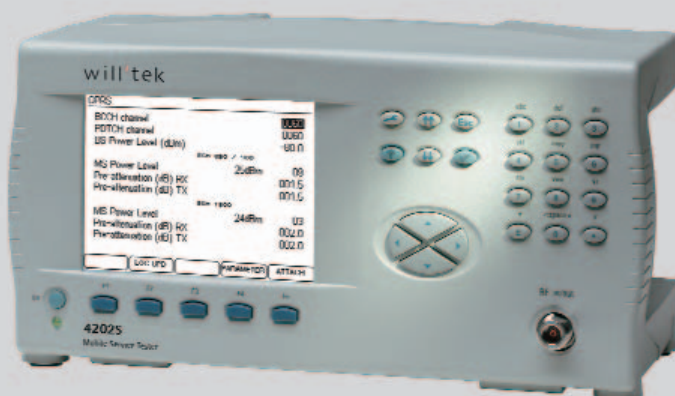


will'tek

Willtek 4202S

GPRS Options

Mobile Service Tester for GPRS measurement applications



GPRS attach/detach

GPRS Multislot

GPRS BLER measurement

Triple-band testing/GSM 850 (optional)

High sensitivity of -40 dBm

Large dynamic range (> 60 dB for I/Q)

What level of GPRS tests do you need?

The GPRS Go/NoGo and measurement options for the Willtek 4202S add necessary test capabilities for today's GPRS phones to the popular 4200 Series of Mobile Service Testers. The GPRS Go/NoGo option checks for basic GPRS functionality and support of GPRS by a mobile phone, by simply simulating the GPRS network and the basic attach/detach procedures. This gives confidence not only to the service centre, but also to the customer, who will see that his phone has been checked for basic GPRS support as well.

The GPRS measurement option addresses those service centres that want to test further, by adding multislots and BLER testing capabilities. More and more phones are supporting the transmission and reception on multiple slots, which adds stress to components, which can now also be tested in a service environment. GPRS-specific receiver measurements are added by means of BLER testing. The GPRS measurement option supports both the BLER-BCS and BLER-USF.

The GPRS Go/NoGo and measurement options make use of the GSM functionality known from the 4202S Mobile Service Tester. In addition it provides all the necessary features 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 Tester 4202S is designed to meet the requirements of service centres and manufacturers of GSM/GPRS terminals who want to perform scientific post-fault analysis and diagnoses.

The 4202S with GPRS goes the extra mile, by offering high-level and measurement accuracy, along with the highest sensitivity levels in its class and a large dynamic range for I/Q alignment allowing optimal tuning of phones.

The Willtek 4202S with GPRS options 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 paperless workbench is becoming a reality: The Result Upload Option offers transferring test results to virtually any location in the corporate network with a push of a button on the 4200S Series.
- The built-in autotests allows the execution of automatic test routines, a pass/fail verdict at the end of the autotest tells the user whether the phone is good or bad, making it easy for even not so skilled technicians to test mobile phones. This includes now also GPRS.
- The manual or "Fault Find" Mode distinguishes two different operating modes, the first is the synchronous mode, which

allows the standard signalling, i.e. location update, call set-up procedures, in order to get a phone onto a traffic channel and perform RF testing. The other mode is asynchronous, which is dedicated to the service mode, where the phones are actually 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 focus here is on retrieving all the necessary parameters used by the phone for transferring messages, which will help the technician to analyse faulty behavior.
- The data mode is intended to test data modems, which 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 ⁻⁶ /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 ⁻⁶
Output level accuracy	
For levels -110 to +38 dBm	< 0.9 dB
Operating temperature range	+20 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 Burst 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

GSM Mode

Supported transmitter measurements	
Peak power	
Burst shape/length	
Timing advance	
Phase (RMS + peak)	
Frequency error	
Spectrum	
RX lev/RX qual	
I/Q modulation (async)	
Supported receiver measurements	
BER	
FER	
MS info	
IMSI/IMEISV	
Rev. level	
Support of SMS, EFR, A5 algorithm	
Multiband, Power class	
Signalling	
Location Update	
MS Call/BS Call	
MS Clear/BS Clear	
Channel change (handover)	
Band handover	
Broadcast Message (Index 0)	
SMS point-to-point (MS/BS originated)	
Speech loopback	
Data channel 9.6 kbps transparent	
Asynchronous mode	

GPRS Mode

GPRS Go/NoGo option

Signalling	
Simulation of GPRS network	
GPRS attach/detach	

GPRS measurement option

TX measurements

The measurement accuracy specified for the base unit applies to the time slot with the highest power level.	
Supported number of time slots	up to 2
RF power conditions	at least one time slot at > -20 dBm
Power measurements	Peak power for selectable time slot Power/Time Template incl. transition
Frequency/phase error measurements	Measurements for selectable time slot
Spectrum measurements	Modulation spectrum for selectable time slot

RX measurements

Coding scheme	CS-1
Data	PRBS
BLER-BCS	
Method	ETSI defined
Number of time slots	up to 4
BLER-USF	
Method	ETSI defined
Number of time slots	up to 2

Signalling

Downlink TBF establishment	
Uplink TBF establishment	
ETSI-defined GPRS test mode	

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 to +50°C
Operating temperature	+15 to +35°C
Size	310 x 170 x 165 mm
Weight	2.4 kg

Ordering Information

Standard delivery Willtek 4202S

Manual pack 4200	M 297 005
Test SIM	M 860 188
RF connecting cable	M 860 407
Power cable	M 860 603
Centronics cable	M 860 378
RS-232 cable	M 860 379

Ordering details

Willtek 4202S	M 101 302
Upgrade 4201S to 4202S	M 248 500
4261 GPRS Go/NoGo Option	M 897 185
4262 GPRS Measurement Option	M 897 186
4261 GPRS Go/NoGo Upgrade	M 248 655
4262 GPRS Measurement Upgrade	M 248 656
4262 GPRS Hardware Upgrade package	M 248 657
Detuning Option	M 248 505
4202S AM Signal Generator package (incl. option)	M 101 352
AM Signal Generator Upgrade	M 248 506
Result Upload Option	M 897 136
GSM 850 Option	M 248 418
GSM 850 Upgrade Kit	M 248 404

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