東京工業大学
Tokyo Institute of Technology

TOKYO INSTITUTE OF TECHNOLOGY
2-12-1, Ookayama, Meguro-ku
Tokyo 152-8550 Japan
http://www.titech.ac.jp/english/

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For further information :
Professor Hiroyuki Suzuki
Assistant Professor Satoshi Suyama
Department of Communication and Integrated systems
Graduate School of Science and Engineering
Tokyo Institute of Technology
Email: suzuki@radio.ss.titech.ac.jp
Email : ssuyama@radio.ss.titech.ac.jp

PRESS RELEASE

Tokyo Institute of Technology and DOCOMO Achieve World's First 10 Gbps Packet Transmission in Outdoor Experiment

— Paving the way for super-high-bit-rate mobile communications —

Tokyo, 27 February 2013
Tokyo Institute of Technology announced today that in a joint outdoor experiment conducted recently with NTT DOCOMO, INC. (hereafter, "DOCOMO"), it succeeded in the world's first packet transmission uplink rate of approximately 10 Gbps. The test, which is expected to help pave the way for future super-high-bit-rate mobile communications, took place on Ishigaki City in Okinawa Prefecture, Japan on December 11, 2012.

In the experiment, a 400 MHz bandwidth in the 11 GHz spectrum was transmitted from a mobile station moving at approximately 9 km/h. Multiple-input multiple-output (MIMO) technology was used to spatially multiplex different data streams using eight transmitting antennas and 16 receiving antennas on the same frequency.

In light of the squeeze on remaining frequencies as mobile data traffic continues to increase, Tokyo Institute of Technology and DOCOMO aim to achieve a transmission speed of more than 10 Gbps using super high frequency bands exceeding 5 GHz. Such high frequencies have been difficult to use for mobile networks due to the limited distances their waves are able to travel, especially along indirect paths such as around buildings. This is why more robust lower-frequency waves have been the preferred choice for mobile communications systems so far.

Detailed findings of the experiment will be presented to the Technical Committee on Radio Communication Systems (RCS) of the Institute of Electronics, Information and Communication Engineers (IEICE) at Waseda University in Tokyo from February 27.

The experiment was partly supported by "The research and development project for expansion of radio spectrum resources" of The Ministry of Internal Affairs and Communications, Japan.