

4100S Technical Data

u **Models for all GSM 900/1800/1900 and dual-band GSM 900/1800 and 900/1900 networks**

u **Key measurements:**

RX Level
RX Qual
Async. Mode
MS Power
BER / FER
MS Sensitivity
Phase Error
Frequency Error
Burst Shape
Burst Length
Burst Edge Failure Indicator

u **Compact design and high accuracy**
makes a powerful mobile measurement unit.

u **Easy to use with intuitive operations:**
The AUTOTEST mode guides the user interactively.

u **Improved specifications:**
RF power level accuracy
< 1 dB

u **Free Software updates:**
Software updates and other helpful programs are available in the Internet (www.wavetek.com) or at the mailbox (+49/89/99641-219) free of charge.

u **Comprehensive data management:**
Results can be printed, stored or downloaded to a PC.

u **Remote control**
allows operation and data management directly via PC.

The Wavetek 4100 Series of mobile phone testers provide two operating standard modes. In AUTOTEST, fast checking with a PASS or FAIL result is provided. In FAULT FIND mode, the 4100 can simulate network conditions to troubleshoot mobiles with the measurements continuously displayed on the screen.

Both modes provide simple operation and the AUTOTEST mode also provides a comprehensive printout capability recording the mobile performance against limits. Up to 250 results can be stored in the Wavetek 4100S.

The compact design of the Wavetek 4100 Series occupies minimum bench space and the wide range of cable connector provides an accurate method of measuring mobile performance for Transmitter and Receiver. Comprehensive software and accessories provide a full support package.

The transfer of ALL measured data can be easily uploaded to the PC for trend analysis, warranty claims or record statistics. This means for example, that the service process can be carried out and controlled centrally. Test Data can be matched to the phone and customer and billing information.

The new 4100S versions offer features, specifically required by Service and Repair Depots. These include: Asynchronous Mode, Burst Edge Failure Indicator and Remote Control using RS-232-C. The 4100S versions also offer improved RF accuracy specifications.

With the Asynchronous Mode, technicians can tune or align the mobile phone operating in a test mode to meet its specification, whilst it transmits a continuous GMSK signal burst.

Failures detected in the power/time template can now be displayed with the "Burst Edge Failure Indicator". With this feature the errors can be identified during the Burst Rising, Constant Power or Falling time periods.

With the Remote Control capability the Wavetek 4100S can be controlled via the PC using SCPI command set. This allows special test routines or interactive programs to be used with the PC. It is possible to write user-defined test sequences, for example, covering the full range of all GSM channels. This capability also allows easy customizing, expanding or automating of test routines.



Specifications

u RF Signal Generator:

Frequency range

GSM 900: 935 to 960 MHz (Channel 1 to 124)
 E-GSM 900: 925 to 935 MHz (Channel 0, 975 to 1023)
 GSM 1800: 1805 to 1880 MHz (Channel 512 to 885)*
 GSM 1900: 1930 to 1990 MHz (Channel 512 to 810)**

Frequency error 1 ppm

Output power level

-45 to -110 dBm (GSM 900/ E-GSM)
 -50 to -110 dBm (GSM 1800/1900 and dual-band)

Output power level accuracy

> 1.0 dB

Output power level resolution 0.1 dB

Modulation

Gaussian minimum shift keying (GMSK), B T = 0.3

u TX Measurement:

RF power measurement (burst)

Input power level

- 10 to +45 dBm

Input power level accuracy

> 1.5 dB (-10 to +39 dBm)

Input power measurement resolution

0.1 dB

Frequency range

GSM 900: 890 to 915 MHz (Channel 1 to 124)
 E-GSM 900: 880 to 890 MHz (Channel 0, 975 to 1023)
 GSM 1800: 1710 to 1785 MHz (Channel 512 to 885)*
 GSM 1900: 850 to 1910 MHz (Channel 512 to 810)**

Frequency error accuracy

(within 5 kHz mobile-reference frequency offset)
 > 25 Hz (GSM 900/ E-GSM)
 > 50 Hz (GSM 1800/1900 and dual-band)

Phase error measurement accuracy

(within measurement range 1.5° to 20° rms)
 > 1.5° rms (GSM 900/ E-GSM)
 > 2.0° rms (GSM 1800/1900 and dual-band)

Power / Time Template

Samples / Bit (Burst): 4 (> 812)
 Reference: Bit 13 of the training sequence
 Dynamic range: >40 dB

u General Data:

Models

4103S GSM 900
 4104S GSM 1800
 4105S GSM 1900
 4106S GSM900/1800/1900
 4107S GSM 900/1800/900 and dual-band

Temperature range

+15°C to +35°C (Working)
 -30°C to +50°C (Storage)

Power Consumption 15 Watts

Size and Weight 1.5 kg, 250 x 110 x 95 mm

Interfaces

RF: TNC
 Data exchange: RS-232-C ***
 Printing: Centronics ****

u Ordering details:

Standard delivery

Wavetek 4100 Series Operating Manual
 Test SIM / Plug-in adapter
 RF connecting cable
 Power supply

Ordering information

Wavetek 4103S 101 213
 Wavetek 4104S 101 214
 Wavetek 4105S 101 215
 Wavetek 4106S 101 216
 Wavetek 4107S 101 217

Special Accessories (extract)

Universal Antenna Coupler 248 330
 Antenna 900 MHz 860 261
 Antenna 1800/1900 MHz 860 262
 4100 Utility Software 897 110
 Combi-cable for printer + PC 384 877
 RS-232-Cable (2.5 m) 384 875
 Centronics cable (2.5 m) 384 876
 Test SIM (full size) 860 178
 Carrying case 860 252
 Soft shoulder bag 860 251
 RF adapter for mobiles (model-specific),
 ask for detailed ordering info sheet.

* GSM 1800 usable every even channel
 ** GSM 1900 usable every odd channel
 *** (requires cable 384 875 or 384 877)
 **** (requires cable 384 876 or 384 877)

Worldwide Sales Offices

Wavetek Wandel & Goltermann Western European Sales Region

Wandel & Goltermann GmbH & Co.
 Vertriebsgesellschaft
 PO Box 1155
 Arbachtalstrasse 6
 72794 Eningen u.A.
 GERMANY
 Tel: +49 7121 98 56 10
 Fax: +49 7121 98 56 12

Wavetek Wandel & Goltermann Eastern European Sales Region

Wandel & Goltermann GmbH
 PO Box 13
 Elisabethstrasse 36
 2500 Baden
 AUSTRIA
 Tel: +43 2252 85 52 10
 Fax: +43 2252 80 727

Wavetek Wandel & Goltermann North American Sales Region

Wavetek Corporation
 5808 Churchman Bypass
 Indianapolis, IN 46203
 USA
 Tel: +1 317-788-9351
 Fax: +1 317-614-8307

Wavetek Wandel & Goltermann Latin American Sales Region

Wandel & Goltermann Instrumentação Ltda & Cia
 Av Eng Luis Carlos Berrini
 936-9 Andar
 04571-000 São Paulo, SP
 BRAZIL
 Tel: +55 11 5505 3266
 Fax: +55 11 5505 1598

Wavetek Wandel & Goltermann Asia / Pacific Sales Region

Wandel & Goltermann Pty. Ltd.
 PO Box 419
 World Trade Centre
 Melbourne, Victoria 3005
 AUSTRALIA
 Tel: +61 3 690 6700
 Fax: +61 3 690 6750

A closely linked network of 29 affiliated companies and more than 65 representatives ensure that our customers receive the best possible advice in solving specific measurement problems.

For any further information or to get the address of your local Sales Office, please contact Wavetek Wandel & Goltermann at the following address:

Wavetek Wandel & Goltermann, Inc.

Wandel & Goltermann GmbH & Co.
 Marketing International
 PO Box 1262
 72795 Eningen u.A.
 GERMANY
 Tel: +49 7121 86 16 16
 Fax: +49 7121 86 13 33
www.wavetek.com

Your nearest representative: