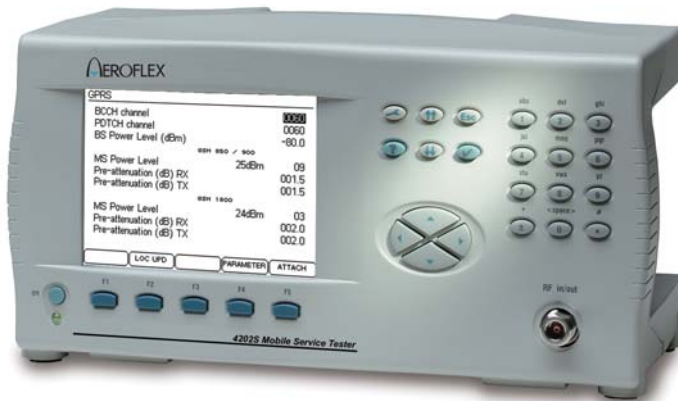


4200 Series GPRS Options

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A passion for performance.



Highlights

- GPRS attach/detach
- GPRS multi-slot
- GPRS BLER measurement
- Triple-band testing/GSM 850 (optional)
- High sensitivity of -40 dBm
- Large dynamic range (>60 dB for I/Q)

Mobile Service Tester for GPRS Measurement Applications

The GPRS Go/NoGo and measurement options for the Aeroflex 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 center, 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 centers that want to test further, by adding multi-slot 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 centers 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 Aeroflex 4202S with GPRS options is designed for the test and alignment of mobile phones in service centers 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 Auto-tests allows the execution of automatic test routines, a pass/fail verdict at the end of the Auto-test tells the user whether the phone is good or bad, making it easy even for less 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 signaling, i.e. location update, call setup procedures, in order to get a phone onto a traffic channel and perform RF testing. The other mode

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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 analyze 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 Reference Input

BNC-type, female

5/10/13 MHz

RF GENERATOR

Frequency Ranges

GSM 900, E-GSM (channels 0 to 124, 975 to 1023)

GSM 1800 (channels 512 to 885)

GSM 1900 (channels 512 to 810)

GSM 850 (optional) (channels 128 to 251)

Reference Frequency Accuracy (without external reference oscillator)

<10⁻⁶

Output Level Accuracy for Levels from -110 to +38 dBm

<0.9 dB

Operating Temperature Range

+20 to +30°C

Output Level Range

GSM 850/900 -117 to -38 dBm

GSM 1800/1900 -38 to -44 dBm

Resolution

0.1 dB

RF ANALYZER

Frequency Ranges

GSM 900, E-GSM (channels 0 to 124, 975 to 1023)

GSM 1800 (channels 512 to 885)

GSM 1900 (channels 512 to 810)

GSM 850 (optional) (channels 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

Asynchronous 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

¼ bit

GSM MODE

Supported Transmitter Measurements

Peak Power

Burst Shape/Length

Timing Advance

Phase (RMS, Peak)

Frequency Error

Spectrum

RX Level, RX Quality

I/Q Modulation (Async)

Supported Receiver Measurements

BER

FER

Data Display (MS Info)

IMSI/IMEISV

Rev. Level

Support of SMS, EFR, A5 Algorithm

Multiband, Power Class

Supported Procedures

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 GO/NOGO OPTION

Supported Procedures

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

Supported Procedures

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 V AC

Mains Voltage Frequency

50 to 60 Hz

Power Consumption

17 W

Storage Temperature

-30 to $+50^{\circ}\text{C}$

Operating Temperature

$+15$ to $+35^{\circ}\text{C}$

Size

310 x 170 x 165 mm (12.2 x 6.7 x 6.5")

Weight

2.4 kg (5.3 lbs.)

ORDERING INFORMATION

Aeroflex 4202S	AG 101 302
4210 System Upgrade 4201S to 4202S	AG 248 500
4261 GPRS Go/NoGo Option	AG 897 185
4262 GPRS Measurement Option	AG 897 186
4272 Result Upload Option	AG 897 136
4260 GSM 850 Option	AG 248 418
4280 GSM 850 Upgrade	AG 248 404

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