Vinstronic

ARMORED RF TEST CABLE SERIES

Armored RF Test Cable Assemblies

Selection Guide | DC to 110 GHz

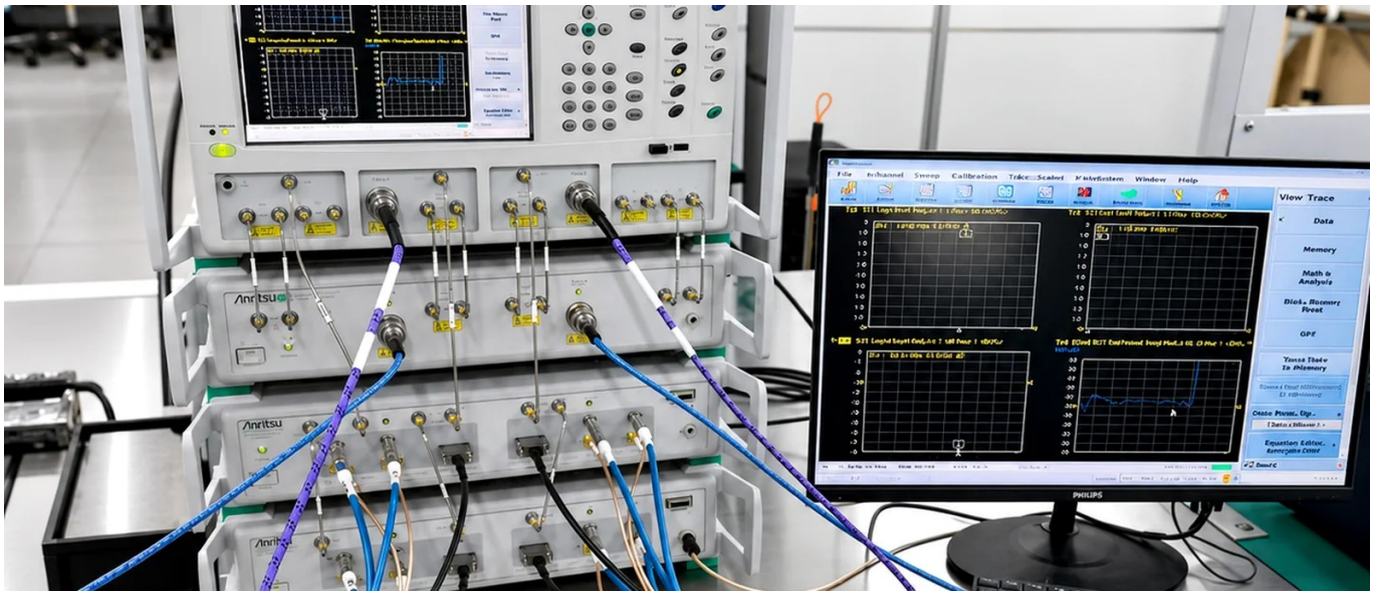
Precision test interconnects engineered for stable RF performance under repeated flexure, routing and handling.

DC TO 110 GHz | PHASE & AMPLITUDE STABILITY | INDIVIDUALLY RF TESTED



Measurement Stability Beyond Low Loss

Repeated cable movement changes the mechanical state of the measurement path. Precision test cables must control electrical variation while withstanding routine repositioning, routing and handling.



01

Phase Stability with Flexure

Limits electrical-length variation during repositioning, helping preserve measurement consistency between setups.

02

Amplitude Stability with Flexure

Controls transmission variation as the cable is moved so repositioning has less influence on the measured response.

03

Integrated Mechanical Protection

Multi-layer armored construction protects the RF transmission core during repeated routing, movement and handling.

04

Finished-Assembly Verification

Every completed assembly is RF tested before shipment and supplied with its corresponding measurement report.

> **Movement should not become the dominant variable in the measurement path.**

Armored RF Test Cable Construction

A precision RF coaxial core is surrounded by additional mechanical protection layers for repeated routing, movement and handling.

REPRESENTATIVE INTEGRATED-ARMOR CONSTRUCTION



RF COAXIAL CORE

Layers 1-7

INTEGRATED ARMOR & PROTECTION

Layers 8-11

Item	Layer Name	Nominal OD (mm)	Tolerance (mm)	Material & Process
1	Inner Conductor	0.51	±0.010	Silver-plated copper-clad steel
2	Dielectric	1.55	±0.05	Low-density PTFE
3	Inner Shield	1.65	±0.05	Silver-plated copper strip
4	Middle Layer 1	1.75	±0.05	Aluminum foil
5	Middle Layer 2	1.88	±0.05	PI
6	Outer Shield	2.23	±0.05	Silver-plated copper wire
7	Outer Jacket	2.60	±0.10	FEP
8	Winding Layer	3.20	±0.10	Silver-plated copper-clad steel
9	Braiding Layer	3.80	±0.10	Silver-plated copper wire
10	Protection Layer	4.20	±0.10	PTFE tape wrap
11	Outer Protective Layer	4.95	±0.15	PTFE braiding, purple and black

Representative T26KB integrated-armor construction shown. Exact materials, dimensions and layer configuration vary by cable platform.

Six Cable Platforms from 18 to 110 GHz

Select the platform according to the required bandwidth, attenuation, power handling and mechanical routing constraints.



Representative overall-diameter comparison. Refer to the selection matrices for nominal dimensions and electrical performance.

PLATFORM RANGE

Platform	Max. Frequency	Cable OD	Selection Guidance
T80KA/KB	18 GHz	10.40 mm	Lower-loss routing
T50KA/KB	26.5 GHz	7.60 mm	General microwave test
T42KA/KB	40 GHz	6.70 mm	40 GHz microwave test
T36KA/KB	50 GHz	6.10 mm	50 GHz microwave test
T26KB	67 GHz	4.95 mm	67 GHz integrated armor
T18KA/KB	110 GHz	3.84 mm	110 GHz mmWave paths

KA - Split armor configuration · **KB - Integrated armor configuration**

Cable Platform Selection Matrix

Armored cable-platform specifications are shown below. Finished-assembly performance depends on cable length, connector interfaces and the complete connectorized configuration.

ELECTRICAL

Values shown at each platform's maximum rated frequency.

Platform	Max Freq. GHz	VSWR	Mechanical Phase Stability (°)	Amplitude Stability (dB)	Attenuation @ Max Rated Freq. (dB/100 m)
T80KA/KB	18	≤1.25	±3	±0.05	75.3
T50KA/KB	26.5	≤1.25	±5	±0.05	158.8
T42KA/KB	40	≤1.30	±7	±0.05	271.2
T36KA/KB	50	≤1.30	±7	±0.05	359.2
T26KB	67	≤1.30	±7	±0.15	645.4
T18KA/KB	110	≤1.35	±10	±0.10	1314.3

MECHANICAL

Platform	Cable OD mm	Static Bend mm	Dynamic Bend mm
T80KA/KB	10.40	50	80
T50KA/KB	7.60	50	80
T42KA/KB	6.70	40	70
T36KA/KB	6.10	30	60
T26KB	4.95	25	49.5
T18KA/KB	3.84	30	50

50 Ω IMPEDANCE **>90 dB SHIELDING EFFECTIVENESS** **-55°C TO +125°C**

NOTE - Attenuation values are cable-platform data. Finished-assembly insertion loss depends on cable length, connector interfaces and complete assembly configuration.

From Cable Platform to Finished Assembly

A finished assembly is defined by bandwidth, cable platform, connector interfaces, length and routing requirements.

Bandwidth + **Cable Platform** + **Connector A / B** + **Assembly Length & Routing** = **Finished Assembly**

REPRESENTATIVE CONNECTOR INTERFACES & FREQUENCY CLASSES

Interface	Representative Frequency	Typical Use
1.0 mm	DC-110 GHz	W-band / mmWave measurement paths
1.85 mm	DC-67 GHz	VNA and mmWave measurement
2.4 mm	DC-50 GHz	Microwave and mmWave test
2.92 mm	DC-40 GHz	Broadband microwave test
3.5 mm	Up to 34 GHz*	Precision microwave / laboratory test
SMA	Up to 26.5 GHz*	General RF / microwave test
N Type	Up to 18 GHz*	Rugged RF / higher-power test paths

* Connector-specific limits vary. Final usable bandwidth depends on the selected connector design, cable platform and complete connectorized configuration. Mixed-interface assemblies are available where the complete RF configuration supports the required bandwidth.

MATCHED-PAIR CAPABILITY

Pair Phase Matching: ±1 ps

Available for paired assemblies when specified at the time of order.

REPRESENTATIVE PART NUMBER FORMAT

VST-L-[Connector A][Connector B]-[Cable Platform]-[Length/Suffix]

The final part number is assigned based on the completed assembly configuration.

CABLE RATING ≠ ASSEMBLY BANDWIDTH

Final usable bandwidth is defined by the complete connectorized assembly.

Every Finished Assembly Is Individually RF Tested

Each completed Vinstronics armored RF test cable assembly is RF tested before shipment and supplied with its corresponding measurement report.

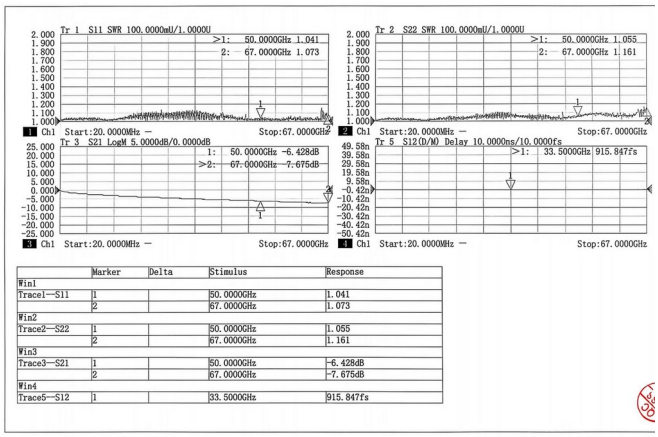
INDIVIDUAL TEST DOCUMENTATION



INDIVIDUALLY TESTED & DOCUMENTED

Each report corresponds to the specific finished assembly tested.

REPRESENTATIVE RF VERIFICATION



	Marker	Delta	Stimulus	Response
Win1				
Trace1—S11	1		50.0000GHz	1.041
	2		67.0000GHz	1.073
Win2				
Trace2—S22	1		50.0000GHz	1.055
	2		67.0000GHz	1.161
Win3				
Trace3—S21	1		50.0000GHz	-6.428dB
	2		67.0000GHz	-7.675dB
Win4				
Trace5—S12	1		33.5000GHz	915.847fs

S11 · Input Match **S22 · Output Match** **S21 · Insertion Loss**

Representative measurement shown. Actual performance depends on cable platform, assembly length, connector interfaces and completed configuration.

FINISHED-ASSEMBLY VERIFICATION

RF verification is performed on the completed connectorized assembly - not only on the bulk cable platform.

Applications & Assembly Specification

Provide the measurement requirements below to define the appropriate cable platform, connector interfaces and assembly configuration.

TYPICAL TEST ENVIRONMENTS



01 VNA & Laboratory Measurement

Precision characterization of RF components, connectors, cables, fixtures and interconnects.

02 Production RF Test

Repeated DUT connection and cable handling in manufacturing and automated test stations.

03 Microwave & mmWave R&D

High-frequency development where movement of the test interconnect can influence measurement repeatability.

04 System Integration & Validation

Armored RF interconnects for integrated test systems, racks and multi-channel validation.

HOW TO SPECIFY YOUR ASSEMBLY

01 Frequency Range

02 Connector A

03 Connector B

04 Assembly Length

05 Routing / Movement Requirements

06 Quantity

OPTIONAL Power Requirement | Environmental Requirements | Phase-Matched Pair Requirement | Special Connector Configuration

ENGINEERING SUPPORT

Send us your measurement requirements. We'll review the appropriate cable configuration.

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PRODUCT PAGE