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PRESS RELEASE

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National Instruments Lead User Program Paving the Way for 5G Wireless

Wireless Communications Researchers Are Using Graphical System Design to Address the Wireless Spectrum Shortage

AUSTIN, Texas – Sept. 11, 2013 – National Instruments (Nasdaq: NATI), a leader in test and measurement, data acquisition and computer automation, is collaborating with several top researchers focused on RF and wireless communications research—specifically fifth generation (5G) wireless communications. The proliferation of smart devices has led to a wireless spectrum shortage, which means researchers are seeking new ways to alleviate the bandwidth crunch and increase network data capacity. Market analysts predict that spectrum demand in the U.S. will outstrip capacity by 2017.

Through the [RF/Communications](#) Lead User program, NI works with leading research institutions around the world to address network capacity concerns. Research institutions admitted to the program include:

- NYU Wireless
- TU Dresden
- University of Notre Dame
- Rutgers, The State University of New Jersey
- University of California at Berkeley/Berkeley Wireless Research Center
- The University of Texas at Austin/Wireless Networking and Communications Group (WNCG)
- Texas A&M University, College Station, Texas

Wireless communications researchers involved in the lead user program accelerate prototyping with graphical system design. Conventional methods and disparate tools make prototyping expensive and can add years to development time as researchers struggle with long learning curves on tools, which

detracts focus from the actual research. The graphical system design approach significantly reduces the time it takes to transition from theory to practical results in a real-world environment.

“The complexity of today’s wireless communication challenges requires a new design approach,” stated NYU Wireless professor Sundeep Rangan. “We were able to build a functional LTE prototype in a few months as a foundational element to our research.”

TU Dresden joined the RF/Communications Lead User program in 2011 and demonstrated a fully functional generalized frequency division multiplexing (GFDM) prototype at NIWeek 2013 in Austin, Texas.

“The rapid progress from simulation to prototype was surprising,” said Vodafone Chair, professor Gerhard Fettweis of TU Dresden. “We now have a functional GFDM prototype to clearly demonstrate the benefit of this approach to 5G wireless systems, but it also enables our team to continue to iterate and explore other aspects of 5G systems including cross layer optimization with a new physical layer.”

“As part of the National Instruments Lead User program, our team has been measuring and developing channel models for spectrum above traditional cellular frequencies,” said NYU Wireless professor Ted Rappaport. “The road to 5G will inevitably involve deployments in these new frequencies.”

“At WNCG, we have had several research projects with the National Instruments Lead User team spanning MIMO interference alignment to interference cancellation,” said WNCG chair, professor Robert Heath of the University of Texas at Austin. “We’ve seen accelerated prototyping on all of these projects and we’re eager to build upon the research already performed.”

About the RF/Communications Lead User Program

National Instruments established several lead user programs to facilitate next-generation research in areas including controls, mechatronics and robotics with a common goal of rapidly moving from theory to prototype. Established in 2010, the RF/Communications Lead User program currently includes 10 research institutions working on multiple 5G communications projects.

Learn more at www.ni.com/sdr.

About National Instruments

Since 1976, National Instruments (www.ni.com) has equipped engineers and scientists with tools that accelerate productivity, innovation and discovery. NI's graphical system design approach provides an integrated software and hardware platform, speeding the development of any system needing measurement and control. NI ensures customer success with an ecosystem of services, support and more than 700 Alliance Partners worldwide. The company's long-term vision and focus on improving society through its technology also enables the success of its employees, suppliers and shareholders.

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