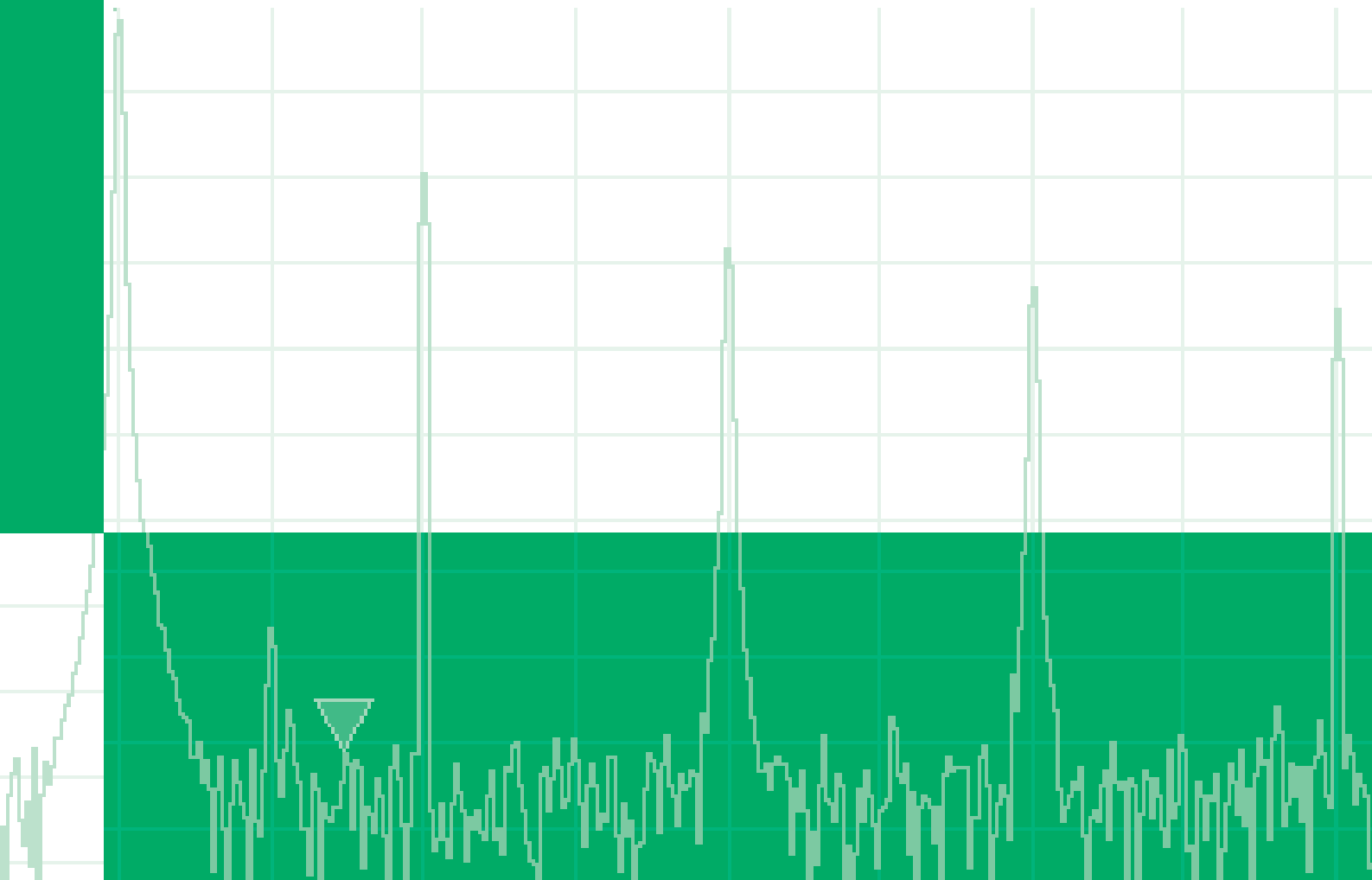
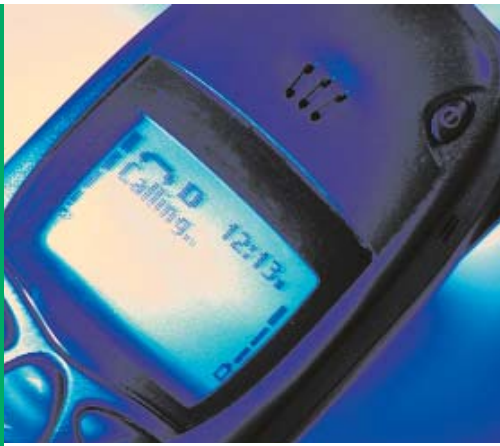


will'tek

# Willtek 4200S

Mobile Service Tester Series





Today's service procedures usually start with a Triage Test, serving as a filter to sort out returned phones into those with no fault and those requiring repair. The subsequent repair procedure differentiates between low-, mid- and chip-level services. Low-level service consists primarily of precustomer testing and repair/replacement of mechanical components. Mid-level service includes boards swaps and module exchanges with subsequent alignment procedures, while chip-level service requires the use of comprehensive test systems as they are used during the manufacturing process.

The Willtek 4200S Series represents an ideal solution for mid-level service. It allows accurate RF measurements and offers a full range of features for testing the voice, data and SMS functions of dual-band and triple-band GSM mobile phones. Due to their advanced design and small footprint all models require only little desk space while offering easy operation and large displays to show test results and guide the user through the measuring procedure.

The Willtek 4200S Series is available at competitive prices and features a power output accuracy of 0.9 dB suitable for BER measurements and highly accurate power testing. An additional audio loop-back mode allows performance testing of FR or EFR codecs.

## Highlights

- GSM 850!
- Large dynamic range
- High sensitivity
- The user interface supports English, German, French, Italian, Portuguese and Chinese languages ensuring that it is easy to use wherever it is deployed
- Software updates are available on the Internet
- Two different models (4201S and 4202S) are available to meet the needs of different user groups
- Remote control and built-in AUTOTEST

**Mobile phone service needs to meet the increasing demands of an ever-changing technology characterised by fast turn-around times, limited budgets and shortages in fully skilled personnel**



### Additional functions for special requirements

Servicing the new generation of mobile phones often requires the technician to get beyond the standard procedures. Therefore, the Willtek 4200S Series comes with a full range of options for increased functionality and versatility.

#### Detuning

This option allows detuning the carrier frequency by  $\pm 75$  kHz to perform a variety of special mobile phone tests.

#### AM Signal Generator Option

The AM Signal Generator Option allows testing of specific mobile phones. The option generates an AM modulated signal at higher power levels.

#### GSM 850

This option supports a new frequency band used in the Americas.

#### Result Upload

This option makes the paperless workbench a reality, since it allows with the press of a button to upload test results via a PC to virtually any location in a corporate network, where these can be processed further on – freeing the precious time of a service technician to do his job.

#### Mobile phone adapters

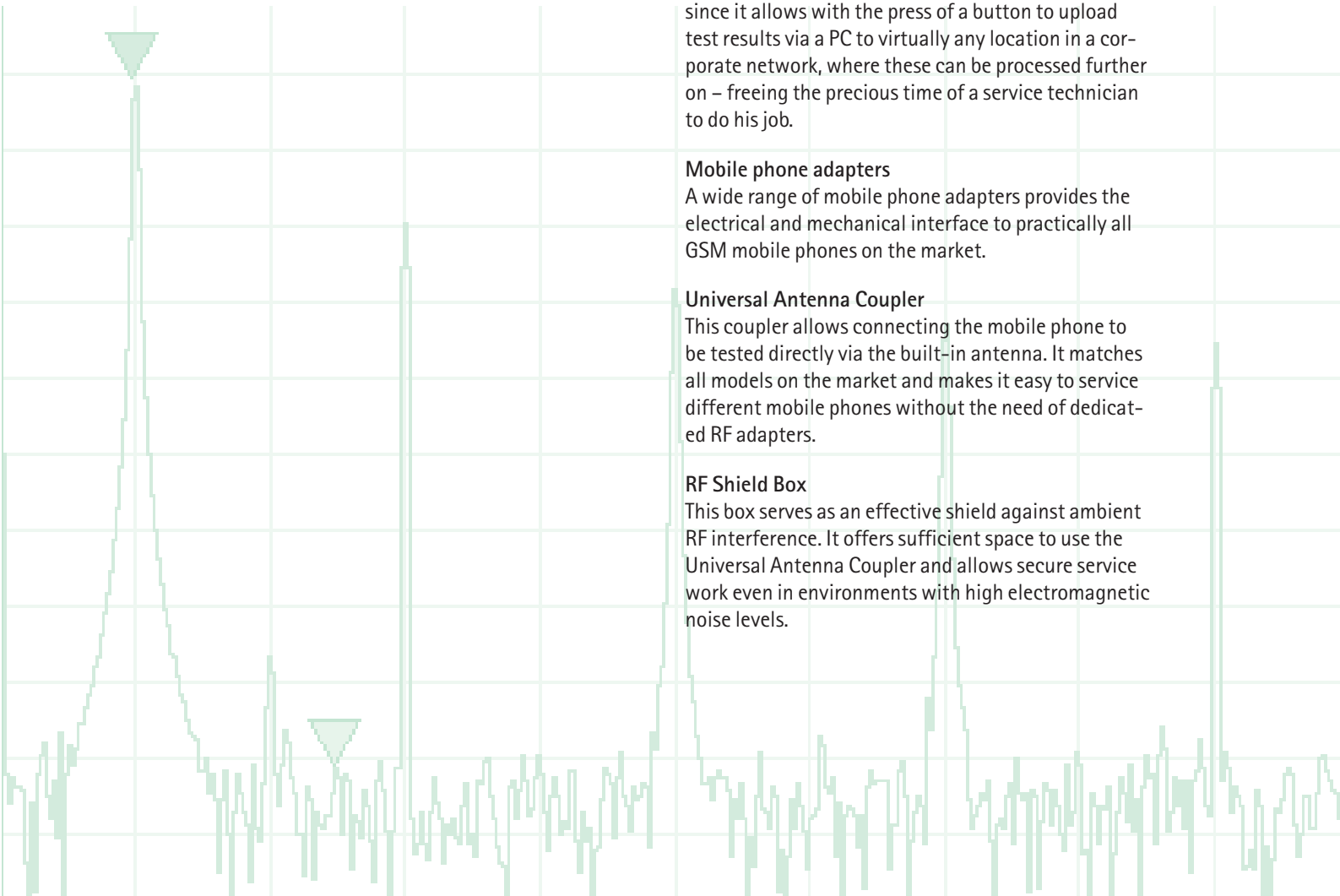
A wide range of mobile phone adapters provides the electrical and mechanical interface to practically all GSM mobile phones on the market.

#### Universal Antenna Coupler

This coupler allows connecting the mobile phone to be tested directly via the built-in antenna. It matches all models on the market and makes it easy to service different mobile phones without the need of dedicated RF adapters.

#### RF Shield Box

This box serves as an effective shield against ambient RF interference. It offers sufficient space to use the Universal Antenna Coupler and allows secure service work even in environments with high electromagnetic noise levels.



## Advanced Technology for comprehensive testing

The Willtek 4200S Series goes beyond the requirements of basic servicing. It offers a comprehensive range of features tailored to the advanced technology of modern mobile phones:

Short messages service (SMS) testing with the 4200S Series offers more than the basic procedures to confirm full functionality of the mobile phone. It also allows reading out system parameters such as the service centre number to indicate incorrect or missing numbers. Up to six messages may be stored for test purposes, including messages in non-western character sets, such as Chinese.

## Data communication

Modern data modules usually do not support voice channels, which prevents the use of standard test sets not supporting data. With the data function of the 4200S Series, however, it is possible to set up data calls and achieve standard RF measurements.

## Triple-band phones

With the 4200S Series, testing the latest range of triple-band mobile phones is a fast and efficient procedure, since the advanced design of this test system does not require switching between different simulated networks.

## One concept in two versions

The Willtek 4200S Series GSM mobile phone testers are available in two versions. Both follow the same design principle, but offer different testing capabilities.

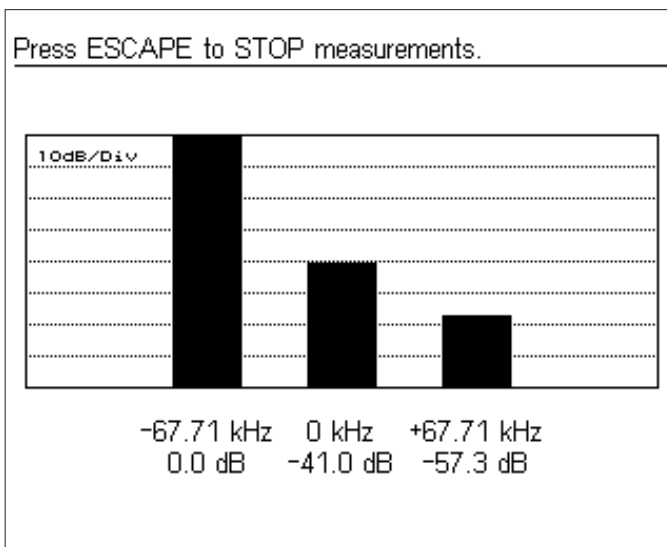


figure 1: The large dynamic range of 60 dB for I/Q alignment allow for optimal tuning of phones. The bar graphs are clearly visible and the numbers provide accurate results.

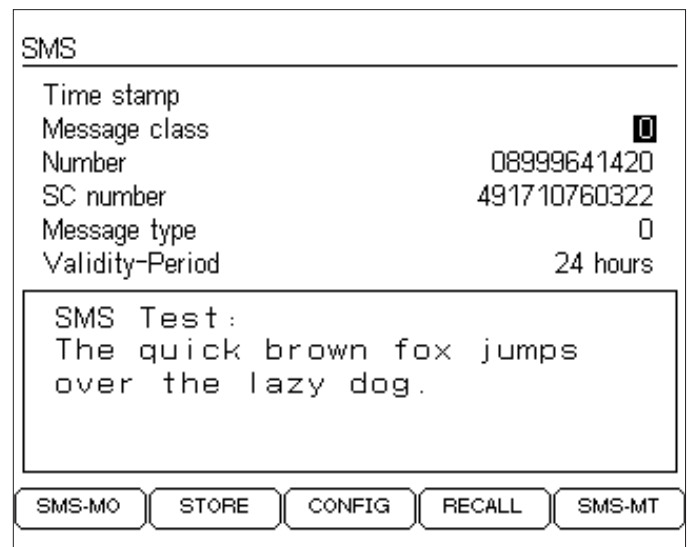
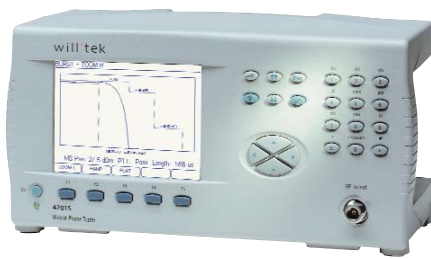


figure 2: The SMS test capabilities of the 4202S offer analysis of the most crucial parameters used for SMS, such as Service Centre Number, Validity Period and Message Class. This allows a service technician to pinpoint possible problems in the transfer of short messages.



**4200 Mobile Service Tester**

### Willtek 4201S

Is the basic model with anything but basic capabilities. It is feature-packed and provides comprehensive functionality for a wide range of service tasks.

- Multiple GSM bands:  
GSM 850 (optional), GSM 900, E-GSM, GSM 1800, GSM 1900
- TX testing:  
MS power, power/time template, burst length, spectrum, phase and frequency error
- RX testing
- MS sensitivity, BER/FER
- RX quality, RX level
- MS info:  
IMSI/IMEI, GSM revision information, MS capabilities
- Speech loopback for full rate (FR) and enhanced full rate (EFR)
- Basic 9.6 kbps data test in fault find mode, call set-up procedures, TX/RX testing

- IQ tuning in asynchronous mode
- Variable network parameters (MCC, MNC, BS-PA-MFRMS)
- Multiple signalling capabilities:  
Location update, call from mobile, call from base station, MS clear, BS clear, inter and intra band handover (900→1800, 900→1900)
- Multilingual support:  
English, French, German, Italian, Portuguese, Chinese

### Willtek 4202S

Is the equipment of choice, if more than general servicing is required. In addition to the features on model 4201S, it offers the following capabilities:

- Data test 9.6 kbps (also in autotest)
- SMS point to point
- Timing Advance measurement

### Automated Testing

The autotest mode of the 4200S Series Mobile Service Tester is the fast way to get a comprehensive picture. It automatically checks a wide variety of functions and presents the technician with a final pass/fail statement.

The first step is selecting the connection between the tester and the mobile phone (cable, antenna or coupler) and the type of system (single-/dual- or triple-band). These settings determine which predefined test sequence will be used.

Sequences include measurements of power, power/time template, phase and frequency error, speech quality and BER (with cable connection only).



The autotest sequence results in a comprehensive test report which can be viewed on the built-in display or printed out for documentation purposes for future reference. For faster service work, the on-screen display can be limited to such results reporting a failure. An additional fault find mode assists the service technician with failure analysis repair work.

### Scan mode

With the scan mode, the Willtek 4200S Series tester is able to detect interference caused by nearby GSM base stations. It checks the channels to be used for later testing and makes sure that there are no interfering signals. If required, channels can be monitored continuously to detect occasional transmissions.

### Utility software

The optional utility software serves to modify the built-in autotest sequences of the Willtek 4200S Series tester to tailor it to specific needs. It allows altering the predefined autotest sequences as well as creating new sequences.

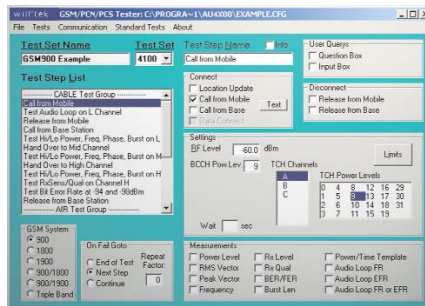


figure 3: Utility Software

### CATS software

CATS is the software needed to control a Willtek 4200S Series tester from a PC. The tester is connected to the PC via a serial RS-232-C interface. In this way, it is possible to not only control the tester, but also additional devices, such as the mobile phone for advanced service centres performing high-level servicing. The CATS Test Sequencer is the perfect tool to set up fully automatic test procedures including the alignment of mobile phone functions. A major advantage is that CATS is compatible with the overall range of Willtek phone testers.



figure 4: CATS Software

© Copyright 2002 Willtek Communications GmbH. All rights reserved. Willtek Communications, Willtek and its logo are trademarks of Willtek Communications GmbH. All other trademarks and registered trademarks are the property of their respective owners.

Note: Specifications, terms and conditions are subject to change without prior notice.

Willtek Communications GmbH  
85737 Ismaning  
Germany  
Tel: +49 (0) 89 996 41-0  
Fax: +49 (0) 89 996 41-440  
info@willtek.com

Willtek Communications Inc.  
Indianapolis  
USA  
Tel: +1 317 595 2021  
Tel: +1 866 willtek  
Fax: +1 317 595 2023  
willtek.us@willtek.com

Willtek Communications Ltd.  
Chessington  
United Kingdom  
Tel: +44 20 8408 5720  
Fax: +44 20 8397 6286  
willtek.uk@willtek.com

will'tek