IEEE Std 802.11a-1999
(Supplement to
IEEE Std 802.11-1999)

Supplement to IEEE Standard for Information technology— Telecommunications and information exchange between systems— Local and metropolitan area networks— Specific requirements—

Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications:

High-speed Physical Layer in the 5 GHZ Band

Sponsor

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Abstract: Changes and additions to IEEE Std. 802.11-1999 are provided to support the new high-rate physical layer (PHY) for operation in the 5 GHz band.
Keywords: 5 GHz, high speed, local area network (LAN), orthogonal frequency division multiplexing (OFDM), radio frequency, unlicensed national information infrastructure (U-NII), wireless

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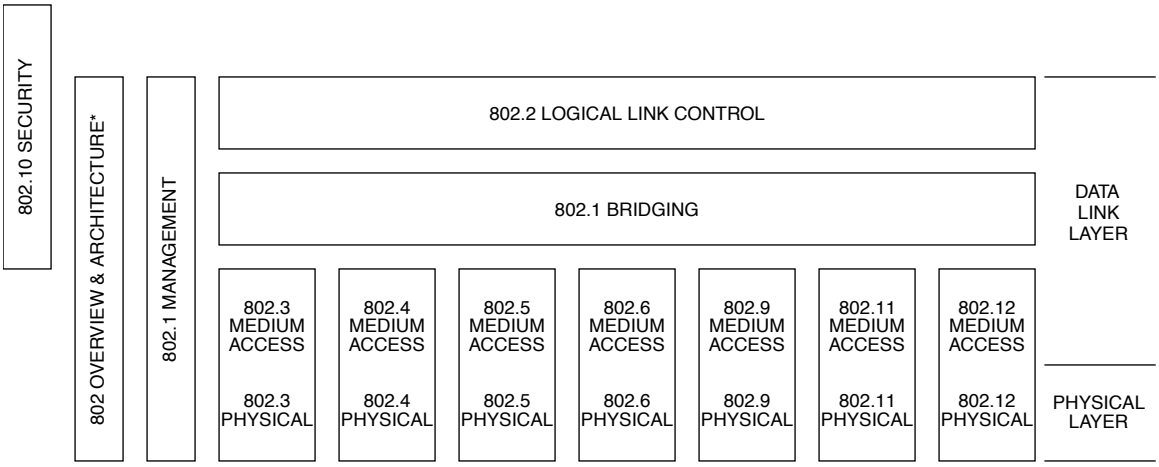
Introduction

(This introduction is not part of IEEE Std 802.11a-1999, Supplement to IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific Requirements—Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: High-speed Physical Layer in the 5 GHz Band.)

This standard is part of a family of standards for local and metropolitan area networks. The relationship between the standard and other members of the family is shown below. (The numbers in the figure refer to IEEE standard numbers.)



* Formerly IEEE Std 802.1A.

This family of standards deals with the Physical and Data Link layers as defined by the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) Basic Reference Model (ISO/IEC 7498-1:1994). The access standards define seven types of medium access technologies and associated physical media, each appropriate for particular applications or system objectives. Other types are under investigation.

The standards defining the access technologies are as follows:

- IEEE Std 802 — *Overview and Architecture*. This standard provides an overview to the family of IEEE 802 Standards.
- ANSI/IEEE Std 802.1B and 802.1k [ISO/IEC 15802-2] — *LAN/MAN Management*. Defines an OSI management-compatible architecture, and services and protocol elements for use in a LAN/MAN environment for performing remote management.
- ANSI/IEEE Std 802.1D [ISO/IEC 15802-3] — *Media Access Control (MAC) Bridges*. Specifies an architecture and protocol for the interconnection of IEEE 802 LANs below the MAC service boundary.
- ANSI/IEEE Std 802.1E [ISO/IEC 15802-4] — *System Load Protocol*. Specifies a set of services and protocol for those aspects of management concerned with the loading of systems on IEEE 802 LANs.
- IEEE Std 802.1F — *Common Definitions and Procedures for IEEE 802 Management Information*
- ANSI/IEEE Std 802.1G [ISO/IEC 15802-5] — *Remote Media Access Control Bridging* . Specifies extensions for the interconnection, using non-LAN communication technologies, of geographically separated IEEE 802 LANs below the level of the logical link control protocol.

- ANSI/IEEE Std 802.2 [ISO/IEC 8802-2] *Logical Link Control*
- ANSI/IEEE Std 802.3 [ISO/IEC 8802-3] *CSMA/CD Access Method and Physical Layer Specifications*
- ANSI/IEEE Std 802.4 [ISO/IEC 8802-4] *Token Passing Bus Access Method and Physical Layer Specifications*
- ANSI/IEEE Std 802.5 [ISO/IEC 8802-5] *Token Ring Access Method and Physical Layer Specifications*
- ANSI/IEEE Std 802.6 [ISO/IEC 8802-6] *Distributed Queue Dual Bus Access Method and Physical Layer Specifications*
- ANSI/IEEE Std 802.9 [ISO/IEC 8802-9] *Integrated Services (IS) LAN Interface at the Medium Access Control and Physical Layers*
- ANSI/IEEE Std 802.10 *Interoperable LAN/MAN Security*
- IEEE Std 802.11 [ISO/IEC DIS 8802-11] *Wireless LAN Medium Access Control and Physical Layer Specifications*
- ANSI/IEEE Std 802.12 [ISO/IEC DIS 8802-12] *Demand Priority Access Method, Physical Layer and Repeater Specifications*

In addition to the family of standards, the following is a recommended practice for a common Physical Layer technology:

- IEEE Std 802.7 *IEEE Recommended Practice for Broadband Local Area Networks*

The following additional working groups have authorized standards projects under development:

- IEEE 802.14 *Standard Protocol for Cable-TV Based Broadband Communication Network*
- IEEE 802.15 *Wireless Personal Area Networks Access Method and Physical Layer Specifications*
- IEEE 802.16 *Broadband Wireless Access Method and Physical Layer Specifications*

Editor's Notes

Clause 4, subclause 9.1, and Clause 17 in this supplement will be inserted into the base standard as an additional PHY specification for the 5 GHz unlicensed national information infrastructure (U-NII) band.

There are three annexes included in this supplement. Following are instructions to merge the information in these annexes into the base document.

Annex A: This annex shows a change to the table in A.4.3 of the base standard (IUT configuration) and the addition of a new subclause. Item *CF6 should be added to the table in A.4.3 of the base standard. The entire subclause A.4.8 (Orthogonal frequency division multiplex PHY functions) should be added to the end of Annex A in the base standard (i.e., after A.4.7).

Annex D: This annex contains additions to be made to Annex D (ASN.1 encoding of the MAC and PHY MIB) of the base standard. There are five sections that provide instructions to merge the information contained herein into the appropriate locations in Annex D of the base standard.

Annex G: This annex is new to the base standard. The purpose of Annex G is to provide an example of encoding a frame for the OFDM PHY, described in Clause 17, including all intermediate stages.

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