IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Definition Acronym | | | | | | Date: 2023-1-27 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Youhan Kim | Qualcomm Technologies, Inc. |  |  | [youhank@qti.qualcomm.com](mailto:youhank@qti.qualcomm.com) | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

Abstract

This submission proposes resolutions for the following comments from comment collection on P802.11-REVme D2.0:

3819

NOTE – Set the Track Changes Viewing Option in the MS Word to “All Markup” to clearly see the proposed text edits.

**Revision History:**

R0: Initial version.

R1: Added some options suggested by TGme participants

R2: Added some options which came up during the Editors’ meeting on Nov. 15, 2022.

R3: Updated per discussion in December 2022 TGme Ad Hoc meeting.

R4: Provided detailed text changes.

R5: Updated per discussion in 1/27/2023 teleconferene.

# CID 3819

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| --- | --- | --- |
| **CID**  **Clause**  **Page.Line** | **Comment** | **Proposed Change** |
| 3819  3  180.1 | Terms defined in clause 3 often do not show up in a 'search' because most of the terms are written out in 'long form' instead of 'full acronym'.  For example, if one searches for "STA 6G", the definition at P232L1 does not show up. This is because the 'term' is written as "station (STA) 6G" in Clause 3, not "STA 6G".  So, it is often very hard to find the definition unless one already knows that there is a definition for it and knows how to look for it - which seems to defeat the purpose of having a definition. | For the definition 'terms' in Clause 3, write the full acronym at the end of the full term.  E.g., "station (STA) 6G" --> "station 6G (STA 6G)" "high throughput (HT) beamformer" --> "high throughput beamformer (HT beamformer)" "high-efficiency (HE) masked HE-long training field (HE-LTF) sequence mode" --> "high-efficiency masked HE-long training field sequence mode (HE masked HE-LTF sequence mode)" |

**Discussion**

Various options were discussed in the TGme group. Please see the previous revisions of this documents on the options which were discussed.

IEEE publication editor was also consulted, who advised not to put acronyms ‘within’ the definition name as that affects the ‘database’ for the acronyms. While this seems to indicate that even the existing acronyms should be removed from the clause 3 definition terms, TGme decided to make incremental change:

* Add the full acronym for the definition terms (where necessary)
* Add the acronym after the colon, i.e., outside the definition “name”

Proposed text updates in this document implements above.

**Proposed Resolution: CID 3819**

**REVISED**

**Instruction to TGme Editor:**

Implement the proposed text updates for CID 3819 in <https://mentor.ieee.org/802.11/dcn/23/11-22-1993-05-000m-definition-acronym.docx>

**Note to commenter:**

The proposed text updates add acronyms of the definition terms after the colon.

**Proposed Text Update: CID 3819**

*Instruction to TGme Editor: Update REVme D2.0 clause 3 as shown below.*

**3. Definitions, acronyms, and abbreviations**

3.1 Definitions

For the purposes of this standard, the following terms and definitions apply. The *IEEE Standards Dictionary Online* should be referenced for terms not defined in this clause.[[1]](#footnote-1)

**access control:** The prevention of unauthorized usage of resources.

**access point:** [AP] An entity that contains one station (STA) and provides access to the distribution system services, via the wireless medium (WM) for associated STAs. An AP comprises a STA and a distribution system access function (DSAF).

**access point (AP) reachability:** [AP reachability] An AP is reachable by a station (STA) if preauthentication messages can be exchanged between the STA and the target AP via the distribution system (DS).

* Preauthentication is defined in 12.6.10.2 (Preauthentication and RSNA key management).

**additional authentication data:** [AAD] Data that are not encrypted, but are cryptographically -protected.

**admission control:** An algorithm intended to prevent the violation of parameterized service commitments made by the network to admitted flows by controlling the admittance of a new flow into a resource constrained network.

**aggregate medium access control (MAC) protocol data unit:** [A-MPDU] A structure that contains one or more MPDUs and is transported by a physical layer (PHY) as a single PHY service data unit (PSDU).

**aggregate medium access control (MAC) protocol data unit (A-MPDU) subframe:** [A-MPDU subframe] A portion of an A-MPDU that contains a delimiter and optionally contains an MPDU plus any necessary padding.

**aggregate medium access control (MAC) service data unit:** [A-MSDU] A structure that contains one or more MSDUs and is transmitted in one or more QoS Data frames with the same sequence number.

**aggregate medium access control (MAC) service data unit (A‑MSDU) subframe:** [A-MSDU subframe] A portion of an A‑MSDU that contains a header and associated MSDU.

**antenna connector:** The measurement point of reference for radio frequency (RF) measurements in a station (STA). The antenna connector is the point in the STA architecture comprising a) a receive antenna connector representing the input of the receiver (output of the antenna) for radio reception and b) a transmit antenna connector representing the input of the antenna (output of the transmitter) for radio transmission. In systems using multiple antennas or antenna arrays, the antenna connector is a virtual point representing the aggregate output of (and input to) the multiple antennas. In systems using active antenna arrays with processing, the transmit antenna connector or receive antenna connector is respectively the input or output of the active array, which includes any processing gain of the active antenna subsystem.

NOTE 1—The receive antenna connector and transmit antenna connector might be the same measurement point.

NOTE 2—In contexts in which transmission or reception is the subject “antenna connector” is an implicit reference to the transmit antenna connector or receive antenna connector, respectively.

**antenna selection (ASEL) receiver:** [ASEL receiver] A station (STA) that performs receive ASEL.

**antenna selection (ASEL) transmitter:** [ASEL transmitter] A station (STA) that performs transmit ASEL.

**antenna weight vector:** [AWV] A vector of weights describing the excitation (amplitude and phase) for each element of an antenna array.

**association:** The service used to establish a mapping between an access point (AP) or personal basic service set (PBSS) control point (PCP), and a station (STA) and enable STA invocation of the distribution system services (DSSs).

**authenticated encryption with associated data:** [AEAD]A cipher mode that performs authenticated encryption of a plaintext, with associated data that is authenticated but not encrypted.

**authentication:** The service used to establish the identity of one station (STA) as a member of the set of STAs authorized to associate with another STA.

**Authentication Server:** [AS] An entity that provides an authentication service to an Authenticator. This service determines, from the credentials provided by the Supplicant, whether the Supplicant is authorized to access the services provided by the Authenticator. (IEEE Std 802.1X-2010[[2]](#footnote-2))

**Authenticator:** An entity at one end of a point-to-point local area network (LAN) segment that facilitates Authentication of the entity attached to the other end of that link. (IEEE Std 802.1X-2010)

**Authenticator address:** [AA] The medium access control (MAC) address of the IEEE 802.1X Authenticator’s station (STA).

**authorization:** The act of determining whether a particular right, such as access to a resource, is granted to an entity.

* See IETF RFC 2903 [B35].

**authorized:** To be explicitly allowed.

**average noise plus interference power indicator:** [ANIPI] A medium access control (MAC) indication of the average noise plus interference power measured on a channel that meets the two simultaneous conditions: 1) the station (STA) is not transmitting a frame, and 2) the station (STA) is not receiving a frame addressed to it.

**azimuth:** The horizontal orientation of the front surface of a station or of a radio antenna system’s main lobe measured clockwise from true north.

**basic service area:** [BSA] The area containing the members of a basic service set (BSS). It might contain members of other BSSs.

**basic service set:** [BSS] A set of stations (STAs) that have successfully synchronized using the MLME-JOIN.request service primitive and one STA that has used the MLME-START.request primitive. Alternatively, a set of STAs that have used the MLME-START.request primitive specifying matching mesh profiles where the match of the mesh profiles has been verified via the scanning procedure. Membership in a BSS does not imply that wireless communication with all other members of the BSS is possible.

**basic service set (BSS) max idle period:** [BSS max idle period]A time period during which the access point (AP) does not disassociate a station (STA) due to nonreceipt of frames from that STA.

**basic service set (BSS) transition:** [BSS transition] Change of association by a station (STA) from one BSS to another BSS in the same extended service set (ESS).

**beamformee:** A station (STA) that receives a physical layer (PHY) protocol data unit (PPDU) that was transmitted using a beamforming steering matrix.

**beamformer:** A station (STA) that transmits a physical layer (PHY) protocol data unit (PPDU) using a beamforming steering matrix.

**beamforming:** A spatial filtering mechanism used at a transmitter to improve the received signal power or signal-to-noise ratio (SNR) at an intended receiver. *Syn:* **beam steering**.

**beamforming steering matrix:** A matrix determined using knowledge of the channel between a transmitter and an intended receiver that maps from space-time streams to transmit antennas with the goal of improving the signal power or signal-to-noise ratio (SNR) at the intended receiver.

**big endian:** The concept that, for a given multi-octet numeric representation, the most significant octet has the lowest address.

**broadcast address:** A unique group address that specifies all stations (STAs).

**calibration initiator:** A station (STA) that initiates a calibration sequence.

**calibration responder:** A station (STA) that transmits during a calibration sequence in response to a transmission by a calibration initiator.

**candidate peer mesh station (STA):** [candidate peer mesh STA] A neighbor mesh STA to which a mesh peering has not been established but meets eligibility requirements to become a peer mesh STA.

**certificate authority:** [CA] An entity that vouches for the binding between a device’s identity, its public key, and associated keying material (such as key validity period and key usage).

**channel:** An instance of use of the wireless medium (WM) for the purpose of passing physical layer (PHY) protocol data units (PDUs) between two or more stations (STAs).

**channel spacing:** The difference between the center frequencies of two nonoverlapping and adjacent channels of the radio transmitter.

**cipher suite:** A set of one or more algorithms, designed to provide data confidentiality, data authenticity or integrity, and/or replay protection.

**clear channel assessment (CCA) function:** [CCA function] The logical function in the physical layer (PHY) that determines the current state of use of the wireless medium (WM).

**colocated interference:** Interference that is caused by another radio or station (STA) emitting radio energy located in the same physical device as the reporting STA, where the reported characteristics of the interference are known a priori without interference detection, measurement, or characterization by the reporting STA.

**colocated radio:** A radio capable of emitting radio-frequency energy located in the same physical device as the reporting station (STA), where the radio’s type and some link characteristics are known without signal detection or measurement by the reporting STA.

**configuration profile:** A collection of parameters identified by a profile nontransmitter identifier (ID) that represent a current or available configuration of a station (STA).

**contiguous transmission:** A transmission that uses only one frequency segment.

**coordination function:** The logical function that determines when a station (STA) is permitted to transmit protocol data units (PDUs) via the wireless medium (WM).

**Counter Mode with cipher-block chaining message authentication code:** [CCM] A symmetric key block cipher mode providing confidentiality using Counter Mode (CTR) and data origin authenticity using cipher-block chaining message authentication code (CBC-MAC).

* See IETF RFC 3610.

**cryptographic encapsulation:** The process of generating the cryptographic payload from the plaintext data. This comprises the cipher text as well as any associated cryptographic state required by the receiver of the data, e.g., initialization vectors (IVs), sequence numbers, message integrity codes (MICs), key identifiers.

**data confidentiality:** A property of information that prevents disclosure to unauthorized individuals, entities, or processes.

**deauthentication service:** The service that voids an existing authentication relationship.

**decapsulate:** To recover an unprotected frame from a protected one.

**decapsulation:** The process of generating plaintext data by decapsulating an encapsulated frame.

**dependent station (STA):** [dependent 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 wireless medium (WM).

**destination mesh station (STA):** [destination STA] A mesh STA that is the final destination of a medium access control (MAC) service data unit (MSDU). This mesh STA might reside in a proxy mesh gate that might forward the MSDU to a STA outside of the mesh basic service set (MBSS). A destination mesh STA might be an end station as defined in IEEE Std 802.

**direct link:** A bidirectional link from one quality-of-service (QoS) station (STA) to another QoS STA operating in the same QoS independent basic service set (IBSS), or infrastructure QoS basic service set (BSS) that does not pass through a QoS access point (AP).

**directed multicast service:** [DMS] A service in which the access point (AP) transmits group addressed frames as individually addressed frames to the requesting non-AP station (STA).

**disassociation service:** The service that removes an existing association.

**distributed coordination function:** [DCF] A class of coordination function where the same coordination function logic is active in every station (STA) in the basic service set (BSS) whenever the network is in operation.

**distribution system:** [DS] A system used to interconnect a set of basic service sets (BSSs) and integrated local area networks (LANs) to create an extended service set (ESS).

**distribution system access function:** [DSAF] A function within an access point (AP) or mesh gate that uses the medium access control (MAC) service and distribution system service (DSS) to provide access between the distribution system (DS) and the wireless medium (WM). Within a general link (GLK) AP or GLK mesh station (STA), the DSAF also switches GLK traffic to the GLK convergence function and from there to the IEEE 802.1Q bridge port.

**distribution system medium:** [DSM] The medium or set of media used by a distribution system (DS) for communications between access points (APs), mesh gates, and the portal of an extended service set (ESS).

**distribution system service:** [DSS] The set of services provided by the distribution system (DS) that enable the medium access control (MAC) to transport MAC service tuples between stations (STAs) that are not in direct communication with each other over a single instance of the wireless medium (WM).

NOTE 1—These services include transport of MAC service tuples between the access points (APs) of basic service sets (BSSs) within an extended service set (ESS), transport of MAC service tuples between the portal and BSSs within an ESS, transport of MAC service tuples between mesh gates in the same or different mesh basic service sets (MBSSs), transport of MAC service tuples between mesh gates and APs, transport of MAC service tuples between mesh gates and a portal, and transport of MAC service tuples between STAs in the same BSS when the MAC service tuples has a group destination address or the destination is an individual address and the STA is associated with an AP.

NOTE 2—DSSs are provided between pairs of MACs not on the same instance of the WM.

**dynamic frequency selection:** [DFS] Facilities mandated to satisfy requirements in some regulatory domains for radar detection and uniform channel spreading in the 5 GHz band. These facilities might also be used for other purposes, such as automatic frequency planning.

**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.

**effective isotropic radiated power:** [EIRP] The equivalent power of a transmitted signal in terms of an isotropic (omnidirectional) radiator. The EIRP equals the product of the transmitter power and the antenna gain (reduced by any coupling losses between the transmitter and antenna).

**emergency alert system:** [EAS] A United States and its territories national public warning system.

**enabling** **station (STA):** [enabling 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 dependents over the wireless medium (WM). An enabling STA chooses whether other dynamic STA enablement (DSE) messages are exchanged over the air, over the distribution system (DS), or by mechanisms that rely on transport via higher layers.

**encapsulate:** To construct a protected frame from an unprotected frame.

**encapsulation:** The process of generating a protected frame by encapsulating plaintext data.

**extended service area:** [ESA] The area within which members of an extended service set (ESS) can communicate. An ESA is larger than or equal to a basic service area (BSA) and might involve several basic service sets (BSSs) in overlapping, disjointed, or both configurations.

**extended service set:** [ESS] A set of one or more basic service sets (BSSs) that are interconnected by a single distribution system (DS); an ESS appears as a single IEEE Std 802™ access domain to the logical link control (LLC) sublayer.(M12)

**extended service set (ESS) transition:** [ESS transition] Change of association by a station (STA) from one basic service set (BSS) in one ESS to another BSS in a different ESS.

**fast basic service set (BSS) transition:** [fast BSS transition, FT] Change of association by a station (STA) that is from one BSS in one extended service set (ESS) to another BSS in the same ESS and that minimizes the amount of time that the data connectivity is lost between the STA and the distribution system (DS).

**fast session transfer:** [FST] The transfer of a session from a channel to another channel, in the same or different frequency bands. The term “session” refers to non-physical layer state information kept by a pair of stations (STAs) that communicate directly (i.e., excludes forwarding).

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

**forwarding information:** The information maintained by a mesh station (STA) that allows the mesh STA to perform its path selection and forwarding functions.

**frame:** A unit of data exchanged between medium access control (MAC) entities. *Syn:* **medium access control (MAC) protocol data unit (MPDU)**.

**frame exchange sequence:** A sequence of frames that maintains control of the wireless medium.

NOTE—Control of the wireless medium might be maintained across multiple frame exchange sequences through other mechanisms, see, for example, 10.23.2.8 (Multiple frame exchange sequences in an EDCA TXOP).

**frequency segment:** A contiguous block of spectrum used by a transmission or a block of spectrum used by a transmission that would be contiguous were it not punctured.

**Gaussian frequency shift keying:** [GFSK] A modulation scheme in which the data are first filtered by a Gaussian filter in the baseband and then modulated with a simple frequency modulation.

**geolocation:** A location within an earth-centric frame of reference.

**group:** The entities in a wireless network, e.g., an access point (AP) and its associated stations (STAs), or all of the STAs in an independent basic service set (IBSS) network.

**group address:** A medium access control (MAC) address that has the group bit equal to 1. *Syn*: **multicast address**.

**group addressed:** When applied to a medium access control (MAC) service data unit (MSDU), it is an MSDU with a group address as the destination address (DA). When applied to a MAC protocol data unit (MPDU), it is an MPDU with a group address in the Address 1 field. *Syn*: **multicast**.

**HeSS**: A collection of basic service sets (BSSs) that provide access to a set of higher layer services using a given set of authentication credentials.(M12)

* HeSS is an orthogonal concept to extended service set (ESS). Membership of a given BSS in an HeSS is independent of any ESS membership.
* “HeSS” is not an abbreviation for anything.

**hidden station (STA):** [hidden STA] A STA whose transmissions are not detected using carrier sense (CS) by a second STA, but whose transmissions interfere with transmissions from the second STA to a third STA. (M12)

**idle power indicator:** [IPI] A physical layer (PHY) indication of the total channel power (noise and interference) as measured in the channel at the receiving antenna connector while the station (STA) is idle, i.e., neither transmitting nor receiving a frame.

**IEEE 802.1X authentication:** Extensible Authentication Protocol (EAP) authentication transported by the IEEE 802.1X protocol.

**independent basic service set:** [IBSS] A basic service set (BSS) that forms a self-contained network, and in which no access to a distribution system (DS) is available.

**independent basic service set (IBSS) station (STA):** [IBSS STA] A STA that has started or joined an IBSS.

**individual address:** A medium access control (MAC) address in which the group bit is 0.

**individually addressed:** When applied to a medium access control (MAC) service data unit (MSDU), it is an MSDU with an individual address as the destination address (DA). When applied to a MAC protocol data unit (MPDU), it is an MPDU with an individual address in the Address 1 field.

**infrastructure:** An infrastructure comprises a distribution system (DS), one or more access points (APs), zero or one portals, and zero or more mesh gates. It is also the logical location of distribution and integration service functions of an extended service set (ESS).

**infrastructure authorization information:** The information that specifies the access rights of the user of a non–access point (non-AP) station (STA). This information might include the rules for routing the user traffic, a set of permissions about services that a user is allowed to access, quality-of-service (QoS) configuration information, or the accounting policy to be applied by the infrastructure.

**integration service:** The service that enables delivery of medium access control (MAC) service data units (MSDUs) between the distribution system (DS) and a local area network (LAN) (via a portal).

**link margin:** Ratio of the received signal power to the minimum required by the station (STA). The STA might incorporate rate information and channel conditions, including interference, into its computation of link margin. The specific algorithm for computing the link margin is implementation dependent.

**link metric:** A criterion used to characterize the performance, quality, and eligibility of a link.

**little endian:** The concept that, for a given multi-octet numeric representation, the least significant octet has the lowest address.

**liveness:** A demonstration that the peer is actually participating in this instance of communication.

**location subject local:** The term used when a location request is for the location of the requesting station (STA), i.e., when the requesting STA asks, “Where am I?”

**location subject remote:** The term used when a location request is for the location of the reporting station (STA), i.e., when the requesting STA asks, “Where are you?”

**location subject third party:** The term used when the location request is for the location of a station (STA) other than the requesting STA or the requested STA, (i.e., when the requesting STA asks, “Where is he/she?”)

**master session key:** [MSK] Keying material that is derived between the Extensible Authentication Protocol (EAP) peer and exported by the EAP method to the Authentication Server (AS).

* In this standard, this key is at least 64 octets in length.

**medium access control (MAC) protocol data unit:** [MPDU] The unit of data exchanged between two peer MAC entities using the services of the physical layer (PHY). *Syn:* **medium access control (MAC) frame**.

**medium access control (MAC) service data unit:** [MSDU] Information that is delivered as a unit between MAC service access points (SAPs).

**medium access control (MAC) service tuple:** [MAC service tuple] The collection of a MAC service data unit (MSDU) along with the associated source address, destination address, priority, drop eligibility, service class, station vector, and MSDU format, which are all passed as parameters across the MAC service access point (SAP) and are all except the station vector delivered across the distribution system between access points (APs), mesh gates, and the portal of an extended service set (ESS).

**mesh basic service set:** [MBSS] A basic service set (BSS) that forms a self-contained network of mesh stations (STAs) that use the same mesh profile. An MBSS contains zero or more mesh gates, and can be formed from mesh STAs that are not in direct communication.

**mesh facility:** The set of enhanced functions, channel access rules, frame formats, mutual authentication methods, and managed objects used to provide data transfer among autonomously operating stations (STAs) that might not be in direct communication with each other over a single instance of the wireless medium. Communication between STAs using the mesh facility takes place using only the wireless medium. The mesh facility transports a medium access control (MAC) service data unit (MSDU) between source and destination STAs over potentially multiple hops of the wireless medium without transiting the MAC service access point (SAP) at intermediate STAs.

**mesh gate:** Any entity that has a mesh station (STA) function and a distribution system access function (DSAF) to provide access to a single distribution system for the mesh basic service set (MBSS).

**mesh link:** A link from one mesh station (STA) to a neighbor mesh STA that have a mesh peering with each other.

**mesh neighborhood:** The set of all neighbor mesh stations (STAs) of a particular mesh STA.

**mesh path:** A concatenated set of mesh links from a source mesh station (STA) to a destination mesh STA.

**mesh path selection:** The process of selecting a mesh path.

**mesh peering:** A relationship between two mesh stations (STAs) that is required for direct communication over a single instance of the wireless medium (WM). A mesh peering is established with a mesh peering protocol.

**mesh profile:** A set of values of parameters that identifies the attributes of the mesh basic service set (MBSS) and that is used in a single MBSS.

* The mesh profile consists of the identifiers that are the values for the parameters: mesh identifier (ID), active path selection protocol, active path selection metric, congestion control mode, synchronization method, and authentication protocol.

**mesh services:** The set of services that enable the creation and operation of a mesh basic service set (MBSS).

**mesh station (STA):** [mesh STA] A quality-of-service (QoS) STA that implements the mesh facility.

**message integrity code:** [MIC] A value generated by a cryptographic function. If the input data are changed, a new value cannot be correctly computed without knowledge of the cryptographic key(s) used by the cryptographic function.

* This is traditionally called a -*message authentication code* (MAC), but the acronym MAC is already reserved for another meaning in this standard.

**mobile station (STA):** [mobile STA] A type of STA that uses network communications while in motion.

**mobility domain:** A set of basic service sets (BSSs), within the same extended service set (ESS), that support fast BSS transitions between themselves and that are identified by the set’s mobility domain identifier (MDID).

**mobility domain identifier:** [MDID] An identifier that names a mobility domain.

**multicast:** *See:* **group addressed**.

**multicast address:** *See:* **group address**.

**multicast-group address:** A medium access control (MAC) address associated by higher level convention with a group of logically related stations (STAs).

**multi-level precedence and preemption:** [MLPP] A framework used with admission control for the treatment of traffic streams based on precedence, which supports the preemption of an active traffic stream by a higher precedence traffic stream when resources are limited. Preemption is the act of forcibly removing a traffic stream in progress in order to free up resources for another higher precedence traffic stream.

**multiple basic service set identifier (BSSID) capability:** [multiple BSSID capability] The capability to advertise information for multiple BSSIDs using a single Beacon or Probe Response frame instead of using multiple Beacon or Probe Response frames, each corresponding to a single BSSID, and the capability to indicate buffered frames for these multiple BSSIDs using a single traffic indication map (TIM) element in a single Beacon or TIM frame.

**multiple input, multiple output:** [MIMO] A physical layer (PHY) configuration in which both transmitter and receiver use multiple antennas.

**multiple medium access control (MAC) station management entity (SME):** [MM-SME] Component of station management that manages multiple cooperating stations (STAs).

**multi-user multiple input, multiple output:** [MU-MIMO] A technique by which multiple stations (STAs), each with one or more antennas, either simultaneously transmit to a single STA or simultaneously receive from a single STA independent PSDUs over the same subcarriers.

**neighbor access point (AP):** [neighbor AP] Any AP that is a potential service set transition candidate.

**neighbor station (STA):** [neighbor STA] A STA in the following relationship: STA A is a neighbor to STA B if STA A can both directly transmit to and receive from STA B over the wireless medium.

**network access identifier:** [NAI] The user identity submitted by the Supplicant during IEEE 802.1X authentication.

* See IETF RFC 4282.

**network access server (NAS) client:** [NAS client] The client component of a NAS that communicates with the Authentication Server (AS).

**network allocation vector:** [NAV] An indicator, maintained by each station (STA), of time periods when transmission onto the wireless medium (WM) is not initiated by the STA regardless of whether the STA’s clear channel assessment (CCA) function senses that the WM is busy.

**next-hop mesh station (STA):** [next-hop mesh STA] The next peer mesh STA on the mesh path to the destination mesh STA.

**non–access point (non-AP) station (STA):** [non-AP STA] A STA that is not contained within an access point (AP).

**nonce:** A numerical value, used in cryptographic operations associated with a given cryptographic key, that is not to be reused with that key, including over all reinitializations of the system through all time.

**noncontiguous transmission:** A transmission that uses nonadjacent frequency segments.

**nonoperating channel:** A channel that is not the operating channel of the basic service set (BSS) of which the station (STA) is a member.

**non-quality-of-service (non-QoS) access point (AP):** [non-QoS AP] An AP that does not support the quality-of-service (QoS) facility.

**non-quality-of-service (non-QoS) basic service set (BSS):** [non-QoS BSS] A BSS that does not support the quality-of-service (QoS) facility.

**non-quality-of-service (non-QoS) station (STA):** [non-QoS STA] A STA that does not support the quality-of-service (QoS) facility.

**operating channel:** The operating channel is the channel in which beacons are transmitted.

* In IEEE Std 802.11, the serving access point (AP) of an infrastructure basic service set (BSS) or the dynamic frequency selection (DFS) owner of an independent basic service set (IBSS) transmits beacons.

**operating channel width:** The channel width in which the station (STA) is currently able to receive.

**orthogonal frequency division multiple access:** [OFDMA] An orthogonal frequency division multiplexing (OFDM)-based multiple access technique by which multiple stations (STAs) either simultaneously transmit to a single STA, or simultaneously receive from a single STA, independent PSDUs over different groups of subcarriers.

**overlapping basic service set:** [OBSS] A basic service set (BSS) operating on the same channel as the station’s (STA’s) BSS and within (either partly or wholly) its basic service area (BSA).

**over-the-air fast basic service set (BSS) transition (FT):** [over-the-air fast BSS transition, over-the-air FT] An FT method in which the station (STA) communicates over a wireless medium (WM) link to the target access point (AP).

**over-the-distribution-system (over-the-DS) fast basic service set (BSS) transition (FT):** [over-the-DS fast BSS transition, over-the-DS FT] An FT method in which the station (STA) communicates with the target access point (AP) via the current AP.

**pairwise:** Referring to, or an attribute of, two entities that are associated with each other, e.g., an access point (AP) and an associated station (STA), or two STAs in an independent basic service set (IBSS) network. This term is used to refer to a type of encryption key hierarchy pertaining to keys shared by only two entities.

**pass-phrase:** A secret text string employed to corroborate the user’s identity.

**password:** A shared, secret, and potentially low-entropy word, phrase, code, or key used as a credential for authentication purposes.

* The method of distribution of a password to the units in the system is outside the scope of this standard.

**path metric:** An aggregate multi-hop criterion used to characterize the performance, quality, and eligibility of a mesh path.

**peer mesh station (STA):** [peer mesh STA] A mesh STA to which a mesh peering has been established.

**peer-to-peer link:** A station-to-station (STA-to-STA) link between tunneled direct link setup (TDLS) peer STAs in an infrastructure basic service set (BSS) or between STAs in an independent basic service set (IBSS).

**peer-to-peer traffic specification:** [PTP TSPEC] The quality-of-service (QoS) characteristics of a data flow between non-access point (non-AP) QoS stations (STAs).

**perfect forward secrecy:** [PFS] A property of a key agreement protocol that protects a session key derived from a set of long-term public and private keys from being compromised if one of the (long-term) private keys is compromised in the future.

**per-frame encryption key:** A unique encryption key constructed for each medium access control (MAC) protocol data unit (MPDU).

**physical layer (PHY) protocol data unit:** [PPDU] The unit of data exchanged between PHY entities to provide the PHY data service.

**piggyback:** The overloading of data with an acknowledgment of a previously received frame to the station (STA) to which the data is directed.

**portable station (STA):** [portable STA] A type of station (STA) that might be moved from location to location, but that uses network communications only while at a fixed location.

**portal:** The logical point at which the integration service is provided.

* For the purposes of this Standard, there is at most one portal in a given extended service set’s (ESS’s) infrastructure. In an implementation, a single logical portal function may be provided by multiple devices that provide integration services for the ESS. How such multiple devices coordinate to appear as a single logical portal is implementation dependent.

**precursor mesh station (STA):** [precursor mesh STA] A neighbor peer mesh STA on the mesh path to the destination mesh STA, that identifies the mesh STA as the next-hop mesh STA.

**preshared key:** [PSK] A static key that is distributed to the units in the system by some out-of-band means.

**primary channel:** The common channel of operation for all stations (STAs) that are members of the basic service set (BSS). For example, in a 20 MHz, 40 MHz, 80 MHz, 160 MHz or 80+80 MHz BSS the primary channel is a primary 20 MHz channel.

**prioritized quality of service (QoS):** [prioritized QoS] The provisioning of service in which the medium access control (MAC) protocol data units (MPDUs) with higher priority are given a preferential treatment over MPDUs with a lower priority.

* Prioritized QoS is provided through the enhanced distributed channel access (EDCA) mechanism.

**protection mechanism:** Any procedure that attempts to update the network allocation vector (NAV) of all receiving stations (STAs) prior to the transmission of a frame that might or might not be detected as valid network activity by the physical layer (PHY) entities at those receiving STAs.

**protection mechanism frame:** Any frame that is sent as part of a protection mechanism -procedure.

**protocol instance:** An execution of a particular protocol that consists of the state of the communicating parties as well as the messages exchanged.

**proxy mesh gate:** A mesh gate acting as an intermediary for IEEE 802 stations (STAs) outside the mesh basic service set (MBSS).

**pseudorandom function:** [PRF] A function that hashes various inputs to derive a pseudorandom value. In order to ensure liveness of a communication in which a pseudorandom value is used, a nonce is used as one of the inputs to the function.

**public safety answering point:** [PSAP] A physical location where emergency calls are received and routed to the appropriate emergency service dispatch center.

* See NENA 08-002 [B63].

**quadrature binary phase shift keying:** [QBPSK] A binary phase shift keying modulation in which the binary data is mapped onto the imaginary (Q) axis.

**quality-of-service (QoS) access point (AP):** [QoS AP] An AP that supports the QoS facility.

* In IEEE Std 802.11, the functions of a QoS AP are a superset of the functions of a non-QoS AP, and thus a QoS AP is able to function as a non-QoS AP to non-QoS stations (STAs).

**quality-of-service (QoS) basic service set (BSS):** [QoS BSS] A BSS that provides the QoS facility. An infrastructure QoS BSS contains a QoS access point (AP).

**quality-of-service (QoS) facility:** [QoS facility] The set of enhanced functions, channel access rules, frame formats, frame exchange sequences and managed objects used to provide parameterized and prioritized QoS.

**quality-of-service (QoS) independent basic service set (IBSS):** [QoS IBSS] An IBSS in which one or more of its stations (STAs) support the QoS facility.

**quality-of-service (QoS) station (STA):** [QoS STA] A STA that implements the QoS facility.

* A QoS STA acts as a non-QoS STA when associated in a non-QoS basic service set (BSS).

**radio frequency (RF) chain:** [RF chain] The physical entity that is able to act as a receive chain or transmit chain, or both.

**reassociation service:** The service that enables an established association [between access point (AP) and station (STA)] to be transferred from one AP to another (or the same) AP.

**receive chain:** The physical entity that implements any necessary signal processing to provide the received signal to the digital baseband. Such signal processing includes filtering, amplification, down-conversion, and sampling.

**receive power:** Mean power measured at the antenna connector.

**received channel power indicator:** [RCPI] An indication of the total channel power (signal, noise, and interference) of a received physical layer (PHY) protocol data unit (PPDU) measured on the channel and at the antenna connector used to receive the PPDU.

**received power indicator:** [RPI] A quantized measure of the received power level as seen at the antenna connector.

**registered location:** The geolocation of a station (STA) registered in accordance with the requirements for the regulatory domain.

**registered location query protocol:** [RLQP] The query protocol for registered location information that is received and transported by generic advertisement service (GAS) Public Action frames.

**registered location secure server (RLSS):** [RLSS] An entity that accesses and manages a database that organizes storage of information by geographic location and securely holds the location and some operating parameters of one or more basic service sets (BSSs).

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

**remote request broker**: [RRB] The component of the station management entity (SME) of an access point (AP) that supports fast basic service set (BSS) transitions over the distribution system (DS).

**reassembly:** The process of combining a set of segmented medium access control (MAC) protocol data units (MPDUs) into a larger medium access control (MAC) service data unit (MSDU).

**roaming consortium:** A group of subscription service providers (SSPs) having inter-SSP roaming agreements.

**segmentation:** The process of partitioning a large medium access control (MAC) service data unit (MSDU) into a sequence of MAC protocol data units (MPDUs), each carrying an MSDU segment. The inverse process of combining a set of segmented MPDUs into an MSDU is known as reassembly.

**service hash:** A value used for representing a service. This value is formed from a hash of the service name.

**service set identifier:** [SSID] A string used to identify the infrastructure basic service sets (BSSs) that comprise an extended service set (ESS), or to identify a non-infrastructure BSS.

**service set transition:** A station (STA) movement from one basic service set (BSS) to another BSS, i.e., either a BSS transition or an extended service set (ESS) transition.

**serving access point (AP):** [serving AP] The AP to which the station (STA) is associated.

**single input, single output:** [SISO] A physical layer (PHY) configuration in which both transmitter and receiver use a single antenna.

**single-user multiple input, multiple output:** [SU-MIMO] A technique by which a station (STA) with more than one antenna either transmits to or receives from a single STA independent space-time streams over the same radio frequencies.

**single-user (SU) physical layer (PHY) protocol data unit (PPDU):** [SU PPDU] A PPDU with a format that is capable of carrying only a single PHY service data unit (PSDU), or no PSDU.

**sounding:** The use of preamble training fields to measure the channel for purposes other than demodulation of the Data portion of the physical layer (PHY) protocol data unit (PPDU) containing the training fields.

* These uses include calculation of transmit steering, calculation of recommended modulation and coding scheme (MCS), and calculation of calibration parameters.

**source mesh station (STA):** [source mesh STA] A mesh STA from which a medium access control (MAC) service data unit (MSDU) enters the mesh basic service set (MBSS). A source mesh STA is either a mesh STA that is the source of an MSDU or a proxy mesh gate that receives an MSDU from a STA outside of the MBSS and forwards the MSDU on a mesh path.

**space-time stream:** [STS] Stream of modulation symbols created by applying a combination of spatial and temporal processing to one or more spatial streams of modulation symbols.

**spatial multiplexing:** [SM] A transmission technique in which data streams are transmitted on multiple spatial channels that are provided through the use of multiple antennas at the transmitter and the receiver.

**spatial stream:** One of several streams of bits or modulation symbols that might be transmitted over multiple spatial dimensions that are created by the use of multiple antennas at both ends of a communications link.

**station:** [STA] A logical entity that is a singly addressable instance of a medium access control (MAC) and physical layer (PHY) interface to the wireless medium (WM).

* For IEEE 802.11 purposes, a station is any MAC/PHY entity providing the IEEE 802.11 MAC services. This differs from the IEEE 802 definition of ‘station,’ which includes bridges (or ‘end stations’) that are endpoints of link layer data traffic.

**station service:** The set of services that support transport of medium access control (MAC) service data units (MSDUs) between stations (STAs) within a basic service set (BSS)

**station vector:** A set of service\_access\_point\_identifiers.

**subscription service provider:** [SSP] An organization (operator) offering connection to network services, perhaps for a fee.

**subscription service provider network:** [SSPN] The network controlled by a subscription service provider (SSP). The network maintains user subscription information.

**Supplicant:** An entity at one end of a point-to-point local area network (LAN) segment that is being authenticated by an Authenticator attached to the other end of that link. (IEEE Std 802.1X-2010)

**Supplicant address:** [SPA] The medium access control (MAC) address of the IEEE 802.1X Supplicant’s station (STA).

**television white spaces:** [TVWS] The opportunistic use of allocated but not assigned spectrum—spectrum allocated for broadcast television, but with no assignment at a particular location.

**time unit:** [TU] A measurement of time equal to 1024 µs.

**traffic category:** [TC] A label for medium access control (MAC) service data units (MSDUs) that have a distinct user priority (UP), as viewed by higher layer entities, relative to other MSDUs provided for delivery over the same link. Traffic categories are meaningful only to MAC entities that support quality of service (QoS) within the MAC data service. These MAC entities determine the UP for MSDUs belonging to a particular traffic category using the priority value provided with those MSDUs at the MAC service access point (MAC SAP).

**traffic classification:** [TCLAS] The specification of one of several types of matching filter to classify protocol data units (PDUs) or medium access control (MAC) service data units (MSDUs) as belonging to a particular traffic stream (TS). Depending on the type of classification, the filter is applied within the MAC sublayer management entity (MLME), above the MAC, or within the MAC itself.

**traffic filter:** A set of traffic specifications defined by the use of traffic classification (TCLAS) elements that are utilized by the traffic filtering service (TFS) to identify specific allowed frames.

**traffic filtering service:** [TFS] A service provided by an access point (AP) to a non-AP station (STA) to reduce the number of frames sent to the non-AP STA by not forwarding individually addressed frames addressed to the non-AP STA that do not match traffic filters specified by the non-AP STA.

**traffic identifier:** [TID] Any of the identifiers usable by higher layer entities to distinguish medium access control (MAC) service data units (MSDUs) to MAC entities that support quality of service (QoS) within the MAC data service.

* There are 16 possible TID values; eight identify traffic categories (TCs), and the other eight identify parameterized traffic streams (TSs). The TID is assigned to an MSDU in the layers above the MAC.

**traffic specification:** [TSPEC] The quality-of-service (QoS) characteristics of a data flow to and from a QoS station (STA).

**traffic stream:** [TS] A set of medium access control (MAC) service data units (MSDUs) to be delivered subject to the quality-of-service (QoS) parameter values provided to the MAC in a particular traffic specification (TSPEC). TSs are meaningful only to MAC entities that support QoS within the MAC data service. These MAC entities determine the TSPEC applicable for delivery of MSDUs belonging to a particular TS using the priority parameter provided with those MSDUs at the MAC service access point (MAC SAP).

**transmission opportunity:** [TXOP] An interval of time during which a particular quality-of-service (QoS) station (STA) has the right to initiate frame exchange sequences onto the wireless medium (WM).

* A TXOP is defined by a starting time and a maximum duration.

**transmit chain:** The physical entity that implements any necessary signal processing to generate the transmit signal from the digital baseband. Such signal processing includes digital to analog conversion, filtering, amplification and upconversion.

**trusted third party**: [TTP] An entity that is relied upon to vouch for two parties in a pairwise authentication protocol.

**type/length/value:** [TLV] A format that consists of a type, a length, and a value.

**unauthorized disclosure:** The process of making information available to unauthorized individuals, entities, or processes.

**unauthorized resource use:** The use of a resource not consistent with the defined security policy.

**uniform spreading:** A regulatory requirement for a channel selection mechanism that provides uniform usage across a minimum set of channels in the regulatory domain.

**unreachable destination:** A destination mesh station (STA) for which the link to the next hop of the mesh path to this destination mesh STA is no longer usable.

**user priority:** [UP] A value associated with an medium access control (MAC) service data unit (MSDU) that indicates how the MSDU is to be handled. The UP is assigned to an MSDU in the layers above the MAC.

**validated access point (AP):** [validated AP] An AP that has either been explicitly configured as a neighbor or learned through a mechanism such as the Beacon report.

**wildcard basic service set identifier (BSSID):** [wildcard BSSID] A BSSID value used to represent all BSSIDs.

* In IEEE Std 802.11, this is represented by all binary 1s.

**wildcard service set identifier (SSID):** [wildcard SSID] An SSID value used to represent all SSIDs.

* In IEEE Std 802.11, this is represented by the value “null”.

**wireless medium:** [WM] The medium used to implement the transfer of protocol data units (PDUs) between peer physical layer (PHY) entities of a wireless local area network (LAN).

* Definitions specific to IEEE Std 802.11

The following terms and definitions are specific to terms or references in this standard and are not appropriate for inclusion in the *IEEE Standards Dictionary Online*.

**1 MHz mask physical layer (PHY) protocol data unit (PPDU):** [1 MHz mask PPDU] A PPDU that is transmitted using the 1 MHz transmit spectral mask defined in Clause 23 (Sub 1 GHz (S1G) PHY specification) and that is a 1 MHz sub 1 GHz (S1G) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

**1 MHz physical layer (PHY) protocol data unit (PPDU):** [1 MHz PPDU] A Clause 23 (Sub 1 GHz (S1G) PHY specification) 1 MHz sub 1 GHz (S1G) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

**2 MHz mask physical layer (PHY) protocol data unit (PPDU):** [2 MHz mask PPDU] A PPDU that is transmitted using the 2 MHz transmit spectral mask defined in Clause 23 (Sub 1 GHz (S1G) PHY specification) and that is one of the following:

* A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).
* A 2 MHz S1G non-duplicate or S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW2).

**2 MHz physical layer (PHY) protocol data unit (PPDU):** [2 MHz PPDU] A Clause 23 (Sub 1 GHz (S1G) PHY specification) PPDU that is one of the following:

* A 2 MHz sub 1 GHz (S1G) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW2).
* A 2 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW2).

**4 MHz mask physical layer (PHY) protocol data unit (PPDU):** [4 MHz mask PPDU] A PPDU that is transmitted using the 4 MHz transmit spectral mask defined in Clause 23 (Sub 1 GHz (S1G) PHY specification) and that is one of the following:

* A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).
* A 2 MHz S1G non-duplicate or S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW2).
* A 4 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).

**4 MHz physical layer (PHY) protocol data unit (PPDU):** [4 MHz PPDU] A Clause 23 (Sub 1 GHz (S1G) PHY specification) PPDU that is one of the following:

* A 4 MHz sub 1 GHz (S1G) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).
* A 4 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).
* A 4 MHz S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).

**4-way handshake:** A pairwise key management protocol defined by this standard. This handshake confirms mutual possession of a pairwise master key (PMK) by two parties, derives a pairwise transient key (PTK) and distributes one or more keys including a group temporal key (GTK).

**6 GHz band:** Frequency band including any operating class that has a value of 5.950 for the entry in the “Channel starting frequency” column of Table E-4 (Global operating classes).

**8 MHz mask physical layer (PHY) protocol data unit (PPDU):** [8 MHz mask PPDU] A PPDU that is transmitted using the 8 MHz transmit spectral mask defined in Clause 23 (Sub 1 GHz (S1G) PHY specification) and that is one of the following:

* A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).
* A 2 MHz S1G non-duplicate or S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW2).
* A 4 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).
* An 8 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).

**8 MHz physical layer (PHY) protocol data unit (PPDU):** [8 MHz PPDU] A Clause 23 (Sub 1 GHz (S1G) PHY specification) PPDU that is one of the following:

* An 8 MHz sub 1 GHz (S1G) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).
* An 8 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).
* An 8 MHz S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).

**16 MHz mask physical layer (PHY) protocol data unit (PPDU):** [16 MHz mask PPDU] A PPDU that is transmitted using the 16 MHz transmit spectral mask defined in Clause 23 (Sub 1 GHz (S1G) PHY specification) and that is one of the following:

* A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).
* A 2 MHz S1G non-duplicate or S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW2).
* A 4 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).
* An 8 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).
* A 16 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate (TXVECTOR parameter CH\_BANDWIDTH equal to CBW16).

**16 MHz physical layer (PHY) protocol data unit (PPDU):** [16 MHz PPDU] A Clause 23 (Sub 1 GHz (S1G) PHY specification) PPDU that is one of the following:

* A 16 MHz sub 1 GHz (S1G) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW16).
* A 16 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW16).
* A 16 MHz S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW16).

**20 MHz basic service set (BSS):** [20 MHz BSS] A BSS in which there is a primary 20 MHz channel and no secondary channel.

**20 MHz high throughput (HT):** [20 MHz HT] A Clause 19 (High Throughput (HT) PHY specification) transmission with the TXVECTOR parameter FORMAT equal to HT\_MF or HT\_GF and TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20.

**20 MHz mask physical layer (PHY) protocol data unit (PPDU):** [20 MHz mask PPDU] One of the following PPDUs:

* A Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU transmitted using the 20 MHz transmit spectral mask defined in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification).
* A Clause 18 (Extended Rate PHY (ERP) specification) orthogonal frequency division multiplexing (OFDM) PPDU transmitted using the transmit spectral mask defined in Clause 18 (Extended Rate PHY (ERP) specification).
* A high throughput (HT) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20 and the CH\_OFFSET parameter equal to CH\_OFF\_20 transmitted using the 20 MHz transmit spectral mask defined in Clause 19 (High Throughput (HT) PHY specification).
* A very high throughput (VHT) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW20 transmitted using the 20 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU transmitted by a VHT station (STA) using the 20 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* An HT PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20 and the CH\_OFFSET parameter equal to CH\_OFF\_20 transmitted by a VHT STA using the 20 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A high-efficiency (HE) PPDU with TXVECTOR parameter CH\_BANDWIDTH equal to CBW20 transmitted using the 20 MHz transmit spectral mask defined in Clause 27 (High-efficiency (HE) PHY specification).
* A Clause 17 PPDU transmitted by an HE STA using the 20 MHz transmit spectral mask defined in Clause 27 (High-efficiency (HE) PHY specification).

**20 MHz-only non–access point (non-AP) high-efficiency station (HE STA):** [20 MHz-only non-AP HE STA] A non-AP HE STA that indicates in the Supported Channel Width Set subfield in the HE PHY Capabilities Information field in the HE Capabilities element that it does not support a channel width greater than 20 MHz.

**20 MHz operating non–access point (non-AP) high-efficiency station (HE STA):** [20 MHz operating non-AP HE STA] A non-AP HE STA operating in a 20 MHz channel width mode, such as a 20 MHz-only non-AP HE STA or an HE STA that has reduced its operating channel width to 20 MHz using operating mode indication (OMI).

**20 MHz physical layer (PHY) protocol data unit (PPDU):** [20 MHz PPDU] A PPDU that is one of the following:

* A Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) PPDU.
* A Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) PPDU.
* A Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU (when using 20 MHz channel spacing).
* A Clause 18 (Extended Rate PHY (ERP) specification) orthogonal frequency division multiplexing (OFDM) PPDU.
* A Clause 19 (High Throughput (HT) PHY specification) 20 MHz high throughput (HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20).
* A Clause 21 (Very high throughput (VHT) PHY specification) 20 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20).
* A Clause 27 (High-efficiency (HE) PHY specification) 20 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20).

**20/40 MHz basic service set (BSS):** [20/40 MHz BSS] A BSS in which the supported channel width of the access point (AP) or dynamic frequency selection (DFS) owner (DO) station (STA) is 20 MHz and 40 MHz (Channel Width field is equal to 1) and the Secondary Channel Offset field is equal to a value of secondary channel above (SCA) or secondary channel below (SCB).

**40 MHz high throughput (HT):** [40 MHz HT] A Clause 19 (High Throughput (HT) PHY specification) transmission with the TXVECTOR parameter FORMAT equal to HT\_MF or HT\_GF and TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40.

**40 MHz mask physical layer (PHY) protocol data unit (PPDU):** [40 MHz mask PPDU] One of the following PPDUs:

* A 40 MHz high throughput (HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40) transmitted using the 40 MHz transmit spectral mask defined in Clause 19 (High Throughput (HT) PHY specification).
* A 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to NON\_HT\_CBW40) transmitted by a non-very high throughput (non-VHT) station (STA) using the 40 MHz transmit spectral mask defined in Clause 19 (High Throughput (HT) PHY specification).
* A 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted by a very high throughput (VHT) STA using the 40 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 20 MHz HT PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20 and the CH\_OFFSET parameter equal to either CH\_OFF\_20U or CH\_OFF\_20L transmitted using the 40 MHz transmit spectral mask defined in Clause 19 (High Throughput (HT) PHY specification).
* A 20 MHz VHT PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW20 transmitted using the 40 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 40 MHz VHT PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW40 transmitted using the 40 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 40 MHz HT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40) transmitted by a VHT STA using the 40 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 20 MHz non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20) transmitted using the 40 MHz transmit spectral mask defined in Clause 19 (High Throughput (HT) PHY specification).
* A 20 MHz non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20) transmitted by a VHT STA using the 40 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 40 MHz high-efficiency (HE) PPDU with TXVECTOR parameter CH\_BANDWIDTH equal to CBW40 transmitted using the 40 MHz transmit spectral mask defined in Clause 27 (High-efficiency (HE) PHY specification).
* A 40 MHz VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted by an HE STA using the 40 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted by an HE STA using the 40 MHz transmit spectral mask defined in Clause 19 (High Throughput (HT) PHY specification).

**40 MHz physical layer (PHY) protocol data unit (PPDU):** [40 MHz PPDU] A PPDU that is one of the following:

* A 40 MHz high throughput (HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40).
* A 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to NON\_HT\_CBW40 or TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).
* A 40 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).
* A Clause 27 (High-efficiency (HE) PHY specification) 40 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).

**40-MHz-capable (40MC) high throughput (HT) access point (AP):** [40MC HT AP] An HT AP that included a value of 1 in the Supported Channel Width Set subfield (indicating its capability to operate on a 40 MHz channel) of its most recent transmission of a frame containing an HT Capabilities element.

**40-MHz-capable (40MC) high throughput (HT) access point (AP) 2G4:** [40MC HT AP 2G4] An HT AP 2G4 that is also a 40MC HT AP.

**40-MHz-capable (40MC) high throughput (HT) access point (AP) 5G:** [40MC HT AP 5G] An HT AP 5G that is also a 40MC HT AP.

**40-MHz-capable (40MC) high throughput (HT) station (STA):** [40MC HT STA] An HT STA that included a value of 1 in the Supported Channel Width Set subfield (indicating its capability to operate on a 40 MHz channel) of its most recent transmission of a frame containing an HT Capabilities element.

**40-MHz-capable (40MC) high throughput (HT) station (STA) 2G4:** [40MC HT STA 2G4] An HT STA 2G4 that is also a 40MC HT STA.

**40-MHz-capable (40MC) high throughput (HT) station (STA) 5G:** [40MC HT STA 5G] An HT STA 5G that is also a 40MC HT STA.

**80 MHz mask physical layer (PHY) protocol data unit (PPDU):** [80 MHz mask PPDU] One of the following PPDUs:

* An 80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) transmitted using the 80 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* An 80 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) transmitted using the 80 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 20 MHz non-HT, high throughput (HT), or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20) transmitted using the 80 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 40 MHz non-HT duplicate, HT, or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted using the 80 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* An 80 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) transmitted using the 80 MHz transmit spectral mask defined in Clause 27 (High-efficiency (HE) PHY specification).

**80 MHz operating non–access point (non-AP) high-efficiency station (HE STA):** [80 MHz operating non-AP HE STA] A non-AP HE STA that is operating in 80 MHz channel width mode, such as a non-AP STA (excluding the 20 MHz-only non-AP HE STA) that is not capable of 160 MHz operation or a non-AP STA that has reduced its operating channel width to 80 MHz using an operating mode indication (OMI).

**80 MHz physical layer (PHY) protocol data unit (PPDU):** [80 MHz PPDU] A PPDU that is one of the following:

* A Clause 21 (Very high throughput (VHT) PHY specification) 80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80).
* A Clause 21 (Very high throughput (VHT) PHY specification) 80 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80).
* A Clause 27 (High-efficiency (HE) PHY specification) 80 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80).

**80+80 MHz mask physical layer (PHY) protocol data unit (PPDU):** [80+80 MHz mask PPDU] One of the following PPDUs:

* An 80+80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) transmitted using the 80+80 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* An 80+80 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) transmitted using the 80+80 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* An 80+80 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) transmitted using the 80+80 MHz transmit spectral mask defined in Clause 27 (High-efficiency (HE) PHY specification).

**80+80 MHz physical layer (PHY) protocol data unit (PPDU):** [80+80 MHz PPDU] A PPDU that is one of the following:

* A Clause 21 (Very high throughput (VHT) PHY specification) 80+80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80).
* A Clause 21 (Very high throughput (VHT) PHY specification) 80+80 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80).
* A Clause 27 (High-efficiency (HE) PHY specification) 80+80 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80).

**160 MHz mask physical layer (PHY) protocol data unit (PPDU):** [160 MHz mask PPDU] One of the following PPDUs:

* A 160 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) transmitted using the 160 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 160 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) transmitted using the 160 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 20 MHz non-HT, high throughput (HT), or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20) transmitted using the 160 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 40 MHz non-HT duplicate, HT, or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted using the 160 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* An 80 MHz non-HT duplicate or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) transmitted using the 160 MHz transmit spectral mask defined in Clause 21 (Very high throughput (VHT) PHY specification).
* A 160 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) transmitted using the 160 MHz transmit spectral mask defined in Clause 27 (High-efficiency (HE) PHY specification).

**160 MHz physical layer (PHY) protocol data unit (PPDU):** [160 MHz PPDU] A PPDU that is one of the following:

* A Clause 21 (Very high throughput (VHT) PHY specification) 160 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).
* A Clause 21 (Very high throughput (VHT) PHY specification) 160 MHz non-high- throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).
* A Clause 27 (High-efficiency (HE) PHY specification) 160 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).

**2.16 GHz mask physical layer (PHY) protocol data unit (PPDU)**: [2.16 GHz mask PPDU] A PPDU that is transmitted using the transmit spectral mask defined in Clause 20 (Directional multi-gigabit (DMG) PHY specification) and is one of the following:

* A directional multi-gigabit (DMG) PPDU.
* A 2.16 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 2.16 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**2.16 GHz physical layer (PHY) protocol data unit (PPDU)**: [2.16 GHz PPDU] A PPDU that is one of the following:

* A Clause 20 (Directional multi-gigabit (DMG) PHY specification) directional multi-gigabit (DMG) PPDU.
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 2.16-GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 2.16-GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**2.16+2.16 GHz mask physical layer (PHY) protocol data unit (PPDU)**: [2.16+2.16 mask PPDU] A PPDU that is transmitted using the 2.16+2.16 GHz transmit spectral mask defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) and that is one of the following:

* A 2.16+2.16 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 2.16+2.16 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**2.16+2.16 GHz physical layer (PHY) protocol data unit (PPDU)**: [2.16+2.16 PPDU] A PPDU that is one of the following:

* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 2.16+2.16 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 2.16+2.16 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**4.32 GHz mask physical layer (PHY) protocol data unit (PPDU)**: [4.32 GHz mask PPDU] A PPDU that is transmitted using the 4.32 GHz transmit spectral mask defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) and that is one of the following:

* A 4.32 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 4.32 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).
* A 2.16 GHz EDMG PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 2.16 GHz non-EDMG PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**4.32 GHz physical layer (PHY) protocol data unit (PPDU)**: [4.32 GHz PPDU] A PPDU that is one of the following:

* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 4.32-GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 4.32‑GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**4.32+4.32 GHz mask physical layer (PHY) protocol data unit (PPDU)**: [4.32+4.32 GHz mask PPDU] A PPDU that is transmitted using the 4.32+4.32 GHz transmit spectral mask defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) and that is one of the following:

* A 4.32+4.32 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 4.32+4.32 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**4.32+4.32 GHz physical layer (PHY) protocol data unit (PPDU)**: [4.32+4.32 GHz PPDU] A PPDU that is one of the following:

* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 4.32+4.32 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 4.32+4.32 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**6.48 GHz mask physical layer (PHY) protocol data unit (PPDU)**: [6.48 GHz mask PPDU] A PPDU that is transmitted using the 6.48 GHz transmit spectral mask defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) and that is one of the following:

* A 6.48 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 6.48 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).
* A 4.32 GHz EDMG PPDU (TXVECTOR parameter FORMAT equal to EDMG) or a 4.32 GHz non-EDMG PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).
* A 2.16 GHz EDMG PPDU (TXVECTOR parameter FORMAT equal to EDMG) or a 2.16 GHz non-EDMG PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**6.48 GHz physical layer (PHY) protocol data unit (PPDU)**: [6.48 GHz PPDU] A PPDU that is one of the following:

* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 6.48-GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 6.48‑GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**8.64 GHz mask physical layer (PHY) protocol data unit (PPDU)**: [8.64 GHz mask PPDU] A PPDU that is transmitted using the 8.64 GHz transmit spectral mask defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) and that is one of the following:

* An 8.64 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* An 8.64 GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).
* A 6.48 GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A 6.48 GHz non-EDMG PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).
* A 4.32 GHz EDMG PPDU (TXVECTOR parameter FORMAT equal to EDMG) or a 4.32 GHz non-EDMG PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).
* A 2.16 GHz EDMG PPDU (TXVECTOR parameter FORMAT equal to EDMG) or a 2.16 GHz non-EDMG PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**8.64 GHz physical layer (PHY) protocol data unit (PPDU)**: [8.64 GHz PPDU] A PPDU that is one of the following:

* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 8.64-GHz enhanced directional multi-gigabit (EDMG) PPDU (TXVECTOR parameter FORMAT equal to EDMG).
* A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) 8.64‑GHz non-enhanced directional multi-gigabit (non-EDMG) PPDU (TXVECTOR parameter FORMAT equal to NON\_EDMG).

**access category:** [AC] A label for the common set of enhanced distributed channel access (EDCA) parameters that are used by a quality-of-service (QoS) station (STA) to contend for the channel in order to transmit medium access control (MAC) service data units (MSDUs) with certain priorities.

**access network query protocol:** [ANQP] The query protocol for access network information retrieval transported by generic advertisement service (GAS) Public Action frames.

**access period:** A time period during a beacon interval established in a directional multi-gigabit (DMG) basic service set (BSS).

**access point (AP) path:** [AP path] Path between two tunneled direct link setup (TDLS) peer stations (STAs) via the AP with which the STAs are currently associated.

**ack-enabled single traffic identifier (TID) aggregate medium access control (MAC) protocol data unit (A-MPDU) :** [ack-enabled single-TID A-MPDU] An A-MPDU that contains at least two A-MPDU subframes, where the TIDs differ and where only one of the A-MPDU subframes includes a tagged MPDU that solicits the acknowledgment context.

NOTE—For the purpose of this definition, a Management frame is treated as if it had a TID 15.

**ack-enabled multi traffic identifier (TID)** **aggregate medium access control (MAC) protocol data unit (A-MPDU) :** [ack-enabled multi-TID A-MPDU] An A-MPDU where at least one tagged MPDU that solicits acknowledgment context is aggregated in the A-MPDU, and MPDUs from more than one TID that solicit Ack acknowledgment or Block Ack acknowledgment context are aggregated in the A-MPDU.

NOTE—For the purpose of this definition, a Management frame is treated as if it had a TID 15.

**active mode:** A power management mode of an associated station (STA) in which an access point (AP) may transmit physical layer (PHY) protocol data units (PPDUs) to an associated STA at any time. For a mesh STA, it is a mesh power management mode in which a neighbor peer mesh STA may transmit PPDUs to the mesh STA at any time.

NOTE—This mode is equivalent to an associated STA or mesh STA being continuously in the awake state.

**advanced groupcast with retries (GCR):** [advanced GCR] A set of features comprising the GCR block acknowledgment retransmission policy and the GCR service period (GCR-SP) delivery method.

**advertisement protocol:** Access network query protocol (ANQP) and higher layer protocols defined external to this standard that are used for network and service discovery.

**advertisement server:** A logical server that provides the information repository for a specific advertisement protocol. The location of the physical server that instantiates the advertisement server is outside the scope of this standard.

**aggregate physical layer (PHY) protocol data unit**: [A-PPDU] A sequence of two or more PPDUs transmitted without an interframe space (IFS). The PPDU(s) transmitted following the first PPDU in the sequence do not contain PHY preamble(s), only PHY header(s) and PHY service data unit(s) (PSDU(s)).

**aggregated schedule:** The aggregation of delivery and/or poll schedules by the quality-of-service (QoS) access point (AP) for a particular QoS station (STA) into a single service period (SP).

**attached bridge:** An IEEE 802.1Q bridge that has one or more bridge port Enhanced Internal Sublayer Service (EISS) interfaces supported by general links (GLKs) provided by a GLK access point (AP), GLK non-AP station (STA), GLK mesh STA, or GLK independent basic service set (IBSS) STA.

**authentication and key management (AKM) suite:** [AKM suite] A set of one or more algorithms designed to provide authentication and key management, either individually or in combination with higher layer authentication and key management algorithms outside the scope of this standard.

**average noise power indicator:** [ANPI] A medium access control (MAC) indication of the average noise plus interference power measured when the channel is idle as defined by three simultaneous conditions: 1) the virtual carrier sense (CS) mechanism indicates idle channel, 2) the station (STA) is not transmitting a frame, and 3) the STA is not receiving a frame.

**awake beacon interval:** [A-BI] In a directional multi-gigabit (DMG) basic service set (BSS) or personal basic service set (PBSS), a beacon interval of a power save mode wakeup schedule during which a station (STA) is expected to be in the awake state during several portions of the beacon interval.

**bandwidth signaling transmitter address (TA):** [bandwidth signaling TA] A TA that is used by a very high throughput (VHT) station (STA) or a high-efficiency (HE) STA to indicate the presence of additional signaling related to the bandwidth to be used in subsequent transmission in an enhanced distributed channel access (EDCA) transmission opportunity (TXOP). It is the individual address of the transmitting STA but with the Individual/Group bit set to 1.

**base channel:** Primary channel of the basic service set (BSS) of the access point (AP) with which the tunneled direct link setup (TDLS) peer station (STA) is associated with an access point (AP).

**basic channel unit:** [BCU] For television very high throughput (TVHT) operation, 6 MHz, 7 MHz, or 8 MHz, depending on the regulatory domain.

**basic modulation and coding scheme (MCS):** [basic MCS] An MCS that belongs to the basic MCS set.

**basic modulation and coding scheme (MCS) set:** [basic MCS set] A set of MCSs designated by the station (STA) that started the basic service set (BSS) and fixed for the lifetime of the BSS. The basic MCS set is typically advertised in the element(s) that contains the physical layer (PHY) operation parameters (among others), e.g., high throughput (HT) and very high throughput (VHT) Operation elements. All STAs in a BSS are capable of, or have signaled that they are capable of, receiving and transmitting at all MCSs in the basic MCS set.

**basic rate:** A data rate that belongs to the basic rate set.

**basic rate set:** A set of data rates designated by the station (STA) that started the basic service set (BSS) and fixed for the lifetime of the BSS. The basic rate set is advertised in the Supported Rates and BSS Membership Selectors element and, if present, the Extended Supported Rates and BSS Membership Selectors element. All STAs in a BSS are capable of, or have signaled that they are capable of, receiving and transmitting at all rates in the basic rate set.

**basic service set (BSS) color:** [BSS color] An identifier for a BSS or for a set of BSSs belonging to a multiple basic service set identifier (BSSID) set or a co-hosted BSSID set.

**basic service set (BSS) identifier:** [BSSID] An identifier for a BSS.

**basic space-time block coding (STBC) modulation and coding scheme (MCS):** [basic STBC MCS] An MCS value and STBC encoder specification used in the transmission of STBC-encoded Control frames and STBC-encoded group addressed frames.

**beacon header interval:** [BHI] The period of time that starts at the target beacon transmission time (TBTT) of a beacon interval of a directional multi-gigabit (DMG) basic service set (BSS) and that ends no later than the beginning of the data transfer interval (DTI) of the beacon interval.

**beacon integrity group temporal key:** [BIGTK] A random value, assigned by the access point (AP), that is used to protect Beacon frames from that AP.

**beacon interval:** The time interval between two consecutive target beacon transmission times (TBTTs).

**beacon transmission interval:** [BTI] The time interval between the start of the first Directional Multi-gigabit (DMG) Beacon frame transmission by a DMG station (STA) in a beacon interval to the end of the last DMG Beacon frame transmission by the STA in the same beacon interval.

**broadcast resource unit (RU):** [broadcast RU] A resource unit in a high-efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU) transmitted by an access point (AP) that is intended for either unassociated STAs or more than one associated STA in the basic service set (BSS) or in any of the other BSSs in the multiple BSSID set to which the AP’s BSS belongs.

**broadcast target wake time (TWT):** [broadcast TWT] A specific time or set of times broadcast by an access point (AP) to multiple non-AP stations (STAs) at which the non-AP STAs are expected to be awake in order to exchange frames with the AP.

**broadcast wake-up radio (WUR) wake-up frame:** [broadcast WUR wake-up frame] A WUR Wake-up frame with the ID field set to transmitter identifier (ID) or nontransmitter ID.

**bufferable medium access control (MAC) management protocol data unit (MMPDU):** [bufferable MMPDU] An MMPDU that is eligible to be queued for delivery using a power saving mechanism (see Table 11-3 (Bufferable/nonbufferable classification of MMPDUs)).

**bufferable unit:** [BU] A medium access control (MAC) service data unit (MSDU), aggregate MAC service data unit (MSDU) [quality-of-service (QoS) stations (STAs) only], or bufferable MAC management protocol data unit (MMPDU).

**centralized authentication controlled (CAC) station (STA):** [CAC STA] A sub 1 GHz (S1G) non-access point (non-AP) STA that supports a CAC access point (AP) to alleviate wireless medium contention when a large number of STAs are trying to, or are expected to, reconnect to the AP at about the same time.

**centralized authentication controller (CAC) access point (AP):** [CAC AP] A sub 1 GHz (S1G) AP that is able to alleviate wireless medium contention when a large number of stations (STAs) are trying to, or are expected to, reconnect to the AP at about the same time.

**centralized coordination service root:** [CCSR] An entity that provides synchronization and configuration services to synchronization access points (S-APs).

**centralized coordination service set:** [CCSS] The collection of one centralized coordination service root (CCSR) and a set of one or more synchronization access points (S-APs) that are stationary with respect to their local environment while operating and are connected to the CCSR.

**China directional multi-gigabit:** [CDMG] Pertaining to directional multi-gigabit (DMG) operation and where the channel is contained within the Chinese 60 GHz frequency band.

**China directional multi-gigabit (CDMG) physical layer (PHY) protocol data unit (PPDU):** [CDMG PPDU] A Clause 24 (China directional multi-gigabit (CDMG) PHY specification) PPDU.

**China directional multi-gigabit small band beacon interval:** [CDMG SBBI] A value, in units of time units (TUs) represents the length of a beacon interval operating on a 1.08 GHz channel.

**China millimeter-wave multi-gigabit:** [CMMG] Pertaining to operation in a frequency band containing a channel in 42.3 GHz to 47.3 GHz or 47.2 GHz to 48.4 GHz frequency bands.

**China millimeter-wave multi-gigabit (CMMG) basic service set (BSS):** [CMMG BSS] A BSS in which directional multi-gigabit (DMG) Beacon frames are transmitted by CMMG stations (STAs).

**China millimeter-wave multi-gigabit (CMMG) beamformee:** [CMMG beamformee] A CMMG station (STA) that receives a CMMG physical layer (PHY) protocol data unit (PPDU) that was transmitted using a beamforming steering matrix and that supports the CMMG transmit beamforming feedback mechanism as described in 10.33 (CMMG beamforming).

**China millimeter-wave multi-gigabit (CMMG) beamformer:** [CMMG beamformer] A CMMG station (STA) that transmits a CMMG physical layer (PHY) protocol data unit (PPDU) using a beamforming steering matrix.

**China millimeter-wave multi-gigabit (CMMG) duplicate physical layer (PHY) protocol data unit (PPDU) format:** [CMMG duplicate PPDU] A PPDU format that duplicates the transmission of a 540 MHz signal over two 540 MHz frequency segments.

**China millimeter-wave multi-gigabit (CMMG) physical layer (PHY) protocol data unit (PPDU):** [CMMG PPDU] A Clause 25 (China millimeter-wave multi-gigabit (CMMG) PHY specification) PPDU.

**China millimeter-wave multi-gigabit (CMMG) single medium access control (MAC) protocol data unit:** [CMMG single MPDU] An MPDU that is the only MPDU in an aggregate MPDU (A-MPDU) carried in a CMMG physical layer (PHY) protocol data unit (PPDU) and that is carried in an A-MPDU subframe with the EOF subfield of the MPDU delimiter field equal to 1.

**co-hosted basic service set identifier (BSSID) set:** [co-hosted BSSID set] A collection of access points (APs) such that all APs use a common operating class, channel, receive antenna connector, and transmit antenna connector, and each AP advertises information for its BSSID using Beacon or Probe Response frames.

**colocated access point (AP) set:** [colocated AP set] A set of two or more APs in the same physical device.

NOTE 1—APs in the colocated set might be operating on the same or different channel.

NOTE 2—The APs that are part of a colocated AP set and that are operating on the same channel might form a co-hosted basic service set identifier (BSSID) set or multiple BSSID set.

**compressed basic service set identifier (BSSID):**[compressed BSSID] A 32-bit Basic Service Set (BSS) identifier derived from a BSSID or a transmitted BSSID as defined in 29.5.2 (Compressed BSSID).

**concealed groupcast with retries (GCR) frame:** [concealed GCR frame] A group addressed frame that is transmitted using the aggregate medium access control (MAC) service data unit (A‑MSDU) format with the destination address (DA) field set to the GCR concealment address.

**contention based access period:** [CBAP] The time period in the data transfer interval (DTI) of a directional multi-gigabit (DMG) basic service set (BSS) during which enhanced distributed channel access (EDCA) is used.

**controlled access phase:** [CAP] A time period during which the hybrid coordinator (HC) maintains control of the medium. It might span multiple consecutive hybrid coordination function (HCF) controlled channel access (HCCA) transmission opportunities (TXOPs).

**data physical layer (PHY) protocol data unit (PPDU):** [data PPDU] A PPDU containing at least one medium access control (MAC) service data unit (MSDU) or fragment of an MSDU.

**deep sleep mode:** A mesh power management mode with respect to a neighbor peer mesh station (STA) in which a mesh STA alternates between awake and doze states and is not expected to receive beacons from this neighbor peer mesh STA.

**delivery traffic indication map (DTIM) beacon:** [DTIM beacon] A Beacon frame or an S1G Beacon frame after which any buffered group addressed bufferable units (BUs) are transmitted.

**delivery traffic indication map (DTIM) interval:** [DTIM interval] The interval between the consecutive target beacon transmission times (TBTTs) of DTIM beacons. The value, expressed in time units, is equal to the product of the value in the Beacon Interval field and the value in the DTIM Period field.

NOTE 1—If the AP corresponds to a nontransmitted BSSID in a multiple BSSID set, the DTIM Period field is the one contained in the Multiple BSSID-Index element carried in the nontransmitted BSSID profile for that AP. Otherwise, the DTIM Period field is the one contained in the TIM element carried in the Beacon frame or S1G Beacon frame transmitted by that AP.

NOTE 2—In a multiple BSSID set, the Beacon Interval field is the one contained in the Beacon frame transmitted by the AP corresponding to the transmitted BSSID in a multiple BSSID set.

**delivery-enabled access category (AC):** [delivery-enabled AC] A quality-of-service (QoS) access point (AP) AC where the AP is allowed to use enhanced distributed channel access (EDCA) to deliver traffic from the AC to a QoS station (STA) in an unscheduled service period (SP) triggered by the STA.

**destination directional multi-gigabit (DMG) station (STA):** [destination DMG STA] A DMG STA that is expected to receive during a time division duplex (TDD) slot, or a DMG STA identified by the destination association identifier (AID) field contained in a Grant frame or Extended Schedule element that caused the allocation of a service period (SP) or a contention based access period (CBAP).

**differentiated initial link setup:** [DILS] A mechanism for restricting fast initial link setup (FILS) to certain categories of stations.

**direct sequence spread spectrum (DSSS) physical layer (PHY) protocol data unit (PPDU):** [DSSS PPDU] A Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) PPDU.

**direct sequence spread spectrum/complementary code keying:** [DSSS/CCK] A Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) or Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) transmission.

**direct sequence spread spectrum/complementary code keying (DSSS/CCK) physical layer (PHY) protocol data unit (PPDU):** [DSSS/CCK PPDU] A Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) or Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) PPDU.

**directional multi-gigabit:** [DMG] Pertaining to operation in a frequency band containing a channel with the channel starting frequency above 45 GHz.

* The channel starting frequency for IEEE 802.11 stations (STAs) is defined in Annex E.

**directional multi-gigabit (DMG) aggregate physical layer (PHY) protocol data unit (A-PPDU)**: [DMG A-PPDU] An A‑PPDU where all constituent PPDUs are DMG PPDUs.

**directional multi-gigabit (DMG) antenna:** [DMG antenna] A DMG antenna is a phased array, a single element antenna, or a set of switched beam antennas covered by a quasi-omni antenna pattern.

**directional multi-gigabit (DMG) basic service set (BSS):** [DMG BSS] A BSS in which DMG Beacon frames are transmitted by DMG stations (STAs).

**directional multi-gigabit (DMG) frame:** [DMG frame] A frame transmitted or received within a DMG physical layer (PHY) protocol data unit (PPDU) or within an enhanced directional multi-gigabit (EDMG) PPDU.

**directional multi-gigabit (DMG) physical layer (PHY) protocol data unit (PPDU):** [DMG PPDU] A Clause 20 (Directional multi-gigabit (DMG) PHY specification) PPDU.

**directional transmission:** A transmission that does not use an omnidirectional antenna pattern or quasi-omni antenna pattern.

**downlink:** A unidirectional link from an access point (AP) to one or more non-AP stations (STAs) or a unidirectional link from a non-AP destination directional multi-gigabit (DMG) STA to a non-AP source DMG STA.

**downlink (DL) high-efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU):** [DL HE MU PPDU] An HE MU PPDU transmitted by an access point (AP). This PPDU carries one or more PHY service data units (PSDUs) for one or more users.

**downlink multi-user multiple input, multiple output:** [DL MU-MIMO] A technique by which an access point (AP) with more than one antenna transmits a physical layer (PHY) protocol data unit (PPDU) to multiple receiving non-AP stations (STAs) over the same radio frequencies, wherein each non-AP STA simultaneously receives one or more distinct space-time streams.

**downlink multi-user multiple input, multiple output (DL MU-MIMO) physical layer (PHY) protocol data unit (PPDU):** [DL MU-MIMO PPDU] A PPDU using the DL MU-MIMO technique.

**doze beacon interval:** [D-BI] In a directional multi-gigabit (DMG) basic service set (BSS) or personal basic service set (PBSS), a beacon interval of a power save mode wakeup schedule during which a station (STA) is expected to be in the doze state for most of the portions of the beacon interval.

**dynamic bandwidth operation:** A feature of a very high throughput (VHT) station (STA) in which the request-to-send/clear-to-send (RTS/CTS) exchange, using non-high-throughput (non-HT) duplicate physical layer (PHY) protocol data units (PPDUs), negotiates a potentially reduced channel width (compared to the channel width indicated by the RTS) for subsequent transmissions within the current transmission opportunity (TXOP).

**dynamic frequency selection (DFS) owner:** [DFS owner] A station (STA) in an independent basic service set (IBSS) or off-channel tunneled direct link setup (TDLS) direct link that takes responsibility for selecting the next channel after radar is detected operating in a channel. Due to the nature of IBSSs, it cannot be guaranteed that there is a single DFS owner at any particular time and the protocol is robust to this situation.

**EAPOL-Key confirmation key:** [KCK] A key used to integrity-check an EAPOL-Key frame.

**EAPOL-Key encryption key:** [KEK] A key used to encrypt the Key Data field in an EAPOL-Key frame.

**EAPOL-Key frame:** A Data frame that carries all or part of an IEEE 802.1X Extensible Authentication Protocol (EAP) over local area network (LAN) (EAPOL) protocol data unit (PDU) of type EAPOL-Key.

**EAPOL-Key request frame:** A Data frame that carries all or part of an IEEE 802.1X EAPOL-Key protocol data unit (PDU) with the Request bit in the Key Information field in the IEEE 802.11 Key Descriptor set to 1 and the Error bit set to 0.

**EAPOL-Start frame:** A Data frame that carries all or part of an IEEE 802.1X Extensible Authentication Protocol (EAP) over local area network (LAN) (EAPOL) protocol data unit (PDU) of type EAPOL-Start.

**emergency services association:** A robust security network association (RSNA) between an access point (AP) and a non-AP station (STA) without security credentials; the non-AP STA is granted access to emergency services using unprotected frames via this association.

**energy limited (EL) station (STA):** [EL STA] A sub 1 GHz (S1G) STA whose limited energy supply requires the STA to transmit or receive in certain intervals of time determined by an EL Operation element.

**enhanced directional multi-gigabit**: [EDMG] Pertaining to an enhanced feature operation in directional multi-gigabit (DMG).

**enhanced directional multi-gigabit (EDMG) aggregate physical layer (PHY) protocol data unit (A‑PPDU)**: [EDMG A-PPDU] An A-PPDU where all constituent PPDUs are EDMG PPDUs.

**enhanced directional multi-gigabit (EDMG) basic service set (BSS)**: [EDMG BSS] A directional multi-gigabit (DMG) BSS in which a DMG Beacon frame transmitted by an EDMG station (STA) has the EDMG Supported field equal to 1.

**enhanced directional multi-gigabit (EDMG) physical layer (PHY) protocol data unit (PPDU)**: [EDMG PPDU] A Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) PPDU transmitted with the TXVECTOR parameter FORMAT equal to EDMG.

**enhanced distributed channel access:** [EDCA] The prioritized carrier sense multiple access with collision avoidance (CSMA/CA) access mechanism used by quality-of-service (QoS) stations (STAs) in a QoS basic service set (BSS) and STAs operating outside the context of a BSS. This access mechanism is also used by the QoS access point (AP) and operates concurrently with hybrid coordination function (HCF) controlled channel access (HCCA).

**enhanced distributed channel access function:** [EDCAF] A logical function in a quality-of-service (QoS) station (STA) that determines, using enhanced distributed channel access (EDCA), when a frame in the transmit queue with the associated access category (AC) is permitted to be transmitted via the wireless medium (WM). There is one EDCAF per AC.

**enhanced multiple basic service set identifier (BSSID) advertisement (EMA) access point (AP):** [EMA AP] An AP with dot11MultiBSSIDImplemented set to true that supports enhancements related to the discovery of nontransmitted BSSIDs.

**extended centralized access point (AP) or personal basic service set (PBSS) control point (PCP) cluster:** [ECAPC] The collection of 1) a single centralized coordination service set (CCSS), 2) the set of centralized AP or PCP clusters such that each synchronization AP (S-AP) of a centralized AP or PCP cluster is within the CCSS, and 3) all stations (STAs) within the basic service sets (BSSs) of the S-APs and member APs and PCPs of the centralized AP or PCP clusters.

**extended channel switching:** [ECS] A procedure that is used to announce a pending change of operating channel, operating class, or both.

**extended range (ER) beacon:** [ER beacon] A Beacon frame transmitted in a high-efficiency (HE) ER single-user (SU) physical layer (PHY) protocol data unit (PPDU) to form an ER basic service set (BSS).

**extended rate physical layer:** [ERP] A physical layer (PHY) compliant with Clause 18 (Extended Rate PHY (ERP) specification).

**extended rate physical layer (ERP) physical layer (PHY) protocol data unit (PPDU):** [ERP PPDU] A Clause 18 (Extended Rate PHY (ERP) specification) PPDU that is not a Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) PPDU.

**extended rate physical layer (PHY) using complementary code keying (CCK) modulation:** [ERP-CCK] A mode of operation of a PHY operating under Clause 18 (Extended Rate PHY (ERP) specification) rules, where the TXVECTOR parameter MODULATION is equal to ERP-CCK.

**extended rate physical layer (PHY) using direct sequence spread spectrum (DSSS) modulation:** [ERP-DSSS] A PHY operating under Clause 18 (Extended Rate PHY (ERP) specification) rules, where the TXVECTOR parameter MODULATION is equal to ERP-DSSS.

**extended rate physical layer (PHY) using direct sequence spread spectrum (DSSS) or complementary code keying (CCK) modulation:** [ERP-DSSS/CCK] A PHY operating under Clause 18 (Extended Rate PHY (ERP) specification) rules, where the TXVECTOR parameter MODULATION is equal to ERP-CCK or ERP-DSSS.

**extended rate physical layer (PHY) using orthogonal frequency division multiplexing (OFDM) modulation:** [ERP-OFDM] A mode of operation of a PHY operating under Clause 18 (Extended Rate PHY (ERP) specification) rules, where the TXVECTOR parameter MODULATION is equal to ERP-OFDM.

**extended service set (ESS) link:** [ESS link] In the context of an IEEE 802.11 medium access control (MAC) entity, a connection path through the wireless medium between a non–access point (non-AP) station (STA) and one of the APs that is a member of the ESS.

**Extensible Authentication Protocol (EAP) reauthentication protocol:** [EAP-RP] A protocol, using the EAP framework, that allows single round trip reauthentication with an Authentication Server after an initial EAP authentication.

NOTE—IETF RFC 6696 uses “ERP” for the abbreviation of EAP reauthentication protocol; IEEE Std 802.11 uses “EAP-RP” because “ERP” stands for “Extended Rate PHY” in IEEE Std 802.11.

**fast basic service set (BSS) transition (FT) 4-way handshake:** [FT 4-way handshake] A pairwise key management protocol used during FT initial mobility domain association. This handshake confirms mutual possession of a pairwise master key (PMK), the PMK-R1, by two parties and distributes a group temporal key (GTK).

**fast basic service set (BSS) transition (FT) initial mobility domain association:** [fast BSS transition initial mobility domain association, FT initial mobility domain association] The first association or first reassociation procedure within a mobility domain, during which a station (STA) indicates its intention to use the FT procedures.

**fast basic service set (BSS) transition (FT) originator:** [fast BSS transition originator, FT originator, FTO] A station (STA) that initiates the FT protocol by sending an FT Request frame or an Authentication frame with Authentication Algorithm Number field equal to Fast BSS Transition.

**fast initial link setup:** [FILS] A collection of mechanisms that enable IEEE Std 802.11 networks to minimize initial link setup time.

**fast initial link setup (FILS) access point (AP):** [FILS AP] An access point that implements FILS.

**fast initial link setup (FILS) association:** [FILS association] A type of association used in fast initial link setup.

**fast initial link setup (FILS) authentication:** [FILS authentication] A type of authentication used in fast initial link setup.

**fast initial link setup (FILS) station (STA):** [FILS STA] A station that implements FILS.

**fine timing measurement (FTM) procedure:** [FTM procedure] A procedure that allows a station (STA) to determine its distance from another STA.

**flexible multicast service:** [FMS] A service that enables a non–access point (non-AP) station (STA) to request a multicast delivery interval longer than the delivery traffic indication map (DTIM) interval for the purposes of lengthening the period of time a STA can be in a power save state.

**flexible multicast service (FMS) stream:** [FMS stream] A succession of frames transmitted by the access point (AP) that correspond to a single flexible multicast stream identifier (FMSID).

**flexible multicast service (FMS) stream set:** [FMS stream set] A collection of FMS streams identified by the value of the FMS Token field, used during the FMS request procedure.

**flexible multicast stream (FMS) identifier:** [FMSID] An identifier assigned by the access point (AP) to a particular group addressed stream subsequent to a successful FMS request procedure.

**fragmentation:** The process of partitioning a medium access control (MAC) service data unit (MSDU), aggregate MAC service data unit (A-MSDU) or MAC management protocol data unit (MMPDU) into a sequence of smaller MAC protocol data units (MPDUs) prior to transmission. The process of recombining a set of fragment MPDUs into an MSDU, A-MSDU, or MMPDU is known as defragmentation.

**future channel guidance:** future channel guidance communicates likely future channel information so that stations (STAs) can efficiently move their activity when the absence of Beacon frames is noticed.

**general link:** [GLK] A point-to-point connection between two instances of the IEEE 802.1AC Internal Sublayer Service that uses an IEEE 802.11 wireless link between stations (STAs). A general link is suitable for use in an IEEE 802.1Q bridged network.

**general link (GLK) convergence function:** [GLK convergence function] The convergence function defined in IEEE Std 802.1AC-2016 between an IEEE 802.11 medium access control (MAC) and an IEEE 802.1Q bridge.

**general link groupcast with retries:** [GLK-GCR] A variant of GCR that specifies the use of GCR for general link.

**general link (GLK) station (STA):** [GLK STA] A STA that implements GLK functionality.

**generic advertisement service:** [GAS] An over-the-air transportation service that provides over-the-air transportation for frames of higher layer advertisements between stations (STAs) or between an advertisement server and a non–access point (non-AP) STA. The protocol(s) used to relay frames between an AP, portal, and advertisement server is outside the scope of this standard. GAS supports higher layer protocols that employ a query/response mechanism.

**geolocation database:** [GDB] A database whose operation is mandated or authorized by a regulatory authority and that organizes storage of information by geographic location.

**geolocation database dependent:** [GDD] A modifier describing when station (STA) operation is dependent on information received from a geolocation database (GDB).

**geolocation database dependent (GDD) access point (AP):** [GDD AP] A station (STA) dependent on information received from a geolocation database (GDB) in order to initiate and maintain a network.

**geolocation database dependent (GDD) dependent station (STA):** [GDD dependent STA] A STA that is under the control of a GDD enabling STA.

**geolocation database dependent (GDD) enabling station (STA):** [GDD enabling STA] A STA that has the authority to control the operation of GDD dependent STAs after obtaining available spectrum for use at its own location.

**geolocation database dependent (GDD) fixed station (STA):** [GDD fixed STA] A STA whose geographical location information is fixed and maintained in a geolocation database (GDB) and whose operation depends on information received from that database.

**geolocation database dependent (GDD) geolocated non-access point (non-AP) station (STA):** [GDD geolocated non-AP STA] A STA that is not an AP and is authorized by a geolocation database (GDB) to operate at its current location.

**geolocation database dependent (GDD) non-access point (non-AP) station (STA):** [GDD non-AP STA] A STA that is not an AP but operates under the control of a GDD enabling STA.

**global operating class:** An operating class value that is any of the nonreserved values in Table E-4 (Global operating classes).

**group addressed quality-of-service management frame:** [GQMF] A group addressed Management frame that is transmitted using the quality-of-service management frame (QMF) service.

**group addressed transmission service:** [GATS] A mechanism comprising directed multicast service (DMS) and groupcast with retries (GCR), for delivery of group addressed frames.

**group addressed wake-up radio (WUR) wake-up frame:** [group addressed WUR wake-up frame] A WUR Wake-up frame with the ID field set to group identifier (ID).

**group key:** A key that is used to protect information exchanged in group addressed frames.

**group key handshake:** A group key management protocol defined by this standard. It is used only to issue a new group temporal key (GTK) to peers with whom the local station (STA) has already formed security associations.

**group master key:** [GMK] An auxiliary key that might be used to derive a group temporal key (GTK).

**group temporal key:** [GTK] A temporal key that is used to protect information exchanged in group addressed Data frames.

**group temporal key security association:** [GTKSA] The context resulting from a successful group temporal key (GTK) distribution exchange via either a group key handshake, a 4-way handshake, or fast initial link setup (FILS) authentication.

**groupcast with retries (GCR) active (GCR-A) delivery:** [GCR-A delivery] A delivery method for a group addressed stream subject to a GCR agreement wherein the frames are transmitted without regard to the power state of non–access point (non-AP) stations (STAs).

**groupcast with retries (GCR) concealment address:** [GCR concealment address] A medium access control (MAC) address that is used to prevent group addressed frames transmitted via the GCR unsolicited retry or GCR block ack retransmission policies from being passed up the medium access control service access point (MAC SAP) of GCR-incapable stations (STAs).

**groupcast with retries (GCR) frame:** [GCR frame] A group addressed frame subject to a GCR agreement between the access point (AP) and at least one station (STA) within the infrastructure basic service set (BSS) or between peer mesh STAs in a mesh BSS.

**groupcast with retries (GCR) group address:** [GCR group address] A group address subject to a GCR agreement between the access point (AP) and at least one station (STA) within the basic service set (BSS) or between peer mesh STAs in a mesh BSS.

**groupcast with retries (GCR) service:** [GCR service] A means for transmission and retransmission of medium access control (MAC) service data units (MSDUs) to a destination that is a group address. The GCR service provides greater reliability by using group addressed retransmissions, concealed from GCR-incapable stations (STAs).

**groupcast with retries (GCR) service period (GCR-SP) aggregate medium access control (MAC) service data unit (A‑MSDU):** [GCR-SP A-MSDU] An A‑MSDU subject to the GCR service with the delivery method equal to GCR-SP.

**groupcast with retries (GCR) service period (GCR-SP) frame:** [GCR-SP frame] A frame subject to the GCR service when the delivery method is GCR-SP.

**groupcast with retries (GCR) service period (GCR-SP) medium access control (MAC) service data unit (MSDU):** [GCR-SP MSDU] An MSDU subject to the GCR service with the delivery method equal to GCR-SP.

**groupcast with retries (GCR) transmission opportunity (TXOP):** [GCR TXOP] An interval of time during which an access point (AP) or a mesh station (STA) has the right to initiate frame exchange sequences onto the wireless medium (WM) for the purpose of transmitting multiple frames that are subject to the GCR service.

**high-efficiency (HE) basic service set (BSS):** [HE BSS] A BSS in which the transmitted Beacon frame includes an HE Operation element.

**high-efficiency (HE) beacon:** [HE beacon] A Beacon frame transmitted in a HE single-user (SU) physical layer (PHY) protocol data unit (PPDU).

**high-efficiency (HE) beamformee:** [HE beamformee] An HE station (STA) that receives an HE physical layer (PHY) protocol data unit (PPDU) that was transmitted using a beamforming steering matrix.

**high-efficiency (HE) beamformer:** [HE beamformer] An HE station (STA) that transmits an HE physical layer (PHY) protocol data unit (PPDU) using a beamforming steering matrix.

**high-efficiency (HE) extended range (ER) single-user (SU) physical layer (PHY) protocol data unit (PPDU):** [HE ER SU PPDU] A PPDU transmitted with HE ER SU PPDU format. This PPDU carries a single PHY service data unit (PSDU).

**high-efficiency (HE) masked HE-long training field (HE-LTF) sequence mode:** [HE masked HE-LTF sequence mode] An HE-LTF mode used in an HE TB PPDU. The masked HE-LTF sequence mode does not have any pilot subcarriers in the HE-LTF field and uses a masked HE-LTF sequence generated by multiplying an orthogonal code (distinct to each spatial stream) over groups of subcarriers.

**high-efficiency (HE) modulation and coding scheme:** [HE-MCS] A specification of the HE physical layer (PHY) parameters that consists of modulation order (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM) and forward error correction (FEC) coding rate (1/2, 2/3, 3/4, 5/6) and that is used in an HE PHY protocol data unit (PPDU).

**high-efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU):** [HE MU PPDU] A PPDU transmitted with HE MU PPDU format.

**high-efficiency (HE) no pilot HE-long training field (HE-LTF) mode:** [HE no pilot HE-LTF mode] An HE-LTF mode used in an HE triggered-based (TB) PPDU. The no pilot HE-LTF mode does not have any pilot subcarriers in the HE-LTF field and does not use a masked HE-LTF sequence. *See also:* **high-efficiency (HE) masked HE-long training field (HE-LTF) sequence mode**.

**high-efficiency (HE) physical layer (PHY) protocol data unit (PPDU):** [HE PPDU] A Clause 27 PPDU that is not a Clause 21 PPDU.

**high-efficiency (HE) single stream pilot:** [HE single stream pilot] The same pilot sequence is applied to all spatial time streams for a given resource allocation.

**high-efficiency (HE) single stream pilot HE-long training field (HE-LTF) mode:** [HE single stream pilot HE-LTF mode] An HE-LTF mode used in an HE single-user (SU), HE extended range (ER) SU, HE multi-user (MU) and HE trigger-based (TB) PPDU. The HE single stream pilot HE-LTF mode has single stream pilot subcarriers in the HE-LTF field.

**high-efficiency (HE) single-user (SU) physical layer (PHY) protocol data unit (PPDU):** [HE SU PPDU] A PPDU transmitted with HE SU PPDU format. This PPDU carries a single PHY service data unit (PSDU).

**high-efficiency (HE) trigger-based (TB) physical layer (PHY) protocol data unit (PPDU):** [HE TB PPDU] A PPDU transmitted with HE TB PPDU format. This PPDU carries a single PHY service data unit (PSDU).

**high rate direct sequence spread spectrum (HR/DSSS) physical layer (PHY) protocol data unit (PPDU):** [HR/DSSS PPDU] A Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) PPDU that is not a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) PPDU.

**high throughput (HT) basic service set (BSS):** [HT BSS] A BSS in which Beacon frames transmitted by an HT station (STA) include the HT Capabilities element.

**high throughput (HT) beamformee:** [HT beamformee] An HT station (STA) that receives an HT physical layer (PHY) protocol data unit (PPDU) that was transmitted using a beamforming steering matrix and that supports an HT transmit beamforming feedback mechanism.

**high throughput (HT) beamformer:** [HT beamformer] An HT station (STA) that transmits an HT physical layer (PHY) protocol data unit (PPDU) using a beamforming steering matrix.

**high throughput (HT) greenfield (HT-greenfield) format:** [HT-greenfield format] A physical layer (PHY) protocol data unit (PPDU) format of the HT PHY using the HT-greenfield format preamble.

**high throughput (HT) immediate (HT-immediate) block acknowledgment (Ack):** [HT-immediate block ack] An immediate block ack mechanism that requires the use of the compressed BlockAck frame and an implicit block ack request and allows partial-state operation at the recipient. This block ack scheme is negotiated between two HT or directional multi-gigabit (DMG) stations (STAs).

**high throughput (HT) mixed (HT-mixed) format:** [HT-mixed format] A physical layer (PHY) protocol data unit (PPDU) format of the HT PHY using the HT-mixed format preamble.

**high throughput (HT) modulation and coding scheme (HT-MCS):** [HT-MCS] A specification of the HT physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM), forward error correction (FEC) coding rate (e.g., 1/2, 2/3, 3/4, 5/6), and number of spatial streams (NSS) and that is used in an HT PHY protocol data unit (PPDU).

**high throughput (HT) null data physical layer (PHY) protocol data unit (PPDU)** **(NDP) announcement:** [HT NDP announcement] A PPDU that contains one or more +HTC frames (i.e., frames with an HT Control field) that have the HT NDP Announcement subfield equal to 1.

**high throughput (HT) physical layer (PHY) protocol data unit (PPDU):** [HT PPDU] A Clause 19 (High Throughput (HT) PHY specification) PPDU that is not a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), or Clause 18 (Extended Rate PHY (ERP) specification) PPDU.

**high throughput (HT) station (STA) 2G4:** [HT STA 2G4] An HT STA that is also a STA 2G4.

**high throughput (HT) station (STA) 5G:** [HT STA 5G] An HT STA that is also a STA 5G.

**hybrid coordination function:** [HCF] A coordination function that combines and enhances aspects of the contention based and contention free access methods to provide quality-of-service (QoS) stations (STAs) with prioritized and parameterized QoS access to the wireless medium (WM), while continuing to support non-QoS STAs for best-effort transfer. The HCF includes the functionality provided by both enhanced distributed channel access (EDCA) and HCF controlled channel access (HCCA).

**hybrid coordination function (HCF) controlled channel access:** [HCCA] The channel access mechanism utilized by the hybrid coordinator (HC) to coordinate contention free media use by quality-of-service (QoS) stations (STAs) for downlink individually addressed, uplink, and direct link transmissions.

**hybrid coordinator:** [HC] A type of coordinator, defined as part of the quality-of-service (QoS) facility, that implements the frame exchange sequences and medium access control (MAC) service data unit (MSDU) handling rules defined by the hybrid coordination function (HCF).

**identifier:** [ID] An identifier used by a wake-up radio (WUR) access point (AP) to identify broadcast WUR frames that are addressed to all WUR non-AP stations (STAs) associated with an AP corresponding to a nontransmitted basic service set identifier (BSSID) from the multiple BSSID set when multiple BSSID operation is supported.

**IEEE 802.11 access network:** a network that provides access to an external network reachable via the basic service set (BSS).

**IEEE 802.11 station (STA):** [IEEE 802.11 STA] Any station that is compliant with IEEE Std 802.11. Any reference to the term station (STA) in this standard that is not qualified by the term *IEEE 802.11* implicitly refers to an IEEE 802.11 station.

**individual target wake time (TWT):** [individual TWT] A specific time or set of times negotiated between two individual stations (STAs) at which the STAs are expected to be awake in order to exchange frames with each other.

**individually addressed resource unit (RU):** [individually addressed RU] A resource unit in a high-efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU) transmitted by an access point (AP) or a tunneled direct link setup (TDLS) peer station (STA) that is intended for a single associated non-AP STA or a TDLS peer STA, respectively.

**individually addressed quality-of-service management frame:** [IQMF] An individually addressed Management frame that is transmitted using the quality-of-service management frame (QMF) service.

**integrity check key:** [ICK] A key used to integrity check FILS Authentication frames.

**integrity group temporal key:** [IGTK] A random value, assigned by the broadcast/multicast source station (STA), which is used to protect group addressed medium access control (MAC) management protocol data units (MMPDUs) from that source STA.

**interworking service:** A service that supports use of an IEEE 802.11 network with non-IEEE-802.11 networks. Functions of the interworking service assist non–access point (non-AP) stations (STAs) in discovering and selecting IEEE 802.11 networks, in using appropriate quality-of-service (QoS) settings for transmissions, in accessing emergency services, and in connecting to subscription service providers (SSPs).

**key counter:** A 256-bit (32-octet) counter that is used in the pseudorandom function (PRF) to generate initialization vectors (IVs). There is a single key counter per station (STA) that is global to that STA.

**key data encapsulation:** [KDE] A format for data other than elements in the EAPOL-Key Data field.

**key management service:** A service to distribute and manage cryptographic keys within a robust security network (RSN).

**light sleep mode:** A mesh power management mode with respect to a neighbor peer mesh station (STA) in which a mesh STA alternates between awake and doze states and is expected to receive beacons from this neighbor peer mesh STA.

**link:** In the context of an IEEE 802.11 medium access control (MAC) entity, a physical path consisting of exactly one traversal of the wireless medium (WM) that is usable to transfer MAC service data units (MSDUs) between two stations (STAs) that have established a relationship.

**link setup:** The process of discovering an extended service set (ESS), (secure) association and authentication, and gaining the ability to send higher layer [e.g., Internet Protocol (IP)] traffic with a valid higher layer address through an access point (AP).

**location configuration information:** [LCI] As defined in IETF RFC 6225: includes latitude, longitude, and altitude, with uncertainty indicators for each.

**medium access control (MAC) management protocol data unit:** [MMPDU] The unit of data exchanged between two peer MAC entities, using services of the physical layer (PHY), to implement the MAC management protocol. The MMPDU is transported in one or more Management frames. The MMPDU might include a Mesh Control field or management message integrity code (MIC) element (MME), but does not include a MAC header, a frame check sequence (FCS), or any other security encapsulation overhead.

**mesh awake window:** A period of time during which the mesh station (STA) operates in awake state after its Beacon or Probe Response frame transmission that contained the Mesh Awake Window element.

**mesh coordination function:** [MCF] A coordination function that combines aspects of the contention based and scheduled access methods. The MCF includes the functionality provided by both enhanced distributed channel access (EDCA) and MCF controlled channel access (MCCA).

**mesh coordination function (MCF) controlled channel access:** [MCCA] A coordination function for the mesh basic service set (MBSS).

**mesh coordination function (MCF) controlled channel access opportunity:** [MCCAOP] A period of time scheduled for frame transmissions between mesh stations (STAs) using MCF controlled channel access (MCCA).

**mesh Data frame:** A Data frame that is transmitted by a mesh station (STA).

**mesh peer service period:** A period of time during which one or more individually addressed frames are transmitted between two peer mesh stations (STAs) with at least one of those mesh STAs operating in light sleep or deep sleep mode. A mesh peer service period is directional and might contain one or more transmission opportunities (TXOPs).

**mesh peer service period owner:** A mesh station (STA) that obtains transmission opportunities (TXOPs), transmits individually addressed frames to the recipient mesh STA in the mesh peer service period, and terminates the mesh peer service period.

**mesh peering management:** A group of protocols to facilitate mesh peering establishment and closure.

**mesh power management mode:** The activity level identifier of a mesh station (STA) set per mesh peering or for nonpeer neighbor STAs. A lower activity level enables a mesh STA to reduce its power consumption.

**mesh power management mode tracking:** Operation to observe the peering-specific mesh power management modes from the peer mesh stations (STAs) and to maintain the peering-specific mesh power management modes for each peer mesh STA.

**message integrity code (MIC) key:** [MIC key] Temporal key integrity protocol (TKIP) only: The portion of a transient key used to validate the integrity of medium access control (MAC) service data units (MSDUs) or MAC protocol data units (MPDUs).

**method-specific service access point (SAP):** [MS SAP] The point at which an instance of the IEEE 802.11 method-specific medium access control (MAC) service is offered.

**michael:** The message integrity code (MIC) for the temporal key integrity protocol (TKIP).

**minimum downlink transmission time (DTT) to uplink transmission time (UTT) spacing:** [minimum DTT to UTT spacing] The minimum time within a power save multi-poll (PSMP) sequence between the end of a station’s (STA’s) PSMP-DTT and the start of its PSMP-UTT.

**modulation and coding scheme:** [MCS] A specification of the physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM, and 256-QAM), forward error correction (FEC) coding rate (e.g., 1/2, 2/3, 3/4, 5/6), and, depending on the context, the number of space-time streams.

**modulation and coding scheme 32 (MCS 32) format:** [MCS 32 format] A physical layer (PHY) protocol data unit (PPDU) format of the high throughput (HT) PHY in which signals in two halves of the occupied channel width contain the same information. This HT PPDU format supports the lowest rate.

**modulation and coding scheme (MCS) feedback (MFB) requester:** [MFB requester] A station (STA) that transmits a physical layer (PHY) protocol data unit (PPDU) containing an HT Control field in which the MCS request (MRQ) subfield is equal to 1.

**modulation and coding scheme (MCS) feedback (MFB) responder:** [MFB responder] A station (STA) that transmits a physical layer (PHY) protocol data unit (PPDU) containing an HT Control field with the MFB field containing an MCS index or the value 127 in response to a PPDU containing an HT Control field in which the MCS request (MRQ) subfield is equal to 1.

**multicarrier on-off keying (MC-OOK) symbol:** [MC-OOK symbol] Either an MC-OOK On Symbol where the multicarrier signal is present or an MC-OOK Off Symbol where no signal is present.

**multicarrier signal:** A signal that is constructed with multiple subcarriers.

**multiple basic service set identifier (BSSID) set:** [BSSID set] A collection of access points (APs), such that all of the APs use a common operating class, channel, receive antenna connector, and transmit antenna connector and advertise information for multiple BSSIDs using Beacon or Probe Response frames sent by the AP corresponding to the transmitted BSSID.

**multiple medium access control (MAC) sublayers link:** [MMSL] A link between two stations (STAs), wherein one of the STAs is coordinated by a multiple MAC station management entity (MM-SME) that delivered a multiple MAC sublayers (MMS) element to the peer STA.

**multiple medium access control (MAC) sublayers link (MMSL) cluster:** [MMSL cluster] The set of all MMSLs between a pair of stations (STAs).

**multi-user (MU) beamformee:** [MU beamformee] A non–access point (non-AP) station (STA) that receives a physical layer (PHY) protocol data unit (PPDU) that was transmitted using a multi-user beamforming steering matrix and that supports the very high throughput (VHT) transmit beamforming feedback mechanism with a VHT null data PPDU (NDP) Announcement frame that includes more than one STA Info field.

**multi-user (MU) beamformer:** [MU beamformer] An access point (AP) that transmits a physical layer (PHY) protocol data unit (PPDU) using a multi-user beamforming steering matrix.

**multi-user (MU) physical layer (PHY) protocol data unit (PPDU):** [MU PPDU] A PPDU that carries one or more PHY service data units (PSDUs) for one or more stations (STAs) using the downlink multi-user multiple input, multiple output (DL MU-MIMO) technique, orthogonal frequency division multiple access (DL OFDMA) technique, or a combination of the two techniques, or that carries a PSDU for an AP and is in high-efficiency (HE) MU PPDU format.

**no acknowledgment/no retry :** [No-Ack/No-Retry] A retransmission policy for group addressed frames in which each frame is transmitted once and without acknowledgment.

**non-40-MHz-capable (non-40MC) high throughput (HT) station (STA):** [non-40MC HT STA] A STA that is not a 40‑MHz**-**capable **(**40MC) HT STA.

**non-ack-enabled single traffic identifier (TID) aggregate medium access control (MAC) protocol data unit (A-MPDU) :** [non-ack-enabled single-TID A-MPDU] A legacy A-MPDU with the exception that a Trigger frame can be aggregated.

**non-ack-enabled multi traffic identifier (TID) aggregate medium access control (MAC) protocol data unit (A-MPDU) :** [non-ack-enabled multi-TID A-MPDU] An A-MPDU where tagged MPDUs are not aggregated and the aggregated untagged MPDUs from at least two TIDs solicit block acknowledgment.

**nonaggregate medium access control (MAC) protocol data unit (non-A-MPDU) frame:** [non-A-MPDU frame] A frame that is transmitted in a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) physical layer (PHY) protocol data unit (PPDU), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU, Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) PPDU, or Clause 18 (Extended Rate PHY (ERP) specification) orthogonal frequency division multiplexing (OFDM) PPDU; or is transmitted with the TXVECTOR AGGREGATION parameter present and equal to NOT\_AGGREGATED; or is a single medium access control (MAC) protocol data unit (S-MPDU).

**nonbandwidth signaling transmitter address (TA):** [nonbandwidth signaling TA] An address in the TA field of an medium access control (MAC) protocol data unit (MPDU) in which the Individual/Group bit has the value 0.

**nonbufferable medium access control (MAC) management protocol data unit (MMPDU):** [nonbufferable MMPDU] An MMPDU that is not a bufferable MMPDU.

**nonconcealed groupcast with retries (GCR) frame:** [nonconcealed GCR frame] A group addressed frame that is not transmitted to the GCR concealment address.

**nondirectional multi-gigabit**: [non-DMG] A modifier meaning not directional multi-gigabit (DMG), not enhanced directional multi-gigabit (EDMG), and not China directional multi-gigabit (CDMG).

**nonenhanced directional multi-gigabit**: [non-EDMG] A modifier meaning directional multi-gigabit (DMG) and that includes neither EDMG enhancement nor CDMG enhancements.

**nonenhanced directional multi-gigabit (non-EDMG) duplicate transmission format**: [non-EDMG duplicate transmission format] A transmission format of the physical layer (PHY) that duplicates a 2.16 GHz non-EDMG transmission in two or more 2.16 GHz channels and allows a station (STA) in a DMG basic service set (BSS) on any one of the 2.16 GHz channels to receive the transmission. A non-EDMG duplicate format is one of the following:

* 4.32 GHz non-EDMG duplicate transmission format: A transmission format of the PHY that replicates a 2.16 GHz non-EDMG transmission in two adjacent 2.16 GHz channels.
* 6.48 GHz non-EDMG duplicate transmission format: A transmission format of the PHY that replicates a 2.16 GHz non-EDMG transmission in three adjacent 2.16 GHz channels.
* 8.64 GHz non-EDMG duplicate transmission format: A transmission format of the PHY that replicates a 2.16 GHz non-EDMG transmission in four adjacent 2.16 GHz channels.
* 2.16+2.16 GHz non-EDMG duplicate transmission format: A transmission format of the PHY that replicates a 2.16 GHz non-EDMG transmission in two, not necessarily adjacent, 2.16 GHz channels.
* 4.32+4.32 GHz non-EDMG duplicate transmission format: A transmission format of the PHY that replicates a 2.16 GHz non-EDMG transmission in two frequency segments of two adjacent 2.16 GHz channels where the two frequency segments of channels are not necessarily adjacent.

**nonextended rate physical layer:** [non-ERP] A physical layer (PHY) compliant with Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) or Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification), but not with Clause 18 (Extended Rate PHY (ERP) specification).

**nongroupcast with retries:** [non-GCR] A method for delivering group addressed frames without using the groupcast with retries (GCR) unsolicited retry retransmission policy, the GCR block acknowledgment retransmission policy, or the GCR service period (GCR-SP) delivery method.

**nongroupcast with retries service period:** [non-GCR-SP] A method for the delivery of group addressed frames without the use of a groupcast with retries service period (GCR-SP).

**non-high-efficiency (non-HE) physical layer (PHY) protocol data unit (PPDU):** [non-HE PPDU] A PPDU that is transmitted by a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), or Clause 18 (Extended Rate PHY (ERP) specification) PHY, or not using a TXVECTOR FORMAT parameter equal to HE.

**non-high-throughput:** [non-HT] A modifier meaning not high throughput (HT), not very high throughput (VHT), not high efficiency (HE), and not directional multi-gigabit (DMG).

**non-high-throughput (non-HT) duplicate:** [non-HT duplicate] A transmission format of the physical layer (PHY) that duplicates a 20 MHz non-HT transmission in two or more 20 MHz channels and allows a station (STA) in a non-HT basic service set (BSS) on any one of the 20 MHz channels to receive the transmission. A non-HT duplicate format is one of the following:

* 40 MHz non-HT duplicate: A transmission format of the PHY that replicates a 20 MHz non-HT transmission in two adjacent 20 MHz channels.
* 80 MHz non-HT duplicate: A transmission format of the PHY that replicates a 20 MHz non-HT transmission in four adjacent 20 MHz channels.
* 160 MHz non-HT duplicate: A transmission format of the PHY that replicates a 20 MHz non-HT transmission in eight adjacent 20 MHz channels.
* 80+80 MHz non-HT duplicate: A transmission format of the PHY that replicates a 20 MHz non-HT transmission in two frequency segments of four adjacent 20 MHz channels where the two frequency segments of channels are not adjacent.

**non-high-throughput (non-HT) duplicate frame:** [non-HT duplicate frame] A frame transmitted in a non-HT duplicate physical layer (PHY) protocol data unit (PPDU).

**non-high-throughput (non-HT) duplicate in television white spaces (TVWS) band:** [non-HT duplicate in TVWS band] A transmission format of the physical layer (PHY) that duplicates a single basic channel unit (BCU) non-HT transmission in two or more BCUs and allows a station (STA) in a non-HT basic service set (BSS) on any one BCU to receive the transmission. A non-HT duplicate format is one of the following:

* TVHT\_W non-HT duplicate: A PHY transmission that replicates a non-HT PHY protocol data unit (PPDU) two times in a single BCU.
* TVHT\_2W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU four times in two contiguous BCUs.
* TVHT\_4W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU eight times in four contiguous BCUs.
* TVHT\_W+W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU two times in each single BCU.
* TVHT\_2W+2W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU four times in each of two contiguous BCUs.

**non-high-throughput (non-HT) duplicate physical layer (PHY) protocol data unit (PPDU):** [non-HT duplicate PPDU] A PPDU transmitted by a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), or Clause 18 (Extended Rate PHY (ERP) specification) PHY, or not using a TXVECTOR FORMAT parameter equal to HT\_MF, HT\_GF, VHT or HE.

**non-high-throughput (non-HT) duplicate physical layer (PHY) protocol data unit (PPDU) in television white spaces (TVWS) band:** [non-HT duplicate PPDU in TVWS band] A PPDU transmitted by a Clause 22 (Television very high throughput (TVHT) PHY specification) PHY with the TXVECTOR parameter FORMAT set to NON\_HT and the TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W, TVHT\_2W, TVHT\_4W, TVHT\_W+W, or TVHT\_2W+2W.

**non-high-throughput (non-HT) physical layer (PHY) protocol data unit (PPDU):** [non-HT PPDU] A PPDU that is transmitted by a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), or Clause 18 (Extended Rate PHY (ERP) specification) PHY, or not using a TXVECTOR FORMAT parameter equal to HT\_MF, HT\_GF or VHT.

**non-high-throughput (non-HT) SIGNAL field (L-SIG) transmit opportunity (TXOP) protection:** [non-HT L-SIG TXOP protection] A protection mechanism in which protection is established by the non-HT SIG Length and Rate fields indicating a duration that is longer than the duration of the physical layer (PHY) protocol data unit (PPDU) itself.

**non-orthogonal frequency division multiple access (non-OFDMA) high-efficiency (HE) physical layer (PHY) protocol data unit (PPDU):** [non-OFDMA HE PPDU] A 20 MHz HE PPDU with a 242-tone resource unit (RU), a 40 MHz HE PPDU with a 484-tone RU, an 80 MHz HE PPDU with a 996-tone RU, or a 160 MHz or 80+80 MHz HE PPDU with a 2×996-tone RU.

**nonpeer mesh power management mode:** The activity level identifier of a mesh station (STA) toward nonpeer neighbor mesh STAs. Two nonpeer mesh power management modes are defined: active mode and deep sleep mode.

**non-personal basic service set (BSS) control point (non-PCP) station (STA):** [non-PCP STA] A STA that is not a personal BSS control point (PCP).

**nonprimary channel:** In a 40 MHz, 80 MHz, 160 MHz, or 80+80 MHz basic service set (BSS), any 20 MHz channel other than the primary 20 MHz channel.

**non-quality-of-service management frame (non-QMF) access point (AP):** [non-QMF AP] An AP that does not implement the quality-of-service management frame (QMF) service.

**non-quality-of-service management frame (non-QMF) station (STA):** [non-QMF STA] A STA that does not implement the quality-of-service management frame (QMF) service.

**non-sensor station (STA):** [non-sensor STA] A sub 1 GHz (S1G) non-access point (non-AP) STA transmitting or receiving Data frames not subject to limitation of payload size. A non-sensor STA might not have the power and traffic volume limitation expected for a sensor STA.

**non-space-time-block-coding (non-STBC) frame:** [non-STBC frame] A frame that is transmitted in a physical layer (PHY) protocol data unit (PPDU) that has the TXVECTOR STBC parameter equal to 0, or a frame that is received in a PPDU that has the RXVECTOR STBC parameter equal to 0.

**non-spatial reuse group:** [non-SRG] An adjective indicating the quality of not being a member of a particular spatial reuse group or the quality of not originating from a station (STA) that is a member of a basic service set (BSS) that is part of a particular spatial reuse group.

**non-traffic indication map (non-TIM) mode:** [non-TIM mode] A sub 1 GHz (S1G) non-access point (non-AP) station (STA) power save mode in which a non-AP S1G STA need not listen for traffic indication map (TIM) Beacon frames but transmits at least one PS-Poll or trigger frame to the associated access point (AP) every listen interval.

**non-traffic indication map (non-TIM) station (STA):** [non-TIM STA] A sub 1 GHz (S1G) non-access point (non-AP) STA that has entered the non-TIM mode.

**nontransmitted basic service set (BSS) identifier (BSSID):** [nontransmitted BSSID] A BSSID corresponding to one of the basic service sets (BSSs) when the multiple BSSID capability is supported that is not transmitted explicitly, but that can be derived from the information encoded in Probe Response, Beacon and directional multi-gigabit (DMG) Beacon frames and neighbor reports.

**null data physical layer (PHY) protocol data unit (PPDU):** [NDP] A PPDU that carries no Data field.

**null data physical layer (PHY) protocol data unit (PPDU) (NDP) 1M:** [NDP\_1M] An NDP carrying medium access control (MAC) information (CMI) frame that is transmitted using the S1G\_1M format.

**null data physical layer (PHY) protocol data unit (PPDU) (NDP) 2M:** [NDP\_2M] An NDP carrying medium access control (MAC) information (CMI) frame that is transmitted using the S1G\_SHORT format.

**null data physical layer (PHY) protocol data unit (PPDU) (NDP) carrying medium access control information (CMAC) PPDU:** [NDP CMAC PPDU] A PPDU with no Data field used by the PHY to provide to the medium access control (MAC) the service of carrying MAC information in the SIGNAL field of the sub 1 GHz (S1G) PPDU.

**off-channel:** A channel used by a tunneled direct link setup (TDLS) station (STA) that does not overlap the channel(s) used by the access point (AP) with which the TDLS STA is associated.

**operating class:** An E.1 (Country information and operating classes) index into a set of values for radio operation in one or more regulatory domains.

**operational modulation and coding scheme (MCS):** [operational MCS] An MCS that belongs to the operational MCS set.

**operational modulation and coding scheme (MCS) set:** [operational MCS set] The set of MCSs that a station (STA) is capable of receiving. The operational MCS set is typically advertised in the physical layer (PHY) capabilities element(s), e.g. HT and VHT Capabilities elements.

**operational rate:** A rate that belongs to the operational rate set.

**operational rate set:** The set of data rates that a station (STA) is capable of receiving. The operational rate set is advertised in the Supported Rates and BSS Membership Selectors element and, if present, the Extended Supported Rates and BSS Membership Selectors element.

**opportunistic power save (OPS) access point (AP):** [OPS AP] A high-efficiency (HE) AP that supports the OPS mechanism.

**opportunistic power save (OPS) mechanism:** [OPS mechanism] A power save mechanism to allow OPS non–access point (non-AP) stations (STAs) to opportunistically go to doze state or be unavailable for a defined period.

**opportunistic power save (OPS) non–access point (non-AP) station (STA):** [OPS non-AP STA] A non-AP high-efficiency (HE) STA that supports the OPS mechanism.

**opportunistic power save (OPS) period:** [OPS period] A period during which an OPS non–access point (non-AP) station (STA) is allowed to go to doze state or be unavailable if it received an indication that it will not be scheduled by its associated OPS access point (AP).

**orthogonal frequency division multiple access (OFDMA) high-efficiency (HE) physical layer (PHY) protocol data unit (PPDU):** [OFDMA HE PPDU] A 20 MHz HE PPDU with resource units (RUs) smaller than 242-tone, or a 40 MHz HE PPDU with RUs smaller than 484-tone, or an 80 MHz HE PPDU with RUs smaller than 996-tone, or a 160 MHz or 80+80 MHz HE PPDU with RUs smaller than 2×996-tone.

**orthogonal frequency division multiplexing (OFDM) physical layer (PHY) protocol data unit (PPDU):** [OFDM PPDU] A Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU.

**outside the context of a basic service set (BSS):** [OCB] A mode of operation in which a station (STA) is not a member of a BSS and does not utilize IEEE 802.11 authentication, association, or data confidentiality services.

**overlapping basic service set (OBSS) packet detect (PD):** [OBSS PD] A packet detection level used for the spatial reuse procedure.

**paged association identifier (AID):** [paged AID] An AID of a sub 1 GHz (S1G) non-access point (non-AP) station (STA) whose corresponding bit value in a transmitted traffic indication map (TIM) encoded in AID with differential encoding (ADE) mode is 1.

**pairwise master key:** [PMK] The key derived from a key generated by an Extensible Authentication Protocol (EAP) method or obtained directly from a preshared key (PSK).

**pairwise master key (PMK) R0:** [PMK-R0] The key at the first level of the fast basic service set (BSS) transition (FT) key hierarchy.

**pairwise master key (PMK) R0 (PMK-R0) name:** [PMKR0Name] An identifier that names the PMK-R0.

**pairwise master key (PMK) R1:** [PMK-R1] A key at the second level of the fast basic service set (BSS) transition (FT) key hierarchy.

**pairwise master key (PMK) R1 (PMK-R1) name:** [PMKR1Name] An identifier that names a PMK-R1.

**pairwise master key security association:** [PMKSA] The context resulting from a successful IEEE 802.1X authentication exchange between the peer and Authentication Server (AS) or from a preshared key (PSK).

**pairwise transient key:** [PTK] A concatenation of session keys derived from the pairwise master key (PMK) or from the PMK R1 (PMK-R1), including a temporal key that is used to protect information exchanged in individually addressed frames.

**pairwise transient key (PTK) name:** [PTKName] An identifier that names the PTK.

**pairwise transient key security association:** [PTKSA] The context resulting from a successful 4‑way handshake between a peer and Authenticator or from a successful fast initial link setup (FILS) authentication.

**parameterized quality of service (QoS):** [parameterized QoS] The treatment of the medium access control (MAC) protocol data units (MPDUs) depends on the parameters associated with the MPDU. Parameterized QoS is primarily provided through the hybrid coordination function (HCF) controlled channel access (HCCA) mechanism, but is also provided by the enhanced distributed channel access (EDCA) mechanism if used with a traffic specification (TSPEC) for admission control.

**parameterized spatial reuse reception (PSRR) physical layer (PHY) protocol data unit (PPDU):** [PSRR PPDU] A PPDU that contains a Trigger frame that has a value in the UL Spatial Reuse subfield of the Common Info field that is neither PSR\_DISALLOW nor PSR\_AND\_NON\_SRG\_OBSS\_PD\_PROHIBITED.

**parameterized spatial reuse transmission (PSRT) physical layer (PHY) protocol data unit (PPDU):** [PSRT PPDU] A PPDU that is transmitted during a parameterized spatial reuse (PSR) opportunity by an HE STA when PSR conditions for PSR-based spatial reuse operation are satisfied and that has the SR PPDU subfield of the CAS Control field equal to 1.

**payload protected (PP) aggregate medium access control (MAC) service data unit (A‑MSDU):** [PP A-MSDU] An A‑MSDU that is protected with Counter Mode (CTR) with cipher-block chaining message authentication code (CBC-MAC) protocol (CCMP) or Galois/Counter Mode (GCM) protocol (GCMP) but does not include the A‑MSDU Present field (bit 7 of the QoS Control field) in the construction of the additional authentication data (AAD).

**peer trigger frame:** A mesh Data or quality-of-service (QoS) Null frame that initiates a mesh peer service period.

**peer-specific mesh power management mode:** The activity level identifier of a mesh station (STA) set per mesh peering. Three peer-specific mesh power management modes are defined: active mode, light sleep mode, and deep sleep mode.

**personal basic service set:** [PBSS] A directional multi-gigabit (DMG) basic service set (BSS) that includes one station (STA) that is in a PBSS control point (PCP), and in which access to a distribution system (DS) is not present.

**personal basic service set (PBSS) control point:** [PCP] An entity that contains one station (STA) and coordinates access to the wireless medium (WM) by STAs that are members of a PBSS.

**personal basic service set (PBSS) control point (PCP) or access point (AP) cluster:** [PCP or AP cluster] A single directional multi-gigabit (DMG) synchronization AP or synchronization PCP, plus zero or more neighboring DMG APs or PCPs (or a mixture of both) that join as member APs and PCPs to the synchronization AP or synchronization PCP.

**physical layer (PHY) header:** [PHY header] The portion of a PHY protocol data unit (PPDU) up to and excluding the first symbol that contains part of the PHY service data unit (PSDU).

**power save (PS) mode:** [PS mode] A power management mode in which a nonmesh station (STA) alternates between awake and doze states.

**power save multi-poll:** [PSMP] A mechanism that provides a time schedule that is used by an access point (AP) and its stations (STAs) to access the wireless medium. The mechanism is controlled using the PSMP frame.

**power save multi-poll (PSMP) burst:** [PSMP burst] A series of one or more PSMP sequences, separated by short interframe space (SIFS).

**power save multi-poll downlink transmission time:** [PSMP-DTT] A period of time described by a PSMP frame during which the access point (AP) transmits.

**power save multi-poll (PSMP) sequence:** [PSMP sequence] A sequence of frames in which the first frame is a PSMP frame that is followed by transmissions in zero or more power save multi-poll downlink transmission times (PSMP-DTTs) and then by transmissions in zero or more power save multi-poll uplink transmission times (PSMP-UTTs). The schedule of the PSMP-DTTs and PSMP-UTTs is defined in the PSMP frame.

**power save multi-poll (PSMP) session:** [PSMP session] The relationship between an access point (AP) and one or more stations (STAs) that exists while any traffic stream (TS) exists that uses the PSMP mechanism with the same service period.

**power save multi-poll uplink transmission time:** [PSMP-UTT] A period of time described by a PSMP frame during which a non–access point (non-AP) station (STA) can transmit.

**power save multi-poll uplink transmission time (PSMP-UTT) spacing:** [PSMP-UTT spacing] The period of time between the end of one PSMP-UTT and the start of the following PSMP-UTT within the same power save multi-poll (PSMP) sequence.

**power save (PS) station (STA):** [PS STA] A station that is in power save mode.

**pre-robust security network association:** [pre-RSNA] The type of association used by a pair of stations (STAs) if the procedure for establishing authentication or association between them did not include the 4-way handshake, was not fast initial link setup (FILS) authentication, and did not use the fast basic service set (BSS) transition (FT) protocol.

**pre-robust security network association (pre-RSNA) station (STA):** [pre-RSNA STA] A STA that is not able to create robust security network associations (RSNAs).

**primary 1 MHz channel:** In a 2 MHz, 4 MHz, 8 MHz, or 16 MHz sub 1 GHz (S1G) basic service set (BSS), the 1 MHz channel that is used to transmit 1 MHz physical layer (PHY) protocol data units (PPDUs).

**primary 2 MHz channel:** In a 4 MHz, 8 MHz, or 16 MHz sub 1 GHz (S1G) basic service set (BSS), the 2 MHz channel that is used to transmit 2 MHz physical layer (PHY) protocol data units (PPDUs).

**primary 4 MHz channel:** In an 8 MHz or 16 MHz sub 1 GHz (S1G) basic service set (BSS), the 4 MHz channel that is used to transmit 4 MHz physical layer (PHY) protocol data units (PPDUs).

**primary 8 MHz channel:** In a 16 MHz sub 1 GHz (S1G) basic service set (BSS), the 8 MHz channel that is used to transmit 8 MHz physical layer (PHY) protocol data units (PPDUs).

**primary 20 MHz channel:** In a 40 MHz, 80 MHz, 160 MHz, or 80+80 MHz basic service set (BSS), the 20 MHz channel that is used to transmit 20 MHz physical layer (PHY) protocol data units (PPDUs). In a high throughput (HT) or very high throughput (VHT) BSS, the primary 20 MHz channel is also the primary channel.

**primary 40 MHz channel:** In an 80 MHz, 160 MHz, or 80+80 MHz basic service set (BSS), the 40 MHz channel that is used to transmit 40 MHz physical layer (PHY) protocol data units (PPDUs).

**primary 80 MHz channel:** In a 160 MHz or 80+80 MHz basic service set (BSS), the 80 MHz channel that is used to transmit 80 MHz physical layer (PHY) protocol data units (PPDUs).

**primary access category (AC):** [primary AC] The AC that is the AC of the enhanced distributed channel access function (EDCAF) that gains channel access.

NOTE—If an EDCAF gains channel access, and an RDG is granted to another STA, that STA is transmitting under the primary AC.

**protected dual of public action frame:** An Action frame with the category value specified in 9.4.1.11 (Action field) (Table 9-79 (Category values)). For each Protected Dual of Public Action frame, there is a dual Action frame in a category that is specified with No in the Robust column of Table 9-79 (Category values).

**protected frame:** A frame that has been encrypted and/or whose integrity can be verified cryptographically.

**physical layer (PHY) protocol data unit (PPDU)[+SigExt]:** [PPDU[+SigExt]] A PPDU plus a signal extension that immediately follows the PPDU if the signal extension is present, and a PPDU otherwise.

**protocol version 0 (PV0) medium access control (MAC) protocol data unit (MPDU):** [PV0 MPDU] An MPDU that has the Protocol Version field of the Frame Control field of the MPDU header equal to 0.

**protocol version 1 (PV1) medium access control (MAC) protocol data unit (MPDU):** [PV1 MPDU] An MPDU that has the Protocol Version field of the Frame Control field of the MPDU header equal to 1.

**quality-of-service (QoS) frame:** [QoS frame] A frame containing the QoS Control field.

**quality-of-service management frame:** [QMF] A Management frame that is transmitted using the QMF service.

**quality-of-service management frame (QMF) access point (AP):** [QMF AP] A quality-of-service AP that implements the QMF service.

**quality-of-service management frame (QMF) policy:** [QMF policy] A policy defining the access category of Management frames. QMF stations (STAs) transmit their Management frames using the access category defined by the policy.

**quality-of-service management frame (QMF) service:** [QMF service] A service in which the enhanced distributed channel access (EDCA) access category with which a Management frame is sent is determined according to a configured policy.

**quality-of-service management frame (QMF) station (STA):** [QMF STA] A quality-of-service STA that implements the QMF service.

**quasi-omni antenna pattern:** A directional multi-gigabit (DMG) antenna operating mode with the widest beamwidth attainable.

**R0 key holder:** [R0KH] The component of robust security network association (RSNA) key management of the Authenticator that is authorized to derive and hold the pairwise master key (PMK) R0 (PMK-R0), derive the PMK R1s (PMK-R1s), and distribute the PMK-R1s to the R1 key holders (R1KHs).

**R0 key holder identifier:** [R0KH-ID] An identifier that names the holder of the pairwise master key (PMK) R0 (PMK-R0) in the Authenticator.

**R1 key holder:** [R1KH] The component of robust security network association (RSNA) key management of the Authenticator that receives a pairwise master key (PMK) R1 (PMK-R1) from the R0 key holder (R0KH), holds the PMK-R1, and derives the pairwise transient keys (PTKs).

**R1 key holder identifier:** [R1KH-ID] An identifier that names the holder of a pairwise master key (PMK) R1 (PMK-R1) in the Authenticator.

**random access resource unit:** [RA-RU] A resource unit (RU) allocated in a Trigger frame to support the uplink (UL) orthogonal frequency division multiple access (OFDMA) based random access (UORA) procedure.

**receive sector sweep:** [RXSS] Reception of Sector Sweep (SSW) frames via different sectors, in which a sweep is performed between consecutive receptions.

**received signal-to-noise indicator:** [RSNI] An indication of the signal-to-noise plus interference ratio of a received frame.

**reported access point (AP):** [reported AP] An AP that is described in an element such as a Neighbor Report element or a Reduced Neighbor Report element.

**reporting access point (AP):** [reporting AP] An AP that is transmitting an element, such as a Neighbor Report element or a Reduced Neighbor Report element, describing a reported AP.

**resource information container:** [RIC] A sequence of elements that include resource request and response parameters.

**resource unit:** [RU] A group of 26, 52, 106, 242, 484, 996, or 2×996 subcarriers as an allocation of subcarriers for transmission.

**restricted access window:** [RAW] A medium access interval for a group of stations (STAs) during which a STA in the RAW group indicated by the RAW parameter set (RPS) element is allowed to contend for access to the medium.

**reverse direction (RD) initiator:** [RD initiator] A station (STA) that is a transmit opportunity (TXOP) holder that transmits a medium access control (MAC) protocol data unit (MPDU) in which the reverse direction grant/more physical layer protocol data unit (RDG/More PPDU) subfield is equal to 1.

**reverse direction (RD) responder:** [RD responder] A station (STA) that is not the RD initiator and whose medium access control (MAC) address matches the value of the Address 1 field of a received MAC protocol data unit (MPDU) in which the RDG/More PPDU subfield is equal to 1.

**robust Action frame:** An Action or Action No Ack frame with a category value specified in 9.4.1.11 (Action field), in Table 9-79 (Category values) with Yes in the Robust column.

**robust Management frame:** A Management frame that is eligible for protection.

**robust security network:** [RSN] A security network that allows only the creation of robust security network associations (RSNAs). An RSN can be identified by the indication in the RSN element (RSNE) of Beacon frames that the group cipher suite specified is not wired equivalent privacy (WEP).

**robust security network association:** [RSNA] The type of association used by a pair of stations (STAs) if the procedure to establish authentication or association between them includes the 4-way handshake or the fast basic service set (BSS) transition (FT) protocol, or is fast initial link setup (FILS) authentication. Note that existence of an RSNA between two STAs does not of itself provide robust security. Robust security is provided when all STAs in the network use RSNAs.

**robust security network association (RSNA) key management:** [RSNA key management] Key management that includes the 4-way handshake, the group key handshake, authenticated mesh peering exchange, mesh group key handshake, and the TPK handshake. If fast basic service set (BSS) transition (FT) is enabled, the FT 4-way handshake and FT authentication sequence are also included. If fast initial link setup (FILS) is enabled, FILS authentication is also included.

**S0 key holder:** [S0KH] The component of robust security network association (RSNA) key management of the Supplicant that derives and holds the pairwise master key (PMK) R0 (PMK-R0), derives the PMK R1s (PMK-R1s), and provides the PMK-R1s to the S1 key holder (S1KH).

**S0 key holder identifier:** [S0KH-ID] An identifier that names the holder of the pairwise master key (PMK) R0 (PMK-R0) in the Supplicant.

**S1 key holder:** [S1KH] The component of robust security network association (RSNA) key management in the Supplicant that receives a pairwise master key (PMK) R1 (PMK-R1) from the S0 key holder (S0KH), holds the PMK-R1, and derives the pairwise transient keys (PTKs).

**S1 key holder identifier:** [S1KH-ID] An identifier that names the holder of the pairwise master key (PMK) R1 (PMK-R1) in the Supplicant.

**sub 1 GHz (S1G) band:** [S1G band] Frequency band for which an S1G operating class is defined in Annex E.

**scheduled service period (SP):** [scheduled SP] An SP that is scheduled by a quality-of-service (QoS) access point (AP) or a personal basic service set (PBSS) control point (PCP).

**secondary1 channel**: A 2.16 GHz channel associated with a primary channel and a secondary channel used by enhanced directional multi-gigabit (EDMG) stations (STAs) for the purpose of creating a 6.48 GHz, 8.64 GHz, 2.16+2.16 GHz, or 4.32+4.32 GHz channel.

**secondary2 channel**: A 2.16 GHz channel associated with a primary channel, a secondary channel, and a secondary1 channel used by enhanced directional multi-gigabit (EDMG) stations (STAs) for the purpose of creating an 8.64 GHz channel, 2.16+2.16 GHz, or 4.32+4.32 GHz channel.

NOTE—For the assignment and relationship of EDMG primary, secondary, secondary1, and secondary2 channels, refer to Table 8-6 (Definition of EDMG secondary, secondary1, and secondary2 channels) and Figure 8-6 (Example channel-list parameter element for various BSS operating channels)

**secondary 1 MHz channel:** In a 2 MHz sub 1 GHz (S1G) basic service set (BSS), the 1 MHz channel adjacent to the primary 1 MHz channel that with the primary 1 MHz channel forms the 2 MHz channel of the 2 MHz S1G BSS. In a 4 MHz, 8 MHz, and 16 MHz S1G BSS, the 1 MHz channel adjacent to the primary 1 MHz channel that together form the primary 2 MHz channel of the S1G BSS.

**secondary 2 MHz channel:** In a 4 MHz sub 1 GHz (S1G) basic service set (BSS), the 2 MHz channel adjacent to the primary 2 MHz channel that with the primary 2 MHz channel forms the 4 MHz channel of the 4 MHz S1G BSS. In an 8 MHz and 16 MHz S1G BSS, the 2 MHz channel adjacent to the primary 2 MHz channel that together form the primary 4 MHz channel of the S1G BSS.

**secondary 4 MHz channel:** In an 8 MHz sub 1 GHz (S1G) basic service set (BSS), the 4 MHz channel adjacent to the primary 4 MHz channel that with the primary 4 MHz channel forms the 8 MHz channel of the 8 MHz S1G BSS. In a 16 MHz S1G BSS, the 4 MHz channel adjacent to the primary 4 MHz channel that together form the primary 8 MHz channel.

**secondary 8 MHz channel:** In a 16 MHz sub 1 GHz (S1G) basic service set (BSS), the 8 MHz channel adjacent to the primary 8 MHz channel that with the primary 8 MHz channel forms the 16 MHz channel of the 16 MHz S1G BSS.

**secondary 20 MHz channel:** In a 40 MHz very high throughput (VHT) basic service set (BSS), the 20 MHz channel adjacent to the primary 20 MHz channel that together form the 40 MHz channel of the 40 MHz VHT BSS. In an 80 MHz VHT BSS, the 20 MHz channel adjacent to the primary 20 MHz channel that together form the primary 40 MHz channel of the 80 MHz VHT BSS. In a 160 MHz or 80+80 MHz VHT BSS, the 20 MHz channel adjacent to the primary 20 MHz channel that together form the primary 40 MHz channel of the 160 MHz or 80+80 MHz VHT BSS. In a VHT BSS, the secondary 20 MHz channel is also the secondary channel.

**secondary 40 MHz channel:** In an 80 MHz very high throughput (VHT) basic service set (BSS), the 40 MHz channel adjacent to the primary 40 MHz channel that together form the 80 MHz channel of the 80 MHz VHT BSS. In a 160 MHz or 80+80 MHz VHT BSS, the 40 MHz channel adjacent to the primary 40 MHz channel that together form the primary 80 MHz channel.

**secondary 80 MHz channel:** In a 160 MHz or 80+80 MHz very high throughput (VHT) basic service set (BSS), the 80 MHz channel not including the primary 20 MHz channel, that together with the primary 80 MHz channel form the 160 MHz or 80+80 MHz channel of the 160 MHz or 80+80 MHz VHT BSS.

**secondary access category (AC):** [secondary AC] An AC that is not associated with the enhanced distributed channel access function (EDCAF) that gains channel access.

* Traffic associated with a secondary AC can be included in a multi-user (MU) physical layer (PHY) protocol data unit (MU PPDU) that includes traffic associated with the primary AC. There could be multiple secondary ACs at a given time. A single medium access control protocol data unit (S-MPDU) is a special form of MPDU that is carried in an A-MPDU.

**secondary channel:** A channel associated with a primary channel used to create a channel wider than the primary channel. In a 40 MHz, 80 MHz, 160 MHz or 80+80 MHz basic service set (BSS) the secondary channel is a secondary 20 MHz channel. A 2.16 GHz channel associated with a primary channel used by enhanced directional multi-gigabit (EDMG) STAs for the purpose of creating a 4.32 GHz, 6.48 GHz, 8.64 GHz, 2.16+2.16 GHz, or 4.32+4.32 GHz channel.

**sector:** A transmit or receive antenna pattern corresponding to a sector identifier (ID).

**security network:** A basic service set (BSS) in which the station (STA) starting the BSS provides information about the security capabilities and configuration of the BSS by including the robust security network element (RSNE) in Beacon frames.

**self-protected action frame:** The protection on each Self-protected Action frame is optionally provided by the protocol that uses the frame. See 9.6.15.1 (General).

**sensor station (STA):** [sensor STA] A sub 1 GHz (S1G) non-access point (non-AP) STA that has certain traffic and device characteristics (e.g., limited payload size, limited traffic volume, battery operated device) and is allowed to associate with an access point (AP) that transmits an S1G Beacon, a Probe Response, or a PV1 Probe Response frame containing the S1G Capabilities element with the STA Type Support subfield indicating a sensor basic service set (BSS) or a mixed BSS.

**service information client:** [SIC] A logical entity that initiates station (STA) service discovery.

**service information registry:** [SIR] A logical entity that contains caches of information about services that are available via the basic service set (BSS).

**service interval:** [SI] The interval between the starts of two successive scheduled service -periods (SPs).

**service period:** [SP] A period of time during which one or more downlink individually addressed frames are transmitted to a quality-of-service (QoS) station (STA) and/or one or more transmission opportunities (TXOPs) are granted to the same STA. SPs are either scheduled or unscheduled.

* A non–access point (non-AP) STA can have at most one nongroupcast with retries SP (non-GCR-SP) active at any time.

**session key:** A key that is generated for a single session, to be used, e.g., for encryption and integrity protection, such as a temporal key (TK), group temporal key (GTK), EAPOL-Key encryption key (KEK) or EAPOL-Key confirmation key (KCK).

NOTE—A session key is not necessarily a temporal key.

**shared bands:** Radio frequency bands in which dissimilar services are permitted.

**short beacon interval:** The interval between the consecutive target short beacon transmission times (TSBTTs) of beacons containing a minimal set of elements.

**short sector sweep (SSW) PPDU**: [SSW PPDU] A directional multi-gigabit (DMG) control mode physical layer (PHY) protocol data unit (PPDU) that has the Length field in the PHY header equal to 6 and the PPDU Type subfield within the Short SSW Payload field equal to 0.

**signaling and payload protected (SPP) aggregate medium access control (MAC) service data unit (A‑MSDU):** [SSP A-MSDU] An A‑MSDU that is protected with Counter Mode (CTR) with cipher-block chaining message authentication code (CBC-MAC) protocol (CCMP) or Galois/Counter Mode (GCM) protocol (GCMP) and that includes the A‑MSDU Present field (bit 7 of the QoS Control field) in the construction of the additional authentication data (AAD).

**single input, single output (SISO) identifier (ID) subset**: [SISO ID subset] A tuple comprising the values of the AWV feedback ID, TX antenna ID, RX antenna ID and BRP CDOWN subfields.

**single medium access control (MAC) protocol data unit:** [S-MPDU] An MPDU that is the only MPDU in an aggregate MPDU (A-MPDU) and that is carried in an A-MPDU subframe with the EOF subfield of the MPDU delimiter field equal to 1.

**sounding physical layer (PHY) protocol data unit (PPDU):** [sounding PPDU] A PPDU that is intended by the transmitting station (STA) to enable the receiving STA to estimate the channel between the transmitting STA and the receiving STA. The Not Sounding field in the high throughput SIGNAL field (HT-SIG) is equal to 0 in sounding PPDUs.

**source directional multi-gigabit (DMG) station (STA):** [source DMG STA] A DMG STA that is expected to transmit during a time division duplex (TDD) slot, or a DMG STA identified by the source association identifier (AID) field contained in a Grant frame or Extended Schedule element that caused the allocation of a service period (SP) or contention based access period (CBAP).

**space-time block coding (STBC) beacon:** [STBC beacon] A beacon that is transmitted using the basic STBC modulation and coding scheme (MCS) to enable discovery of the basic service set (BSS) by high throughput (HT) stations (STAs) that support the HT STBC feature in order to extend the range of the BSS.

**space-time block coding (STBC) delivery traffic indication map (DTIM):** [STBC DTIM] An STBC beacon transmission that is a DTIM Beacon frame.

**space-time block coding (STBC) frame:** [STBC frame] A frame that is transmitted in a physical layer (PHY) protocol data unit (PPDU) that has a nonzero value of the TXVECTOR STBC parameter, or a frame that is received in a PPDU that has a nonzero value of the RXVECTOR STBC parameter.

**spatial reuse:** [SR] The transmission of a physical layer (PHY) protocol data unit (PPDU) on the medium under certain conditions when a PPDU has been detected that would otherwise have prevented the transmission.

**spatial reuse group:** [SRG] A group of basic service sets (BSSs) identified by their BSS colors or partial basic service set identifiers (BSSIDs) for overlapping basic service set packet detect (OBSS PD) based spatial reuse operation with SRG OBSS PD level.

**spatial sharing:** [SPSH] Use of a frequency channel by multiple stations (STAs) that are located in the same vicinity, and whose directional transmissions might overlap in time.

**staggered preamble:** A physical layer (PHY) preamble in a sounding PHY protocol data unit (PPDU) that is not a null data PPDU (NDP) and that includes one or more Data Long Training fields (DLTFs) and one or more Extension Long Training fields (ELTFs).

**staggered sounding:** The use of a sounding physical layer (PHY) protocol data unit (PPDU) that is not a null data PPDU (NDP) and that includes one or more Data Long Training fields (DLTFs) and one or more Extension Long Training fields (ELTFs).

**station (STA) 2G4:** [STA 2G4] A STA that is operating on a channel that belongs to any operating class that has a value of 25 or 40 for the entry in the Channel spacing column and that has a value of 2.407 or 2.414 for the entry in the Channel starting frequency column of any of the tables found in E.1 (Country information and operating classes).

**station (STA) 5G:** [STA 5G] A STA that is operating on a channel that belongs to any operating class that has a value of 20 or 40 for the entry in the Channel spacing column and that has a value of 5 for the entry in the Channel starting frequency column of any of the tables found in E.1 (Country information and operating classes).

**station (STA) 6G:** [STA 6G] A STA that is operating on a channel that belongs to any operating class that has a value of 5.925 or 5.950 for the entry in the “Channel starting frequency” column of Table E-4 (Global operating classes).

**sub 1 GHz 1M (S1G\_1M) physical layer (PHY) protocol data unit (PPDU):** [S1G\_1M PPDU] A 1 MHz PPDU or 1 MHz duplicate PPDU that is transmitted with S1G\_1M preamble.

**sub 1 GHz long (S1G\_LONG) physical layer (PHY) protocol data unit (PPDU):** [S1G\_LONG PPDU] A Clause 23 (Sub 1 GHz (S1G) PHY specification) PPDU.

**sub 1 GHz modulation and coding scheme:** [S1G-MCS] A specification of the S1G physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) and forward error correction (FEC) coding rate (e.g., 1/2 rep2, 1/2, 2/3, 3/4, 5/6) that is used in an S1G PHY protocol data unit (PPDU).

**sub 1 GHz (S1G) physical layer (PHY) protocol data unit (PPDU):** [S1G PPDU] A PPDU transmitted with the TXVECTOR parameter FORMAT equal to S1G, S1G\_DUP\_1M, or S1G\_DUP\_2M. The PPDU is transmitted with the S1G\_SHORT, S1G\_LONG, or S1G\_1M preamble.

**sub 1 GHz short (S1G\_SHORT) physical layer (PHY) protocol data unit (PPDU):** [S1G\_SHORT PPDU] A 2 MHz, 4 MHz, 8 MHz, 16 MHz, or 2 MHz duplicate PPDU with short preamble format.

**subchannel selective transmission (SST) channel:** [SST channel] A channel that is permitted for the subchannel selective transmission indicated by either an SST element or an RPS element.

**subscription service provider (SSP) roaming:** [SSP roaming] The use by a station (STA) of an SSP’s IEEE 802.11 infrastructure, with which the terminal has no direct agreement, based on a subscription and formal agreement with the STA’s own SSP.

**successful transmission:** A transmission and the reception of its expected immediate response or a transmission for which no immediate response is expected.

**sweep:** A sequence of transmissions, separated by a short beamforming interframe space (SBIFS), in which the antenna configuration at the transmitter or receiver is changed between transmissions.

**synchronization access point (AP):** [S-AP] An AP that provides synchronization and other services to an AP cluster or personal basic service set (PBSS) control point (PCP).

**synchronization personal basic service set (PBSS) control point (PCP):** [S-PCP] A PCP that provides synchronization and other services to an access point (AP) cluster or PCP cluster.

**synchronizing access point (AP) or personal basic service set (PBSS) control point (PCP):** [synchronizing AP or PCP] A China directional multi-gigabit (CDMG) AP or PCP that is operating on a 1.08 GHz channel but still transmitting its DMG Beacon frames on the relevant 2.16 GHz channel with the AP or PCP Role subfield of the Dynamic Bandwidth Control element (9.4.2.220 (Dynamic Bandwidth Control element)) set to 0 and providing synchronization service to a synchronized AP or PCP on the relevant 2.16 GHz channel.

**synchronized access point (AP) or personal basic service set (PBSS) control point (PCP):** [synchronized AP or PCP] A China directional multi-gigabit (CDMG) AP or PCP that is operating on a 1.08 GHz channel but still transmitting its DMG Beacon frames on the relevant 2.16 GHz channel with the AP or PCP Role subfield of the Dynamic Bandwidth Control element (9.4.2.220 (Dynamic Bandwidth Control element)) set to 1 and synchronizing with the synchronizing AP or PCP on the relevant 2.16 GHz channel.

**synthetic receiver address:** [SYNRA] A constructed group address used by a general link (GLK) access point (AP) as a receiver address to forward frames to a subset of GLK non-AP stations (STAs), as required by IEEE 802.1Q bridges.

**tagged media access control (MAC) protocol data unit (MPDU):** [tagged MPDU] An MPDU carried in an aggregate MPDU (A-MPDU) subframe that has the EOF/Tag field in the MPDU delimiter set to 1.

**target beacon transmission time (TBTT) scheduled station (STA):** [TBTT scheduled STA] A non–access point (non-AP) STA that has negotiated the TBTT of the first Beacon frame and the wake interval between subsequent Beacon frames that it intends to receive.

**target beacon transmission time (TBTT) scheduling access point (AP):** [TBTT scheduling AP] An AP that has negotiated with a non-AP station (STA) the TBTT of the first Beacon frame and the wake interval between subsequent Beacon frames that the non-AP STA intends to receive.

**target wake time (TWT) requester:** [TWT requester] A station (STA) that has had a requested TWT agreement accepted by another STA and that receives TWT service period (SP) start times from that STA.

**target wake time (TWT) responder:** [TWT responder] A station (STA) that has accepted a TWT agreement that was requested by another STA and that assigns TWT service period (SP) start times to the requesting STA.

**target wake time (TWT) scheduled station (STA)**: [TWT scheduled STA] A STA that follows the broadcast TWT schedules provided in a broadcast TWT element.

**target wake time (TWT) scheduling access point (AP)**: [TWT scheduling AP] An AP that schedules broadcast TWTs and provides these broadcast TWT schedules in a broadcast TWT element.

**target wake time (TWT) service period (SP):** [TWT SP] A period of time during which a TWT station (STA) is expected to be awake to transmit and/or receive frames.

**target wake time (TWT) service period (SP) start time:** [TWT SP start time] The value of the timing synchronization function (TSF) at the beginning of a TWT SP.

**television very high throughput 2W:** [TVHT\_2W] Two contiguous basic channel units (BCUs) in television white spaces (TVWS).

**television very high throughput 2W+2W:** [TVHT\_2W+2W] Two noncontiguous frequency segments, each of which comprises two contiguous basic channel units (BCUs) in television white spaces (TVWS).

**television very high throughput 4W:** [TVHT\_4W] Four contiguous basic channel units (BCUs) in television white spaces (TVWS).

**television very high throughput (TVHT) basic service set (BSS):** [TVHT BSS] A set of stations (STAs) that consists of a geolocation database dependent (GDD) enabling STA operating in television white spaces (TVWS) and one or more of its GDD STAs.

**television very high throughput W:** [TVHT\_W] One basic channel unit in television white spaces (TVWS).

**television very high throughput W+W (TVHT\_W+W):** [TVHT\_W+W] Two noncontiguous basic channel units (BCUs) in television white spaces (TVWS).

**temporal encryption key:** A group temporal key (GTK) or the portion of a pairwise transient key (PTK) used directly or indirectly to encrypt data in medium access control (MAC) protocol data units (MPDUs).

**temporal key:** [TK] Temporal key integrity protocol (TKIP) only: The combination of temporal encryption key and a message integrity code (MIC) key. Non-TKIP only: A temporal encryption key.When abbreviated this is, unless explicitly shown otherwise, specifically the key used to protect individually addressed frames, as distinct from e.g., the TK that is the group temporal key (GTK).

NOTE—A temporal key is a session key.

**time division duplex (TDD) service period (SP)**: [TDD SP] An SP that uses the TDD channel access within the SP.

NOTE—TDD channel access is defined in 10.39.6.2.2 (SP with TDD channel access).

**time priority Management frame:** A Management frame that is transmitted outside of the normal MAC queueing process. See 10.2.3.1 (General).

**traffic indication map (TIM) broadcast:** [TIM broadcast] A service that enables a non–access point (non-AP) station (STA) to request periodic transmission of a TIM frame by the AP. TIM frames have shorter duration than Beacon frames and can be transmitted at a higher physical layer (PHY) rate, which allows the STA to save additional power while periodically checking for buffered traffic in standby mode, relative to the power consumed if the station (STA) were to periodically wake up to receive a Beacon frame.

**traffic stream identifier:** [TSID] Any of the identifiers usable by higher layer entities to distinguish medium access control (MAC) service data units (MSDUs) to MAC entities for parameterized quality of service (QoS) [i.e., the traffic stream (TS) with a particular traffic specification (TSPEC)] within the MAC data service. The TSID is assigned to an MSDU in the layers above the MAC.

**transition security network:** [TSN] A security network that allows the creation of pre-robust security network associations (pre-RSNAs) as well as RSNAs. A TSN is identified by the indication in the robust security network element (RSNE) of Beacon frames that the group cipher suite in use is wired equivalent privacy (WEP).

**transmission opportunity (TXOP) holder:** [TXOP holder] A quality-of-service (QoS) station (STA) that has either been granted a TXOP by the hybrid coordinator (HC) or successfully contended for a TXOP.

**transmission opportunity (TXOP) responder:** [TXOP responder] A station (STA) that transmits a frame in response to a frame received from a TXOP holder during a frame exchange sequence, but that does not acquire a TXOP in the process.

**transmit power:** The effective isotropic radiated power (EIRP) when referring to the operation of an orthogonal frequency division multiplexing (OFDM) physical layer (PHY) in a country where so regulated.

**transmit sector sweep:** [TXSS] Transmission of multiple sector sweep (SSW) or directional multi-gigabit (DMG) Beacon frames via different sectors, in which a sweep is performed between consecutive transmissions.

**transmit sector sweep (TXSS) contention based access period (CBAP):** [TXSS CBAP] A CBAP that is available to all stations (STAs) in an extended centralized personal basic service set (PBSS) control point (PCP) or access point (AP) cluster outside which TXSSs in the data transfer interval (DTI) can be prohibited.

**transmitted basic service set identifier (BSSID):** [transmitted BSSID] The BSSID included in the medium access control (MAC) header Address 2 field of a Beacon frame when the multiple BSSID capability is supported.

**transmitter identifier (ID):** [transmitter ID] An identifier that identifies a wake-up radio (WUR) access point (AP) and used in broadcast WUR frames that are addressed to all WUR non-AP stations (STAs) associated with the WUR AP when multiple BSSID operation is not supported or that are addressed to all WUR non-AP STAs associated with the transmitted basic service set identifier (BSSID) of a multiple BSSID set when multiple BSSID operation is supported or that are addressed to all WUR non-AP STAs that intend to discover or synchronize with the WUR AP.

**trigger frame:** A frame type or a frame transmission intended to solicit the peer entity into a responding action.

**triggered uplink access**: [TUA] A mechanism by which one or more non–access point (non-AP) stations (STAs) simultaneously participate in an uplink (UL) transmission to an access point (AP) using resource units (RUs) allocated in the preceding Trigger frame.

**trigger-enabled access category (AC):** [trigger-enabled AC] A quality-of-service (QoS) station (STA) AC where frames of subtype QoS Data and QoS Null from the STA that map to the AC trigger an unscheduled service period (SP) if one is not in progress.

**triggering frame:** A Trigger frame or a frame carrying a TRS Control subfield.

**triggering physical layer (PHY) protocol data unit (PPDU):** [triggering PPDU] A PPDU carrying a triggering frame.

**tunneled direct link setup:** [TDLS] A protocol that uses a specific EtherType encapsulation to TDLS frames through an access point (AP) to establish a TDLS direct link.

**tunneled direct link setup (TDLS) direct link:** [TDLS direct link] Direct link between two non–access point (non-AP) stations (STAs) that has been established using the TDLS protocol.

**tunneled direct link setup (TDLS) frame:** [TDLS frame] A Data frame carrying all or part of the encapsulation of a TDLS Action field, using EtherType 89-0d.

**tunneled direct link setup (TDLS) initiator station (STA):** [TDLS initiator STA] A STA that transmits a TDLS Setup Request frame or a TDLS Discovery Request frame.

**tunneled direct link setup (TDLS) peer power save mode (PSM):** [TDLS peer PSM] A PSM that is based on periodically scheduled service periods (SPs), which can be used between two stations (STAs) that have set up a TDLS direct link.

**tunneled direct link setup (TDLS) peer power save mode (PSM) initiator:** [TDLS peer PSM initiator] A station (STA) that transmits a TDLS Peer PSM Request frame.

**tunneled direct link setup (TDLS) peer power save mode (PSM) responder:** [TDLS peer PSM responder] A station (STA) that transmits a TDLS Peer PSM Response frame.

**tunneled direct link setup (TDLS) peer station (STA):** [TDLS peer STA] A STA with which another STA has, or is in the process of establishing, a TDLS direct link.

**tunneled direct link setup (TDLS) peer unscheduled automatic power save delivery (U-APSD):** [TDLS peer U-APSD, TPU] A power save mode based on unscheduled service periods that can be used between two stations (STAs) that have set up a TDLS direct link.

**tunneled direct link setup (TDLS) peer unscheduled automatic power save delivery (U-APSD) [TDLS peer U-APSD (TPU)] buffer station (STA):** [TPU buffer STA] A TDLS peer STA that buffers traffic for a TPU sleep STA.

**tunneled direct link setup (TDLS) peer unscheduled automatic power save delivery (U-APSD) [TDLS peer U-APSD (TPU)] sleep station (STA):** [TPU sleep STA] A TDLS STA that entered power save mode on a TDLS direct link and that is using TPU for the delivery of buffered traffic.

**tunneled direct link setup (TDLS) power save mode (PSM):** [TDLS PSM] TDLS peer PSM or peer unscheduled automatic power save delivery (U-APSD).

**tunneled direct link setup (TDLS) responder station (STA):** [TDLS responder STA] A STA that receives or is the intended recipient of a TDLS Setup Request frame or TDLS Discovery Request frame.

**TVHT\_2W mask physical layer (PHY) protocol data unit (PPDU):** [TVHT\_2W mask PPDU] One of the following PPDUs:

* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W non-high-throughput (non-HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).

**TVHT\_2W+2W mask physical layer (PHY) protocol data unit (PPDU):** [TVHT\_2W+2W mask PPDU] One of the following PPDUs:

* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W+2W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W+2W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W+2W non-high-throughput (non-HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W+2W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).

**TVHT\_4W mask physical layer (PHY) protocol data unit (PPDU):** [TVHT\_4W mask PPDU] One of the following PPDUs:

* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_4W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_4W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_4W non-high-throughput (non-HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_4W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).

**TVHT\_MODE\_1 physical layer (PHY) protocol data unit (PPDU):** [TVHT\_MODE\_1 PPDU] One of the following PPDUs: A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W Very High Throughput (VHT) PPDU or TVHT\_W non-high-throughput (non-HT) PPDU.

**TVHT\_MODE\_2C physical layer (PHY) protocol data unit (PPDU):** [TVHT\_MODE\_2C PPDU] One of the following PPDUs: A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W Very High Throughput (VHT) PPDU or TVHT\_2W non-high-throughput (non-HT) PPDU.

**TVHT\_MODE\_2N physical layer (PHY) protocol data unit (PPDU):** [TVHT\_MODE\_2N PPDU] One of the following PPDUs: A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W+W Very High Throughput (VHT) PPDU or TVHT\_W+W non-high-throughput (non-HT) PPDU.

**TVHT\_MODE\_4C physical layer (PHY) protocol data unit (PPDU):** [TVHT\_MODE\_4C PPDU] One of the following PPDUs: A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_4W Very High Throughput (VHT) PPDU or TVHT\_4W non-high-throughput (non-HT) PPDU.

**TVHT\_MODE\_4N physical layer (PHY) protocol data unit (PPDU):** [TVHT\_MODE\_4N PPDU] One of the following PPDUs: A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_2W+2W Very High Throughput (VHT) PPDU or TVHT\_2W+2W non-high-throughput (non-HT) PPDU.

**TVHT\_W mask physical layer (PHY) protocol data unit (PPDU):** [TVHT\_W mask PPDU] One of the following PPDUs:

* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W non-high-throughput (non-HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).

**TVHT\_W+W mask physical layer (PHY) protocol data unit (PPDU):** [TVHT\_W+W mask PPDU] One of the following PPDUs:

* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W+W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W+W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_W+W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W+W non-high-throughput (non-HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W+W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_W+W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT) transmitted using the TVHT\_W+W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).
* A Clause 22 (Television very high throughput (TVHT) PHY specification) TVHT\_W non-HT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W, TXVECTOR parameter FORMAT set to NON\_HT, and TXVECTOR parameter NON\_HT\_MODULATION set to NON\_HT\_DUP\_OFDM) transmitted using the TVHT\_W+W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask).

**unscheduled service period (SP):** [unscheduled SP] The period that is started when a quality-of-service (QoS) station (STA) transmits a trigger frame to the QoS access point (AP).

**untagged medium access control (MAC) protocol data unit (MPDU):** [untagged MPDU] An MPDU carried in an aggregate MPDU (A-MPDU) subframe that has the EOF/Tag field in the MPDU delimiter set to 0.

**uplink:** A unidirectional link from a non-access point (non-AP) station (STA) to an access point (AP) or a unidirectional link from a non-AP source directional multi-gigabit (DMG) STA to a non-AP destination DMG STA.

**uplink (UL) high-efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU):** [UL HE MU PPDU] An HE MU PPDU transmitted by a non–access point (non-AP) station (STA). This PPDU carries a single PHY service data unit (PSDU).

NOTE—The UL HE MU PPDU has an HE-SIG-B field that contains additional information (e.g., the identifier of the transmitter) that can be used by the recipient of the UL HE MU PPDU to determine the transmitter of the PPDU even in cases where the Data field of the PPDU is not received. For example, this allows the originator of persistently failing PPDUs to be identified.

**uplink (UL) orthogonal frequency division multiple access (OFDMA)-based random access:** [UORA] A random access mechanism for non–access point (non-AP) high-efficiency (HE) stations (STAs) to participate in uplink OFDMA transmissions in one or more designated random access resource units (RUs).

**upstream network:** An integrated local area network (LAN) to which an access point (AP) is connected through a portal.

**very high throughput (VHT) basic service set (BSS):** [VHT BSS] A BSS in which a Beacon frame transmitted by a VHT station (STA) includes the VHT Operation element.

**very high throughput (VHT) beamformee:** [VHT beamformee] A VHT station (STA) that receives a VHT physical layer (PHY) protocol data unit (PPDU) that was transmitted using a beamforming steering matrix and that supports the VHT transmit beamforming feedback mechanism.

**very high throughput (VHT) beamformer:** [VHT beamformer] A VHT station (STA) that transmits a VHT physical layer (PHY) protocol data unit (PPDU) using a beamforming steering matrix.

**very high throughput (VHT) modulation and coding scheme:** [VHT-MCS] A specification of the VHT physical layer (PHY) parameters that consists of modulation order (e.g., BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) and forward error correction (FEC) coding rate (e.g., 1/2, 2/3, 3/4, 5/6) and that is used in a VHT PHY protocol data unit (PPDU).

**very high throughput (VHT) multi-user (MU) physical layer (PHY) protocol data unit (PPDU):** [VHT MU PPDU] A VHT PPDU that is capable of carrying up to four PHY service data units (PSDUs) for up to four users and is transmitted using the downlink multi-user multiple input, multiple output (DL MU-MIMO) technique.

**very high throughput (VHT) physical layer (PHY) protocol data unit (PPDU):** [VHT PPDU] A Clause 21 (Very high throughput (VHT) PHY specification) PPDU that is not a Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) or Clause 19 (High Throughput (HT) PHY specification) PPDU.

**very high throughput (VHT) single-user (SU) physical layer (PHY) protocol data unit (PPDU):** [VHT SU PPDU] A VHT PPDU that carries one PHY service data unit (PSDU) for one user and is not transmitted using the downlink multi-user multiple input, multiple output (DL MU-MIMO) technique.

**very high throughput (VHT) single-user-only (SU-only) beamformee:** [VHT SU-only beamformee] A VHT beamformee that does not receive VHT multi-user (MU) physical layer (PHY) protocol data units (PPDUs).

**very high throughput (VHT) single-user-only (SU-only) beamformer:** [VHT SU-only beamformer] A VHT beamformer that does not transmit VHT multi-user (MU) physical layer (PHY) protocol data units (PPDUs).

**wake-up radio (WUR) 80 MHz channel:** [WUR 80 MHz channel] The 80 MHz channel that is used to transmit 80 MHz WUR Frequency Division Multiple Access (FDMA) physical layer (PHY) protocol data units (PPDUs).

**wake-up radio (WUR) basic physical layer (PHY) protocol data unit (PPDU):** [WUR basic PPDU] A PPDU transmitted with the TXVECTOR parameter FORMAT equal to WUR\_BASIC and TXVECTOR parameter CH\_BANDWIDTH equal to WUR\_CBW\_20.

**wake-up radio (WUR) channel:** [WUR channel] A channel in which a WUR access point (AP) transmits WUR Short Wake-up frames, WUR Wake-up frames, and WUR Vendor Specific frames.

**wake-up radio (WUR) discovery channel:** [WUR discovery channel] The channel used by a WUR access point (AP) to transmit WUR Discovery frames.

**wake-up radio (WUR) duty cycle period:** [WUR duty cycle period] The interval between the starting time of two successive WUR duty cycle service periods.

**wake-up radio (WUR) duty cycle service period:** [WUR duty cycle service period] A period of time of an established WUR duty cycle operation between a WUR access point (AP) and a WUR non-AP station (STA) during which one or more WUR frames can be transmitted to the WUR non-AP STA from the WUR AP.

**wake-up radio (WUR) frequency division multiple access (FDMA) physical layer (PHY) protocol data unit (PPDU):** [WUR FDMA PPDU] A PPDU transmitted with the TXVECTOR parameter FORMAT equal to WUR\_FDMA and TXVECTOR parameter CH\_BANDWIDTH equal to WUR\_CBW\_40 or WUR\_CBW\_80 or WUR\_CBW\_PUNC80-PRI or WUR\_CBW\_PUNC80-SEC or WUR\_CBW\_PUNC80-PRI-SEC-1 or WUR\_CBW\_PUNC80-PRI-SEC-2.

**wake-up radio (WUR) integrity group temporal key:** [WIGTK] A random value, assigned by a WUR access point (AP) that is used to protect broadcast and group addressed WUR frames from that AP.

**wake-up radio (WUR) mode:** [WUR mode] A negotiation status between a WUR access point (AP) and a WUR non-AP station (STA) in which the WUR power state of the WUR non-AP STA in power save mode alternates between the WUR awake state and the WUR doze state or stays in the WUR awake state based on the negotiated WUR parameters.

**wake-up radio (WUR) primary 40 MHz channel:** [WUR primary 40 MHz channel] The 40 MHz channel that is used to transmit 40 MHz WUR Frequency Division Multiple Access (FDMA) physical layer (PHY) protocol data units (PPDUs).

**wake-up radio (WUR) primary channel:** [WUR primary channel] The channel used by a WUR access point (AP) to transmit WUR Beacon frames.

**wake-up radio (WUR) scanning:** [WUR scanning] The process of scanning WUR discovery channels for WUR Discovery frames.

**wake-up radio (WUR) secondary 40 MHz channel:** [WUR secondary 40 MHz channel] The 40 MHz channel adjacent to the WUR primary 40 MHz channel that together form the WUR 80 MHz channel.

**wake-up radio (WUR) secondary channel:** [WUR secondary channel] The 20 MHz channel adjacent to the WUR primary channel that together form the WUR primary 40 MHz channel.

**wake-up radio (WUR) temporal key:** [WTK] A temporal key used to protect individually addressed WUR Wake-up frames.

**white space map:** [WSM] Information on identified available frequencies that is obtained from a geolocation database (GDB) and that is used by IEEE 802.11 stations (STAs).

**wired equivalent privacy:** [WEP] An obsolete cryptographic data confidentiality algorithm specified by this standard.

**wireless network management (WNM) sleep mode:** [WNM sleep mode] An extended power save mode for non–access point (non-AP) stations (STAs) whereby a non-AP STA need not listen for every delivery traffic indication map (DTIM) Beacon frame and does not perform group temporal key/integrity group temporal key/beacon integrity group temporal key (GTK/IGTK/BIGTK) updates.

* Definitions specific to IEEE 802.11 operation in some regulatory domains

ISO 3166-1 defines the international two-letter designation for country names, and these designations are included [in square brackets] at the end of each definition that has clear attribution to a regulatory domain. US is to be understood as also including the United States’ territories, and EU is to be understood as including all CEPT member states.

**contact verification signal:** [CVS] A signal sent by a geolocation database dependent (GDD) enabling station (STA) to validate the list of available frequencies and to verify that the receiving GDD STA is within reception range of the master white space device (WSD) [US].

**personal/portable station (STA):** [personal/portable STA] A STA that uses network communications at unspecified locations [US].

**television band device:** [TVBD] An intentional radiator that operates on an unlicensed basis on available channels in the broadcast television frequency bands [US].

**white space device:** [WSD] An entity that employs cognitive facilities to use white space spectrum without causing harmful interference to protected services [EU].

[End of File]

1. *IEEE Standards Dictionary Online* is available at http://dictionary.ieee.org/. An IEEE account is required for access to the dictionary, and one can be created at no charge on the dictionary sign-in page. [↑](#footnote-ref-1)
2. Information on references can be found in Clause 2 (Normative references). [↑](#footnote-ref-2)