



**Agilent 8935 Series  
Base Station Test Solutions**

**E6380A AMPS/CDMA Test Set  
E6381A AMPS/TDMA Test Set**

Install and maintain  
CDMA or TDMA  
base stations *more  
efficiently* with test  
sets designed for  
today's Cellular and  
PCS environment



**Agilent Technologies**

Innovating the HP Way

## A new series of base station testing solutions

As a service provider, manufacturer, or installer of Cellular and PCS networks, you need a new generation of test equipment designed expressly for today's challenging Cellular and PCS environment.

The **8935 Series** of base station test solutions offers you comprehensive testing capability in the following two products:

**Model E6380A** - AMPS/CDMA Cellular/PCS Base Station Test Set (IS-2000 1XRTT).

**Model E6381A** - AMPS/TDMA Cellular/PCS Base Station Test Set.

**The 8935 Series of base station test sets, combined with automated base station-specific software**, gives you capabilities and features based on requests from Cellular and PCS test equipment users from around the world.

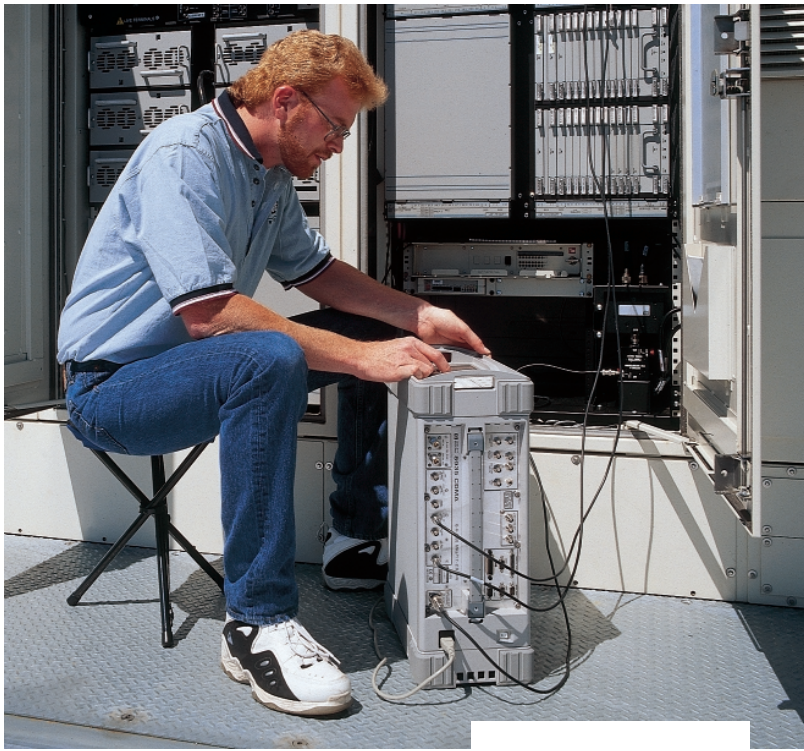
Building on the success of previous generations of Agilent Technologies base station test equipment, the 8935 Series of base station test solutions take Agilent's pioneering work in digital modulation measurements to a new level.



Technicians are more productive with accurate, repeatable measurements



The 8935 Series is designed for the challenging Cellular and PCS environment



**Achieve optimal base station performance with automated software**



## The total solution for Cellular/PCS base station testing

Testing today's base stations requires more than just a basic test instrument. Your test solution must improve technician efficiency as well as enhance system performance.

Agilent Technologies, as a partner committed to your success, gives you a total solution:

- A rugged, full-featured, one-box test set designed for a technician's operating environment
- Accurate power and modulation-quality measurements and digital RF signal generation
- Coverage for nearly all U.S. and international Cellular and PCS frequency bands
- Enhanced user interface along with a large, bright, electroluminescent display for easy operation
- Manufacturer-specific software for fast, repeatable measurements
- Spectrum analyzer for interference measurements
- Swept measurements for antenna return loss and cable fault location
- Technical support and services from our industry-recognized wireless experts

## Achieve optimal performance

Using the full suite of AMPS and CDMA, or AMPS and TDMA measurements, you can achieve optimal base station performance in a minimal amount of time. Manufacturer-specific software frees technicians from hours of manual testing and provides consistent, repeatable results. These features give the 8935 Series a clear advantage for base station installation and maintenance.

## A test set designed for the Cellular and PCS environment

Because base stations are located indoors or outdoors on concrete pads or rooftops, test equipment must operate under a variety of environmental conditions.

**The 8935 Series package was specifically designed for the Cellular and PCS operating environment.**

The test set's rugged design includes:

- A membrane keypad that keeps dirt and moisture out and wipes clean, without affecting reliability
- A sealed display that resists moisture and other effects of weather
- Stand-up operation designed for base stations with limited space for test equipment
- A low center of gravity to help keep the test set upright
- Filtered air flow to keep dirt and dust out of the instrument for greater reliability



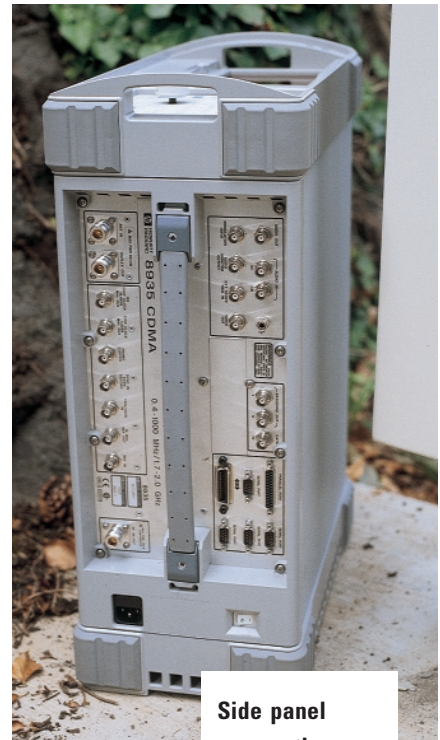
**Bright electroluminescent display**

## Electroluminescent display for excellent visibility

Display technology is a critical factor when a product is used in bright light or at extreme temperatures. The 8935 Series of test sets feature an electroluminescent display that provides a bright, visible display and performs exceptionally well at very low and high temperatures. An impact cover doubles as a sun shield to reduce glare and further increase visibility.

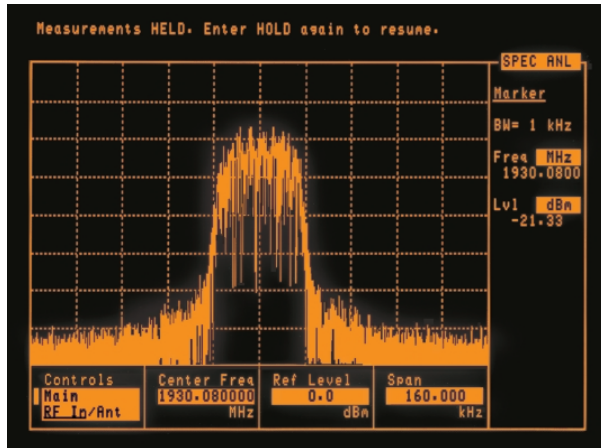
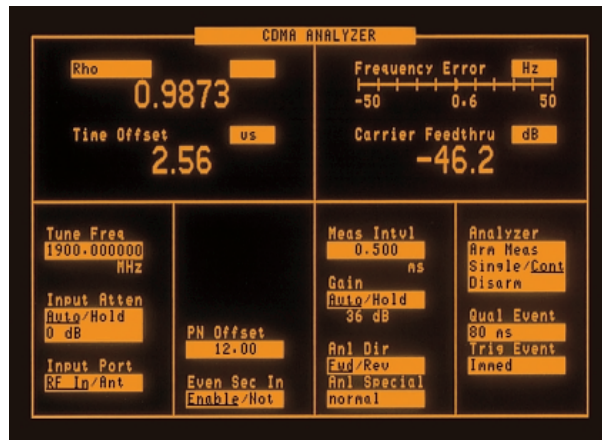
## Connectors conveniently located on side panel

With all connectors located on the side panel, the 8935 Series of test sets can be operated in an upright position. This design reduces the amount of space needed for setup at base stations. Its out-of-the-way, unobtrusive hookup keeps cables from covering the display and keypad and out of the technician's path. Connectors are recessed into the side panel for protection from damage during transit and use.



**Side panel connection makes cabling to a base station easy**

Enhanced user interface simplifies operation



## More capabilities and features for improved test efficiency

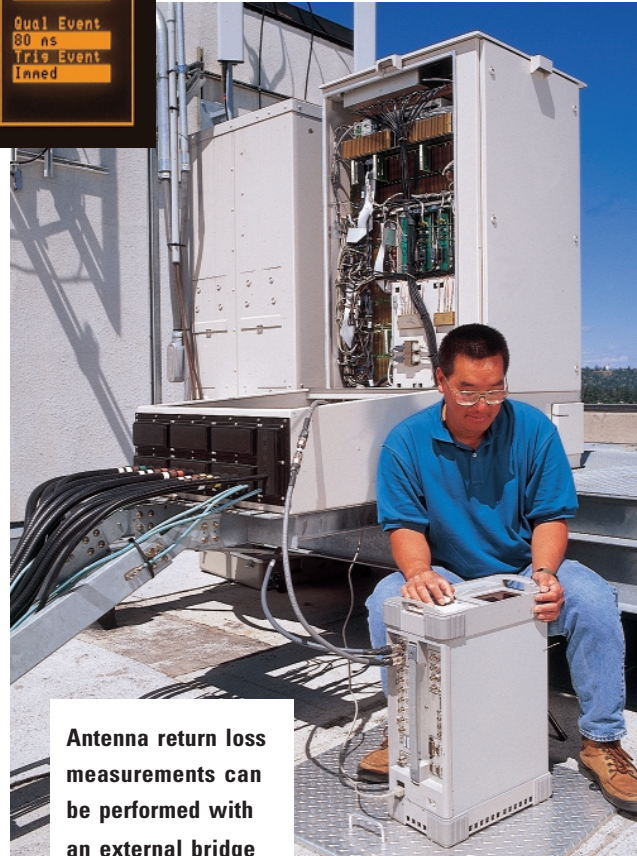
With RF technicians and engineers in short supply, you need to give your testing staff high-quality tools that will make them as efficient as possible.

The 8935 Series of test sets offer cellular AMPS and CDMA or TDMA frequency coverage to 1 GHz, plus U.S. and international PCS bands from 1.7 to 2.0 GHz. Fast analog and digital measurement capabilities make these test sets ideal RF tool boxes for installing and maintaining today's base stations.

An enhanced user-friendly interface combines the familiarity of pull-down menus with the efficiency of one-button user interface keys. This lets you move quickly between screens simply by pushing front-panel keys.

Measurements can be stored and programs loaded from PCMCIA cards; including software programs for automatic control and testing of manufacturer-specific base stations.

Connector and cable kits provide everything you need to hook up to a specific manufacturer's base station and start testing.



Antenna return loss measurements can be performed with an external bridge

## 8935 Series E6380A AMPS/CDMA Base Station Test Set

The E6380A Base Station Test Set offers, in one box, all the CDMA test capability you need for measuring transmitter performance, including the waveform quality measurement rho ( $\rho$ ) and code domain analysis (the way to measure power, timing, and phase in each code channel). The test set includes CDMA and AWGN sources which make this solution receiver-test ready.

- Signal quality measurements
  - rho ( $\rho$ )
  - Estimated rho ( $\rho$ )
  - Time offset
  - Frequency error
  - Carrier feedthrough
- Code domain measurements
  - Code domain power (in watts or dBm)
  - Code domain timing
  - Code domain phase
- Average power
- Channel power
- 30 kHz adjacent channel power
- Error vector magnitude (EVM)
- Reverse channel source with data buffer for RX testing

## Automated test software for fast, repeatable results

For the easiest, most accurate, repeatable measurement results, you can automate the control and operation of your test set using Agilent base station automated test software.

Software is typically loaded into the test set in less than twenty seconds through the instrument's PCMCIA card slot. Tests run automatically, and the user is prompted to change connections or cables when necessary.



**E6380A CDMA  
Base Station Test Set**

- AWGN (built-in calibrated  $E_b/N_0$  levels)
- Support for CDMA reference clocks and triggers
- PN offset search

## E6380A Option 200 IS-2000 1XR TT

Agilent Technologies now provides E6380A customers with an upgrade path to IS-2000. Option 200 for the E6380A provides wireless network operators a way to test the performance of their IS-2000 1XR TT systems.

## New measurements include the following:

- Power display for 128 code channels and supplemental channels in bit reverse order
- Noise power display for each code
- Total power and code channel width (number of supplemental channels)
- Complex power function that displays power in 128 I and Q code channels prior to short code spreading
- IQ constellation diagram indicating decision points for one or more symbols
- Estimated rho ( $\rho$ ) for IS-2000 1XR TT signals

Manufacturer-specific software packages optimize your test set for a particular base station's architecture and test procedures. The software can be customized to meet your individual test needs, and measurement results can be stored on PCMCIA cards or on a PC hard drive.



**Manufacturer-specific software packages optimize your test set for each base station's architecture and test procedures**



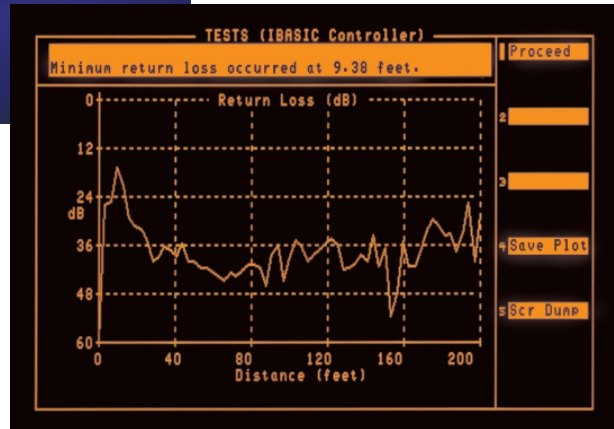
**E6381A TDMA  
Base Station Test Set**

## 8935 Series E6381A AMPS/TDMA Base Station Test Set

Functionality for comprehensive PCS and Cellular testing

**The E6381A Base Station Test Set** is a full solution for characterizing your AMPS/TDMA base station. The E6381A test set provides verification of your base station's specified performance through its extensive and precise measurements.

- Modulation quality measurements
  - Error vector magnitude (EVM)
  - Phase error
  - Magnitude error
  - Carrier feedthrough
- Average power
- Frequency error
- Adjacent channel power
- First and second alternate channel power
- $\pi/4$  DQPSK signal generator



## Tools for preventative maintenance

The 8935 Series provides the capability for performing swept return loss measurements on antennas and feedlines when performing site maintenance tasks. If cable, antenna, or connector damage are suspected, you can use the 8935's RF Tools to measure return loss and then use the built-in frequency domain reflectometer (FDR) to display the distance to the fault. Measurement results can then be saved on a PCMCIA card or laptop PC file for reference and future comparison.

A single key provides quick access to the spectrum analyzer that can be used for interference monitoring or for simple qualitative checks of the base station's transmitter. The built-in spectrum analyzer can be used in conjunction with the tracking generator for tasks such as sweeping bandpass filters.



**Hands-on training class for base station technicians**



## Training and support for the complete solution

Agilent Technologies offers a wide range of training and support options to meet your individual needs:

- Technical support
- Software update services
- Instrument training
- Technical seminars on wireless communications
- Expert consultants, specifically trained in base station test
- Sales, support, and service organizations available worldwide

For more information visit our Web site:

[www.agilent.com/find/wireless/](http://www.agilent.com/find/wireless/)

### 8935 Series related literature

#### E6380A CDMA Test Set

Technical Specifications: ... 5968-3798E  
 Configuration Guide: ..... 5968-3799E  
 Product Overview: ..... 5980-2127E  
 U. S. Price List: ..... 5968-6491EUS

#### E6381A TDMA Test Set

Technical Specifications: ... 5968-3732E  
 Configuration Guide: ..... 5968-3799E  
 U. S. Price List: ..... 5968-3786EUS

## 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. Support is available for at least five years beyond the production life of the product. Two concepts underlay 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 use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

### 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 on-site education and training, as well as design, system integration, project management, and other professional 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.

For more assistance with your test & measurement needs go to:

[www.agilent.com/find/assist](http://www.agilent.com/find/assist)

Or contact the test and measurement experts at Agilent Technologies (During normal business hours)

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