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Willtek

4032 STABILOCK

Testing without limits

Cellular & cordless phones  
Base stations  
Production & service

# Unique Radio Test Flexibility in a Small Package

## Digital Systems For

GSM/PCN/PCS  
CDMA/IS-95  
DECT  
IS-54/IS-136  
TETRA  
TERAPOL  
PDC

## Fast Speed

Automatic and complete GSM mobile test in under 60 seconds. Switching between most systems is easy including GSM and PCN/PCS.

## High Accuracy

Accurate measurements ensure repeatable, confident test results. RF Cellular Power measurement is typically 5%.

## Extending Capability

New systems capability includes DECT for fixed and portable parts, CDMA base station testing, TETRAPOL, as well as TETRA, the new trunking standards.

## Fast Spectrum Analyzer

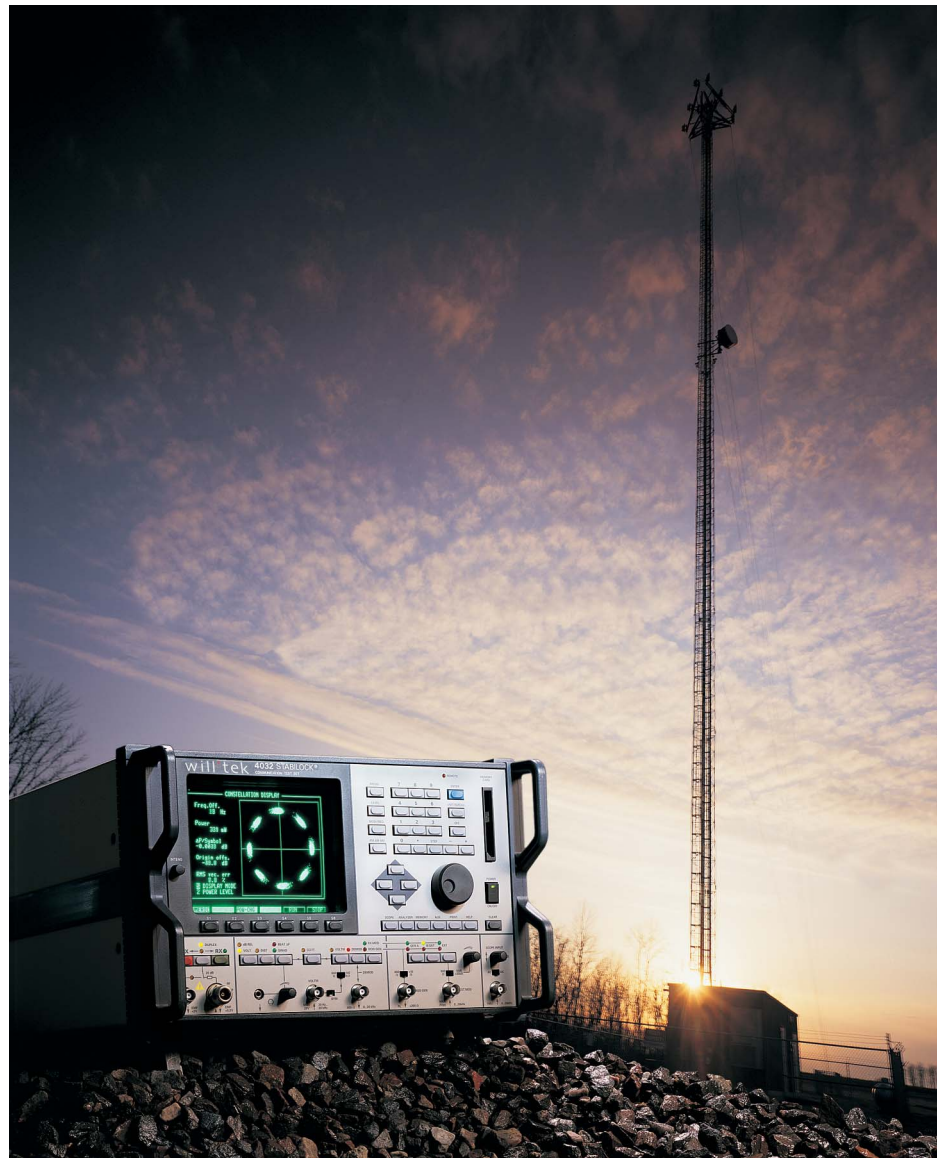
Powerful Spectrum Analyzer option from 0.4 MHz to 1 GHz and up to 2.3 GHz with the Frequency Extension option. Functions include Autotuning, Zoom and GSM trigger mode.

## Simple Automation

Creating IEEE-488 or AUTORUN programs is easy using a PC editor package, including syntax checks, library, memory and program handling.

The STABILOCK 4032 Series meets the needs of service organisations and mobile radio manufacturers worldwide.

With over 7 major digital systems and over 30 analog formats available, universal coverage of radio systems is provided.

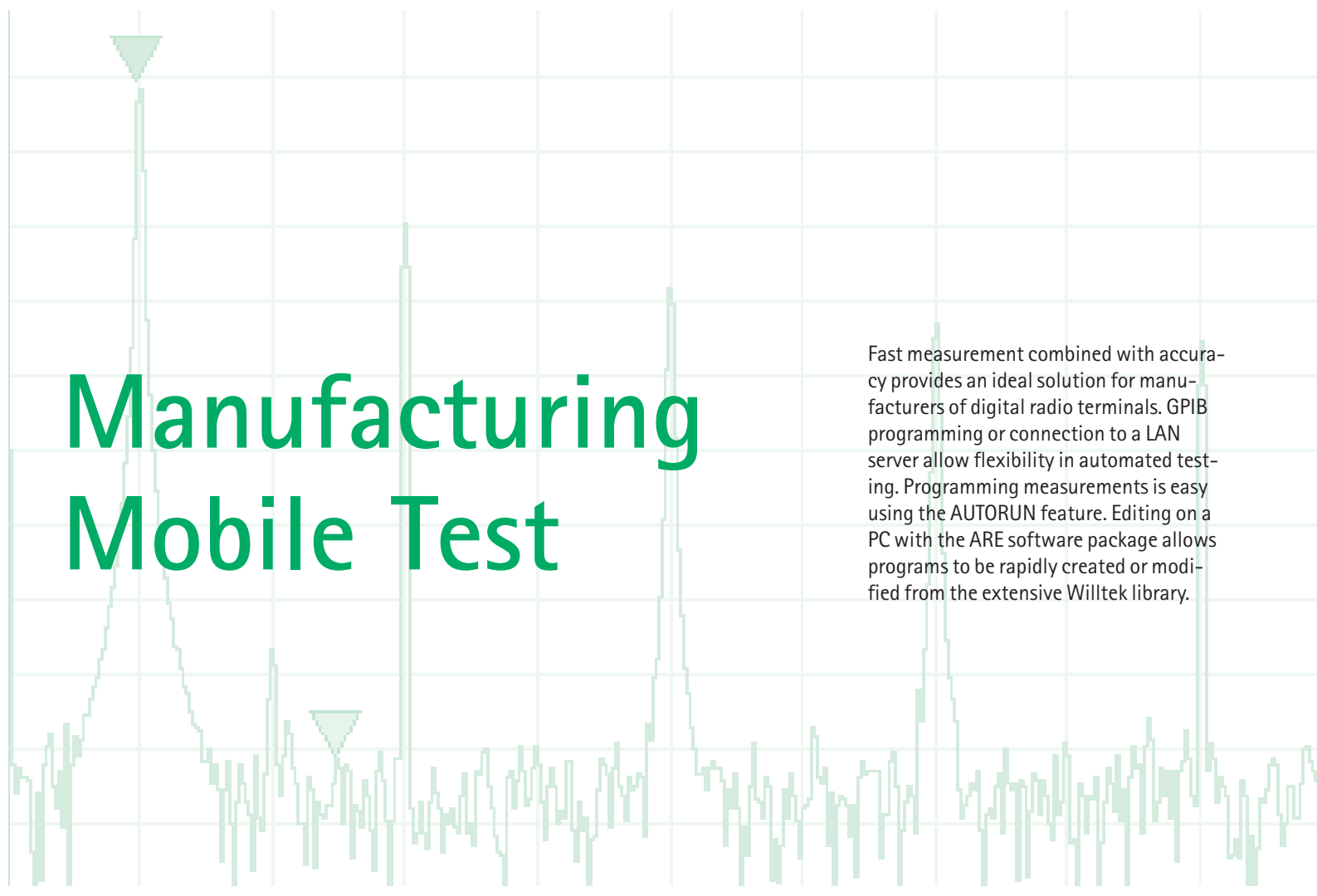


Using plug-in modules and memory cards, the 4032's modular design ensures easy upgrading. Modularity preserves the investment value and allows new systems to be tested as radio technologies mature or requirements are modified. With the 4032's consistent screen layout, GPIB commands, and simple memory card software installation, most technicians will require little training to use new modules and features.

# Flexible Modular Structure

## Service Tool Kit

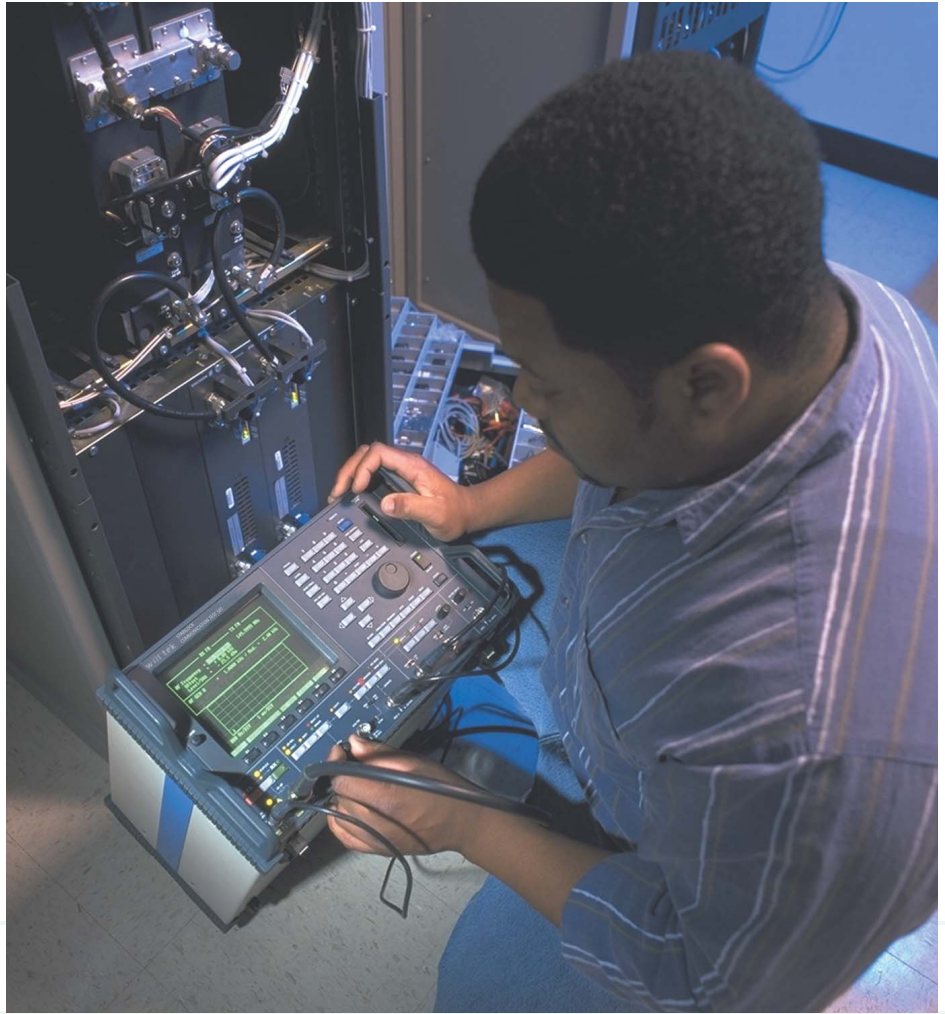
The compact design provides major benefits in productivity, saving both space and weight over competing solutions. The large easy to read screen is invaluable for manual operation and the on-screen meters give clear indication when adjusting equipment remotely. Clear layout, softkeys and cursor keys provide an intuitive user interface.



## Manufacturing Mobile Test

Fast measurement combined with accuracy provides an ideal solution for manufacturers of digital radio terminals. GPIB programming or connection to a LAN server allow flexibility in automated testing. Programming measurements is easy using the AUTORUN feature. Editing on a PC with the ARE software package allows programs to be rapidly created or modified from the extensive Willtek library.

The 4032 provides base station testing for IS-54, NAMPS, D-AMPS, IS-136, GSM, CDMA, TETRA or ETACS. In many cases base station testing can be automated using custom AUTORUN programs. The compact, lightweight design makes life easier for installation and maintenance crews in confined base stations.



# Convenient and Complete Base Station Testing



# Testing without limits

## Network Maintenance

With a sector or channel down, lost revenue increasing and customers becoming frustrated – there is no time to lose. The fast set-up of the 4032 speeds up troubleshooting. The accurate and clear display allows fast and consistent measurements. Alignment of I and Q is simplified using the constellation display. Min./max. average statistics make tuning more convenient. The fast Spectrum Analyzer (up to 2.3 GHz) provides in- and out-of-band measurements for identifying spurious signals or intermodulation products. Optional tracking generator provides cable fault indication.

## CDMA Testing Simplified

Special troubleshooting tools are available for CDMA base stations at 800 MHz or 1900 MHz. The constellation display allows the symmetry of the symbols to be viewed, whilst the Channel Versus Power screen displays the pilot and any traffic channels. For many measurements including PN search functions only an RF input is required, rather than the additional connection of Even Second Clock.

Measurements include channel power, frequency tolerance, waveform quality rho, carrier feedthrough, vector magnitude and pilot time offset. In the code domain the timing, power and phase of each code channel can all be measured.

## Fast Constellation Display

Viewing the phase error, magnitude, RMS vector error, power and  $\Delta P/\text{Symbol}$  helps identify NADC/IS-54/IS-136 base station errors.



## Clear Display

Bring an analog feel to digital measurements. Measurements are graphic and numeric for fast analysis.

## Adjacent Channel Power

Numeric display provides simple analysis of channel, adjacent and alternate adjacent channel power levels.

# Comprehensive Capability from Hardware and Software Options

## GSM Measurements (MS)

- Transmitter power
- Phase and frequency error
- Burst shape (power vs time) and burst length
- Modulation spectrum
- TX tests on mobiles in test mode
- Bit error ratio (BER)
- Paging sensitivity
- Measurement report of MS
- Min./max./average statistics
- Audio RMS

## CDMA Measurements (BS)

- Channel power
- Code domain power
- Code domain timing
- Code domain phase
- PN offset search
- Waveform quality (rho)
- Error vector magnitude (constellation display)
- Phase error
- Pilot time offset
- Carrier feedthrough
- Reverse channel signalling

## TETRA Measurements (MS, BS)

- Power vs time
- Constellation display
- Modulation spectrum
- Frequency error
- Vector error
- Residual carrier power

## IS-136 Measurements (MS)

- Constellation display (graphic/numeric)
- Modulation spectrum
- Burst power with time alignment
- ACPM
- Bit error ratio (BER) 800 and 1900 MHz systems
- Analog/Digital Control CH to Analog/Digital TCH
- Cross-band handover checked
- MAHO functionality
- ACELP or VSELP Audio loopback

## IS-54/NAMPS (BS)

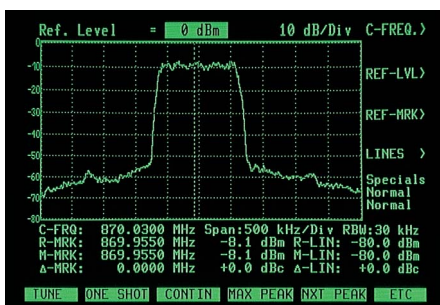
- Power measurement
- Digital and analog operation (IS-54)
- Spectrum analyzer
- Constellation display (IS-54)
- Adjacent and alternate adjacent channel power

## DECT Measurements (FP, PP)

- Power level (NTP)
- Frequency error
- Frequency deviation
- Frequency drift
- Power/time template with zoom mode
- Adjacent channel power

## Measurements (ACPM)

- Packet timing jitter
- Reference stability
- BER – Bit error ratio
- Audio measurements



CDMA Spectrum Analyser



IS-136 measurement



DECT: Portable part test screen

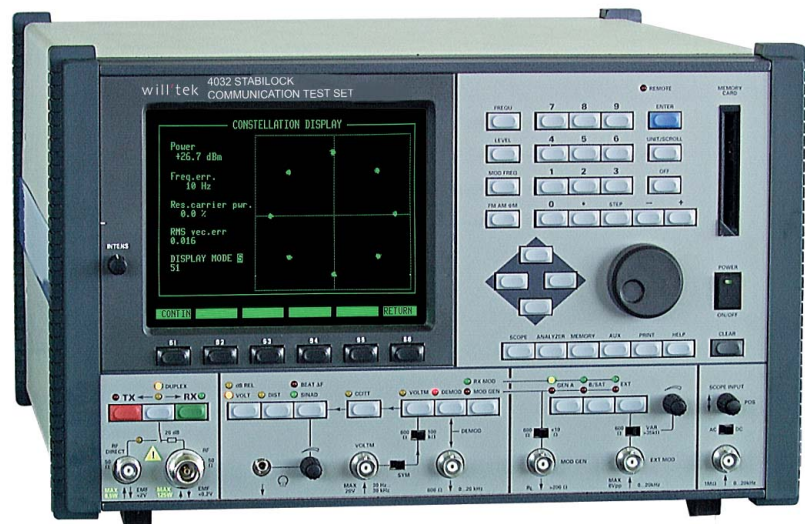
# Logical Ease of Use

**High contrast, high intensity display** shows measurements in all light conditions.

**High sensitivity** in range  $-130$  dBm to  $+13$  dBm depending on use of **RF** or **RF DIRECT** socket.

**Synthesiser provides low noise** (4 Hz rms at 500 MHz) for accurate mobile testing, and allows use of optional Adjacent Channel Power Meter.

**Memory cards** provide easy AUTORUN loading and storage of results.



**Precise power measurement**  
4% 20 to 500 MHz, 5% up to 1 GHz.

**RF output level** accuracy typically 0.3 dB below  $-7$  dBm.

**Standard Oscilloscope** up to 20 kHz with trigger modes plus auto, norm, one shot, freeze and time measurements.

**Integrated Spectrum Analyzer** provides 0.4 MHz to 1 GHz or 2.3 GHz, with optimised sweep widths 200 kHz, 2 MHz or 10 MHz.

## Ordering Information for major options

See Data Sheets for full range of modules for analog and digital systems.

## Test Packages for STABLOCK 4032:

STABLOCK 4032	108 802
RF Frequency Extension 2.3 GHz	248 295
TETRA/FEX Package MS Test incl. TETRA module RF Frequency Extension 2.3 GHz TETRA MS test software	248 308
TETRA/FEX Package BS Test incl.: TETRA Module RF Frequency Extension 2.3 GHz High-Speed Spectrum Analyzer TETRA BS test software	248 366

## General Data

Weight	18.5 kg
Power Supply	94 to 132 V or 187 to 264 VAC
Operating temperature	0°C to +45°C
Storage temperature	-40°C to +70°C
Relative humidity	90%
Size	230 x 375 x 486 mm

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Willtek Communications GmbH  
85737 Ismaning  
Germany  
Tel: +49 (0) 89 996 41-0  
Fax: +49 (0) 89 996 41-440  
info@willtek.com

Willtek Communications  
Cheadle Hulme  
United Kingdom  
Tel: +44 (0) 161 486 3353  
Fax: +44 (0) 161 486 3354  
willtek.uk@willtek.com

Willtek Communications SARL  
Roissy  
France  
Tel: +33 (0) 1 72 02 30 30  
Fax: +33 (0) 1 49 38 01 06  
willtek.fr@willtek.com

Willtek Communications Inc.  
Parsippany  
USA  
Tel: +1 973 386 9696  
Fax: +1 973 386 9191  
willtek.cala@willtek.com

Willtek Communications  
Singapore  
Asia Pacific  
Tel: +65 943 63 766  
willtek.ap@willtek.com

Willtek Communications Ltd.  
Shanghai  
China  
Tel: +86 21 5835 8039  
Fax: +86 21 5835 5238  
willtek.cn@willtek.com

