



**4100**  
**Mobile Fault  
Finder**



Data Sheet

**Boosting wireless efficiency**

## Fast and accurate testing for GSM mobiles

One of the most frustrating challenges facing shops and low-level service centres is the lack of a system for separating faulty handsets from those that are functioning correctly. When customers complain about a suspected faulty handset, companies cannot be sure that the mobile phone is to blame. A network service or coverage problem, or a faulty antenna could also be responsible.

The Willtek 4100 Series for mobile phone testing enables shops and service centres to identify faulty and no-fault-found (NFF) mobiles in just a few seconds. It allows users with minimal skills to achieve a simple PASS/FAIL decision on a handset under test.

There are many advantages to this simple portable tester. The 4100 Series reduces the amount of phones that have to be returned to the manufacturer and minimises the resources needed to resolve a customer complaint, ensuring the fastest turn-around from unhappy to satisfied customer. The tester also encourages an organisation's customers to wait in the shop while testing is taking place, thus positively enhancing mobile consumables and accessories revenues.



The Willtek 4100 Series tester supports GSM 900, 1800, 1900, dual-band and triple-band key measurements:

- RX level
- RX qual
- Asynchronous mode (4107S)
- MS power
- BER/FER
- MS sensitivity
- Phase error
- Frequency error
- Burst shape
- Burst length
- Burst edge failure indicator (4107S)

### Highlights

- Enables accurate and rapid fault identification
- Separates faulty and no-fault-found (NFF) mobile phones to maximise revenues
- Provides improved specifications RF power level accuracy < 1 dB (4107S)
- Designed for different user types – the 4107 for shops and the 4107S for service centres
- Assures intuitive operation and AUTOTEST features to minimise training requirements
- Delivers remote operation and management via a standard PC

## Enables accurate and rapid testing

The Willtek 4100 Series quickly tests mobile handsets received by point of sale, service and repair depots. It provides two standard operating modes: AUTOTEST for fast PASS or FAIL results and FAULT FIND for troubleshooting mobiles. In AUTOTEST mode, the 4100 Series enables users to store pre-attenuation values for up to 50 different manufacturers' mobile phones. This makes automated testing of a wide range of handsets straight forward without sacrificing test accuracy. The AUTOTEST mode also provides a comprehensive reporting capability that compares the mobile's performance against expected operating parameters.

In the second mode, FAULT FIND, the technician can simulate live network situations, such as a call from the mobile station, call from the base station or a handover. This provides troubleshooting features in a low-risk, simulated network, which accurately reflects the actual operating environment in which the handset is used.

## Provides improved specifications

The 4100 Series tester delivers RF power level accuracy < 1 dB (4107S) and can perform standard GSM tests in synchronous and asynchronous modes.

It also supports triple-band testing, so it can be used with different types of mobile phones – GSM 900, GSM 1800 and GSM 1900. While the tester provides a fast way of isolating faulty and NFF handsets, it is also a capable first check tester within low-level service centres. It can perform manufacturer-provided filter tests, including an option for phone swapping without disrupting test productivity.



Fast and accurate testing of mobiles at the retail counter enhances customer confidence and loyalty

## Designed for different user types

The 4100 Series comes in two versions: the 4107 is targeted at point-of-sale or filter testing; the 4107S is dedicated to service centres and repair depots. The 4107S comes with improved power level accuracy of 1.0 dB, compared to the 4107, which has an accuracy level of 1.5 dB. It provides a burst edge failure indicator, asynchronous test mode and remote control operation.

Using the built-in asynchronous mode, technicians can tune or align mobile phones while running a test to meet handset specifications and simultaneously transmitting continuously GMSK-modulated bursts. Failures detected in the power/time template can now be displayed with the burst edge failure indicator. With this feature, errors can be identified during burst rising, constant power or falling time periods.

All measured data can be easily uploaded to a PC for trend analysis, warranty claims or to record test results and statistics. This means that the service process can be conducted and controlled centrally. Test data can then be matched to the phone, customer and billing information.

With its remote control capability, the Willtek 4107S can be managed via a PC using the SCPI command set. This supports special test routines or interactive programs for use with a PC. It is also possible to write user-defined test sequences that, for example, cover the full range of GSM channels.

## Specifications

### Basic RF data input/output

Impedance	50 $\Omega$
VSWR	< 1.3
RF input/output	TNC-type, female
Internal reference frequency	13 MHz
Aging	10 <sup>-6</sup> year

### RF signal generator

Frequency ranges	GSM 900, E-GSM, GSM-R (channels 1 – 124; 0, 975 – 1023; 955 – 974) GSM 1800 (channels 512 – 885) <sup>a</sup> GSM 1900 (channels 512 – 810) <sup>b</sup>
Frequency error	< 1 ppm
Output power level range	
GSM 900	–45 to –110 dBm
GSM 1800/1900	–50 to –110 dBm
Output power level accuracy	
4107	< 1.5 dB
4107S	< 1.0 dB
Output power level resolution	0.1 dB
Modulation	Gaussian minimum shift keying (GMSK) B x T = 0.3

### TX Measurement RF power measurement (burst)

Frequency ranges	GSM 900, E-GSM, GSM-R (channels 1 – 124; 0, 975 – 1023; 955 – 974) GSM 1800 (channels 512 – 885) <sup>a</sup> GSM 1900 (channels 512 – 810) <sup>b</sup>
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### Frequency error

Measurement range	±5 kHz off carrier
Measurement accuracy	
GSM 900	< 25 Hz
GSM 1800/1900	< 50 Hz

### Power level

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
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### Power/time template

Dynamic range	> 40 dB
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### Phase error

Measurement range	1.5° to 20° rms
Measurement accuracy	
GSM 900	< 1.5° rms
GSM 1800/1900	< 2.0° rms

### General data

Serial interface	D-Sub 25, female (high density) <sup>c</sup> 4800, 9600, 19200, 38400 Bd
Printer interface	D-Sub 25, female (high density) <sup>d</sup>
AC voltage range	100 to 250 V
Voltage frequency	50 to 60 Hz
Power consumption	15 W
Storage temperature	-30°C to +50°C
Operating temperature	+15°C to +35°C
Size	250 x 110 x 95 mm
Weight	1.5 kg

<sup>a</sup> GSM 1800 usable every even channel

<sup>b</sup> GSM 1900 usable every odd channel

<sup>c</sup> Requires cable M 384 875 or M 384 877

<sup>d</sup> Requires cable M 384 876 or M 384 877

## Ordering details

### Models

4107 Mobile Fault Finder	M 101 207
4107S Mobile Service Tester	M 101 217

### Standard delivery for the Willtek 4100 Series

Getting started manual
Operating manual on CD
Test SIM
Power supply
Calibration report

### Special accessories (extract)

4916 Antenna Coupler Package includes RF cable and adapter (N, TNC)	M 248 642
4921 RF Shield (N) includes RF cable (N to N)	M 248 346
Adapter N to TNC	M 886 329
4921 RF Shield (N) & 4916 Antenna Coupler Package	M 248 348
Antenna 900 MHz	M 860 261
Antenna 1800/1900 MHz	M 860 262
Utility Software for 4100 and 4200	M 897 110
4100 Universal adapter cable for printer + PC	M 384 877
4100 RS-232 cable (2.5 m)	M 384 875
4100 Centronics cable (2.5 m)	M 384 876



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