NOT FOR IMMEDIATE RELEASE
July 14, 2015 – Draft 1a
Sponsor: IEEE Computer Society

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New IEEE 802.22b™ Standard Intended to Enhance Broadband Services and Monitoring Applications for Underserved Rural Communities Globally

IEEE 802.22™ working group seeks contributions for its new standards-development projects on spectrum-sharing technologies

PISCATAWAY, N.J., USA, XX July 2015 – IEEE, the world's largest professional organization dedicated to advancing technology for humanity, today announced approval of IEEE 802.22b™-2015[1], a standard designed to support point-to-multipoint wireless broadband operation in the VHF and UHF TV bands in the frequency range between 54 MHz and 862 MHz. The standard is intended to support wireless broadband services and monitoring applications for the world's traditionally underserved rural areas, where most empty TV channels can be found and where Internet access services are often scarce.

IEEE 802.22b is an amendment to IEEE 802.22™-2011[2], which IEEE earlier announced has been adopted by the International Organization for Standardization (ISO).

"IEEE 802.22b-2015 is designed to double the throughput of devices based on the original IEEE 802.22 standard. The new amendment is intended also to serve more users per base station and enable relay capability for machine-to-machine (M2M) and Internet of Things (IoT) use cases," said Chang-woo Pyo, chair of the task force that created IEEE 802.22b.

IEEE 802.22-based wireless regional area networks take advantage of the favorable propagation characteristics in the VHF and low UHF TV bands, to provide broadband wireless

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[1] IEEE 802.22b™-2015, IEEE Standard for Information Technology--Telecommunications and information exchange between systems Wireless Regional Area Networks (WRAN)--Specific requirements Part 22: Cognitive Wireless RAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications: Policies and Procedures for Operation in the TV Bands Amendment: Enhancement for Broadband Services and Monitoring Applications
[2] IEEE 802.22™-2011, IEEE Standard for Information technology-- Local and metropolitan area networks-- Specific requirements-- Part 22: Cognitive Wireless RAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Policies and procedures for operation in the TV Bands

access under both line-of-sight (LoS) and non-line-of-sight (NLoS) conditions over large areas (10 to 30 kilometers). This occurs while operating on a strict non-interference basis in "TV white space" (TVWS)—spectrum that is assigned to, but unused by, incumbent licensed services. Some industry trade associations, such as the WhiteSpace Alliance, refer to IEEE 802.22 standard as "Wi-FAR™." Use cases for IEEE 802.22-based devices include broadband access over large distances and NLoS conditions, broadband Internet access for remote and rural areas, IoT applications, cellular offload, monitoring of the rain forests, long-range backhaul, smart grid, critical infrastructure monitoring, defense, homeland security, healthcare, small office/home office (SoHo) and campus-wide broadband wireless access. The IEEE 802.22 Wireless Regional Area Networks Working Group is a winner of the IEEE Standards Association (IEEE-SA) Emerging Technology Award.

"The IEEE 802.22 working group continues to offer new capabilities and innovative applications using white spaces," said Apurva N. Mody, chair of the IEEE 802.22 Wireless Regional Area Networks Working Group. "The IEEE 802.22 working group has some other interesting projects in the pipeline around the technology area of spectrum sharing and is seeking contributions on those."

Development has been launched on both IEEE P802.22.3™[3], which is intended to specify operating characteristics of the components of a Spectrum Characterization and Occupancy Sensing (SCOS) system, and IEEE P802.22.1™[4], which is intended to propose an advanced beaconing specification to facilitate spectrum sharing between radars and communications systems. The IEEE 802.22 working group invites those interested in these new activities to join the working group's meeting 9-13 November 2015 in Dallas.

For more information on IEEE 802.22b, please visit http://standards.ieee.org/develop/project/802.22b.html. For more information on IEEE P802.22.3, please visit http://standards.ieee.org/develop/project/802.22.3.html. For more information on IEEE P802.22.1, please visit http://standards.ieee.org/develop/project/802.22.1.html. For more information on the IEEE

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[3] IEEE P802.22.3™, Draft IEEE Standard for Spectrum Characterization and Occupancy Sensing
[4] IEEE P802.22.1™, Draft Standard for Information Technology--Telecommunications and information exchange between systems--Local and metropolitan area networks--Specific requirements Part 22.1: Standard to Enable Spectrum Sharing using Advanced Beaconing

802.22 working group, please visit http://standards.ieee.org/develop/wg/WG802.22.html. IEEE 802.22-2011 is available for download via the IEEE Get Program.

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