IEEE Std 802.11b-1999/Cor 1-2001
(Corrigendum to
IEEE Std 802.11b-1999)

IEEE Standards

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

Amendment 2: Higher-speed Physical Layer (PHY) extension in the 2.4 GHz band—Corrigendum 1

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

This amendment is an approved IEEE Standard. It will be incorporated into the base standard in a future edition.

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Corrigendum 1

Sponsor

LAN/MAN Standards Committee
of the
IEEE Computer Society

Approved 10 October 2001

IEEE-SA Standards Board

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American National Standards Institute

Abstract: *Changes and additions are provided for IEEE Std 802.11b-1999 to support the higher rate Physical Layer for operation in the 2.4 GHz band.*

Keywords: *LAN, Local Area Network, Wireless, Radio Frequency*

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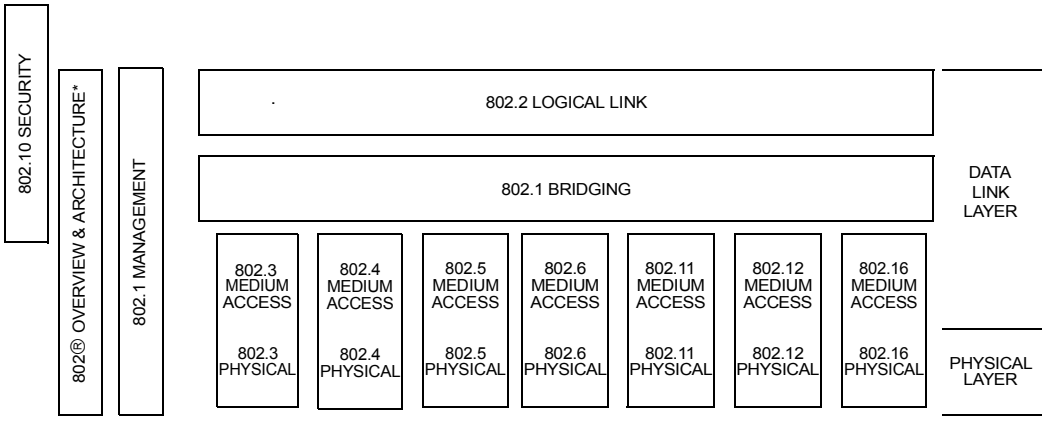
Introduction

This introduction is not part of IEEE Std 802.11b-1999/Cor 1-2001, 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—Amendment 2: Higher-speed Physical Layer (PHY) extension in the 2.4 GHz band—Corrigendum 1.

This standard is a 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 figures 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 Basic Reference Model (ISO/IEC 7498-1:1994). The access standards define several 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 technologies noted above are as follows:

• IEEE Std 802[1]:	*Overview and Architecture*. This standard provides an overview to the family of IEEE 802® Standards. This document forms part of the IEEE 802.1 scope of work.
• ANSI/IEEE Std 802.1B and 802.1K [ISO/IEC 15802-2]:	*LAN/MAN Management*. Defines an Open Systems Interconnection (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	*Medium Access Control* (*MAC) Bridges*. Specifies an architecture and protocol for the [ISO/IEC 15802-3]: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.

[1]The IEEE 802 Architecture and Overview Specification, originally known as IEEE Std 802.1A, has been renumbered as IEEE Std 802. This has been done to accommodate recognition of the base standard in a family of standards. References to IIEE Std 802.1A should be considered as references to IEEE Std 802.

- ANSI/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 (MAC) Bridging*. Specifies extensions for the interconnection, using non-LAN systems communication technologies, of geographically separated IEEE 802 LANs below the level of the logical link control protocol.
- ANSI/IEEE Std 802.1H [ISO/IEC TR 11802-5] — *Recommended Practice for Media Access Control (MAC) Bridging of Ethernet V2.0 in IEEE 802 Local Area Networks*.
- ANSI/IEEE Std 802.1Q — *Virtual Bridged Local Area Networks*. Defines an architecture for Virtual Bridged LANs, the services provided in Virtual Bridged LANs, and the protocols and algorithms involved in the provision of those services.
- 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 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 802.10: *Interoperable LAN/MAN Security*. Currently approved: Secure Data Exchange (SDE).
- ANSI/IEEE Std 802.11: *Wireless LAN Medium Access Control (MAC) Sublayer and* [ISO/IEC 8802-11]Physical Layer Specifications.
- ANSI/IEEE Std 802.12: [ISO/IEC 8802-12] — *Demand Priority Access Method, Physical Layer and Repeater Specification*.
- IEEE Std 802.15: *Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for: Wireless Personal Area Networks.*
- IEEE Std 802.16: *Standard Air Interface for Fixed Broadband Wireless Access Systems*.
- IEEE Std 802.17: *Resilient Packet Ring Access Method and Physical Layer 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 reader of this standard is urged to become familiar with the complete family of standards.

Conformance test methodology

An additional standards series, identified by the number 1802, has been established to identify the conformance test methodology documents for the IEEE 802 family of standards. Thus the conformance test documents for IEEE 802.3 are numbered 1802.3, the conformance test documents for IEEE 802.5 will be 1802.5, and so on. Similarly, ISO will use 18802 to number conformance test standards for 8802 standards.

Participants

At the time this standard was sent to sponsor ballot, the IEEE 802.11 Working Group had the following voting members:

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Corrigendum 1

This corrigendum is based on the current edition of IEEE Std 802.11b-1999.

NOTE—The editing instructions contained in this corrigendum define how to merge the material contained herein into the existing base standard to form the new comprehensive standard as created by the addition of IEEE Std 802.11b-1999.

The editing instructions are shown in ***bold italic***. Three editing instructions are used: change, delete, and insert. ***Change*** is used to make small corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed either by using ~~strikethrough~~ (to remove old material) or underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. Editorial notes will not be carried over into future editions.

18. High Rate, direct sequence spread spectrum PHY specification

18.4.6 PMD operating specifications, general

Add the following sentences and table at the end of 18.4.6, as done in 802.11a:

Wireless LANS implemented in accordance with this standard are subject to equipment certification and operation requirements established by regional and national regulatory administrations. The PMD specification establishes minimum technical requirements for interoperability, based upon established regulations at the time this standard was issued. These regulations are subject to revision, or may be superceeded. Requirements that are subject to local geographic regulations are annotated within the PMD specification. Regulatory requirements that do not affect interoperability are not addressed in this standard. Implementers are referred to the following regulatory sources for further information. Operation in countries within defined regulatory domains may be subject to additional regulations.

The documents listed in 14.6.2 and below specify the current regulatory requirements for various geographic areas at the time the standard was developed. They are provided for geographic information only and are subject to change or revision at any time.

Table 104a—Additional regulatory requirement list

Geographic area	Approval standards	Documents	Approval authority
Japan	Ministry of Public Management, Home Affairs, Post and Telecommunication (MPHPT)	MPHPT Ordinance for Regulating Radio Equipment, Article 49-20	MPHPT

18.4.6.1 Operating frequency range

Replace the text in 18.4.6.1 with the following:

The High Rate PHY shall operate in the 2.4–2.4835 GHz frequency range, as allocated by regulatory bodies in the USA, Europe, and Japan, or in the 2.471–2.497 GHz frequency range, as allocated by regulatory authority in Japan.

18.4.6.2 Number of operating channels

Replace the text in 18.4.6.2 with the following:

The channel center frequencies and CHNL_ID numbers shall be as shown in Table 105. The FCC (US), IC (Canada), MPHPT (Japan), and ETSI (Europe) specify operation from 2.4 GHz–2.4835 GHz. For Japan, operation is additionally specified as 2.471 GHz–2.497 GHz. France allows operation from 2.4465 GHz–2.4835 GHz, and Spain allows operation from 2.445 GHz–2.475 GHz. For each supported regulatory domain, all channels in Table 105 marked with "X" shall be supported.

Replace Table 105 with the following:

Table 105—High Rate PHY frequency channel plan

		Regulatory domains						
CHNL_ID	**Frequency (MHz)**	**X'10' FCC**	**X'20' IC**	**X'30' ETSI**	**X'31' Spain**	**X'32 France**	**X'40' Japan**	**X'41' Japan**
1	2412	X	X	X	—	—	—	X
2	2417	X	X	X	—	—	—	X
3	2422	X	X	X	—	—	—	X
4	2427	X	X	X	—	—	—	X
5	2432	X	X	X	—	—	—	X
6	2437	X	X	X	—	—	—	X
7	2442	X	X	X	—	—	—	X
8	2447	X	X	X	—	—	—	X
9	2452	X	X	X	—	—	—	X
10	2457	X	X	X	X	X	—	X
11	2462	X	X	X	X	X	—	X
12	2467	—	—	X	—	X	—	X
13	2472	—	—	X	—	X	—	X
14	2484	—	—	—	—	—	X	—

18.4.6.8 Transmit and receive in-band and out-of-band spurious emissions

Replace the text in 18.4.6.8 with the following:

The High Rate PHY conforms with in-band and out-of-band spurious emissions as set by regulatory bodies. For the USA, refer to FCC 15.247, 15.205, 15.209. For Europe, refer to ETS ETS 300–328. For Japan, refer to MPT ordinance for Regulating Radio Equipment, Article 7.

18.4.7.1 Transmit power levels

Change Table 115 as follows:

Table 115—Transmit power levels

Maximum output power	Geographic location	Compliance document
1000 mW	USA	FCC 15.247
100 mW (EIRP)	Europe	ETS 300–328
See Table 115a	Japan	MPT ordinance for Regulating Radio Equipment, Article 49-20

Insert Table 115a after Table 115:

Table 115a—Transmit Power Levels in Japan

Maximum output power	Modulation/Frequency range	Compliance document
10 mW/MHz	for FH-SS or DS-SS modulation and operation in 2.471 GHz – 2.497 GHz	MPHPT ordinance for Regulating Radio Equipment, Article 49-20
10 mW/MHz	for DS-SS modulation and operation in 2.400GHz –2.4835 GHz	MPHPT ordinance for Regulating Radio Equipment, Article 49-20
3 mW/MHz	for FH-SS modulation and operation in 2.400 GHz –2.4835 GHz	MPHPT ordinance for Regulating Radio Equipment, Article 49-20

Annex A

(normative)

Protocol implementation conformance statement (PICS) proforma

A.4.9 High Rate, direct sequence PHY functions

Change the table in A.4.9 as follows:

Item	PHY Feature	References	Status	Support
HRDS1	Long preamble and header procedures	18.2	M	Yes ❑ No ❑
HRDS1.1	Long DS preamble prepended on TX	18.2.1	M	Yes ❑ No ❑
HRDS1.2	Long PLCP integrity check generation	18.2.3, 18.2.3.6	M	Yes ❑ No ❑
HRDS1.3	TX rate change capability	18.2.3.3	M	Yes ❑ No ❑
HRDS1.4	Supported data rates	18.1, 18.2.3.3	M	Yes ❑ No ❑
HRDS1.5	Data scrambler	18.2.4	M	Yes ❑ No ❑
HRDS1.6	Scrambler initialization	18.2.4	M	Yes ❑ No ❑
*HRDS2	Channel Agility option	18.3.2	O	Yes ❑ No ❑
*HRDS3	Short preamble and header procedures	18.2	O	Yes ❑ No ❑
HRDS3.1	Short preamble prepended on TX	18.2.2	HRDS3:M	Yes ❑ No ❑ N/A ❑
HRDS3.2	Short header transmission	18.2.3.8, 18.2.3.9, 18.2.3.10, 18.2.3.11, 18.2.3.12, 18.2.3.13, 18.2.3.14	HRDS3:M	Yes ❑ No ❑ N/A ❑
HRDS4	Long Preamble process on RX	18.2.6	M	Yes ❑ No ❑
HRDS4.1	PLCP format	18.2.6	M	Yes ❑ No ❑
HRDS4.2	PLCP integrity check verify	18.2.6	M	Yes ❑ No ❑
HRDS4.3	RX Rate change capability	18.2.6	M	Yes ❑ No ❑
HRDS4.4	Data whitener descrambler	18.2.6	M	Yes ❑ No ❑
*HRDS5	Short Preamble process on RX	18.2.6		Yes ❑ No ❑ N/A ❑

Item	PHY Feature	References	Status	Support
HRDS5.1	PLCP format	18.2.6	HRDS56:M	Yes ❑ No ❑ N/A ❑
HRDS5.2	PLCP integrity check verify	18.2.6	HRDS56:M	Yes ❑ No ❑ N/A ❑
HRDS5.3	RX rate change capability	18.2.6	HRDS56:M	Yes ❑ No ❑ N/A ❑
HRDS5.4	Data whitener descrambler	18.2.6	HRDS56:M	Yes ❑ No ❑ N/A ❑
*HRDS6	Operating channel capability	—	—	—
*HRDS6.1	North America (FCC)	18.4.6.2	HRDS67:O.3	Yes ❑ No ❑ N/A ❑
HRDS6.1.1	Channel 1	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.2	Channel 2	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.3	Channel 3	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.4	Channel 4	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.5	Channel 5	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.6	Channel 6	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.7	Channel 7	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.8	Channel 8	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.9	Channel 9	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.10	Channel 10	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
HRDS6.1.11	Channel 11	18.4.6.2	HRDS67.1:M	Yes ❑ No ❑ N/A ❑
*HRDS6.2	Canada (IC)	18.4.6.2	HRDS67:O.3	Yes ❑ No ❑ N/A ❑
HRDS6.2.1	Channel 1	18.4.6.2	HRDS67.2:M	Yes ❑ No ❑ N/A ❑

Item	PHY Feature	References	Status	Support
HRDS6.2.2	Channel 2	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.3	Channel 3	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.4	Channel 4	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.5	Channel 5	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.6	Channel 6	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.7	Channel 7	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.8	Channel 8	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.9	Channel 9	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.10	Channel 10	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
HRDS6.2.11	Channel 11	18.4.6.2	HRDS67.2: M	Yes ❑ No ❑ N/A ❑
*HRDS6.3	Europe (ETSI)	18.4.6.2	HRDS67:O.3	Yes ❑ No ❑ N/A ❑
HRDS6.3.1	Channel 1	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.2	Channel 2	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.3	Channel 3	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.4	Channel 4	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.5	Channel 5	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.6	Channel 6	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.7	Channel 7	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.8	Channel 8	18.4.6.2	HRDS67.3: M	Yes ❑ No ❑ N/A ❑

Item	PHY Feature	References	Status	Support
HRDS6.3.9	Channel 9	18.4.6.2	HRDS~~6~~7.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.10	Channel 10	18.4.6.2	HRDS~~6~~7.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.11	Channel 11	18.4.6.2	HRDS~~6~~7.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.12	Channel 12	18.4.6.2	HRDS~~6~~7.3: M	Yes ❑ No ❑ N/A ❑
HRDS6.3.13	Channel 13	18.4.6.2	HRDS~~6~~7.3: M	Yes ❑ No ❑ N/A ❑
*HRDS6.4	France	18.4.6.2	HRDS~~6~~7:O.3	Yes ❑ No ❑ N/A ❑
HRDS6.4.1	Channel 10	18.4.6.2	HRDS~~6~~7.4: M	Yes ❑ No ❑ N/A ❑
HRDS6.4.2	Channel 11	18.4.6.2	HRDS~~6~~7.4: M	Yes ❑ No ❑ N/A ❑
HRDS6.4.3	Channel 12	18.4.6.2	HRDS~~6~~7.4: M	Yes ❑ No ❑ N/A ❑
HRDS6.4.4	Channel 13	18.4.6.2	HRDS~~6~~7.4: M	Yes ❑ No ❑ N/A ❑
*HRDS6.5	Spain	18.4.6.2	HRDS~~6~~7:O.3	Yes ❑ No ❑ N/A ❑
HRDS6.5.1	Channel 10	18.4.6.2	HRDS~~6~~7.5: M	Yes ❑ No ❑ N/A ❑
HRDS6.5.2	Channel 11	18.4.6.2	HRDS~~6~~7.5: M	Yes ❑ No ❑ N/A ❑
*HRDS6.6	Japan (Rcr)	18.4.6.2	HRDS~~6~~7:O.3	Yes ❑ No ❑ N/A ❑
HRDS6.6.1	Channel 1	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.2	Channel 2	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.3	Channel 3	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.4	Channel 4	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.5	Channel 5	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑

Item	PHY Feature	References	Status	Support
HRDS6.6.6	Channel 6	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.7	Channel 7	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.8	Channel 8	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.9	Channel 9	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.10	Channel 10	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.11	Channel 11	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.12	Channel 12	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.13	Channel 13	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS6.6.14	Channel 14	18.4.6.2	HRDS6.6:M	Yes ❑ No ❑ N/A ❑
HRDS7	Hop sequences		HRDS2:M	Yes ❑ No ❑ N/A ❑
HRDS8	CCK bits to symbol mapping			
HRDS8.1	5.5 Mbit/s	18.4.6.5	M	Yes ❑ No ❑ N/A ❑
HRDS8.2	11Mbit/s	18.4.6.5	M	Yes ❑ No ❑ N/A ❑
HRDS9	PBCC bits to symbol mappings	18.4.6.6	O	
HRDS9.1	5.5 Mbit/s	18.4.6.6	HRDS9~~10~~:M	Yes ❑ No ❑
HRDS9.2	11 Mbit/s	18.4.6.6	HRDS9~~10~~:M	Yes ❑ No ❑
*HRDS10	CCA functionality	18.4.8.4		
HRDS10.1	CCA Mode 1, energy only (RSSI above threshold)	18.4.8.4	HRDS10~~11~~: O.4	Yes ❑ No ❑
HRDS10.2	CCA Mode 4, carrier sense with timer	18.4.8.4	HRDS10~~11~~: O.4	Yes ❑ No ❑
HRDS10.3	CCA Mode 5, energy detect with High Rate CS	18.4.8.4	HRDS10~~11~~: O.4	Yes ❑ No ❑

Item	PHY Feature	References	Status	Support
HRDS10.4	Hold CCA busy for packet duration of a correctly received PLCP, but carrier lost during reception of MPDU.	18.2.6	M	Yes ❑ No ❑
HRDS10.5	Hold CCA busy for packet duration of a correctly received, but out of spec PLCP.	18.2.6	M	Yes ❑ No ❑
HRDS11	Transmit antenna selection	18.4.5.8	O	Yes ❑ No ❑
HRDS12	Receive antenna diversity	18.4.5.8, 18.4.5.9	O	Yes ❑ No ❑
HRDS13	Antenna port(s) availability		O	Yes ❑ No ❑
HRDS13.1	If available (50 ¾ impedance)	18.4.6.8	HRDS13~~14~~: M	Yes o No o N/A o
*HRDS14	Transmit power level support	18.4.5.9, 18.4.7.2	O	Yes ❑ No ❑
HRDS14.1	If greater than 100 mW capability	18.4.7.2	HRDS14~~15~~: M	Yes ❑ No ❑ N/A ❑
*HRDS15	Radio type (temperature range)	18.4.6.14		
HRDS15.1	Type 1	18.4.6.14	HRDS15~~16~~: O.5	Yes ❑ No ❑ N/A ❑
HRDS15.2	Type 2	18.4.6.14	HRDS15~~16~~: O.5	Yes ❑ No ❑ N/A ❑
HRDS16	Spurious emissions conformance	18.4.6.8	M	Yes ❑ No ❑
HRDS17	TX-to-RX turnaround time	18.4.6.9	M	Yes ❑ No ❑
HRDS18	RX-to-TX turnaround time	18.4.6.10	M	Yes ❑ No ❑
HRDS19	Slot time	18.4.6.11	M	Yes ❑ No ❑
HRDS20	ED reporting time	18.4.6.10, 18.4.8.4	M	Yes ❑ No ❑
HRDS21	Minimum transmit power level	18.4.7.2	M	Yes ❑ No ❑
HRDS22	Transmit spectral mask conformance	18.4.7.3	M	Yes ❑ No ❑
HRDS23	Transmitted center frequency tolerance	18.4.7.4	M	Yes ❑ No ❑
HRDS24	Chip clock frequency tolerance	18.4.7.5	M	Yes ❑ No ❑
HRDS25	Transmit power on ramp	18.4.7.6	M	Yes ❑ No ❑
HRDS26	Transmit power down ramp	18.4.6.6	M	Yes ❑ No ❑
HRDS27	RF carrier suppression	18.4.7.7	M	Yes ❑ No ❑
HRDS28	Transmit modulation accuracy	18.4.7.8	M	Yes ❑ No ❑

Item	PHY Feature	References	Status	Support
HRDS29	Receiver minimum input level sensitivity	18.4.8.1	M	Yes ❑ No ❑
HRDS30	Receiver maximum input level	18.4.8.2	M	Yes ❑ No ❑
HRDS31	Receiver adjacent channel rejection	18.4.8.3	M	Yes ❑ No ❑
HRDS32	Management information base	13.1, 18.3.2, Annex C	M	Yes ❑ No ❑
HRDS32.1	PHY object class	13.1, 18.3.3	M	Yes ❑ No ❑

Annex D

(normative)

ASN.1 encoding of the MAC and PHY MIB

In "Major sections" of Annex D, insert the following text to the end of "PHY Attributes" section:

```
-- dot11PhyHRDSSSTable ::= {dot11phy 12}
```

Insert the following into the 802.11 MIB in Annex D, between the section entitled: "conformance information" and the section entitled: "End of dot11SupportedDataRatesRx TABLE":

```
-- ****************************************************************

-- * dot11PhyHRDSSSEntry TABLE

-- ****************************************************************

dot11PhyHRDSSSTable OBJECT-TYPE
        SYNTAX SEQUENCE OF Dot11PhyHRDSSSEntry
        MAX-ACCESS not-accessible
        STATUS current
        DESCRIPTION
                "Entry of attributes for dot11PhyHRDSSSEntry. Implemented as a
                table indexed on ifIndex to allow for multiple instances on
                an Agent."
        ::= { dot11phy 12 }

dot11PhyHRDSSSEntry OBJECT-TYPE
        SYNTAX Dot11PhyHRDSSSEntry
        MAX-ACCESS not-accessible
        STATUS current
        DESCRIPTION
                "An entry in the dot11PhyHRDSSSEntry Table.
                ifIndex - Each 802.11 interface is represented by an
                ifEntry. Interface tables in this MIB module are indexed
                by ifIndex."
        INDEX {ifIndex}
::= { dot11PhyHRDSSSTable 1 }

Dot11PhyHRDSSSEntry ::= SEQUENCE {
        dot11ShortPreambleOptionImplemented TruthValue,
        dot11PBCCOptionImplemented TruthValue,
        dot11ChannelAgilityPresent TruthValue,
        dot11ChannelAgilityEnabled TruthValue,
        dot11HRCCAModeSupported INTEGER }
```

Change the MIB text as shown:

```
dot11ShortPreambleOptionImplemented OBJECT-TYPE
        SYNTAX TruthValue~~INTEGER (true (1) false(2))~~
```

```
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "This attribute, when true, shall indicate that the short preamble
                option as defined in subclause 18.2.2.2 is implemented.  The default
                value of this attribute shall be false."
::= {dot11PhyHRDSSSEntry 16 }

dot11PBCCOptionImplemented OBJECT-TYPE
        SYNTAX TruthValue~~INTEGER (true (1) false(2))~~
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "This attribute, when true, shall indicate that the PBCC modulation
                option as defined in subclause 18.4.6.6 is implemented.  The default
                value of this attribute shall be false."
::= {dot11PhyHRDSSSEntry 27 }
```

Delete the text as shown:

```
dot11PhyOperationEntry:= SEQUENCE {
        dot11PhyOperationGroupTableIndex Integer32,
        dot11PHYType INTEGER,
        dot11CurrentRegDomain Integer32,
        dot11CCATime Integer32,
        dot11MACProcessingDelay Integer32,
        dot11TempType INTEGER,
        dot11PhyOperationGroupRowStatus RowStatus~~,~~
        ~~dot11ChannelAgilityPresent Boolean,~~
        ~~dot11ChannelAgilityEnabled Boolean~~}
```

Change the MIB text as shown:

```
dot11ChannelAgilityPresent OBJECT-TYPE
        SYNTAX TruthValue~~Boolean~~
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "This attribute indicates that the PHY is capable of channel agili-
        ty."
::= { dot11PhyHRDSSSEntry 3~~dot11PhyOperationEntry 8~~ }

dot11ChannelAgilityEnabled OBJECT-TYPE
        SYNTAX TruthValue~~Boolean~~
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "This attribute indicates that the PHY channel agility functionality
                is enabled."
::= { ~~dot11PhyOperationEntry 9~~dot11PhyHRDSSSEntry 4 }
```

Insert the following text after dot11PhyHRDSSSEntry 4:

```
dot11HRCCAModeSupported OBJECT-TYPE
       SYNTAX INTEGER (1..31)
       MAX-ACCESS read-only
       STATUS current
       DESCRIPTION
              "dot11HRCCAModeSupported is a bit-significant value, representing
       all of
              the CCA modes supported by the PHY. Valid values are:
                     energy detect only (ED_ONLY) = 01,
                     carrier sense only (CS_ONLY) = 02,
                     carrier sense and energy detect (ED and CS)= 04
                     carrier sense with timer (CS_and_Timer)= 08
                     high rate carrier sense and energy detect (HRCS and ED)= 16
              or the logical sum of any of these values.  In the high rate extension
              PHY, this attribute shall be used in preference to the
              dot11CCAModeSupported attribute."
::= { dot11PhyHRDSSSEntry 5 }

-- ****************************************************************
-- * End of dot11PhyHRDSSSEntry TABLE
-- ****************************************************************
```

Add a new compliance group to the compliance statements just before the section:"OPTIONAL-GROUPS":

```
GROUP dot11PhyHRDSSSComplianceGroup
       DESCRIPTION
              "Implementation of this group is required when object
              dot11PHYType has the value of hrdsss. This group is
              mutually exclusive with the groups dot11PhyDSSSComplianceGroup,
              dot11PhyIRComplianceGroup and dot11PhyFHSSComplianceGroup."
```

Change the MIB text as shown:

```
dot11CCAModeSupported OBJECT-TYPE
       SYNTAX INTEGER (1..7~~16~~)
       MAX-ACCESS read-only
       STATUS current
       DESCRIPTION
              "dot11CCAModeSupported is a bit-significant value, representing all
       of
              the CCA modes supported by the PHY. Valid values are:
                     energy detect only (ED_ONLY) = 01,
                     carrier sense only (CS_ONLY) = 02,
                     carrier sense and energy detect (ED_and_CS)= 04
                     ~~carrier sense with timer (CS_and_Timer)= 08~~
                     ~~high rate carrier sense and energy detect (HRCS_and_ED)= 16~~
              or the arithmetic sum of any of these values.  This attribute shall
```

```
                not be used to indicate the CCA modes supported by a higher rate
                extension PHY.  Rather, the dot11HRCCAModeSupported attribute shall
                be used to indicate the CCA modes of the higher rate extension PHY."
::= { dot11PhyDSSSEntry 2 }

dot11CurrentCCAMode OBJECT-TYPE
        SYNTAX INTEGER {edonly(1), csonly(2), edandcs(4), cswithtimer(8),
                                hrcsanded(16) }
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "The current CCA method in operation. Valid values are:
                        energy detect only (edonly) = 01,
                        carrier sense only (csonly) = 02,
                        carrier sense and energy detect (edandcs)= 04.
                        carrier sense with timer (cswithtimer)= 08
                        high rate carrier sense and energy detect (hrcsanded)= 16"
::= { dot11PhyDSSSEntry 3 }
```

Change the following attribute definition (as it was previously modified by 802.11a):

```
dot11PHYType OBJECT-TYPE
SYNTAX INTEGER {fhss(1), dsss(2), irbaseband(3), ofdm(4), hrdsss(5)}
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "This is an 8-bit integer value that identifies the PHY type
                supported by the attached PLCP and PMD. Currently defined
                values and their corresponding PHY types are:
                FHSS 2.4 GHz = 01 , DSSS 2.4 GHz = 02, IR Baseband = 03,
                OFDM 5GHz = 04, HRDSSS = 05 "
::= { dot11PhyOperationEntry 1 }
```

Insert the following text into the 802.11 MIB in Annex D, after the definition of the SMTBase2 Object Group:

```
dot11PhyHRDSSSComplianceGroup OBJECT-GROUP
        OBJECTS {dot11CurrentChannel,
                dot11CCAModeSupported,
                dot11CurrentCCAMode,
                dot11EDThreshold,
                dot11ShortPreambleOptionImplemented,
                dot11PBCCOptionImplemented,
                dot11ChannelAgilityPresent,
                dot11ChannelAgilityEnabled,
                dot11HRCCAModeSupported }
        STATUS current
        DESCRIPTION
                "Attributes that configure the HRDSSS PHY for IEEE 802.11."
::= { dot11Groups 19 }
```