

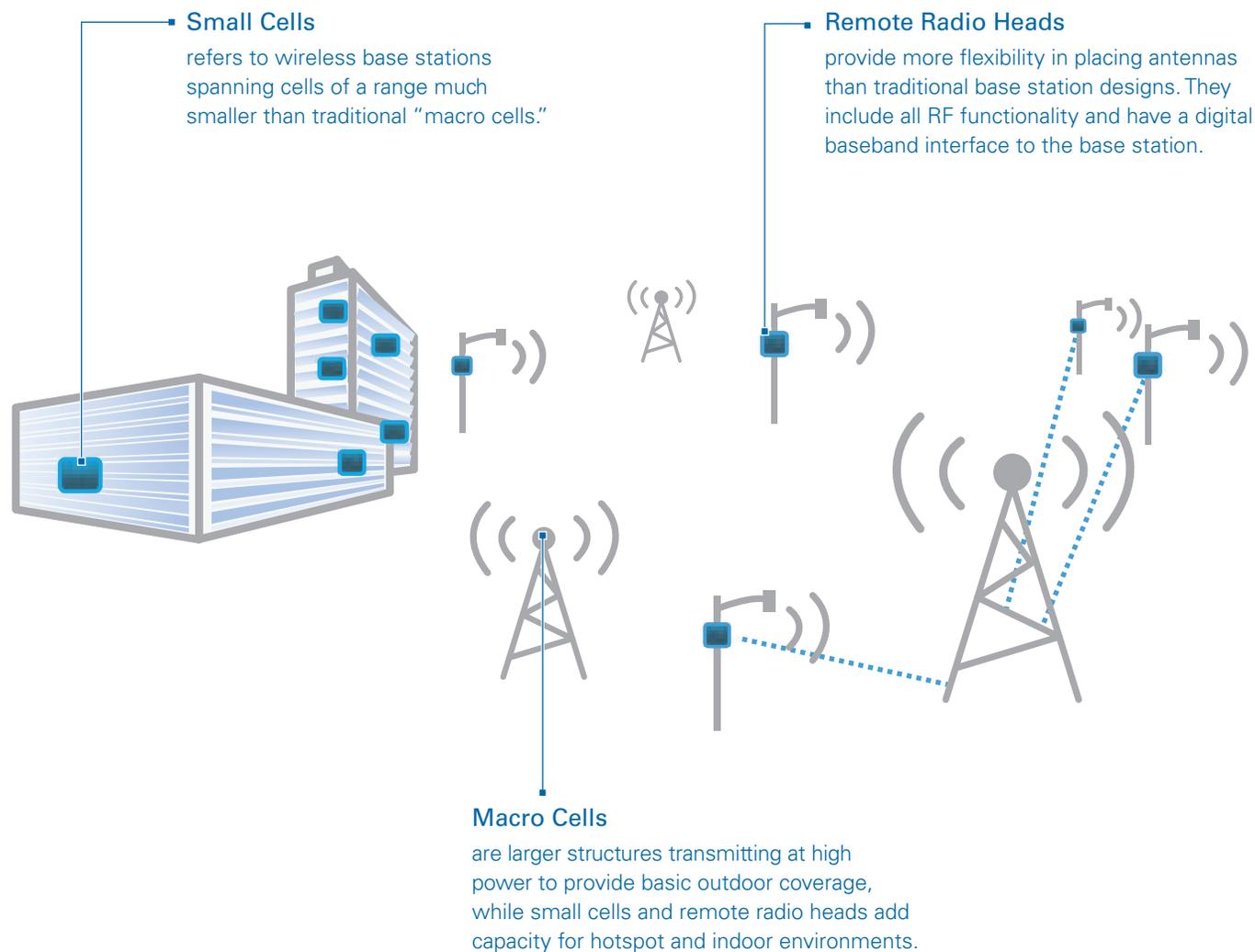
# NI Wireless Infrastructure Manufacturing Test



Testing and validating the infrastructure of wireless networks are key to ensuring adequate bandwidth in today's technologically fast-paced world. With industry-leading measurement speed, broad standards coverage, and support for multi-DUT testing, National Instruments helps engineers meet a variety of wireless infrastructure manufacturing test needs with a software-defined PXI hardware RF test platform.

## NI Solutions for Small Cell and Remote Radio Head Testing

To address the specific testing needs in manufacturing base stations for small cells and remote radio heads, the NI software-defined PXI hardware test platform combines excellent RF quality with utmost cost-effectiveness while enabling multistandard verification including the latest technologies such as 3GPP LTE, IEEE 802.11ac, and CPRI. Hardware such as the NI PXIe-5644R vector signal transceiver is supported by improved productivity through NI LabVIEW system design software, ultimately resulting in lower capital equipment costs.

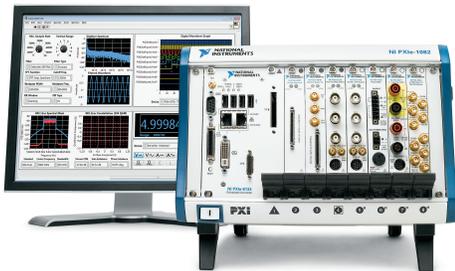


## Challenges of Infrastructure Equipment Test

Small cells and remote radio heads are emerging technologies needed to increase the capacity and coverage of mobile cellular networks. The volume of small cells and remote radio heads is expected to be up to 50X larger than the traditional base station. As a result of high-volume production—and the lower price, these devices require faster and more cost-effective test solutions than those used for traditional base stations. The high volume—combined with a mix of technologies such as LTE, WCDMA, GSM, WiFi, and GPS—is placing new demands on test speed.

## Reduce Test Time

Using the NI wireless infrastructure test platform, you can significantly reduce test time by building on the fastest platform for test on the market and reaping the benefits of effective test design.



### PXI Express Technology

- Highest bandwidth, lowest latency bus for swift data transfer
- Fast instruments



### Multicore Processing

- Take advantage of the latest multicore processor technologies in NI controllers
- Program with LabVIEW to easily exploit parallelism



### LabVIEW Reconfigurable I/O (RIO) Architecture

- Customize instrument's FPGA while keeping original functionality and warranties
- Execute DUT control, RF calibration, custom triggering, filtering, pipelining, and more in real time
- Use instrument driver FPGA extensions

### Design for Fast Testing

- Ability to verify multiple requirements with a single composite measurement
- Pipeline tests or individual steps like DUT loading, boot, calibration, and actual test
- Parallel testing of multiple DUTs
- Industry-standard automation tools such as NI TestStand software



# Reduce Costs and System Size

The NI wireless infrastructure test platform excels in scalability with its modular, software-defined approach. You deploy a complete test system at a lower cost and with a smaller footprint than traditional instruments.

## MultiStandard

- Customizable software
- Supplementary software application by GTT
- NI LabVIEW, NI LabWindows™/CVI, C, .NET APIs
- Digital baseband interface support: CPRI, ORI
- Generation, measurement, and analysis of LTE FDD/TDD  
WCDMA/HSPA+  
GSM/EDGE  
WiFi 802.11a/b/g/n/j/p/ac  
GPS/GLONASS



## Modular

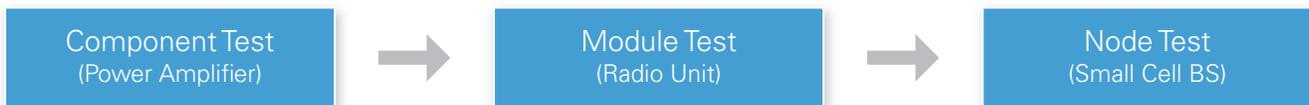
Switches such as the NI PXIe-2543 and digital I/O such as the NI PXI-6509 represent instruments that can be selected based on need. They reduce footprint (compared to box instruments), can be scaled to meet future demand, and handle RF from 65 MHz to 6 GHz on CPRI and ORI digital basebands.

## Software Defined

LabVIEW system design software allows engineers to re-use hardware such as the NI PXIe-5644R vector signal transceiver for different requirements and customize using powerful FPGA extensions.

## Standardize on a Single Platform

You can address all steps in the production process where tests are performed on different levels as the final product gets assembled—from testing individual components to verifying fully assembled systems.



### Product Marketing, Wireless Infrastructure Test

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