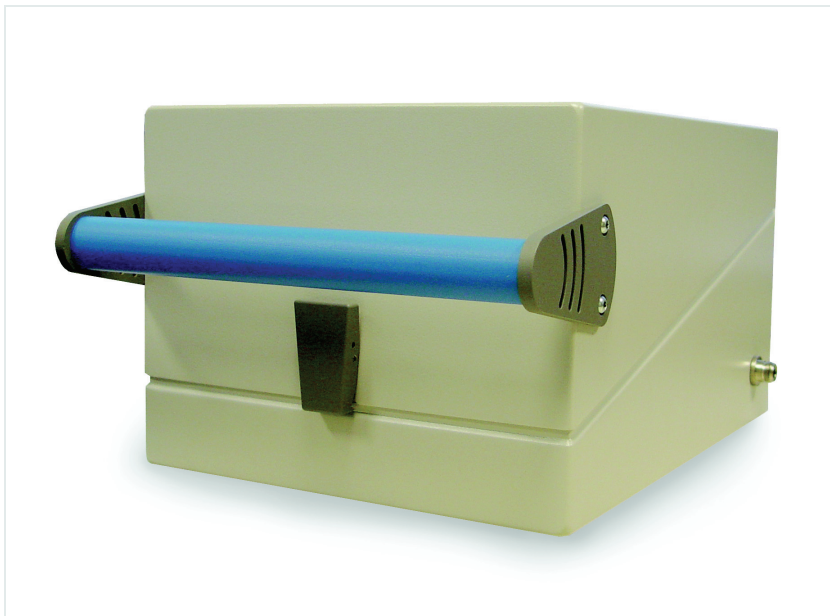


4921 RF Shield



User's guide
Version 1.00

Notice Every effort was made to ensure that the information in this document was accurate at the time of printing. However, information is subject to change without notice, and Willtek reserves the right to provide an addendum to this document with information not available at the time this document was created.

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Ordering information This guide is issued as part of the **4921 RF Shield**. The ordering number for a published guide is M 292 016. The ordering numbers for the product and the RF Shield Package are as follows:

Table 1 Product ordering information

Ordering number	Description
M 248 346	4921 RF Shield (N) (including RF cable N - N)
M 248 348	RF Shield Package (4921 RF Shield, 4916 Antenna Coupler)

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About This Guide

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Purpose and scope

The purpose of this guide is to help you successfully use the 4921 RF Shield features and capabilities. This guide includes task-based instructions that describe how to handle and use the 4921 RF Shield. Additionally, this guide provides a description of Willtek's warranty, services, and repair information, including terms and conditions of the licensing agreement.

Assumptions

This guide is intended for novice, intermediate, and experienced users who want to use the 4921 RF Shield effectively and efficiently. We are assuming that you have basic computer and mouse/track ball experience and are familiar with basic telecommunication concepts and terminology.

Related information

Use this guide in conjunction with the following information:

4916 Antenna Coupler: user's guide, M 292 015.

Technical assistance

If you need assistance or have questions related to the use of this product, call one of Willtek's technical assistance centers. You can also contact Willtek by e-mail at customer.support@willtek.com.

Table 1 Technical assistance centers

Region	Phone number	Fax number
Europe, Middle East, Asia, Africa	+49 (0) 89 996 41 386	+49 (0) 89 996 41 440
Americas	+1 973 386 9696	+1 973 386 9191
China	+86 21 5836 6669	+86 21 5835 5238

Conventions

This guide uses naming conventions and symbols, as described in the following tables.




Table 2 Typographical conventions

Description	Example
User interface actions appear in this typeface .	On the Status bar, click Start .
Buttons or switches that you press on a unit appear in this TYPEFACE .	Press the ON switch.
Code and output messages appear in this typeface.	All results okay
Text you must type exactly as shown appears in this typeface .	Type: a : \set . exe in the dialog box.
Variables appear in this <typeface>.	Type the new <hostname>.
Book references appear in this typeface.	Refer to Newton's Telecom Dictionary
A vertical bar means "or": only one option can appear in a single command.	platform [a b e]
Square brackets [] indicate an optional argument.	login [platform name]
Slanted brackets < > group required arguments.	<password>

Table 3 Keyboard and menu conventions

Description	Example
A plus sign + indicates simultaneous keystrokes.	Press Ctrl+s
A comma indicates consecutive keystrokes.	Press Alt+f,s
A slanted bracket indicates choosing a submenu from menu.	On the menu bar, click Start > Program Files .

Table 4 Symbol conventions

	This symbol represents a general hazard.
	This symbol represents a risk of electrical shock.
	NOTE This symbol represents a note indicating related information or tip.

Safety Notes

This chapter provides the safety notes for the 4921 RF Shield. Topics discussed in this chapter include the following:

- "Safety instructions" on page x
- "Handling instructions" on page x

Safety instructions

In order to ensure safe handling and avoid injuries, adhere to the following safety instruction.



CAUTION

Close the 4921 RF Shield's lid carefully. Careless handling of the lid and the closing mechanisms can result in hand injury.

Handling instructions

In order to avoid damage to the 4921 RF Shield and ensure shielding performance, adhere to the following handling instructions.



CAUTION

The exertion of physical impact on the 4921 RF Shield, for example by dropping it, can cause damage and thus have adverse effects on the shielding performance. Be sure to handle the 4921 RF Shield carefully and do not expose it to physical impact of any kind.



Proper usage

Use the 4921 RF Shield only for its designated purpose.
Do not use it as a carrier box.



Prevent material fatigue

Leave the 4921 RF Shield open when not in use to prevent material fatigue.



Cleaning

The contact surface has to be cleaned at least twice a year, or even more often depending on usage and contamination. For cleaning and maintenance the Shielding Service Kit Option is available. Sections "[Options](#)" on [page 3](#) and "[The Shielding Service Kit Option](#)" on [page 10](#) offer more details as well as ordering information. For cleaning instructions please refer to the printed information that comes with your Shielding Service Kit.



Replacing parts

Contact springs and sealing string have to be replaced after 50,000 open/close cycles at the latest, or even earlier depending on usage and contamination. When replacing these parts adhere to the instructions provided with the Shielding Service Kit.

Overview

1

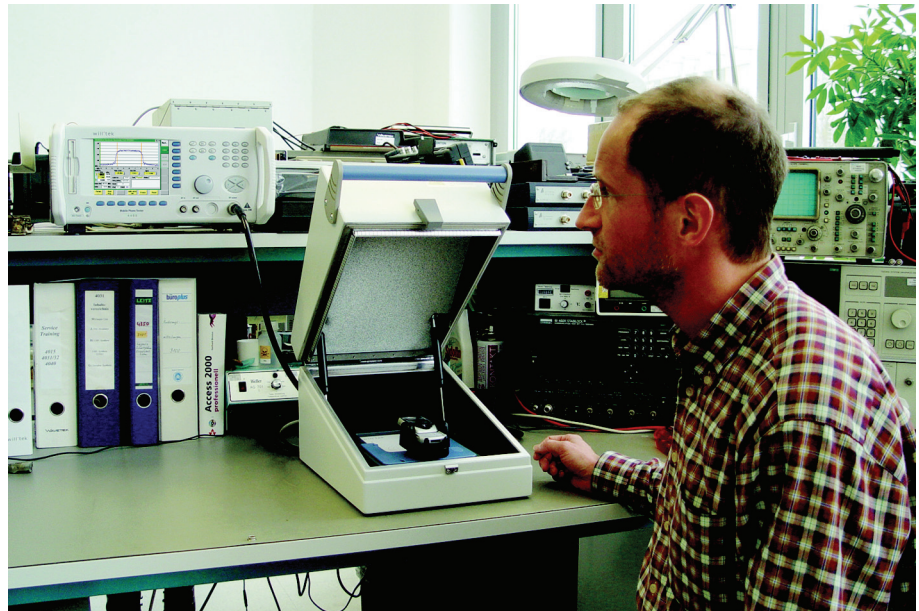
This chapter provides a general description of the 4921 RF Shield. Topics discussed in this chapter include the following:

- ["About the 4921 RF Shield" on page 2](#)
- ["Features and capabilities" on page 3](#)
- ["Options" on page 3](#)

About the 4921 RF Shield

The 4921 RF Shield is an RF shielding solution for testing 3G mobile phones as well as data cards and WLAN equipment in large service centers and production lines. It is the optimum solution for service centers and manufacturers with high volume phone testing because it can endure the high open/close rates involved and offers reliability, longevity and support in measurement precision.

The 4921 RF Shield is designed to eliminate interference from any adjacent mobile phones and the local base station, and to isolate the environment from the RF emitted from the phone (or other device under test). The 4921 can contain the phone under test as well as an antenna coupler, e.g. the Willtek 4916 Antenna Coupler, and provides a connector for external test equipment (such as the Willtek 4400 Mobile Phone Tester). With a solid rocker arm lever and gas springs that allow the operator to smoothly open and close the box without using much force the 4921 is an easy-to-use solution. A removable plate on the rear can be used to hold customer-specific connectors, e.g. for an interface for remote-controlling the unit under test.



Features and capabilities

More than 80 dB shielding

Highly reliable and robust design, guaranteed number of open-close cycles

Portable (small size and low weight)

Complementing the 4916 Antenna Coupler

Suitable for mobile phones of all sizes

RF isolation measured according to German military standard VG 95737, "Electromagnetic Compatibility of Equipment - Part 15 Test Methods for Coupling and Shielding"

Optional rear panel for customer-specific connectors

Options

The following accessories are available:

Table 1 Accessories for the 4921 RF Shield

Order number	Description
M 300 850	Rear panel for customization
M 248 349	Shielding Service Kit (gas springs, finger stocks, RF gasket)
M 382 804	Shielded RF cable (N - N), 1.5 m (high-performance Sucoflex 104 cable)

Operation

2

This chapter describes the operation of the 4921 RF Shield. Topics discussed in this chapter are as follows:

- "Connecting the Willtek 4921 RF Shield" on page 6
- "Installing the 4916 Antenna Coupler in the Willtek 4921 RF Shield" on page 6

Connecting the Willtek 4921 RF Shield

The 4921 RF Shield provides a connector for external test equipment, e.g. the Willtek 4400 Mobile Phone tester series. Via the RF cable that comes with your 4921 RF Shield you can connect it to your measurement instrument.



Customer-specific connectors: An optional removable plate on the rear of the RF Shield can be used to hold customer-specific connectors. For details on ordering information refer to ["Options" on page 3](#).

Installing the 4916 Antenna Coupler in the Willtek 4921 RF Shield

The Willtek 4921 RF Shield is equipped to hold the 4916 Antenna Coupler in a defined position.

To install the 4916 Antenna Coupler in the 4921 RF Shield, proceed as follows:

- 1 Place the 4916 Antenna Coupler in the shield box and push it between the clamps.
- 2 Move the coupler up and down between the clamps until the coupler is tightly held and the left-hand clamp has direct contact with the coupler.

Attach the supplied cable from the 4916 Antenna Coupler to the inside of the box and connect the RF cable. Connect the RF cable to the coupler (this cable is already attached to the RF Shield).

NOTE

For precise power and sensitivity measurements the antenna coupling factor should be taken into account when setting the RF power level at the instrument and when interpreting measurement results. A table of coupling loss factors (attenuation values) for most mobile phone types is available from Willtek on the Internet. The attenuation values stated there are only valid for the defined position of the antenna coupler within the 4921 RF Shield and the defined shuttle position on the coupler.

For further information please refer to the 4916 Antenna Coupler user's guide.

Maintenance

3

This chapter describes how to maintain your unit. Topics discussed in this chapter are as follows:

- [“The Shielding Service Kit Option” on page 10](#)

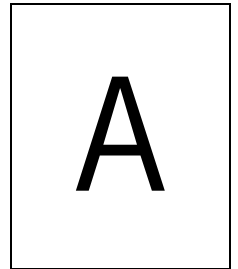
The Shielding Service Kit Option

The 4921 RF Shield offers a highly reliable and robust design and a high guaranteed number of open-close cycles (50,000). For further enhancing longevity by regular maintenance there is an optional Shielding Service Kit available which comprises the following components:

- Gas springs
- Finger stocks
- RF gasket

For ordering details refer to ["Options" on page 3](#).

Warranty and Repair



This chapter describes the customer services available through Willtek. Topics discussed in this chapter include the following:

- ["Warranty information" on page 12](#)
- ["Equipment return instructions" on page 13](#)

Warranty information

Willtek warrants that all of its products conform to Willtek's published specifications and are free from defects in materials and workmanship for a period of one year from the date of delivery to the original buyer, when used under normal operating conditions and within the service conditions for which they were designed. This warranty is not transferable and does not apply to used or demonstration products.

In case of a warranty claim, Willtek's obligation shall be limited to repairing, or at its option, replacing without charge, any assembly or component (except batteries) which in Willtek's sole opinion proves to be defective within the scope of the warranty. In the event Willtek is not able to modify, repair or replace nonconforming defective parts or components to a condition as warranted within a reasonable time after receipt thereof, the buyer shall receive credit in the amount of the original invoiced price of the product.

It is the buyer's responsibility to notify Willtek in writing of the defect or nonconformity within the warranty period and to return the affected product to Willtek's factory, designated service provider, or authorized service center within thirty (30) days after discovery of such defect or nonconformity. The buyer shall prepay shipping charges and insurance for products returned to Willtek or its designated service provider for warranty service. Willtek or its designated service provider shall pay costs for return of products to the buyer.

Willtek's obligation and the customer's sole remedy under this hardware warranty is limited to the repair or replacement, at Willtek's option, of the defective product. Willtek shall have no obligation to remedy any such defect if it can be shown: (a) that the product was altered, repaired, or reworked by any party other than Willtek without Willtek's written consent; (b) that such defects were the result of customer's improper storage, mishandling, abuse, or misuse of the product; (c) that such defects were the result of customer's use of the product in conjunction with equipment electronically or mechanically incompatible or of an inferior quality; or (d) that the defect was the result of damage by fire, explosion, power failure, or any act of nature.

The warranty described above is the buyer's sole and exclusive remedy and no other warranty, whether written or oral, expressed or implied by statute or course of dealing shall apply. Willtek specifically disclaims the implied warranties of merchantability and fitness for a particular purpose. No statement, representation, agreement, or understanding, oral or written, made by an agent, distributor, or employee of Willtek, which is not contained in the foregoing warranty will be binding upon Willtek, unless made in writing and executed by an authorized representative of Willtek. Under no circumstances shall Willtek be liable for any direct, indirect, special, incidental, or consequential damages, expenses, or losses, including loss of profits, based on contract, tort, or any other legal theory.

Equipment return instructions

Please contact your local service center for Willtek products via telephone or web site for return or reference authorization to accompany your equipment. For each piece of equipment returned for repair, attach a tag that includes the following information:

- Owner's name, address, and telephone number.
- Serial number, product type, and model.
- Warranty status. (If you are unsure of the warranty status of your instrument, include a copy of the invoice or delivery note.)
- Detailed description of the problem or service requested.
- Name and telephone number of the person to contact regarding questions about the repair.
- Return authorization (RA) number or reference number.

If possible, return the equipment using the original shipping container and material. Additional Willtek shipping containers are available from Willtek on request. If the original container is not available, the unit should be carefully packed so that it will not be damaged in transit. Willtek is not liable for any damage that may occur during shipping. The customer should clearly mark the Willtek-issued RA or reference number on the outside of the package and ship it prepaid and insured to Willtek.

Publication History

Revision	Comment
0504-100-A	First version.
0609-100-A	Layout changes.

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