

**Commission D (Electronics and Photonics) Activity Report**

November 2010-February 2011

March 1, 2011

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**1) Commission Activities***URSI-GASS2011:*

Following two sessions and one workshop are organized by Japanese and international members related to Commission D.

DAF1 - Enabling Technologies for Millimeter and THz Wave Applications (August 19, 2011)

DAF2 - Millimeter and THz Wave Applications, including NDT, security, communication, sensors, spectroscopy, etc. (August 19, 2011)

URSI Workshop - Advances in Optical-Wireless Communications (August 13, 2011)

**2) Domestic activities related to areas covered by Commission D***Technical study group on Microwave Photonics (IEICE):*

3<sup>rd</sup> Meeting: November 26, 2010 at Central Research Institute of Electric Power Industry (Tokyo), “Radio-over-fiber technology and related topics”

3 invited and 6 contributed papers; invited papers were “NRD guide devices and their applications” by Prof. Yoneyama (Tohoku University), “Telecommunications for electric power industry and recent trends in smart grid technology” by Dr. Nishida (Kyushu Electric Power), and “Recent progress of RoF technologies in EU projects” by Dr. Kawanishi (NICT).

4<sup>th</sup> Meeting: February 4, 2011 at National Institute of Communications Technology (Tokyo), “THz technologies and related topics” cooperated with technical study group on THz application systems (IEICE)

9 invited papers; invited papers were “Conference report on IRMMW-THz2010” by Dr. Saito (NICT) et al., “Recent status of IEEE802.15 IG-THz” by Dr. Ajito (NTT), “Trends of GaN device technologies” by Dr. Yamanaka (Mitsubishi Electric), “Present and future of OCT technology” by Prof. Obayashi (Kitazato University), “Conference report on MWP 2010 and ECOC 2010” by Prof. Higashino (Osaka University) et al., “Optical comb technology and optical frequency standards” by Hong (AIST) et al., “Standardization activities of IEC for RoF transmitters” by Dr. Kurokawa (AIST) et al., “Next generation free space optics system for ubiquitous communications” by Dr. Chedlia Ben Naila

(Waseda University) et al. , and “Applications of RoF technology to broadcasting industry” by Prof. Haeiwa (Hiroshima City University) et al.

***Study group on THz ICT (Kinki Bureau of Telecommunications in Ministry of Internal Affairs and Communications):***

On February 4, 2011, in cooperation with the IECIE and THz technology Forum, Japan, an open experiment was conducted, which combines a JGN2-plus (10-Gbps fiber-optic network), and a 120-GHz band wireless link (10-Gbps wireless access), to demonstrate the world-fastest seamless network. Between NICT Kyoto and Tokyo, a real-time teleconference was shown with uncompressed 4-K and 2-K video transmission (Figure 1). In order to show the usefulness and impact of this network, medical doctors attended to perform a future telemedicine between the two sites using high-end services such as real-time 3-D video systems.

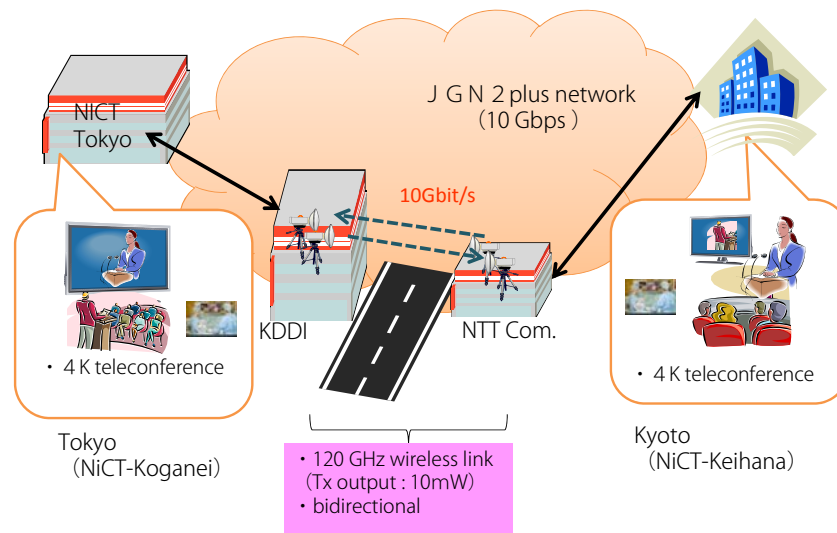


Figure 1. Setup for experimental demonstration of 10-Gbps wire and wireless network.