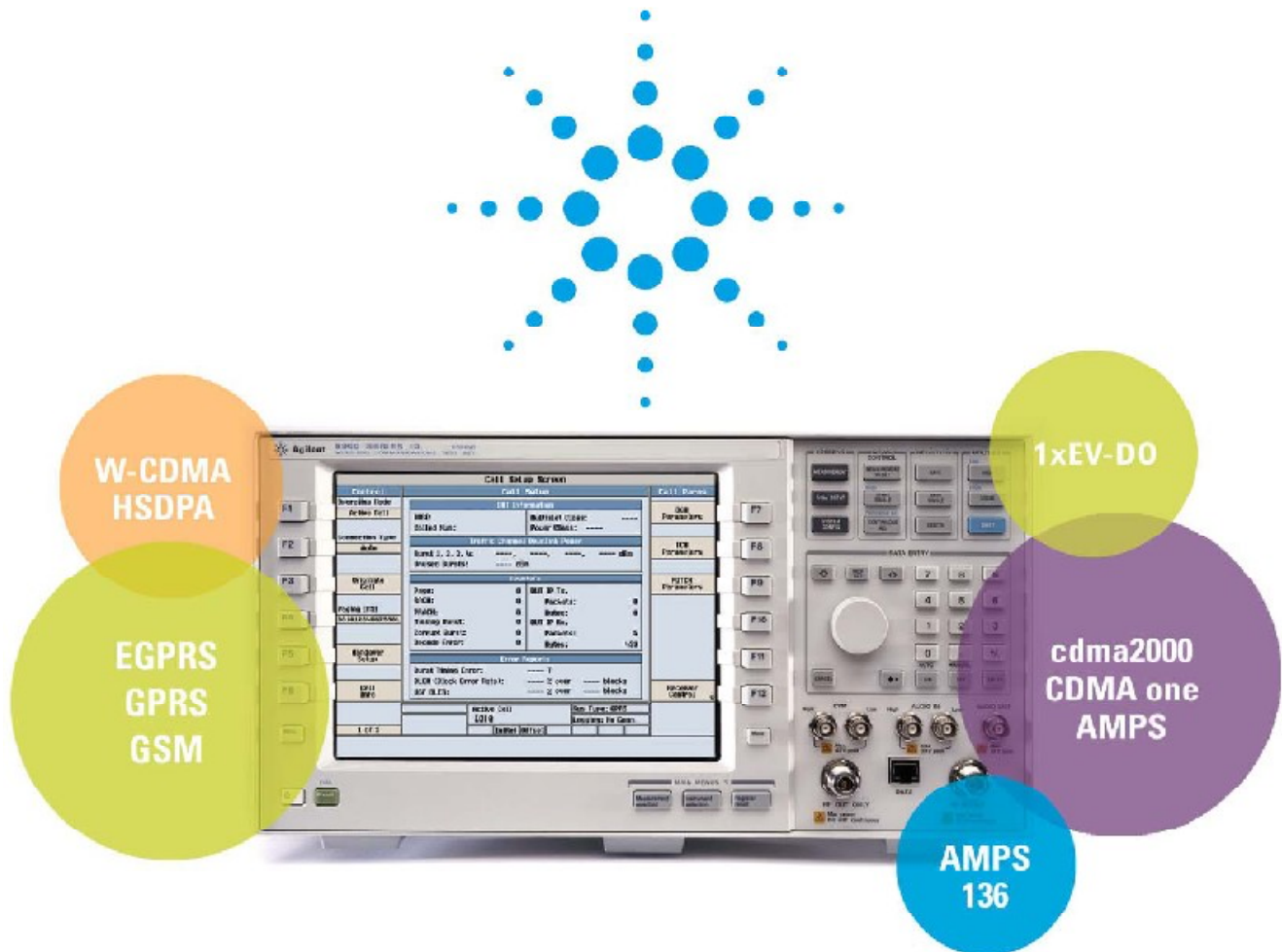# Agilent 8960 Wireless Test Set Ensures the Success of Your Wireless Products



**The flexible solution for wireless device development, manufacturing, and repair**

**Agilent Technologies**

# Wireless solutions for development, manufacturing, and repair – today and tomorrow

There's no disputing it: wireless is a fast-paced, dynamic industry. To keep pace with emerging technologies and stay competitive, you need a versatile solution for developing, designing, and manufacturing wireless devices. The Agilent 8960 product family provides just that – and more.

## The platform

The 8960 hardware platform consists of the E5515C base-model and three hardware functionality options: a flexible CDMA base station emulator, a second RF signal source, and a digital bus option. Based on your selected hardware, the 8960 is tailored for use through your selection of technology-specific applications.

## Lab applications

For wireless device development, lab applications (LAs) provide parametric measurement and base station emulation, plus logging of protocol messages exchanged between the wireless device and the E5515C. Agilent's Wireless Protocol Advisor (WPA) software, included with LAs, provides flexible protocol triggering and analysis, emulating a network with full connectivity to the Internet – essentially creating a "network in a box."

## Test applications

In manufacturing and repair/service environments, test applications (TAs) provide essential parametric measurement and base station emulation and protocol for fast, reliable wireless device testing.

## Wireless Test Manager

To expedite test plan implementation and quickly optimize test code for automated wireless device testing, use the Agilent wireless test manager (WTM). This family of powerful, easy-to-use, technology-specific software streamlines the test development process by providing simple automation of R&D and manufacturing testing.

## One agile platform. Many optimized solutions.



E5515C hardware platform

Optional flexible CDMA base station emulator

Optional second RF source

Optional digital bus

**Lab Applications (LAs) with Wireless Protocol Advisor software (WPA)**

| GSM | cdma2000 |
| GPRS | W-CDMA |
| EGPRS | 1xEV-DO |

**Test Applications (TAs)**

| GSM | W-CDMA |
| GPRS | HSDPA |
| EGPRS | 1xEV-DO |
| cdma2000 | IS-95 |
| | AMPS/136 |

**Wireless Test Manager software (WTM)**

| GSM | W-CDMA |
| GPRS | 1xEV-DO |
| EGPRS | IS-95 |
| cdma2000 | AMPS/136 |

# The right solution for all phases of your product lifecycle

Whether you select the E5515C base model, or configure it with one or more hardware options, its modularity allows you to tailor your 8960 platform and use LAs, TAs, and WTM to address your current needs — while providing the flexibility to change with your new products and the industry.

Want to make it easy? When an E5515C is purchased with all hardware options, any available lab or test application can be simply added as a software upgrade. Testing or designing GSM today? Moving to W-CDMA (or any other available technology format) in the future? The 8960 multi-technology solution is ready when you are. No time-consuming re-racking, re-cabling, or re-calibrating. Simply purchase and install the new software and begin testing.

The versatile 8960 solution is all you need for wireless device design, manufacturing, and repair.

## Keeping pace with technology

Agilent has a consistent history of adding the latest wireless formats to the 8960 for R&D — before they are needed in manufacturing. W-CDMA, HSDPA, cdma2000, GPRS, EGPRS, and 1xEV-DO were all available in the 8960 to meet volume production of new devices.

The 8960 boasts a modular design, a flexible base station emulator, and frequency coverage up to 2.7 GHz. This adds up to a platform that has a history of meeting immediate test needs, **with room to grow for the future**.

### *The flexibility of the 8960 solution*

- *Multiple uses*
  - *Wireless device design*
  - *Manufacturing verification*
  - *Repair and service*
- *Designed for flexibility*
  - *Hardware platform*
  - *Lab application software*
  - *Test application software*
  - *Wireless Test Manager software*
- *Supports today's technology — and tomorrow's*
  - *cdma2000*
  - *W-CDMA*
  - *HSDPA*
  - *AMPS/136*
  - *IS95*
  - *1xEV-DO*
  - *EGPRS*
  - *GPRS*
  - *GSM*
  - *Early-to-market new format releases*
- *Knowledgeable global support*
  - *Local Agilent technical support*
  - *Local calibration and repair services*

## Design & Development ⚲

Hardware verification-integration
E5515C+TA or LA+WTM
(network in a box)

Protocol testing for wireless
device or application
E5515C+LA+WPA+WTM
(network in a box)

Conformance testing
E5515C-based
Anite test system

## Manufacturing ⚙

Customer built test solutions
E5515C+TA+WTM+
additional instruments as required

Agilent built test solutions
E5515C+TA+WTM+
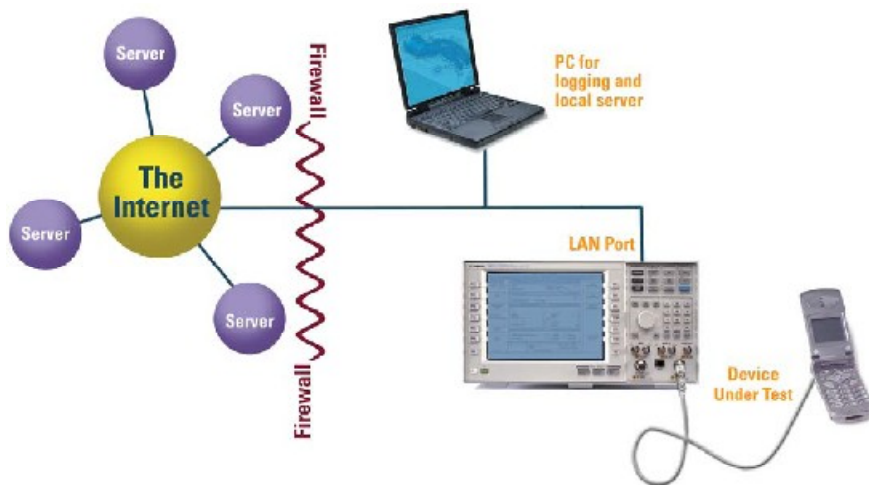additional instruments
and custom racking

Fully configured custom test
solutions built around the E5515C
tailored to your requirements

## Service & Repair

Incoming and final
test stations built
around the
E5515C+TA+WTM+
additional instruments
as required

# Use the 8960 to create a network in a box for R&D



## Accelerate wireless hardware and application design

- *Emulate a live network – on an R&D desk*
- *Control the simulated two-way RF base station link*
- *Monitor the messages flowing between the mobile device, network, and Internet*
- *Validate wireless device Internet connectivity and Web features*

For more information visit
**www.agilent.com/find/8960devicedesign**

## Emulate a live network on your desk for application or design validation

Using the 8960 test set and lab applications provides access to a wireless network right on your desk. No more costly travel and time consuming negotiation with a network operator for system access. Fully test your design by changing the parameters of "your network" to mimic the real world, beyond what would be allowed on a live network.

## Access to messages on the RF link

It is important to see how the base station responds to your network protocol messaging. With the 8960 you can quickly validate your design and solve difficult problems with ease. The Wireless Protocol Advisor software, included with the lab application, helps you quickly pin-point protocol problems.

## Internet connectivity to test wireless designs

Using your "network in a box," you can test your wireless devices' connectivity to the Internet or access stored Web pages on a local server – all this without going on a live network.

## Fading capability adds channel impairments

For RF verification and qualification, add fading capability with Agilent's Baseband Studio products. Capabilities include AWGN and diversity impairments, with the ability to save setups in user profiles. Find out more at
**www.agilent.com/find/baseband**

## Conformance and interoperability testing (IOT)

Agilent and Anite are jointly developing and promoting RF protocol and network emulation test solutions for wireless device manufacturers and network operators worldwide. The test solutions combine the 8960 hardware from Agilent with Anite's conformance and interoperability test systems. This provides a common test platform for increased test result consistency from early-design RF and protocol testing, to full conformance and interoperability verification. For more information visit the Anite web site at
**www.anite.com/telecoms**



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# Reduce your time to market and decrease your cost of test

## Experience to ensure your success

Agilent Technologies (formerly Hewlett-Packard Company) has been providing test equipment for the communications industry for over 60 years. Since introducing its first cellular mobile station test system (8957S) in 1984, Agilent Technologies has been the leader in providing test solutions for wireless mobile device manufacturers. To remain at the forefront, Agilent continues to responsively develop and evolve products to address new standards and mobile technologies, and provide innovative solutions needed by today's wireless manufacturers.

## Industry leading solutions

Today, you'll find six of the top eight mobile handset manufacturers using Agilent test solutions for handset manufacturing. In fact, since its introduction, thousands of 8960s have been sold worldwide to leading wireless device manufacturers. More wireless phones are tested in production on the 8960 than all other wireless test sets combined.

## Dependable performance

Rapid, highly accurate, and repeatable manufacturing test is vital to producing quality wireless devices, securing market share, and reducing costs. The 8960 achieves its high test throughput with a unique and innovative architecture. Functions such as RF measurements, call processing protocol, and GPIB traffic are handled on separate, dedicated, computer processors. Fast processors and the 8960's parallel architecture, speed measurements. Calibrating and testing a wireless device correctly the first time saves time and reduces costs.

## Essential manufacturing performance

- Measurement speed, accuracy, and repeatability
- Multi-format technology support
- Future-proof investment
- Proven record (more wireless devices tested on the 8960 than all other testers combined)

## ATE solutions

- Expedite your test development with Wireless Test Manager software, featuring pre-developed, optimized tests
- Have Agilent custom-design a GS-8000 functional test solution

# The right choice for automated manufacturing

Fast system measurements and call processing speed are only part of the reason the 8960 is ideal for automatic test equipment (ATE). Agilent's Wireless Test Manager (WTM) software products are powerful, easy-to-use test automation software packages. Designed to run on a Windows® PC, WTM software helps R&D, manufacturing, and repair engineers develop optimized automated tests faster and easier than ever before.

WTM software products are available for most wireless technologies and feature technology-specific tests optimized for performance, intuitive-to-use operator and development interfaces, test system instrument control capability, and Microsoft® Visual Basic® and Visual Basic .NET programming for custom test development.



## Get your manufacturing test systems on line faster

Make the best use of your limited test engineering resources by letting Agilent experts help you define, design, program, and install your next test system. Agilent offers a wide range of products and services, from working with your team to develop a test process analysis that defines the solution needed through creating full turnkey systems that are ready to test your products.

## Get a tailor-made competitive advantage

The design and introduction of new wireless devices presents enough challenge to you as a manufacturer without having to think about the design and implementation of test systems. Let Agilent help you get your next test system on line quickly with GS-8800 RF design verification systems and GS-8000 functional test systems. These custom, complete test solutions are tailored to meet your specific needs and optimized for your wireless device testing. A common fundamental architecture enables the GS-8800 design verification system to be scaled down to the GS-8000 manufacturing solution. This structure allows you to leverage software from design to manufacturing and reduce your development time. To ensure your success, Agilent offers system support worldwide.
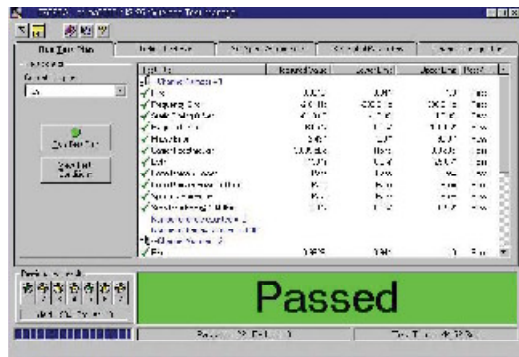
Let Agilent manufacturing solutions and experience lower your cost of test by lowering your investment in test solution design and implementation.

For more information visit
www.agilent.com/find/8960mfg
www.agilent.com/find/wtmanagers
www.agilent.com/find/gs-8000

# Test and repair reliability and savings

## Stop sending good products back to your supplier for repair or replacement

With a large quantity of customer-returned phones or other wireless devices, and high cost of "no trouble found" returns you need to be sure products are truly faulty before you send them back to the manufacturer.

The 8960 solution, including the E5515C, available TAs and WTM, is an easy-to-use, cost effective way to test a wide range of products and formats at your return center(s). The 8960 protects your investment with its ability to easily support new products and technologies as they are deployed in the market. WTM software allows simple test plan development with test operator ease-of-use.

As a complete package, the 8960 solution allows you to quickly verify if the returned product has an identifiable problem, speed the repair process, reduce phone return costs, and quickly return good products to your replacement phone inventory.

## Ensure the quality of your reworked or repaired product

The 8960 allows you to quickly perform full post-repair testing. Full testing assures the products returned to your inventory will meet customer expectations and are compatible with your network. With the WTM software you don't need to be a software expert to write the pre- and post-repair test software, or be an expert to run the tests. Simply pick the tests from a menu to develop your test plan. Save the test plan, then in the future, simply call up the test plan and execute.
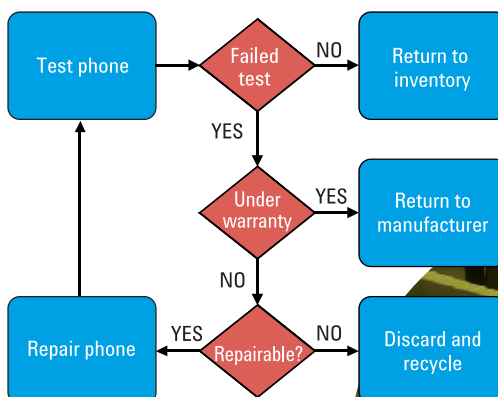
## Manage your repair costs

Flexible leasing is available from Agilent to minimize your initial investment in setting up or expanding a service and repair operation.

## Service and repair stations that work for you

- Eliminate "no trouble found" phone returns
- One hardware solution for all common formats
- WTM software optimizes phone testing
- User-friendly, intuitive interface minimizes need for "special expertise"
- Control costs with flexible financing and leasing plans

For more information visit
**www.agilent.com/find/8960**

# One product. Multiple solutions.

Whether you need a design, manufacturing, or repair service solution, you need just one solution: the 8960 product family. Choose the functionality you need to deliver the performance and reliability your customers demand.

## More information

To obtain the latest information about product enhancements and Agilent support of emerging technologies, visit one of the Web sites listed below or contact your Agilent Sales Representative.

## Hardware Platform

www.agilent.com/find/e5515

Wireless Communications Test Set
• second RF source
• flexible CDMA base station emulator
• digital bus

## Test Applications

www.agilent.com/find/8960mfg

AMPS/136
cdma2000
W-CDMA
HSDPA
1xEV-DO
GSM
GPRS
EGPRS
GSM/GPRS
GSM/GPRS/EGPRS
Fast Switching

## Lab Applications

www.agilent.com/find/8960devicedesign

GSM/GPRS
EGPRS
cdma2000
W-CDMA
1xEV-DO
Fast switching
(Lab applications include Wireless Protocol Advisor software)

## Wireless Test Manager

www.agilent.com/find/wtmanagers

cdma2000, IS-95, AMPS
W-CDMA
IS-136 (TDMA), AMPS
1xEV-DO
GSM, GPRS, EGPRS
GSM, GPRS, W-CDMA

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## www.agilent.com

**Agilent Technologies' Test and Measurement Support, Services, and Assistance**
Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

**Our Promise**
Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you receive your new Agilent equipment, we can help verify that it works properly and help with initial product operation.

**Your Advantage**
Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and onsite education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

### Agilent Open

www.agilent.com/find/open
Agilent Open simplifies the process of connecting and programming test systems to help engineers design, validate and manufacture electronic products. Agilent offers open connectivity for a broad range of system-ready instruments, open industry software, PC-standard I/O and global support, which are combined to more easily integrate test system development.

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office.

**Phone or Fax**

| United States: | Korea: |
|---|---|
| (tel) 800 829 4444 | (tel) (080) 769 0800 |
| (fax) 800 829 4433 | (fax) (080)769 0900 |
| **Canada:** | **Latin America:** |
| (tel) 877 894 4414 | (tel) (305) 269 7500 |
| (fax) 800 746 4866 | **Taiwan**: |
| **China:** | (tel) 0800 047 866 |
| (tel) 800 810 0189 | (fax) 0800 286 331 |
| (fax) 800 820 2816 | **Other Asia Pacific** |
| **Europe:** | **Countries:** |
| (tel) 31 20 547 2111 | (tel) (65) 6375 8100 |
| **Japan:** | (fax) (65) 6755 0042 |
| (tel) (81) 426 56 7832 | Email: tm_ap@agilent.com |
| (fax) (81) 426 56 7840 | Contacts revised: 05/27/05 |

The complete list is available at:
www.agilent.com/find/contactus

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