

IEEE COMSOC/VT Technology Update

Talk #1: Research and Development Activities in Smart Wireless Laboratory, NICT

Talk #2: IEEE Standardization Activities on Smart Grid/Utility and TV White Space

Date : 1st November 2011 (Tuesday)

Time : 2.00 – 5.30PM

Venue : Bilik Taklimat, 2nd Floor, Tower Block, Engineering Complex, Faculty of Engineering, Universiti Putra Malaysia (UPM), Serdang, Selangor

Talk #3: Research and Development Activities in Smart Wireless Laboratory, NICT & Cognitive Radio/Software Define Radio Research Updates

Date : 2nd November 2011 (Wednesday)

Time : 3.00 – 5.00PM

Venue : Auditorium, MIMOS Berhad, Technology Park Malaysia, 57000 Kuala Lumpur

Talk #4: IEEE Standardization Activities on Smart Grid/Utility and TV White Space

(Jointly organized with IEEE PES Malaysia Chapter)

Date : 3rd November 2011 (Thursday)

Time : 10.00 – 11.30AM

Venue : BJ-1-005 Power Engineering Centre, Universiti Tenaga Nasional (UNITEN), KM 7, Jalan Kajang-Puchong 43009 Kajang, Selangor

**Organized by: IEEE COMSOC & VT Malaysia Chapter, and
National Institution of Information and Communication Technology (NICT) Japan**

Research and Development Activities in Smart Wireless Laboratory, NICT (Dr Hiroshi Harada)

Abstract: This talk presents the summary on the research and development (R&D) activities in Smart Wireless Laboratory (SWL), National Institute of Information and Communications Technology (NICT) Japan. There are five main domains in the R&D activities in SWL, cognitive wireless technology, white space communications technology, wireless smart grid technology, wireless broadband/super-broadband technology in VHF/UHF/millimeter-wave bands. Cognitive wireless technology domain focuses on dynamic spectrum access (DSA) technology and architecture to further utilize spectrum resources. Designing and development of DSA architecture and devices are the core activities of this group. White space communications technology domain emphasizes on the development of white space spectrum band such as TV white space and technology to be deployed in the band. R&D activities are conducted considering all aspects of technology, regulation and standardization. Wireless smart grid technology domain focuses on the development of the next generation smart grid/utility networks employing advanced wireless technology. R&D activities include standardization and actual implementation of smart metering networks. Wireless broadband/super-broadband technology domain in VHF/UHF/millimeter-wave bands targets the use case wireless communications for the public safety, welfare and home networks. This talk will provide an overview on the activities and achievements of SWL in these domains.

IEEE Standardization Activities on Smart Grid/Utility and TV White Space (Dr Chin-Sean Sum)

Abstract: This talk presents the latest updates for IEEE 802 standardization activities particularly in the field of smart grid/smart utility networks and TV White Space communications. In the arena of smart grid/smart utility networks, IEEE 802.15.4g is specifying a standard for physical (PHY) and medium access control (MAC) layers for next generation utility services. This standard targets to provide an advanced wireless utility network to realize functionalities such as demand-response, tele-metering and other command/control applications. IEEE 802.15.4g is expected to facilitate the Smart Grid information network. In the arena of TV white space communications, IEEE 802.11af is working to enable the 802.11 Wireless Local Area Network in the domain of unused TV channels, commonly known as TV White Space. This standard targets to deploy WLAN systems in the TV White Space in order to realize applications such as traffic off-loading and throughput enhancement. Additionally, other standardization activities in IEEE 802 related to these fields will also be included into the presentation. The presentation will provide a general overview on the standardization activities from various perspectives including regulation, use case models, technology and project management.

Biography: Dr. Hiroshi Harada

Dr. Hiroshi Harada is the director of smart wireless laboratory at National Institute of Information and Communications Technology (NICT). He joined the Communications Research Laboratory, Ministry of Posts and Communications, in 1995 (currently NICT). Since 1995, he has conducted research on Software Defined Radio (SDR), Cognitive Radio, Dynamic Spectrum Access Network, Smart Utility Network (SUN) and broadband wireless access systems in the VHF, TV white space, micro-wave and millimeter-wave bands. He has joined many standardization committees and forums in the United States as well as in Japan and has fulfilled important roles for them. He is currently serving in the board of directors of Wireless Innovation Forum (formerly SDR Forum). He is the chair of IEEE DySPAN Standards Committee (formerly, IEEE SCC41 and IEEE 1900) since 2009, the vice chair of IEEE P1900.4, IEEE P802.15.4g, and TIA TR-51 since 2008, 2009, and 2011, respectively. He was the chair of the IEICE Technical Committee on Software Radio (TCSR) in 2005-2007 and the chair of Public Broadband Mobile Communication Development Committee, ARIB since 2010. He is also involved in many other activities related to telecommunications. He has been a visiting professor at the University of Electro-Communications, Tokyo, Japan, since 2005 and is the author of Simulation and Software Radio for Mobile Communications (Artech House, 2002). He has received the achievement award and fellow of IEICE in 2006 and 2009, respectively and the achievement award of ARIB and Funai Prize for Science in 2009 and 2010, respectively, on the topic of cognitive radio research and development.

Biography: Dr. Chin-Sean Sum

Dr. Chin-Sean Sum received his Ph.D. degree from Niigata University in 2007. He was then affiliated with the National Institute of Information and Communications Technology (NICT), Japan as an expert researcher in the Smart Wireless Laboratory (SWL). He has been involved in multiple standardization activities as a project officer and an active technical contributor. In the IEEE 802.15.3c millimeter-wave wireless personal area networks (WPAN) standard, he served as the assistant technical editor and secretary of the task group. He is the recipient of the IEEE Working Group Chairs Awards for the IEEE 802.15.3c Standard. He then started to participate in task groups IEEE 802.15.4g Smart Utility Networks (SUN) WPAN and IEEE 802.11af white space wireless local area networks (WLAN). In 802.15.4g, he is an active technical contributor and served as the editor of the coexistence assurance document. In 802.11af, he is an active technical contributor closely following the development of TV white space WLAN systems and related regulatory status. Currently, he is also actively involved in a new initiative group working on WPAN operating in TW white space, a group expected to be formed as IEEE 802.15.4m. Besides, he is an active contributor in other standardization groups such as Telecommunication Industry Association (TIA) TR-51 Smart Utility Networks, IEEE 802.19 Wireless Coexistence group and 802.22 wireless regional area networks (WRAN) group. His research works can be frequently found in major journals and conferences such as the IEEE J-SAC, ICC, WCNC, Globecom, DySPAN, VTC, IEEE Communications Magazine and so on. Currently, his research interest is focused on MAC and PHY layer designs for TV white space and SUN systems, cognitive radio, coexistence and energy efficient mechanisms.

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