

## THERMAL VAC MEGAPHASE THERMAL VAC TEST CABLES TO 50 GHZ



### Thermal VAC Test Cables to 50 GHz

Thermal-Vacuum Cables for Altitude & Thermal Testing

- Low Outgassing & Phase Stable
- Vented Connectors
- Ideal for High Bay Testing
- Rugged Construction
- Designed for Thermal Vacuum & Altitude Chambers
- Built for Space & Airbone RF Testing

### Electrical Data

Maximum Frequency	Impedance	Propagation Velocity	Time Delay
50 GHz	50 $\Omega$ nominal	TV32 - 69% nominal TV50 - 80% nominal	TV32 - 1.47 ns/ft (4.82 ns/m) TV50 - 1.27 ns/ft (4.167 ns/m)
Shielding Effectiveness	Dielectric Withstanding Voltage		Capacitance
-110 dB minimum (cable only)	TV32 - 10 kV at 60 Hz TV50 - 1.2 kV at 60 Hz		TV32 - 29.0 pF/ft (95.1 pF/m) TV50 - 25.4 pF/ft (83.3 pF/m)

### Mechanical Data

Finished Outer Diameter	Static Bend Radius	Weight with Standard Jacket/Armor	Crush Resistance	Operating Temp. Range
0.285 in (0.724 cm)	1.5 in (3.81 cm)	0.05 lbs/ft (0.067 kg/m)	250 lbs/linear in (44.6 kg/linear cm)	-67 to 392°F (-55 to 200°C)

### Cable Construction

Inner Conductor	Dielectric	Outer Conductor	Standard Finish
Solid Ag-plated Cu	TV32 - PTFE TV50 - Foamed FEP	TV32 - GrooveTube® Cu TV50 - Ag plated Cu Foil/Braid	Viton, Over Metallic Braid

### Available Connectors

1.85 mm, 2.4 mm, 2.92 mm, 3.5 mm, 7 mm,  
7-16 DIN, BNC, SMA, TNC, Type N, ZMA, ZN  
(Maximum frequency dependent on cable)  
Other connectors available upon request

### Maximum Assembly Length

(Consult factory)



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### Specifications

Frequency		TV32 Series*		TV50**		Conn Loss dB	VSWR	
Band	GHz	Attenuation		Attenuation				
		dB/ft	dB/m	dB/ft	dB/m			
UHF	0.3	0.062	0.203	0.104	0.341	0.006	1.10	
	0.5	0.082	0.268	0.135	0.443	0.009		
	0.8	0.106	0.348	0.172	0.566	0.012		
L	1.0	0.120	0.394	0.194	0.635	0.014	1.15	
S	2.0	0.178	0.585	0.279	0.915	0.024		
	2.4	0.199	0.652	0.307	1.009	0.027		
	3.0	0.227	0.744	0.347	1.137	0.032		
C	4.0	0.270	0.885	0.405	1.328	0.040		1.20
	6.0	0.347	1.138	0.505	1.658	0.055		
X	8.0	0.417	1.367	0.593	1.945	0.070	1.25	
	10.0	0.482	1.580	0.672	2.205	0.084	1.30	
	12.4	0.555	1.822	0.759	2.491	0.101		
Ku	15.0	0.631	2.070	0.847	2.779	0.118	1.35	
	18.0	0.715	2.345	0.941	3.089	0.139		
K	20.0	0.769	2.522	1.001	3.285	0.152		
	22.0	0.821	2.695	1.059	3.475	0.164		
	24.0	0.873	2.865	1.115	3.659	0.178		
	26.5	0.937	3.073	1.183	3.881	0.194		
Ka	28.0	0.974	3.196	1.223	4.011	0.204	1.40	
	30.0	1.024	3.358	1.274	4.181	0.217		
	32.0	1.072	3.518	1.325	4.347	0.230		
	34.0			1.375	4.510	0.243	1.45	
	36.0			1.423	4.669	0.256		
V	40.0			1.518	4.980	0.281	1.50	
	45.0			1.633	5.356	0.313		
	50.0			1.743	5.719	0.344	1.55	

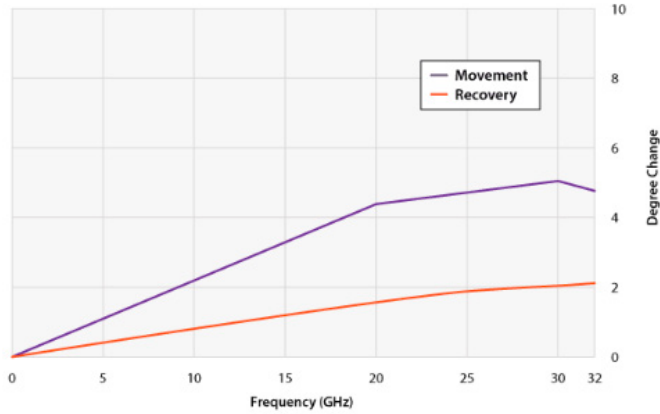
\*TV32 includes TV26, TV18, TV8, TV4

\*\*TV50 includes TV40, TV34

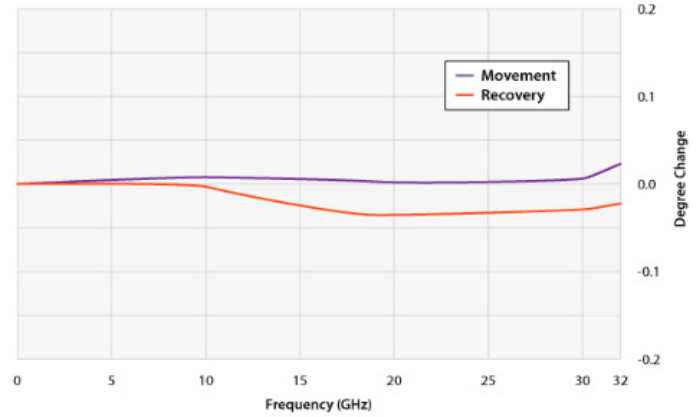


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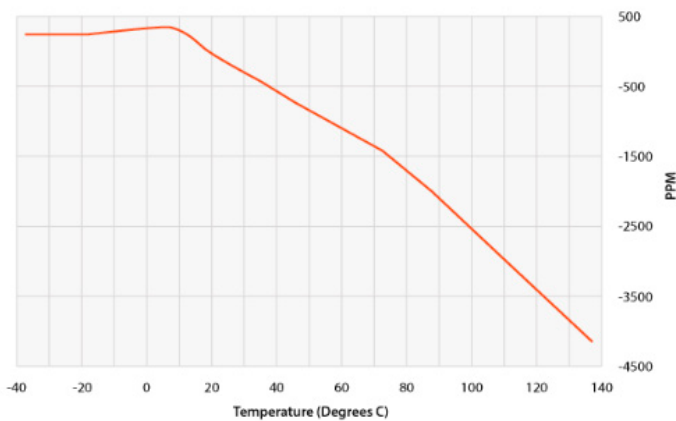
### TV32 Phase Change vs. Flexure



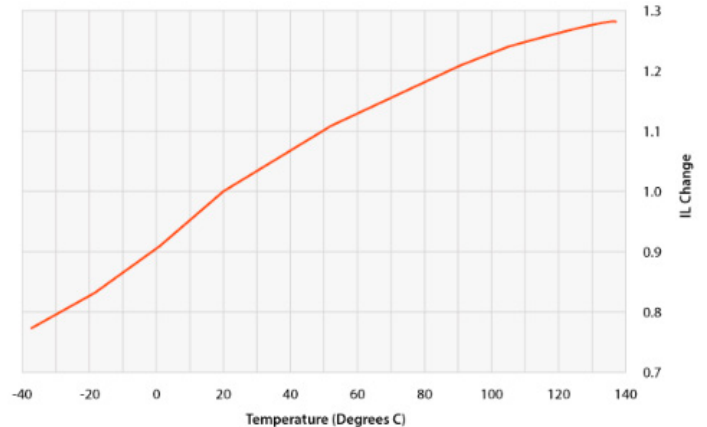
### TV32 Insertion Loss vs. Flexure



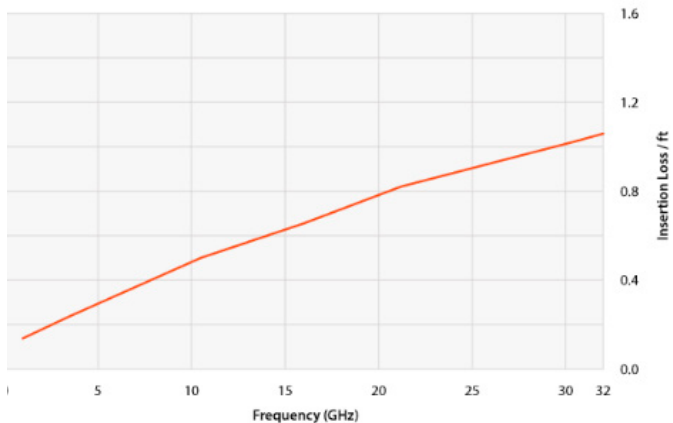
### TV32 Phase Change vs. Temperature



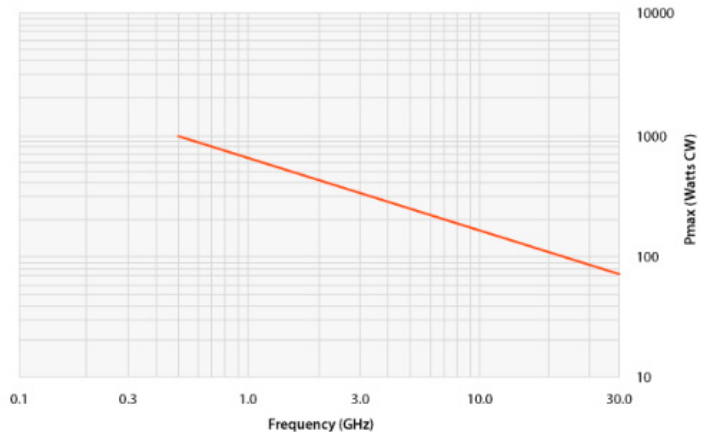
### TV32 Insertion Loss vs. Temperature



### TV32 Insertion Loss



### TV32 Cable CW Power Handling



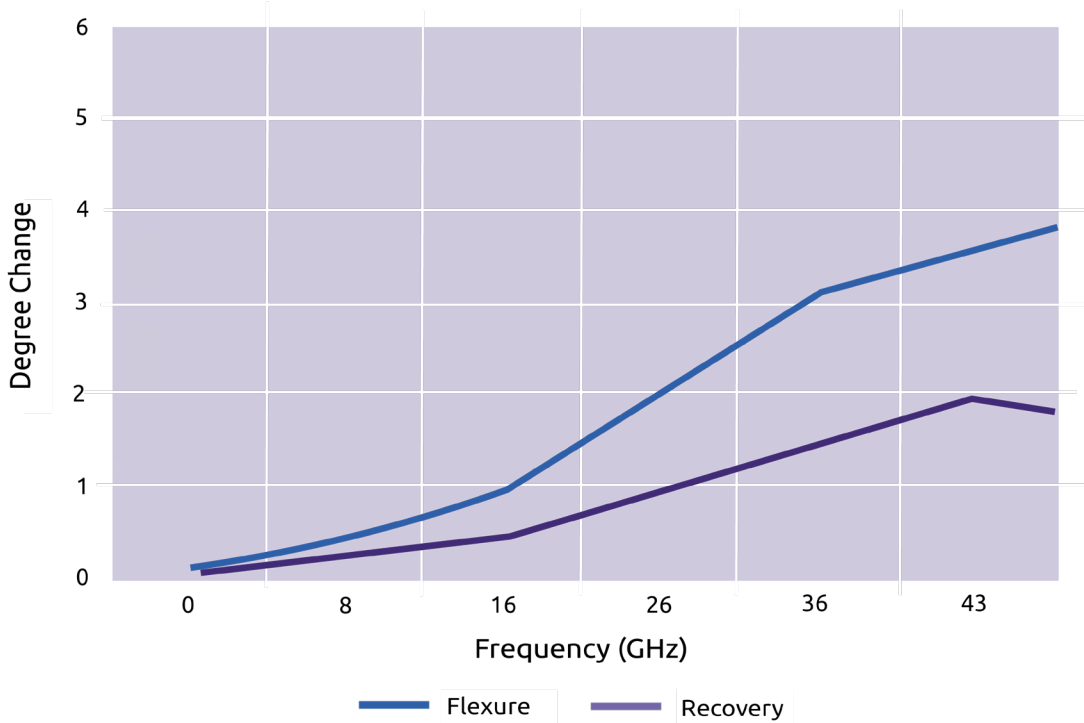
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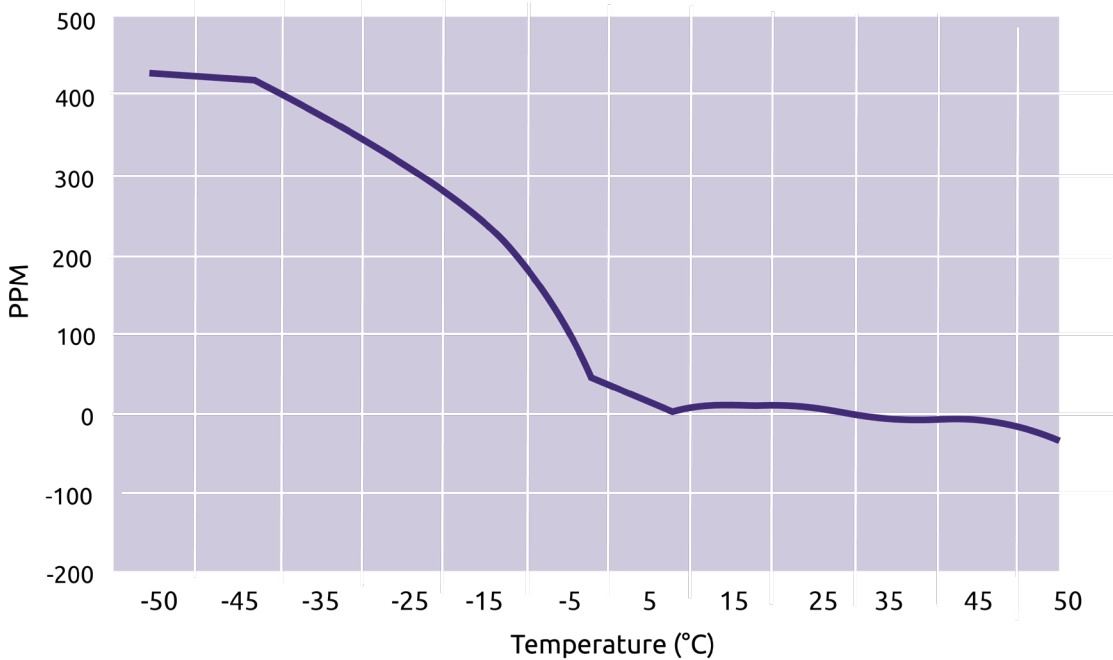


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### TV50 Phase vs. Flexure



### TV50 Phase vs. Temperature



\*TV32 includes TV26, TV18, TV8, TV4

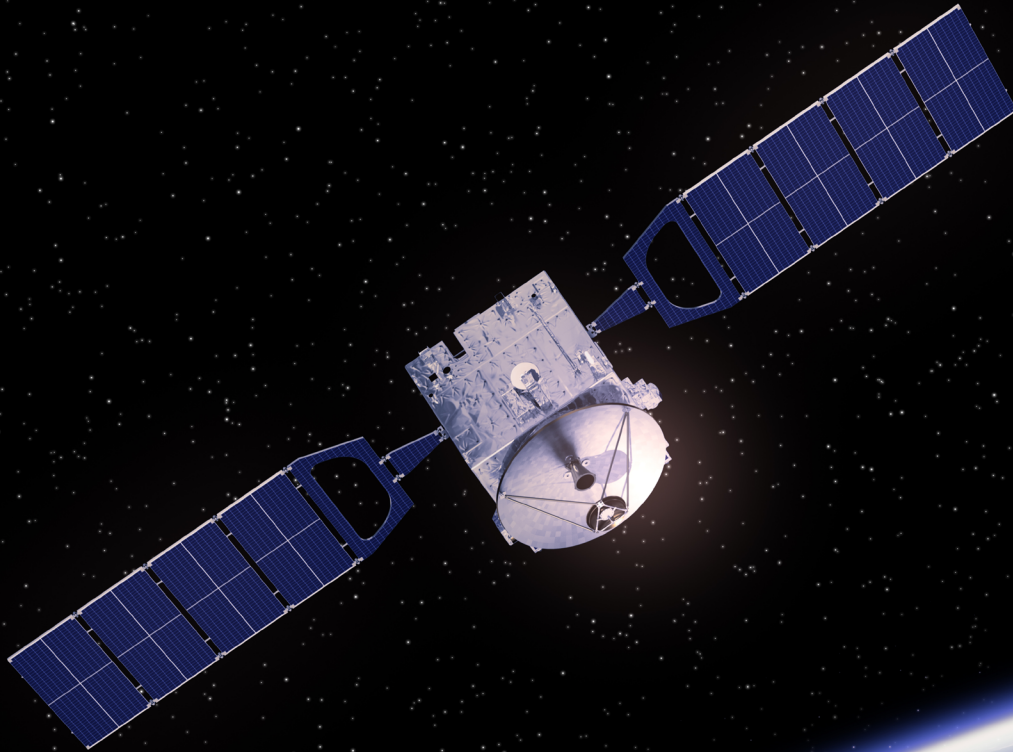
\*\*TV50 includes TV40, TV34





# MegaPhase®

*With the right connection anything is possible*



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## About us

Founded in 1998 and headquartered in Stroudsburg, Pennsylvania, MegaPhase designs and manufactures high-performance RF coaxial cables and connectors for OEMs in critical markets including test instrumentation, defense, aerospace, telecommunications, and satellite systems. Serving more than 500 customers in 30 countries—including major technology leaders and the U.S. government—MegaPhase is best known for its industry-leading GrooveTube® technology, a breakthrough flexible cable design used in high-reliability, high-power, and phase-defined applications across ground, sea, air, and space platforms. All products are manufactured in-house, tested 100% in a state-of-the-art RF lab up to 110 GHz, and engineered to deliver exceptional phase stability, low loss, and long-term measurement repeatability, helping customers achieve more reliable results at a lower cost per measurement.

**MegaPhase**

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