Media Release
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NICTA demonstrates new interference-cancellation modem for 3G femtocell networks

NICTA, Australia's Information and Communications Technology (ICT) Research Centre of Excellence, has successfully demonstrated technology that reduces the amount of radio interference in 3G networks with femtocells.

A femtocell is a small wireless base station that connects to the telephone network via a home or office broadband connection. Targeted at people using 3G mobile connections indoors, where they may encounter mobile coverage 'black spots', a femtocell provides significant improvements in coverage and capacity.

Radio interference from other 3G connections is recognised as one of the top issues in femtocell networks. NICTA has developed technology to address such interference. A real-time proof-of-concept test in Canberra last week showed the NICTA femtocell connecting to multiple 3G devices. The test verified that NICTA's uplink interference cancellation (ULIC) technology successfully and substantially reduced radio interference in the uplink.

When integrated into system-on-chip products, the NICTA technology will increase service quality for 3G mobile devices, improve coverage and capacity, and minimise the impact on legacy wireless infrastructure. The ULIC technology, developed by NICTA's InterfereX project team, is believed to be a world-first. The demonstrator is realised fully in programmable logic gates, thereby providing a straightforward path to a low-cost, small footprint silicon chip implementation.

NICTA InterfereX Project Leader Dr Mark Reed said the design was the result of many years of research and development effort. "Our unique design approach was based on discussions with industry on the need for a low-cost design capable of minimising the impact on legacy wireless infrastructure by using advanced interference cancellation techniques. Our innovative architecture and design methodology has allowed us to deliver this."

The test configuration used a universal radio communication tester from electronics company Rohde & Schwarz as one of the 3G devices connected to the NICTA femtocell. The R&S®CMU300 universal radio communication tester provided an excellent test platform for validation of the InterfereX design and made development and test easier through the graphical user interface and internal signal setup and generation options.

"Through our product portfolio, we support the development of new wireless communications technologies by keeping our finger on the pulse of the market," said Anton Meßmer, Director of Rohde & Schwarz Mobile Radio Testers Subdivision. "Our focus is on tracking all existing and new standards at a very early stage in order to cover the entire spectrum from development to mass production with our T&M solutions."

Rohde & Schwarz test solutions support the latest 3GPP specifications, and are applicable from design and production through conformance testing of components and mobile terminals. With the R&S®CMU-K78 WCDMA hardware and R&S®CMU-K70/71/75/78 option, the creation of WCDMA uplink and downlink signals of excellent quality is straightforward and convenient.

The InterfereX team is part of NICTA. It is exploring commercialisation and partnership options for its development.

About NICTA

National ICT Australia Ltd (NICTA), Australia's Information and Communications Technology (ICT) Research Centre of Excellence, is developing technologies which will meet the current and future needs of the community in fields which will lead to large economic, social and environmental benefits for Australia. NICTA has five laboratories around the country. Since NICTA was founded in 2002, it has created four new companies, developed a substantial technology portfolio of patent applications and continues to supply new talent to the ICT industry through the NICTA-enhanced PhD program. NICTA is funded by the Australian Government as represented by the Department of Broadband, Communications and the Digital Economy and the Australian Research Council through the ICT Centre of Excellence program. It was established and is supported by its members: The Australian Capital Territory Government; The Australian National University; NSW Department of State and Regional Development; and The University of New South Wales. NICTA's partners include: the University of Sydney; University of Melbourne; the Victorian Government; the Queensland Government; Griffith University; Queensland University of Technology; and The University of Queensland.

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radio monitoring and radio location as well as secure communications. Established more than 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. It has approx. 7400 employees and achieved a net revenue of € 1.2 billion in fiscal year 2008/2009 (July 2008 to June 2009). Company headquarters are in Munich, Germany. R&S ® is a registered trademark of Rohde & Schwarz GmbH & Co. KG. www.rohde-schwarz.com.

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