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Information technology — Telecommunications and information exchange between systems — 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

AMENDMENT 2: Enhancement for broadband services and monitoring applications

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseaux locaux et métropolitains — Exigences spécifiques —

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IEEE Std 802.22b™-2015
(Amendment to
IEEE Std 802.22™-2011
as amended by IEEE Std 802.22a™-2014)

**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 2: Enhancement for Broadband Services and Monitoring Applications

Sponsor

**LAN/MAN Standards Committee
of the
IEEE Computer Society**

Approved 3 September 2015

IEEE-SA Standards Board

Abstract: Alternate physical layer (PHY) and necessary medium access control layer (MAC) enhancements to IEEE Std 802.22-2011 are specified in this amendment for operation in very high frequency/ultra-high frequency (VHF/UHF) television broadcast bands between 54 MHz and 862 MHz to support enhanced broadband services and monitoring applications. The amendment supports aggregate data rates greater than the maximum data rate supported by the IEEE Std 802.22-2011. This amendment defines new classes of IEEE 802.22™ devices to address these applications and supports more than 512 devices in a network. This amendment also specifies techniques to enhance communications among the devices and makes necessary amendments to the cognitive, security, and parameters and connection management clauses. This amendment supports mechanisms to enable coexistence with other IEEE 802® systems in the same band.

Keywords: broadband wireless access network, enhanced broadband services, high capacity, high throughput, IEEE 802.22™, IEEE 802.22b™, monitoring applications, WRAN standard

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Introduction

This introduction is not part of IEEE Std 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 2: Enhancement for Broadband Services and Monitoring Applications.

This amendment specifies alternate physical layer (PHY) and necessary medium access control layer (MAC) enhancements to IEEE Std 802.22-2011 for operation in very high frequency/ultra high frequency (VHF/UHF) television broadcast bands between 54 MHz and 862 MHz to support enhanced broadband services and monitoring applications. PHY specifications (i.e., Operation Mode 1 and Operation Mode 2) in Clause 9 and Clause 9a are designed to meet the needs required by channel models. A multi-channel operation (7.24), high modulation and coding (9.2 and 9a.2), and multiple-input, multiple-output (MIMO) (9.15 and 9a.15) provide higher throughput (compared to the IEEE Std 802.22-2011), which may be achieved by individual use or combinational use. Point-to-multipoint connections and relay connections are specified in Clause 7.

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