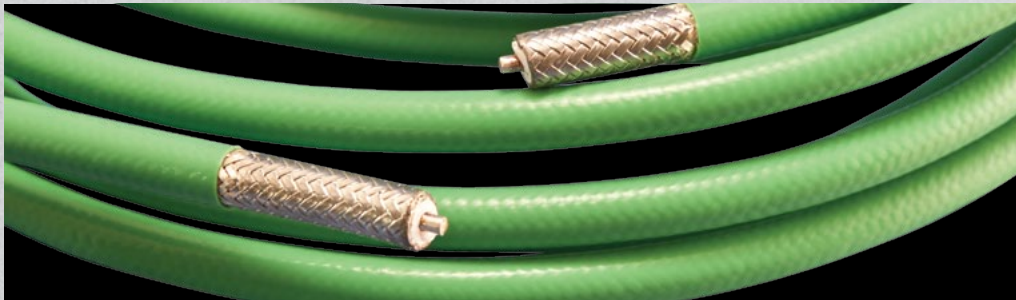


ACCUPHASE[®]

*Low Loss & Ultra Low Loss
Flexible Microwave Cable*



CARLISLE
INTERCONNECT TECHNOLOGIES

ACCUPHASE® LOW LOSS CABLE

AccuPhase® is a complete product family of low loss and phase stable flexible coaxial cable with frequencies up to 40GHz.

All cables within the AccuPhase® family are engineered to terminate with Carlisle’s high performance RF connectors for optimum performance. These new solutions are designed to meet the needs of any application where performance and stability at higher frequency ranges is critical. All AccuPhase® cables are manufactured with FEP jackets.

Available in 70%, 75%, 77% and 82% VP, Carlisle’s AccuPhase® product line is ideal for many application requirements including Military/Aerospace and Test & Measurement.

Initially branded under the name “TLL.”

ACCUPHASE® FAMILY FEATURES/BENEFITS

- » Low Insertion Loss
- » Phase Stable with Flexure
- » Phase Stable over Temperature
- » Low VSWR
- » Durable
- » Designed for use with Carlisle’s High Performance Microwave Connectors
- » Frequency Range up to 40 GHz
- » Full Characterization Data Available

70% VP	3-4
75% VP	5
77% VP	6
82% VP	7-8
AccuPhase® Connector Availability	9-10



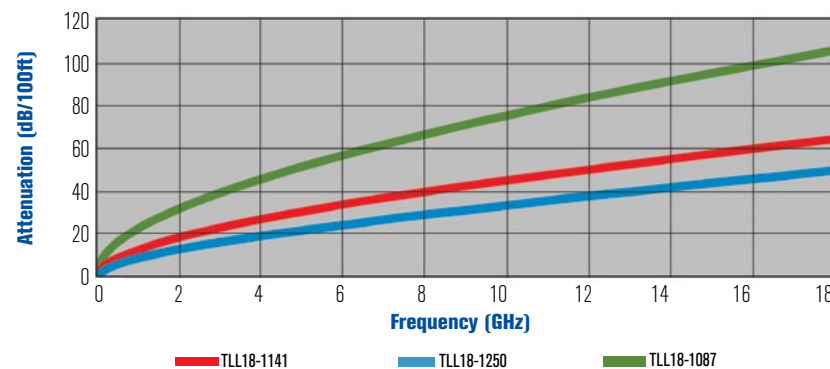
70% VP AccuPhase® Cable Specifications

Cable Part Number	TLL18-1087	TLL18-1141	TLL18-1250
Mechanical Specifications			
Outer Diameter	0.109"	0.168"	0.280"
Center Conductor	Solid	Solid	Solid
Bend Radius (min)	0.63"	0.98"	1.65"
Weight	0.015 lbs/ft	0.033 lbs/ft	0.097 lbs/ft
Electrical Specifications			
Velocity of Propagation	70%	70%	70%
Impedance	50 Ω	50 Ω	50 Ω
Frequency Range	DC-18GHz	DC-18GHz	DC-18GHz
Capacitance	28.7pF/ft	28.7pF/ft	28.7pF/ft
Max Insertion Loss			
10 GHz	7.57 dB/10ft	4.51 dB/10ft	3.35 dB/10ft
18 GHz	10.59 dB/10ft	6.44 dB/10ft	4.95 dB/10ft
Connector Options (Max Freq.)			
	SMA Male (26.5 GHz)	SMA Male (26.5 GHz)	SMA Male (18 GHz)
	SMA Female (26.5 GHz)	SMA Female (26.5 GHz)	Type N Male (18 GHz)
	2.9mm Male (40 GHz)	2.9mm Male (40 GHz)	TNC Male (18 GHz)
	SMP Female (40 GHz)	Type N Male (18 GHz)	
	SSMP Female (40 GHz)	TNC Male (18 GHz)	
	Type N Male (18 GHz)		

Cable Part Number	TLL26-5047	TLL40-1087
Mechanical Specifications		
Outer Diameter	0.062"	0.108"
Center Conductor	Solid	Solid
Bend Radius (min)	0.063"	0.25"
Weight	0.004 lbs/ft	0.015 lbs/ft
Electrical Specifications		
Velocity of Propagation	70%	70%
Impedance	50 Ω	50 Ω
Frequency Range	DC-26.5GHz	DC-40GHz
Capacitance	29 pF/ft	28.3 pF/ft
Max Insertion Loss		
10 GHz	15 dB/10ft	8.01 dB/10ft
18 GHz	20.9 dB/10ft	11.19 dB/10ft
26.5 GHz	26 dB/10ft	13.88 dB/10ft
40 GHz		17.97 dB/10ft
Connector Options (Max Freq.)		
	SMA Male (26.5 GHz)	SMA Make (26.5 GHz)
	SMP Female (40 GHz)	SMA Female (26.5 GHz)
	SSMP Female (40 GHz)	2.9mm Male (40 GHz)
	WMP Female (65 GHz)	SMP Female (40 GHz)
		SSMP Female (40 GHz)
		Type N Male (18 GHz)

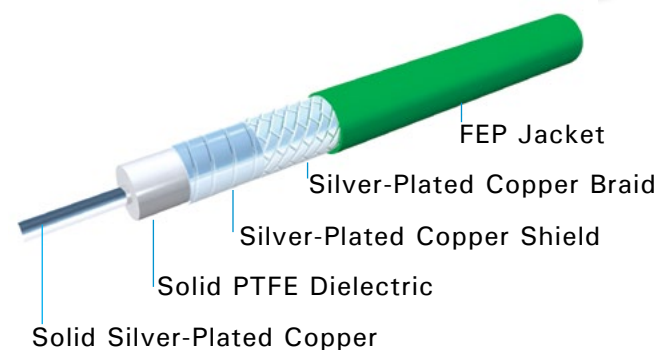
26.5-40 GHz

Maximum Attenuation

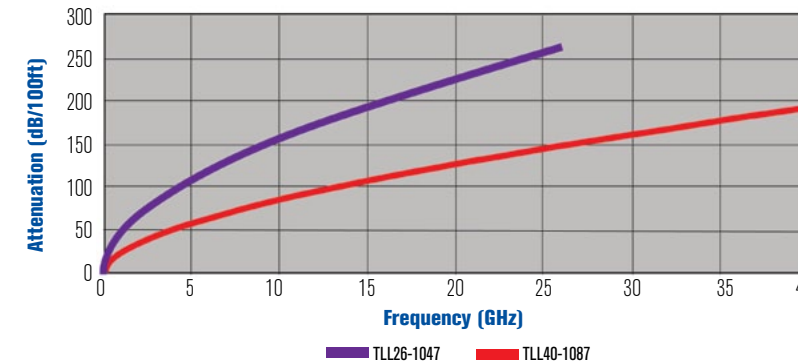


The maximum performance of the assembly is limited by the assembly's lowest frequency component.

Example: an AccuPhase® assembly with a TLL18-1087 cable (DC-18GHz) and an SMA Male connector (DC-26.5GHz) will have a maximum performance of 18 GHz.

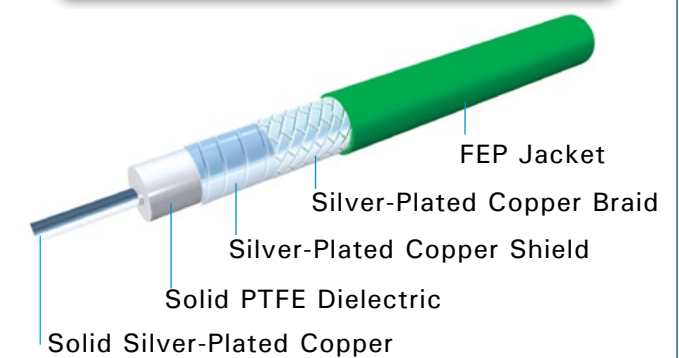


Maximum Attenuation

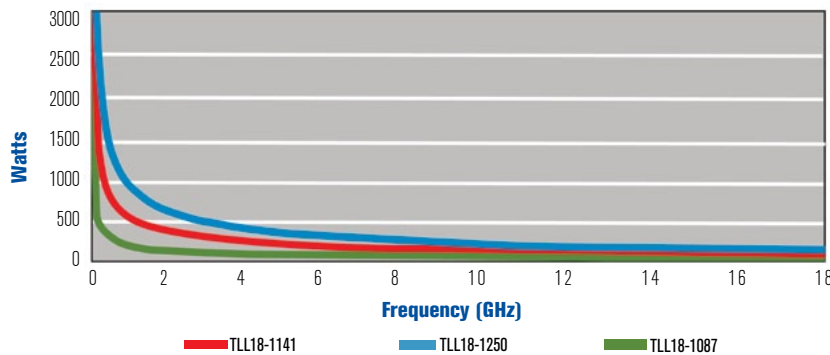


The maximum performance of the assembly is limited by the assembly's lowest frequency component.

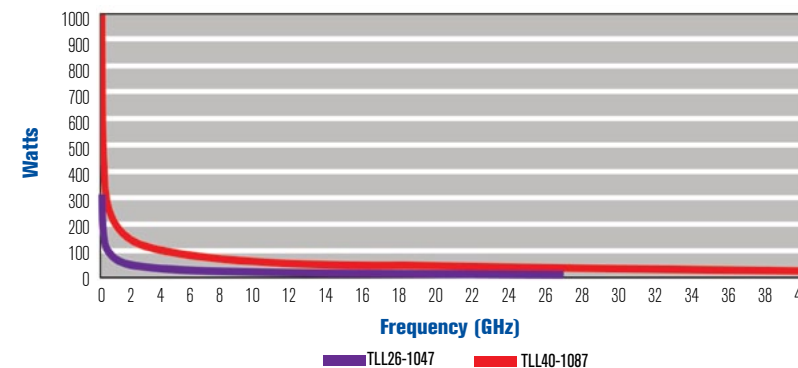
Example: An AccuPhase® assembly with a TLL40-1087 cable (DC-40GHz) and an SMA Female connector (DC-26.5GHz) will have a maximum performance of 26.5GHz.



Maximum Power

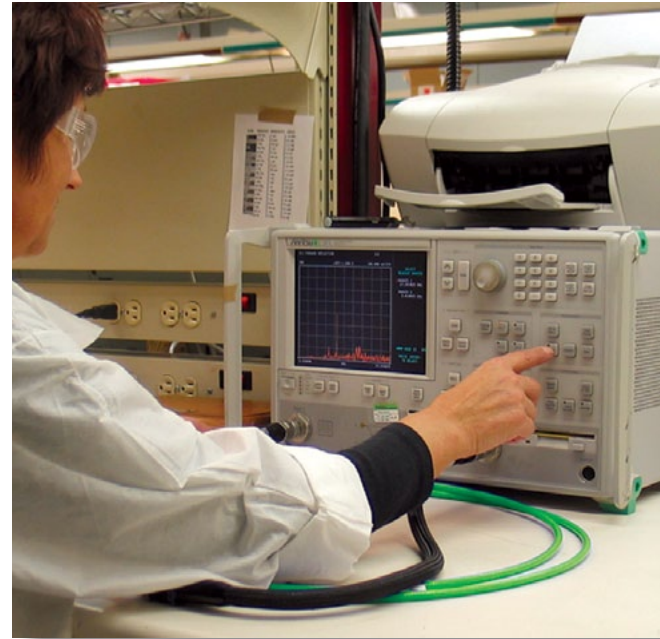


Maximum Power



75% VP AccuPhase® Cable Specifications

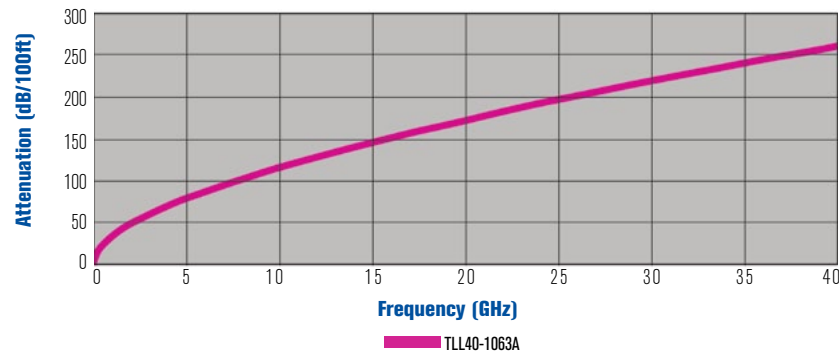
Cable Part Number	TLL40-1063A
Mechanical Specifications	
Outer Diameter	0.080"
Center Conductor	Solid
Bend Radius	0.5"
Weight	0.0066 lbs/ft
Electrical Specifications	
Velocity of Propagation	75%
Impedance	50 Ω
Frequency Range	DC-40GHz
Capacitance	27 pF/ft
Max Insertion Loss	
10 GHz	11.59 dB/10ft
18 GHz	16.21 dB/10ft
26 GHz	20.12 dB/10ft
40 GHz	26.07 dB/10ft
Connector Options (Max Freq.)	
	SMA Male (26.5 GHz)
	2.9mm Male (40 GHz)
	2.4mm Male (50 GHz)



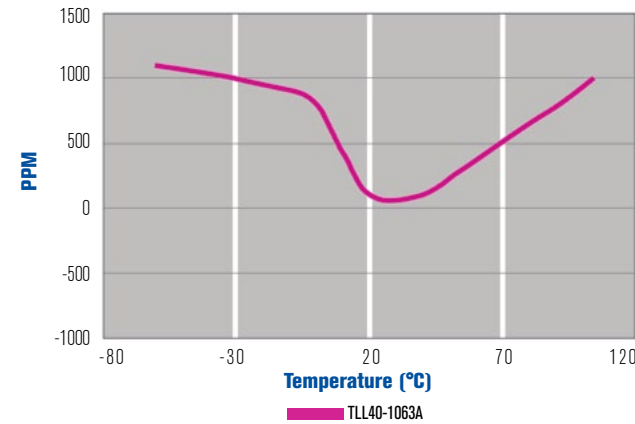
77% VP AccuPhase® Cable Specifications

Cable Part Number	TLL26-1190AS-19	TLL40-1078A	TLL40-1111A	TLL40-1130A
Mechanical Specifications				
Outer Diameter	0.223"	0.097"	0.137"	0.157"
Center Conductor	Stranded	Solid	Solid	Solid
Bend Radius (min)	0.5"	0.5"	0.5"	0.5"
Weight	0.048 lbs/ft	0.010 lbs/ft	0.018 lbs/ft	0.024 lbs/ft
Electrical Specifications				
Velocity of Propagation	77%	77%	77%	77%
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
Frequency Range	DC-26.5GHz	DC-40GHz	DC-40GHz	DC-40GHz
Capacitance	26 pF/ft	26.5 pF/ft	26.5 pF/ft	26.5 pF/ft
Max Insertion Loss				
10 GHz	3.32 dB/10ft	7.15 dB/10ft	4.70 dB/10ft	4.06 dB/10ft
18 GHz	4.51 dB/10ft	9.77 dB/10ft	6.50 dB/10ft	5.65 dB/10ft
26 GHz	5.53 dB/10ft	11.91 dB/10ft	7.99 dB/10ft	6.98 dB/10ft
40 GHz		15.08 dB/10ft	10.23 dB/10ft	8.99 dB/10ft
Connector Options (Max Freq.)				
	SMA Male (26.5 GHz)	SMA Male (26.5 GHz)	SMA Male (26.5 GHz)	SMA Male (26.5 GHz)
	Type N Male (18 GHz)	SMA Female (26.5 GHz)	SMA Female (26.5 GHz)	SMA Female (26.5 GHz)
	TNC Male (18GHz)	2.4mm Male (50 GHz)	2.9mm Male (40 GHz)	2.9mm Male (40 GHz)
		SMP Female (40 GHz)	2.9mm Female (40 GHz)	2.9mm Female (40 GHz)
			SMP Female (40 GHz)	SMP Female (40 GHz)

Maximum Attenuation

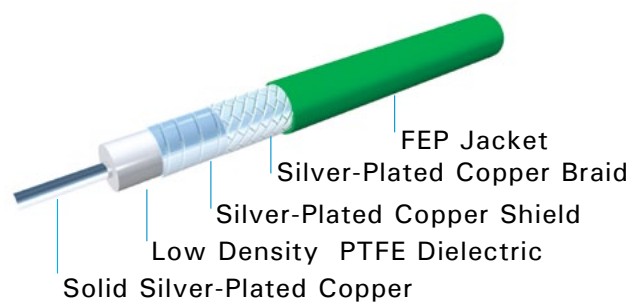
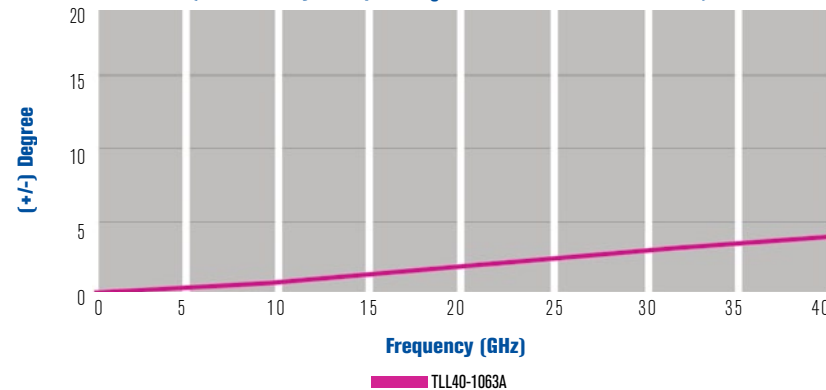


Typical Phase Change vs. Temperature

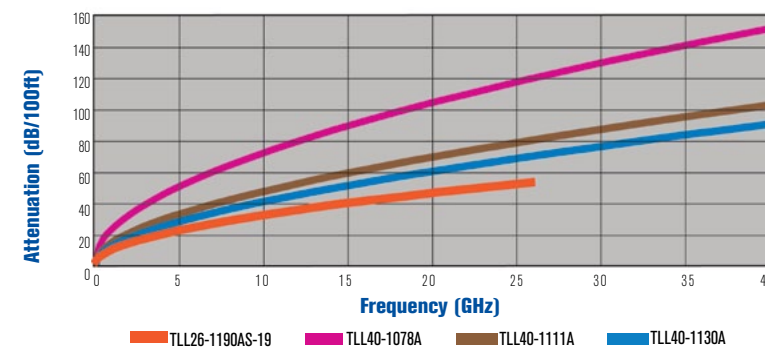


Typical Phase Change vs Bending

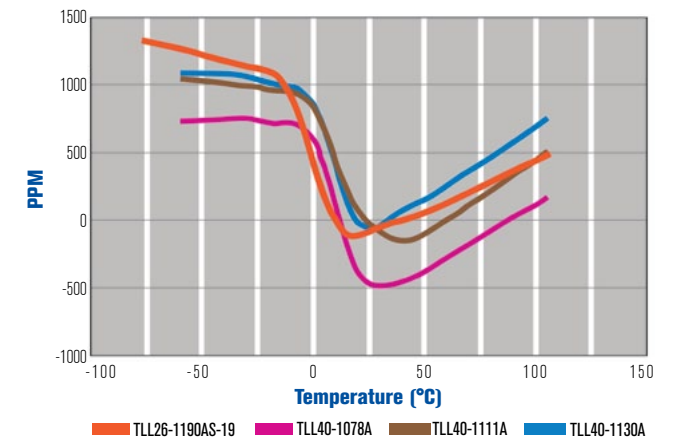
(36 in assembly, 1 wrap 360 degrees around 1.5 in. radius mandrel)



Maximum Attenuation

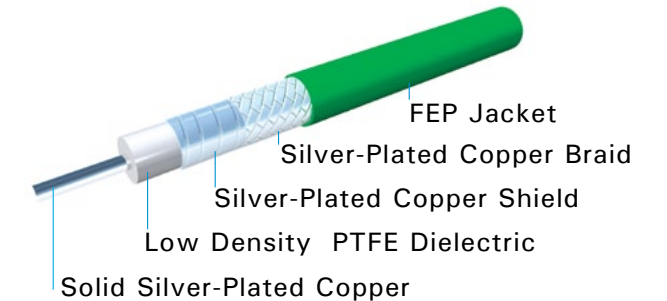
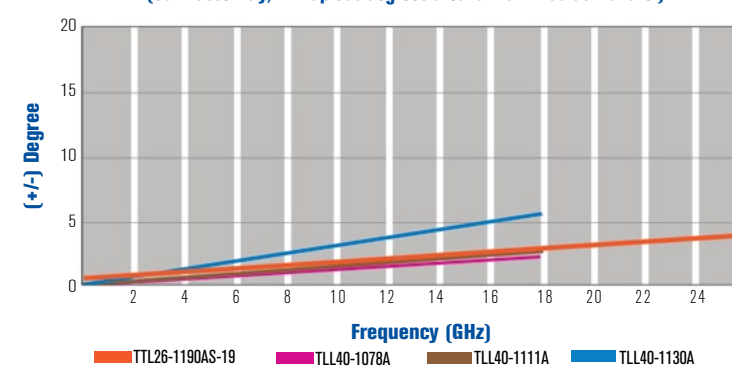


Typical Phase Change vs Temperature



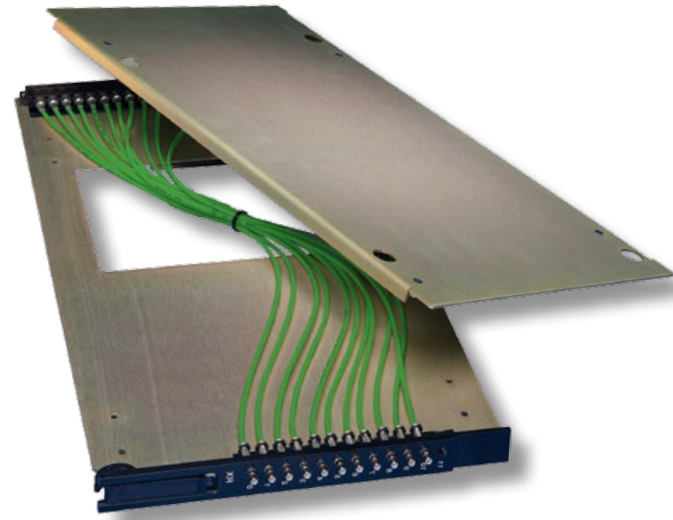
Typical Phase Change vs Bending

(36 in assembly, 1 wrap 360 degrees around 1.5 in. radius mandrel)

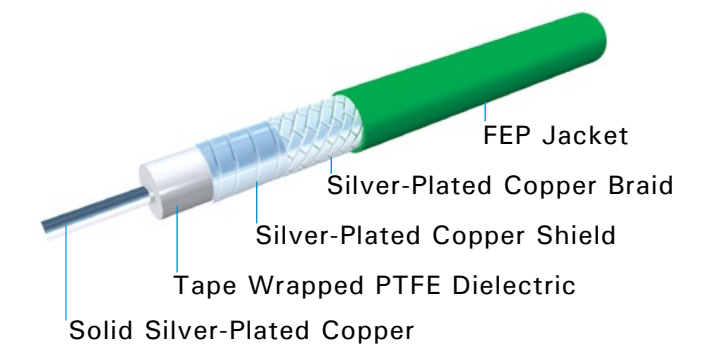
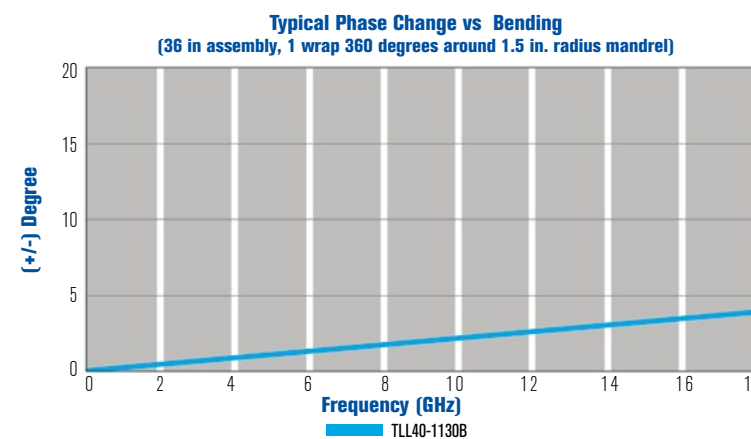
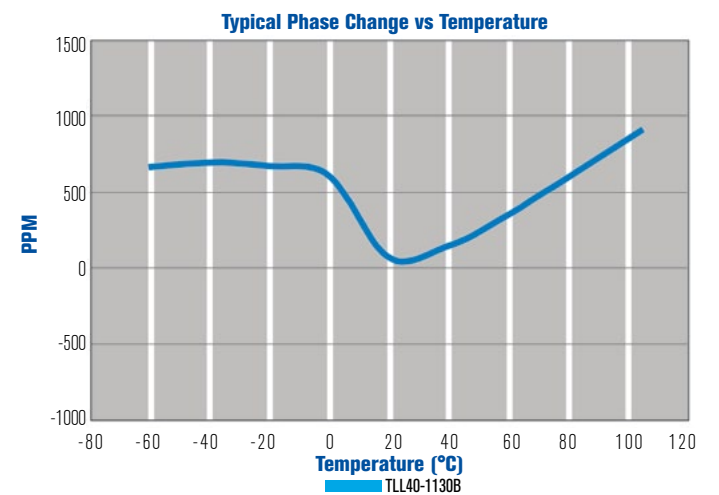
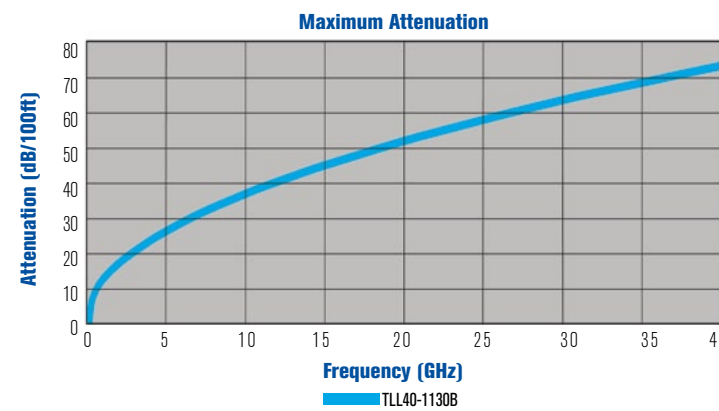
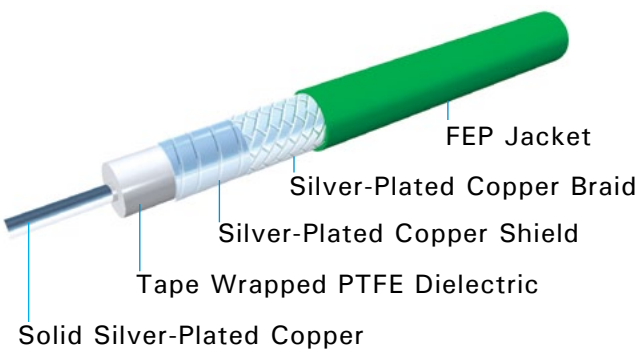
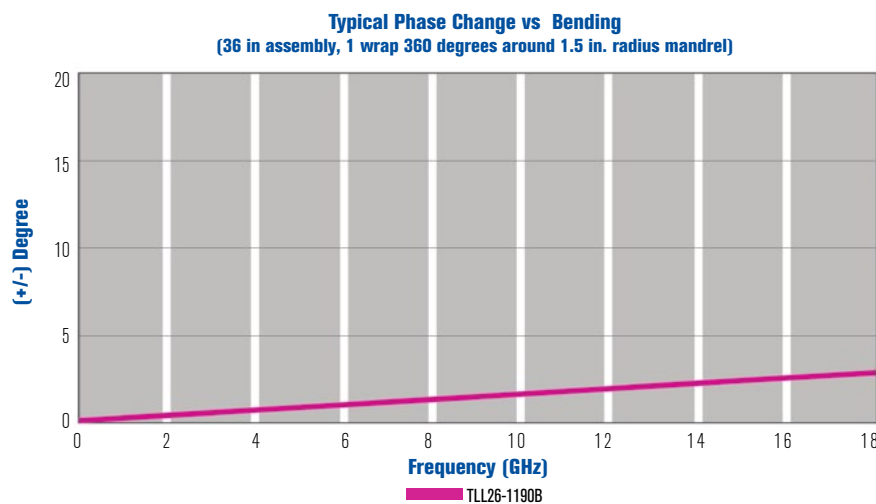
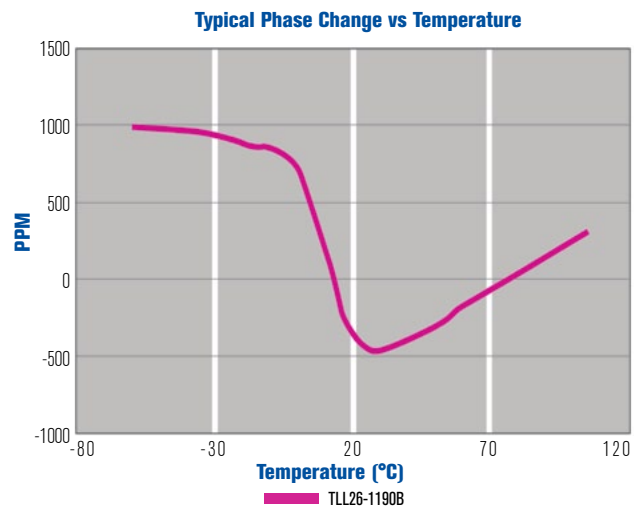
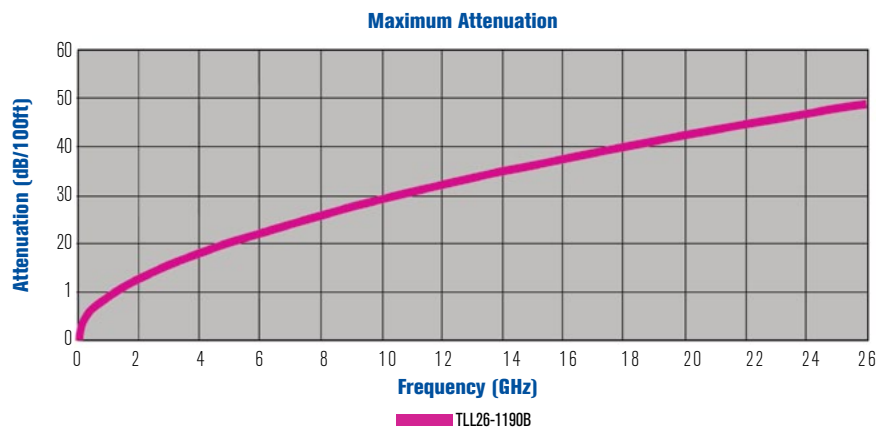


82% VP AccuPhase® Cable Specifications

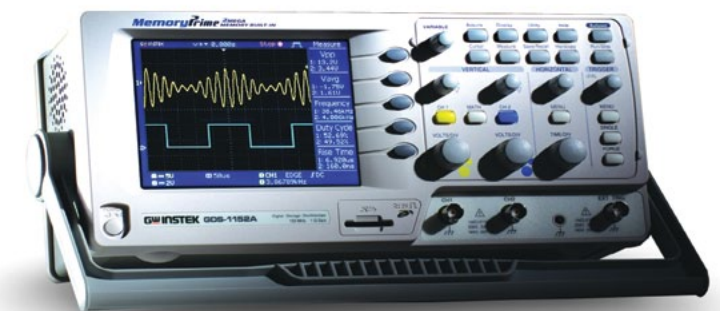
Cable Part Number	TLL26-1190B
Mechanical Specifications	
Outer Diameter	0.206"
Center Conductor	Solid
Bend Radius (min)	1"
Weight	0.038 lbs/ft
Electrical Specifications	
Velocity of Propagation	82%
Impedance	50 Ω
Frequency Range	DC-26.5GHz
Capacitance	25.5 pF/ft
Max Insertion Loss	
1 GHz	0.87 dB/10ft
12 GHz	3.21 dB/10ft
18 GHz	4.00 dB/10ft
26.5 GHz	4.96 dB/10ft
Connector Options (Max Freq.)	
	SMA Male (26.5 GHz)
	Type N Male (18 GHz)
	TNC Male (18 GHz)

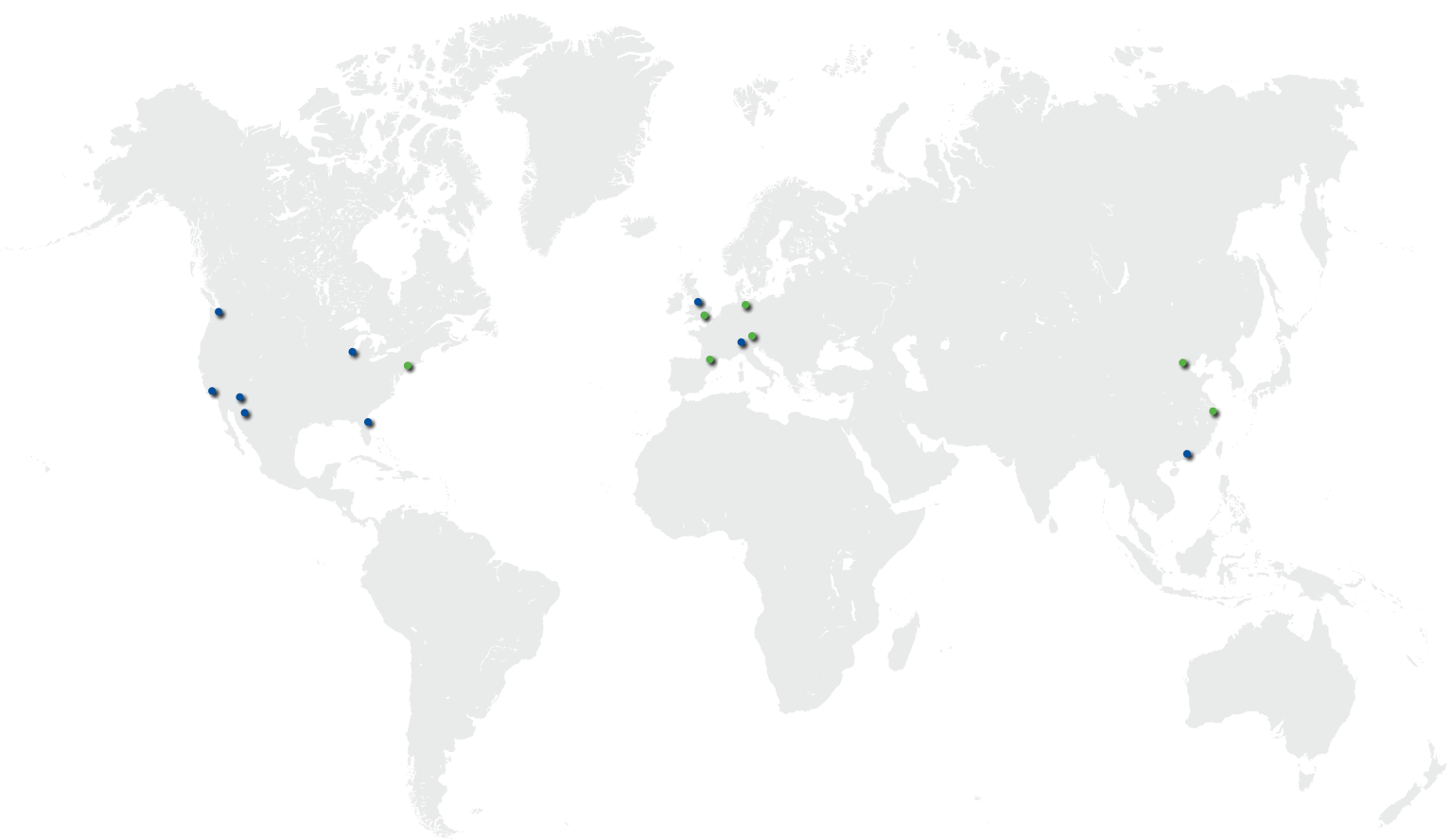


Cable Part Number	TLL40-1130B	TLL18-1282B
Mechanical Specifications		
Outer Diameter	0.150"	0.317"
Center Conductor	Solid	Solid
Bend Radius (min)	0.625"	1.25"
Weight	0.023 lbs/ft	0.093 lbs/ft (nominal)
Electrical Specifications		
Velocity of Propagation	82%	82%
Impedance	50Ω	50Ω
Frequency Range	DC-40GHz	DC-18GHz
Capacitance	25.5pF/ft	24.6pF/ft
Max Insertion Loss		
10 GHz	3.64dB/10ft	0.2dB/ft
18 GHz	4.89dB/10ft	0.28dB/ft
26 GHz	5.88dB/10ft	
40 GHz	7.31dB/10ft	
Connector Options (Max Freq.)		
	SMA Male (26.5 GHz)	SMA Male (26.5 GHz)
	SMA Female (26.5 GHz)	Type N Male (18 GHz)
	2.9mm Male (40 GHz)	TNC Male (18 GHz)
	2.9mm Female (40 GHz)	
	2.4mm Male (40 GHz)	
	2.4mm Female (40 GHz)	



Cable Part Number	Frequency	SMA-M	SMA-F	2.99mm-M	2.9mm-F	2.4mm-M	2.4mm-F	SMP-F	SSMP-F	Type N-M	TNC-M
TLL18-1087	DC - 18 GHz	3369771320	3389771614	3K69771311				P657-9CC	P107-2CC	3183189771311	
TLL18-1141	DC - 18 GHz	3369761014	3389761615	201-1CC						8089-1SF	3309761913
TLL18-1250	DC - 18 GHz	3369759011								3189751613	9009-4SF
TLL26-1047	DC - 26.5 GHz	5755-10CCSF						P624-6CC	P177-4CC		
TLL40-1087	DC - 40 GHz	3369771320	3389771614	3K69771311				P657-9CC	P107-2CC	3189771311	
TLL40-1063A	DC - 40 GHz	5755-1CCSF		256-1CCSF		5068-1CCSF					
TLL26-1190AS-19	DC - 26.5 GHz	5755-9CCSF								8209-9SF	9209-9SF
TLL40-1078A	DC - 40 GHz	5755-2CCSF	5754-2CCSF			5068-2CCSF		P624-2CC			
TLL40-1111A	DC - 40 GHz	5755-4CCSF	5754-4CCSF	256-4CCSF	257-4CCSF			P624-4CC			
TLL40-1130A	DC - 40 GHz	5755-5CCSF	5754-5CCSF	256-5CCSF	257-5CCSF			P624-5CC			
TLL26-1190B	DC - 26.5 GHz	5755-7CCSF								8209-7CCSF	9209-7CCSF
TLL40-1130B	DC - 40 GHz	5755-6CCSF	5754-6CCSF	256-6CCSF	257-6CCSF	5068-6CCSF	5069-6CCS				
TLL18-1282B	DC - 18 GHz	5755-8CCSF	5754-8CCSF							8209-8CCSF	9209-8CCSF





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