

# VNA Test VN Series



## High Performance VNA Test Cable

MegaPhase VNA cable assemblies are designed to ease the time associated with test equipment calibrations where compensation for loss, mismatches, and feedthroughs are critical to the test outcome. The VN cable assemblies are available in operating frequencies of up to 50 GHz. These cables are mechanically stable and can be bent with little effect on insertion loss, phase or VSWR. They can be employed time and again when rigorous test regiments are called for. Cable assemblies are available in user defined lengths up to 25 feet. These low loss alternatives to expensive OEM test cables are the perfect solution for any test lab employing critical test equipment in their production operations. The cable is constructed with an armored jacket and boot to protect the connectors and for effective VNA, PNA, and scalar test calibrations. Cables are available in phase matched lengths and come with a large variety of integrated connectors including the popular ruggedized NMD type.

### Electrical Data

<b>Maximum Frequency:</b>	50 GHz
<b>Impedance:</b>	50 $\Omega$ nominal
<b>Propagation Velocity:</b>	69% nominal
<b>Time Delay:</b>	1.47 ns/ft (4.82 ns/m)
<b>Shielding Effectiveness:</b>	-120 dB minimum
<b>Dielectric Withstanding Voltage:</b>	10 kV at 60 Hz
<b>Capacitance:</b>	29.0 pF/ft (95.1 pF/m)

### Mechanical Data

<b>Finished Outer Diameter:</b>	0.625 in (1.588 cm)
<b>Static Bend Radius:</b>	1.5 in (3.81 cm)
<b>Weight:</b>	0.175 lbs/ft (0.26 kg/m)
<b>Max. Assembly Length:</b>	25 ft (8 m)
<b>Crush Resistance:</b>	250 lbs/linear in (44.6 kg/linear cm)
<b>Operating Temp. Range:</b>	-31 to 275° F (-35 to 125° C)

### Cable Construction

<b>Inner Conductor:</b>	Solid Ag-plated Cu
<b>Dielectric:</b>	High Density PTFE
<b>Outer Conductor:</b>	GrooveTube®
<b>Ruggedization:</b>	Metal Braid/Conduit
<b>Standard Finish:</b>	PET Braid

(a wide variety of other protective finishes and armors available)

### Available Connectors

1.85mm, 2.4mm, 2.92mm, 3.5mm, 7mm, SMA, TNC, Type N  
(other connectors available)

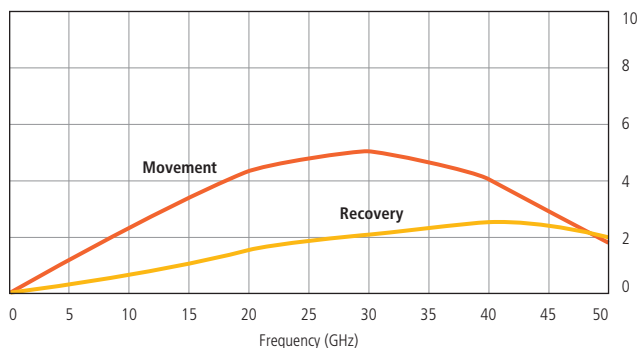
### Specifications

Frequency		Part No.	Attenuation		Conn. Loss dB	VSWR
GHz	Band		db/ft	dB/m		
0.3	UHF	VN4	0.062	0.203	0.006	1.10
0.5			0.082	0.268	0.009	
0.8			0.106	0.348	0.012	
1.0	L		0.120	0.394	0.014	1.15
2.0	S		0.178	0.585	0.024	
2.4			0.199	0.652	0.027	
3.0	C	0.227	0.744	0.032	1.20	
4.0		0.270	0.885	0.040		
6.0		0.347	1.138	0.055		
8.0	X	VN8	0.417	1.367	0.070	1.25
10.0		0.482	1.580	0.084		
12.4	Ku	VN18	0.555	1.822	0.101	1.30
15.0			0.631	2.070	0.118	
18.0			0.715	2.345	0.139	
20.0	K	VN26	0.769	2.522	0.152	1.35
22.0			0.821	2.695	0.165	
24.0			0.873	2.865	0.178	
26.5	Ka	VN34	0.937	3.073	0.194	1.40
28.0			0.974	3.196	0.204	
30.0			1.024	3.358	0.217	
32.0			1.072	3.518	0.230	
34.0	VN40	1.121	3.676	0.243	1.45	
36.0		1.168	3.833	0.256		
40.0	Q	VN50	1.262	4.141	0.281	1.50
45.0			1.377	4.518	0.313	
50.0	V	1.490	4.888	0.344		

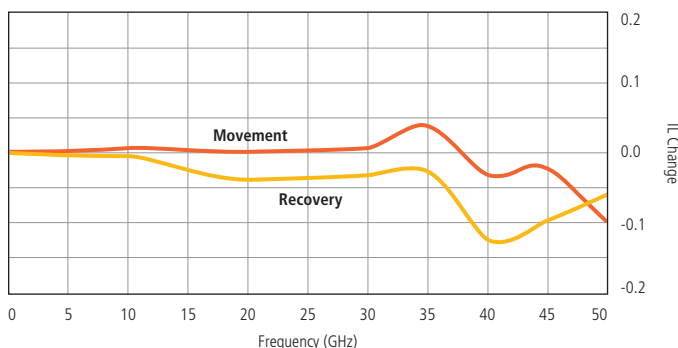
Note: Typical Insertion Loss dB = (Attenuation)(Length) + 2(Conn. Loss)  
Attenuation at any frequency = (0.10506 x  $\sqrt{\text{freq GHz}}$ ) + (0.01494 x freq GHz)

# VNA Test VN Series (cont'd)

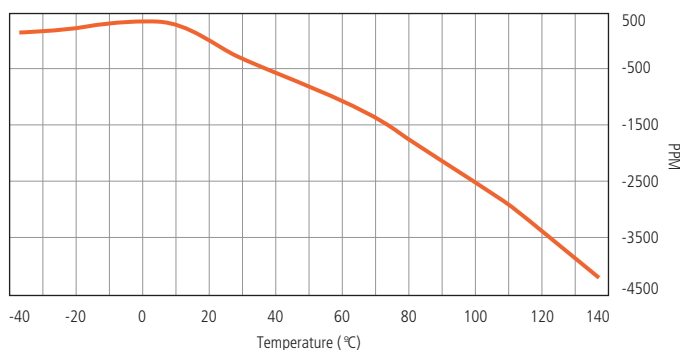
### Phase Change vs. Flexure



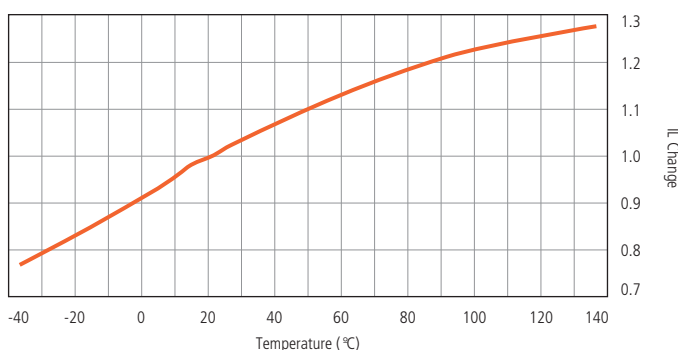
### Insertion Loss vs. Flexure



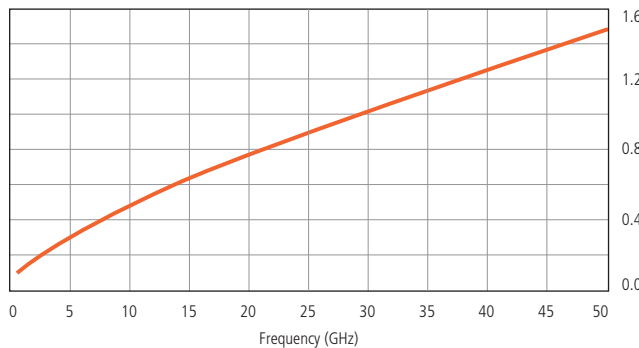
### Phase Change vs. Temperature



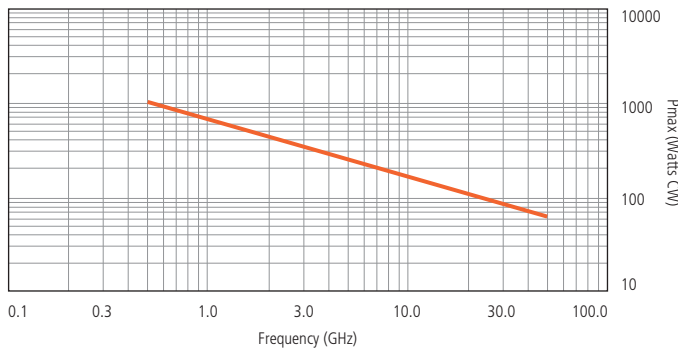
### Insertion Loss vs. Temperature



### Insertion Loss



### Cable CW Power Handling



Note: Data at ambient temperature and sea level. Power handling of a cable assembly is also connector dependent and includes variables such as altitude, temperature and system VSWR. See website for connector power handling standards, including altitude, temperature and VSWR derating.