Anritsu envision : ensure

ShockLine™ Vector Network Analyzer Family Brochure

Bringing simplicity and value to high-performance RF and microwave VNA measurements.

ShockLine™ Vector Network Analyzer Family

Introduction

The ShockLine family of vector network analyzers (VNAs) achieve a new level of capability, flexibility, and value for RF and microwave network analysis applications. ShockLine VNAs deliver excellent performance for wide band measurements from 50 kHz up to 43.5 GHz and banded E-band measurements from 55 GHz to 92 GHz. These instruments are ideal for testing passive and many active components with general purpose VNA requirements.

The ShockLine family employs advanced Anritsu technology and design expertise to attain outstanding dynamic range, calibration and measurement stability, and speed performance in efficiently packaged, compact, and robust VNA instruments.

ShockLine VNAs provide S-parameter, time domain, and signal integrity measurement capabilities in 1-, 2-, and 4-port configurations.
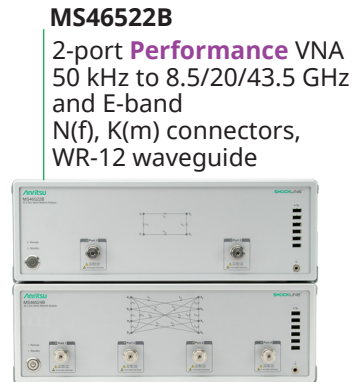
MS46522B
2-port **Performance** VNA
50 kHz to 8.5/20/43.5 GHz
and E-band
N(f), K(m) connectors,
WR-12 waveguide

MS46131A/ME7868A
1-, 2-port **Modular** VNA
1 MHz to 8/20/43.5 GHz
N(f) and K(m)
connectors

MS46121B
1-port **USB** VNA
150 kHz to 6 GHz
N(m) connectors

MS46524B
4-port **Performance** VNA
50 kHz to 8.5/20/43.5 GHz
N(f) and K(m) connectors

MS46122B
2-port **USB** VNA
1 MHz to 8/20/43.5 GHz
N(f) and K(m) connectors

MS46322B
2-port **Economy** VNA
1 MHz to 8/20/43.5 GHz
N(f) and K(m) connectors

ShockLine VNA Key Features and Benefits

Deliver Outstanding Performance While Lowering Cost-of-Test

• Fast sweep speed and wide dynamic range minimize test times and maximize throughput

• Excellent corrected directivity allows for less measurement uncertainty and smaller guard bands

• Time domain with time gating option enables easier and faster fault identification in broadband devices

• Debug signal integrity issues with advanced time domain option

• 4-port single-ended, mixed-mode, and differential measurements in a compact integrated VNA

Innovative Anritsu Technology

• Patented nonlinear transmission line (NLTL) technology delivers wider bandwidth and higher dynamic range than competing technologies, enabling better measurement accuracy and repeatability with longer intervals between calibrations

• Anritsu's VNA-on-chip design employing NLTL has inherent temperature and time stability advantages

• NLTL technology also enables cost-effective, high-frequency measurements

• Anritsu's Extended-K™ connectors enable ShockLine frequency option 43 VNAs to offer guaranteed performance to 43.5 GHz in a K/2.92 mm compatible form factor

• Groundbreaking PhaseLync™ synchronization technology enables two ShockLine MS46131A 1-port VNAs to create a 2-port ShockLine ME7868A modular VNA system

ShockLine VNA Key Features and Benefits (Cont'd)

Accuracy Enhancements

- Multiple calibration methods to choose from to best suit your application – SOLT, SOLR, SSLT, SSST, LRL, LRM, TRL, TRM, or Thru update

- Precision AutoCal™ or SmartCal™ for an easy, one-button automatic method of VNA calibration

- Standard network extraction and de-embedding capabilities to characterize and remove test fixture measurement contributions

- Adapter removal to easily characterize and "remove" the effects of an adapter during calibration

- Universal fixture extraction (UFX) adds optional de-embedding capabilities increasing network extraction capabilities for on-wafer and complex fixture applications
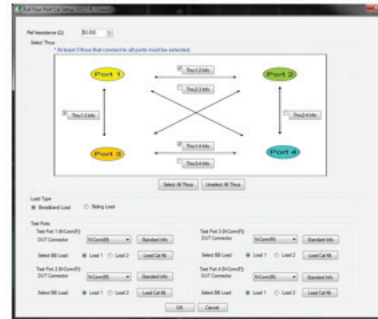
Shockline Calibration Wizard guides users through each calibration step.

Convenient coaxial calibration kits bring high performance at a low cost.

MN25408A
4-port, 8.5 GHz

MN25208A
-port, 8.5 GHz

MN25218A
2-port, 20 GHz

MN25418A
4-port, 20 GHz

AutoCal and SmartCal provide fast, accurate, and convenient calibrations.

Optimized for Production Environments

- Eliminates the need for over-specified, high-end VNAs with extra features not required for production testing

- Compact form factors minimize use of precious bench or rack space

  - The VNA interface software provides a comprehensive test environment for device production and verification

  - Remote control through Ethernet protocols is faster than GPIB

Rack mounted ShockLine VNAs

Simplify Your VNA Testing

- Multiple 1-, 2-, and 4-port configurations to match your test needs

- Configure user interface with customizable font size, trace thickness, toolbar icons, and flexible memory and marker displays for specific test setups

- Advanced marker and measurement functions enable quick device-under-test (DUT) performance characterization

- Detach trace feature enables simultaneous monitoring of multiple measurements or users

- Common graphical user interface (GUI) and SCPI interface within the ShockLine family reduces training and switching costs

ShockLine VNA Series Comparison

	MS46522B Option 82 (1 m E-band) MS46522B Option 82 (5 m E-band)	MS46522B/524B	MS4632...
Frequency Range	55 to 92 GHz Extended E-band	50 kHz to 8.5/20/ 43.5 GHz	1 MHz to 8 43.5 GH
Dynamic Range	> 106 dB, 60 GHz to 67 GHz > 110 dB, 67 GHz to 83 GHz > 110 dB, 83 GHz to 87 GHz (1m) > 98 dB, 83 GHz to 87 GHz (5m) > 98 dB, 87 GHz to 90 GHz	> 140 dB, 50 MHz to 2 GHz > 130 dB, 2 GHz to 6 GHz > 114 dB, 6 GHz to 40 GHz > 100 dB, 40 GHz to 43.5 GHz	> 100 dB, 10 MH > 95 dB, 8 GHz > 100 dB, 14 GHz > 97 dB, 40 GHz t
Trace Noise (rms) (100 Hz IFBW)	0.004 dB	0.004 dB, >300 kHz to 43.5 GHz	0.006 dB, 20 MH 0.009 dB, 40 GHz
Port Power	Variable: -50 to 0 dBm	Variable: -30 to +15 dBm	High State: +5 Low State: -2
Measurement Speed, Typical (@widest IFBW)	30 µs/point	30 µs/point	130 µs/p
Major Options	Time Domain, UFX, and Rack-Mount	Time Domain, Advanced Time Domain, Bias Tees, UFX, and Rack-Mount	Time Domain, Rack-Mo
Remote Control	LAN	LAN	LAN
Calibration	SOLT, SOLR, SSLT, SSST, LRL/LRM, TRL/TRM, WG, Microstrip, Thru Update, Secondary Match Correction	SOLT, SOLR, SSLT, SSST, LRL/LRM, TRL/TRM, WG, Microstrip, AutoCal/SmartCal, Thru Update, Secondary Match Correction	SOLT, SOLR, SS LRL/LRM, TRL/T Microstrip, AutoC Thru Update, S Match Corr
Sweep Type	Freq: Linear, Log CW, Segment	Freq: Linear, Log CW, Segment Power: Linear	Freq: Linear, Segment
Max Number of Points	20,001	20,001	16,00:

* Specified using two MS46121B instruments with option 21 at 30 Hz IFBW with external reference.

** Specified with two MS46131As with option 12 in a ME7868A system configuration.

...2B	MS46122B	MS46131A ME7868A	MS46121B
...8/20/ ...Hz	1 MHz to 8/20/ 43.5 GHz	1 MHz to 8/20/ 43.5 GHz	40 MHz to 4 GHz 150 kHz to 6 GHz
...Hz to 8 GHz ...to 14 GHz ...z to 40 GHz ...to 43.5 GHz	> 100 dB, 10 MHz to 8 GHz > 95 dB, 8 GHz to 14 GHz > 100 dB, 14 GHz to 40 GHz > 97 dB, 40 GHz to 43.5 GHz	> 97 dB, 1 MHz to 8.5 GHz > 98 dB, 8.5 GHz to 20 GHz > 102 dB, 20 GHz to 40 GHz > 99 dB, 40 GHz to 43.5 GHz**	Scalar Transmission: 80 dB (typical, 150 kHz to 6 GHz)*
...z to 40 GHz ...to 43.5 GHz	0.006 dB, 20 MHz to 40 GHz 0.009 dB, 40 GHz to 43.5 GHz	0.003 dB (Typical)	0.02 dB (typical)
..., -3 dBm ...20 dBm	High State: +5, -3 dBm Low State: -20 dBm	High State: 0 dBm (±2 dBm, typical) Low State: -20 dBm (± 2 dBm, typical)	Nominal Output: +3 dBm (>23.2 MHz to 4 GHz)
...oint	130 µs/point	170 µs/point	120 µs/point
...UFX, and ...unt	Time Domain and UFX	Time Domain PhaseLync Synchronization	Low Pass Time Domain (Band Pass TD Standard)
	USB	USB	USB
...SLT, SSST, ...TRM, WG, ...al/SmartCal, ...econdary ...ection	SOLT, SOLR, SSLT, SSST, LRL/LRM, TRL/TRM, WG, Microstrip, AutoCal/SmartCal, Thru Update, Secondary Match Correction	SOLT, SOLR, SSLT, SSST, LRL/LRM, TRL/TRM, WG, Microstrip, AutoCal/SmartCal, Thru Update, Secondary Match Correction	SOL, SSL, SSS, Scalar Thru (w/option 21), AutoCal/SmartCal
...Log, CW, ...nt	Freq: Linear, Log, CW, Segment	Freq: Linear, Log, CW, Segment	Freq: Linear, Log, CW, Segment
...1	16,001	16,001	20,001

ShockLine™ Vector Network Analyzer Family

ShockLine VNA Lineup – Flexible, High-Frequency Network Analysis

The ShockLine family of VNAs delivers multiple levels of performance and capabilities. With six different series of VNAs supporting a range of frequency options, the ShockLine family has a VNA to match a broad range of test needs. This wide selection allows customers to reduce equipment costs by selecting the optimal VNA to match their application needs.

ShockLine MS46121B 1-Port USB VNA

A power sensor sized 6 GHz 1-port VNA that is small enough to be directly connected to many types of DUTs, eliminating costly cabling and improving measurement stability. Multiple ShockLine MS46121B VNAs can be controlled from the same PC, allowing parallel testing of several DUTs simultaneously and improving throughput.

- Single frequency range option – from 150 kHz to 6 GHz
- Powered and controlled from a user-supplied computer through a USB cable
- ShockLine software can run up to 16 different units simultaneously for excellent return loss parallel test throughput
- Scalar insertion loss measurements available (Option 21)

ShockLine MS46131A 1-Port / ME7868A 2-Port Modular VNA

A lightweight, compact, 1-port VNA with up to 43.5 GHz frequency coverage that is small enough to conveniently connect directly to DUTs without cabling which reduces setup costs and increases test stability.

- Three frequency range options – 8/20/43.5 GHz
- Controlled from a user-supplied computer via USB with power from an external 12 Vdc supply
- High/low output level control with ±2 dB typical accuracy
- ShockLine family software supports parallel dual site testing with ShockLine MS46131A for excellent return loss test throughput
- With the PhaseLync synchronization option (option 12), a pair of ShockLine MS46131A VNAs can be combined to create the ShockLine 2-port ME7868A Modular VNA system capable of vector S-parameter measurements
- PhaseLync synchronization can support 2-port operation at distances of 100 meters or more between ShockLine MS46131A VNAs for more accurate and stable remote S-parameter measurements

ShockLine MS46122B 2-port USB VNA

A laptop PC-sized unit that conserves bench and test rack space, and makes it very portable and convenient to share between test locations.

- 2-port VNA packaged in a compact 1U chassis
- Available in three frequency models – 8/20/43.5 GHz
- Externally controlled via USB from a user-supplied PC running the same GUI software as the rest of the ShockLine family
- Data is stored only on the control PC and not in the VNA, making it great for secure environments

ShockLine MS46322B Economy VNA

Packaged in a compact 2U high rack mountable chassis, the ShockLine MS46322B includes an internal PC and power supply, making it self-contained and easy to integrate into rack mount test systems.

- Complete 2-port VNA packaged in a convenient 2U high chassis
- Available in three frequency models – 8/20/43.5 GHz
- Shares a common GUI and remote control interface with the rest of the ShockLine family reducing switching costs to other models

ShockLine™ Vector Network Analyzer Family

ShockLine VNA Lineup – Flexible, High-Frequency Network Analysis (Cont'd)

ShockLine MS46522B and MS46524B Performance VNAs

The 2-port MS46522B and 4-port MS46524B deliver higher performance and capabilities than the ShockLine 100 and 300 VNAs series. With an advanced VNA architecture featuring independent sources per port, variable output power control, fast sweep speeds, and excellent dynamic range, the ShockLine MS4652xB series VNAs address more complex and challenging device test requirements in a space saving 3U rack mountable chassis.

The MS46522B also covers the extended E-band frequency range with two unique tethered VNA configurations (Option 82 and 83). Unlike competitive E-band VNAs that require some level of setup, the ShockLine MS46522B-082 and MS46522B-083 E-band VNAs are ready to use out of the box. Option 82 comes with 1 meter and Option 83 comes with 5 meter tethers that permanently attach E-band source/ measurement modules to the base chassis. Each measure module features a WR12 waveguide interface, making it very convenient to interface to most E-band DUTs. The 1 meter E-band VNA is aimed at production testing of E-band devices while the 5 meter option is targeted at over-the-air chamber testing of antennas and similar DUTs.

ShockLine MS46522B

- Performance series of 2-port VNAs available in wide band (from 50 kHz to 8.5/20/43.5 GHz) and tethered E-band (55 to 92 GHz) models
- Ideal for passive and linear active device testing with variable output power control, fast sweep speed, high dynamic range, and wide IFBW
- ShockLine software supports SCPI command programming and has software driver support for the most common programming environments

ShockLine MS46524B

- RF and microwave VNAs ideal for testing differential and multi-port passive devices
- Available in three frequency models – 50 kHz to 8.5/20/43.5 GHz
- Delivers a great combination of speed, dynamic range, and 4-port measurement performance with an independent source per port in a space efficient package
- Available Advanced Time Domain (option 22) is an excellent tool for signal integrity applications

ShockLine™ Vector Network Analyzer Family

Software

Common Control Software

One software package controls the entire family of ShockLine VNAs by utilizing a common graphical user interface (GUI) and remote control command libraries (SCPI, IVI-C).

This software synergy enables programs developed on one ShockLine model in the lab to easily transition to another model in production, optimizing the cost-of-test in manufacturing. Operators, test engineers, and lab personnel only need to familiarize themselves with one GUI interface to operate the entire line of ShockLine VNAs, saving training time and cost. This also enables any improvements implemented for one ShockLine model to benefit all of the models, bringing additional value to all users.
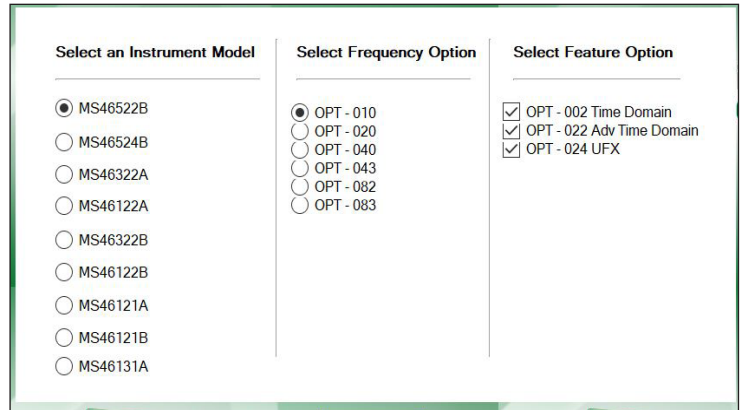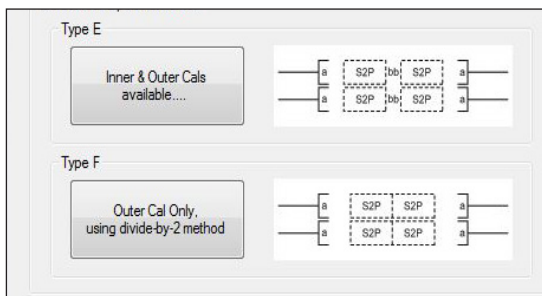
Shockline software also supports a simulator mode, allowing users to work offline on simulated ShockLine VNAs and freeing up actual VNA hardware to make measurements.
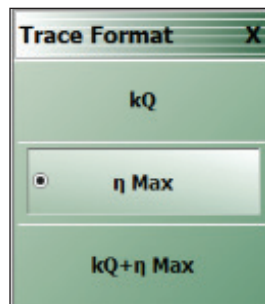
Comprehensive Software Capabilities

Shockline software benefits from leading Anritsu VNA software technology to support both common and advanced features and functions. The software enables simple to complex setups with up to 16 trace displays in up to 16 VNA channels on a single VNA. Single-ended and mixed-mode S-parameters are supported with optional time domain measurement capability available as well.

Valuable software capabilities like fixture removal (e.g., network extraction and embedding/de-embedding) come standard unlike many competitive VNAs where these features are optional. Unique trace displays – like kQ/η Max/kQ + η Max for wireless power transfer measurements, and inductance and capacitance for L/C impedance characterization – are also available as standard display formats in the ShockLine software.

Network Extraction Wizard

Wireless Power Transfer
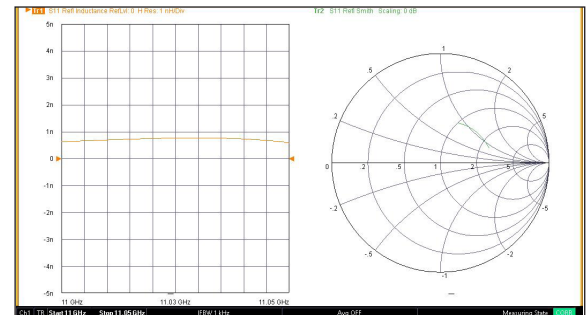
Inductance Trace Display

Software (Cont'd)

Beyond comprehensive frequency domain capabilities, ShockLine software also support time domain options. Time domain reflectometry (TDR) like measurements – useful in identifying impedance discontinuities and other faults in data transmission cables, backplanes, and other DUTs – are supported with the time domain option on all the ShockLine VNAs.

Additional signal integrity measurements are available on the MS4652xB VNAs with the Advanced Time Domain (ATD) software offering eye diagram, crosstalk, and measurement causality/passivity testing.
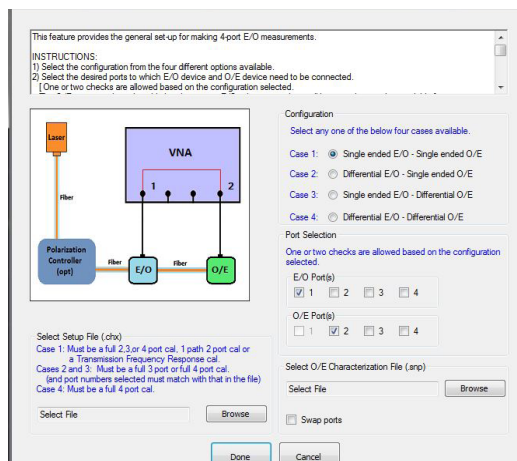

Time Domain
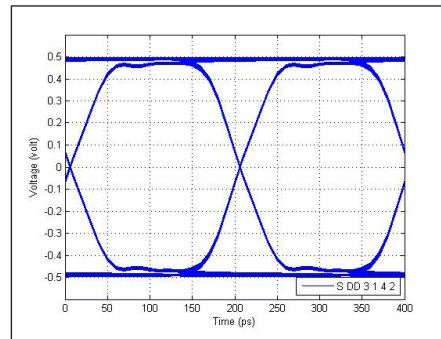
Advanced Time Domain

Optical-electrical, electrical-optical, and optical-optical measurements are also supported with menus simplifying the de-embedding used in O/E, E/O, O/O testing.

Optical-Electrical Measurement menus

ShockLine software includes advanced marker functions with multi-peak and multi-target searches, marker tracking, and filter calculations. Other software usability enhancements include: adjustable font size display, trace thickness control, multiple memory traces, drag and drop marker data positioning and support for trace displays on multiple monitors.
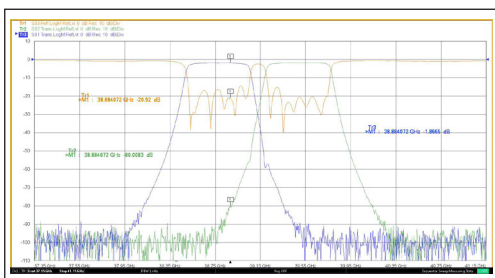
Drag and drop marker display
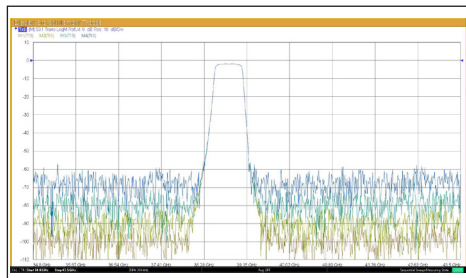
Multiple memory traces
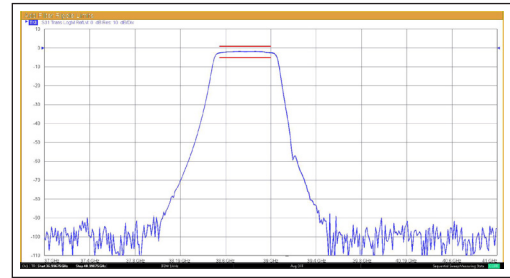
Thicker trace display

ShockLine™ Family Models

Instrument Model Options

MS46121B

Base Model	MS46121B	ShockLine 1-Port USB VNA
Required Option (Select one frequency option only)	MS46121B-006	150 MHz to 6 GHz, type N(m) port
Included Accessories	Each VNA ships with:	
	USB Cable	2000-1816-R, USB-A to Micro-B with latch cable, 1.8 m (6 ft)

MS46131A / ME7868A

Base Model	MS46131A	ShockLine 1-Port Modular VNA
Required Option (Select one frequency option only)	MS46131A-010	1 MHz to 8 GHz, type N(f) port
	MS46131A-020	1 MHz to 20 GHz, ruggedized type K(m) ports (compatible with 3.5 mm and SMA connectors)
	MS46131A-043	1 MHz to 43.5 GHz, ruggedized type Extended-K(m) ports (compatible with standard K (2.92 mm), 3.5 mm and SMA connectors)
Required Option for ME7868A System	MS46131A-012	PhaseLync synchronization option
Included Accessories	Each VNA ships with:	
	Power	40-187-R, 12 V, 5A Power supply (and power cord)
	USB Cable	2000-2010-R, USB-A to Micro-B with latch cable, 1.8 m (6 ft)

MS46122B

Base Model	MS46122B	ShockLine 2-Port USB VNA
Required Option (Select one frequency option only)	MS46122B-010	1 MHz to 8 GHz, type N(f) port
	MS46122B-020	1 MHz to 20 GHz, ruggedized type K(m) ports (compatible with 3.5 mm and SMA connectors)
	MS46122B-043	1 MHz to 43.5 GHz, ruggedized type Extended-K(m) ports (compatible with standard K (2.92 mm), 3.5 mm and SMA connectors)
Included Accessories	Each VNA ships with:	
	Power	40-187-R, 12 V, 5A Power supply (and power cord)
	USB Cable	3-2000RS-1815, USB 2.0 A to mini B cable, 10 ft
	Rack Mount	Bracket hardware for shelf-mounting into a 19 inch universal rack

MS46322B

Base Model	MS46322B	ShockLine 2-Port Economy VNA
Required Option (Select one frequency option only)	MS46322B-010	1 MHz to 8 GHz, type N(f) port
	MS46322B-020	1 MHz to 20 GHz, ruggedized type K(m) ports (compatible with 3.5 mm and SMA connectors)
	MS46322B-043	1 MHz to 43.5 GHz, ruggedized type Extended-K(m) ports (compatible with standard K (2.92 mm), 3.5 mm and SMA connectors)
Included Accessories	AC power cord.	

MS46522B

Base Model	MS46522B	ShockLine 2-Port Performance VNA
Required Option (Select one frequency option only)	MS46522B-010	50 kHz to 8.5 GHz, type N(f) ports
	MS46522B-020	50 kHz to 20 GHz, ruggedized type K(m) ports (compatible with 3.5 mm and SMA connectors)
	MS46522B-043	50 kHz to 43.5 GHz, ruggedized type Extended-K(m) ports (compatible with standard K (2.92 mm), 3.5 mm and SMA connectors)
	MS46522B-082	55 GHz to 92 GHz, WR12 waveguide flange, 1 meter tethers
	MS46522B-083	55 GHz to 92 GHz, WR12 waveguide flange, 5 meter tethers
Included Accessories	AC power cord.	

ShockLine™ Family Models (Cont'd)

MS46524B

Base Model	MS46524B	ShockLine 4-Port Performance VNA
Required Option (Select one frequency option only)	MS46524B-010	50 kHz to 8.5 GHz, type N(f) ports
	MS46524B-020	50 kHz to 20 GHz, ruggedized type K(m) ports (compatible with 3.5 mm and SMA connectors)
	MS46524B-043	50 kHz to 43.5 GHz, ruggedized type Extended-K(m) ports (compatible with standard K (2.92 mm), 3.5 mm and SMA connectors)

Included Accessories   AC power cord.

The following Options are available for all ShockLine VNA models except where noted (Cont'd)

		MS46121B	MS46131A	MS46122B	MS46322B	MS46522B	MS46524B
Opt. 001	Rack Mount hardware for shelf-mounting into a 19 inch universal rack			●[1]	●	●	●
Opt. 002	Low Pass Time Domain / Time Domain with Time Gating	●[2]	●	●	●	●	●
Opt. 012	PhaseLync Synchronization		●				
Opt. 021	Scalar Transmission Measurement	●					
Opt. 022	Advanced Time Domain					●	●
Opt. 024	Universal Fixture Extraction (UFX)			●	●	●	●
Opt. 061	Bias Tee					●[3]	●[3]
Opt. 097	Accredited Calibration			●	●	●[4]	●
Opt. 098	Standard Calibration, ISO 17025 compliant, without data	●	●	●	●	●[4]	●
Opt. 099	Premium Calibration, ISO 17025 compliant, with data	●	●	●	●	●[4]	●

1. Rack mount hardware is standard with MS46122B
2. Bandpass time domain is standard on MS46121B
3. Bias tees available only with frequency option 10 (8.5 GHz)
4. Service calibration options not available for the MS46522B-082 and MS46522B-083 E-band frequency models

Documentation

User Documentation	PDF files are available for download from the instrument model web pages at *www.anritsu.com*. For more information and product support, please visit *www.anritsu.com/en-US/test-measurement/support/resource-center/shockline*

Ordering Information

For details on additional components and accessories for our ShockLine products, please refer to the Technical Data Sheet for the appropriate VNA model at www.anritsu.com.

Anritsu
envision : ensure

Specifications are subject to change without notice.

• **United States**
Anritsu Company
450 Century Parkway, Suite 190, Allen, TX 75013 U.S.A.
Toll Free: +1-800-267-4878
Phone: +1-972-644-1777

• **Canada**
Anritsu Electronics Ltd.
700 Silver Seven Road, Suite 120,
Kanata, Ontario K2V 1C3, Canada
Phone: +1-613-591-2003
Fax: +1-613-591-1006

• **Brazil**
Anritsu Electrônica Ltda.
Praça Amadeu Amaral, 27 - 1 Andar
01327-010 - Bela Vista - Sao Paulo - SP - Brazil
Phone: +55-11-3283-2511
Fax: +55-11-3288-6940

• **Mexico**
Anritsu Company, S.A. de C.V.
Blvd Miguel de Cervantes Saavedra #169 Piso 1, Col. Granada
Mexico, Ciudad de Mexico, 11520, MEXICO
Phone: +52-55-4169-7104

• **United Kingdom**
Anritsu EMEA Ltd.
200 Capability Green, Luton, Bedfordshire LU1 3LU, U.K.
Phone: +44-1582-433280
Fax: +44-1582-731303

• **France**
Anritsu S.A.
12 avenue du Québec, Batiment Iris 1-Silic 612,
91140 Villebon-sur-Yvette, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

• **Germany**
Anritsu GmbH
Nemetschek Haus, Konrad-Zuse-Platz 1
81829 München, Germany
Phone: +49-89-442308-0
Fax: +49-89-442308-55

• **Italy**
Anritsu S.r.l.
Via Elio Vittorini 129, 00144 Roma Italy
Phone: +39-06-509-9711
Fax: +39-06-502-2425

• **Sweden**
Anritsu AB
Isafjordsgatan 32C, 164 40 KISTA, Sweden
Phone: +46-8-534-707-00

• **Finland**
Anritsu AB
Teknobulevardi 3-5, FI-01530 VANTAA, Finland
Phone: +358-20-741-8100
Fax: +358-20-741-8111

• **Denmark**
Anritsu A/S
c/o Regus Winghouse, Ørestads Boulevard 73, 4th floor,
2300 Copenhagen S, Denmark
Phone: +45-7211-2200

• **Russia**
Anritsu EMEA Ltd.
Representation Office in Russia
Tverskaya str. 16/2, bld. 1, 7th floor.
Moscow, 125009, Russia
Phone: +7-495-363-1694
Fax: +7-495-935-8962

• **Spain**
Anritsu EMEA Ltd.
Representation Office in Spain
Paseo de la Castellana, 141. Planta 5, Edificio Cuzco IV
28046, Madrid, Spain
Phone: +34-91-572-6761

• **United Arab Emirates**
Anritsu EMEA Ltd.
Dubai Liaison Office
P O Box 500413 - Dubai Internet City
Al Thuraya Building, Tower 1, Suite 701, 7th floor
Dubai, United Arab Emirates
Phone: +971-4-3670352
Fax: +971-4-3688460

• **India**
Anritsu India Pvt Ltd.
6th Floor, Indiqube ETA, No.38/4, Adjacent to EMC2,
Doddanekundi, Outer Ring Road, Bengaluru – 560048,
India
Phone: +91-80-4058-1300
Fax: +91-80-4058-1301

• **Singapore**
Anritsu Pte. Ltd.
11 Chang Charn Road, #04-01, Shriro House
Singapore 159640
Phone: +65-6282-2400
Fax: +65-6282-2533

• **Vietnam**
Anritsu Company Limited
Room No. 1635, 16th Floor, ICON 4 Tower, 243A De La
Thanh Street,
Lang Thuong Ward, Dong Da District, Hanoi, Vietnam
Phone: +84-24-3760-6216
Fax: +84-24-6266-2608

• **P. R. China (Shanghai)**
Anritsu (China) Co., Ltd.
27th Floor, Tower A,
New Caohejing International Business Center
No. 391 Gui Ping Road Shanghai, Xu Hui Di District,
Shanghai 200233, P.R. China
Phone: +86-21-6237-0898
Fax: +86-21-6237-0899

• **P. R. China (Hong Kong)**
Anritsu Company Ltd.
Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza,
No. 1 Science Museum Road, Tsim Sha Tsui East,
Kowloon, Hong Kong, P. R. China
Phone: +852-2301-4980
Fax: +852-2301-3545

• **Japan**
Anritsu Corporation
8-5, Tamura-cho, Atsugi-shi,
Kanagawa, 243-0016 Japan
Phone: +81-46-296-6509
Fax: +81-46-225-8352

• **Korea**
Anritsu Corporation, Ltd.
5FL, 235 Pangyoyeok-ro, Bundang-gu, Seongnam-si,
Gyeonggi-do, 13494 Korea
Phone: +82-31-696-7750
Fax: +82-31-696-7751

• **Australia**
Anritsu Pty Ltd.
Unit 20, 21-35 Ricketts Road,
Mount Waverley, Victoria 3149, Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

• **Taiwan**
Anritsu Company Inc.
7F, No. 316, Sec. 1, Neihu Rd., Taipei 114, Taiwan
Phone: +886-2-8751-1816
Fax: +886-2-8751-1817

Anritsu utilizes recycled paper and environmentally conscious inks and toner.