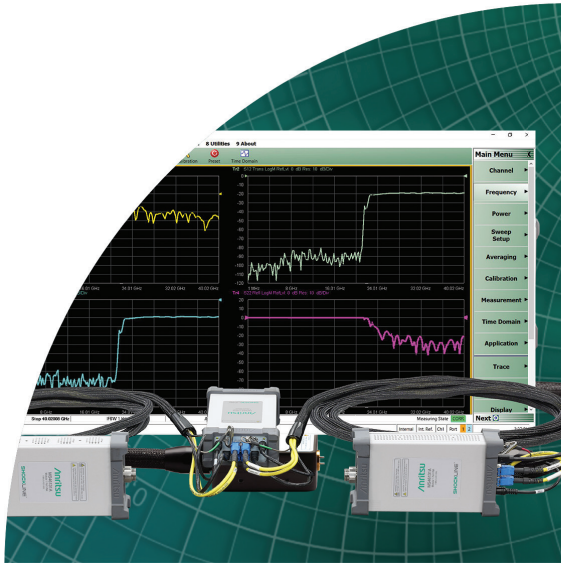
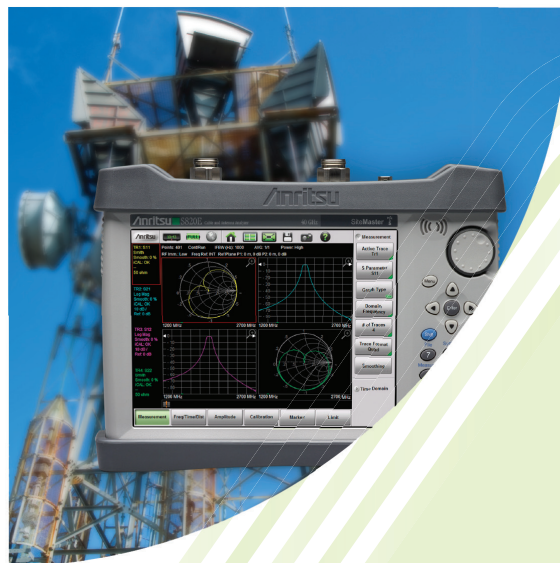


Anritsu Advancing beyond

Vector Network Analysis

Product Portfolio



VNA Innovation Timeline



Wiltron 310 Impedance Meter
12 GHz coax
18 GHz WG

In 1965, Anritsu filed the patent that defined the first modern Vector Network Analyzer (VNA).

We are proud to continue that tradition of innovation to the present day—with the world's first portfolio of VNAs that bring Nonlinear Transmission Line (NLTL) technology to every measurement scenario from on-wafer device characterization to R&D testing to manufacturing and field operations.

1965

1987

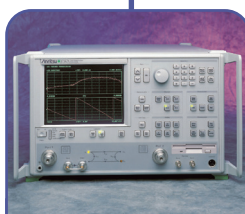
1994

2001

2006



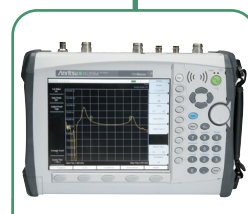
360A VNA
40 MHz to 40 GHz



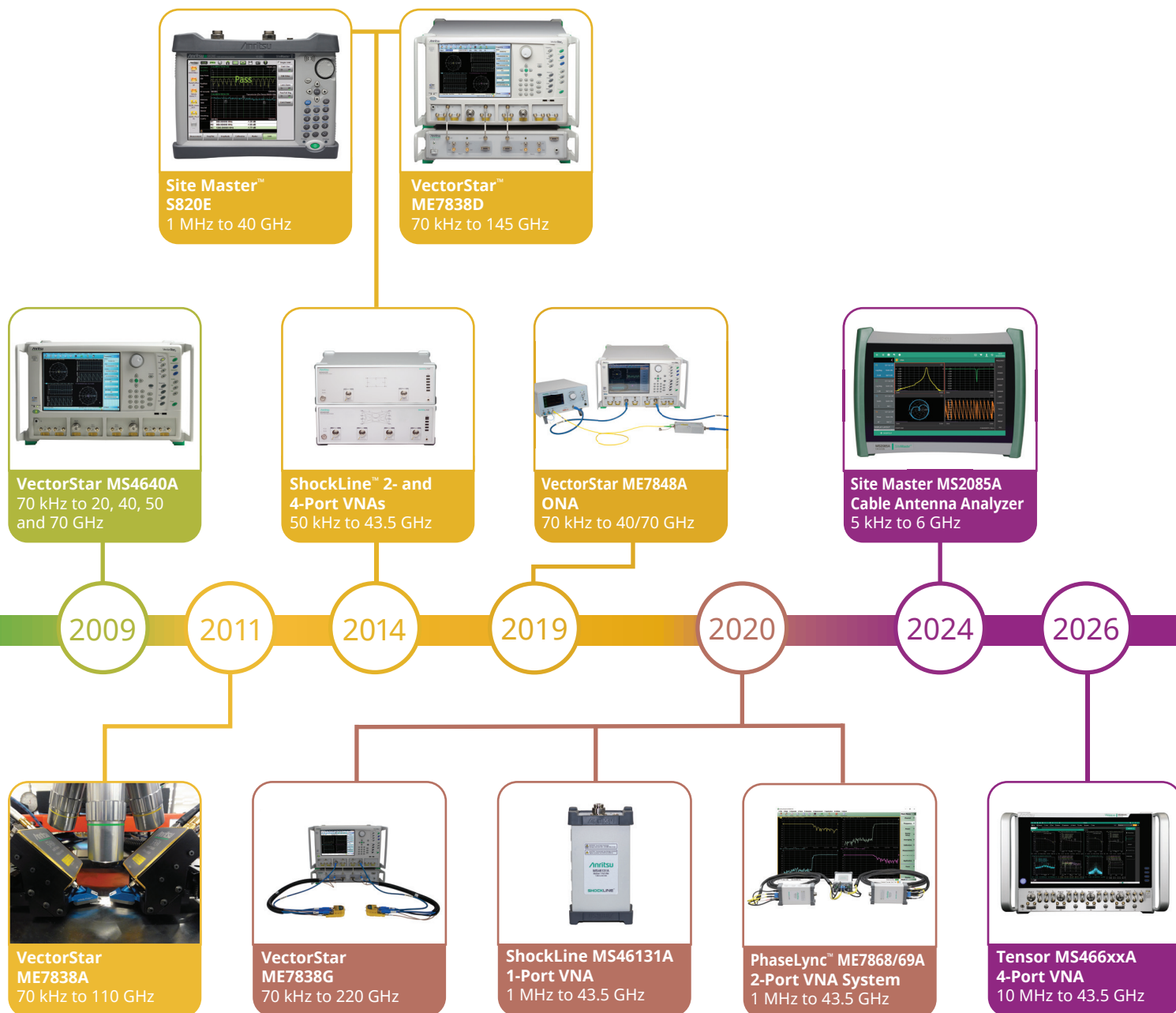
Lightning™ 37000E
40 MHz to 65 GHz



**Broadband and
mmWave VNA ME7808**
40 MHz to 110 GHz



**VNA Master™
MS202/3xA**
2 MHz to 6 GHz



Vector Network Analysis

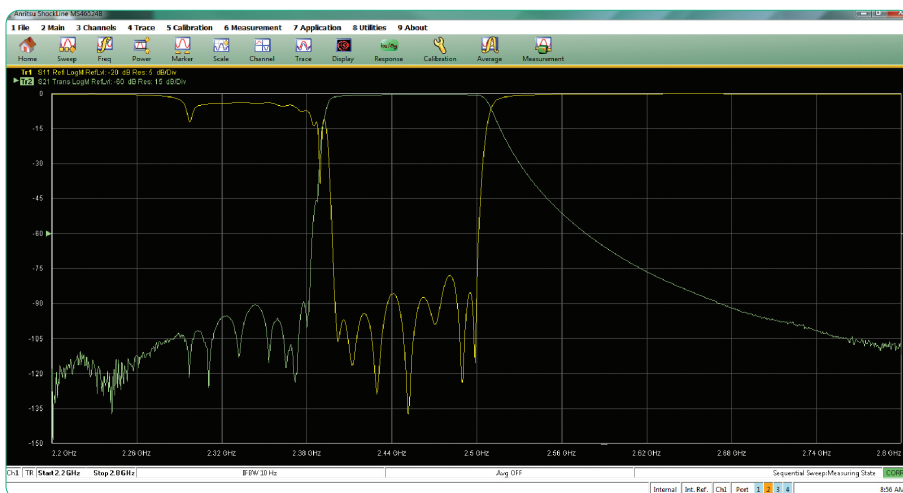
Passive Components

As passive components become more integrated and complex, engineers require fast, accurate characterization across a wide range of devices and test environments. Tensor™ VNA combines ultra-fast measurement speed, high dynamic range, and scalable multiport capability to enable efficient testing of filters, antennas, cables, connectors, and RF front-end assemblies. Integrated AI assistance simplifies setup and calibration, helping users achieve reliable results with less effort and reduced training requirements.

Anritsu handheld Vector Network Analyzers are designed and optimized for field use and are able to make all of the passive measurements required in the field with high accuracy and repeatability. Distance Domain is standard on every Anritsu handheld VNA or Cable & Antenna Analyzer instrument, allowing users to quickly locate and identify faults within a coaxial or waveguide transmission system. High dynamic range enables easy antenna isolation measurements which is typically required at most sites. The highest RF immunity (+17 dBm) provides high accuracy and quality measurements, unaffected by strong RF/microwave signals which may be present nearby.



The ShockLine™ family of VNAs from Anritsu offer a broad range of configurations and performance levels to test a wide variety of passive components. Consisting of 1-, 2-, and 4-port models covering frequencies up to 92 GHz, ShockLine VNAs deliver the flexibility to economically test passive devices from simple cables and connectors all the way up to high performance 5G filters and E-band antennas. All of the ShockLine VNAs share common test software which enables an easy transition between verifying a device under test with a performance VNA model on the bench, and testing it with an economy model in manufacturing. Designed without embedded touch-screen or keypad, ShockLine VNAs are very small and robust, minimizing space requirements and maximizing uptime.



Band-Pass Filter Measurement with a ShockLine VNA

Passive Testing Challenges	Our Solutions
Designed for Field Use	
Need to make accurate, reliable measurements in typical outdoor environment with large temperature variations?	Anritsu handheld analyzers utilize Active Thermal Management which enables them to quickly stabilize to typical outdoor environments. This results in reliable measurement accuracy and repeatability in any environment.
Need fully reversing 2-port VNA measurement capability in the field.	Anritsu has several models of 2-port fully reversing VNA analyzers with coverage up to 43.5 GHz.
Remote sites are often difficult to access, which makes traditional equipment transportation impossible.	Anritsu handheld analyzers are compact and typically weigh less than 7 lbs. Their compact size and weight allows them to be easily carried to remote locations.
Access to AC power not readily available at some sites.	Anritsu handheld analyzers operate from an easily replaceable internal battery when AC power is not available. Spare batteries can be used to extend operation time if needed.
Need to reduce setup complexity and training requirements?	Tensor's integrated AI assistant helps configure measurements, calibration routines, and instrument settings through guided workflows and natural language interaction.
Need faster validation of passive devices in R&D and manufacturing?	Ultra-fast sweep speeds and rapid data processing reduce measurement time while maintaining excellent accuracy and repeatability.
Reduce the Cost of Test	
Need to reduce operating expenses (OPEX)? Multiple site visits are very costly and inefficient.	Since 1996 Anritsu has been the leader in handheld test and measurement equipment. Anritsu is the de facto standard around the world.
Need to minimize the cost of test to stay competitive in your industry.	Anritsu offers a wide selection of VNAs to fit a broad range of passive device applications and budget.
Cannot afford costly downtime in your production environment.	ShockLine VNAs are compact and more robust without fragile keypad or display.
Need a low cost test solution without compromising performance.	You get high performance at a low cost.
Ease of Use	
Space is at a premium in the production environment.	Choice of multiple compact packages saves bench space and efficiently uses rack space.
Need seamless correlation of results from the design environment to the production environment.	Easily migrate from performance to economy models while moving from design to production.
Need simple setup and operation.	Anritsu's easyTest™ Tools software allows users to create work instruction files on a PC, deliver these files by e-mail, and then display work instructions on supported instruments and modes.
High Accuracy	
Need to evaluate connector design with highest available resolution.	Unique low-frequency coverage from 70 kHz and up to 70, 125, and 145 GHz in coax provides the best time domain measurement accuracy.
Accurately measure medium and high loss devices. Catch all potential filter feed-throughs in out-of-band regions.	Superior dynamic range, up to 142 dB at 2.5 GHz and 125 dB at 67 GHz.
Minimize the need for recalibration for different production line components.	High data resolution utilizing 100,000 point for maximum flexibility. Move to different frequency spans and still zoom in on narrow band responses without recalibration.
Improve productivity by reducing measurement guard bands utilizing optimum measurement uncertainty.	Best test port characteristic performance with up to 50 dB in directivity, source match and load match performance combined with industry-leading dynamic range provides excellent measurement accuracy.

Active Components

Modern amplifiers, mixers, frequency converters, and integrated RF modules require increasingly sophisticated characterization. Tensor VNA introduces a revolutionary source-per-port architecture that provides an independent source on every port, enabling advanced active-device measurements with simplified test setups. Combined with industry-leading dynamic range, high output power, and integrated measurement applications, Tensor accelerates design validation and production test for today's most demanding active devices.

VectorStar™ offers a wide range of standard performance and instrument options for optimizing measurements of active devices. The high available power, up to +14 dBm at 20 GHz and +6 dBm at 67 GHz, provides enough power to measure compression properties of high power amplifiers without the need to search for external components. The high receiver compression point, +15 dBm at 70 GHz, often eliminates the need for additional external or internal attenuators.

The ShockLine MS4652xB Performance VNAs offer economical capabilities to test simple linear active devices not requiring the performance of VectorStar. ShockLine's optional direct access loops, bias-Tees (8.5 GHz models), ALC power control, and multiple embedded sources enable tests like gain and distortion measurements on simple active devices.

Active Measurements Suite

When measuring active devices, the Active Measurement Suite options provide a wide range of analysis tools for proper characterization of devices, components, and systems. First, there is the choice of two or four internal step attenuators for forward and reverse sweeps. This provides the opportunity to reduce instrument costs when maximum power range control in the reverse direction is not needed. Next, the measurement suite includes internal bias tees allowing component biasing directly through the VNA test port rather than needing external bias tee components. The measurement suite includes gain compression software that greatly simplifies the compression analysis process. With a power sweep configured, the software provides automatic normalization for easy identification of the start in gain roll off. The software also provides the ability to set flags indicating the user defined gain compression points with data provided in graph or tabular format. In addition, the swept power can be programmed for multiple frequencies for full analysis using the multiple frequency gain compression function.

Noise Figure Measurements

The Noise Figure Measurement Option adds the capability to measure noise figure of active devices from 70 kHz to 145 GHz. The noise figure measurement is based on a cold source technique for improved accuracy. Various levels of match and fixture correction are available for additional enhancement. VectorStar is the only VNA platform optimized for measuring noise figure up to 110 and 145 GHz utilizing a unique receiver for noise figure measurements.



Millimeter-Wave (mmWave) Noise Figure Measurements with an Anritsu VNA

Pulse Measurements

Pulse measurements demand speed, precision, and repeatability. Tensor's modern measurement architecture delivers fast data acquisition and processing, enabling efficient characterization of dynamic RF behavior and active-device performance. AI-guided workflows simplify the setup of complex measurements, helping engineers accelerate analysis while maintaining measurement confidence.

Active Module/Sub-system Testing Challenges	Our Solutions
High Performance	
Need a high performance analyzer for fast, efficient and accurate device and component measurements in an R&D lab environment.	VectorStar VNAs offer a broad range of active device applications and budget.
	Programmable source levels for active gain testing.
	Enables harmonic distortion testing.
	Low noise floor enable noise figure and distortion measurements.
	Easily create active device tests using multiple programming methods: SCPI, IVI-C, scripting, easyTest, and 3rd party environments such as LabVIEW.
Design and develop high performance amplifiers quickly and efficiently.	VectorStar provides a wide range of active device characterization including the highest performing pulse analysis, highest frequency noise figure measurements, and accurate IMD measurements utilizing NLTL samplers.
	IMDView™ provides the ability to automatically switch between S-parameter measurements and intermodulation characterization using the optional internal second source and combiner.
Generate accurate device models using wide bandwidth characterization.	Only VNA with single sweep coverage starting as low as 70 kHz and sweeping up to 110, 125, 145, and 220 GHz through a single coaxial connector. The wide, stable electronic power control to as low as -55 dBm ensures that the device is accurately modeled well within the linear operating region.
Need realistic characterization of amplifiers under multi-carrier operating conditions?	Dedicated sources on every port simplify two-tone and multi-tone measurements for amplifiers and subsystems.
Need to reduce test-system complexity?	Tensor's source-per-port architecture eliminates the need for many external generators, combiners, and switching components.
Reduce the Cost of Test	
Maximize current equipment budgets while protecting the investment for future needs.	The VectorStar platform supports a wide variety of upgrades including higher frequencies, higher port count, and increased capabilities. The only VNA platform that provides an upgrade path from a 2-port VNA to a 4-port system with upper frequencies to 70 GHz in baseband and up to 110, 125, 145, or 220 GHz in broadband configuration. Protect investments by purchasing what is needed today and upgrading to additional capabilities when budget and need allows.

Vector Network Analysis

Broadband and Millimeter-Wave (mmWave) On-Wafer

The development of next-generation semiconductor technologies requires accurate measurements from RF through millimeter-wave frequencies. Tensor supports broadband characterization through 220 GHz with scalable frequency extension to 1.1 THz, enabling advanced device modeling, wafer-level analysis, and emerging 6G research. Compact mmWave solutions reduce measurement complexity while delivering the performance required for leading-edge device characterization.

Obtain the most thorough and accurate broadband device characterization while eliminating time-consuming, error prone concatenation process across the RF, microwave, and mmWave frequency bands. This stable broadband performance means users can make high accuracy measurements all day, with the confidence that calibrations remains rock solid! Spend less time calibrating and more time measuring.

Broadband and Millimeter-Wave (mmWave) On-wafer Testing Challenges	Our Solutions
Improve on-wafer measurement performance and add additional mmWave bands without having to replace existing probe stations with large, expensive alternatives.	Anritsu's modern architecture provides a solution that is a fraction of the size and weight of other solutions. The mmWave modules fits on smaller probe stations and may be directly mounted to the probe. The broadband system incorporating the unique NLTL modules offer frequency coverage starting at 70 kHz and operating up to 110, 125, 145, and 220 GHz.
Need to eliminate high frequency cable losses and cable instabilities.	VectorStar and ShockLine's mmWave measurement capability is accomplished using modules tethered to the instrument through 1 m or 5 m cables, which enables the VNA to provide more power with higher dynamic range at the DUT.
Need characterization at frequencies above 100 GHz?	Tensor provides scalable mmWave measurement capability through 220 GHz with extension to 1.1 THz for advanced semiconductor applications.
Need to simplify complex mmWave measurement workflows?	AI-assisted setup accelerates configuration and calibration while reducing the potential for measurement errors.



MS46522B with E-Band Frequency Options
55-92 GHz mmWave Options (1 m, 5 m) are the Best Value and Most Convenient Solutions on the Market for Production Testing and Over-the-Air Characterization of E-band Components



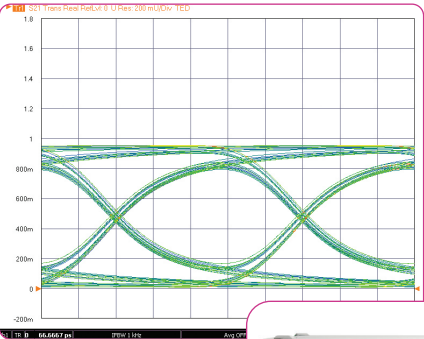
Compact and Lightweight mmWave Modules
Our Solution is Less than the Weight and the Volume of other Solutions, Enabling Low Cost Installation on Smaller Probe Stations

Signal Integrity

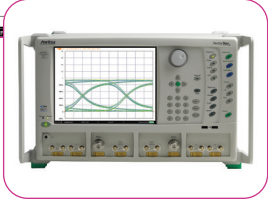
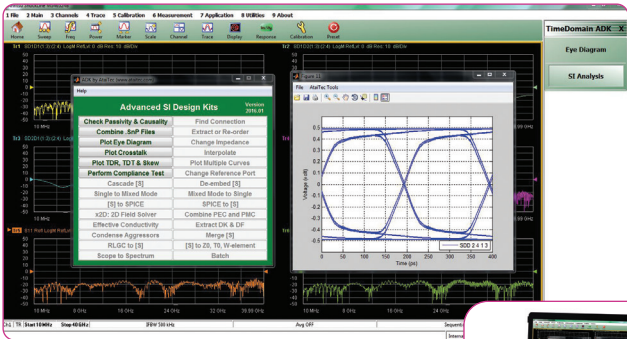
High-speed digital technologies demand precise electrical characterization of interconnects, packages, PCBs, and cable assemblies. Tensor integrates with Anritsu's multiport and switching solutions to support S-parameter analysis, time-domain measurements, TDR, VSWR, and Delta-L testing. High-speed measurement performance and scalable port configurations help engineers efficiently validate signal integrity across increasingly complex systems.

For lower frequency SI verification and testing, ShockLine MS4652xB series offers 2- and 4-port broad-band models to 43.5 GHz. VectorStar and ShockLine include a suite of built-in tools for de-embedding single ended or differential test fixtures without the need for external software programs for accurate signal integrity measurements of backplanes, SERDES, and other devices of interest.

Signal Integrity (SI) Testing Challenges	Our Solutions
Perform accurate SI characterization of high speed data channels using quality low frequency measurements with high performance upper frequency coverage.	VectorStar has a low frequency receiver which covers 70 kHz to 2.5 GHz combined with a high frequency receiver operating to 20, 40, 50, and 70 GHz in the baseband unit. By using the best architecture for each band, high performance is achieved at all frequencies including best dynamic range 500 MHz and below.
Need to ensure that high speed devices comply to USB 3.1 and Thunderbolt 3 test specs.	ShockLine provides verification of latest high speed devices.
Interactive eye-diagram characterization for design and debug.	VectorStar with option 47 (Eye Diagram) offers live trace-based eye-diagram capabilities for SI testing.
Testing and verifying skew, crosstalk, and other SI specifications.	ShockLine with option 22 (Advanced Time Domain) incorporates third party SI software into the ShockLine software, enabling NEXT, FEXT, and other SI tests.
Need comprehensive characterization of complex interconnect structures?	Tensor's scalable multiport architecture supports efficient frequency- and time-domain analysis across a broad range of signal-integrity applications.
Need faster design validation cycles?	High-speed measurement throughput helps accelerate debugging and compliance testing.



VectorStar VNA
Eye Diagram
Measurement
Has Live Update
with Every
Frequency Sweep

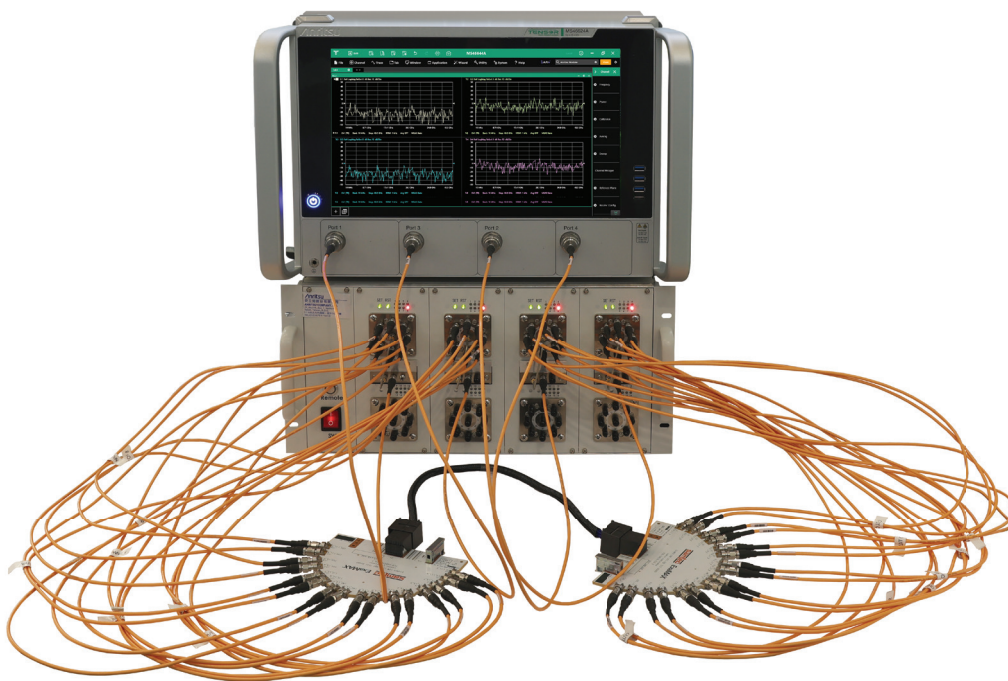


ShockLine VNA
SI Measurements Using
Advanced Time Domain



Multi-Channel Signal Integrity

Tensor is Anritsu's next-generation high-speed, multi-channel signal integrity test solution, designed to address the growing complexity of validating high-performance digital interconnects in data center, AI, networking, and advanced computing applications. By combining industry-leading vector network analysis, scalable multi-port architecture, and advanced measurement automation, Tensor enables engineers to characterize channels, connectors, packages, and PCB interconnects with exceptional accuracy and efficiency. Its ability to perform simultaneous, high-throughput measurements across multiple channels accelerates design validation workflows while delivering the precise S-parameter data required for simulation, compliance testing, and signal integrity optimization at data rates extending into the millimeter-wave frequency range.

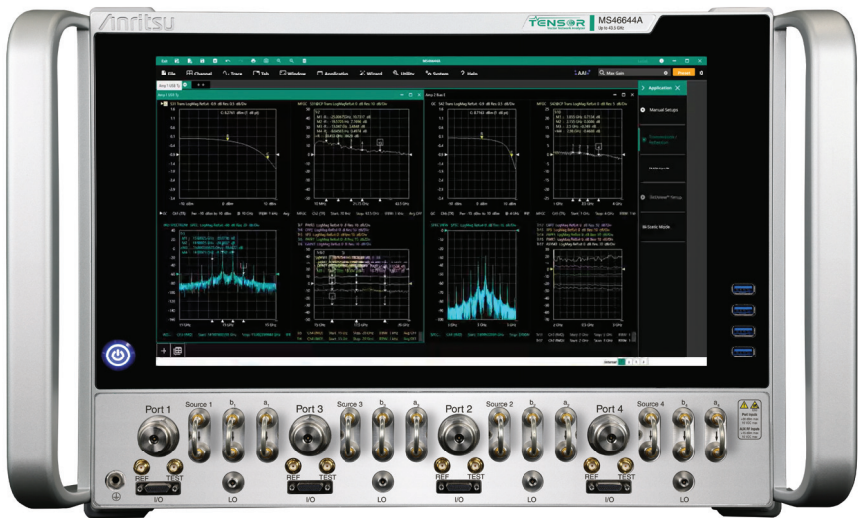


Tensor 4-Port VNA
MS466xxA

AI-Driven Test Automation and Measurement Intelligence

Increasing device complexity and growing pressure to reduce development schedules are making RF and microwave testing more challenging than ever. Tensor introduces Anritsu Artificial Intelligence (AAI), the industry’s first AI-enabled VNA experience, helping engineers configure measurements, optimize setups, troubleshoot issues, and reduce time spent on instrument operation. Operating entirely on the instrument, Tensor provides AI assistance without requiring internet connectivity, making it suitable for secure laboratory, aerospace, and defense environments.

Measurement Automation Challenges	Our Solutions
Need to reduce dependence on specialized VNA expertise?	AI-guided workflows help users quickly configure complex measurements and calibration routines.
Need to accelerate test development and deployment?	Natural-language interaction simplifies instrument setup and minimizes configuration time.
Need secure operation in controlled environments?	Tensor’s built-in AI operates locally without requiring a network connection. This capability helps engineers spend less time configuring instrumentation and more time analyzing results and accelerating innovation.



Tensor 4-Port VNA
MS466xxA

Passive Components

Active Components

Broadband and
Millimeter-wave
On-wafer

Signal Integrity

AI-Driven Test
Automation

PhaseLync™ Integration with Tensor Phase-Coherent RCS and RIS Characterization

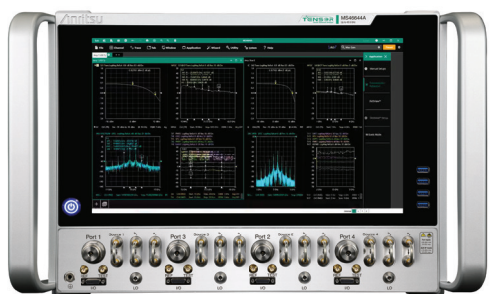
When integrated with PhaseLync technology, the Tensor high-speed, multi-channel signal integrity platform becomes a powerful solution for Radar Cross Section (RCS) and Reconfigurable Intelligent Surface (RIS) characterization. PhaseLync enables precise phase-coherent synchronization across multiple measurement channels, allowing Tensor to perform highly accurate, spatially correlated measurements required for beamforming, phased-array, and intelligent surface evaluation. This synchronized architecture supports the characterization of amplitude and phase responses across large antenna arrays and RIS elements, providing engineers with detailed insight into scattering behavior, beam-steering performance, and electromagnetic interactions. By combining Tensor's scalable multi-port measurement capabilities with PhaseLync's coherent channel alignment, the solution accelerates RCS and RIS validation workflows while delivering the accuracy and repeatability needed for next-generation aerospace, defense, wireless communications, and 6G research applications.



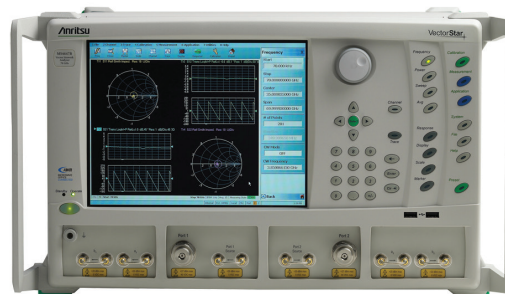
Tensor MS466xxA with **PhaseLync** ME7869A

Anritsu Vector Network Analyzers

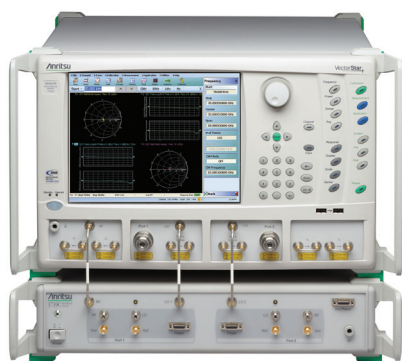
Bench



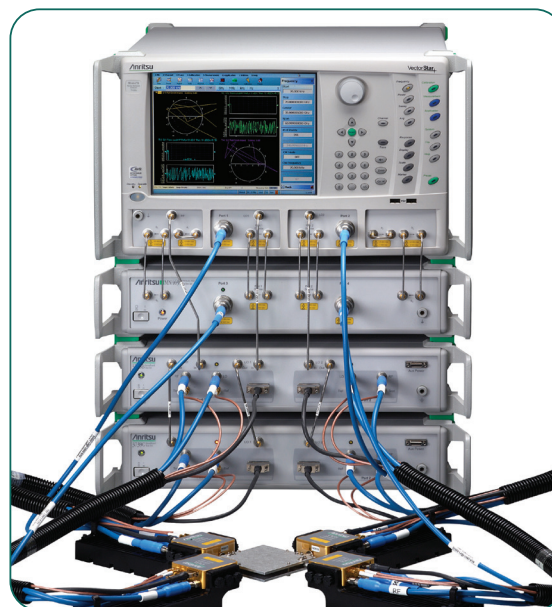
**Tensor 4-Port VNA
MS466xxA**
10 MHz to 43.5 GHz



**VectorStar
MS464xB**
70 kHz to 20/40/50/70 GHz



**VectorStar Broadband VNA
ME7838A/E/D/G**
70 kHz to 110/125/145/220 GHz
with banded mmWave modules up to 1.1 THz



VectorStar 4-Port Broadband VNA
ME7838A4 **ME7838D4** **ME7838G4**
70 kHz to 110/125 GHz 70 kHz to 145 GHz 70 kHz to 220 GHz

Vector Network Analysis

Anritsu Vector Network Analyzers

Manufacturing



ShockLine Performance VNAs

MS46522B

50 kHz to 8.5/20/43.5 GHz
55 GHz to 92 GHz

MS46524B

50 kHz to 8.5/20/43.5 GHz



ShockLine

**1-Port USB VNA
MS46121B**

150 kHz to 6 GHz

ShockLine

**1-Port Modular VNA
MS46131A**

1 MHz to 8/20/43.5 GHz



ShockLine

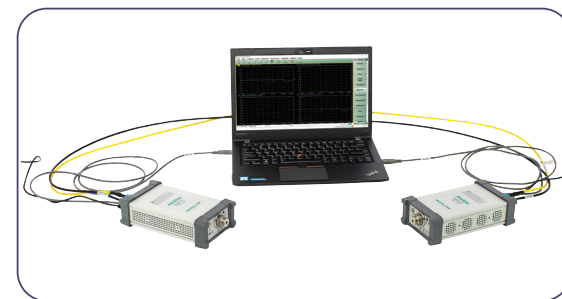
**Compact USB VNA
MS46122B**

1 MHz to 8/20/43.5 GHz

ShockLine

**Economy VNA
MS46322B**

1 MHz to 8/20/43.5 GHz



**ShockLine/PhaseLync
Modular 2-Port VNA System
ME7868/69A**

1 MHz to 8/20/43.5 GHz

Anritsu Vector Network Analyzers

Field



**VNA Master
MS2036C**
5 kHz to 6 GHz



**Microwave Site Master
Handheld Cable & Antenna Analyzer
S82xE**
1 MHz to 40 GHz



**Site Master VNA
MS2085A**
5 kHz to 6 GHz



Specifications are subject to change without notice.

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