750
	mm	3.175	19.050	19.050
Weight	lbs/100ft	10.38	15.93	24.40
	kg/100m	15.58	23.92	36.63

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 0.5	50.0 ± 1.0	50.0 ± 0.5
Capacitance	pF/ft	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	3000	2600	8900
Voltage Withstanding @ 60 Hz	VRMS	16800	22800	26700
Higher Order Mode Frequency	GHz	19	14	12

Attenuation (dB/100 ft, Typical)	0.5 GHz	4.3	3.5	3.0
	1.0 GHz	6.7	5.2	4.6
	5.0 GHz	17.4	13.8	12.5
	10.0 GHz	27.0	22.0	20.1
	18.0 GHz	40.0	-	-
	26.5 GHz	-	-	-
	40.0 GHz	-	-	-
	50.0 GHz	-	-	-
	65.0 GHz	-	-	-
	90.0 GHz	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	1,061.4	1,702.4	3,425.8
	1.0 GHz	278.6	1,156.5	2,321.5
	5.0 GHz	290.1	443.6	883.1
	10.0 GHz	189.5	283.5	561.6
	18.0 GHz	129.7	-	-
	26.5 GHz	-	-	-
	40.0 GHz	-	-	-
	50.0 GHz	-	-	-
	65.0 GHz	-	-	-
	90.0 GHz	-	-	-

Dimensionally Stable 50 Ω Copper 1/2

Dimensionally stable "DS" semi-rigid cables utilize a unique dielectric that provides significantly improved thermal stability. Besides virtually eliminating dielectric protrusion from the heat of soldering, this feature make them ideal for applications that must operate at the most extreme tempertures.



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-020-M	UT-034-M	UT-047-M	UT-085-DS
Micro-Coax Description Tin Plated	UT-020-TP-M	UT-034-TP-M	UT-047-TP-M	UT-085-TP-DS

Dimensions

Outer Conductor Diameter	in	0.023	0.0375	0.0495	0.0865
	mm	0.584	0.9525	1.2573	2.1971
Dielectric Diameter	in	-	-	-	-
	mm	-	-	-	-
Center Conductor Diameter	in	0.0045	0.0080	0.0113	0.0201
	mm	0.1143	0.2032	0.2870	0.5105
Length (Maximum)	ft	10	15	20	20
	m	3.05	4.57	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	SPCW	SPCW	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	250	225	250	250
Operating Temperature (Max.)	°C	225	200	225	250*
Inside Bend Radius (Minimum)	in	0.032	0.050	0.063	0.050
	mm	0.813	1.270	1.600	1.270
Weight	lbs/100ft	0.10	0.22	0.42	1.42
	kg/100m	0.15	0.33	0.63	2.13

225* for tin-plated outer conductor

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 6.0	50.0 ± 4.0	50.0 ± 4.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	400	600	1000	1800
Voltage Withstanding @ 60 Hz	VRMS	1200	1800	3000	5400
Higher Order Mode Frequency	GHz	245	139	104	61

Attenuation (dB/100 ft, Typical)	0.5 GHz	51.6	29.4	22.4	13.6
	1.0 GHz	73.3	41.9	32.0	19.5
	5.0 GHz	166.1	95.9	73.8	46.0
	10.0 GHz	237.3	138.1	106.8	67.4
	18.0 GHz	322.2	189.0	147.1	94.3
	26.5 GHz	394.9	233.3	182.4	118.3
	40.0 GHz	491.3	292.8	230.3	151.5
	50.0 GHz	553.7	331.7	261.8	173.8
	65.0 GHz	638.0	384.8	305.2	-
	90.0 GHz	761.9	464.1	370.3	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	30.9	75.8	125.4	306.9
	1.0 GHz	21.8	53.4	88.2	215.0
	5.0 GHz	9.6	23.4	38.5	92.5
	10.0 GHz	6.8	16.4	26.8	63.7
	18.0 GHz	5.0	12.0	19.6	46.0
	26.5 GHz	4.1	9.8	15.9	36.9
	40.0 GHz	3.3	7.8	12.7	29.1
	50.0 GHz	2.9	6.9	11.2	25.5
	65.0 GHz	2.6	6.0	9.6	-
	90.0 GHz	2.1	5.0	8.0	-

Dimensionally Stable 50 Ω Copper 2/2



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-085C-DS	UT-141-DS	UT-141C-DS
Micro-Coax Description Tin Plated	UT-085C-TP-DS	UT-141-TP-DS	UT-141C-TP-DS

Dimensions

Outer Conductor Diameter	in	0.0865	0.141	0.141
	mm	2.1971	3.581	3.581
Dielectric Diameter	in	-	-	-
	mm	-	-	-
Center Conductor Diameter	in	0.0201	0.0362	0.0362
	mm	0.5105	0.9195	0.9195
Length (Maximum)	ft	20	20	20
	m	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin
Dielectric	PTFE	PTFE	PTFE
Center Conductor	SPC	SPCW	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	250	250	250
Operating Temperature (Max.)	°C	250*	250*	250*
Inside Bend Radius (Minimum)	in	0.050	0.075	0.075
	mm	1.270	1.905	1.905
Weight	lbs/100ft	1.43	3.29	3.32
	kg/100m	2.15	4.94	4.98

225* for tin-plated outer conductor

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.5	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1800	3200	3200
Voltage Withstanding @ 60 Hz	VRMS	5400	9600	9600
Higher Order Mode Frequency	GHz	61	34	34

Attenuation (dB/100 ft, Typical)	0.5 GHz	13.6	7.8	7.8
	1.0 GHz	19.5	11.3	11.3
	5.0 GHz	46.0	27.7	27.7
	10.0 GHz	67.4	41.6	41.6
	18.0 GHz	94.3	59.6	59.6
	26.5 GHz	118.3	76.2	76.2
	40.0 GHz	151.5	-	-
	50.0 GHz	173.8	-	-
	65.0 GHz	-	-	-
	90.0 GHz	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	306.9	737.4	737.4
	1.0 GHz	215.0	513.0	513.0
	5.0 GHz	92.5	214.8	214.8
	10.0 GHz	63.7	145.0	145.0
	18.0 GHz	46.0	102.6	102.6
	26.5 GHz	36.9	81.2	81.2
	40.0 GHz	29.1	-	-
	50.0 GHz	25.5	-	-
	65.0 GHz	-	-	-
	90.0 GHz	-	-	-

Low-Loss 50 Ω Copper 1/1

Low loss semi-rigid cables provide lower attenuation, better phase stability with temperature, and a higher operating temperature when compared to tradional solid PTFE semi-rigid cables.

MICRO-COAX

AN AMPHENOL COMPANY

Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-031-LL	UT-047C-LL	UT-070-LL	UT-085C-LL	UT-120C-LL	UT-141C-LL
Micro-Coax Description Tin Plated	UT-031-TP-LL	UT-047C-TP-LL	UT-070-TP-LL	UT-085C-TP-LL	UT-120C-TP-LL	UT-141C-TP-LL

Dimensions

Outer Conductor Diameter	in	0.031	0.047	0.070	0.0865	0.120	0.141
	mm	0.787	1.194	1.778	2.1971	3.048	3.581
Dielectric Diameter	in	-	-	-	-	-	-
	mm	-	-	-	-	-	-
Center Conductor Diameter	in	0.0080	0.0126	0.0201	0.0226	0.0359	0.0403
	mm	0.2032	0.3200	0.5105	0.5740	0.9119	1.0236
Length (Maximum)	ft	20	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	LD PTFE	LD PTFE	LD PTFE	LD PTFE	LD PTFE	LD PTFE
Center Conductor	SPCW	SPC	SPCW	SPC	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	250	250	250	250	250	250
Operating Temperature Max.	°C	250*	250*	250*	250*	250*	250*
Inside Bend Radius Minimum	in	0.063	0.125	0.250	0.250	0.188	0.500
	mm	1.600	3.175	6.350	6.350	4.775	12.700
Weight	lbs/100ft	0.17	0.39	0.75	1.39	2.01	3.18
	kg/100m	0.26	0.59	1.13	2.09	3.02	4.77

225* for tin-plated outer conductor

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 2.0	50.0 ± 2.0	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5	50.0 ± 1.5
Capacitance	pF/ft	26.5	26.5	26.5	26.5	26.5	26.5
	pF/m	86.8	86.8	86.8	86.8	86.8	86.8
Corona Extinction Voltage @ 60 Hz	VRMS	600	900	1400	1600	2600	2800
Voltage Withstanding @ 60 Hz	VRMS	1800	2700	4200	4800	7800	8400
Higher Order Mode Frequency	GHz	180	116	73	65	41	37

Attenuation dB/100 ft, Typical	0.5 GHz	33.6	21.9	13.8	12.4	7.7	7.0
	1.0 GHz	47.6	31.1	19.6	17.5	11.0	10.0
	5.0 GHz	107.1	70.2	44.5	39.9	25.3	23.0
	10.0 GHz	152.2	100.0	63.6	57.2	36.4	33.2
	18.0 GHz	205.4	135.2	86.4	77.8	50.0	45.6
	26.5 GHz	250.3	165.2	106.0	95.5	61.8	56.5
	40.0 GHz	309.3	204.8	132.0	119.2	77.7	-
	50.0 GHz	347.1	230.2	148.9	134.5	-	-
	65.0 GHz	397.7	264.4	171.7	155.3	-	-
	90.0 GHz	471.3	314.4	-	-	-	-

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	60.2	125.6	265.5	343.4	683.1	839.4
	1.0 GHz	42.5	88.7	187.2	242.1	480.8	590.4
	5.0 GHz	18.9	39.4	82.8	106.9	210.8	258.3
	10.0 GHz	13.3	27.7	58.1	74.9	146.9	179.7
	18.0 GHz	9.9	20.5	42.9	55.3	107.6	131.5
	26.5 GHz	8.1	16.8	35.1	45.1	87.5	106.7
	40.0 GHz	6.6	13.6	28.2	36.3	70.0	-
	50.0 GHz	5.9	12.1	25.1	32.3	-	-
	65.0 GHz	5.1	10.6	21.8	28.0	-	-
	90.0 GHz	4.3	8.9	-	-	-	-

Ultra Low-Loss 50 Ω Copper 1/1

Ultra-low-loss semi-rigid cables provide the lowest attenuation, better phase stability with temperature, and a higher operating temperature compared to traditional semi-rigid cables. Due to their compact size and minimum bend radius, these cables are ideal for tight configurations where insertion loss is critical.

MICRO-COAX

AN AMPHENOL COMPANY

Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-085C-ULL	UT-141C-ULL	UT-250C-ULL
Micro-Coax Description Tin Plated	UT-085C-TP-ULL	UT-141C-TP-ULL	UT-250C-TP-ULL

Dimensions

Outer Conductor Diameter	in	0.0865	0.141	0.250
	mm	2.197	3.581	6.350
Dielectric Diameter	in	-	-	-
	mm	-	-	-
Center Conductor Diameter	in	0.0253	0.0453	0.0808
	mm	0.6426	1.1506	2.052
Length (Maximum)	ft	20	20	20
	m	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin
Dielectric	ULD PTFE	ULD PTFE	ULD PTFE
Center Conductor	SPC	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	250	250	250
Operating Temperature Max.	°C	250*	250*	250*
Inside Bend Radius Minimum	in	0.375	0.5	0.7500
	mm	9.525	12.7	19.05
Weight	lbs/100ft	1.27	2.53	8.53
	kg/100m	1.91	3.80	12.69

225* for tin-plated outer conductor

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 2.0	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	24.5	24.5	24.5
	pF/m	80.5	80.5	80.5
Corona Extinction Voltage @ 60 Hz	VRMS	1400	2500	4300
Voltage Withstanding @ 60 Hz	VRMS	3300	7500	12900
Higher Order Mode Frequency	GHz	66	36	21

Attenuation dB/100 ft, Typical	0.5 GHz	11.2	6.1	3.6
	1.0 GHz	15.9	8.7	5.1
	5.0 GHz	36.1	19.9	11.9
	10.0 GHz	51.5	28.6	17.3
	18.0 GHz	70.0	39.2	24.0
	26.5 GHz	85.7	48.4	-
	40.0 GHz	106.6	-	-
	50.0 GHz	120.1	-	-
	65.0 GHz	138.3	-	-
	90.0 GHz	-	-	-

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	358.3	888.5	2113.2
	1.0 GHz	252.8	625.5	1482.9
	5.0 GHz	111.9	274.6	642.7
	10.0 GHz	78.6	191.6	444.2
	18.0 GHz	58	140.6	322.6
	26.5 GHz	55	132.9	-
	40.0 GHz	38.3	-	-
	50.0 GHz	34.1	-	-
	65.0 GHz	29.6	-	-
	90.0 GHz	-	-	-

Aluminum 50 Ω 1/1

Aluminum 50 ohm semi-rigid cables are ideal for hand forming or where weight savings is a premium. Connectors can be easily soldered to the tin plated aluminum outer conductor.

MICRO-COAX AN AMPHENOL COMPANY Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-047-AL-TP	UT-085-AL	UT-085-AL-TP	UT-141A-AL	UT-141A-AL-TP	UT-250C-AL-TP
MIL-DTL-17 Description	-	UT-085-AL-M17	UT-085-AL-TP-M17	UT-141-SA-AL-M17	UT-141-SA-AL-TP-M17	-
MIL-DTL-17 Part Number	-	M17/133-00012	M17/133-00013	M17/130-00008	M17/130-00009	-

Dimensions

Outer Conductor Diameter	in	0.047	0.0865	0.0865	0.141	0.141	0.250
	mm	1.194	2.1971	2.1971	3.581	3.581	6.350
Dielectric Diameter	in	-	0.066	0.066	0.1175	0.1175	-
	mm	-	1.676	1.676	2.985	2.985	-
Center Conductor Diameter	in	0.0113	0.0201	0.0201	0.0362	0.0362	0.0641
	mm	0.2870	0.5105	0.5105	0.9195	0.9195	1.6281
Length (Maximum)	ft	20	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Outer Conductor Plating	Tin	None	Tin	None	Tin	Tin
Dielectric	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	SPCW	SPCW	SPCW	SPCW	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	225	225	225	225	225	225
Operating Temperature (Max.)	°C	225	225	225	225	225	225
Inside Bend Radius (Minimum)	in	0.070	0.07	0.07	0.125	0.125	0.250
	mm	1.778	1.778	1.778	3.175	3.175	6.350
Weight	lbs/100ft	0.21	0.72	0.72	1.93	1.93	6.18
	kg/100m	0.32	1.08	1.08	2.90	2.90	9.28

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.5	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1000	1500	1500	1900	1900	5600
Voltage Withstanding @ 60 Hz	VRMS	3000	5400	5400	9600	9600	16800
Higher Order Mode Frequency	GHz	109	61	61	34	34	19

Attenuation (dB/100 ft, Typical)	0.5 GHz	25.8	14.3	14.3	7.9	7.9	4.9
	1.0 GHz	36.7	21.0	21.0	11.5	11.5	7.2
	5.0 GHz	84.5	47.6	47.6	28.7	28.7	18.4
	10.0 GHz	121.9	72.0	72.0	43.3	43.3	28.4
	18.0 GHz	167.3	100.3	100.3	63.0	63.0	42.0
	26.5 GHz	206.9	125.6	125.6	80.3	80.3	-
	40.0 GHz	260.4	160.5	160.5	-	-	-
	50.0 GHz	295.5	183.9	183.9	-	-	-
	65.0 GHz	343.6	-	-	-	-	-
	90.0 GHz	415.5	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	85.4	231.8	237.5	557.7	571.7	1,395.1
	1.0 GHz	60.1	162.5	166.5	388.5	398.2	961.1
	5.0 GHz	26.3	70.1	71.9	163.4	167.5	387.6
	10.0 GHz	18.3	48.3	49.5	110.6	113.4	255.3
	18.0 GHz	13.4	35.0	35.8	78.5	80.5	176.2
	26.5 GHz	10.9	28.1	28.8	62.2	63.8	-
	40.0 GHz	8.7	22.2	22.8	-	-	-
	50.0 GHz	7.7	19.5	20.0	-	-	-
	65.0 GHz	6.7	-	-	-	-	-
	90.0 GHz	5.5	-	-	-	-	-

Low-Loss 50 Ω Aluminum 1/1

Low-Loss Aluminum semi-rigid cables provide lower attenuation, better phase stability with temperature, and a higher operating temperature compared to traditional solid PTFE aluminum semi-rigid cables. Are ideal for hand forming or where weight savings is a premium. Connectors can be easily soldered to the tin-plated aluminum outer conductor.

MICRO-COAX AN AMPHENOL COMPANY Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-047C-AL-TP-LL	UT-085C-AL-TP-LL	UT-141C-AL-TP-LL
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Dimensions

Outer Conductor Diameter	in	0.047	0.0865	0.141
	mm	1.194	2.1971	3.581
Dielectric Diameter	in	-	-	-
	mm	-	-	-
Center Conductor Diameter	in	0.0126	0.0226	0.0403
	mm	0.3200	0.5740	1.0236
Length (Maximum)	ft	20	20	20
	m	6.10	6.10	6.10

Materials

Outer Conductor	Aluminum	Aluminum	Aluminum
Outer Conductor Plating	Tin	Tin	Tin
Dielectric	LD PTFE	LD PTFE	LD PTFE
Center Conductor	SPC	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	225	225	225
Operating Temperature (Max.)	°C	225	225	225
Inside Bend Radius (Minimum)	in	0.125	0.250	0.500
	mm	3.175	6.350	12.700
Weight	lbs/100ft	0.20	0.69	1.83
	kg/100m	0.30	1.04	2.75

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 2.0	50.0 ± 2.0	50.0 ± 2.0
Capacitance	pF/ft	26.5	26.5	26.5
	pF/m	86.8	86.8	86.8
Corona Extinction Voltage @ 60 Hz	VRMS	900	1600	2800
Voltage Withstanding @ 60 Hz	VRMS	2700	4800	8400
Higher Order Mode Frequency	GHz	116	65	37

Attenuation (dB/100 ft, Typical)	0.5 GHz	23.7	13.4	7.6
	1.0 GHz	33.6	19.0	10.8
	5.0 GHz	75.9	43.1	24.8
	10.0 GHz	108.0	61.7	35.7
	18.0 GHz	146.1	83.9	49.1
	26.5 GHz	178.4	102.9	60.7
	40.0 GHz	220.9	128.3	-
	50.0 GHz	248.3	144.7	-
	65.0 GHz	285.1	166.9	-
	90.0 GHz	338.7	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	92.7	262.7	642.5
	1.0 GHz	65.4	185.2	452.1
	5.0 GHz	29.1	81.9	198.1
	10.0 GHz	20.5	57.4	138.0
	18.0 GHz	15.2	42.4	101.1
	26.5 GHz	12.4	34.6	82.2
	40.0 GHz	10.1	27.9	-
	50.0 GHz	9.0	24.8	-
	65.0 GHz	7.8	21.5	-
	90.0 GHz	6.6	-	-

Stainless Steel 50 Ω 1/2

Stainless steel 50 ohm semi-rigid cables are designed for applications where low thermal heat transfer is required such as cryogenic feed cables. Because these cables also utilize a solid PTFE dielectric, they are often the first choice for highly corrosive environments.

MICRO-COAX

AN AMPHENOL COMPANY

Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-047-SS	UT-047SS-SS	UT-085-SS	UT-085SS-SS
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Dimensions

Outer Conductor Diameter	in	0.047	0.047	0.0865	0.0865
	mm	1.194	1.194	2.1971	2.1971
Dielectric Diameter	in	-	-	-	-
	mm	-	-	-	-
Center Conductor Diameter	in	0.0113	0.0113	0.0201	0.0201
	mm	0.2870	0.2870	0.5105	0.5105
Length (Maximum)	ft	20	20	20	20
	m	6.10	6.10	6.10	6.10

Materials

Outer Conductor	304 SS	304 SS	304 SS	304 SS
Outer Conductor Plating	None	None	None	None
Dielectric	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPCW	304 SS	SPCW	304 SS

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	225	225	225	225
Operating Temperature (Max.)	°C	200	200	200	200
Inside Bend Radius (Minimum)	in	0.250	0.250	0.125	0.250
	mm	6.350	6.350	3.175	6.350
Weight	lbs/100ft	0.37	0.37	1.30	1.30
	kg/100m	0.55	0.55	1.95	1.95

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 2.5	50.0 ± 2.5	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1000	1000	1800	1800
Voltage Withstanding @ 60 Hz	VRMS	3000	3000	5400	5400
Higher Order Mode Frequency	GHz	109	109	61	61

Attenuation (dB/100 ft, Typical)	0.5 GHz	55.4	158.3	31.2	88.9
	1.0 GHz	78.6	224.1	44.4	126.0
	5.0 GHz	178.1	503.4	101.5	284.0
	10.0 GHz	254.3	714.4	146.0	404.1
	18.0 GHz	345.0	962.3	199.7	545.9
	26.5 GHz	422.5	1,171.5	246.2	666.3
	40.0 GHz	525.3	1,445.4	308.7	824.8
	50.0 GHz	591.7	1,620.4	349.5	926.5
	65.0 GHz	681.2	1,854.2	-	-
	90.0 GHz	812.9	2,193.1	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	51.7	17.9	142.7	49.2
	1.0 GHz	36.5	12.6	100.5	34.7
	5.0 GHz	16.2	5.6	44.2	15.4
	10.0 GHz	11.3	4.0	30.9	10.9
	18.0 GHz	8.4	3.0	22.7	8.1
	26.5 GHz	6.9	2.4	18.5	6.6
	40.0 GHz	5.5	2.0	14.8	5.4
	50.0 GHz	4.9	1.8	13.1	4.8
	65.0 GHz	4.3	1.5	-	-
	90.0 GHz	3.6	1.3	-	-

Stainless Steel 50 Ω 2/2

MICRO-COAX

AN AMPHENOL COMPANY

Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-085B-SS	UT-141-SS	UT-141SS-SS	UT-141B-SS
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Dimensions

Outer Conductor Diameter	in	0.0865	0.141	0.141	0.141
	mm	2.1971	3.581	3.581	3.581
Dielectric Diameter	in	-	-	-	-
	mm	-	-	-	-
Center Conductor Diameter	in	0.0201	0.0359	0.0359	0.0362
	mm	0.5105	0.9119	0.9119	0.9195
Length (Maximum)	ft	20	20	20	20
	m	6.10	6.10	6.10	6.10

Materials

Outer Conductor	304 SS	304 SS	304 SS	304 SS
Outer Conductor Plating	None	None	None	None
Dielectric	PTFE	PTFE	PTFE	PTFE
Center Conductor	SP BeCu	SPCW	304 SS	SP BeCu

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	225	225	225	225
Operating Temperature (Max.)	°C	200	200	200	200
Inside Bend Radius (Minimum)	in	0.250	0.250	0.250	0.500
	mm	6.350	6.350	6.350	12.700
Weight	lbs/100ft	1.31	3.05	3.04	3.06
	kg/100m	1.97	4.58	4.56	4.59

Electrical Characteristics

Characteristic Impedance	Ω	50.0 ± 1.5	50.0 ± 1.0	50.0 ± 1.0	50.0 ± 1.0
Capacitance	pF/ft	29.0	29.0	29.0	29.0
	pF/m	95.2	95.2	95.2	95.2
Corona Extinction Voltage @ 60 Hz	VRMS	1800	3200	3200	3200
Voltage Withstanding @ 60 Hz	VRMS	5400	9600	9600	9600
Higher Order Mode Frequency	GHz	61	34	34	34

Attenuation (dB/100 ft, Typical)	0.5 GHz	31.2	17.7	50.1	17.8
	1.0 GHz	44.4	25.3	71.1	25.4
	5.0 GHz	101.5	58.9	161.4	59.2
	10.0 GHz	146.0	85.8	230.7	86.1
	18.0 GHz	199.7	118.9	313.3	119.4
	26.5 GHz	246.2	148.2	384.0	148.7
	40.0 GHz	308.7	-	-	-
	50.0 GHz	349.5	-	-	-
	65.0 GHz	-	-	-	-
	90.0 GHz	-	-	-	-

Power (Watts CW @ 20 °C, Maximum)	0.5 GHz	142.7	347.1	119.6	346.2
	1.0 GHz	100.5	243.6	84.4	243.1
	5.0 GHz	44.2	105.7	37.3	105.5
	10.0 GHz	30.9	73.1	26.2	73.0
	18.0 GHz	22.7	53.1	19.3	53.0
	26.5 GHz	18.5	42.9	15.8	42.8
	40.0 GHz	14.8	-	-	-
	50.0 GHz	13.1	-	-	-
	65.0 GHz	-	-	-	-
	90.0 GHz	-	-	-	-

Odd Impedance1/6

Cables with impedances from 5 to 100 ohms and diameters from 0.020 to 0.250 inch, Micro-Coax's odd impedance semi-rigid cables are the right solution for any impedance matching requirement.



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-020-13	UT-034-25	UT-034-95	UT-034C-10	UT-034C-17
Micro-Coax Description Tin Plated	UT-020-13-TP	UT-034-25-TP	UT-034-95-TP	UT-034C-10-TP	UT-034C-17-TP

Dimensions

Outer Conductor Diameter	in	0.023	0.034	0.034	0.034	0.034
	mm	0.584	0.864	0.864	0.864	0.864
Dielectric Diameter	in	-	-	-	-	-
	mm	-	-	-	-	-
Center Conductor Diameter	in	0.0126	0.0126	0.0028	0.0201	0.0159
	mm	0.3200	0.3200	0.0711	0.5105	0.4039
Length (Maximum)	ft	10	15	15	15	15
	m	3.05	4.57	4.57	4.57	4.57

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	PTFE	PTFE	PTFE	PFA	PTFE
Center Conductor	SPCW	SPCW	SPCW	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	125	175	150	175	175
Operating Temperature (Max.)	°C	100	150	125	150	150
Inside Bend Radius (Minimum)	in	0.050	0.050	0.050	0.125	0.125
	mm	1.270	1.270	1.270	3.175	3.175
Weight	lbs/100ft	0.13	0.28	0.19	0.32	0.28
	kg/100m	0.20	0.42	0.29	0.48	0.42

Electrical Characteristics

Characteristic Impedance	Ω	13.0 ± 3.0	25.0 ± 2.0	95.0 ± 4.0	10.0 ± 1.5	17.0 ± 1.0
Capacitance	pF/ft	111.6	58.0	15.3	145.1	85.3
	pF/m	366.1	190.4	50.1	476.0	280.0
Corona Extinction Voltage @ 60 Hz	VRMS	200	400	900	200	400
Voltage Withstanding @ 60 Hz	VRMS	600	1200	2700	600	1200
Higher Order Mode Frequency	GHz	178	148	177	117	129

Attenuation (dB/100 ft, Typical)	0.5 GHz	112.2	49.9	42.5	100.2	55.5
	1.0 GHz	158.9	70.7	60.4	142.0	78.7
	5.0 GHz	357.5	160.5	137.4	320.3	178.3
	10.0 GHz	508.0	229.4	196.7	456.0	254.6
	18.0 GHz	685.4	311.6	267.7	616.6	345.4
	26.5 GHz	835.5	382.0	328.7	752.9	422.9
	40.0 GHz	1,032.7	475.5	410.1	932.8	525.8
	50.0 GHz	1,159.0	536.0	462.8	1,048.4	592.2
	65.0 GHz	1,328.1	617.7	534.4	1,203.6	681.9
	90.0 GHz	1,574.0	738.1	640.0	1,430.4	813.6

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	6.2	30.0	28.2	15.0	27.0
	1.0 GHz	4.4	21.2	19.9	10.6	19.0
	5.0 GHz	2.0	9.4	8.8	4.7	8.4
	10.0 GHz	1.4	6.6	6.1	3.3	5.9
	18.0 GHz	1.0	4.8	4.5	2.4	4.4
	26.5 GHz	0.8	4.0	3.7	2.0	3.6
	40.0 GHz	0.7	3.2	3.0	1.6	2.9
	50.0 GHz	0.6	2.8	2.6	1.4	2.6
	65.0 GHz	0.5	2.5	2.3	1.3	2.2
	90.0 GHz	0.4	2.1	1.9	1.1	1.9

Odd Impedance2/6



Semi-Rigid Coaxial Cable



Micro-Coax Description	UT-038C-25	UT-043C-10	UT-044-12	UT-044C-5	UT-047-25
Micro-Coax Description Tin Plated	UT-038C-25-TP	UT-043C-10-TP	UT-044-12-TP	-	-

Dimensions

Outer Conductor Diameter	in	0.038	0.043	0.044	0.044	0.047
	mm	0.965	1.092	1.118	1.118	1.194
Dielectric Diameter	in	-	-	-	-	-
	mm	-	-	-	-	-
Center Conductor Diameter	in	0.0159	0.0285	0.0226	0.0320	0.0159
	mm	0.4039	0.7239	0.5740	0.8128	0.4039
Length (Maximum)	ft	15	15	15	15	20
	m	4.57	4.57	4.57	4.57	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None	None
Dielectric	PTFE	PFA	PTFE	PFA	PTFE
Center Conductor	SPC	SPC	SPCW	SPC	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	175	175	175	175
Operating Temperature (Max.)	°C	150	150	150	150	150
Inside Bend Radius (Minimum)	in	0.125	0.125	0.125	0.250	0.125
	mm	3.175	3.175	3.175	6.350	3.175
Weight	lbs/100ft	0.33	0.47	0.51	0.55	0.57
	kg/100m	0.50	0.71	0.77	0.82	0.86

Electrical Characteristics

Characteristic Impedance	Ω	25.0 ± 3.0	10.0 ± 1.5	12.0 ± 2.0	5.0 ± 1.5	25.0 ± 3.0
Capacitance	pF/ft	58.0	145.1	120.9	290.2	58.0
	pF/m	190.4	476.0	396.6	951.9	190.4
Corona Extinction Voltage @ 60 Hz	VRMS	500	300	300	200	500
Voltage Withstanding @ 60 Hz	VRMS	1500	900	900	600	1500
Higher Order Mode Frequency	GHz	120	82	100	77	120

Attenuation (dB/100 ft, Typical)	0.5 GHz	42.6	65.7	66.8	121.9	42.6
	1.0 GHz	60.5	93.2	94.6	172.7	60.5
	5.0 GHz	137.6	211.3	213.9	389.0	137.6
	10.0 GHz	197.1	301.9	305.0	553.2	197.1
	18.0 GHz	268.2	409.8	413.0	747.0	268.2
	26.5 GHz	329.3	502.0	505.0	911.2	329.3
	40.0 GHz	410.7	624.5	626.6	1,127.2	410.7
	50.0 GHz	463.6	703.7	704.9	1,265.7	463.6
	65.0 GHz	535.2	810.7	810.4	1,451.5	535.2
	90.0 GHz	641.1	-	964.8	-	641.1

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	38.4	27.6	27.7	15.2	45.6
	1.0 GHz	27.1	19.5	19.5	10.7	32.2
	5.0 GHz	12.0	8.6	8.7	4.8	14.2
	10.0 GHz	8.4	6.0	6.1	3.4	9.9
	18.0 GHz	6.2	4.5	4.5	2.5	7.3
	26.5 GHz	5.0	3.6	3.7	2.0	6.0
	40.0 GHz	4.0	2.9	3.0	1.7	4.8
	50.0 GHz	3.6	2.6	2.7	1.5	4.3
	65.0 GHz	3.1	2.3	2.3	1.3	3.7
	90.0 GHz	2.6	-	1.9	-	3.1

Micro-Coax Description	UT-047-70	UT-047C-35	UT-062-18	UT-062C-18	UT-070C-10
Micro-Coax Description Tin Plated	UT-047-70-TP	UT-047C-35-TP	UT-062-18-TP	UT-062C-18-TP	UT-070C-10-TP

Dimensions

Outer Conductor Diameter	in	0.047	0.047	0.062	0.062	0.070
	mm	1.194	1.194	1.575	1.575	1.778
Dielectric Diameter	in	-	-	-	-	-
	mm	-	-	-	-	-
Center Conductor Diameter	in	0.0071	0.0159	0.0320	0.0320	0.0403
	mm	0.1803	0.4039	0.8128	0.8128	1.0236
Length (Maximum)	ft	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	PTFE	PTFE	PTFE	PTFE	PFA
Center Conductor	SPCW	SPC	SPCW	SPC	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	175	150	150	150
Operating Temperature (Max.)	°C	150	150	125	125	125
Inside Bend Radius (Minimum)	in	0.050	0.125	0.125	0.125	0.125
	mm	1.270	3.175	3.175	3.175	3.175
Weight	lbs/100ft	0.37	0.43	0.87	0.89	1.35
	kg/100m	0.56	0.65	1.31	1.34	2.03

Electrical Characteristics

Characteristic Impedance	Ω	70.0 ± 1.5	35.0 ± 1.5	18.0 ± 2.0	18.0 ± 2.0	10.0 ± 2.0
Capacitance	pF/ft	20.7	41.5	80.6	80.6	145.1
	pF/m	68.0	136.0	264.4	264.4	476.0
Corona Extinction Voltage @ 60 Hz	VRMS	1200	800	700	700	400
Voltage Withstanding @ 60 Hz	VRMS	3600	2400	2100	2100	1200
Higher Order Mode Frequency	GHz	117	100	65	65	58

Attenuation (dB/100 ft, Typical)	0.5 GHz	24.6	26.2	29.8	29.8	50.8
	1.0 GHz	35.0	37.3	42.4	42.4	72.2
	5.0 GHz	80.5	85.7	97.0	97.0	164.3
	10.0 GHz	116.2	123.6	139.6	139.6	235.5
	18.0 GHz	159.8	169.7	191.1	191.1	320.7
	26.5 GHz	197.7	209.8	235.8	235.8	393.9
	40.0 GHz	249.1	263.9	295.9	295.9	491.7
	50.0 GHz	282.9	299.4	335.2	335.2	555.2
	65.0 GHz	329.2	348.1	388.9	388.9	-
	90.0 GHz	398.6	420.8	-	-	-

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	78.1	74.1	66.7	66.7	43.1
	1.0 GHz	55.0	52.1	46.9	46.9	30.4
	5.0 GHz	24.0	22.8	20.6	20.6	13.4
	10.0 GHz	16.7	15.9	14.3	14.3	9.4
	18.0 GHz	12.2	11.6	10.5	10.5	6.9
	26.5 GHz	9.9	9.4	8.6	8.6	5.6
	40.0 GHz	7.9	7.5	6.8	6.8	4.5
	50.0 GHz	7.0	6.7	6.1	6.1	4.0
	65.0 GHz	6.0	5.8	5.2	5.2	-
	90.0 GHz	5.0	4.8	-	-	-

Micro-Coax Description	UT-070C-25	UT-075C-10	UT-085-75	UT-085C-15
Micro-Coax Description Tin Plated	UT-070C-25-TP	UT-075C-10-TP	UT-085-75-TP	UT-085C-15-TP

Dimensions

Outer Conductor Diameter	in	0.070	0.075	0.085	0.0865
	mm	1.778	1.905	2.159	2.1971
Dielectric Diameter	in	-	-	-	-
	mm	-	-	-	-
Center Conductor Diameter	in	0.0314	0.0453	0.0113	0.0453
	mm	0.7976	1.1506	0.2870	1.1506
Length (Maximum)	ft	20	20	20	20
	m	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	PFA	PFA	PTFE	PFA
Center Conductor	SPC	SPC	SPCW	SPC

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	150	150	150	150
Operating Temperature (Max.)	°C	125	125	125	125
Inside Bend Radius (Minimum)	in	0.125	0.125	0.125	0.250
	mm	3.175	3.175	3.175	6.350
Weight	lbs/100ft	1.04	1.50	1.25	1.83
	kg/100m	1.56	2.25	1.88	2.75

Electrical Characteristics

Characteristic Impedance	Ω	25.0 ± 1.5	10.0 ± 1.0	75.0 ± 1.0	15.0 ± 1.0
Capacitance	pF/ft	58.0	145.1	19.3	96.7
	pF/m	190.4	476.0	63.5	317.3
Corona Extinction Voltage @ 60 Hz	VRMS	1000	500	2200	800
Voltage Withstanding @ 60 Hz	VRMS	3000	1500	6600	2400
Higher Order Mode Frequency	GHz	60	51	67	47

Attenuation (dB/100 ft, Typical)	0.5 GHz	21.3	42.3	14.5	24.5
	1.0 GHz	30.5	60.1	20.7	34.9
	5.0 GHz	71.0	137.3	48.7	81.0
	10.0 GHz	103.4	197.2	71.3	117.5
	18.0 GHz	143.6	269.3	99.4	162.5
	26.5 GHz	179.0	331.6	124.5	202.0
	40.0 GHz	227.7	415.1	159.1	255.9
	50.0 GHz	260.1	469.6	182.3	-
	65.0 GHz	-	-	214.5	-
	90.0 GHz	-	-	-	-

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	102.6	54.9	173.3	106.4
	1.0 GHz	71.9	38.6	121.4	74.7
	5.0 GHz	31.1	17.0	52.2	32.4
	10.0 GHz	21.5	11.9	35.9	22.4
	18.0 GHz	15.6	8.7	25.9	16.3
	26.5 GHz	12.5	7.1	20.8	13.2
	40.0 GHz	9.9	5.7	16.4	10.5
	50.0 GHz	8.7	5.0	14.4	-
	65.0 GHz	-	-	12.3	-
	90.0 GHz	-	-	-	-

Micro-Coax Description	UT-090C-25	UT-090C-35	UT-130-93	UT-141-70	UT-141-75	UT-141-100
Micro-Coax Description Tin Plated	UT-090C-25-TP	UT-090C-35-TP	UT-130-93-TP	UT-141-70-TP	UT-141-75-TP	UT-141-100-TP

Dimensions

Outer Conductor Diameter	in	0.090	0.090	0.130	0.141	0.141	0.141
	mm	2.286	2.286	3.302	3.581	3.581	3.581
Dielectric Diameter	in	-	-	-	-	-	-
	mm	-	-	-	-	-	-
Center Conductor Diameter	in	0.0403	0.0320	0.0113	0.0201	0.0201	0.0100
	mm	1.0236	0.8128	0.2870	0.5105	0.5105	0.2540
Length (Maximum)	ft	20	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	PFA	PTFE	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPC	SPC	SPCW	SPCW	SPCW	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	150	175	150	175	150
Operating Temperature (Max.)	°C	125	125	125	125	125	125
Inside Bend Radius (Minimum)	in	0.125	0.125	0.188	0.188	0.075	0.250
	mm	3.175	3.175	4.775	4.775	1.905	6.350
Weight	lbs/100ft	1.69	1.51	2.86	3.87	3.09	3.03
	kg/100m	2.54	2.27	4.29	5.81	4.64	4.55

Electrical Characteristics

Characteristic Impedance	Ω	25.0 ± 1.0	35.0 ± 1.0	93.0 ± 1.5	70.0 ± 1.0	75.0 ± 1.5	100.0 ± 4.0
Capacitance	pF/ft	58.0	41.5	15.6	20.7	19.3	14.5
	pF/m	190.4	136.0	51.2	68.0	63.5	47.6
Corona Extinction Voltage @ 60 Hz	VRMS	1300	1600	3600	3200	3800	4200
Voltage Withstanding @ 60 Hz	VRMS	3900	4800	10800	9600	11400	12600
Higher Order Mode Frequency	GHz	46	50	46	43	38	41

Attenuation (dB/100 ft, Typical)	0.5 GHz	16.2	13.3	11.2	9.2	8.4	11.1
	1.0 GHz	23.2	19.1	16.1	13.3	12.1	15.9
	5.0 GHz	54.8	45.1	38.2	32.0	29.4	37.9
	10.0 GHz	80.6	66.2	56.4	47.7	44.1	56.0
	18.0 GHz	112.9	92.6	79.5	67.8	62.9	79.0
	26.5 GHz	146.8	116.2	100.4	86.2	80.2	99.7
	40.0 GHz	182.0	148.9	129.5	112.1	-	128.7
	50.0 GHz	-	170.9	-	-	-	-
	65.0 GHz	-	-	-	-	-	-
	90.0 GHz	-	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	203.5	200.7	380.6	409.5	549.1	332.3
	1.0 GHz	142.4	140.4	266.1	285.4	382.3	232.2
	5.0 GHz	61	60.2	113.5	120.2	160.6	98.9
	10.0 GHz	41.9	41.3	77.6	81.5	108.6	67.5
	18.0 GHz	31.1	29.7	55.7	57.9	77.1	48.4
	26.5 GHz	24.1	23.8	44.5	46.0	61.0	38.6
	40.0 GHz	19	18.7	34.9	35.7	-	30.2
	50.0 GHz	-	16.4	-	-	-	-
	65.0 GHz	-	-	-	-	-	-
	90.0 GHz	-	-	-	-	-	-

Micro-Coax Description	UT-141C-15	UT-141C-25	UT-141C-35	UT-141C-70	UT-141C-75	UT-250-75
Micro-Coax Description Tin Plated	UT-141C-15-TP	UT-141C-25-TP	UT-141C-35-TP	UT-141C-70-TP	UT-141C-75-TP	UT-250-75-TP

Dimensions

Outer Conductor Diameter	in	0.141	0.141	0.141	0.141	0.141	0.250
	mm	3.581	3.581	3.581	3.581	3.581	6.350
Dielectric Diameter	in	-	-	-	-	-	-
	mm	-	-	-	-	-	-
Center Conductor Diameter	in	0.0800	0.0640	0.0508	0.0226	0.0201	0.0359
	mm	2.0320	1.6256	1.2903	0.5740	0.5105	0.9119
Length (Maximum)	ft	20	20	20	20	20	20
	m	6.10	6.10	6.10	6.10	6.10	6.10

Materials

Outer Conductor	Copper	Copper	Copper	Copper	Copper	Copper
Outer Conductor Plating	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin	None or Tin
Dielectric	PFA	PFA	PTFE	PTFE	PTFE	PTFE
Center Conductor	SPC	SPC	SPC	SPC	SPC	SPCW

Mechanical Characteristics

Outer Conductor Integrity Temp.	°C	175	175	175	150	175	150
Operating Temperature (Max.)	°C	150	125	125	125	125	100
Inside Bend Radius (Minimum)	in	0.188	0.188	0.250	0.188	0.250	0.500
	mm	4.775	4.775	6.350	4.775	6.350	12.700
Weight	lbs/100ft	4.74	4.02	3.66	3.13	3.10	9.15
	kg/100m	7.12	6.04	5.49	4.70	4.65	13.74

Electrical Characteristics

Characteristic Impedance	Ω	15.0 ± 1.0	25.0 ± 1.0	35.0 ± 2.0	70.0 ± 1.0	75.0 ± 1.5	75.0 ± 1.5
Capacitance	pF/ft	96.7	58.0	41.5	20.7	19.3	19.3
	pF/m	317.3	190.4	136.0	68.0	63.5	63.5
Corona Extinction Voltage @ 60 Hz	VRMS	1300	2100	2600	3700	3800	6900
Voltage Withstanding @ 60 Hz	VRMS	3900	6300	7800	11100	11400	20700
Higher Order Mode Frequency	GHz	27	29	31	38	38	21

Attenuation (dB/100 ft, Typical)	0.5 GHz	15.1	10.2	8.6	8.2	8.4	4.8
	1.0 GHz	21.6	14.8	12.4	11.8	12.1	7.1
	5.0 GHz	51.2	35.9	30.1	28.7	29.4	18.1
	10.0 GHz	75.4	53.8	45.0	43.0	44.1	28.1
	18.0 GHz	106	76.9	64.1	61.5	62.9	41.4
	26.5 GHz	133.4	98.2	81.7	78.5	80.2	-
	40.0 GHz	-	-	-	-	-	-
	50.0 GHz	-	-	-	-	-	-
	65.0 GHz	-	-	-	-	-	-
	90.0 GHz	-	-	-	-	-	-

Power (Watts CW @ 20 °C, Maximum for non-plated outer conductor)	0.5 GHz	318.2	466.9	552.5	463.2	549.1	1,234.0
	1.0 GHz	222.5	324.8	384.6	322.2	382.3	849.1
	5.0 GHz	95.1	135.9	161.5	134.7	160.6	341.0
	10.0 GHz	65.0	91.7	109.2	90.9	108.6	224.0
	18.0 GHz	46.7	64.9	77.5	64.3	77.1	154.2
	26.5 GHz	37.3	51.3	61.3	50.8	61.0	-
	40.0 GHz	-	-	-	-	-	-
	50.0 GHz	-	-	-	-	-	-
	65.0 GHz	-	-	-	-	-	-
	90.0 GHz	-	-	-	-	-	-

Characteristics

Cable Preconditioning

[Per MIL-DTL-17]

The electromechanical performance specified for semi-rigid cables is achieved by a compression fit between the outer conductor and the dielectric core which, in turn, necessitates manufacturing processes that cause core deformation by compression and elongation. The resulting stress, which is initially nonuniform, tends to equalize by cold flow within a few weeks after manufacturing, and will cause the core to withdraw into the cable. If this occurs in cable that has become part of a cable assembly, the resultant development of an air void of the cableconnector interface may cause VSWR increases. It is therefore advantageous to achieve core stress relief by preconditioning cable before it becomes a cable assembly.

Preconditioning is not effective on long lengths of cable. Cable bending, which is usually involved with the manufacture of cable assemblies, tends to introduce nonuniform core stresses; therefore, We recommend preconditioning after bending and before attaching the connectors. Since preconditioning will result in the withdrawal of the dielectric into the cable, preparation of the cable assembly should allow for a 0.25" length on each cable end beyond the design dimension. The outer conductor and the core should not be cut to the final dimensions until preconditioning has been completed.

A recommended preconditioning procedure consists of three cycles of the following routine:

Step 1 — Heat the specimen to the maximum operating temperature & maintain for a minimum of one hour.

Step 2 — Return specimen to room-ambient temperature. Trim protruding core, if any, & flush with the edge of the outer conductor.

Step 3 — Maintain the specimen at room temperature for a minimum of one hour.

Step 4 — Cool the specimen to -45 °C & maintain for a minimum of one hour.

Step 5 — Return the specimen to room temperature & maintain for a minimum of one hour.

After the last temperature cycle, maintain the specimen at room temperature for a minimum of 24 hours before proceeding with further processing.

Phase vs. Temperature Characteristics

Phase vs. Temperature Characteristics

Exposure of PTFE-Insulated Cables to Elevated Temperatures

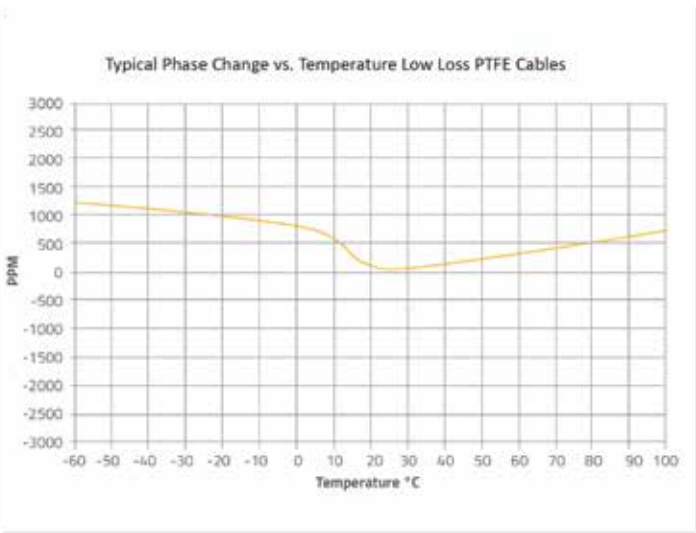
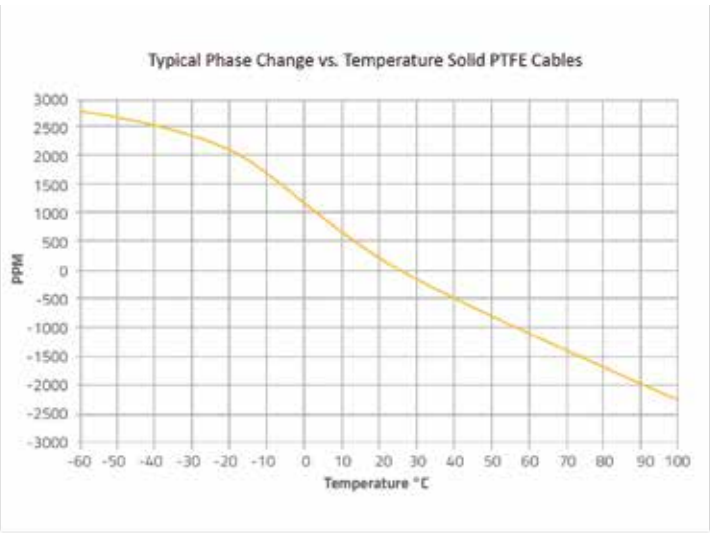
Exposure of cables with PTFE insulation to elevated temperatures causes stressing of the outer conductor since the thermal expansion coefficient of the core insulation is about 10X greater than that of the metal conductors. The effects of this outer conductor stressing require distinction of two temperature levels as cables are subjected to increasing temperatures.

Recommended Maximum Operating Temperature

The first significant effect on cable characteristics occurs as the expansive forces on the core material exceed the yield strength of the outer conductor material, resulting in a permanent increase in impedance, and a permanent decrease in capacitance, core adhesion, and corona extinction potential. The temperature at which such changes begin is the maximum recommended operating temperature. This has been determined by testing one-foot-long specimens until a discernible increase in outer conductor OD was measured on 30% of the number of test specimens.

Outer Conductor Integrity Test Temperature

The second significant effect of temperature exposure is to cause catastrophic failure of the outer conductor as the core stresses exceed the tensile strength of the outer conductor material. This temperature is the outer conductor integrity test temperature, which has been determined by testing two-foot-long specimens, with no failures allowed at the rated temperature. (For test details, refer to MIL-DTL-17.)



Ordering & Service Information

How to Order

Please order by catalog part number and/or drawing number, adding any special requirements, such as plating. Lengths must be given when purchasing any cable type.

Where to Order

Address all purchase orders and communications to:
Micro-Coax
206 Jones Boulevard
Pottstown, PA 19464-3465
Phone: 610-495-0110
Fax: 610-495-6656
Email: Pottstown.Sales@micro-coax.com
Web: micro-coax.com

Terms

Formal price quotations remain in effect for thirty (30) days unless otherwise agreed upon. Terms of payment are net thirty (30) days, subject to approval of credit. Estimated shipment is based on material availability and factory capacity at the time of quote and, as such, is subject to prior sale.

Sample Policy

Samples are normally available for most standard stock items. A cable sample quantity of 2' is applicable. Non-stock items may be sampled depending on availability at the time of the request.

Source Inspection

Prices quoted are based on inspection at destination. A charge per day or part of a day applies to any order requiring source inspection.

Shipments

Unless specific instructions accompany the order, shipment is made FOB Pottstown, PA. Micro-Coax will use its judgment as to the best method of shipment. Micro-Coax reserves the right to ship COD or upon receipt of advance payment if satisfactory credit cannot be established. All claims for shortages must be made within ten (10) days after receipt of material from Micro-Coax.

Return Policy

Please contact us for an RMA number before returning products. The RMA number should be referenced on the packing container and all associated paperwork.

Nonrecurring Engineering Charges

Nonrecurring engineering charges, if any, reimburse Micro-Coax in part for tools and fixtures needed for a particular job. They do not give the customer any claim or right to remove these tools from the Micro-Coax plant or to have a say in the use or disposition of these tools. There will be no charge for upkeep or repair of tools and fixtures. Upon completion of the order, Micro-Coax may dispose of said tools and fixtures as it sees fit.

Equations & Symbols



Characteristic Impedance

$$Z_0 = \frac{138}{\sqrt{e}} \cdot \log \left(\frac{D}{d} \right) \left(\Omega \right)$$
$$Z_0 = \frac{138}{\sqrt{e}} \cdot \log \left(\frac{D}{d} \right) \left(\Omega \right)$$

Cutoff Frequency

$$F_{co} = \frac{7.514}{\sqrt{e} \cdot (D+d)} \text{ GHz}$$

Cable Rise Time (10% to 90% Amplitude)

$$T_r = 1.315 \cdot A^2 \cdot L^2 \cdot 10^{-2} \text{ ps}$$

Symbol Key

- α Attenuation
- A** Attenuation in db/100 feet at 1 GHz
- d** Center conductor diameter, inches
- D** Dielectric diameter, inches
- e** Dielectric constant
- f** Frequency in MHz
- f_{co}** Cutoff frequency in GHz
- F_p** Dielectric power factor

Delay

English	Metric
$T = 1.017 \cdot \sqrt{e} \text{ ns/ft}$	$T = 3.336 \cdot \sqrt{e} \text{ ns/m}$
$L = \frac{0.984 \cdot T}{\sqrt{e}} \text{ ft}$	$L = \frac{0.300 \cdot T}{\sqrt{e}} \text{ m}$

Velocity of Propagation

$$VP = \frac{1}{\sqrt{e}} \cdot 100 \text{ \% of Free Space Velocity}$$

Attenuation (Theoretical) at 20 C

$$\alpha = \frac{0.434 \cdot \sqrt{f}}{Z_0} \left(\frac{\sqrt{R_1}}{d} + \frac{\sqrt{R_2}}{D} \right) + 2.78 \cdot f \cdot \sqrt{e} \cdot F_p \text{ dB/100 ft}$$

- L** Length
- ps** Picoseconds
- R₁** Ratio of center conductor conductivity to copper
- R₂** Ratio of outer conductor conductivity to copper
- T** Time in nanoseconds (ns)
- T_r** Rise time in picoseconds (ps)
- VP** Velocity of propagation
- Z₀** Characteristics impedance



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