

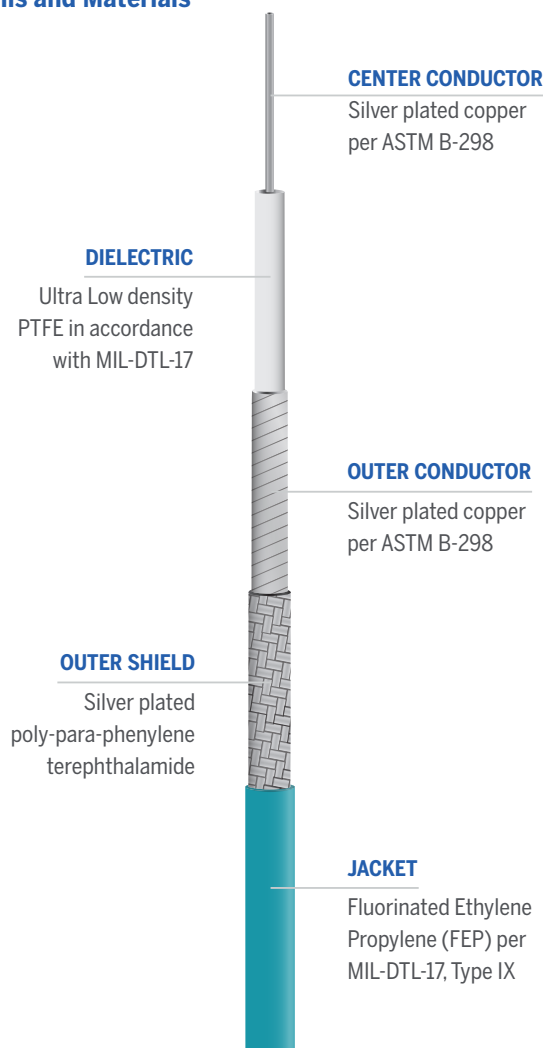
UFJ311A

UTiFLEX®



The UFJ311A coaxial solutions are optimized for spaceflight applications. They provide the lightest weight, lowest insertion loss, and best radiation resistance in a flexible cable construction. The cables utilize our ARACON® for the outer shield, an ultra-low-density PTFE for the dielectric, and a FEP jacket.

Details and Materials



Impedance
50 Ohms

Operating Temperature
-65°C to +125°C

RoHS
Compliant

Mechanical/Physical Properties

Jacket Diameter	in	0.311
	mm	7.90
Weight	grams/ft	≤ 34.6
	grams/m	≤ 113.5
Min Static Bend Radius	in	1000
	mm	25.40
Flex Life - Snake ³	cycles	15,000
Center Conductor Strands		1

Electrical Properties

Velocity of Propagation	(%)	84.5
RF Shielding	(dB) at 1 GHz	≥ 90
Capacitance	pF/ft	24.11
	pF/m	79.08
Maximum Frequency	GHz	18.0
Corona Extinction Voltage	VRMS @ 60Hz	3700
Dielectric Withstanding Voltage	VRMS @ 60Hz	5000
Insertion Loss Stability	% Change ²	≤ 5
K1	Ft (m)	4.43 (0.145)
K2	Ft (m)	0.12 (0.004)

Maximum Attenuation¹, Power, and VSWR^{5,6} (at 20°C and Sea Level)

Frequency	Attenuation		Power	VSWR
GHz	dB/100ft	dB/m		
0.5	3.2	0.10	3008	≤ 1.25:1
1	5.0	0.16	2116	≤ 1.25:1
5	10.6	0.35	926	≤ 1.25:1
10	16.0	0.52	644	≤ 1.25:1
18	21.0	0.69	471	≤ 1.25:1

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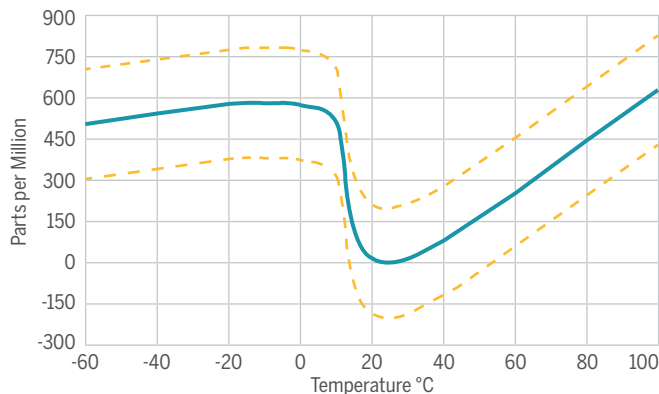
Environmental Properties

Thermal Shock	MIL-STD-202, Method 107, 20 Cycles, -65 to 125 °C (cable and SMA connectors only)
Aging Stability	MIL-DTL-17, Paragraph 4.8.16, +125 °C for 168 hours (cable and SMA connectors only)
Vibration	MIL-STD-202, Method 204, Test Condition B
High Pressure	Pressure increased ≤ 10 bar/min to 100 +/- 2 bar for 12 hrs.
Humidity	MIL-STD-810, Method 507.5, Procedure 1 and 2
Salt Fog	MIL-STD-810, Method 509
Sand and Dust	MIL-STD-810, Method 510, Procedure 1
Stress Crack Resistance	MIL-DTL-17, Paragraph 4.8.17
Cold Bend Test	MIL-DTL-17, Paragraph 4.8.19
Outgassing	Less than 1% TML and 0.1% CVM
Radiation Resistance	30 Mrads
Flammability	14 CFR Part 25, Appendix F, Part I (b) (7), 60° flammability test

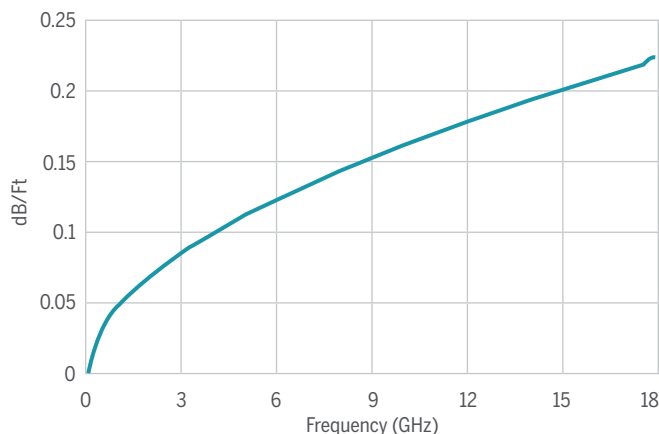
Notes

1. Maximum attenuation (db/100Ft) = $K1 \cdot \sqrt{F} + K2 \cdot F$ where F is Frequency in GHz.
2. Insertion Loss change, while vibrated at a frequency of 6 Hz and an amplitude of 1 inch.
3. 3 ft sample. One end is fixed and the other end is moved inward along the axis of the sample for 1.5 ft forcing the cable into a "U" shape and then returns to straight configuration for one flex cycle.
4. Cable assemblies of equal length and connectors made from the same cable manufacturing lot shall phase track within 200 PPM of each other.
5. Test Plots required with Shipment (Attenuation and VSWR).
6. VSWR testing to be performed on 20-foot minimum lengths with gating used to remove connector contributions. Minimum frequency points shall be 1601.

Typical Phase Change vs. Temperature⁴



Maximum Insertion Loss



Maximum Power Handling

