




Base Station Installation and Maintenance



Agilent Technologies
Innovating the HP Way



Providing greater certainty...

Leading the wireless revolution is not an easy task. Ensuring that your base stations are installed at an optimal level of efficiency and maintained according to your high performance standards is one of your critical concerns. At Agilent Technologies, we understand your concerns and are eager to address your interest in base station related issues by working to develop solutions for challenges you may encounter.

Agilent can provide the latest in technological assistance with installation, expansion, optimization and maintenance of your base stations, now and in the future, and thereby free you to concentrate on making this wireless revolution a reality.

Agilent Technologies offers a complete array of innovative base station installation and maintenance tools developed by engineers specializing in CDMA, TDMA, AMPS and GSM network solutions. Our base station test sets and ESA-E series of portable spectrum analyzers are therefore designed specifically for field use. With options for technology and base station specific software, these test sets and analyzers provide accurate measurements and online help for greater accuracy, efficiency and repeatability.

...in a world of relentless innovation

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TDMA installation and maintenance solutions

Agilent base station test set for TDMA

Seeking TDMA-specific solutions?

Agilent's TDMA base station test set is an easy-to-use, one-box tool for installing, maintaining, and troubleshooting TDMA PCS and cellular base stations. Designed with technicians' efficiency in mind—and implementing many of their recommendations—this test set makes fast, repeatable measurements. Its rugged packaging and bright display screen are perfect for outdoor and indoor testing, even in bright sunlight or complete darkness. Optional TDMA test set software can free you from hours of manual testing.

Want more versatility?

The TDMA test set coupled with software offers a full-featured range of solutions. It controls your base station automatically while measuring key parameters such as TDMA power, phase error, magnitude error, average power, frequency error, and error vector magnitude. Analog measurement capability is also included. By using its built-in RF source and spectrum analyzer, the test set measures antenna return loss and cable-fault location, as well as cellular and PCS band-interference.

Why compromise on convenience?

New features can be added to the test set without returning it to a service center. A user-friendly interface features one-button execution of measurements, and data can be output to a printer or stored on a PCMCIA card.



CDMA installation and maintenance solutions

Agilent over-air maintenance tester for CDMA

Concerned about being able to quickly and efficiently diagnose base station problems?

Test the health of your base stations proactively by using Agilent's over-air tester. Combining a portable, rugged one-box DSP-based receiver and PC-based drive-test platform software, the over-air tester provides power and modulation-quality measurements. It also offers digital RF signal analysis allowing quick and easy checks of base station performance. The tester locates potential problems and provides you with an early warning, thereby enabling your technicians to efficiently

troubleshoot errors. Because measurements are made over the air, technicians are not required to leave the comfort of their vehicles to hook up equipment—an especially appealing feature under harsh weather conditions.

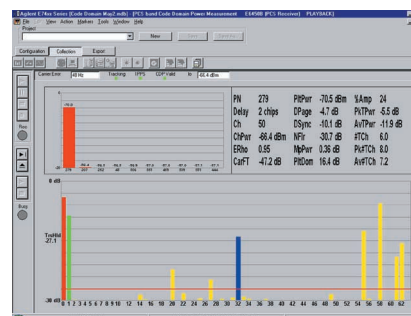
Need to simplify?

If your CDMA network uses Lucent infrastructure and has a MOST function, it requires tedious data entry at each channel element. Agilent's over-air tester automates the MOST test, eliminating the need for data-entry.

Eager to ensure that each of your base stations is operating at its highest potential?

Using the over-air tester's comprehensive suite of CDMA measurements, you will find it easier to optimize base station performance. The CDMA transmitter measurements include waveform quality (rho and estimated rho), as well as code domain power and analysis. From the code domain power measurement's virtual front panel, you can view the top pilots (pilot signals of the surrounding cell sites), traces of pilots, paging, and sync channels. The statistics display screen numerically displays three types of measurements: base station parameters, traffic parameters, and measurement-indicator parameters.

To provide a quick snapshot of base station performance, the over-air tester measures key code domain power, traffic, and spectral parameters. These include channel power, pilot power, PN offset number, pilot delay, pilot-paging and pilot-sync amplitude delta, estimated rho, frequency error, carrier feed-through, and peak and average power per active traffic channel.



Measure base station performance quickly and easily: perform code domain, traffic, and spectral measurements without leaving your vehicle.



Want ease of use?

Agilent's over-air tester features include one-button measurements, a one-button report generator, alarms, pass/fail indicators, data recording and playback, and data export. Using Agilent's tester on regular drives through a coverage area is a simple and economical first step in CDMA base station maintenance. This process generally takes less than five minutes per sector. Using your baseline measurement for comparison, you can quickly spot potential problems by looking for changes in gross power, power in the paging and sync channels relative to the pilot, percent of total amplifier power, and delay.

Looking for options that stay ahead of the competition?

Agilent offers test capability for the cdma2000 1XRTT Spreading Rate 1 (SR1). Available as an upgrade for existing Agilent E6380A CDMA base station test sets or as an option on new units, this enhancement adds three new code domain power screens for viewing the 128 code channels in the IS-2000 standard, and an I/Q constellation display for troubleshooting.

ESA-E series of portable spectrum analyzers

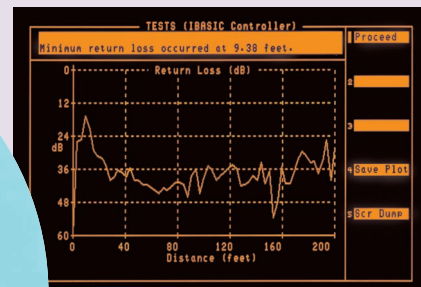
Want more from an analysis tool?

If your first-level measurements indicate an interference problem, you may need the wide frequency sweep and dynamic range of a spectrum analyzer to help diagnose the root cause of the problem.

Agilent's ESA-E series of portable spectrum analyzers are ideal for fast and accurate interference trouble-shooting and cell-site testing. These analyzers are easy to use and can be customized with a software personality for cdmaOne transmitter measurements. The cdmaOne measurement personality includes eleven one-button standard compliant measurements with rho, code domain power, ACPR and spurious. They also include high-resolution antenna tests, optional operation up to 325 GHz for microwave link verification, and enough dynamic range and sensitivity to identify low-level and out-of-band interfering signals.

Interested in raising levels of accuracy?

For the most precise average power measurements, Agilent's portable EPM power meters with E-series sensors provide wide dynamic range for testing complex digital modulation formats, including CDMA, TDMA and GSM networks. The EPM power meters feature serial interfaces for PC connectivity and an internal rechargeable battery option for field use. Calibration factors are stored internally in EEPROM and loaded automatically, eliminating the need for manual data entry.



Enhanced user interface simplifies operation.

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GSM Installation and Maintenance Solutions

Agilent ESA-E spectrum analyzer for GSM networks

Why be limited?

Agilent's ESA-E series of spectrum analyzers includes optional built-in measurements for your GSM network. This option provides standards-compliant GSM testing and all the benefits of a full-featured analyzer to help you verify and maintain your GSM cell sites. Designed for field use, this portable and rugged solution maximizes your efficiency under the most challenging environmental conditions.

The GSM measurement personality includes ten one-button standard compliant measurements with output RF spectrum, power versus time and phase and frequency measurements. These accurately characterize GSM450/480/850 MHz, GSM900 (P,E,R), DCS1800 and PCS1900 transmitter measurements.

Troubled by GSM interference?

Agilent's ESA-E series of spectrum analyzers are not limited to CDMA networks. To accurately locate and diagnose the source of an interference problem at a GSM cell site, ESA-E series analyzers are also available in frequency ranges of up to 26.5 GHz, the analyzer can be upgraded for enhanced performance as your test needs change.

Considering system upgrades?

The ESA-E analyzer's optional tracking generator allows you to perform stimulus-response measurements on components to verify the operation of cables and antennas. Added options such as digital resolution bandwidths and built-in preamplifier enable you to identify low-level interference.



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Need help training your installation and maintenance team?

Let Agilent's technician training program help you maximize the potential of the products we offer by providing your installation and maintenance technicians with a comprehensive understanding of our tools.

Our expertise extends beyond base station installation and maintenance to include network planning and design, network optimization, benchmarking and other specialized services.

The following brochures can be obtained on our Web site at:

www.agilent.com/find/serviceproviders
or by contacting your local sales office.

End-to-End Solutions and Services for Wireless Networks
Publication number 5980-2863EN

Network Planning and Design
Publication number 5988-0342EN

Network Optimization and Management
Publication number 5980-0216E

Benchmarking Services
Publication number 5988-0452EN

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 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 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 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.

For more information about Agilent's base station installation and maintenance products, visit our Web site:

<http://www.agilent.com/find/assist>

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

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