

## 4200 Mobile Service Tester



boosting wireless efficiency

# What's the fastest way to get a comprehensive picture?

## Highlights

- Triple-band testing/GSM 850 (optional)
- High sensitivity in service (async) mode: -40 dBm
- Large dynamic range for I/Q alignment: > 60 dB
- Specific manufacturer options for dedicated tests, for example AM Signal Generator for AM Suppression measurement
- Easy-to-use interface in English, German, French, Italian, Portuguese and Chinese
- Provides software updates on the Internet

The Willtek 4200S Series Mobile Service Tester is the ideal solution for mid-level service activities, for example, performing board swaps, module exchanges and subsequent RF alignment. It provides fast and accurate RF measurements and offers a full range of features, including voice, data and the SMS functions of dual-band and triple-band mobile handsets.

The Mobile Service Testers 4201S and 4202S are designed to meet the requirements of service centres and manufacturers who want to perform scientific post-fault analysis and diagnoses.

The 4200 Series also offers high level and measurement accuracy, along with one of the highest sensitivity levels in its class, and a large dynamic range for I/Q alignment allowing optimal tuning of phones.

The Willtek 4200S Series is designed for the test and alignment of mobile phones in service centres and for final testing by manufacturers:

For the test of AM Suppression, an AM Signal Generator Option is available.

The Result Upload Option allows test results to be transferred to virtually any location in the corporate network with a push of a button.

Built-in AUTOTESTs allow the execution of automatic test routines and give the user a pass/fail verdict at the end of the AUTOTEST to make testing simpler and easier.

The Manual or Fault Find mode distinguishes two different operating modes. The Synchronous mode allows standard signalling, that is the location update, call set-up procedures, in order to get a phone onto a traffic channel and perform RF testing.

The Asynchronous mode is dedicated to the Service mode, where phones are controlled by a manufacturer's service software. This mode is used to align mobile phones.

To take testing even further, the 4202S offers testing of short message service.

The Data mode is intended to test data modems that do not support standard traffic channels but only data channels for RF testing.

## Specifications

### Basic RF data

Input/output impedance	50 Ω
VSWR	< 1.3
RF input/output	N-type, female
Internal reference frequency	13 MHz
Aging	10 <sup>-6</sup> /year
External ref. Input	BNC-type, female 5/10/13 MHz

### RF generator

#### Frequency range

GSM 900, E-GSM	935 to 960 MHz (Channel 1 to 124) 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)
GSM 850 (optional)	869 to 894 MHz (Channel 128 to 251)

#### Reference frequency accuracy

(without external reference oscillator) < 10<sup>-6</sup>

#### Output level accuracy

For levels -110 to -38 dBm < 0.9 dB  
Operating temperature range +20°C to +30°C

#### Output level

Range	
GSM 850/900	-38 to -117 dBm
GSM 1800/1900	-44 to -117 dBm
Resolution	0.1 dB

## RF analyzer

### Frequency range

GSM 900, E-GSM	890 to 915 MHz (Channel 1 to 124) 880 to 890 MHz (Channel 0, 975 to 1023)
GSM 1800	1710 to 1785 MHz (Channel 512 to 885)
GSM 1900	1850 to 1910 MHz (Channel 512 to 810)
GSM 850 (option)	824 to 849 MHz (Channel 128 to 251)

### Frequency error measurement

Measurement range	±10 kHz off carrier
Usable range	±45 kHz
Measurement accuracy	
GSM 850/900	< 15 Hz
GSM 1800/1900	< 25 Hz

## Power level measurement

### Measurement range

Burst mode	-20 to +39 dBm
CW mode	-20 to +33 dBm
Async mode	-40 to +39 dBm
Measurement accuracy	< 0.9 dB

### Dynamic range

Power/time template	> 40 dB
I/Q alignment mask	> 60 dB

### Phase error measurement

Measurement range	1.5° to 20° rms
Measurement accuracy	
GSM 850/900	< 0.8° rms
GSM 1800/1900	< 1.4° rms
Timing advance accuracy	1/4 bit

## General data

Serial interface	D-sub 9, female 4800, 9600, 19 200, 38 400 baud
Printer interface	D-sub 25, female
Mains voltage range	100 to 250 VAC
Mains voltage frequency	50 to 60 Hz
Power consumption	17 Watts
Storage temperature	-30°C to +50°C
Operating temperature	+15°C to +35°C
Size	310 x 170 x 165 mm
Weight	2.4 kg

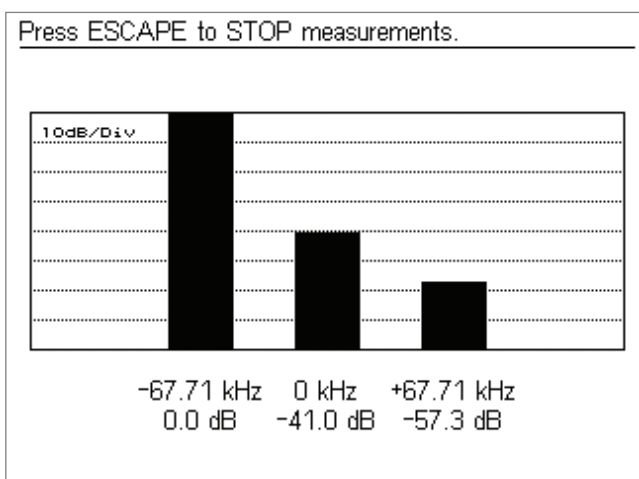


Figure 1: The large dynamic range of 60 dB for I/Q alignment allow for optimal tuning of phones. The bar graphs are clearly visible and the numbers provide accurate results.

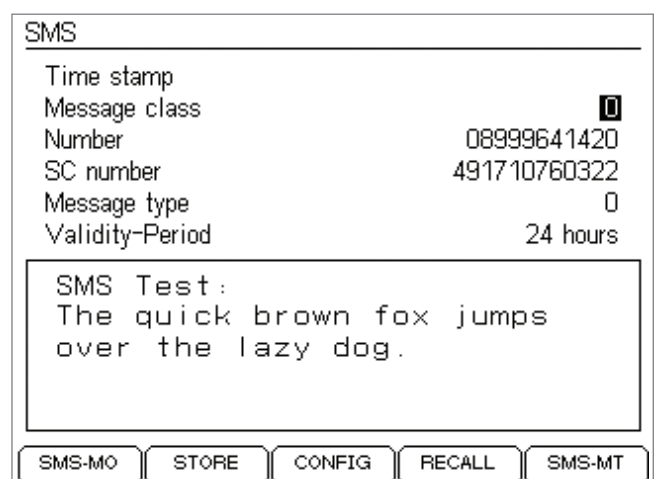


Figure 2: The SMS test capabilities of the 4200S offer analysis of the most crucial parameters used for SMS, such as Service Centre Number, Validity Period and Message Class. This allows a service technician to pinpoint possible problems in the transfer of short messages.

## Ordering information

### Standard delivery Willtek 4200

Operating manual	M 290 013
Test SIM	M 860 188
Power cable	M 860 603
Centronics cable	M 860 378
RS-232 cable	M 860 379

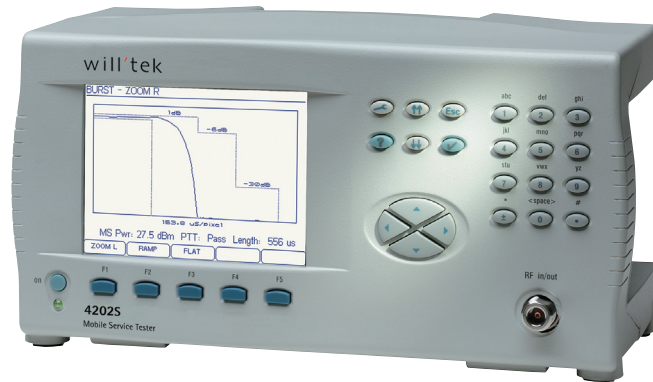
## Ordering details

### General options

Willtek 4201S	M 101 301
Willtek 4202S	M 101 302
Upgrade 4201S to 4202S	M 248 500
4201S AM Signal Generator package (incl. option)	M 101 351
4202S AM Signal Generator package (incl. option)	M 101 352
4271 AM Signal Generator Option	M 248 507
4271 AM Signal Generator upgrade	M 248 506
4260 GSM 850 Option	M 248 418
4280 GSM 850 Upgrade Kit	M 248 404
4272 Result Upload Option	M 897 136
4273 Detuning Option	M 248 505
4274 DC Option	M 204 094
4275 Remote Power Option	M 248 748
4281 External Battery Kit	M 205 014
1500 Battery Charger	M 204 097
Battery module 7.2 Ah	M 205 012

### 4202S Options

4261 GPRS Go/NoGo Option	M 897 185
4262 GPRS Measurement Option	M 897 186



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