

## **Alcatel-Lucent Bell Labs conducts world-first field demonstration of new technology to boost speeds on LTE-based wireless broadband networks**

*Joint field test with Deutsche Telekom Laboratories, the Fraunhofer Heinrich-Hertz Institut, and Kathrein uses CoMP transmission technology to increase uplink speeds to mobile devices*

**Paris, 15 October 2009** - Alcatel-Lucent (Euronext Paris and NYSE: ALU) today announced that Bell Labs, its research arm -- in cooperation with Deutsche Telekom Laboratories, the Fraunhofer Heinrich-Hertz Institut, and antenna supplier Kathrein -- has conducted the industry's first live field tests of Coordinated Multipoint Transmission (CoMP) a new technology that will increase data transmission rates and help ensure consistent service quality and throughput on Long Term Evolution (LTE) wireless broadband networks as well as on 3G networks. By coordinating and combining signals from multiple antennas, CoMP, will make it possible for mobile users to enjoy consistent performance and quality when they access and share videos, photos and other high-bandwidth services whether they are close to the center of an LTE cell or at its outer edges.

The CoMP solution builds on Bell Labs pre-eminent research in wireless networking and takes advantage specifically of Network MIMO (Multiple Input-Multiple Output), a technique pioneered by Bell Labs that reduces interference in wireless networks and increases efficiency by tightly coordinating the transmission and reception of signals at multiple access points. The solution also reflects a commitment to open innovation and serves as a clear demonstration of the benefits that result.

The live tests were carried out in a downtown area of the German capital Berlin as part of a joint research project sponsored by the German Ministry for Education and Research (BMBF) called Enablers for Ambient Services and Systems (EASY-C). These are the first ever live tests of a technique that had been extensively evaluated for introduction in wireless networks around the world, but not previously tested in the field.

The tests showcased Coordinated Multipoint Transmission's key benefits:

- Helps improve bandwidth scalability by boosting transmission rates not only in the connection from the network to the user's mobile device (downlink), but from the mobile device to the network (uplink), a unique function that will become indispensable as Web 2.0 applications become increasingly prevalent and a growing number of users send videos and photos from their mobile devices.
- Improves quality of service by demonstrating consistently high transmission rates on the uplink from the phone to the network, even at the edges of a "cell" where transmission quality is typically poor and difficult to maintain; data rates greater than 5Mbps were observed for the vast majority of locations.
- Maximizes the use of existing network infrastructure to achieve these higher transmission speeds without necessarily requiring deployment of additional antennas.

Transmissions between mobile devices and base stations during the field tests made use of the 2.6 GHz frequency band, which is expected to be the predominant band for introduction of commercial LTE services in Europe. Signals transmitted from mobile devices were received by two active remote radio heads deployed on two buildings located 500m from one another, then forwarded across an optical fiber link to a central unit comprising the modem and controller elements of an Alcatel-Lucent LTE base station (eNodeB). The signals were then combined with one another to increase the strength of the signal.

The configuration of this solution differs from that of basic MIMO primarily in the deployment and positioning of antennas. In MIMO, antennas involved in the solution are deployed on a single site. CoMP interconnects antennas deployed at a number of sites that are in proximity to one another.

Tight coordination of the transmission and reception of signals at these multiple access points reduces interference and increases efficiency.

“The results we have achieved with this new transmission technology are built on our world-leading multi-antenna wireless research,” said Gee Rittenhouse, head of Bell Labs Research. “In the future as LTE networks become widely deployed we expect that CoMP will help enable our customers to meet the next wave of demand from users who expect to access all sorts of exciting high-bandwidth applications with their mobile phones.”

#### **About Alcatel-Lucent**

Alcatel-Lucent (Euronext Paris and NYSE: ALU) is the trusted partner of service providers, enterprises and governments worldwide, providing solutions that to deliver voice, data and video communication services to end-users. A leader in fixed, mobile and converged broadband networking, IP technologies, applications and services, Alcatel-Lucent leverages the unrivalled technical and scientific expertise of Bell Labs, one of the largest innovation powerhouses in the communications industry. With operations in more than 130 countries and the most experienced global services organization in the industry, Alcatel-Lucent is a local partner with a global reach. Alcatel-Lucent achieved revenues of Euro 16.98 billion in 2008 and is incorporated in France, with executive offices located in Paris. For more information, visit Alcatel-Lucent on the Internet: <http://www.alcatel-lucent.com>

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