

ShockLine™ Vector Network Analyzers and Site Master™ Cable and Antenna Analyzers

Introduction

This guide provides important notices, warranty, safety, and regulatory compliance information for Anritsu RF and microwave analyzers. Be sure to read these important notices before operating the equipment.

For additional information and literature, visit the product page of your instrument and select the Library tab.

MS4612xA ShockLine Compact Vector Network Analyzer

<http://www.anritsu.com/en-US/test-measurement/products/ms46121a>

<http://www.anritsu.com/en-US/test-measurement/products/ms46122a>

MS46322A ShockLine Economy Vector Network Analyzer

<http://www.anritsu.com/en-US/test-measurement/products/ms46322a>

MS4652xB ShockLine Performance Vector Network Analyzer

<http://www.anritsu.com/en-US/test-measurement/products/ms46522b>

<http://www.anritsu.com/en-US/test-measurement/products/ms46524b>

S331P Ultraportable Site Master Cable and Antenna Analyzer

<http://www.anritsu.com/en-US/test-measurement/products/s331p>

Contacting Anritsu

To contact Anritsu, please visit: <http://www.anritsu.com/contact-us>

Here, you can find the latest sales, service, and support contact information for your country or region, provide online feedback, complete a “Talk to Anritsu” form to get your questions answered, or obtain training or other services offered by Anritsu.

The Anritsu logo is located in the bottom right corner of the page. It consists of the word "Anritsu" in a bold, sans-serif font. The letter "A" is significantly larger and more stylized than the other letters, with a diagonal slash through it.

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1 — Important Notices and Warranty

1-1 Applicable Product Models

The information in this guide relates to the following product models:

Description	Model
1-Port USB ShockLine VNA:	MS46121A
Compact ShockLine VNA:	MS46122A
Economy ShockLine VNA:	MS46322A
Performance ShockLine VNA:	MS46522B, MS46524B
Ultraportable Site Master	S331P

1-2 Unauthorized Use or Disclosure

Anritsu Company has prepared the product user documentation for use by Anritsu Company personnel and customers as a guide for the proper installation, operation, and maintenance of Anritsu Company equipment and software programs. The drawings, specifications, and information contained therein are the property of Anritsu Company, and any unauthorized use or disclosure of these drawings, specifications, and information is prohibited; they shall not be reproduced, copied, or used in whole or in part as the basis for manufacture or sale of the equipment or software programs without the prior written consent of Anritsu Company.

1-3 Export Management

The Anritsu products identified herein and their respective manuals may require an Export License or approval by the government of the product country of origin for re-export from your country. Before you export these products or any of their manuals, please contact Anritsu Company to confirm whether or not these items are export-controlled. When disposing of export-controlled items, the products and manuals must be broken or shredded to such a degree that they cannot be unlawfully used for military purposes.

1-4 Trademark Acknowledgments

The following trademark acknowledgments are listed for one or more of the products listed in [Section 1-1](#).

- Anritsu, ShockLine, AutoCal, SmartCAL, Advanced-LRM, K-Connector, V-Connector, and W1-Connector are trademarks or registered trademarks of the Anritsu Company, Morgan Hill, California, USA.
- LabView, LabWindows, NI, NI-VISA, are registered trademarks of the National Instruments Corporation.
- Smith (Smith Chart) is a registered trademark of Analog Instruments Company.
- Teflon is a registered trademark and brand name of the DuPont Company.
- Windows is a registered trademark of Microsoft Corporation.
- Bi-Lobe is a registered trademark of Omnetics Corporation.
- All other trademarks mentioned are the property of their respective companies.

1-5 Warranty Information

The Anritsu products listed in [Section 1-1](#) are warranted against defects in materials and workmanship for three (3) years from the date of shipment. Anritsu's obligation covers repairing or replacing products which prove to be defective during the warranty period. Buyers shall prepay transportation charges for equipment returned to Anritsu for warranty repairs. Obligation is limited to the original purchaser. Anritsu is not liable for consequential damages.

Limitation of Warranty

The foregoing warranty does not apply to Anritsu connectors that have failed due to normal wear. Also, the warranty does not apply to defects resulting from improper or inadequate maintenance, unauthorized modification or misuse, or operation outside of the environmental specifications of the product. No other warranty is expressed or implied, and the remedies provided herein are the Buyer's sole and exclusive remedies.

Disclaimer of Warranties

To the maximum extent permitted by applicable law, Anritsu Company and its suppliers disclaim all warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with regard to the product. The user assumes the entire risk of using the product. Any liability of provider or manufacturer will be limited exclusively to product replacement.



No Liability for Consequential Damages

To the maximum extent permitted by applicable law, in no event shall Anritsu Company or its suppliers be liable for any special, incidental, indirect, or consequential damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the product, even if Anritsu Company has been advised of the possibility of such damages. Because some states and jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

2 — Safety











To reduce the risk of personal injury or loss related to equipment malfunction, Anritsu Company uses the following symbols to indicate safety-related information. You may encounter them on your products and in documentation. For your own safety, please read the information carefully *before* operating the equipment.

2-1 Safety Notices Used in Manuals

<p>Warning</p> 	<p>Danger or Warning indicates a risk from a hazardous condition or procedure that could result in light-to-severe injury or death, or loss related to equipment malfunction. Follow all safety precautions and procedures to minimize this risk.</p>
<p>Caution</p> 	<p>Caution indicates a risk from a hazardous procedure that could result in loss related to equipment malfunction. Follow all safety precautions and procedures to minimize this risk.</p>

2-2 Safety Symbols Used on Equipment and in Manuals

The following symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions and status. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions *before* operating the equipment. Some or all of the following symbols may or may not be used on Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in the manual.

-  This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.
-  This indicates a compulsory safety precaution. The required operation is indicated symbolically in or near the circle.
-  This indicates a danger, warning, or caution. The contents are indicated symbolically in or near the triangle.
-  This indicates a note. The contents are described in the box.
-  This indicates a push button Out position (generally Off condition).
-  This indicates a push button In position (generally On condition).
-  This indicates an Off condition.
-  This indicates an On condition.
-  This indicates Alternating Current (AC).
-  This indicates Direct Current (DC).

2-3 Safety Symbols and Notices

Warning



Always refer to the equipment manual when working near locations where the alert mark, shown on the left, is displayed. If equipment operation is conducted without heeding the advice in the manual, there is a risk of personal injury. In addition, the equipment performance may be reduced.

This alert mark is sometimes used with other marks and descriptions indicating other dangers.

Warning



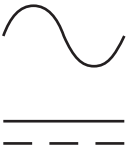
This equipment may present a risk to electric shock. Only qualified service personnel should access areas where this alert mark is present. Ensure that precautions are taken and that appropriate lockout mechanisms are in place before proceeding to enter the areas presenting this risk.

Warning



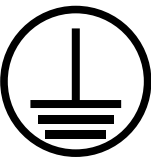
Unless your equipment is rated for Ingress Protection (IP) or is otherwise ruggedized, it is not designed to withstand exposure to extreme environments or water. If your equipment gets wet or is dropped, remove external power and any user serviceable batteries from the equipment and contact Anritsu support for any additional precautions and instructions to bring the equipment back into service. Always follow the environmental operating and storage requirements listed in the product technical data sheet.

Warning



Before supplying power to this equipment, ensure that proper voltage and current source is connected as indicated on the equipment labeling. Your equipment may be supplied with an external power adapter or it may be connected directly to the mains supply. Be sure to always use the supplied external power adapter and cabling. If your equipment connects directly to the mains supply, the input may be auto sensing or require a switch setting to match your supplied voltage. If power is supplied to the equipment that does not match the input specifications printed on the equipment labeling, there is a risk of personal injury and damage to the equipment.

Warning



When supplying power to this equipment, connect the accessory 3-pin power cord to a 3-pin grounded power outlet. If required, ground the instrument chassis to a suitable earth ground. If power is supplied without grounding the equipment, there is a risk of receiving a severe or fatal electric shock.

Warning



This equipment cannot be repaired by the operator. Do not attempt to remove the equipment covers or to disassemble internal components. Only qualified service technicians with a knowledge of electrical fire and shock hazards should service this equipment. There are high-voltage parts in this equipment that present a risk of severe injury or fatal electric shock. In addition, there is a risk of damage to precision components.

Warning

NEVER touch parts where the label shown on the left is attached. Such parts are hotter than 55 degrees Celsius and you risk receiving a burn.

Caution

Electrostatic Discharge (ESD) can damage the highly sensitive circuits in the instrument. ESD is most likely to occur as test devices are being connected to, or disconnected from, the instrument's front and rear panel ports and connectors. You can protect the instrument and test devices by wearing a static-discharge wristband. Alternatively, you can ground yourself to discharge any static charge by touching exposed, unpainted metal of the outer chassis of the grounded instrument before touching the instrument's front and rear panel ports and connectors. Avoid touching the test port center conductors unless you are properly grounded and have eliminated the possibility of static discharge.

Repair of damage that is found to be caused by electrostatic discharge is not covered under warranty.

3 — Regulatory Compliance

Following compliance notices and declarations of conformity apply to the products listed in [Section 1-1](#). This equipment is categorized as Class A devices as noted below:

- A device marketed for use in an industrial application and is not intended for use in the home or residential area is classified as Class A. Class A equipment, commonly known as ISM (industrial, scientific, and medical) equipment, are for professional use in engineering and scientific applications commanding specialized training and good understanding of the English language. Products being sold in a commercial market for such applications have significantly less stringent emissions limits than Class B (residential) devices.
- A device that is marketed for use in the home or a residential area by the customer is classified as a Class B device. Class B verification is for devices that are marketed for in-home use, but are not permanently connected to a personal computer.

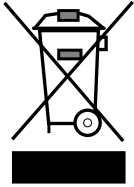
3-1 Compliance Notifications

CE Conformity Marking



Anritsu affixes the CE Conformity marking onto its conforming products in accordance with Council Directives of The Council Of The European Communities in order to indicate that these products conform to the EMC and LVD directive of the European Union (EU).

European Parliament and Council Directive 2002/96/EC



Equipment Marked with the crossed-out Wheelie Bin symbol complies with the European Parliament and Council Directive 2002/96/EC (the “WEEE Directive”) in the European Union. For Products placed on the EU market after August 13, 2005, please contact your local Anritsu representative at the end of the product’s useful life to arrange disposal in accordance with your initial contract and the local law.

RCM Conformity Marking



Anritsu affixes the Regulatory Compliance Mark (RCM) onto its conforming products in accordance with the electromagnetic compliance regulations of Australia and New Zealand in order to indicate that these products conform to the EMC regulations of Australia and New Zealand.

KCC Conformity Marking



Anritsu affixes the Korean Communications Commissions (KCC) mark onto its conforming products in accordance with the electromagnetic compliance regulations of Korea

Recycle Marking



Anritsu affixes the universal recycle symbol onto its products to indicate that the marked part is made from recyclable materials and should be recycled. Materials should be recycled in accordance with your local regulatory requirements.

Proposition 65 Notification

Notification for California customers: Chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm may be present in the products listed in [Section 1-1](#) or their related accessories. For information, see: <https://oag.ca.gov/prop65>

Perchlorate Material Notification – Special Handling May Apply

Notification for California customers: this product uses a small Lithium battery installed internally on the circuit board that may contain perchlorate. Disposal may be regulated due to environmental considerations. Please contact your local authorities for disposal or recycling information. For information, see: <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>

Chinese RoHS Compliance Statement


产品中有毒有害物质或元素的名称及含量

NLNB · 201606

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 [Cr(VI)]	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板 (PCA)	×	○	×	○	○	○
机壳、支架 (Chassis)	×	○	×	×	○	○
其他(电缆、风扇、 连接器等) (Appended goods)	×	○	×	×	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11364-2014 标准规定的限量要求以下。
×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11364-2014 标准规定的限量要求。

环保使用期限

 这个标记是根据 2016/1/21 公布的「电子信息产品污染控制管理办法」以及 SJ/T 11364-2014 「电子信息产品污染控制标识要求」的规定，适用于在中国销售的电子信息产品的环保使用期限。仅限于在遵守该产品的安全规范及使用注意事项的基础上，从生产日期起算的该年限内，不会因产品所含有害物质的泄漏或突发性变异，而对环境污染，人身及财产产生深刻地影响。
注) 生产日期标于产品序号的前四码(如 S/N 1628XXXX 为16年第28周生产)。

3-2 Declaration of Conformity

DECLARATION OF CONFORMITY**Manufacturer's Name:** ANRITSU COMPANY**Manufacturer's Address:** Microwave Measurements Division
490 Jarvis Drive
Morgan Hill, CA 95037-2809
USA

declares that the product specified below:

Product Name: Compact ShockLine VNA**Model Number:** MS461XXA

conforms to the requirement of:

EMC Directive: 2004/108/EC

Low Voltage Directive: 2006/95/EC

Electromagnetic Compatibility: EN61326-1:2006**Emissions:** EN55011:2009 +A1:2010 Group 1 Class A

Immunity:	EN 61000-4-2:2009	4 kV CD, 8 kV AD
	EN 61000-4-3:2006 +A2:2010	3 V/m
	EN 61000-4-4:2004	0.5 kV S-L, 1 kV P-L
	EN 61000-4-5:2006	0.5 kV L-L, 1 kV L-E
	EN 61000-4-6: 2009	3 V
	EN 61000-4-11: 2004	100% @ 20 ms

Electrical Safety Requirement:**Product Safety:** EN 61010-1:2010

Morgan Hill, CA


Eric McLean, Corporate Quality Director

17 Sept 2014
Date

European Contact: For Anritsu product CE information, contact Anritsu EMEA Limited, 200 Capability Green, Luton, Bedfordshire, LU1 3LU, England. (Telephone: +44 (0)1582 433200; Email: bert.francis@anritsu.com)

DECLARATION OF CONFORMITY

Manufacturer's Name: ANRITSU COMPANY

Manufacturer's Address: Microwave Measurements Division
490 Jarvis Drive
Morgan Hill, CA 95037-2809
USA

declares that the product specified below:

Product Name: Economy ShockLine VNA

Model Number: MS463XXA

conforms to the requirement of:

EMC Directive: 2004/108/EC
Low Voltage Directive: 2006/95/EC

Electromagnetic Compatibility: EN61326-1:2006

Emissions: EN55011:2009 +A1:2010 Group 1 Class A

Immunity: EN 61000-4-2:2009 4 kV CD, 8 kV AD
EN 61000-4-3:2006 +A2:2010 3 V/m
EN 61000-4-4:2004 0.5 kV S-L, 1 kV P-L
EN 61000-4-5:2006 0.5 kV L-L, 1 kV L-E
EN 61000-4-6: 2009 3 V
EN 61000-4-11: 2004 100% @ 20 ms

Electrical Safety Requirement:

Product Safety: EN 61010-1:2010


Eric McLean, Corporate Quality Director

Morgan Hill, CA

11 DEC 2013
Date

European Contact: For Anritsu product CE information, contact Anritsu EMEA Limited, 200 Capability Green, Luton, Bedfordshire, LU1 3LU, England. (Telephone: +44 (0)1582 433200; Email: bert.francis@anritsu.com)

DECLARATION OF CONFORMITY

Manufacturer's Name: ANRITSU COMPANY

Manufacturer's Address: Microwave Measurements Division
490 Jarvis Drive
Morgan Hill, CA 95037-2809
USA

declares that the product specified below:

Product Name: Performance ShockLine VNA

Model Number: MS46522B, MS46524B

conforms to the requirement of:

EMC Directive: 2004/108/EC
Low Voltage Directive: 2006/95/EC

Electromagnetic Compatibility: EN 61326-1:2013

Emissions: EN 55011:2009 +A1:2010 Group 1 Class A

Immunity:	EN 61000-4-2:2009	4 kV CD, 8 kV AD
	EN 61000-4-3:2006 +A2:2010	3 V/m
	EN 61000-4-4:2004	0.5 kV S-L, 1 kV P-L
	EN 61000-4-5:2006	0.5 kV L-L, 1 kV L-E
	EN 61000-4-6:2009	3 V
	EN 61000-4-8:2010	3 A/m
	EN 61000-4-11: 2004	100% @ 20 ms

Electrical Safety Requirement:

Product Safety: EN 61010-1:2010

Morgan Hill, CA


Eric McLean, Corporate Quality Director

8/13/15

Date

European Contact: For Anritsu product CE information, contact Anritsu EMEA Limited, 200 Capability Green, Luton, Bedfordshire, LU1 3LU, England. (Telephone: +44 (0)1582 433200; Email: bert.francis@anritsu.com)

EU DECLARATION OF CONFORMITY

Manufacturer's Name: ANRITSU COMPANY

Manufacturer's Address: 490 Jarvis Drive
Morgan Hill, CA 95037-2809
USA

declares that the product specified below:

Product Name: One-port ShockLine VNA

Model Number: MS46121A, S331P

conforms to the requirement of:

EMC Directive:	2014/30/EU
Low Voltage Directive:	2014/35/EU
RoHS Directive:	2011/65/EU


Electromagnetic Compatibility: EN 61326-1:2013

Emissions: EN 55011:2009 +A1:2010 Group 1 Class A

Immunity:	EN 61000-4-2:2009	4 kV CD, 8 kV AD
	EN 61000-4-3:2006 +A2:2010	3 V/m
	EN 61000-4-4:2012	0.5 kV S-L, 1 kV P-L
	EN 61000-4-5:2014	0.5 kV L-L, 1 kV L-E
	EN 61000-4-6:2014	3 V
	EN 61000-4-8:2010	3 A/m
	EN 61000-4-11: 2004	100% @ 20 ms

Electrical Safety: EN 61010-1:2010

490 Jarvis Drive
Morgan Hill, CA 95037-2809



Eric McLean, Corporate Quality Director

21 July 2016
Date

European Contact: For Anritsu product CE information, contact Anritsu EMEA Limited, 200 Capability Green, Luton, Bedfordshire, LU1 3LU, England. (Telephone: +44 (0)1582 433200; Email: bert.francis@anritsu.com)

Anritsu



 Anritsu utilizes recycled paper and environmentally conscious inks and toner.

Anritsu Company
490 Jarvis Drive
Morgan Hill, CA 95037-2809
USA
<http://www.anritsu.com>