802.11y™

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 3: 3650–3700 MHz Operation in USA

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

IEEE
3 Park Avenue
New York, NY 10016-5997, USA

6 November 2008

IEEE Std 802.11y™-2008
(Amendment to IEEE Std 802.11™-2007
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Approved 26 September 2008

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Abstract: This amendment defines enhancements to the IEEE 802.11 physical layer (PHY) and medium access control (MAC) to support operation in the 3650–3700 MHz band in the United States.
Keywords: 3650 MHz, wireless local area network, WLAN

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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 3: 3650–3700 MHz Operation in USA

(This amendment is based on IEEE Std 802.11™-2007, as amended by IEEE Std 802.11k™-2008 and IEEE Std 802.11r™-2008.)

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NOTE—The editing instructions contained in this amendment define how to merge the material contained herein into the existing base standard and its amendments to form the comprehensive standard.[1]

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and 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 instructions. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editorial notes will not be carried over into future editions because the changes will be incorporated into the base standard.

3. Definitions

Insert the following new definitions in alphabetical order into Clause 3, renumbering as necessary:

3.216 dependent station (STA): A STA that is not registered and whose operational parameters are dictated by messages it receives from an enabling STA. Once enabled by the dynamic STA enablement (DSE) process, a dependent STA's continued operation becomes contingent upon being able to receive messages from its enabling STA over the air.

[1]Notes in text, tables, and figures are given for information only, and do not contain requirements needed to implement the standard.

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3.217 dynamic station (STA) enablement (DSE): The process by which an enabling STA grants permission and dictates operational procedures to STAs that are subject to its control.

3.218 enabling station (STA): A registered STA that has the authority to control when and how a dependent STA can operate. An enabling STA communicates an enabling signal to its dependants over the air. An enabling STA may choose for other dynamic STA enablement (DSE) messages to be exchanged over the air, over the distribution system (DS), or by mechanisms that rely on transport via higher layers.

3.219 extended channel switching (ECS): A procedure that is used to announce a pending change of operating channel, regulatory class, or both.

3.220 fixed station (STA): A STA that is physically attached to a specific location. In licensed bands, a fixed STA may be authorized to operate only at a specific location.

3.221 registered station (STA): A STA for which information must be submitted to an appropriate regulatory or coordination authority before it is allowed to transmit.

3.222 restricted channel: A radio channel in which transmission is restricted to stations (STAs) that operate under the control of licensed operators.

4. Abbreviations and acronyms

Insert the following abbreviations in alphabetical order into Clause 4:

CBP Contention-Based Protocol

DSE dynamic station enablement

ECS extended channel switching

ULS Universal Licensing System

5. General description

5.1 General description of the architecture

5.1.1 How WLAN systems are different

Change the title and text of 5.1.1.1 as shown:

5.1.1.1 Wireless station (STA)~~Destination address does not equal destination location~~

~~In wired LANs, an address is equivalent to a physical location. This is implicitly assumed in the design of wired LANs.~~ In the design of wired LANs it is implicitly assumed that an address is equivalent to a physical location. In wireless networks, this is not always the case. In IEEE Std 802.11, the addressable unit is a station (STA). The term implies no more than the origin or/and destination of a message. Physical and operational characteristics are defined by modifiers that are placed in front of the term STA. For example, in the case of location and mobility, the addressable units are the fixed STA, the portable STA and the mobile STA. The STA is a message destination, but not (in general) a fixed location.

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A STA can take on multiple distinct characteristics, each of which shape its function. For example, a single addressable unit can simultaneously be a portable STA, a quality of service (QoS) STA, a dependent STA and a hidden STA.

5.2 Components of the IEEE 802.11 architecture

Insert subclauses (5.2.8 through 5.2.8.4) after 5.2.7.11:

5.2.8 Operation in licensed frequency bands

IEEE 802.11 devices can operate on frequencies that are licensed by national regulatory bodies. Although this standard has been generalized so that it is independant of license type, band, and country of operation, only the bands and associated regulations listed in Annex I have been specifically considered.

5.2.8.1 Dynamic STA enablement (DSE) in licensed bands

The DSE operating procedures are used to automate the channel permissioning and regulatory controls needed for unregistered IEEE 802.11 STAs to operate as dependent STAs in licensed spectrum.[2]

5.2.8.2 Contention-Based Protocol (CBP) in nonexclusively licensed bands

The granting of licenses on a nonexclusive, uncoordinated basis in the same area leads to the possibility of overlapping networks. When overlapping networks cause co-channel interference, regulations, such as those governing the 3650 MHz band in the United States, require the use of a CBP "by which a transmitter provides reasonable opportunities for other transmitters to operate."[3] IEEE 802.11 carrier sense multiple access with collision avoidance (CSMA/CA) is suitable for this purpose in most situations.

5.2.8.3 Using DSE STA identification to resolve interference

When CSMA/CA is not able to sufficiently sense the presence of another licensee's STA (i.e., a hidden STA) or if a secondary licensee causes inference to a primary licensee, the licensee is obliged to resolve complaints that result from interference caused by any STA under its control (including dependent STAs). In order to facilitate the interference resolution processes, all STAs operating in nonexclusively licensed spectrum use the DSE STA and location information procedures.

The STA identification and location information procedures are inherently tied because, by default, registered STAs broadcast their actual location as their unique identifier. Dependent STAs broadcast the location of the STA that has enabled them as well as a unique code selected by the licensee. This method ensures that a victim of the interference is always put in contact with the party responsible for rectifying the problem, and, at the same time, it protects the privacy of the dependent STA's operator.

5.2.8.4 Further coexistence enhancements in nonexclusively licensed bands

While not explicitly required to meet specific rules, a number of optional IEEE 802.11 mechanisms, when used together, are able to meet general requirements for spectrum sharing, incumbent detection, and other cognitive radio functions in licensed bands. The specific mechanisms for each band are detailed in J.2.

---

[2]In some licensed frequency bands, wireless equipment can be owned and operated by individuals who do not hold a license. In such instances, devices must be either communicating with, or receiving permission to transmit from, a STA that is maintained by a licensed operator. The Japanese 4.9 GHz band and the U.S. 4.94–4.99 GHz public safety band are examples in which IEEE 802.11 STAs operate under such arrangements.

[3]Definition of CBP from FCC 05-56, Report and ORDER AND MEMORANDUM OPINION AND ORDER, clause 58.

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5.3 Logical service interfaces

Change the list of architectural services in 5.3 as follows:

a) Authentication
b) Association
c) Deauthentication
d) Disassociation
e) Distribution
f) Integration
g) Data confidentiality
h) Reassociation
i) Medium access control (MAC) service data unit (MSDU) delivery
j) Dynamic frequency selection (DFS)
k) Transmit power control (TPC)
l) Higher layer timer synchronization (QoS facility only)
m) QoS traffic scheduling (QoS facility only)
n) Radio measurement
o) DSE

5.3.1 STA service (SS)

Change the list of SSs in 5.3.1 as follows:

a) Authentication
b) Deauthentication
c) Data confidentiality
d) MSDU delivery
e) DFS
f) TPC
g) Higher layer timer synchronization (QoS facility only)
h) QoS traffic scheduling (QoS facility only)
i) Radio measurement
j) DSE

5.3.2 Distribution system service (DSS)

Change the list of DDSs in 5.3.2 as follows:

a) Authentication
b) Disassociation
c) Distribution
d) Integration
e) Reassociation
f) QoS traffic scheduling (QoS facility only)
g) DSE

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7. Frame formats

7.2 Format of individual frame types

7.2.3 Management frames

7.2.3.1 Beacon frame format

Insert order 34 through 36 information fields into Table 7-8:

Table 7-8—Beacon frame body

Order	Information	Notes
34	DSE registered location	The DSE Registered Location information element shall be present if dot11LCIDSERequired is true.
35	Extended Channel Switch Announcement	The Extended Channel Switch Announcement information element may be present if dot11ExtendedChannelSwitchEnabled is true.
36	Supported Regulatory Classes	The Supported Regulatory Classes information element shall be present if dot11ExtendedChannelSwitchEnabled is true.

7.2.3.4 Association Request frame format

Change order 7 information field and insert order 12 information field into Table 7-10 as shown:

Table 7-10—Association Request frame format

Order	Information	Notes
7	Supported Channels	The Supported Channels element shall be present if dot11SpectrumManagementRequired is true and dot11ExtendedChannelSwitchEnabled is false.
12	Supported Regulatory Classes	The Supported Regulatory Classes information element is present if dot11ExtendedChannelSwitchEnabled is true.

7.2.3.5 Association Response frame format

Insert order 12 information field into Table 7-11:

Table 7-11—Association Response frame format

Order	Information	Notes
12	DSE registered location	The DSE Registered Location information element is present if dot11LCIDSERequired is true

7.2.3.6 Reassociation Request frame format

Change order 8 information field and insert order 15 information field into Table 7-12 as shown:

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Table 7-12—Reassociation Request frame format

Order	Information	Notes
8	Supported Channels	The Supported Channels element shall be present if dot11SpectrumManagementRequired is true and dot11ExtendedChannelSwitchEnabled is false.
15	Supported Regulatory Classes	The Supported Regulatory Classes information element is present if dot11ExtendedChannelSwitchEnabled is true.

7.2.3.7 Reassociation Response frame format

Insert order 14 information field into Table 7-13:

Table 7-13—Reassociation Response frame body

Order	Information	Notes
14	DSE registered location	The DSE Registered Location information element is present if dot11LCIDSERequired is true

7.2.3.8 Probe Request frame format

Insert order 6 information field into Table 7-14:

Table 7-14—Probe Request frame format

Order	Information	Notes
6	Supported Regulatory Classes	The Supported Regulatory Classes information element is present if dot11ExtendedChannelSwitchEnabled is true.

7.2.3.9 Probe Response frame format

Insert order 32 through 34 information fields into Table 7-15:

Table 7-15—Probe Response frame body

Order	Information	Notes
32	DSE registered location	The DSE Registered Location information element shall be present if dot11LCIDSERequired is true.
33	Extended Channel Switch Announcement	The Extended Channel Switch Announcement information element may be present if dot11ExendedChannelSwitchIEnabled is true.
34	Supported Regulatory Classes	The Supported Regulatory Classes information element is present if dot11ExtendedChannelSwitchEnabled is true.

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7.3 Management frame body components

7.3.2 Information elements

Insert element identifiers (IDs) 58 through 60 into Table 7-26:

Table 7-26—Element IDs

Information Element	Element ID	Length (in octets)	Extensible
DSE Registered Location (see 7.3.2.52)	58	22	
Supported Regulatory Classes (see 7.3.2.54)	59	4 to 255	
Extended Channel Switch Announcement (see 7.3.2.53)	60	6	

7.3.2.27 Extended Capabilities information element

Change last paragraph of 7.3.2.27 as follows:

The Capabilities field is a bit field indicating the capabilities being advertised by the STA transmitting the information element. ~~There are no capabilities defined for this field in this revision of the standard.~~ The length of the Capabilities field is a variable *n*. The Capabilities field is shown in Table 7-35a.

Table 7-35a—Capabilities field

Bit	Information	Notes
0, 1	Reserved	
2	Extended Channel Switching	The Extended Channel Switching field is 1 to indicate support for the communication of channel switching information through the transmission and reception of the Extended Channel Switch Announcement element and management frame as described in 7.4.7.6. The Extended Channel Switching field is 0 to indicate a lack of support for extended channel switching.
3–*n*	Reserved	

If a STA does not support any of capabilities defined in the Extended Capabilities information element, then the STA is not required to transmit the Extended Capabilities information element.

Insert the following subclauses (7.3.2.52 through 7.3.2.54) after 7.3.2.51:

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7.3.2.52 DSE Registered Location element

A DSE Registered Location element includes DSE location configuration information (LCI), which contains latitude, longitude, and altitude information. The DSE Registered Location element format is shown in Figure 7-95o11

	ElementID	Length	DSE Registered Location element body fields
Octets:	1	1	20

Figure 7-95o11—DSE Registered Location element format

The Length field is set to 20.

The structure and information fields are little endian, per conventions defined in 7.1.1, and are based on the LCI format described in IETF RFC 3825.

The DSE Registered Location element body fields are shown in Figure 7-95o12.

B0–B5	Latitude Resolution	6
B6–B30	Latitude Fraction	25
B31–B39	Latitude Integer	9
B40–B45	Longitude Resolution	6
B46–B70	Longitude Fraction	25
B71–B79	Longitude Integer	9
B80–B83	Altitude Type	4
B84–B89	Altitude Resolution	6
B90–B97	Altitude Fraction	8
B98–B119	Altitude Integer	22
B120–B122	Datum	3
B123	RegLoc Agreement	1
B124	RegLoc DSE	1
B125	Dependent STA	1
B126–B127	Reserved	2
B128–B143	Dependent Enablement Identifier	16
B144–B151	Regulatory Class	8
B152–B159	Channel Number	8

Figure 7-95o12—DSE registered location element body fields format

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The definition of fields within the DSE Registered Location element body shall be as defined in Section 2.1 of IETF RFC 3825 except as defined in this standard.

With an Altitude Type field value of 3 (i.e., height above ground in meters), the altitude is defined to be in meters and is formatted in twos-complement, fixed-point, 22-bit integer part with 8-bit fraction.

The Datum field is a 3-bit field, rather than the 8-bit field defined in IETF RFC 3825, and the codes used are as defined in IETF RFC 3825.

The RegLoc Agreement bit field is set to 1 to report that the STA is operating within a national policy area or an international agreement area near a national border (see 11.11.3); otherwise, it is 0.

The RegLoc DSE bit field is set to 1 to report that the enabling STA is enabling the operation of STAs with DSE; otherwise, it is 0.

The Dependent STA bit field is set to 1 to report that the STA is operating with the enablement of the enabling STA whose LCI is being reported; otherwise, it is 0.

The Dependent Enablement Identifier field is a 16-bit field with a value set by the enabling STA via the DSE Enablement frame; otherwise, it is set to 0.

The Regulatory Class field indicates the channel set for which the enablement request, report, or announcement applies. The Regulatory Class and Channel Number fields together specify the channel frequency and channel bandwidth for which the report applies. Valid values for the Regulatory Class field are shown in Annex J.

The Channel Number field indicates the channel number for which the enablement request, report, or announcement applies. The channel number is defined within a regulatory class as shown in Annex J.

NOTE—An example of fixed/fractional notation, using the longitude of the Sears Tower from IETF RFC 3825, July 2004, page 13, is shown below:

Longitude 87.63602 degrees West (or –87.63602 degrees),

Using twos-complement, 34-bit fixed point, 25-bit fraction,

Longitude = 0xf50ba5b97,

Longitude = 1101010000101110100101101110010111 (big endian)

DSE registered location expression for a Longitude resolution of 34 bits:

Bits 40–45 Longitude resolution = (bit 40) 0 1 0 0 0 1 (bit 45)

Bits 46–70 Longitude fraction = (bit 46) 1 1 1 0 1 0 0 1 1 1 0 1 1 0 1 0 0 1 0 1 1 1 0 1 0 (bit 70)

Bits 71–79 Longitude integer = (bit 71) 0 0 0 1 0 1 0 1 1 (bit 79)

The octets in transmission order = E2 E5 96 2E D4.

7.3.2.53 Extended Channel Switch Announcement element

The Extended Channel Switch Announcement element is used by an access point (AP) in a basic service set (BSS) or a STA in an independant basic service set (IBSS) to advertise when the BSS is changing to a new channel or a new channel in a new regulatory class. The announcement includes both the regulatory class

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and the channel number of the new channel. The element is present only when an extended channel switch is pending. The format of the Extended Channel Switch Announcement element is shown in Figure 7-95o13.

	Element ID	Length	Channel Switch Mode	New Regulatory Class	New Channel Number	Channel Switch Count
Octets:	1	1	1	1	1	1

Figure 7-95o13—Extended Channel Switch Announcement element format

The Length field is set to 4.

The Channel Switch Mode field indicates any restrictions on transmission until a channel switch. An AP in a BSS or a STA in an IBSS sets the Channel Switch Mode field to either 0 or 1 on transmission as specified in 11.9.7.1 and 11.9.7.2.

The New Regulatory Class field is set to the number of the regulatory class after the channel switch, as defined in Annex J.

The New Channel Number field is set to the number of the channel after the channel switch. The channel number is a channel from the STA's new regulatory class as defined in Annex J.

The Channel Switch Count field indicates either the number of target beacon transmission times (TBTTs) until the STA sending the Extended Channel Switch Announcement element switches to the new channel or a value of zero. A value of one indicates that the switch occurs immediately before the next TBTT. A value of zero indicates that the switch occurs anytime after the frame containing the element is transmitted.

7.3.2.54 Supported Regulatory Classes element

The Supported Regulatory Classes element is used by a STA to advertise the regulatory classes that it is capable of operating with in this country. The format of the Supported Regulatory Classes element is shown in Figure 7-95o14.

	Element ID	Length	Current Regulatory Class	List of Regulatory Class(es)
Octets:	1	1	1	Length-1

Figure 7-95o14—Supported Regulatory Classes element format

The value of the Length field of the Supported Regulatory Classes element is between 2 and 253. The Current Regulatory Class octet indicates the regulatory class in use for transmission and reception. The List of Regulatory Class(es) field lists in ascending order all regulatory classes that the STA is capable of operating with in this country. The use of this element is described in 11.9a.1.

7.4 Action frame format details

7.4.7 Public Action details

7.4.7.1 Public Action frames

Change Table 7-57e as shown:

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Table 7-57e—Public Action field values

Action field value	Description
0–~~6~~	Reserved
1	DSE enablement
2	DSE deenablement
3	DSE Registered Location Announcement
4	Extended Channel Switch Announcement
5	DSE measurement request
6	DSE measurement report
7	Measurement Pilot
8	DSE power constraint
~~8~~9–255	Reserved

Insert the following subclauses (7.4.7.3 through 7.4.7.8) after 7.4.7.2:

7.4.7.3 DSE Enablement frame format

The DSE Enablement frame is an Action frame. It is transmitted by a STA as part of enablement. The format of the DSE Enablement frame body is shown in Figure 7-101h1.

	Category	Action Value	RequesterSTA Address	ResponderSTA Address	Reason Result Code	Enablement Identifier
Octets:	1	1	6	6	1	2

Figure 7-101h1—DSE Enablement frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate a DSE Enablement frame, as defined in Table 7-57e.

The RequesterSTAAddress field is the MAC address of the requesting STA that initiates the enablement process. The length of the RequesterSTAAddress field is 6 octets.

The ResponderSTAAddress field is the MAC address of the responding STA that grants enablement. The length of the ResponderSTAAddress field is 6 octets.

The Reason Result Code field is used to indicate the reason that a DSE Enablement frame was generated. The length of the Reason Result Code field is 1 octet. The reason result codes that have been allocated are shown in Table 7-57f1.

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Table 7-57f1—Reason Result Code field values

Reason Result Code field value	Description
0	Reserved
1	Reserved
2	Enablement requested
3	Success
4	Request declined
5	Request not successful as one or more parameters have invalid values
6	Enablement denied because the enabling STA is unable to handle additional dependent STAs
7	Handshake timeout
8–255	Reserved

The Enablement Identifier field is a 16-bit number assigned by an enabling STA to a dependent STA; otherwise, it is zero, set using the procedures defined in 11.11.

7.4.7.4 DSE Deenablement frame format

The DSE Deenablement frame is an Action frame. It is transmitted by a STA as part of deenablement. The format of the DSE Deenablement frame body is shown in Figure 7-101h2

	Category	Action Value	RequesterSTA Address	ResponderSTA Address	Reason Result Code
Octets:	1	1	6	6	1

Figure 7-101h2—DSE Deenablement frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate a DSE Deenablement frame, as defined in Table 7-57e.

The RequesterSTAAddress field is the MAC address of the requesting STA that initiates the deenablement process. The length of the RequesterSTAAddress field is 6 octets.

The ResponderSTAAddress field is the MAC address of the responding STA that becomes deenabled. The length of the ResponderSTAAddress field is 6 octets.

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The Reason Result Code field is used to indicate the reason that a DSE Deenablement frame was generated. The length of the Reason Result Code field is 1 octet. The reason result codes that have been allocated are shown in Table 7-57f2.

Table 7-57f2—Reason Result Code field values

Reason Result Code field value	Description
0	Reserved
1	Reserved
2	Deenablement requested
3	Success
4	Reserved
5	Request not successful as one or more parameters have invalid values
6–255	Reserved

7.4.7.5 DSE Registered Location Announcement frame format

The DSE Registered Location Announcement frame is transmitted by a dependent STA to advertise the registered location of its enabling STA. The format of the DSE Registered Location Announcement frame body is shown in Figure 7-101h3.

	Category	Action Value	DSE Registered Location element body fields
Octets:	1	1	20

Figure 7-101h3—DSE Registered Location Announcement frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate a DSE Registered Location Announcement frame, as defined in Table 7-57e.

The remaining fields are as defined in the DSE Registered Location element body (see 7.3.2.52).

7.4.7.6 Extended Channel Switch Announcement frame format

The Extended Channel Switch Announcement frame is transmitted by an AP in an infrastructure BSS or a STA in an IBSS to advertise a channel switch. The format of the Extended Channel Switch Announcement frame body is shown in Figure 7-101h4.

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	Category	Action Value	Channel Switch Mode	New Regulatory Class	New Channel Number	Channel Switch Count
Octets:	1	1	1	1	1	1

Figure 7-101h4—Extended Channel Switch Announcement frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate an Extended Channel Switch Announcement frame, as defined in Table 7-57e.

The remaining fields are as described in the Extended Channel Switch Announcement element (see 7.3.2.53).

7.4.7.7 DSE Measurement Request frame format

The DSE Measurement Request frame is a Public Action frame requesting a DSE measurement report. It is transmitted by a STA using the procedures defined in 11.11. The format of the DSE Measurement Request frame body is shown in Figure 7-101h5.

	Category	Action Value	Requester STA Address	Responder STA Address	Regulatory Class	Channel Number	Measurement Start Time	Measurement Duration
Octets:	1	1	6	6	1	1	8	2

Figure 7-101h5—DSE Measurement Request frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate a DSE Measurement Request frame, as defined in Table 7-57e.

The RequesterSTAAddress field is the MAC address of the requesting STA that grants enablement. The length of the RequesterSTAAddress field is 6 octets.

The ResponderSTAAddress field is the MAC address of the responding STA that operates based on the enablement. The length of the ResponderSTAAddress field is 6 octets.

The Regulatory Class field indicates the channel set for which the measurement request applies. The Regulatory Class and Channel Number fields together specify the channel frequency and channel bandwidth for which the measurement request applies. Valid values for the Regulatory Class field are shown in Annex J.

The Measurement Start Time field is set to the timing synchronization function (TSF) at the time (± 1 TU) at which the requested DSE request measurement shall start. A value of 0 indicates it starts immediately.

The Measurement Duration field is set to the duration of the requested measurement, expressed in number of time units (TUs).

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7.4.7.8 DSE Measurement Report frame format

The DSE Measurement Report frame is a Public Action frame. It is transmitted by a STA using the procedures defined in 11.11. The format of the DSE Measurement Report frame body is shown in Figure 7-101h6.

Cate-gory	Action Value	Requester STA Address	Responder STA Address	Length	Regulatory Class	Channel Number	Measu-rement Report Mode	Actual Measure-ment Start Time	Measure-ment Duration	Reported DSE LCI fields
1	1	6	6	2	1	1	1	8	2	n x 26

Octets:

Figure 7-101h6—DSE Measurement Report frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate a DSE Measurement Report frame, as defined in Table 7-57e.

The RequesterSTAAddress field is the MAC address of the requesting STA that grants enablement. The length of the RequesterSTAAddress field is 6 octets.

The ResponderSTAAddress field is the MAC address of the responding STA that operates based on the enablement. The length of the ResponderSTAAddress field is 6 octets.

The Length field indicates the length of the remaining frame fields in octets, and the value is variable. The minimum value of the Length field is 13.

The Regulatory Class field indicates the channel set for which the measurement report applies. The Regulatory Class and Channel Number fields together specify the channel frequency and spacing for which the measurement request applies. Valid values for the Regulatory Class field are shown in Annex J.

The Measurement Report Mode field is as defined in 7.3.2.22 (see Figure 7-64).

The Actual Measurement Start Time field is set to the measuring STA's TSF timer at the time (± 1 TU) at which the DSE measurement started.

The Measurement Duration field is set to the duration over which the requested measurement was measured, expressed in number of TUs.

The reported DSE LCI fields contain the DSE LCI received at the measuring STA. If the reported DSE LCI fields would cause the frame to exceed the maximum MAC management protocol data unit (MMPDU) size, then the reported DSE LCI fields shall be truncated so that the last reported DSE LCI field is complete. The DSE LCI field format is shown in Figure 7-101h7.

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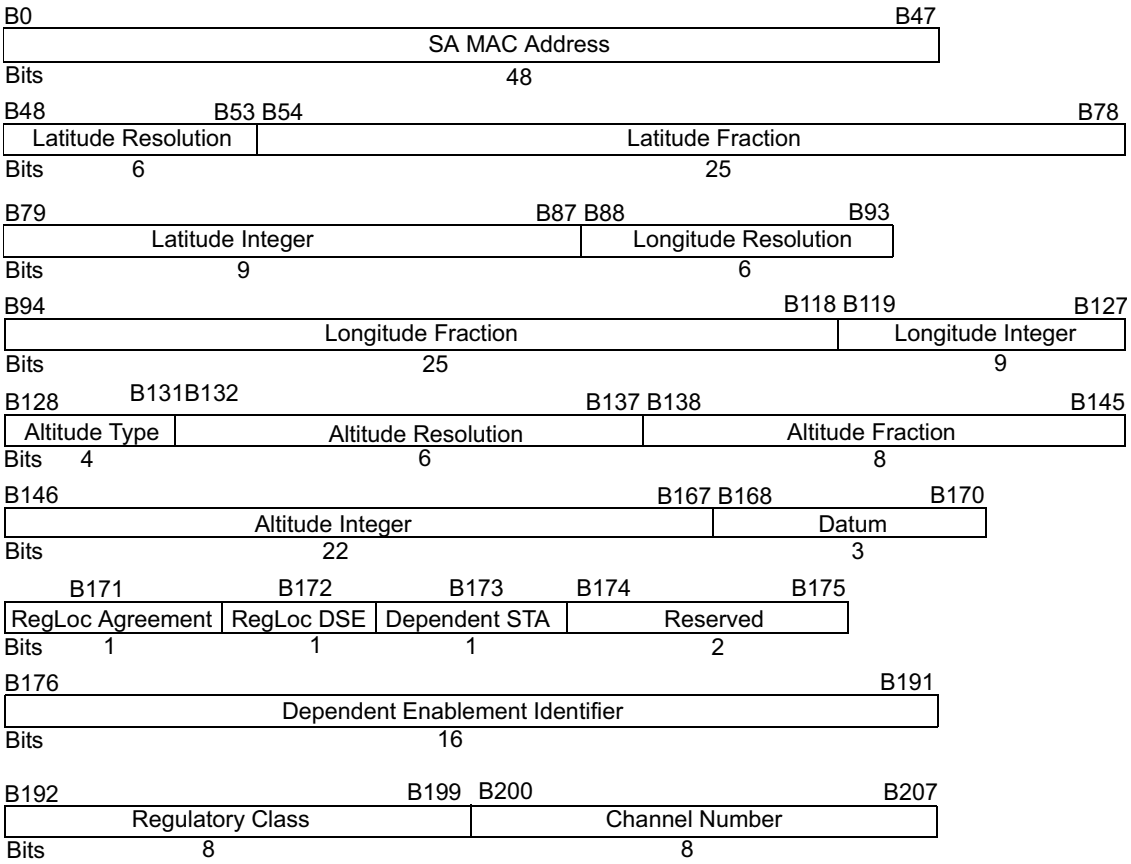

Figure 7-101h7—DSE LCI field format

The SA MAC Address field contains the SA field MAC address from the Beacon or Public Action frame containing a DSE Registered Location element being reported.

The remaining fields are as defined in the DSE Registered Location element body (see 7.3.2.52).

7.4.7.9 DSE Power Constraint frame format

The DSE Power Constraint frame is a Public Action frame requesting that a dependent STA constrain transmit power below the regulatory limit. It is transmitted by an enabling STA as part of enablement. The format of the DSE Power Constraint frame body is shown in Figure 7-101h8

	Category	Action Value	RequesterSTA Address	ResponderSTA Address	Reason Result Code	Local Power Constraint
Octets:	1	1	6	6	1	

Figure 7-101h8—DSE Power Constraint frame body format

The Category field is set to the value for public action defined in Table 7-24.

The Action Value field is set to indicate a DSE Power Constraint frame, as defined in Table 7-57e.

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The RequesterSTAAddress field is the MAC address of the requesting STA that grants the enablement. The length of the RequesterSTAAddress field is 6 octets.

The ResponderSTAAddress field is the MAC address of the responding STA that initiates the enablement. The length of the ResponderSTAAddress field is 6 octets.

The Reason Result Code field is used to indicate the reason that a DSE Power Constraint frame was generated. The length of the Reason Result Code field is 1 octet. The reason result codes that have been allocated are shown in Table 7-57f3.

Table 7-57f3—Reason Result Code field values

Reason Result Code field value	Description
0	Reserved
1	Reserved
2	Power constraint requested
3	Success
4	Reserved
5	Request not successful as one or more parameters have invalid values
6	Reserved
7	Handshake timeout
8-255	Reserved

The Local Power Constraint field is coded as an unsigned integer in units of decibels relative to 1 mW. The local maximum transmit power for a channel is thus defined as the maximum transmit power level specified for the channel in the Country element minus the local power constraint specified for the channel in the DSE Power Constraint frame.

9. MAC sublayer functional description

9.2 Distributed coordination function (DCF)

9.2.10 DCF timing relations

Change the third paragraph of 9.2.10 as shown:

aSIFSTime and aSlotTime are ~~fixed~~determined per physical layer (PHY), aSIFSTime is fixed, and aSlotTime can change dynamically as aAirPropagationTime changes (see 9.8.4).

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9.8 Operation across regulatory domains

9.8.1 Operation upon entering a regulatory domain

Change the second paragraph of 9.8.1 as shown:

When a STA with dot11MultiDomainCapabilityEnabled set to TRUE enters a regulatory domain, before transmitting, it shall passively scan to learn at least one valid channel, i.e., a channel upon which it detects IEEE 802.11 frames. The Beacon frame contains information on the country code, the maximum allowable transmit power, and the channels that may~~to~~ be used for the regulatory domain. Optionally, the Beacon frame may also include in the Country information element, on a periodic basis, the regulatory information that would be returned in a Probe Response frame. When DSE dependent STA operation is required in a regulatory domain, a dependent STA may be required to receive a Beacon frame signalling dependent enablement (11.11.5), and until this frame reception transmission occurs, the STA may continue passive scanning to receive such a Beacon frame directly from an enabling STA. Once the STA has acquired the information so that it is able to meet the transmit requirements of the regulatory domain, it shall transmit a Probe Request to an AP to gain the additional necessary regulatory domain information contained in the Probe Response frame, unless the information was previously received in a Beacon frame. The STA then has sufficient information available to configure its PHY for operation in the regulatory domain.

Insert the following subclauses (9.8.3 and 9.8.4) after 9.8.2.1:

9.8.3 Operation with regulatory classes

When dot11RegulatoryClassesImplemented is true, the following statements apply:

— When dot11RegulatoryClassesRequired is false, or where regulatory classes domain information is not present in a STA, that STA is not required to change its operation in response to an information element or element-specific information field that contains a regulatory class.

— When dot11RegulatoryClassesRequired is true, or where regulatory classes domain information is present in a STA, the STA shall indicate current regulatory class information in the Country information element and Supported Regulatory Classes information element.

— When dot11RegulatoryClassesRequired and dot11ExtendedChannelSwitchEnabled are true and a STA is capable of operating as specified in more than one regulatory class, the STA shall include the Supported Regulatory Classes element in Association frames and Reassociation frames.

— When dot11RegulatoryClassesRequired is true, or where regulatory classes domain information is present and the STA parsing a Country information element finds a First Channel Number or Regulatory Class field with a reserved value, the STA shall ignore the remainder of the Country information element and shall parse any remaining management frame body for additional information elements.

9.8.4 Operation with coverage classes

The default PHY parameters are based on aAirPropagationTime having a value of 1 µs or less, and aSlotTime and other MAC timing are based on the PHY timing parameters, as specified in 9.2.3 and 9.2.10. When dot11RegulatoryClassesRequired is true, it is possible to manage the MAC timing of STAs that can receive Beacon frames or Probe Response frames that contain the Country information element (7.3.2.9), to increase fairness in contending for the medium. Radio waves propagate at 300 m/µs in free space, and, for example, 3 µs would be the ceiling for BSS maximum one-way distance of ~450 m (~900 m round trip). The Coverage Class field of the Country information element indicates the new value of aAirPropagationTime (see Table 7-27), and the MAC can use the new value to calculate aSlotTime, PIFS, DIFS, EIFS, TxPIFS and TxDIFS (see 9.2.10). When dot11RegulatoryClassesRequired and dot11ExtendedChannelSwitch-Enabled are true and Country information elements have been received in Beacon frames or Probe Response

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frames, associated STAs and dependent STAs shall use MAC timing that corresponds to the new value of aAirPropagationTime (see 9.2.10).

Using the Country information element, an AP can change coverage class and maximum transmit power level to enhance operation. When dot11RegulatoryClassesRequired and dot11ExtendedChannelSwitch-Enabled are true and the maximum transmit power level is different from the transmit power limit indicated by the regulatory class, the associated STA or dependent STA shall operate at a transmit power at or below that indicated by the lesser of the two limits.

10. Layer management

10.3 MAC sublayer management entity (MLME) service access point (SAP) interface

10.3.2 Scan

10.3.2.2 MLME-SCAN.confirm

10.3.2.2.2 Semantics of the service primitive

Insert the following row at the end of the BSSDescription table in 10.3.2.2.2:

Name	Type	Valid range	Description
DSERegisteredLocation	As defined in information element	As defined in 7.3.2.52	The information from the DSE Registered Location information element, if such a field is present in Probe Response or Beacon, else null. Present only when DSE functionality is required, as specified in 11.11, or when dot11LCIDSERequired is true.

10.3.6 Associate

10.3.6.1 MLME-ASSOCIATE.request

10.3.6.1.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.6.1.2 as shown:

MLME-ASSOCIATE.request (
PeerSTAAddress,
AssociateFailureTimeout,
CapabilityInformation,
ListenInterval,
Supported Channels,
RSN,
QoSCapability,
Content of FT Authentication Information Elements,
<u>SupportedRegulatoryClasses,</u>
VendorSpecificInfo
)

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Insert the following row before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.6.1.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Specifies the supported regulatory classes capabilities of the non-AP STA. This parameter shall be present if and only if the management information base (MIB) attribute dot11ExtendedChannelSwitchEnabled is true.

10.3.6.2 MLME-ASSOCIATE.confirm

10.3.6.2.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.6.2.2 as shown:

MLME-ASSOCIATE.confirm (
ResultCode,
CapabilityInformation,
AssociationID,
SupportedRates,
EDCAParameterSet,
RCPI.request,
RSNI.request,
RCPI.response,
RSNI.response,
RRMEnabledCapabilities,
Content of FT Authentication Information Elements,
<u>SupportedRegulatoryClasses,</u>
VendorSpecificInfo
)

Insert the following row before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.6.2.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Specifies the supported regulatory classes capabilities of the non-AP STA. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.

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10.3.6.3 MLME-ASSOCIATE.indication

10.3.6.3.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.6.3.2 as shown:

MLME-ASSOCIATE.indication (
PeerSTAAddress,
CapabilityInformation,
ListenInterval,
SSID,
Supported Rates,
RSN,
QoSCapability,
RCPI,
RSNI,
RRMEnabledCapabilities,
Content of FT Authentication Information Elements,
<u>SupportedRegulatoryClasses,</u>
<u>DSERegisteredLocation,</u>
VendorSpecificInfo
)

Insert the following row before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.6.3.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Indicates the supported regulatory classes capabilities of the AP. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.
DSERegisteredLocation	As defined in the DSE Registered Location element	As defined in 7.3.2.52	Indicates the DSE registered location including the dependent enablement identifier assigned by the enabling STA. This parameter may be present if and only if dot11LCIDSERequired is true.

10.3.6.4 MLME-ASSOCIATE.response

10.3.6.4.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.6.4.2 as shown:

MLME-ASSOCIATE.response (
PeerSTAAddress,
ResultCode,
CapabilityInformation,
AssociationID,
EDCAParameterSet,
RCPI,

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RSNI,
RRMEnabledCapabilities,
Content of FT Authentication Information Elements,
SupportedRegulatoryClasses,
DSERegisteredLocation,
VendorSpecificInfo
)

Insert the following rows before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.6.4.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Indicates the supported regulatory classes capabilities of the AP. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.
DSERegisteredLocation	As defined in the DSE Registered Location element	As defined in 7.3.2.52	Indicates the DSE registered location including the dependent enablement identifier assigned by the enabling STA. This parameter may be present if and only if dot11LCIDSERequired is true.

10.3.7 Reassociate

10.3.7.1 MLME-REASSOCIATE.request

10.3.7.1.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.7.1.2 as shown:

MLME-REASSOCIATE.request (
NewAPAddress,
ReassociateFailureTimeout,
CapabilityInformation,
ListenInterval,
Supported Channels,
RSN,
QoSCapability,
Content of FT Authentication Information Elements,
SupportedRegulatoryClasses,
VendorSpecificInfo
)

Insert the following row before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.7.1.2:

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Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Specifies the supported regulatory classes of the non-AP STA. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.

10.3.7.2 MLME-REASSOCIATE.confirm

10.3.7.2.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.7.2.2 as shown:

MLME-REASSOCIATE.confirm (
ResultCode,
CapabilityInformation,
AssociationID,
SupportedRates,
EDCAParameterSet,
RCPI.request,
RSNI.request,
RCPI.response,
RSNI.response,
RRMEnabledCapabilities,
Content of FT Authentication Information Elements,
<u>SupportedRegulatoryClasses,</u>
VendorSpecificInfo
)

Insert the following row before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.7.2.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Specifies the supported regulatory classes of the non-AP STA. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.

10.3.7.3 MLME-REASSOCIATE.indication

10.3.7.3.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.7.3.2 as shown:

MLME-REASSOCIATE.indication (
PeerSTAAddress,
CurrentAPAddress,
CapabilityInformation,

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ListenInterval,
SSID,
SupportedRates,
RSN,
QoSCapability,
RCPI,
RSNI,
RRMEnabledCapabilities,
Content of FT Authentication Information Elements,
SupportedRegulatoryClasses,
DSERegisteredLocation,
VendorSpecificInfo
)

Insert the following rows before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.7.3.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Specifies the supported regulatory classes of the non-AP STA. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.
DSERegisteredLocation	As defined in the DSE Registered Location element	As defined in 7.3.2.52	Indicates the DSE registered location including the dependent enablement identifier assigned by the enabling STA. This parameter may be present if and only if dot11LCIDSERequired is true.

10.3.7.4 MLME-REASSOCIATE.response

10.3.7.4.2 Semantics of the service primitive

Change the primitive parameter list in 10.3.7.4.2 as shown:

MLME-REASSOCIATE.response (
PeerSTAAddress,
ResultCode,
CapabilityInformation,
AssociationID,
EDCAParameterSet,
RCPI,
RSNI,
RRMEnabledCapabilities,
Content of FT Authentication Information Elements,
SupportedRegulatoryClasses,
DSERegisteredLocation,
VendorSpecificInfo
)

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Insert the following rows before VendorSpecificInfo row of the untitled table defining the primitive parameters in 10.3.7.4.2:

Name	Type	Valid range	Description
SupportedRegulatoryClasses	As defined in the Supported Regulatory Classes element	As defined in 7.3.2.54	Specifies the supported regulatory classes of the non-AP STA. This parameter shall be present if and only if the MIB attribute dot11ExtendedChannelSwitchEnabled is true.
DSERegisteredLocation	As defined in the DSE Registered Location element	As defined in 7.3.2.52	Indicates the DSE registered location including the dependent enablement identifier assigned by the enabling STA. This parameter may be present if and only if dot11LCIDSERequired is true.

10.3.10 Start

10.3.10.1 MLME-START.request

10.3.10.1.2 Semantics of the service primitive

Change the primitive parameters in 10.3.10.1.2 as shown:

MLME-START.request (
SSID,
BSSType,
BeaconPeriod,
DTIMPeriod,
CF parameter set,
PHY parameter set,
IBSS parameter set,
ProbeDelay.
CapabilityInformation,
BSSBasicRateSet,
OperationalRateSet,
Country,
IBSS DFS Recovery Interval,
EDCAParameterSet,
<u>DSERegisteredLocation,</u>
VendorSpecificInfo
)

Insert the following row before VendorSpecificInfo row of the untitled table defining the parameters in 10.3.10.1.2 as shown:

Name	Type	Valid range	Description
DSERegisteredLocation	As defined in the DSE Registered Location element	As defined in 7.3.2.52	The information for the DSE Registered Location information element. Shall be present if and only if dot11LCIDSERequired is true.

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Insert the following subclauses (10.3.35 through 10.3.38.3.4) after 10.3.34.3.4:

10.3.35 Extended channel switch announcement

The following MLME primitives support the signaling of extended channel switch announcement.

10.3.35.1 MLME-EXTCHANNELSWITCH.request

10.3.35.1.1 Function

This primitive requests that an Extended Channel Switch Announcement frame be sent by an AP.

10.3.35.1.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-EXTCHANNELSWITCH.request    (
                                 Mode,
                                 RegulatoryClass,
                                 ChannelNumber,
                                 ChannelSwitchCount,
                                 VendorSpecificInfo
                                 )
```

Name	Type	Valid range	Description
Mode	Integer	0,1	Channel switch mode, as defined for the Extended Channel Switch Announcement element.
RegulatoryClass	Integer	As defined in Annex J	Specifies the new regulatory class.
ChannelNumber	Integer	As defined in Annex J	Specifies the new channel number.
ChannelSwitchCount	Integer	0–255	Specifies the number of TBTTs until the channel switch event, as described for the Extended Channel Switch Announcement element.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.35.1.3 When generated

This primitive is generated by the STA management entity (SME) to request that an Extended Channel Switch Announcement frame be sent to a non-AP STA that is associated to the AP.

10.3.35.1.4 Effect of receipt

On receipt of this primitive, the MLME constructs and transmits an Extended Channel Switch Announcement frame.

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10.3.35.2 MLME-EXTCHANNELSWITCH.confirm

10.3.35.2.1 Function

This primitive reports the result of a request to switch channel.

10.3.35.2.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-EXTCHANNELSWITCH.confirm    (
                                  ResultCode,
                                  VendorSpecificInfo
                                  )
```

Name	Type	Valid range	Description
ResultCode	Enumeration	SUCCESS, INVALID_PARAMETERS, UNSPECIFIED_FAILURE	Reports the result of an extended channel switch request.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.35.2.3 When generated

This primitive is generated by the MLME when an extended channel switch request completes. Possible unspecified failure causes include an inability to schedule an extended channel switch announcement.

10.3.35.2.4 Effect of receipt

The SME is notified of the results of the extended channel switch procedure.

10.3.35.3 MLME-EXTCHANNELSWITCH.indication

10.3.35.3.1 Function

This primitive indicates that an Extended Channel Switch Announcement frame was received from an AP.

10.3.35.3.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-EXTCHANNELSWITCH.indication    (
                                     Peer MAC Address,
                                     Mode,
                                     RegulatoryClass,
                                     ChannelNumber,
                                     ChannelSwitchCount,
                                     VendorSpecificInfo
                                     )
```

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Name	Type	Valid range	Description
Peer MAC Address	MACAddress	Any valid individual MAC address	The address of the peer MAC entity from which the Extended Channel Switch Announcement frame was received.
Mode	Integer	0, 1	Channel switch mode, as defined for the Channel Switch Announcement element.
RegulatoryClass	Integer	As defined in Annex J	Specifies the new regulatory class.
ChannelNumber	Integer	As defined in Annex J	Specifies the new channel number.
ChannelSwitchCount	Integer	0–255	Specifies the number of TBTTs until the channel switch event, as described for the Extended Channel Switch Announcement element.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.35.3.3 When generated

This primitive is generated by the MLME when a valid Extended Channel Switch Announcement frame is received.

10.3.35.3.4 Effect of receipt

On receipt of this primitive, the SME decides whether to accept the switch request.

10.3.35.4 MLME-EXTCHANNELSWITCH.response

10.3.35.4.1 Function

This primitive is used to schedule an accepted extended channel switch.

10.3.35.4.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-EXTCHANNELSWITCH.response    (
                                  Mode,
                                  RegulatoryClass,
                                  ChannelNumber,
                                  ChannelSwitchCount,
                                  VendorSpecificInfo
                                  )
```


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Name	Type	Valid range	Description
Mode	Integer	0, 1	Channel switch mode, as defined for the Channel Switch Announcement element.
RegulatoryClass	Integer	As defined in Annex J	Specifies the new regulatory class.
ChannelNumber	Integer	As defined in Annex J	Specifies the new channel number.
ChannelSwitchCount	Integer	0–255	Specifies the number of TBTTs until the channel switch event, as described for the Extended Channel Switch Announcement element.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.35.4.3 When generated

This primitive is generated by the SME to schedule an accepted extended channel switch request.

10.3.35.4.4 Effect of receipt

On receipt of this primitive, the MLME schedules the extended channel switch. The actual channel switch is at the appropriate time through the MLME-PLME interface using the PLME-SET primitive of the dot11CurrentFrequency MIB attribute.

10.3.36 DSE power constraint announcement

The following MLME primitives support the signaling of DSE power constraint to dependent STAs.

10.3.36.1 MLME-DSETPC.request

10.3.36.1.1 Function

This primitive requests that a DSE Power Constraint frame be sent by an enabling STA.

10.3.36.1.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DSETPC.request        (
                           RequesterSTAAddress,
                           ResponderSTAAddress,
                           DSELocalPowerConstraint,
                           VendorSpecificInfo
                           )
```

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Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity of the enabling STA.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity that initiates the enablement process.
DSELocalPowerConstraint	Integer	0–255	Specifies the local power constraint, as described in the DSE Power Constraint frame (see 7.4.7.9).
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.36.1.3 When generated

This primitive is generated by the SME to request that a DSE Power Constraint Announcement frame be sent to a dependent STA.

10.3.36.1.4 Effect of receipt

Upon receipt of this primitive, the MLME constructs a DSE Power Constraint Announcement frame. The enabling STA then schedules this frame for transmission.

10.3.36.2 MLME-DSETPC.confirm

10.3.36.2.1 Function

This primitive reports the results of a request to send a DSE Power Constraint Announcement frame.

10.3.36.2.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DSETPC.confirm        (
                           ResultCode,
                           VendorSpecificInfo
                           )
```

Name	Type	Valid range	Description
ResultCode	Enumeration	SUCCESS, INVALID_PARAMETERS, TIMEOUT	Indicates the result of MLMLE-DSETPC.request primitive.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

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10.3.36.2.3 When generated

This primitive is generated by the MLME when a DSE power constraint announcement completes.

10.3.36.2.4 Effect of receipt

The SME is notified of the results of the DSE power constraint procedure.

10.3.36.3 .MLME-DSETPC.indication

10.3.36.3.1 Function

This primitive indicates that a DSE Power Constraint Announcement frame was received from an enabling STA.

10.3.36.3.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DSETPC.indication        (
                              RequesterSTAAddress,
                              ResponderSTAAddress,
                              DSELocalPowerConstraint,
                              VendorSpecificInfo
                              )
```

Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity that initiated the enablement process.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity that is the enabling STA.
DSELocalPowerConstraint	Integer	0-255	Specifies the local power constraint, as described in the DSE Power Constraint frame (see 7.4.7.9).
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.36.3.3 When generated

This primitive is generated by the MLME when a valid DSE Power Constraint Announcement frame is received.

10.3.36.3.4 Effect of receipt

On receipt of this primitive, the SME performs the DSE power constraint procedure (see 11.11.5).

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10.3.36.4 MLME-DSETPC.response

10.3.36.4.1 Function

This primitive is used to report the result of the DSE power constraint procedure.

10.3.36.4.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DSETPC.response        (
                             RequesterSTAAddress,
                             ResponderSTAAddress,
                             ResultCode,
                             VendorSpecificInfo
                             )
```

Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity of the enabling STA.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peerMAC entity that initiates the enabling process.
ResultCode	Enumeration	SUCCESS, REFUSED	Reports the result of a DSE power constraint procedure.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.36.4.3 When generated

This primitive is generated by the SME to schedule a response to DSE power constraint announcement.

10.3.36.4.4 Effect of receipt

On receipt of this primitive, the MLME schedules the transmission of a DSE power constraint result to the enabling STA that sent the DSE power constraint announcement.

10.3.37 Enablement

This mechanism supports the process of establishing an enablement relationship with a peer MAC entity.

10.3.37.1 MLME-ENABLEMENT.request

10.3.37.1.1 Function

This primitive requests enablement with a specified peer MAC entity.

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10.3.37.1.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-ENABLEMENT.request        (
                                RequesterSTAAddress,
                                ResponderSTAAddress,
                                EnablementTimeLimit,
                                VendorSpecificInfo
                                )
```

Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity that initiates the enablement process.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity of the enabling STA.
EnablementTimeLimit	Integer	>= 1	Specifies a time limit (in TU) after which the enablement process will be terminated.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.37.1.3 When generated

This primitive is generated by the SME for a STA to establish enablement with a specified peer MAC entity in order to permit Public Action frames to be exchanged between the two STAs. During the enablement procedure, the SME can generate additional MLME-ENABLEMENT.request primitives.

10.3.37.1.4 Effect of receipt

This primitive initiates an enablement procedure. The MLME subsequently issues a MLME-ENABLEMENT.confirm primitive that reflects the results.

10.3.37.2 MLME-ENABLEMENT.confirm

10.3.37.2.1 Function

This primitive reports the results of an enablement attempt with a specified peer MAC entity.

10.3.37.2.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-ENABLEMENT.confirm        (
                                RequesterSTAAddress,
                                ResponderSTAAddress,
                                ResultCode,
```

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EnablementIdentifier,
VendorSpecificInfo
)

Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity that initiated the enablement process. This value must match the RequesterSTAAddress parameter specified in the corresponding MLME-ENABLEMENT.request primitive.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peerMAC entity with which the enablement process was attempted.This value must match the ResponderSTAAddress parameter specified in the corresponding MLME-ENABLEMENT.request primitive.
ResultCode	Enumeration	SUCCESS, INVALID_PARAMETERS, TIMEOUT, TOO_MANY_SIMULTANEOUS_REQUESTS, REFUSED	Indicates the result of MLMLE-ENABLEMENT.request primitive.
EnablementIdentifier	Integer	0–65 535	Specifies the dependent enablement identifier.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.37.2.3 When generated

This primitive is generated by the MLME as a result of an MLME-ENABLEMENT.request primitive for enablement with a specified peer MAC entity.

10.3.37.2.4 Effect of receipt

The SME is notified of the results of the enablement procedure.

10.3.37.3 .MLME-ENABLEMENT.indication

10.3.37.3.1 Function

This primitive indicates receipt of a request from a specific peer MAC entity to establish an enablement relationship with the STA processing this primitive.

10.3.37.3.2 Semantics of the service primitive

The primitive parameters are as follows:

MLME-ENABLEMENT.indication (

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RequesterSTAAddress,
ResponderSTAAddress,
VendorSpecificInfo
)

Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity that initiated the enablement process.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity that is the enabling STA.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.37.3.3 When generated

This primitive is generated by the MLME as a result of the receipt of an enablement request from a specific peer MAC entity.

10.3.37.3.4 Effect of receipt

The SME is notified of the receipt of this enablement request.

10.3.37.4 MLME-ENABLEMENT.response

10.3.37.4.1 Function

This primitive is used to send a response to a specified peer MAC entity that requested enablement with the STA that issued this primitive.

10.3.37.4.2 Semantics of the service primitive

The primitive parameters are as follows:

MLME-ENABLEMENT.response (
RequesterSTAAddress,
ResponderSTAAddress,
ResultCode,
EnablementIdentifier,
VendorSpecificInfo
)

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Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity that initiated the enablement process.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peerMAC entity that is the enabling STA.
ResultCode	Enumeration	SUCCESS, REFUSED	Indicates the result response to the enablement request from the peer MAC entity.
EnablementIdentifier	Integer	0-65535	Specifies the dependent enablement identifier.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.37.4.3 When generated

This primitive is generated by the SME of a STA as a response to an MLME-ENABLEMENT.indication primitive.

10.3.37.4.4 Effect of receipt

This primitive initiates transmission of a response to the specific peer MAC entity that requested enablement.

10.3.38 Deenablement

10.3.38.1 MLME-DEENABLEMENT.request

10.3.38.1.1 Function

This primitive requests that the enablement relationship with a specified peer MAC entity be invalidated.

10.3.38.1.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DEENABLEMENT.request    (
                              RequesterSTAAddress,
                              ResponderSTAAddress,
                              ReasonCode,
                              VendorSpecificInfo
                              )
```

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Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity that requests the deenablement process.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity that becomes deenabled in the process.
ReasonCode	As defined in frame format	As defined in 7.4.7.4	Specifies the reason code for initiating the deenablement process.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.38.1.3 When generated

This primitive is generated by the SME for a STA to invalidate enablement with a specified peer MAC entity in order to prevent the exchange of Public Action frames between the two STAs. During the deenablement procedure, the SME can generate additional MLME-DEENABLEMENT.request primitives.

10.3.38.1.4 Effect of receipt

This primitive initiates a deenablement procedure. The MLME subsequently issues a MLME-DEENABLEMENT.confirm primitive that reflects the results.

10.3.38.2 MLME-DEENABLEMENT.confirm

10.3.38.2.1 Function

This primitive reports the results of a deenablement attempt with a specified peer MAC entity.

10.3.38.2.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DEENABLEMENT.confirm        (
                                 RequesterSTAAddress,
                                 ResponderSTAAddress,
                                 ResultCode,
                                 VendorSpecificInfo
                                 )
```

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Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity that initiated the deenablement process. This value must match the RequesterSTAAddress parameter specified in the corresponding MLME-DEENABLEMENT.request primitive.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity with which the deenablement process was attempted. This value must match the ResponderSTAAddress parameter specified in the corresponding MLME-DEENABLEMENT.request primitive.
ResultCode	Enumeration	SUCCESS, INVALID_PARAMETERS	Indicates the result of MLME-DEENABLEMENT.request primitive.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.38.2.3 When generated

This primitive is generated by the MLME as a result of an MLME-DEENABLEMENT.request primitive to invalidate the enablement relationship with a specified peer MAC entity.

10.3.38.2.4 Effect of receipt

The SME is notified of the results of the deenablement procedure.

10.3.38.3 MLME-DEENABLEMENT.indication

10.3.38.3.1 Function

This primitive reports the invalidation of an enablement relationship with a specified peer MAC entity.

10.3.38.3.2 Semantics of the service primitive

The primitive parameters are as follows:

```
MLME-DEENABLEMENT.indication    (
                                 RequesterSTAAddress,
                                 ResponderSTAAddress,
                                 ReasonCode,
                                 VendorSpecificInfo
                                 )
```


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Name	Type	Valid range	Description
RequesterSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the peer MAC entity with which the enablement relationship was invalidated.
ResponderSTAAddress	MACAddress	Any valid individual MAC address	Specifies the address of the MAC entity with which the enablement relationship was invalidated.
ReasonCode	As defined in frame format	As defined in 7.4.7.4	Specifies the reason the deenablement procedure was initiated.
VendorSpecificInfo	A set of information elements	As defined in 7.3.2.26	Zero or more information elements.

10.3.38.3.3 When generated

This primitive is generated by the MLME as a result of the invalidation of an enablement relationship with a specific peer MAC entity.

10.3.38.3.4 Effect of receipt

The SME is notified of the invalidation of the specific enablement relationship.

11. MLME

11.3 STA authentication and association

Change item c.2.i) as follows:

c) Class 3 frames (if and only if associated; allowed only from within State 3):

2) Management frames.

i) Within an infrastructure BSS, all Action frames except ~~Public Action~~the following frames:

A) Public Action

11.9 DFS procedures

11.9.7 Selecting and advertising a new channel

11.9.7.1 Selecting and advertising a new channel in an infrastructure BSS

Change second paragraph of 11.9.7.1 as follows:

An AP shall inform associated STAs that the AP is moving to a new channel and maintain the association by advertising the switch using Channel Switch Announcement elements in Beacon frames, Probe Response frames, and Channel Switch Announcement frames until the intended channel switch time. The AP may

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force STAs in the BSS to stop transmissions until the channel switch takes place by setting~~using~~ the Channel Switch Mode field in the Channel Switch Announcement element to 1. ~~If possible, t~~The channel switch should be scheduled so that all STAs in the BSS, including STAs in power save mode, have the opportunity to receive at least one Channel Switch Announcement element before the switch. The AP may send the Channel Switch Announcement frame in a BSS without performing a backoff, after determining that the WM is idle for one PIFS period.

Insert the following subclauses (11.9a.1 through 11.9a.3.2) after 11.9.7.2:

11.9a Extended channel switching (ECS)

11.9a.1 General

This subclause describes ECS procedures that can be used to change BSS operation in channel frequency and channel bandwidth. Enabling STAs (see 11.11), APs, and DFS owners are each STAs that may construct and transmit frames containing Extended Channel Switch Announcement elements when dot11Extended-ChannelSwitchEnabled is true.

A STA shall use the ECS procedures defined in this subclause if dot11ExtendedChannelSwitchEnabled is true. When dot11ExtendedChannelSwitchEnabled is true, dot11MultiDomainCapabilityEnabled and dot11RegulatoryClassesRequired shall be true, and the Extended Channel Switching field of the Extended Capabilities information element shall be set to 1 to indicate that the STA can perform ECS procedures. When dot11ExtendedChannelSwitchEnabled is false, the STA shall not use ECS procedures.

If dot11ExtendedChannelSwitchEnabled and dot11LCIDSERequired are true, frames containing Channel Switch Announcement elements shall not be transmitted.

An enabling STA may send frames containing Extended Channel Switch Announcement elements to dependent STAs (see 11.11.5). If dot11DSERequired is true, a STA shall perform ECS procedures to switch at the time indicated by the channel switch count, or the STA shall change its enablement state for the enabling STA to unenabled.

11.9a.2 Advertising supported regulatory classes

When dot11ExtendedChannelSwitchEnabled is true, the Current Regulatory Class field in the Supported Regulatory Classes element shall indicate the regulatory class in use for transmission and reception. The List of Regulatory Class(es) field shall list all regulatory classes with which the STA is capable of operating for the country that is specified in the Country information element (7.3.2.9).

11.9a.3 Selecting and advertising a new channel and/or regulatory class

An attempt may be made to move a BSS to a new operating channel and/or new regulatory class using extended channel switching. An objective during this process is to minimize disruption to the BSS. It is possible, however, that an extended channel switch is not successful in moving all STAs to the new channel and/or regulatory class.

11.9a.3.1 Selecting and advertising a new channel in an infrastructure BSS

When an AP with dot11DSERequired set to TRUE receives frames containing Extended Channel Switch Announcement elements from the enabling STA, it shall advertise an extended channel switch with the same channel switch mode, new regulatory class, new channel number, and channel switch count as received in the Extended Channel Switch Announcement elements.

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The decision to switch to a new operating channel and/or regulatory class in an infrastructure BSS is made by the AP when dot11DSERequired is false. An AP may make use of the information in the Supported Channels element, Supported Regulatory Classes element, and the results of measurements undertaken by the AP and other STAs in the BSS to assist the selection of the new channel and/or regulatory class. A method to make the decision and to select a new channel is defined in 11.9.7.1.

When an AP is switching to a different regulatory class and dot11ExtendedChannelSwitchEnabled is true, then the AP shall use the Extended Channel Switch Announcement element and frame. In addition, the AP may also send Channel Switch Announcement elements and frames when the requirements signified by the new regulatory class are met by all associated STAs.

When an AP is switching to a new channel within the same regulatory class and dot11Extended-ChannelSwitchEnabled is true, then the AP shall send the Extended Channel Switch Announcement element and frame, or both the Extended Channel Switch Announcement and the Channel Switch Announcement elements and frames. If dot11ExtendedChannelSwitchEnabled is false, the AP shall send the Channel Switch Announcement element and frame, or both the Extended Channel Switch Announcement and the Channel Switch Announcement elements and frames.

When dot11ExtendedChannelSwitchEnabled is true, an AP shall inform associated STAs that the AP is moving to a new channel and/or regulatory class and maintain the association by advertising the switch using Extended Channel Switch Announcement elements in any transmitted Beacon frames, Probe Response frames, and Extended Channel Switch Announcement frames until the intended channel switch time. The AP may request STAs in the BSS to stop transmissions until the channel switch takes place by setting the Extended Channel Switch Mode field to 1 in the Extended Channel Switch Announcement element. If possible, the channel switch should be scheduled so that all STAs in the BSS, including STAs in power save mode, have the opportunity to receive at least one Extended Channel Switch Announcement element before the switch. The AP may send the Extended Channel Switch Announcement frame without performing a backoff, after determining the WM is idle for one PIFS period. When both the Extended Channel Switch Announcement and the Channel Switch Announcement elements are transmitted in Public Action frames, they shall be sent in separate frames.

When a STA with dot11DSERequired set to FALSE receives an Extended Channel Switch Announcement element, it may choose not to perform the specified switch, but to take alternative action. For example, it can choose to move to a different BSS.

A non-AP STA in an infrastructure BSS shall not transmit the Extended Channel Switch Announcement element.

11.9a.3.2 Selecting and advertising a new channel in an IBSS

When a DFS owner with dot11DSERequired set to TRUE receives frames containing Extended Channel Switch Announcement elements from the enabling STA, it shall advertise an extended channel switch with the same channel switch mode, new regulatory class, new channel number, and channel switch count as received in the Extended Channel Switch Announcement elements.

The DFS owner that advertises a channel switch shall follow the rules defined in 11.9.7.2 with the following extensions:

a) If a DFS owner is switching to a new channel or to the same channel in a different regulatory class and dot11ExtendedChannelSwitchEnabled is true, then the DFS owner shall use the Extended Channel Switch Announcement element and frame. Alternatively, both the Extended Channel Switch Announcement and the Channel Switch Announcement elements and frames may be used when Channel Switch Announcement elements and frames are permitted for operation in the band signified by the new regulatory class.

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b) If a DFS owner is switching to a new channel within the same regulatory class and dot11ExtendedChannelSwitchEnabled is true, then the DFS owner shall send the Extended Channel Switch Announcement element and frame, or both the Extended Channel Switch Announcement and the Channel Switch Announcement elements and frames. If dot11ExtendedChannelSwitch-Enabled is false, the DFS owner shall send the Channel Switch Announcement element and frame, or both the Extended Channel Switch Announcement and the Channel Switch Announcement elements and frames.

c) If both the Extended Channel Switch Announcement and the Channel Switch Announcement elements are transmitted in Public Action frames, they shall be sent in separate frames.

Insert the following subclauses (11.11 through 11.11.4) after 11.10.15:

11.11 DSE procedures

11.11.1 General

Regulations that apply to the US 3650 MHz band require enabling STAs to implement a mechanism to enable mobile and portable STA operation. Similar regulations exist in other regulatory domains. This standard describes such a mechanism, referred to as dependent STA enablement (DSE).

This subclause describes DSE procedures that can be used to satisfy the US 3650 MHz band and similar regulatory requirements. Regulations that apply to the US 3650 MHz band require fixed STAs and enabling STAs to have their operating locations registered. Licensees with STAs suffering or causing harmful interference are expected to cooperate and resolve problems by mutually satisfactory arrangements. The DSE procedures provide the location of the enabling STA and unique identifiers to assist licensees in the resolution of interference issues. The DSE procedures may also satisfy needs in other frequency bands and be useful for other purposes.

STAs shall use the DSE procedures defined in this subclause if dot11LCIDSERequired is true. dot11DSERequired and dot11ExtendedChannelSwitchEnabled shall be true when regulatory authorities require DSE, with the following exceptions: dot11DSERequired shall be set to FALSE to configure STAs to operate as registered STAs, and dot11ExtendedChannelSwitchEnabled may be set to FALSE when operating as a fixed STA. A summary of STA attributes and these MIB attributes are shown in Table 11.11a.

Table 11.11a—DSE STA attributes

Type of STA	Registered STA	dot11LCIDSERequired and dot11LCIDSEImplemented	dot11Extended ChannelSwitch Enabled	dot11DSE Required
Fixed STA	Yes	True	True or false	False
Enabling STA	Yes	True	True	False
Dependent STA	No	True	True	True

A fixed STA is a registered STA that broadcasts its registered location and is restricted from enabling other STAs (see 11.11.3). An enabling STA is a registered STA that broadcasts its registered location, and regulatory authorities permit it to enable operation of unregistered STAs (see 11.11.4). A dependent STA is an unregistered STA that operates under the control of an enabling STA (see 11.11.5).

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The DSE procedures provide for the following:

— Registered STA operation
— Creation of a DSE service area for dependent STA operation
— Dependent STA operation with DSE

11.11.2 Enablement and deenablement

11.11.2.1 General

This subclause describes the procedures used for IEEE 802.11 enablement and deenablement. A STA keeps a state variable for each STA with which enablement communication is needed:

— Enablement state with a value of *unenabled* or
— Enablement state with a value of *enabled*

NOTE—Refer to 11.11.5 for description of dependent STA operation in either enablement state.

Enablement utilizes a two-message transaction sequence. The first message asserts identity and requests enablement. The second message returns the enablement result. In the description in 11.11.2.2 and 11.11.2.3, the STA initiating the enablement is referred to as *enablement requester*, and the STA to which the initial frame in the exchange is addressed is referred to as *enablement responder*. The specific items in each of the messages described in the following subclauses are defined in 7.4.7.3 and 7.4.7.4. An enabling STA may decline to enable a requesting STA. If the result is "successful," the requesting STA shall be enabled.

Deenablement utilizes a one-message transaction sequence. In the description in 11.11.2.4 and 11.11.2.5, the STA initiating the deenablement is referred to as *deenablement requester*, and the STA to which the frame is addressed is referred to as *deenablement responder*.

11.11.2.2 Enablement requester STA

Upon receipt of an MLME-ENABLEMENT.request primitive, the enablement requester STA shall perform the following procedure:

a) Construct and transmit an enablement message requesting enablement.
   1) Specific items in the enablement message are as follows.
      — Message type: Management
      — Message subtype: Action, Public Action, DSE Enablement
      — Information items:
         • STA identity assertion (in RequesterSTAAddress)
         • Enabling STA identity assertion (in ResponderSTAAddress)
         • Reason result code = 2
         • Enablement identifier = 0
      — Direction of message: From requester to responder
   2) Specific items in the enablement message sent by the enablement responder STA are described in 11.11.2.3.
b) Issue an MLME-ENABLEMENT.confirm primitive to inform the SME of the result of the enablement.
   1) The primitive may contain information from an enablement response message received from the enabling STA (see 11.11.2.3), or it may be issued for another reason (see 7.4.7.3).
   2) The reason result code in the enablement confirmation message indicates when the enablement is successful.

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3) If the enablement was successful, the enablement state variable for the enablement responder STA shall be set to Enabled.

11.11.2.3 Enablement responder STA

Upon receipt of a Public Action DSE Enablement frame with a reason result code of 2, the enablement responder STA may enable the enablement requester STA using the following procedure:

a) Create and transmit a response frame with the enablement status as defined in 7.4.7.3 set in the Reason Result Code field and with a unique dependent enablement identifier if enablement was successful.
   1) Specific items in the enablement message response are as follows:
      — Message type: Management
      — Message subtype: Action, Public Action, DSE Enablement
      — Information items:
         • STA identity assertion (in RequesterSTAAddress)
         • Enabling STA identity assertion (in ResponderSTAAddress)
         • The result of the requested enablement as defined in 7.4.7.3
         • Enablement identifier
      — Direction of message: From responder to requester
b) Issue an MLME-ENABLEMENT.indication primitive to inform the SME of the enablement.
   1) If the enablement is successful, the enablement state variable for the enablement requester STA shall be set to Enabled.

11.11.2.4 Deenablement requester STA

Upon receipt of an MLME-DEENABLEMENT.request primitive with the enablement state variable for the deenablement responder STA set to Enabled, the deenablement requester STA shall perform the following procedure:

a) Create and transmit a DSE Deenablement frame to the deenablement responder STA.
   1) Specific items in the deenablement message are as follows:
      — Message type: Management
      — Message subtype: Action, Public Action, DSE Deenablement
      — Information items:
         • Enabling STA identity assertion (in RequesterSTAAddress)
         • STA identity assertion (in ResponderSTAAddress)
         • Reason result code = 2
      — Direction of message: From requester to responder
b) Issue an MLME-DEENABLEMENT.confirm primitive to inform the SME of the completion of the deenablement.
   1) The reason result code in the deenablement confirmation message indicates whether the deenablement is successful.
   2) If the deenablement is successful, the enablement state variable for the deenablement responder STA shall be set to Unenabled.

11.11.2.5 Deenablement responder STA

Upon receipt of a DSE Deenablement frame, the deenablement responder STA shall deenable with the deenablement requester STA by issuing an MLME-DEENABLEMENT.indication primitive to inform the

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SME of the deenablement. The enablement state variable for the deenablement requester STA shall be set to Unenabled.

11.11.3 Registered STA operation

Registered STAs shall have dot11DSERequired set to FALSE. They shall transmit the DSE Registered Location element in every Beacon frame and shall set the Dependent STA bit in the DSE Registered Location element to 0. If the registered STA is located within a national policy area, such as a Fixed Satellite Service exclusion zone, or within an international agreement area near a national border, the RegLoc Agreement bit in the DSE Registered Location element shall be set to 1, signifying to other STAs that additional restrictions on STAs with directional antennas may apply; otherwise, it shall be set to 0.

The Latitude, Longitude, and Altitude fields of the DSE Registered Location element shall be reported at their best known resolutions, which may exceed the resolutions required by regulatory authorities. The Altitude Type field value shall be 3 (i.e., height above ground in meters or, in other words, the altitude is in meters above adjacent terrain), unless another altitude type is required for operation in the regulatory domain. The Datum field value shall be 1 (World Geodetic System 1984), unless another datum is required for operation in the regulatory domain.

An enabling STA is a registered STA that broadcasts its registered location, and regulatory authorities permit it to enable operation of unregistered STAs (see 11.11.4). A dependent STA is an unregistered STA that operates under the control of an enabling STA (see 11.11.5).

A fixed STA is a registered STA that broadcasts its registered location and is restricted from enabling other STAs. A fixed STA shall have dot11LCIDSERequired set to TRUE, and dot11ExtendedChannelSwitch-Enabled may be set to TRUE or FALSE. A fixed STA shall set dot11RegLocDSE to FALSE and the RegLoc DSE bit in the DSE Registered Location element to 0, signifying that it is not creating a DSE service area. A fixed STA may operate in an infrastructure BSS or IBSS. A registered STA that is not an enabling STA may operate as an AP in an infrastructure BSS and relay Public Action frames (specifically, DSE Enablement, DSE Deenablement, DSE Measurement Request, DSE Measurement Report, DSE Power Constraint) from a dependent STA to its enabling STA. Note that the enabling signal is not a Public Action frame, and is not relayed (see 11.11.4).

11.11.4 Enabling STA operation with DSE

A registered STA may create and manage a DSE service area for dependent STA operation where regulatory requirements permit. A registered STA operating in this manner is referred to as an *enabling STA*. An enabling STA sets dot11RegLocDSE to TRUE and signifies the creation of a DSE service area by setting the RegLoc DSE bit in the DSE Registered Location element to 1. Dependent STA transmission of any frames is conditional on receiving directly over the air and decoding a DSE Registered Location element with RegLoc DSE bit set to 1, sent from an enabling STA. Before attempting enablement with any one enabling STA, a dependent STA may have detected several enabling STAs, may attempt enablement with one and fail, and then attempt enablement with another. An enabling STA shall assign dependent enablement identifiers in a way that makes them unique among STAs enabled by this enabling STA to help identify sources of interference.

An enabling STA may issue a DSE measurement request to any of its dependent STAs in order to receive a DSE measurement report that may have reported DSE LCI fields received from nearby STAs. The licensed operator may be able to use these reports to identify interfering STAs or map overlapping coverage in a multiple BSS situation. Because reported DSE LCI fields may refer to any destination address, a single DSE report may contain elements received from STAs that are not yet associated with a BSS.

An enabling STA can issue an ECS announcement to any of its dependent STAs in order to have their radio operation changed in frequency, channel bandwidth, and other operational parameters. A dependent AP or

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DFS owner with dot11DSERequired set to TRUE and receiving an ECS announcement from its enabling STA shall perform the extended channel switch procedure as specified in 11.9a.

An enabling STA can issue a DSE power constraint announcement to any of its dependent STAs in order to have their transmit power reduced from the regulatory limit. A dependent AP or DFS owner with dot11DSERequired set to TRUE and receiving a DSE power constraint announcement from its enabling STA shall perform the power constraint procedure as specified in 11.11.5.

11.11.5 Dependent STA operation with DSE

Dependent STAs shall have dot11DSERequired set to TRUE.

A typical state machine implementation of dependent STA operation with DSE is provided in Figure 11-19.

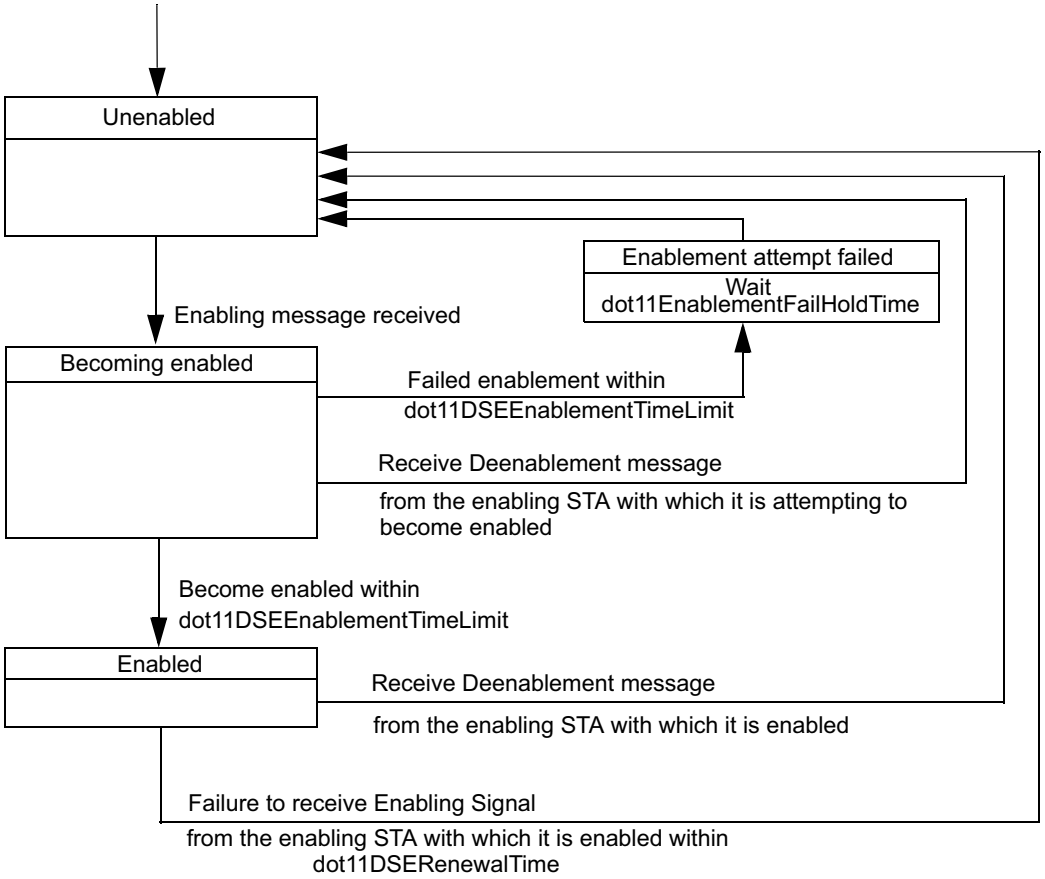

Figure 11-19—Dependent STA state machine

For DSE, the following statements apply:

— A STA with dot11DSERequired set to TRUE shall not transmit any frames unless it has received a Beacon frame from an enabling STA with the Spectrum Management bit set to 1 in the Capability Information field and with the RegLocDSE bit set to 1 in the DSE Registered Location element. A dependent STA that is not enabled shall not transmit, except to attain enablement with an enabling STA, unless such action is mandated to be allowed in the regulatory domain (e.g., emergency services).

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— A dependent STA shall not attempt enablement with an enabling STA unless the enabling STA is transmitting Beacon frames with the RegLoc DSE bit set to 1 in the DSE Registered Location element.

— A dependent STA creates a dependent DSE Registered Location element containing the enabling STA's DSE Registered Location element and having the RegLoc DSE bit set to 0 and the Dependent STA bit set to 1. Before enablement, the Dependent Enablement Identifier field shall be set to zero. Upon attaining enablement, the Dependent Enablement Identifier field shall be set to the dependent enablement identifier value received by the dependent STA from the enabling STA in the MLME-ENABLEMENT.response primitive.

— The dependent STA shall send a Public Action DSE Registered Location Announcement frame to the broadcast address whenever the sum of dot11TransmittedFragmentCount, dot11Multicast-TransmittedFrameCount, and dot11ReceivedFragmentCount, modulo dot11DSETransmitDivider equals zero, possibly delayed by the completion of the sending of the frames of the current MSDU or MMPDU or by the completition of the current transmission opportunity (TXOP).

— A dependent STA that has not attained enablement shall not transmit beyond dot11DSEEnablement-TimeLimit (in seconds), measured from the time of the first PHY-TXSTART.request primitive, while attempting to attain enablement. Then if it is not enabled, it shall not transmit for dot11DSEEnablementFailHoldTime (in seconds), before it can again attempt to attain enablement.

— A dependent STA receiving a DSE deenablement Action frame with the RequesterSTAAddress field matching the enabling STA with which it last attempted enablement and the ResponderSTAAddress field matching its own IEEE MAC address shall change its enablement state with the enabling STA to unenabled and set all fields of its DSE Registered Location element body (see 7.3.2.52) to 0.

— A dependent STA shall return a DSE measurement report in response to a DSE measurement request if the request is received from the AP with which it is associated or the enabling STA with which it last attempted enablement and the ResponderSTAAddress field matches its own IEEE 802.11 MAC address. The result may be the completed measurement or an indication that the STA is unable to complete the measurement request. A STA shall report it is too late to undertake a measurement request if it receives the request after the specified starting time for the measurement. The Measurement Report Mode field of a frame that is sent in response to a DSE Measurement Request frame shall not contain a value of 1 for the Incapable subfield and shall not contain a value of 1 for the Refused subfield of the Measurement Report Mode field of the DSE measurement report.

— A dependent STA receiving an ECS action frame from the enabling STA with which it last attempted enablement or an ECS information element from the AP with which it is associated shall perform the ECS procedure (see 11.9a.3).

— A dependent STA receiving a DSE power constraint action frame with the RequesterSTAAddress field matching the enabling STA with which it last attempted enablement and the ResponderSTAAddress field matching its own IEEE MAC address shall constrain its transmit power to be less than or equal to the maximum transmit power level specified for the current channel in the Country information element minus the local power constraint specified in the DSE Power Constraint frame.

— An enabled dependent STA shall cease transmission within dot11DSERenewalTime (in seconds) if it has not received either a Beacon frame or a Probe Response frame from its enabling STA with the RegLoc DSE bit set to 1 in the DSE Registered Location element. It shall then change its enablement state with the enabling STA to unenabled and set all fields of its DSE Registered Location element body (see 7.3.2.52) to 0.

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Change the title of Clause 17 as shown:

17. Orthogonal frequency division multiplexing (OFDM) PHY specification ~~for the 5 GHz band~~

17.1 Introduction

Change the last sentence of the second paragraph in 17.1 as shown:

The regulatory requirements and information regarding the use of this OFDM PHY~~system in 4.9 GHz and 5 GHz bands is~~are in Annex I and Annex J.

Change the last sentence of the third paragraph in 17.1 as shown:

The regulatory requirements and information regarding the use of this OFDM PHY~~system in the 4.9 GHz band is~~are in Annex I and Annex J.

17.1.1 Scope

Change the first sentence in 17.1.1 as shown:

This subclause describes the PHY services provided to the IEEE 802.11 WLAN MAC by the ~~5 GHz (bands)~~ OFDM PHY~~system~~.

17.1.2 OFDM PHY functions

Change the first sentence in 17.1.2 as shown:

The ~~5 GHz~~ OFDM PHY architecture is depicted in the reference model shown in Figure 5-10 (in 5.7).

17.1.2.2 Physical medium dependent (PMD) sublayer

Change 17.1.2.2 as shown:

The PMD sublayer provides a means to send and receive data between two or more STAs. This clause is concerned with PHYs~~the 5 GHz band~~ using OFDM modulation.

17.3 OFDM physical layer convergence procedure (PLCP) sublayer

17.3.6 Clear channel assessment (CCA)

Change 17.3.6 as shown:

PLCP shall provide the capability to perform CCA and report the result to the MAC. The CCA mechanism shall detect a “medium busy” condition with ~~a performance~~requirements specified in 17.3.10.5 and 17.3.12. This medium status report is indicated by the primitive PHY_CCA.indicate.

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17.3.8 PMD operating specification (general)

17.3.8.3 Operating channel frequencies

17.3.8.3.1 Operating frequency range

Change the first two sentences in 17.3.8.3.1 as shown:

The OFDM PHY shall not operate in ~~the 5 GHz band, as~~frequency bands not allocated by a regulatory body in its operational region. ~~Spectrum allocation in the 5 GHz band is subject to authorities responsible for geographic-specific regulatory domains (e.g., global, regional, and national)~~Regulatory requirements for a given frequency band are set by the regulatory authority responsible for spectrum management in a given geographic region or domain.

17.3.9 PMD transmit specifications

17.3.9.2 Transmit spectrum mask

Insert the following text and figures at the end of 17.3.9.2:

NOTE—In the presence of additional regulatory restrictions, the device must meet both the regulatory requirements and the mask defined here, i.e., its emissions must be no higher at any frequency offset than the minimum of the values specified in the regulatory and default masks.

For operation using 20 MHz channel spacing, the transmitted spectrum shall have a 0 dBr (dB relative to the maximum spectral density of the signal) bandwidth not exceeding 18 MHz, –20 dBr at 11 MHz frequency offset, –28 dBr at 20 MHz frequency offset, and the maximum of –40 dBr and –53 dBm/MHz at 30 MHz frequency offset and above. The transmitted spectral density of the transmitted signal shall fall within the spectral mask, as shown in Figure 17-12a. The measurements shall be made using a 100 kHz resolution bandwidth and a 30 kHz video bandwidth.

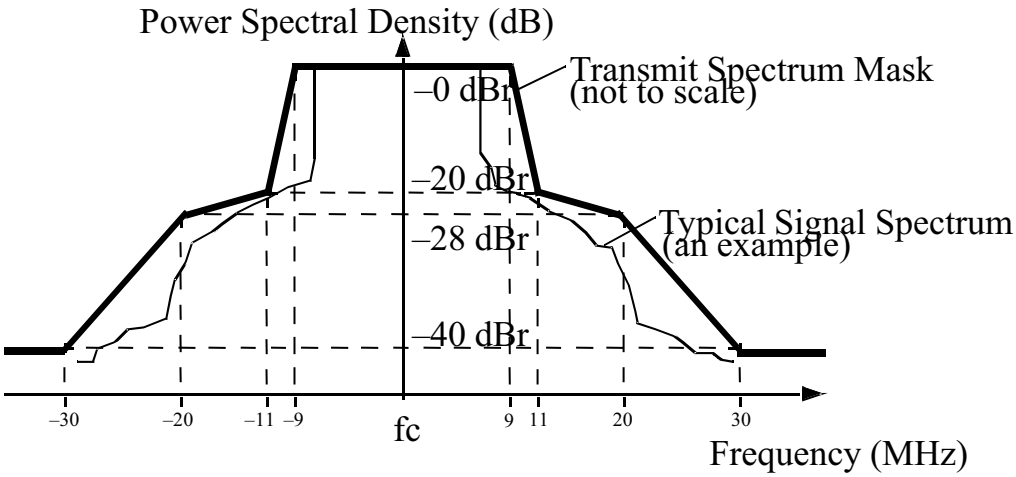

Figure 17-12a—Transmit spectrum mask for 20 MHz transmission

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For operation using 10 MHz channel spacing, the transmitted spectrum shall have a 0 dBr bandwidth not exceeding 9 MHz, –20 dBr at 5.5 MHz frequency offset, –28 dBr at 10 MHz frequency offset, and the maximum of –40 dBr and –50 dBm/MHz at 15 MHz frequency offset and above. The transmitted spectral density of the transmitted signal shall fall within the spectral mask, as shown in Figure 17-12b. The measurements shall be made using a 100 kHz resolution bandwidth and a 30 kHz video bandwidth.

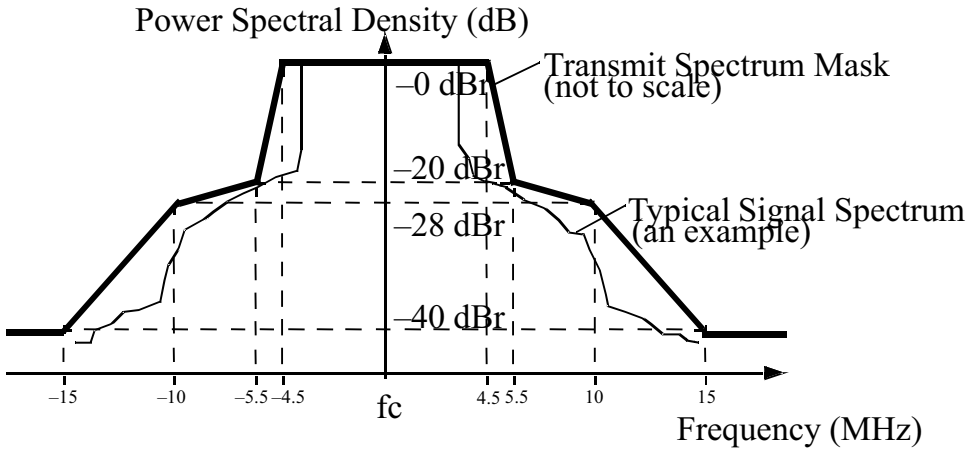

Figure 17-12b—Transmit spectrum mask for 10 MHz transmission

For operation using 5 MHz channel spacing, the transmitted spectrum shall have a 0 dBr bandwidth not exceeding 4.5 MHz, –20 dBr at 2.75 MHz frequency offset, –28 dBr at 5 MHz frequency offset, and the maximum of –40 dBr and –47 dBm/MHz at 7.5 MHz frequency offset and above. The transmitted spectral density of the transmitted signal shall fall within the spectral mask, as shown in Figure 17-12c. The measurements shall be made using a 100 kHz resolution bandwidth and a 30 kHz video bandwidth.

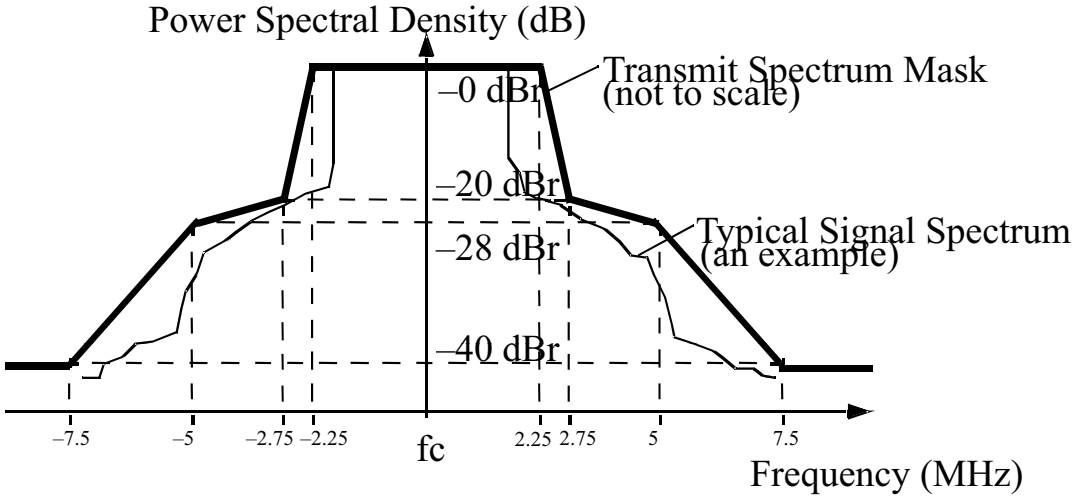

Figure 17-12c—Transmit spectrum mask for 5 MHz transmission

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17.3.10 PMD receiver specifications

Change the title and text of 17.3.10.5 as indicated:

17.3.10.5 CCA ~~sensitivity~~requirements

CCA shall detect a medium busy condition when the carrier sense/clear channel assessment (CS/CCA) mechanism detects a channel busy condition. For the regulatory classes requiring clear channel assessment with energy detect (CCA-ED), CCA shall also detect a medium busy condition when CCA-ED detects a channel busy condition.

The start of a valid OFDM transmission at a receive level equal to or greater than the minimum modulation and coding rate sensitivity (–82 dBm for 20 MHz channel spacing, –85 dBm for 10 MHz channel spacing, and –88 dBm for 5 MHz channel spacing) shall cause CS/CCA to indicate busy with a probability > 90% within 4 µs for 20 MHz channel spacing, 8 µs for 10 MHz channel spacing, and 16 µs for 5 MHz channel spacing. If the preamble portion was missed, the receiver shall hold the CCA~~CS~~ signal busy for any signal 20 dB above the minimum modulation and coding rate sensitivity (–62 dBm for 20 MHz channel spacing, –65 dBm for 10 MHz channel spacing, and –68 dBm for 5 MHz channel spacing).

NOTE—CS/CCA detect time is based on finding the short sequences in the preamble, so when T_{SYM} doubles, so does CS/CCA detect time.

For improved spectrum sharing, CCA-ED is required in some bands. The behavior class indicating CCA-ED is given in Table I.3. The regulatory classes requiring the corresponding CCA-ED behavior class are given in Annex J. A STA that is operating within a regulatory class that requires CCA-ED shall operate with CCA-ED. The CCA-ED shall not be required for license-exempt operation in any band.

CCA-ED shall indicate a channel busy condition when the received signal strength exceeds the CCA-ED threshold. The CCA-ED thresholds for the regulatory classes requiring CCA-ED are subject to the criteria in I.2.4.

NOTE—CCA-ED can be used in bands when not required by Annex J. In these cases, the recommended CCA-ED threshold is equal to 20 dB above the minimum modulation and coding rate sensitivity (–62 dBm for 20 MHz channel spacing, –65 dBm for 10 MHz channel spacing, and –68 dBm for 5 MHz channel spacing).

17.4 OFDM PLME

17.4.1 PLME_SAP sublayer management primitives

Insert the following managed object at the end of Table 17-14 as shown:

Table 17-14—MIB attribute default values/ranges

Managed object	Default value/range	Operational semantics
dot11 PHY OFDM Table		
dot11 EDThreshold	Implementation dependant	Dynamic

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Annex A

(normative)

Protocol Implementation Conformance Statement (PICS) proforma

A.4 PICS proforma—IEEE Std 802.11-2007

A.4.3 Implementation under test (IUT) configuration

Change the row for CF6 in the table in A.4.3 as shown:

Item	IUT configuration	References	Status	Support
*CF6	Orthogonal frequency division multiplexing (OFDM) PHY ~~for the 5 GHz band~~	—	O.2	Yes ☐ No ☐

Insert the following row at the end of the table in A.4.3:

Item	IUT configuration	References	Status	Support
*CF15	3.65–3.70 GHz band in United States	7.3.2.52, 11.11, 17.3.6, 17.3.10.5, Annex I, Annex J	CF6&CF8&CF10&CF11:O	Yes ☐ No ☐

A.4.8 OFDM PHY functions

Change the rows for OF1.2.5, OF1.7, and OF1.8 in the table in A.4.8 as shown:

Item	Feature	References	Status	Support
*OF1.2.5	DATARATE = 24 Mb/s, optional in US 3.65-3.70 GHz band, mandatory elsewhere	17.2.2.2, Annex J	(NOT CF15):M, CF15:O	Yes ☐ No ☐ N/A ☐
*OF1.7	10 MHz Channel spacing	17.2.2, 17.2.3, 17.2.3.3, Annex J	CF11:O, CF15&DSE2:M	Yes ☐ No ☐ N/A ☐
*OF1.8	5 MHz Channel spacing	17.2.2, 17.2.3, 17.2.3.3, Annex J	CF11:O, CF15&DSE2:M, CF15&DSE3:M	Yes ☐ No ☐ N/A ☐

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Insert the following rows after OF2.19.2 in the table in A.4.8:

Item	Feature	References	Status	Support
*OF2.19.3	CCA-ED functionality	17.3.10.5	CF15:M	Yes ☐ No ☐ N/A ☐
OF2.19.3.1	CCA-ED energy only (RPI above threshold)	17.3.10.5	OF2.19.3:M	Yes ☐ No ☐ N/A ☐
OF2.19.3.2	Hold CCA busy for packet duration of a correctly received PLCP, but carrier lost during reception of MPDU	17.3.10.5	OF2.19.3:M	Yes ☐ No ☐ N/A ☐

Insert the following row after OF3.2.6 in the table in A.4.8:

Item	IUT configuration	References	Status	Support
*OF3.2.7	3.65–3.70 GHz band	Annex I, Annex J	CF15:M	Yes ☐ No ☐ N/A ☐

Insert the following rows after OF3.3.12 in the table in A.4.8:

Item	IUT configuration	References	Status	Support
OF3.3.13	3.65–3.70 GHz (20 MHz channel spacing)	Annex J	CF15&OF3.2.7:M	Yes ☐ No ☐ N/A ☐
OF3.3.14	3.65–3.70 GHz (10 MHz channel spacing)	Annex J	CF15&OF3.2.7& OF1.7:M	Yes ☐ No ☐ N/A ☐
OF3.3.15	3.65–3.70 GHz (5 MHz channel spacing)	Annex J	CF15&OF3.2.7& OF1.8:M	Yes ☐ No ☐ N/A ☐

Insert the following rows after OF4.13 in the table in A.4.8:

Item	IUT configuration	References	Status	Support
OF4.13a	Power level, 3.65–3.70 GHz (20 MHz channel spacing)	Annex J	CF15&OF3.2.7:M	Yes ☐ No ☐ N/A ☐
OF4.13b	Power level, 3.65–3.70 GHz (10 MHz channel spacing)	Annex J	CF15&OF3.2.7& OF1.7:M	Yes ☐ No ☐ N/A ☐
OF4.13c	Power level, 3.65–3.70 GHz (5 MHz channel spacing)	Annex J	CF15&OF3.2.7& OF1.8:M	Yes ☐ No ☐ N/A ☐

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A.4.10 Regulatory Domain Extensions

Insert the following rows at the end of the table in A.4.10:

Item	Protocol capability	References	Status	Support
MD13	Reserved First Channel Number	9.8.3	CF15:M	Yes ☐ No ☐ N/A ☐
MD14	Reserved Regulatory Class	9.8.3	CF15:M	Yes ☐ No ☐ N/A ☐
MD15	Operation with regulatory classes Multiple classes in Country information element Multiple classes in Association and Reassociation frames	9.8.3 9.8.3	CF15:M CF15:M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐

A.4.13 Regulatory classes extensions

Insert the following rows at the end of the table in A.4.13:

Item	Protocol capability	References	Status	Support
RC5	Coverage classes 0–31 Coverage class operation when not associated	9.8.4 9.8.4	CF15:M CF15:M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐
RC6	Power level, equivalent maximum transmit power level and regulatory class Power level operation when not associated	9.8.4 9.8.4	CF15:M CF15:M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐
RC7	Power level, different maximum transmit power level and regulatory class Power level operation when not associated	9.8.4 9.8.4	CF15:M CF15:M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐

Insert the following subclause (A.4.18) after A.4.17:

A.4.18 DSE functions

Item	Protocol capability	References	Status	Support
*DSE1	Fixed STA operation with RegLoc	11.11.3	CF15:O.1	Yes ☐ No ☐ N/A ☐
*DSE2	Enabling STA operation with RegLoc	11.11.3	CF15:O.1	Yes ☐ No ☐ N/A ☐
DSE2.1	Enabling STA creation of DSE service area	11.11.4	DSE2:M	Yes ☐ No ☐ N/A ☐
DSE2.2	Enabling STA operation with DSE	11.11.3	DSE2:M	Yes ☐ No ☐ N/A ☐

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Item	Protocol capability	References	Status	Support
*DSE3	Dependent STA operation with DSE	11.11.5	CF15:O.1	Yes ☐ No ☐ N/A ☐
DSE3.1	Dependent STA enablement	11.11.5	DSE3:M	Yes ☐ No ☐ N/A ☐
DSE3.2	Dependent STA DSE time to enablement	11.11.5	DSE3:M	Yes ☐ No ☐ N/A ☐
DSE3.3	Dependent STA DSE time to not transmit	11.11.5	DSE3:M	Yes ☐ No ☐ N/A ☐
DSE3.4	Dependent STA DSE Registered Location Announcement frame	11.11.5	DSE3:M	Yes ☐ No ☐ N/A ☐
DSE3.5	Dependent STA MLME-ASSOCIATE.response DSE	10.3.6.4	DSE3:M	Yes ☐ No ☐ N/A ☐
DSE3.6	Dependent STA MLME-REASSOCIATE.response DSE	10.3.7.4	DSE3:M	Yes ☐ No ☐ N/A ☐
DSE4	DSE request report procedure Transmission of DSE measurement request by an AP Transmission of DSE measurement report by a STA	11.11.5 11.11.5	(CF15&CF1):M (CF15&CF2):M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐
DSE5	STA association procedure Transmission of Association Request frame with Supported Regulatory Classes element by a STA Transmission of Association Response frame with Supported Regulatory Classes element by an AP	9.8.3, 11.3.2.1 9.8.3, 11.3.2.2	(CF15&CF2:M (CF15&CF1):M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐
DSE6	STA reassociation procedure Transmission of Reassociation Request frame with Supported Regulatory Classes element by a STA Transmission of Reassociation Response frame with Supported Regulatory Classes element by an AP	9.8.3, 11.3.2.3 9.8.3, 11.3.2.4	(CF15&CF2:M (CF15&CF1):M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐
DSE7	Probe request procedure Transmission of Probe Request frame with Supported Regulatory Classes element by a STA	11.9a.1	CF15&CF2:M	Yes ☐ No ☐ N/A ☐
DSE8	Probe response procedure Transmission of Probe Response frame with Supported Regulatory Classes element by an AP	11.9a.1	CF15&CF1:M	Yes ☐ No ☐ N/A ☐
DSE9	Extended channel switch procedure Transmission of extended channel switch announcement and channel switch procedure by an AP Transmission of extended channel switch announcement and channel switch procedure by a STA Reception of extended channel switch announcement and channel switch procedure by a STA	11.9a.3 11.9a.3 11.9a.3	(CF15&CF1):M (CF15&CF2):M CF15:M	Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐

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Item	Protocol capability	References	Status	Support
DSE10	DSE power constraint procedure Transmission of DSE power constraint announcement by an enabling STA	11.11.5	(CF15&CF1):M	Yes ☐ No ☐ N/A ☐
	Reception of DSE power constraint announcement by a dependent STA	11.11.5	CF15:M	Yes ☐ No ☐ N/A ☐

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Annex D

(normative)

ASN.1 encoding of the MAC and PHY MIB

Change the "Station Management (SMT) Attributes" of "Major Sections" in Annex D as follows:

```
--*********************************************************************
--* Major sections
--*********************************************************************
--
-- Station Management (SMT) Attributes
-- DEFINED AS "The SMT object class provides the necessary support
-- at the station to manage the processes in the station such that
-- the station may work cooperatively as part of the IEEE 802.11
-- network.

dot11smt OBJECT IDENTIFIER ::= { ieee802dot11 1 }

-- dot11 SMT GROUPS
-- dot11StationConfigTable                        ::= { dot11smt 1 }
-- dot11AuthenticationAlgorithmTable              ::= { dot11smt 2 }
-- dot11WEPDefaultKeysTable                       ::= {dot11smt 3}
-- dot11WEPKEYMappingsTable                       ::= { dot11smt 4 }
-- dot11PrivacyTable                              ::= { dot11smt 5 }
-- dot11SMTnotification                           ::= { dot11smt 6 }
-- dot11MultiDomainCapabilityTable                ::= { dot11smt 7 }
-- dot11SpectrumManagementTable                   ::= { dot11smt 8 }
-- dot11RSNAConfigTable                           ::= { dot11smt 9 }
-- dot11RSNAConfigPairwiseCiphersTable            ::= { dot11smt 10 }
-- dot11RSNAConfigAuthenticationSuitesTable       ::= { dot11smt 11 }
-- dot11RSNAStatsTable                            ::= { dot11smt 12 }
-- dot11RegulatoryClassesTable                    ::= { dot11smt 13 }
-- dot11RadioResourceManagement                   ::= { dot11smt 14 }
-- dot11FastBSSTransitionConfigTable              ::= { dot11smt 15 }
-- dot11LCIDSETable                               ::= { dot11smt 16 }
--
```

In the dot11StationConfig table of Annex D, insert four entries at the end of the dot11StationConfigEntry sequence list as follows:

```
dot11FastBSSTransitionImplemented          TruthValue,
dot11LCIDSEImplemented                     TruthValue,
dot11LCIDSERequired                        TruthValue,
dot11DSERequired TruthValue,
dot11ExtendedChannelSwitchEnabled          TruthValue }
```

Insert the following elements to the end of dot11StationConfigTable element definitions after dot11FastBSSTransitionImplemented in Annex D:

```
dot11LCIDSEImplemented OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
```

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```
            DESCRIPTION
              "This attribute, when true, indicates that the station
                implementation is capable of supporting LCI DSE. The capability
                is disabled, otherwise."
        DEFVAL { false }
    ::= { dot11StationConfigEntry 84 }

dot11LCIDSERequired OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
              "A STA will use the Dependent Station
                Enablement procedures if this attribute
                is true."
        DEFVAL { false }
    ::= { dot11StationConfigEntry 85 }

dot11DSERequired OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
              "This attribute, when true, indicates that the station
                operation is dependent on enablement from enabling
                STAs. This attribute, when false, indicates that the station
                operation does not depend on enablement from STAs."
        DEFVAL { false }
    ::= { dot11StationConfigEntry 86 }

dot11ExtendedChannelSwitchEnabled OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
              "This attribute, when true, indicates that the station
                implementation is capable of supporting Extended Channel
                Switch Announcement. The capability is disabled,
                otherwise."
        DEFVAL { false }
    ::= { dot11StationConfigEntry 87 }
```

In SMT MIB of Annex D, insert the following text after the "dot11FastBSSTransitionConfig TABLE":

```
 -- ******************************************************************
 -- * dot11LCIDSE TABLE
 -- ******************************************************************
 dot11LCIDSETable OBJECT-TYPE
         SYNTAX SEQUENCE OF Dot11LCIDSEEntry
         MAX-ACCESS not-accessible
         STATUS current
         DESCRIPTION
            "Group contains conceptual table of attributes for
             Dependent Station Enablement."
    ::= { dot11smt 16 }

dot11LCIDSEEntry OBJECT-TYPE
        SYNTAX Dot11LCIDSEEntry
```

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```
        MAX-ACCESS not-accessible
        STATUS current
        DESCRIPTION
       "An entry in the dot11LCIDSETable
        Indexed by dot11LCIDSEIndex."
    INDEX { dot11LCIDSEIndex }
    ::= { dot11LCIDSETable 1 }

Dot11LCIDSEEntry ::=
    SEQUENCE {
        dot11LCIDSEIndex                        Unsigned32,
        dot11LCIDSEIfIndex                      InterfaceIndex,
        dot11LCIDSECurrentRegulatoryClass       INTEGER,
        dot11LCIDSELatitudeResolution           Unsigned32,
        dot11LCIDSELatitudeInteger              Integer32,
        dot11LCIDSELatitudeFraction             Integer32,
        dot11LCIDSELongitudeResolution          Unsigned32,
        dot11LCIDSELongitudeInteger             Integer32,
        dot11LCIDSELongitudeFraction            Integer32,
        dot11LCIDSEAltitudeType                 INTEGER,
        dot11LCIDSEAltitudeResolution           Unsigned32,
        dot11LCIDSEAltitudeInteger              Integer32,
        dot11LCIDSEAltitudeFraction             Integer32,
        dot11LCIDSEDatum                        INTEGER,
        dot11RegLocAgreement                    TruthValue,
        dot11RegLocDSE TruthValue,
        dot11DependentSTA TruthValue,
        dot11DependentEnablementIdentifier      Integer32,
        dot11DSEEnablementTimeLimit             Unsigned32,
        dot11DSEEnablementFailHoldTime          Unsigned32,
        dot11DSERenewalTime                     Unsigned32,
        dot11DSETransmitDivisor                 Unsigned32 }

dot11LCIDSEIndex OBJECT-TYPE
        SYNTAX Unsigned32
        MAX-ACCESS not-accessible
        STATUS current
        DESCRIPTION
       "Index for LCI DSE elements in dot11LCIDSETable,
            greater than 0."
    ::= { dot11LCIDSEEntry 1 }

dot11LCIDSEIfIndex OBJECT-TYPE
        SYNTAX InterfaceIndex
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
       "Each IEEE 802.11 interface is represented by an ifEntry. Interface
            Tables in this MIB are indexed by ifIndex."
    ::= { dot11LCIDSEEntry 2 }

dot11LCIDSECurrentRegulatoryClass OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Current Regulatory Class is 8 bits indicating the particular
            Regulatory Class in use by the radio."
    ::= { dot11LCIDSEEntry 3 }
```

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```
dot11LCIDSELatitudeResolution OBJECT-TYPE
        SYNTAX Unsigned32 (0..63)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Latitude resolution is 6 bits indicating the number of valid
            bits in the fixed-point value of Latitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 4 }

dot11LCIDSELatitudeInteger OBJECT-TYPE
        SYNTAX Integer32 (-359..359)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Latitude is a twos-complement 34-bit fixed point value consisting of
            9 bits of integer and 25 bits of fraction. This field contains the
            9 bits of integer portion of Latitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 5 }

dot11LCIDSELatitudeFraction OBJECT-TYPE
        SYNTAX Integer32 (-16777215..16777215)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Latitude is a twos-complement 34-bit fixed point value consisting of
            9 bits of integer and 25 bits of fraction. This field contains the
            25 bits of fraction portion of Latitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 6 }

dot11LCIDSELongitudeResolution OBJECT-TYPE
        SYNTAX Unsigned32 (0..63)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Longitude resolution is 6 bits indicating the number of valid
            bits in the fixed-point value of Longitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 7 }

dot11LCIDSELongitudeInteger OBJECT-TYPE
        SYNTAX Integer32 (-359..359)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Longitude is a twos-complement 34-bit fixed point value consisting of
            9 bits of integer and 25 bits of fraction. This field contains the
            9 bits of integer portion of Longitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 8 }

dot11LCIDSELongitudeFraction OBJECT-TYPE
        SYNTAX Integer32 (-16777215..16777215)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
```

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```
           "Longitude is a twos-complement 34-bit fixed point value consisting of
            9 bits of integer and 25 bits of fraction. This field contains the
            25 bits of fraction portion of Longitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 9 }

dot11LCIDSEAltitudeType OBJECT-TYPE
        SYNTAX INTEGER {
        meters(1),
        floors(2),
        hagm(3) }
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Altitude Type is 4 bits encoding the type of altitude.
            Codes defined are:
            meters : in 2s-complement fixed-point 22-bit integer part
            with 8-bit fraction
            floors : in 2s-complement fixed-point 22-bit integer part
            with 8-bit fraction
            hagm : Height Above Ground in meters, in 2s-complement fixed-point
            22-bit integer part with 8-bit fraction. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
        DEFVAL { 3 }
    ::= { dot11LCIDSEEntry 10 }

dot11LCIDSEAltitudeResolution OBJECT-TYPE
        SYNTAX Unsigned32 (0..63)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Altitude resolution is 6 bits indicating the number of valid
            bits in the altitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 11 }

dot11LCIDSEAltitudeInteger OBJECT-TYPE
        SYNTAX Integer32 (-2097151..2097151)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Altitude is a 30-bit value defined by the Altitude type field.
            The field is encoded as a 2s-complement fixed-point 22-bit integer
            Part with 8-bit fraction. This field contains the fixed-point
            Part of Altitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 12 }

dot11LCIDSEAltitudeFraction OBJECT-TYPE
        SYNTAX Integer32 (-127..127)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Altitude is a 30-bit value defined by the Altitude type field.
            The field is encoded as a 2s-complement fixed-point 22-bit integer
            Part with 8-bit fraction. This field contains the fraction part
            of Altitude. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
    ::= { dot11LCIDSEEntry 13 }
```

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```
dot11LCIDSEDatum OBJECT-TYPE
        SYNTAX INTEGER (1..3)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "Datum is an 8-bit value encoding the horizontal and vertical
            references used for the coordinates given in this LCI.
            IETF RFC-3825 defines the values of Datum. Type 1 is WGS-84, the
            coordinate system used by GPS. Type 2 is NAD83 with NAVD88
            vertical reference. Type 3 is NAD83 with Mean Lower Low Water
            vertical datum. All other types are reserved. This field is derived
            from IETF RFC-3825, and is accessed big-endian."
        DEFVAL { 1 }
    ::= { dot11LCIDSEEntry 14 }

dot11RegLocAgreement OBJECT-TYPE
        SYNTAX TruthValue
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "RegLocAgreement reports the Enabling STA's Agreement status.
           False indicates it is operating away from national borders and outside
          national policy zones. True indicates it is operating by agreement near
            national boarders or inside national policy zones."
        DEFVAL { false }
    ::= { dot11LCIDSEEntry 15 }

dot11RegLocDSE OBJECT-TYPE
        SYNTAX TruthValue
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "RegLocDSE reports the Enabling STA's DSE status.
            False indicates Dependent STAs are not enabled.
            True indicates Dependent STA operation is enabled."
        DEFVAL { false }
    ::= { dot11LCIDSEEntry 16 }

dot11DependentSTA OBJECT-TYPE
        SYNTAX TruthValue
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "This attribute reports the Dependent STA status of the STA that
            sent the beacon or Probe Response with this information. False
            indicates that STA is not operating as a Dependent STA. True
            indicates that STA is operating as a Dependent STA."
        DEFVAL { true }
    ::= { dot11LCIDSEEntry 17 }

dot11DependentEnablementIdentifier OBJECT-TYPE
        SYNTAX Integer32 (0..65535)
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "This attribute reports the Dependent STA identifier assigned by
            the enabling STA to the dependent station."
        DEFVAL { 0 }
```

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```
    ::= { dot11LCIDSEEntry 18 }

dot11DSEEnablementTimeLimit OBJECT-TYPE
        SYNTAX Unsigned32
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "dot11DSEAssociateTimeLimit indicates the maximum number of
            seconds that a dependent STA may transmit in a DSE frequency
            band while attaining enablement with an enabling STA. Unless another
            value is mandated by regulatory authorities, the value
            shall be 32 seconds."
        DEFVAL { 32 }
    ::= { dot11LCIDSEEntry 19 }

dot11DSEEnablementFailHoldTime OBJECT-TYPE
        SYNTAX Unsigned32
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "dot11DSEAssociateFailHoldTime indicates the number of seconds
            that a dependent STA must not transmit in a DSE frequency band
            when it fails to attain enablement with an enabling STA within
           dot11DSEEnablementTimeLimit seconds. Unless another value is mandated
            by regulatory authorities, the value shall be 512 seconds."
        DEFVAL { 512 }
    ::= { dot11LCIDSEEntry 20}

dot11DSERenewalTime OBJECT-TYPE
        SYNTAX Unsigned32
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "dot11DSERenewalTime indicates the maximum number of seconds
            that a dependent STA may operate in a DSE frequency band without
            receiving and decoding an enabling signal from its enabling STA.
           Unless another value is mandated by regulatory authorities, the value
            shall be 60 seconds."
        DEFVAL { 60 }
    ::= { dot11LCIDSEEntry 21}

dot11DSETransmitDivisor OBJECT-TYPE
        SYNTAX Unsigned32
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "dot11DSETransmitDivisor indicates the value used by a dependent
            STA when operating in a DSE frequency band and transmitting. The
            dependent STA sends an Action frame when the sum of
            dot11TransmittedFragmentCount, dot11MulticastTransmittedFrameCount
            and dot11ReceivedFragmentCount modulo dot11DSETransmitDivisor
            equals zero. Unless another value is mandated by regulatory
            authorities, the default value shall be 256."
        DEFVAL { 256 }
    ::= { dot11LCIDSEEntry 22}

 -- ********************************************************************
 -- * End of dot11LCIDSE TABLE
 -- ********************************************************************
```

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In the dot11PhyOFDMEntry Table of Annex D, change the last line as shown:

```
            dot11PhyOFDMChannelWidth              INTEGER,
            dot11OFDMCCAEDImplemented             TruthValue,
            dot11OFDMCCAEDRequired                TruthValue,
            dot11OFDMEDThreshold                  Unsigned32 }
```

In the dot11PhyOFDM Table of Annex D, insert the following text after the end of dot11PhyOFDMEntry 8:

```
dot11OFDMCCAEDImplemented OBJECT-TYPE
        SYNTAX TruthValue
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "This attribute indicates that the OFDM PHY is capable of
            CCA-Energy Detect."
    ::= { dot11PhyOFDMEntry 9 }

dot11OFDMCCAEDRequired OBJECT-TYPE
        SYNTAX TruthValue
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
           "This attribute indicates that the PHY CCA-Energy Detect
            functionality is enabled."
    ::= { dot11PhyOFDMEntry 10 }

dot11OFDMEDThreshold OBJECT-TYPE
        SYNTAX Unsigned32 (0..255)
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
           "The current Energy Detect Threshold being used by the OFDM PHY."
    ::= { dot11PhyOFDMEntry 11 }
```

In the dot11Compliance MODULE-COMPLIANCE statements of Annex D, change references to dot11PhyOFDMComplianceGroup as shown:

```
GROUP dot11PhyDSSSComplianceGroup
        DESCRIPTION
           "Implementation of this group is required when object
            dot11PHYType has the value of dsss. This group is
            mutually exclusive with the groups dot11PhyIRComplianceGroup,
            dot11PhyFHSSComplianceGroup, dot11PhyOFDMComplianceGroup~~2~~3
            and dot11PhyHRDSSSComplianceGroup."

GROUP dot11PhyIRComplianceGroup
        DESCRIPTION
           "Implementation of this group is required when object
            dot11PHYType has the value of irbaseband. This group is
            mutually exclusive with the groups dot11PhyDSSSComplianceGroup,
            dot11PhyFHSSComplianceGroup, dot11PhyOFDMComplianceGroup~~2~~3
            and dot11PhyHRDSSSComplianceGroup."

GROUP dot11PhyFHSSComplianceGroup
        DESCRIPTION
```

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```
           "Implementation of this group is required when object
            dot11PHYType has the value of fhss. This group is
            mutually exclusive with the groups dot11PhyDSSSComplianceGroup,
            dot11PhyIRComplianceGroup, dot11PhyOFDMComplianceGroup~~2~~3
            and dot11PhyHRDSSSComplianceGroup."

GROUP dot11PhyOFDMComplianceGroup~~2~~3
        DESCRIPTION
           "Implementation of this group is required when object
            dot11PHYType has the value of ofdm. This group is
            mutually exclusive with the groups dot11PhyDSSSComplianceGroup,
            dot11PhyIRComplianceGroup, dot11PhyFHSSComplianceGroup
            and dot11PhyHRDSSSComplianceGroup."

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,
            dot11PhyFHSSComplianceGroup and dot11PhyOFDMComplianceGroup~~2~~3."
```

In the dot11Compliance statements of Annex D, change MANDATORY-GROUPS as shown:

```
-- ******************************************************************
 -- * Compliance Statements
 -- ******************************************************************
dot11Compliance MODULE-COMPLIANCE
        STATUS current
        DESCRIPTION
           "The compliance statement for SNMPv2 entities
            that implement the IEEE 802.11 MIB."
        MODULE -- this module
        MANDATORY-GROUPS {
        dot11SMTbase~~8~~9,
        dot11MACbase2, dot11CountersGroup2,
        dot11SmtAuthenticationAlgorithms,
        dot11ResourceTypeID, dot11PhyOperationComplianceGroup }
```

In the dot11Compliance section of Annex D, change dot11SMTbase8 STATUS as shown:

```
        STATUS ~~current~~deprecated
```

In the dot11Compliance statements in Annex D, change dot11PhyOFDMComplianceGroup2 STATUS and insert dot11PhyOFDMComplianceGroup3 as shown:

```
STATUS ~~current~~deprecated

dot11PhyOFDMComplianceGroup3 OBJECT-GROUP
        OBJECTS { dot11CurrentFrequency,
                  dot11FrequencyBandsSupported,
                  dot11ChannelStartingFactor,
                  dot11FiveMHzOperationImplemented,
                  dot11TenMHzOperationImplemented,
                  dot11TwentyMHzOperationImplemented,
                  dot11PhyOFDMChannelWidth,
                  dot11OFDMCCAEDImplemented,
                  dot11OFDMCCAEDRequired,
```

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```
                 dot11OFDMEDThreshold }
        STATUS current
        DESCRIPTION
           "Attributes that configure the OFDM for IEEE 802.11."
    ::= { dot11Groups 42}
```

In the dot11Compliance statements of Annex D, insert new dot11SMTbase9 in the "Groups — units of conformance" group

```
dot11SMTbase9 OBJECT-GROUP
       OBJECTS { dot11MediumOccupancyLimit,
            dot11CFPollable,
            dot11CFPPeriod,
            dot11CFPMaxDuration,
            dot11AuthenticationResponseTimeOut,
            dot11PrivacyOptionImplemented,
            dot11PowerManagementMode,
            dot11DesiredSSID, dot11DesiredBSSType,
            dot11OperationalRateSet,
            dot11BeaconPeriod, dot11DTIMPeriod,
            dot11AssociationResponseTimeOut,
            dot11DisassociateReason,
            dot11DisassociateStation,
            dot11DeauthenticateReason,
            dot11DeauthenticateStation,
            dot11AuthenticateFailStatus,
            dot11AuthenticateFailStation,
            dot11MultiDomainCapabilityImplemented,
            dot11MultiDomainCapabilityEnabled,
            dot11CountryString,
            dot11RSNAOptionImplemented,
            dot11RegulatoryClassesImplemented,
            dot11RegulatoryClassesRequired,
            dot11QosOptionImplemented,
            dot11ImmediateBlockAckOptionImplemented,
            dot11DelayedBlockAckOptionImplemented,
            dot11DirectOptionImplemented,
            dot11APSDOptionImplemented,
            dot11QAckOptionImplemented,
            dot11QBSSLoadOptionImplemented,
            dot11QueueRequestOptionImplemented,
            dot11TXOPRequestOptionImplemented,
            dot11MoreDataAckOptionImplemented,
            dot11AssociateinNQBSS,
            dot11DLSAllowedInQBSS,
            dot11DLSAllowed,
            dot11RadioMeasurementCapable,
            dot11RadioMeasurementEnabled,
            dot11FastBSSTransitionImplemented,
            dot11LCIDSEImplemented,
            dot11LCIDSERequired,
            dot11DSERequired,
            dot11ExtendedChannelSwitchEnabled }
        STATUS current
        DESCRIPTION
           "The SMTbase9 object class provides the necessary support at the
            STA to manage the processes in the STA such that the STA may work
            cooperatively as a part of an IEEE 802.11 network, when the STA is
```

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```
            capable of multi-domain operation. This object group should be
            implemented when the multi-domain capability option is implemented."
::= { dot11Groups 43 }
```

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Annex I

Change Annex I from informative to normative:

~~(informative)~~

(normative)

Regulatory classes

I.1 External regulatory references

Change the third paragraph in I.1 as shown:

The documents listed in Table I.1 specify ~~the~~ current regulatory requirements for various frequency bands and geographic areas at the time this standard was developed. They are provided for information only and are subject to change or revision at any time.

Change the second row of Table I.1 as shown:

Table I.1—Regulatory requirement list

Geographic area	Approval standards	Documents	Approval authority
United States	Federal Communications Commission (FCC)	FCC CFR47 [B8], Part 15, Sections 15.205, 15.209, and 15.247; and Subpart E, Sections 15.401–15.407, Section 90.210, Sections 90.1201–90.1217, Sections 90.1301–90.1337	FCC

Insert a new row and change the last row in Table I.2 as shown:

Table I.2—Emissions limits sets

Emissions limits set	United States	Europe	Japan
6 shared 3650 MHz band	FCC CFR47 [B8], Section 90.1323	Reserved	Reserved
~~6~~7–255	Reserved	Reserved	Reserved

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Change Table I.3 as shown:

Table I.3—Behavior limits sets

Behavior limits set	United States	Europe	Japan
0	Not specified	Not specified	Not specified
1 nomadic use	FCC CFR47 [B8], Section 15.407	ETSI EN 301 389-1	MIC EO Articles 49.20, 49.21
2 indoor only use	FCC CFR47 [B8], Section 15.407(e)	ETSI EN 301 389-1	MIC EO Article 49.20
3 transmit power control[a]	Reserved	ETSI EN 301 389-1	Reserved
4 dynamic frequency selection[a]	Reserved	ETSI EN 301 389-1	Reserved
5 IBSS ~~prohibited~~restrictions	~~Reserved~~FCC CFR47 [B8], Section 90.1333	Reserved	MIC EO Article 49.21
6 4 ms CS[ab]	~~Reserved~~4 ms, no exceptions	Reserved	MIC EO Articles 49.20, 49.21
7 licensed base STA	Reserved	Reserved	MIC EO Article 49.21
8 mobile STA	Reserved	Reserved	MIC EO Articles 49.20, 49.21
9 public safety	FCC CFR47 [B8], Section 90.1209	Reserved	Reserved
10 Part 15 license exempt bands	FCC CFR47 [B8], Section 15.247	ETS 300-328 [B6]	MIC EO Article 49.20
11 registered STA[c]	FCC CFR47 [B8], Section 90.1331	Reserved	Reserved
12 dependent STA[c]	FCC CFR47 [B8], Section 90.1333	Reserved	Reserved
13 Reserved	Reserved	Reserved	Reserved
14 Reserved	Reserved	Reserved	Reserved
15 CCA-ED[a]	Reserved	Reserved	Reserved
~~11~~16–255	Reserved	Reserved	Reserved

[a]Procedures that may be used to improve sharing spectrum in addition to explicit regulatory requirements.

[a~~b~~]The Japanese 4 ms CS rule says no STA can transmit for more than 4 ms without carrier sensing, whether transmitting fragments or frames, unless it is controlled by another STA

[c]The deployment in US 3650 MHz band excludes operation near grandfathered satellite earth stations, federal government radiolocation facilities, and Canadian and Mexican borders. If mutual agreement can be reached, the FCC will permit operation within the declared exclusion zones. Operation near Canadian and Mexican borders is subject to current and future agreements with Canada and Mexico. NOTE—The FCC regulation grandfathers the regulatory status of 36 satellite earth stations and three radiolocation facilities in that they retain their primary status, and any new ones will have secondary status.

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I.2 Radio performance specifications

I.2.2 Transmit power levels

Insert the following sentence at the end of the first paragraph in I.2.2:

Transmit power levels described here are provided for information only and are subject to change or revision at any time.

Change Table I.4 as shown:

Table I.4—Transmit power level by regulatory domain

Frequency band (GHz)	United States (Maximum output power with up to 6 dBi antenna gain) (mW)	United States (EIRP)	Europe (EIRP)
2.400–2.4835	1 000 with antenna gain per FCC CFR47 [B8], Section 15.247(b)(4)(i)...	—	100 mW
3.650–3.700 registered STA	—	1W/MHz	Reserved
3.650–3.700 dependent mobile/ portable STA	—	40 mW/MHz	Reserved
5.15–5.25	40 (2.5 mW/MHz)	—	200 mW
5.25–5.35	200 (12.5 mW/MHz)	—	200 mW
5.470–5.725	—	—	1 W
5.725–5.825	800 (50 mW/MHz)	—	—

I.2.3 Transmit spectrum mask

Delete the first paragraph and Figure I.1 (including figure art) in I.2.3 as shown:

~~For operation using 20 MHz channel spacing, the transmitted spectrum shall have a 0 dBr (decibel relative to the maximum spectral density of the signal) bandwidth not exceeding 18 MHz, −20 dBr at 11 MHz frequency offset, −28 dBr at 20 MHz frequency offset, and −40 dBr at 30 MHz frequency offset and above. For operation using 10 MHz channel spacing, the transmitted spectrum shall have a 0 dBr bandwidth not exceeding 9 MHz, −20 dBr at 5.5 MHz frequency offset, −28 dBr at 10 MHz frequency offset, and −40 dBr at 15 MHz frequency offset and above. The transmitted spectral density of the transmitted signal shall fall within the spectral mask, as shown in Figure I.1. The measurements shall be made using a 100 kHz resolution bandwidth and a 30 kHz video bandwidth.~~

~~**Figure I.1—Transmit spectrum mask**~~

Insert the following paragraph as the first paragraph in I.2.3:

Transmit spectrum masks defined in regulation are described here for information only and are subject to change or revision at any time.

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Insert the following subclause (I.2.4) after I.2.3:

I.2.4 CCA-ED threshold

For operation in the 3.65–3.7 GHz band, the CCA-ED thresholds shall be less than or equal to –72 dBm for 20 MHz channel widths, –75 dBm for 10 MHz channel widths, and –78 dBm for 5 MHz channel widths (minimum sensitivity for BPSK, R=1/2 + 10 dB in Table 17-13).

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Annex J

(normative)

Country information element and regulatory classes

Insert the following subclause header and paragraph at the beginning of Annex J:

J.1 Country information and regulatory classes

WLANs implemented in accordance with this standard and the specifications and definitions referenced in it are subject to equipment certification and operating requirements established by regional and national regulatory administrations. The specification establishes minimum technical requirements for interoperability, based upon established regulations at the time this standard was issued. These regional and national regulations are subject to revision or may be superseded. Regulatory requirements that do not affect interoperability are not addressed in this standard. Implementers are referred to the regulatory sources in Table I.1 for further information. Operation in countries within defined regulatory domains may be subject to additional or alternative national regulations.

Replace Table J.1 with the following table:

Table J.1—Regulatory classes in the United States

Regulatory class	Channel starting frequency (GHz)	Channel spacing (MHz)	Channel set	Transmit power limit (mW)	Transmit power limit (EIRP)	Emissions limits set	Behavior limits set
1	5	20	36, 40, 44, 48	40	—	1	1, 2
2	5	20	52, 56, 60, 64	200	—	1	1
3	5	20	149, 153, 157, 161	800	—	1	1
4	5	20	100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140	200	—	1	1
5	5	20	149, 153, 157, 161, 165	1000	—	4	10
6	4.9375	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	25	—	5	9
7	4.9375	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	500	—	5	9
8	4.89	10	11, 13, 15, 17, 19	50	—	5	9
9	4.89	10	11, 13, 15, 17, 19	1000	—	5	9

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Table J.1—Regulatory classes in the United States *(continued)*

Regulatory class	Channel starting frequency (GHz)	Channel spacing (MHz)	Channel set	Transmit power limit (mW)	Transmit power limit (EIRP)	Emissions limits set	Behavior limits set
10	4.85	20	21, 25	100	—	5	9
11	4.85	20	21, 25	2000	—	5	9
12	2.407	25	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	1000	—	4	10
13	3.000	20	133, 137	—	1 W/MHz	6	3, 4, 6, 11, 15
13	3.000	20	133, 137	—	40 mW/ MHz	6	3, 4, 5, 6, 12, 15
14	3.000	10	132, 134, 136, 138	—	1 W/MHz	6	3, 4, 6, 11, 15
14	3.000	10	132, 134, 136, 138	—	40 mW/ MHz	6	3, 4, 5, 6, 12, 15
15	3.0025	5	131, 132, 133, 134, 135, 136, 137, 138	—	1 W/MHz	6	3, 4, 6, 11, 15
15	3.0025	5	131, 132, 133, 134, 135, 136, 137, 138	—	40 mW/ MHz	6	3, 4, 5, 6, 12, 15
16–255	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

Insert the following subclause (J.2) at the end of Annex J:

J.2 Band-specific operating requirements

J.2.1 3650–3700 MHz in the United States

The registration authority is the FCC's Universal Licensing System (ULS).

Regulations specify the following:

— Certified mobile and portable STAs do not need to be registered, but they "must" operate under the control of an enabling STA (using DSE procedures).

— A registered STA "must" be a fixed STA.

— A registered STA "must" not operate as an enabling STA until the licensee has registered it as a "base station" in ULS.

Enabling STAs and fixed STAs are registered STAs. Dependent non-AP STAs and dependent APs are dependent STAs.

STAs shall use the following:

— CCA-ED

— CS/CCA

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— TPC
— DFS

No STA shall use channel switch announcement.

STAs shall have the following elements set to TRUE:
— dot11LCIDSERequired
— dot11SpectrumManagementRequired
— dot11MultiDomainCapabilityEnabled
— dot11ExtendedChannelSwitchEnabled

STAs shall be capable of receiving all channels associated with regulatory classes 13–15.

STAs shall be capable of transmitting on all channels associated with regulatory class 15.

STAs shall set the value of dot11DSETransmitDivisor to 256 and the other dot11DSE timer values as shown in Table J.4.

Table J.4—DSE timer limits

Parameter	Seconds
dot11DSEEnablementTimeLimit	32
dot11DSEEnablementFailHoldTime	512
dot11DSERenewalTime	60

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