
FOREWORD

Special Section on Cognitive Radio and Spectrum Sharing Technology

Currently the number of standardized wireless communication systems has been increasing and the frequency band that is adequate for mobile communication systems has been occupied by such new standardized communication systems. Before the frequency band is fully occupied, we need to consider methods of securing spectrum that can reduce interference to conventional wireless communication systems and realize high frequency utilization efficiency. One of the solutions is cognitive radio or spectrum sharing. The IEICE Technical Committee of Software Radio (TCSR) has contributed to promoting the new technologies since 2005. This is because the wireless equipments that use software radio technology potentially have ability to control its frequency and bandwidth dynamically. To encourage fruitful discussion on this topic, the publication of this special section was planned.

In reply to call for papers, 45 papers and 4 letters are received. After fair and square review, 2 invited papers related to IEEE new standard activity on dynamic spectrum access networks, IEEE P1900.4 and reconfigurable RF devices, 15 papers and 1 letters are accepted for publication in this section. These papers cover topical subjects such as cognitive network, spectrum sharing, spectrum sensing, distributed optimization, and enabling technologies. This special section will be instructive to the people who are interested in research and development on cognitive radio and spectrum sharing technologies.

Finally I would like to express my sincere thanks to all authors for their contributions and to many reviewers and this section's editorial committee members, Kiyomichi Araki (Tokyo Institute of Technology), Tetsushi Ikegami (Meiji Univ.), Kazuhiro Uehara (NTT), Kenta Umebayashi (Tokyo Univ. of Agriculture and Tech.), Tetsuro Ueda (KDDI Lab.), Ryuji Kohno (Yokohama National Univ.), Takashi Shono (Intel), Takeo Fujii (Univ. Electro-Communications), Hiroshi Yoshida (Toshiba), and Hitoshi Yoshino (NTT DoCoMo) for their voluntary activities as guest associate editors. Also I would like to express my cordial appreciation to Hiroyuki Ishii (NEC) and Kei Sakaguchi (Tokyo Institute of Technology) for their excellent management as guest editors of this section.

Hiroshi Harada, Guest Editor-in-Chief

Hiroshi Harada (*Member*) received Ph.D. degrees from Osaka University, Osaka, Japan, in 1995, respectively. In 1995, he joined Communications Research Laboratory (CRL), Ministry of Posts and Telecommunications (MPT), Japan (currently National Institute of Information and Communications Technology (NICT)). From 1996 to 1997, he was a postdoctoral fellow of Delft University of Technology, The Netherlands. He is currently a research manager of ubiquitous mobile communications group of NICT. He was the chair of Technical Committee of Software Radio, IEICE (The Institute of Electronics, Information and Communication Engineers) Communication Society from May 2005 to May 2007 and he is currently a visiting professor of University of Electro-Communications, and a board of directors of Software Defined Radio (SDR) forum, U.S.A. His current research interests include digital-signal-processing based mobile telecommunication systems, e.g. SDR, cognitive radio, and broadband wireless access (BWA) systems. He received the Young Scientist Award from the Minister of Education, Culture Sports Science and Technology (MEXT), Japan and the achievement award of IEICE in 2006 on the topic of software defined radio. He is co-author of "Simulation and Software Radio for Mobile Communications" (Artech House, 2002).

