Agilent EXT Wireless Communications Test Set

The most cost-effective way to manufacture next-generation wireless devices

E6607A 10 MHz to 3.6

Measurement Applications
Sequence Studio Software
Signal Studio Software

Agilent Technologies

Reduce handset manufacturing costs

Wireless technologies are evolving rapidly and more wireless bands and formats are being implemented on chipsets, smartphones, and other wireless communication devices. Manufacturers are looking for cost-effective ways to produce these complex devices. Reducing the cost of test will go a long way toward achieving this goal.

Non-signaling is widely accepted as the fastest, most cost-effective technique for testing next-generation wireless devices in manufacturing. By taking advantage of test modes built into the new chipsets, non-signaling test can eliminate costly signaling overhead from the manufacturing test process, increasing throughput while maintaining the integrity of the test and quality of the finished product.

The Agilent E6607A EXT is the only one-box test set designed and optimized solely for non-signaling test in wireless device manufacturing. Its integrated hardware and innovative, industry-leading software tools provide the fastest route from pre-production through high-volume manufacturing with the lowest cost of test.

The EXT is your best choice for calibration and verification measurements:

- Integrated one-box test set combines a vector signal analyzer, vector signal generator, test sequencer, and multi-format hardware.
- Fast measurements and flexible sequencer techniques work in synch with your device's chipset test modes to execute test plans at the highest speed.
- Unique, graphical Sequence Studio software dramatically simplifies test plan creation and reduces the need for test programming support.
- Fast, standards-based measurements and modulation analysis capability are based on proven Agilent X-Series measurement algorithms—add new formats quickly.
- Save time and lower the cost of manufacturing test with the industry's most flexible, accurate, future-proof solution.

An easier transition

The EXT works in conjunction with chipset test modes using fast measurements and flexible sequencer techniques to speed calibration and verification of your devices and modules. With the EXT's tools to facilitate test plan development and execution, and to minimize the need for additional support from the chipset vendor, you'll make the transition to non-signaling test more easily and efficiently. And if you need additional support, you'll have the backing of the field and factory application experts from the world's metrology leader.

Future-ready

Agilent is working with chipset vendors to help shape the test modes of the future, ensuring that the EXT is future-ready.

Key benefits of the EXT

Fast test development

Simplifies test code generation and reuse, measurement correlation and troubleshooting, and implementation of measurement routines to optimize test plans more quickly.

Speed

Executes test plans at the highest speed with a flexible test sequencer, fast frequency and amplitude switching, and multi-signal acquisition.

Multiple formats

Tests new and existing radio formats including LTE, HSPA+, cdma2000®/ 1xEV-DO, *Bluetooth*®, and more.

Lower capital investment

Reduces your initial capital investment with an architecture optimized for lower-cost non-signaling test.

Lower long-term costs

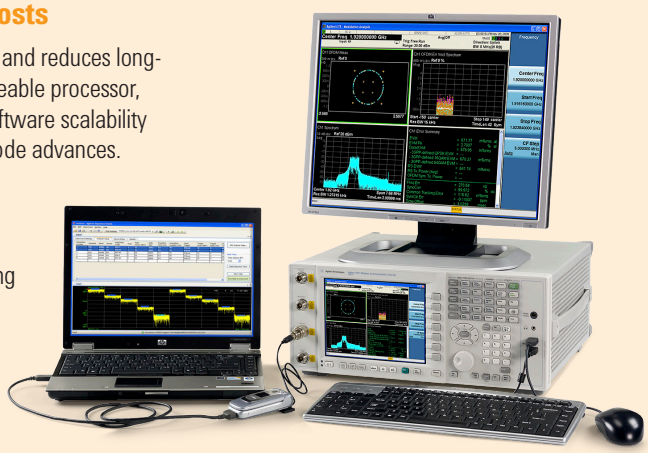
Preserves your investment and reduces long-term costs with an upgradeable processor, superior hardware, and software scalability for technology and test-mode advances.

Flexibility

Works with your device's built-in test modes providing automated measurement sequencing over a wide frequency range.

Accuracy

Delivers high first-pass yields and measurement confidence with repeatable results that are accurate to the industry standards.



Fastest test speed

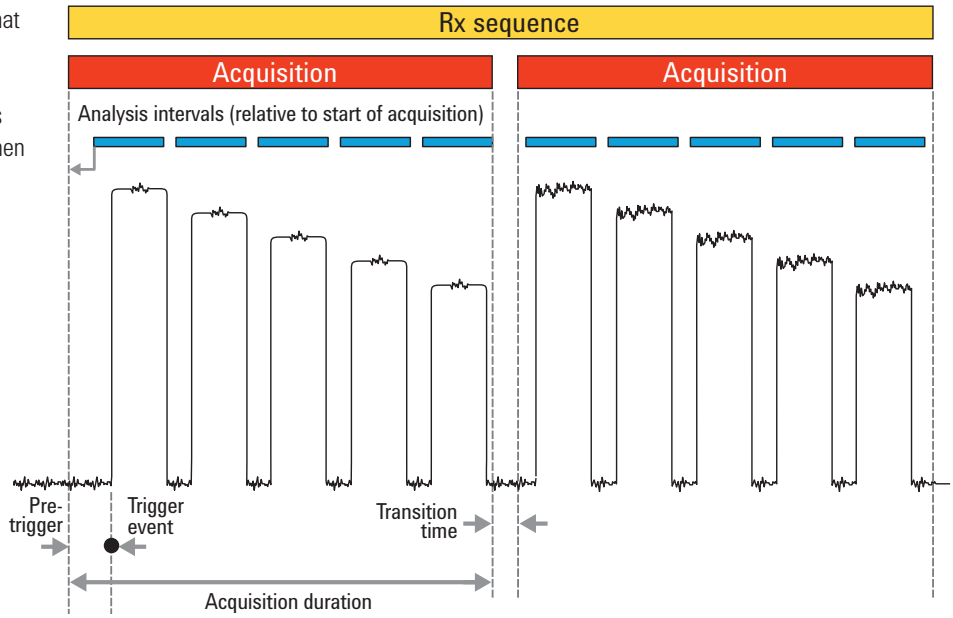
Fast setup and measurement of multi-format devices greatly reduce calibration and verification times. With the EXT's powerful sequence analyzer, you'll test faster across different power and frequency ranges. When you move to fast-sequenced verification test with full control of the chipset, the EXT is ready to exploit this capability with fast, sequenced measurements of multiple formats, frequencies, and power levels.

Powerful source and analyzer sequencing

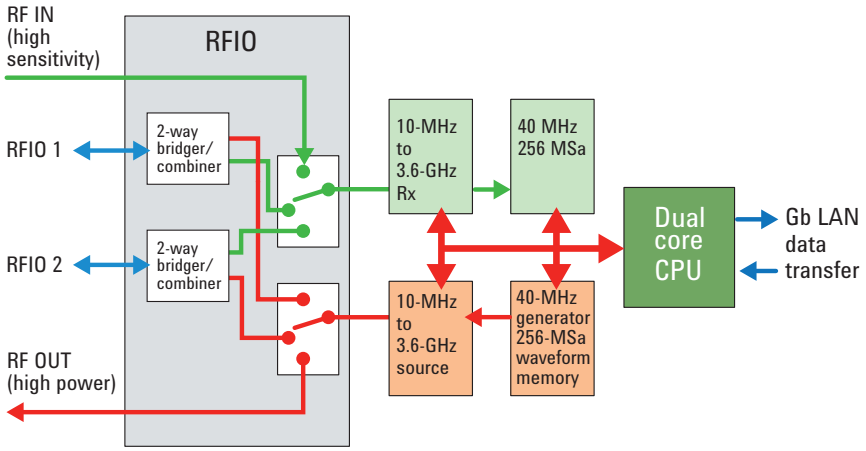
The EXT features two independent sequencers: a source list sequencer and an analyzer list sequencer/ sequence analyzer. Both sequencers come standard on the EXT.

The powerful sequence analyzer function, which includes a set of full-featured analysis tools, synchronizes the EXT's source and signal analyzer, facilitates measurement of the device under test, and provides a host of other capabilities to increase speed and throughput in non-signaling manufacturing test.

- Fast frequency and amplitude switching enables fast device tuning with less delay.
- Measurement step times are short and individually settable. Capture and measure only what you need.
- Deep measurement capture and long arbitrary waveform playback handle complex transmission scenarios.
- The sequence analyzer uses single acquisition and multiple measurement techniques to help reduce the overall test time from initiation to result.
- "Built-in" core measurements include IQ data, PAvT, and typical calibration measurements such as transmit power, phase, and frequency.



This example shows a receiver test sequence consisting of two acquisitions (red bars), each with multiple analysis intervals (blue bars).



Innovative 4-port RFIO enables multi-device insertion configuration. Switchable ports allow insertion or extraction of one device while a second device is being tested.

A shorter cycle time from pre-production to manufacturing

Fast test development

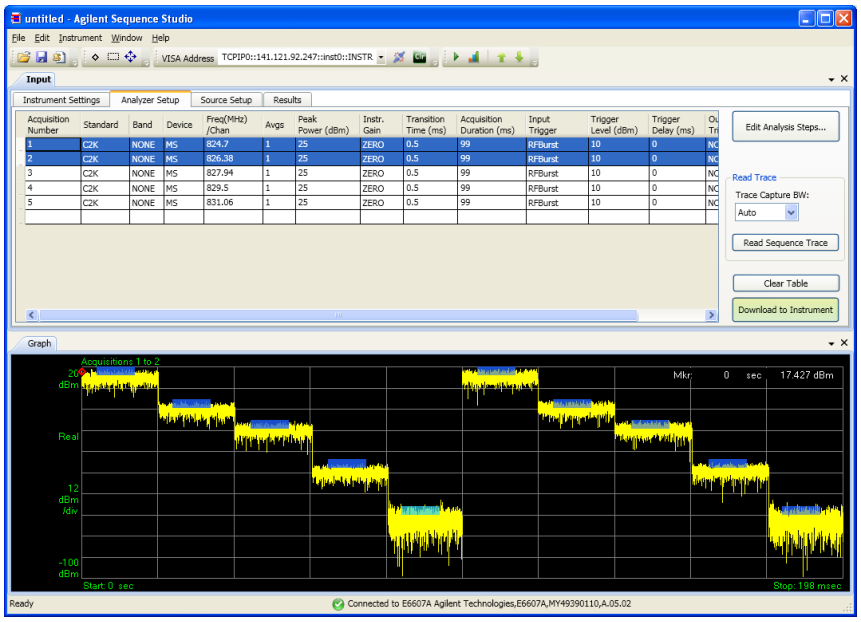
Reducing the time from pre-production to full-scale manufacturing is an important step in meeting cost control and time-to-market goals. The Agilent EXT is designed with hardware and software to help you shorten the test development cycle.

Developing a test plan is faster with the EXT's application-specific measurements and SCPI programmability. Additional software tools help you create calibration and verification routines and generate waveforms quickly and easily. You can try out various measurement sequences using the pushbutton simplicity of the test set's front panel and viewing results on the screen. Powerful analysis software lets you quickly correlate measurement results from multi-format devices and speeds your benchmarking and debugging tasks.

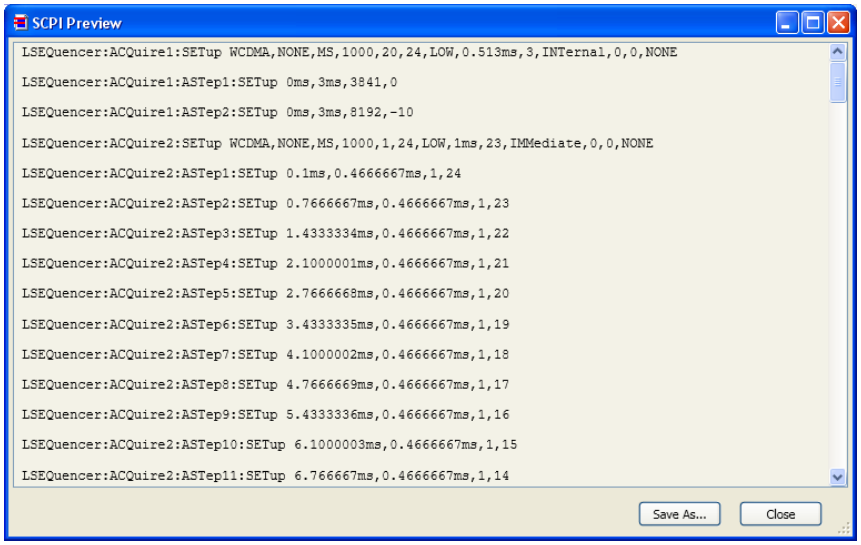
Sequence Studio—the easiest way to develop code

Developing test code can be a bottleneck when you are trying to find the best solution for your manufacturing process. Now you can dramatically reduce the time it takes to develop and troubleshoot test code with Agilent Sequence Studio. This breakthrough software tool, exclusive to the EXT, makes it easy to use the EXT's powerful source list sequencer and sequence analyzer.

The graphical capabilities of Sequence Studio simplify test code development and rework, reducing the amount of programming support you'll need from test vendors. Instantly capture signals from a device and view them onscreen while you drag and drop analysis interval bars and burst timings. Retrieve results from captured signals and iteratively compare measurement results. With Sequence Studio, you'll be able to troubleshoot and optimize your test plan much more quickly.



Sequence Studio lets you quickly implement calibration and verification routines. For example, the fast device tune measurement is greatly simplified.



Automatically generate SCPI test code commands, ready for your test executive, with the click of a mouse.

Spend less time developing test waveforms

Next-generation, non-signaling test equipment uses arbitrary waveform files to transmit signals to the device under test. Test engineers can create standards-based arb files more easily using Signal Studio, the industry's premier waveform creation software. These arb files can be used both to test the device's receiver and—with today's chipsets—to obtain synchronization to test the transmitter as well.

Used in conjunction with the EXT, Signal Studio lets you create complex waveforms automatically using a multi-technology graphical interface. You can create advanced downlink carriers and fully channel-coded signals for receiver BER, FER, BLER, and PER analysis. Agilent ensures that waveforms validated in Signal Studio meet the current standards for major wireless technologies.

With Signal Studio for the EXT, you'll spend less time researching specifications, coding the waveform, and validating the output. You'll also spend less time getting your phone or chipset to synchronize to the simulated base station, and you'll rely less on your test vendor for arb file creation support.

The full version of Signal Studio can be licensed for waveform development. Signal Studio for the EXT comes standard with two 5-pack waveform licenses, enabling generation of 10 user-configured Signal Studio waveform files. For lower cost deployment on the production floor, additional 5-pack and 50-pack waveform licenses are available as needed.

The EXT also works with other standard tools used for waveform development, such as MATLAB.

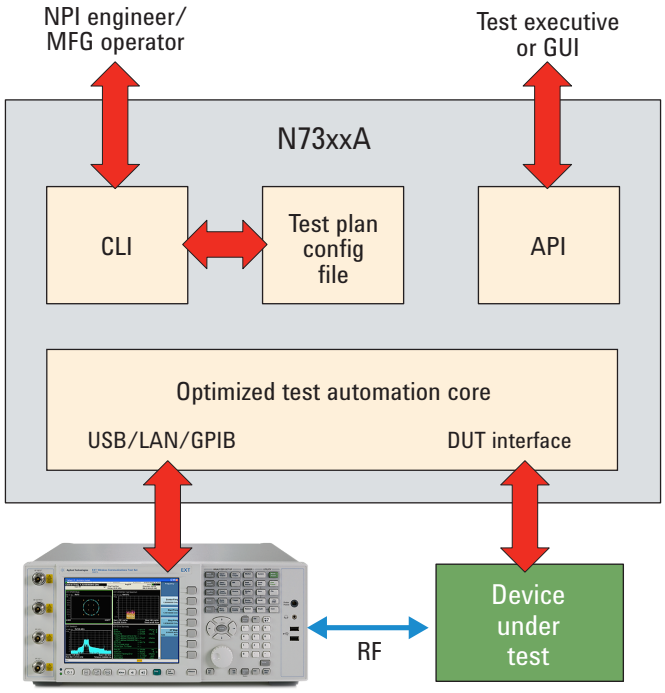
Chipset automation—the fastest time-to-market solution for non-signaling test

New product introduction (NPI) cycles are tight in today's competitive market. If your current manufacturing approach is not meeting test time requirements, Agilent's chipset automation software for the EXT may provide a cost-effective and efficient way to overcome time-to-market challenges.

Working with key chipset vendors in the wireless industry, Agilent has developed a software platform that allows the optimization of calibration and verification procedures for leading wireless chipsets. This solution can be run on the lab bench by NPI engineers using a simple command line interface (CLI).

Alternatively, the solution can be integrated seamlessly into a production line test executive using a highly flexible COM application programming interface (COM API).

Agilent's ongoing collaboration with chipset vendors ensures the readiness of the EXT to work with wireless chipsets now and in the future. So whether you incorporate the chipset automation software directly into your production line or use it as a reference in developing your own test software, you can select the EXT with confidence.



Chipset automation software for the EXT can be run in the lab via the CLI or integrated into the test executive of an automated production line.

Support for multiple formats

The EXT will support all common radio formats, allowing you to test more devices using less equipment. With Agilent's wireless measurement applications, you can test a broad range of new and existing formats including LTE, HSPA+, W-CDMA/HSPA, cdma2000/1xEV-DO, GSM/EDGE/EDGE-EVO, *Bluetooth*, and more. Additional formats are being added quickly.

Format-specific measurements are based on the proven measurement algorithms of the Agilent X-Series signal analyzers.

Key applications and tests	
LTE	Modulation analysis, CHP, ACP, SEM, OBW
W-CDMA/ HSPA/HSPA+	CHP, ACP, SEM, OBW, CDP, modulation accuracy, QPSK EVM
GSM/EDGE/ EDGE EVO	GMSK PvT, GMSK PFER, GMSK ORFS, EDGE PvT, EDGE EVM, EDGE ORFS, Tx power
1xEV-DO	CHP, ACP, SEM, OBW, R-link modulation accuracy, QPSK EVM, Rev Link CDP
cdma2000	CHP, ACP, SEM, OBW, modulation accuracy, QPSK EVM, CDP
Analog demodulation	AM, FM, phase modulation
Bluetooth	Tx analysis, EDR spurious (in band), LE spurious (in band), ACP, output spectrum bandwidth

Lowest capital investment

The EXT has just the capability you need to help reduce manufacturing costs in today's competitive manufacturing environment. The test set is designed to take advantage of the long-term savings made possible with non-signaling test.

Superior hardware and software scalability make the EXT ready for technology advances. Pay for what you need today, and add more capability in the future.

Hardware is available in 3.6 GHz and features an upgradeable processor. A two year calibration cycle is standard.

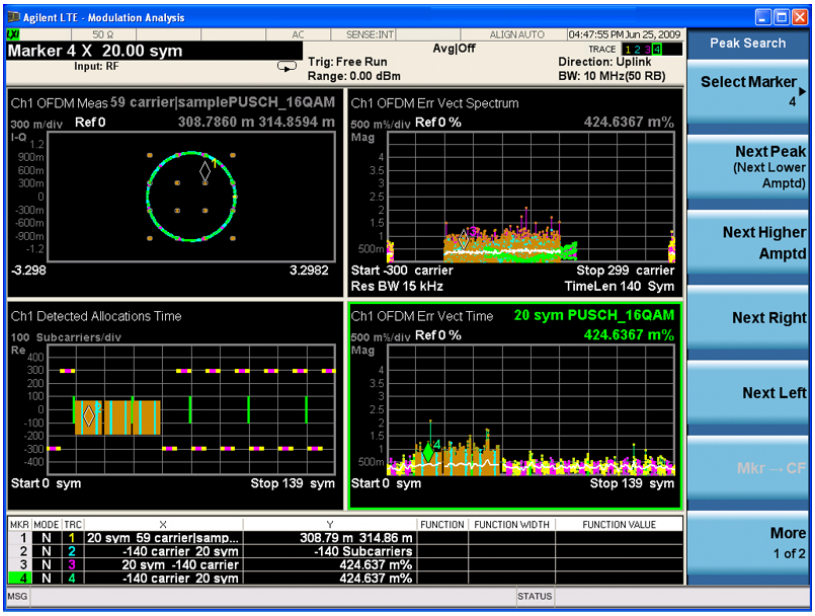
All major cellular and complementary radio formats are supported in a single box, so there's no need to purchase additional instruments. As technology changes, simply add new software measurements to fit your production needs. Flexible licenses (temporary, permanent, or transportable) support your budget so that you buy just what you need, when you need it, and installation is easy.

Less risk

Flexibility and scalability make the EXT a great investment for non-signaling test, and Agilent is working closely with silicon vendors to ensure that chipset test modes are in place to enable the innovative sequencer techniques that will streamline your calibration and verification testing—with the least amount of vendor support.

Flexible and accurate

The EXT delivers high first-pass yields in manufacturing with accurate, repeatable results. Measurements are based on the industry-leading Agilent X-Series signal analyzers, so they are traceable throughout the lifecycle, from earliest development through manufacturing.



LTE uplink modulation analysis measurement.

Easy to use

Identify signals and view information easily on the high definition, 21 cm XGA color display.

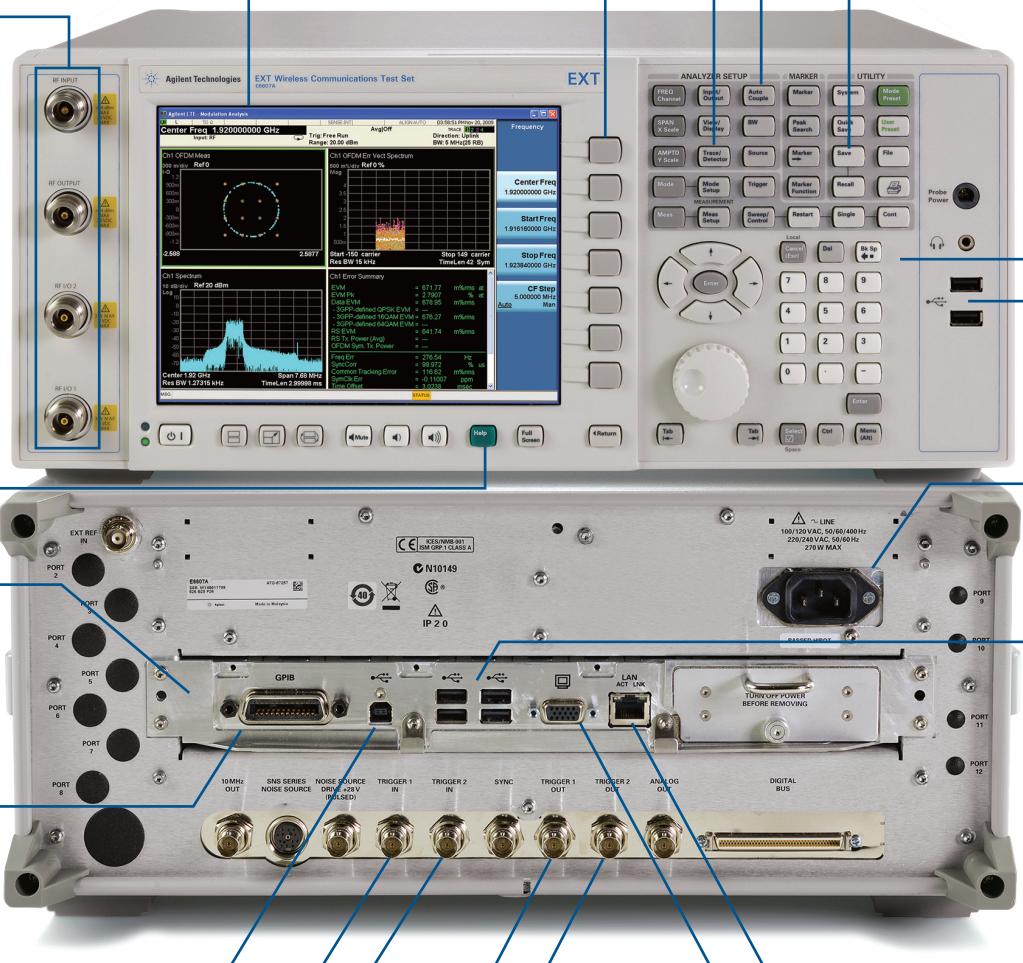
Soft keys allow quick navigation of menus.

Use trace and detector functions simultaneously.

For easy viewing of results, mark the frequency or position of a trace with up to 12 markers.

Save files quickly at the push of a button with the quick save feature.

RF input/output.



Navigate the user interface and help system using the instrument front panel keys with added PC functionality, or use a mouse and keyboard.

Get answers to your questions using the comprehensive, context-sensitive embedded help.

Two USB 2.0 ports are conveniently located on the front panel of the instrument.

Use the EXT in various environments with 50/60/400 Hz power input.

Upgrade the instrument easily in the future. Expansion slots enable future capabilities.

Connect external peripherals, such as a DVD drive, keyboard, mouse, and USB flash drive, and transfer data via the USB 2.0 (type-A port) interface.

Send and receive SCPI commands over the GPIB interface. Choose GPIB mode from controller or device.

Acquire IQ waveform data quickly and control the EXT remotely from an external PC over the USB 2.0 (type-B port) interface.

Start measurements based on a specific incident using an external trigger input signal.

Synchronize other test equipment with the analyzer using the external trigger output signals.

View the display on an external monitor by connecting it to the VGA video monitor out.

Control the EXT remotely over the 1000 Base-T LAN interface.

More information

Make the move to non-signaling test with the EXT,
Flyer,
Literature number 5990-4988EN

E6607A EXT wireless communications test set,
Configuration Guide,
Literature number 5990-4987EN

E6607A EXT wireless communications test set, non-signaling test overview,
Application Note,
Literature number 5990-7498EN

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