IEEE P802.11
Wireless LANs

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| Searchable definitions revisited again CID 211 |
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Abstract

Revisit again the “searchable definitions” topic (REVmf LB289, CID 211)

rev: 2012-10-09 (Adrian Stephens)

# Comment

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 211 | 218.16 | 3.1 | The square bracketed searchable definition is unnecessary. The canonical form for a definition should be <full term> (<abbreviated term>): <definition>Where the <abbreviated term> is the searchable term and the one in use in the standard. The reason we have added the square bracket abbreviated term is because the full term sometimes has sub-abbreviations. But these sub-abbreviations are unnecessary -- they do not contribute anything -- since only the abbreviations as they appear in the abbreviated term matter. It should also be noted that (theoretically) clause 3.1 is rolled up into the IEEE standards dictionary, thus making 802.11 definitions inconsistent with those from other standards. | Use the canonical form for all definitions. Do not sub-abbreviate terms; limit the use of abbreviations to the bracketed term. For example: access point reachability (AP reachability): aggregate medium access control protocol data unit (A-MPDU): aggregate medium access control protocol data unit subframe (A-MPDU subframe): aggregate medium access control service data unit (A-MSDU): ...aggregate medium access control service data unit subframe (A-MSDU subframe): antenna selection receiver (ASEL receiver): antenna selection transmitter (ASEL transmitter): basic service set (BSS): basic service set max idle period (BSS max idle period):basic service set transition (BSS transition): fast basic service set transition (fast BSS transition, FT):multiple basic service set identifier capability (multiple BSSID capability):multiple medium access control station management entity (MM-SME):neighbor access point (neighbor AP):non-quality-of-service station (non-QoS STA): |

## Proposed resolution

REVISED. Agree in principle.

Editor to make changes in <this document> under the heading “Editor Instructions” which follow the principle outlined in the comment. Acronym expansion is done in the body of the definition if the acronym was previously introduced as a sub-acronym in the term being defined. Some obvious errors in the definitions are corrected.

## Editor Instructions

***Change 3.1 and 3.2 in D1.1 as follows. Only the definitions where changes are made are show.***

**3.1 Definitions**

**access point 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 12.6.8.2 (Preauthentication and RSNA key management).

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

**antenna selection receiver (ASEL receiver):** A station (STA) that uses an antenna selection procedure to perform the mapping of signals at RF chains onto antenna elements when the number of RF chains is smaller than the number of antenna elements.

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

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

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

**enabling station (enabling STA):** A registered station (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.

**extended service set transition (ESS transition):** Change of association by a station (STA) or a non-access point (non-AP) multi-link device (non-AP MLD) from one basic service set (BSS) or access point (AP) MLD (AP MLD) in one ESS to another BSS or AP MLD in a different ESS.

**fast basic service set transition (fast BSS transition, FT):** A type of basic service set (BSS) transition that minimizes the duration for which data connectivity is lost between the non-access point (non-AP) station (non-AP STA) or non-AP multi-link device (non-AP MLD) and the distribution system (DS).

**fixed station (fixed STA):** A station (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.

**hidden station (hidden STA):** A station (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.

**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.

**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 station (IBSS STA):** A station (STA) that has started or joined an IBSS.

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

**medium access control service tuple (MAC service tuple):** The collection of a medium access control (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 station (mesh STA):** A quality-of-service (QoS) station (STA) that implements the mesh facility.

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

**multiple basic service set identifier capability (multiple BSSID capability):** The capability to advertise information for multiple basic service set identifiers (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 medium access control station management entity (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 (neighbor AP):** Any access point (AP) that is a potential service set transition candidate.

**neighbor station (neighbor STA):** A station (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 client (NAS client):** The client component of a network access server (NAS) that communicates with the Authentication Server (AS).

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

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

**noninfrastructure basic service set (noninfrastructure BSS):** A BSS that is not an infrastructure BSS.

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

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

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

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

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

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

**peer-to-peer link (PTP 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 a noninfrastructure

BSS.

**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).

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

**portable station (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.

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

**prioritized quality of service (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.

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

**quality-of-service 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 quality-of-service (QoS).

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

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

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

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

**receive chain (RX 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 (RX power):** Mean power measured at the antenna connector.

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

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

**source mesh station (source mesh STA):** A mesh station (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 contained in a proxy mesh gate that receives an MSDU from a STA outside of the MBSS and forwards the MSDU on a mesh path.

**transmit chain (TX 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.

**validated access point (validated AP):** An access point (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 (wildcard BSSID):** A basic service set identifier (BSSID) value used to represent all BSSIDs.

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

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

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

**3.2 Definitions specific to IEEE Std 802.11**

**1 MHz mask physical layer protocol data unit (1 MHz mask PPDU):** A physical layer (PHY) protocol data unit (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 (1 MHz PPDU):** A Clause 23 (Sub 1 GHz (S1G)

PHY specification) 1 MHz sub 1 GHz (S1G) physical layer (PHY) protocol data unit (PPDU) (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

**2 MHz mask physical layer protocol data unit (2 MHz mask PPDU):** A physical layer (PHY) protocol data unit (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) A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

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

**2 MHz physical layer protocol data unit (2 MHz PPDU):** A Clause 23 (Sub 1 GHz (S1G)

PHY specification) physical layer (PHY) protocol data unit (PPDU) that is one of the following:

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

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

**2.16 GHz mask physical layer protocol data unit (2.16 GHz mask PPDU)**: A physical layer (PHY) protocol data unit (PPDU) defined in Clause 20 (Directional multi-gigabit (DMG) PHY specification) or Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) that is transmitted using the transmit spectral mask defined in Clause 20 (Directional multi-gigabit (DMG) PHY specification).

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

a) A Clause 20 (Directional multi-gigabit (DMG) PHY specification) directional multi-gigabit (DMG) PPDU.

b) 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).

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

**2.16 GHz mask physical layer protocol data unit (2.16 GHz mask PPDU)**: A physical layer (PHY) protocol data unit (PPDU) defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) that is transmitted using the 2.16+2.16 GHz transmit spectral mask defined in the same clause.

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

a) 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).

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

**4 MHz mask physical layer protocol data unit (4 MHz mask PPDU):** A physical layer (PHY) protocol data unit (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) A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

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

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

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

b) A 4 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).

c) A 4 MHz S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).

**4.32 GHz mask physical layer protocol data unit (4.32 GHz mask PPDU)**: A physical layer (PHY) protocol data unit (PPDU) defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) that is transmitted using the 4.32 GHz transmit spectral mask defined in the same clause.

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

a) 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).

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

**4.32+4.32 GHz mask physical layer protocol data unit (4.32+4.32 GHz mask PPDU)**: A physical layer (PHY) protocol data unit (PPDU) defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) that is transmitted using the 4.32+4.32 GHz transmit spectral mask defined in the same clause.

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

a) 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).

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

**6 GHz band:** The frequency band between 5.925 GHz and 7.125 GHz.

**6.48 GHz mask physical layer protocol data unit (6.48 GHz mask PPDU)**: A physical layer (PHY) protocol data unit (PPDU) defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) that is transmitted using the 6.48 GHz transmit spectral mask defined in the same clause.

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

a) 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).

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

**8 MHz mask physical layer protocol data unit (8 MHz mask PPDU):** A physical layer (PHY) protocol data unit (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) A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

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

c) A 4 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).

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

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

b) An 8 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).

c) An 8 MHz S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).

**8.64 GHz mask physical layer protocol data unit (8.64 GHz mask PPDU)**: A physical layer (PHY) protocol data unit (PPDU) defined in Clause 28 (Enhanced directional multi-gigabit (EDMG) PHY specification) that is transmitted using the 8.64 GHz transmit spectral mask defined in the same clause.

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

a) 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).

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

**16 MHz mask physical layer (PHY) protocol data unit (16 MHz mask PPDU):** A physical layer (PHY) protocol data unit (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) A 1 MHz sub 1 GHz (S1G) non-duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW1).

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

c) A 4 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW4).

d) An 8 MHz S1G non-duplicate, S1G 1 MHz duplicate, or S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW8).

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

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

b) A 16 MHz S1G 1 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW16).

c) A 16 MHz S1G 2 MHz duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW16).

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

**20 MHz high throughput (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 protocol data unit (20 MHz mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs):

a) 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).

b) 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).

c) 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).

d) 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).

e) 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).

f) 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).

g) 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).

h) 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).

i) (#11be)An extremely high throughput (EHT) PPDU with TXVECTOR parameter CH\_BANDWIDTH equal to CBW20 transmitted using the 20 MHz transmit spectral mask defined in Clause 36 (Extremely high throughput (EHT) PHY specification(#11be)).

**20 MHz-only non–access point high-efficiency station (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 high-efficiency station (20 MHz operating non-AP HE STA):** A non–access point (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 protocol data unit (20 MHz PPDU):** A physical layer (PHY) protocol data unit (PPDU) that is one of the following:

a) A Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications) PPDU.

b) A Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification) PPDU.

c) A Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU (when using 20 MHz channel spacing).

d) A Clause 18 (Extended Rate PHY (ERP) specification) orthogonal frequency division multiplexing (OFDM) PPDU.

e) A Clause 19 (High Throughput (HT) PHY specification) 20 MHz high throughput (HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20).

f) A Clause 21 (Very high throughput (VHT) PHY specification) 20 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20).

g) A Clause 27 (High-efficiency (HE) PHY specification) 20 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20).

h) (#11be)A Clause 36 (Extremely high throughput (EHT) PHY specification(#11be)) 20 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20).

**20/40 MHz basic service set (20/40 MHz BSS):** A basic service set (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 (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 protocol data unit (40 MHz mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs):

a) 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).

b) 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).

c) 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).

d) 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).

e) 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).

f) 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).

g) 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).

h) 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).

i) 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).

j) 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).

k) 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).

l) 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).

m) A 40 MHz extremely high throughput (EHT) PPDU with TXVECTOR parameter

CH\_BANDWIDTH equal to CBW40 transmitted using the 40 MHz transmit spectral mask defined

in Clause 36 (Extremely high throughput (EHT) PHY specification).

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

a) A 40 MHz high throughput (HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40).

b) A 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to NON\_HT\_CBW40 or TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).

c) A 40 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).

d) A Clause 27 (High-efficiency (HE) PHY specification) 40 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).

e) A Clause 36 (Extremely high throughput (EHT) PHY specification) 40 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40).

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

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

**40-MHz-capable high throughput station (40MC HT STA):** A high throughput (HT) station (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 high throughput station 2G4:** An HT STA

2G4 that is also a 40MC HT STA.

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

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

a) 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).

b) 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).

c) 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).

d) 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).

e) 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 (Highefficiency (HE) PHY specification).

f) An 80 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) transmitted using the 80 MHz transmit spectral mask defined in Clause 36 (Extremely high throughput (EHT) PHY specification).

**80 MHz operating non-access point extremely high throughput station (80 MHz operating non-AP EHT STA):** A non-AP EHT STA that is operating in 80 MHz channel width mode, such as a non-AP STA (excluding the 20 MHz-only non-AP EHT 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

operating mode indication (OMI).

**80 MHz operating non–access point high-efficiency station (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 protocol data unit (80 MHz PPDU):** A physical layer (PHY) protocol data unit (PPDU) that is one of the following:

a) A Clause 21 (Very high throughput (VHT) PHY specification) 80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80).

b) 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).

c) A Clause 27 (High-efficiency (HE) PHY specification) 80 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80).

d) (#11be)A Clause 36 (Extremely high throughput (EHT) PHY specification) 80 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80).

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

a) 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).

b) 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).

c) 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 (Highefficiency

(HE) PHY specification).

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

a) 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).

b) 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).

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

a) 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).

b) 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).

c) 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).

d) 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).

e) 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).

f) 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 (Highefficiency

(HE) PHY specification).

g) (#11be)A 160 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter

CH\_BANDWIDTH equal to CBW160) transmitted using the 160 MHz transmit spectral mask

defined in Clause 36 (Extremely high throughput (EHT) PHY specification(#11be)).

**160 MHz operating non-access point extremely high throughput station (160 MHz operating non-AP EHT STA):** A non-AP EHT STA that is operating in 160 MHz channel width mode, such as a non-AP STA (excluding the 20 MHz-only non-AP EHT STA) that is not capable of 320 MHz operation or a non-AP STA that has reduced its operating channel width to 160 MHz using operating mode indication (OMI).

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

a) A Clause 21 (Very high throughput (VHT) PHY specification) 160 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).

b) 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).

c) A Clause 27 (High-efficiency (HE) PHY specification) 160 MHz high-efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).

d) A Clause 36 (Extremely high throughput (EHT) PHY specification) 160 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).

**320 MHz mask physical layer protocol data unit (320 MHz mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs):

a) A 320 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW320) transmitted using the 320 MHz transmit spectral mask defined in Clause 36 (Extremely high throughput (EHT) PHY specification).

b) A 320 MHz extremely high throughput (EHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH

equal to CBW320-1 or CBW320-2) transmitted using the 320 MHz transmit spectral mask defined

in Clause 36 (Extremely high throughput (EHT) PHY specification).

**320 MHz physical layer protocol data unit (320 MHz PPDU):** A Clause 36 (Extremely high throughput (EHT) PHY specification) 320 MHz non-high-throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW320) or a Clause 36 (Extremely high throughput (EHT) PHY specification) 320 MHz extremely high throughput (EHT) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW320-1 or CBW320-2.

**access point multi-link device (AP MLD):** A multi-link device (MLD), where each station (STA) affiliated with the MLD is an access point (AP).

**access point path (AP path):** Path between two tunneled direct link setup (TDLS) peer stations

(STAs) via the access point (AP) with which the STAs are currently associated.

**ack-enabled single traffic identifier aggregate medium access control protocol data unit**

**(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 TID 15.

**ack-enabled multi traffic identifier aggregate medium access control protocol data unit (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 TID 15.

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

**affiliated non-access point station (affiliated non-AP STA):** An affiliated STA that is a non-AP STA and the corresponding multi-link device (MLD) is a non-AP multi-link device (non-AP MLD).

**affiliated station (affiliated STA):** A station (STA), which can be an access point (AP) or non-access point (non-AP) STA (non-AP STA), that provides link-specific, multi-link device (MLD) lower medium access control (MAC) sublayer and physical layer (PHY) services within an MLD.

**aggregate physical layer protocol data unit (A-PPDU)**: A sequence of two or more physical layer (PHY) protocol data units (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)).

**authentication and key management 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.

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

**basic modulation and coding scheme set (basic MCS set):** A set of modulation and coding schemes (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 using all MCSs in the basic MCS set.

**basic service set color (BSS color):** An identifier for a basic service set (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 identifier (BSS identifier):** An identifier for a basic service set (BSS).

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

**broadcast resource unit (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 (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 management protocol data unit (bufferable MMPDU):** A medium access control (MAC) management protocol data unit (MMPDU) that is eligible to be queued for delivery using a power saving mechanism.

**centralized authentication controlled station (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 access point (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.

**channel-usage-aiding basic service set (channel-usage-aiding BSS):** An infrastructure basic service set (BSS) whose AP performs channel coordination with at least one other non-co-hosted AP that has an overlapping BSS service area (BSA).

**channel-usage-aidable basic service set (channel-usage-aidable BSS):** A basic service set (BSS) that is not a channelusage-aiding BSS.

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

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

**China millimeter-wave multi-gigabit beamformee (CMMG beamformee):** A china millimeter-wave multi-gigabit (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 10.32 (CMMG beamforming).

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

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

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

**China millimeter-wave multi-gigabit single medium access control protocol data**

**unit (CMMG single MPDU):** A medium access control (MAC) protocol data unit (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/Tag subfield of the MPDU delimiter field equal to 1.

**co-hosted basic service set identifier set (co-hosted 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 set (collocated AP set):** A set of two or more access points (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 (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 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 groupcast with retries (GCR) concealment address.

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

**delivery-enabled access category (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.

**delivery traffic indication map beacon (DTIM beacon):** A special case for a Beacon frame, DMG Beacon or S1G Beacon frame, where the DTIM Count field in the TIM element is equal to zero. A DTIM beacon might be followed by buffered group addressed bufferable units (BUs).

**delivery traffic indication map interval (DTIM interval):** The interval between the consecutive target beacon transmission times (TBTTs) of delivery traffic indication map (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.

**destination directional multi-gigabit station (destination DMG STA):** A directional multi-gigabit (DMG) station (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).

**device identifier (device ID):** An identifier (ID) provided by an access point (AP) in an extended service set (ESS) to a non-access point (non-AP) station (STA) or a non-AP multi-link device (non-AP MLD) to allow the non-AP STA or the non-AP MLD to identify itself to that same ESS during association at a future time.

**direct sequence spread spectrum/complementary code keying physical layer protocol data unit (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) physical layer (PHY) protocol data unit (PPDU).

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

**directional multi-gigabit (DMG):** Pertaining to operation in a radio frequency (RF) frequency band containing a channel with the channel starting frequency above 45 GHz.

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

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

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

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

**directional multi-gigabit physical layer protocol data unit (DMG PPDU):** A

Clause 20 (Directional multi-gigabit (DMG) PHY specification) physical layer (PHY) protocol data unit (PPDU).

**downlink high-efficiency multi-user physical layer protocol data unit (DL HE MU PPDU):** A highe efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (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 physical layer protocol data unit (DL MU-MIMO PPDU):** A physical layer (PHY) protocol data unit (PPDU) using the DL MU-MIMO technique.

**dynamic frequency selection 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.

**emergency preparedness communications service priority access (EPCS priority access):** A dynamically invoked functionality that allows access point (AP) multi-link devices (AP MLDs) to authorize and facilitate non-access point (non-AP) multi-link devices (non-AP MLDs) to communicate EPCS traffic with a higher priority.

**emergency preparedness communications service traffic (EPCS traffic):** All traffic generated by a non-access point (non-AP) multi-link device (non-AP MLD) or traffic destined for a non-AP MLD when the EPCS priority access is authorized and enabled for that non-AP MLD.

**energy limited station (EL STA):** A sub 1 GHz (S1G) station (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 aggregate physical layer protocol data unit (EDMG A-PPDU)**: An aggregate physical layer (PHY) protocol data unit (A-PPDU) where all constituent PPDUs are EDMG PPDUs.

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

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

**enhanced multiple basic service set identifier advertisement access point (EMA AP):** An access point (AP) that uses enhancements related to the discovery of nontransmitted basic service set identifiers (BSSIDs).

**extended centralized access point or personal basic service set control point cluster (ECAPC):** The collection of 1) a single centralized coordination service set (CCSS), 2) the set of centralized access point (AP) or control point (CP) 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.

**enhanced multi-link multi-radio operation (EMLMR operation):** A mode of operation that allows a non-access point (non-AP) multi-link device (non-AP MLD) with multiple receive chains to listen on a set of enabled links when the corresponding non-AP stations (STAs) affiliated with the non-AP MLD are in the awake state for an initial frame sent by an access point (AP) affiliated with an AP multi-link device (AP MLD) to one of the receiving non-AP STAs in a physical layer (PHY) protocol data unit (PPDU) whose number of spatial streams (Nss) satisfies that receiving non-AP STA’s receiving capabilities, followed by frame exchanges that satisfy the modulation and coding scheme (MCS) and Nss capabilities indicated in the non-AP MLD’s EML Operating Mode Notification frame on the link on which the initial frame was received.

**enhanced multi-link single-radio operation (EMLSR operation):** A mode of operation that allows a non-access point (non-AP) multi-link device (non-AP MLD) with multiple receive chains to listen on a set of enabled links when the corresponding stations (STAs) affiliated with the non-AP MLD are in the awake state for an initial control frame sent by an access point (AP) affiliated with an AP multi-link device (AP MLD) in a non-high throughput (non-HT) (duplicate) physical layer (PHY) protocol data unit (non-HT duplicate PPDU) with one spatial stream, followed by frame exchanges on the link on which the initial control frame was received.

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

**extended rate physical layerusing complementary code keying 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 using direct sequence spread spectrum modulation (ERPDSSS):** A physical layer (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 using direct sequence spread spectrum or complementary code keying modulation (ERP-DSSS/CCK):** A physical layer (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 using orthogonal frequency division multiplexing modulation (ERP-OFDM):** A mode of operation of a physical layer (PHY) operating under Clause 18 (Extended Rate PHY (ERP) specification) rules, where the TXVECTOR parameter MODULATION is equal to ERP-OFDM.

**extended service set 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 reauthentication protocol (EAP-RP):** A protocol, using the Extensible Authentication Protocol (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.

**extremely high throughput basic service set (EHT BSS):** A basic service set (BSS) in which the transmitted Beacon frame includes an EHT Operation element.

**extremely high throughput beamformee (EHT beamformee):** An extremely high throughput (EHT) station (STA) that receives an EHT physical layer (PHY) protocol data unit (EHT PPDU) that was transmitted using a beamforming steering matrix.

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

**extremely high throughput modulation and coding scheme (EHT MCS):** A specification of the extremely high throughput (EHT) physical layer (PHY) parameters that consists of modulation order (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, 4096-QAM) and forward error correction (FEC) coding rate (1/2, 2/3, 3/4, 5/6) and that is used in an EHT PHY protocol data unit (EHT PPDU).

**extremely high throughput multi-user physical layer protocol data unit (EHT MU PPDU):** An extremely high throughput (EHT) physical layer protocol data unit (PPDU) format that is used for a transmission that is not a response to a triggering frame. This PPDU carries one or more physical layer service data units (PSDUs).

**extremely high throughput physical layer protocol data unit (EHT PPDU):** A Clause 36 (Extremely high throughput (EHT) PHY specification(#11be)) physical layer (PHY) protocol data unit (PPDU).

**extremely high throughputsingle user transmission (EHT SU transmission):** A transmission to a single user using the non-orthogonal frequency division multiple access (non-OFDMA) EHT multi-user (MU) physical layer (PHY) protocol data unit (non-OFDMA MU PPDU) format that is not an EHT sounding null data PPDU (EHT sounding NDP). See 36.3.19 (EHT SU transmission).

**extremely high throughputtrigger based physical layer protocol data unit (EHT TB PPDU):** An extremely high throughput (EHT) physical layer (PHY) protocol data unit (PPDU) format that is used for a transmission that is a response to a triggering frame. This PPDU carries a single physical layer service data unit (PSDU).

**fast basic service set transition 4-way handshake (FT 4-way handshake):** A pairwise key management protocol used during fast basic service set transition (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 transition 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 transition originator (FTO):** A station (STA) that initiates the fast basic service set transition (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 access point (FILS AP):** An access point that implements fast initial link setup (FILS).

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

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

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

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

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

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

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

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

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

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

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

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

**groupcast with retries concealment address (GCR concealment address):** A medium access control (MAC) address that is used to prevent group addressed frames transmitted via the groupcast with retries (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 frame (GCR frame):** A group addressed frame subject to a groupcast with retries (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 group address (GCR group address):** A group address subject to a groupcast with retries (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 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 service period aggregate medium access control service data unit (GCR-SP A-MSDU):** An aggregate medium access control (MAC) service data unit (A-MSDU) subject to the GCR service with the delivery method equal to GCR-SP.

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

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

**groupcast with retries transmission opportunity (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 basic service set (HE BSS):** A basic service set (BSS) in which the transmitted Beacon frame includes an HE Operation element.

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

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

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

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

**high-efficiency masked 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 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 a high-efficiency (HE) physical layer (PHY) protocol data unit (PPDU).

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

**high-efficiency no pilot 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-LTF sequence mode**.

**high-efficiency physical layer protocol data unit (HE PPDU):** A Clause 27 High efficiency (HE) PHY specification) physical layer (PHY) protocol data unit (PPDU) that is not a Clause 21 (Very high throughput (VHT) PHY specification) PPDU.

**high-efficiency 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 single stream pilot HE-LTF mode (HE single stream pilot HE-LTF mode):** An HE-LTF mode used in an high-efficiency (HE) single-user (SU), HE extended range (ER) SU, HE multiuser (MU) and optionally HE trigger-based (TB) PPDU.

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

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

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

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

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

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

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

**high throughput modulation and coding scheme (HT-MCS):** A specification of the high throughput (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 null data physical layer protocol data unit announcement (HT NDP announcement):** A physical layer (PHY) protocol data unit (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 physical layer protocol data unit (HT PPDU):** A Clause 19 (High Throughput (HT) PHY specification) physical layer (PHY) protocol data unit (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 station 2G4 (HT STA 2G4):** A high throughput (HT) station (STA) that is also a STA 2G4.

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

**hybrid coordination function 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.

**identifiable random medium access control address (IRM):** A random local MAC address

provided by a non-access point (non-AP) station (STA) or a non-AP multi-link device (non-AP MLD) to identify itself to an extended service set (ESS).

**IEEE 802.11 station (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.

**measurement identifier (measurement ID)**: A transient device ID that an extended service set (ESS) can provide to a non-access point (non-AP) station (STA) or a non-AP multi-link device (non-AP MLD) to allow the non-AP STA or a non-AP MLD to identify itself to another access point (AP) or another

AP multi-link device (AP MLD) in the same ESS during a beacon report measurement procedure.

**medium access controlmanagement protocol data unit (MMPDU):** The unit of data

exchanged between two peer medium access control (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, a management message integrity code (MIC) element

(MME), or a MIC element, but does not include a MAC header, a frame check sequence (FCS), or any other

security encapsulation overhead.

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

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

**message integrity code 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 (MS SAP):** The point at which an instance of the IEEE 802.11

method-specific medium access control (MAC) service is offered.

**mobile access point (mobile AP):** An access point (AP) that is capable of keeping its Basic Service Set (BSS) operational while its location is changed.

**mobile access point multi-link device (mobile AP MLD):** An access point (AP) multi-link device (AP MLD) where all affiliated APs are colocated and are mobile APs.

**modulation and coding scheme 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 feedback 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 feedback 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 symbol (MC-OOK symbol):** A wake up receiver (WUR) OOK symbol generated using multiple carriers, either an WUR OOK On symbol where a signal constructed from multiple subcarriers is present or an WUR OOK Off symbol where no signal is present.

**multiple basic service set identifier 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 basic service set identifiers (BSSIDs) using Beacon or Probe Response frames sent by the AP corresponding to the transmitted BSSID.

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

**multiple resource unit (MRU):** A group of subcarriers that consist of multiple resource units (Rus) of 26-tone RU, 52-tone RU, 106-tone RU, 242-tone RU, 484-tone RU, 996-tone RU, and 2996-tone RU.

**multi-link device (MLD):** A logical entity that is capable of supporting more than one affiliated

station (STA) and can operate using one or more affiliated STAs, and that presents one medium access

control (MAC) data service and a single MAC service access point (MAC SAP) to the logical link control

(LLC) sublayer.

**multi-link device max idle period (MLD max idle period):** A time period during which the access point (AP) multi-link device (AP MLD) does not disassociate a non-access point (non-AP) multi-link device (non-AP MLD) due to nonreceipt of frames from any of the stations (STAs) affiliated with that non-AP MLD.

**multi-link operation (MLO):** Operations between two multi-link devices (MLDs) as described in 35.3 (Multi-link operation (MLO)).

**multi-user 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 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 physical layer protocol data unit (MU PPDU):** A physical layer (PHY) protocol data unit (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, a TDLS STA on a direct link or an IBSS STA and is in a high-efficiency (HE) MU PPDU format or an extremely high throughput (EHT) MU PPDU format.

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

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

**non-ack-enabled multi traffic identifier aggregate medium access control protocol data unit (non-ack-enabled multi-TID A-MPDU):** An aggregate medium access control (MAC) protocol data unit (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 protocol data unit 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).

**non-access point multi-link device (non-AP MLD):** An multi-link device (MLD), where each station (STA) affiliated with the MLD is a non-access point (non-AP) station (non-AP STA).

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

**nonconcealed groupcast with retries frame (nonconcealed GCR frame):** A group addressed frame that is not transmitted to the groupcast with retries (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 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 physical layer protocol data unit (non-HE PPDU):** A PPDU that is transmitted using a PPDU format defined in 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), Clause 18 (Extended Rate PHY (ERP) specification), Clause 19 (High Throughput (HT) PHY specification) or Clause 21 (Very high throughput (VHT) PHY specification).

**non-high-throughput (non-HT):** A modifier meaning not high throughput (HT), not very high

throughput (VHT), not high efficiency (HE), not directional multi-gigabit (DMG), and not extremely

high throughput (EHT).

**non-high-throughput 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:

a) 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.

b) 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.

c) 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.

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

**non-high-throughput duplicate in television white spaces band (on-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:

a) TVHT\_W non-HT duplicate: A PHY transmission that replicates a non-HT PHY protocol data unit (PPDU) two times in a single BCU.

b) TVHT\_2W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU four times in two contiguous BCUs.

c) TVHT\_4W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU eight times in four contiguous BCUs.

d) TVHT\_W+W non-HT duplicate: A PHY transmission that replicates a non-HT PPDU two times in each single BCU.

e) 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 duplicate physical layer protocol data unit (non-HT duplicate PPDU):** A PPDU transmitted with the TXVECTOR FORMAT parameter equal to NON\_HT and the NON\_HT\_MODULATION parameter equal to NON\_HT\_DUP\_OFDM.

**non-high-throughput duplicate physical layer protocol data unit in television white spaces band (non-HT duplicate PPDU in TVWS band):** A physical layer (PHY) protocol data unit (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 physical layer protocol data unit (non-HT PPDU):** A physical layer (PHY) protocol data unit (PPDU) that is transmitted using a PPDU format defined in 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).

**non-high-throughput signal field transmit opportunity 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-multi-link device non-access point station (non-MLD non-AP STA):** A station (STA) that is a non-access point (non-AP) STA and that is not affiliated with a multi-link device (MLD).

**non-multi-link operation (non-MLO):** Operations that do not involve multi-links between two multi-link devices (MLDs) as described in 35.3 (Multi-link operation (MLO)).

**non-orthogonal frequency division multiple access extremely high throughput physical layer protocol data unit (non-OFDMA EHT PPDU):** An extremely high throughput (EHT) physical layer (PHY) protocol data unit (PPDU) that is transmitted using a single resource unit (RU) or a single multiple resource unit (MRU) that occupies all of the nonpunctured 20 MHz channels within the PPDU bandwidth.

**non-orthogonal frequency division multiple access high-efficiency physical layer protocol data unit (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.

**non-orthogonal frequency division multiple access uplink multi-user multiple input multiple output (non-OFDMA UL MU-MIMO):** A transmission where there are no other resource unit(s) or multiple resource unit(s) [RU(s) or MRU(s)] scheduled other than the one doing UL MU-MIMO.

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

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

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

**non-sensor station (non-sensor STA):** A sub 1 GHz (S1G) non-access point (non-AP) station (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.

**nonsimultaneous transmit and receive link pair (NSTR link pair):** A pair of links corresponding to stations (STAs) affiliated with a multi-link device (MLD) for which the receiver requirements specified in 36.3.21 (Receiver specification) are not met on one of the links when a STA affiliated with the MLD is transmitting on the other link.

NOTE—If an MLD supports transmission on link 1 concurrently with reception on link 2, but cannot support transmission on link 2 concurrently with reception on link 1, this pair of links is NSTR for that MLD.

**nonsimultaneous transmit and receive mobile access point multi-link device (NSTR mobile AP MLD MLD):** A mobile access point (AP) multi-link device (mobile AP MLD) with one nonsimultaneous transmit and receive (NSTR) link pair.

**non-space-time-block-coding 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-traffic indication map 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 station (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 identifier (nontransmitted BSSID):** A basic service set identifier (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.

**non-trigger-based physical layer protocol data unit (non-TB PPDU):** A physical layer (PHY) protocol data unit (PPDU) that is not transmitted using high efficiency (HE) trigger-based (TB) PPDU (HE TB PPDU) or extremely high throughput (EHT) TB PPDU (EHT TB PPDU) format.

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

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

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

**null data physical layer protocol data unit carrying medium access control information PPDU (NDP CMAC PPDU):** A physical layer (PHY) protocol data unit (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.

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

**operational modulation and coding scheme set (operational MCS set):** The set of modulation and coding schemes (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.

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

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

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

**opportunistic power save period (OPS period):** A period during which an opportunistic power save (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 extremely high throughput physical layer protocol data unit (OFDMA EHT PPDU):** A extremely high throughput (EHT) physical layer (PHY) protocol data unit (PPDU) that is transmitted using more than one resource unit (RU) or multiple resource unit (MRU). Each of them is allocated to a different station (STA).

**orthogonal frequency division multiple access high-efficiency physical layer protocol data unit (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 physical layer protocol data unit (OFDM PPDU):** A Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) physical layer (PHY) protocol data unit (PPDU).

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

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

**paged association identifier (paged AID):** An association identifier (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 R0 (PMK-R0):** The key at the first level of the fast basic service set (BSS) transition (FT) key hierarchy.

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

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

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

**parameterized quality of service (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 physical layer protocol data unit (PSRR PPDU):** A physical layer (PHY) protocol data unit (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 physical layer protocol data unit (PSRT PPDU):** A physical layer (PHY) protocol data unit (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 aggregate medium access control service data unit (PP A-MSDU):** An aggregate medium access control (MAC) service data unit (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).

**personal basic service set 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 personal basic service set (PBSS).

**personal basic service set control point or access point cluster (PCP or AP cluster):** A single directional multi-gigabit (DMG) synchronization access point (AP) or synchronization personal basic service set control point (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 layerheader (PHY header):** The portion of a physical layer (PHY) protocol data unit (PPDU) up to and excluding the first symbol that contains part of the PHY service data unit (PSDU).

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

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

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

**preassociation security negotiation identifier (PASN ID)**: A device ID that an extended service set

(ESS) can provide to a non-access point (non-AP) station (STA) to allow the non-AP STA to identify itself

to a known ESS during PASN authentication at a future time.

**preferred scanning channels (PSCs):** A set of 20 MHz channels that are recommended as candidates to be used as a primary 20 MHz channel by a 6 GHz-only AP.

**primary access category (primary AC):** The access category (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.

**protocol version 0 medium access control protocol data unit (PV0 MPDU):** A

medium access control (MAC) protocol data unit (MPDU) that has the Protocol Version field of the Frame Control field of the MPDU header equal to 0.

**protocol version 1 medium access control protocol data unit (PV1 MPDU):** A

medium access control (MAC) protocol data unit (MPDU) that has the Protocol Version field of the Frame Control field of the MPDU header equal to 1.

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

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

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

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

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

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

**reported access point (reported AP):** An access point (AP) that is identified in an element such as a Neighbor Report element or, a Reduced Neighbor Report element, or an AP that is identified in a Per-STA Profile subelement of the Basic Multi-Link element.

**reported station (reported STA):** An access point (AP) or a non-access point (non-AP) station (non-AP STA) that is identified in an element such as a Basic Multi-Link element.

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

**reporting station (reporting STA):** An access point (AP) or a non-access point (non-AP) station (non-AP STA) that is transmitting an element, such as a Basic Multi-Link element, describing a reported STA.

**restricted target wake time (R-TWT):** Target wake time (TWT) with enhanced medium access protection and resource reservation for delivery of latency sensitive traffic as described in 35.8 (Restricted TWT (R-TWT)).

**restricted target wake time service period (R-TWT SP):** A period of time negotiated using restricted target wake time (R-TWT) setup (35.8.2 (R-TWT membership setup)) during which R-TWT member stations (STAs) prioritize delivery of latency sensitive traffic.

**reverse direction 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 security network association 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 tunneled direct link setup (TDLS) PeerKey (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.

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

NOTE—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.

**sensor station (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.

**short sector sweep physical layer protocol data unit (short 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 aggregate medium access control service data unit (SSP A-MSDU):** An aggregate medium access control (MAC) service data unit (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).

**simultaneous authentication of equals entity (SAE entity):** An entity that is a station (STA) or a multi-link device (MLD) that participates in SAE authentication (see 12.4 (Authentication using a

password)).

**simultaneous transmit and receive link pair (STR link pair):** A pair of links that is not a nonsimultaneous transmit and receive (NSTR) link pair.

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

**single-radio non-access point multi-link device (single-radio non-AP MLD):** A non-access point (non-AP) multi-link device (MLD) that supports operation on more than one link but receives or transmits frames only on one link at a time.

**sounding physical layer protocol data unit (sounding PPDU):** A physical layer (PHY) protocol data unit (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 station (source DMG STA):** A directional multi-gigabit (DMG) station (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 beacon (STBC beacon):** A beacon that is transmitted using the basic space-time block coding (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 delivery traffic indication map beacon (DTIM beacon):** A space-time block coding (STBC) beacon transmission that is a delivery traffic indication map (DTIM) beacon.

**space-time block coding 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 multiplexing power save (SM power save):** A mode of operation that allows a station (STA) to listen using one radio frequency (RF) chain, then switch on additional RF chains for subsequent single-user multiple input, multiple output (SU-MIMO) operation.

**station 2G4 (STA 2G4):** A station (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 5G (STA 5G):** A station (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 6G (STA 6G):** A station (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 band (S1G band):** Frequency band for which an S1G operating class is defined in Annex E.

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

**sub 1 GHz long physical layer protocol data unit (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, 1024-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 physical layer protocol data unit (S1G PPDU):** A physical layer (PHY) protocol data unit (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 physical layer protocol data unit (S1G\_SHORT PPDU):** A 2 MHz, 4 MHz, 8 MHz, 16 MHz, or 2 MHz duplicate physical layer (PHY) protocol data unit (PPDU) with short preamble format.

**subchannel selective transmission 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 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.

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

**synchronizing access point or personal basic service set control point (synchronizing AP or PCP):** A China directional multi-gigabit (CDMG) access point (AP) or personal basic service set control point (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 (9.4.2.219 (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 or personal basic service set control point (synchronized AP or PCP):** A China directional multi-gigabit (CDMG) access point (AP) or personal basic service set control point (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 [9.4.2.219 (Dynamic Bandwidth Control element) (Dynamic Bandwidth Control element)] set to 1 and synchronizing with the synchronizing AP or PCP on the relevant 2.16 GHz channel.

**tagged media access control protocol data unit (tagged MPDU):** A medium access control (MAC) protocol data unit (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 scheduled station (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 timescheduling access point (TBTT scheduling AP):** An access point (AP) that has negotiated with a non-AP station (STA) the target beacon transmission time (TBTT) of the first Beacon frame and the wake interval between subsequent Beacon frames that the non-AP STA intends to receive.

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

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

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

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

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

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

**television very high throughput basic service set (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.

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

NOTE—TDD channel access is defined in 10.38.6.2.2 (SP with TDD channel access).

**traffic indication map 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 transition to awake state to receive a Beacon frame.

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

**transmit power (TX 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 SSW or DMG Beacon frames via different sectors, in which a sweep is performed between consecutive transmissions.

**transmit sector sweep** **contention based access period (TXSS CBAP):** A contention based access period (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 (transmitted BSSID):** The basic service set identifier (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 (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 based physical layer protocol data unit (TB PPDU):** A physical layer (PHY) protocol data unit (PPDU) transmitted with high efficiency (HE) TB PPDU (HE TB PPDU) format or extremely high throughput (EHT) TB PPDU (EHT TB PPDU) format.

**triggering physical layer protocol data unit (triggering PPDU):** A physical layer (PHY) protocol data unit (PPDU) carrying a triggering frame.

**tunneled direct link setup 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 frame (TDLS frame):** A Data frame carrying all or part of the encapsulation of a TDLS Action field in an MSDU with EtherType 89-0d.

**tunneled direct link setup initiator station (TDLS initiator STA):** A station (STA) that transmits a TDLS Setup Request frame or a TDLS Discovery Request frame.

**tunneled direct link setup peer power save mode (TDLS peer PSM):** A power save mode (PSM) that is based on periodically scheduled service periods (SPs), which can be used between two stations (STAs) that have set up a tunneled direct link setup (TDLS) direct link.

**tunneled direct link setup peer power save mode initiator (TDLS peer PSM initiator):** A station (STA) that transmits a TDLS Peer PSM Request frame.

**tunneled direct link setup peer power save mode responder (TDLS peer PSM responder):** A station (STA) that transmits a TDLS Peer PSM Response frame.

**tunneled direct link setup peer station (TDLS peer STA):** A station (STA) with which another STA has, or is in the process of establishing, a tunneled direct link setup (TDLS) direct link.

**tunneled direct link setup peer unscheduled automatic power save delivery (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 tunneled direct link setup (TDLS) direct link.

**tunneled direct link setup peer unscheduled automatic power save delivery buffer station (TPU buffer STA):** A tunneled direct link setup (TDLS) peer station (STA) that buffers traffic for a tunneled direct link setup peer unscheduled automatic power save delivery (TPU) sleep STA.

**tunneled direct link setup peer unscheduled automatic power save delivery sleep station (TPU sleep STA):** A tunneled direct link setup (TDLS) station (STA) that entered power save mode on a TDLS direct link and that is using tunneled direct link setup peer unscheduled automatic power save delivery (TPU) for the delivery of buffered traffic.

**tunneled direct link setup power save mode (TDLS PSM):** tunneled direct link setup (TDLS) peer power save mode (PSM) or peer unscheduled automatic power save delivery (U-APSD).

**tunneled direct link setup responder station (TDLS responder STA):** A station (STA) that receives or is the intended recipient of a TDLS Setup Request frame or TDLS Discovery Request frame.

**TVHT\_2W mask physical layer protocol data unit (TVHT\_2W mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs) in Clause 22 (Television very high throughput (TVHT) PHY specification) transmitted using the TVHT\_2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask):

a) A TVHT\_2W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W and TXVECTOR parameter FORMAT set to VHT).

b) A 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).

c) A TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT).

d) A 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).

**TVHT\_2W+2W mask physical layer protocol data unit (TVHT\_2W+2W mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs) in Clause 22 (Television very high throughput (TVHT) PHY specification) transmitted using the TVHT\_2W+2W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask):

a) A TVHT\_2W+2W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W+2W and TXVECTOR parameter FORMAT set to VHT).

b) A 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).

c) A TVHT\_2W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W and TXVECTOR parameter FORMAT set to VHT).

d) A 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).

e) A TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT).

f) A 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).

**TVHT\_4W mask physical layer protocol data unit (TVHT\_4W mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs) in Clause 22 (Television very high throughput (TVHT) PHY specification) transmitted using the TVHT\_4W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask):

a) A TVHT\_4W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_4W and TXVECTOR parameter FORMAT set to VHT).

b) A 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).

c) A TVHT\_2W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_2W and TXVECTOR parameter FORMAT set to VHT).

d) A 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).

e) A TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT).

f) A 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).

**TVHT\_MODE\_1 physical layer protocol data unit (TVHT\_MODE\_1 PPDU):** One of the following physical layer (PHY) protocol data units (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 protocol data unit (TVHT\_MODE\_2C PPDU):** One of the following physical layer (PHY) protocol data units (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 protocol data unit (TVHT\_MODE\_2N PPDU):** One of the following physical layer (PHY) protocol data units (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 protocol data unit (TVHT\_MODE\_4C PPDU):** One of the following physical layer (PHY) protocol data units (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 protocol data unit (TVHT\_MODE\_4N PPDU):** One of the following physical layer (PHY) protocol data units (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 protocol data unit (TVHT\_W mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs) in Clause 22 (Television very high throughput (TVHT) PHY specification) transmitted using the TVHT\_W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask):

a) A TVHT\_W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT).

b) A 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).

**TVHT\_W+W mask physical layer (PHY) protocol data unit (TVHT\_W+W mask PPDU):** One of the following physical layer (PHY) protocol data units (PPDUs) in Clause 22 (Television very high throughput (TVHT) PHY specification) transmitted using the TVHT\_W+W transmit spectral mask defined in 22.3.17.1 (Transmit spectrum mask):

a) A TVHT\_W+W very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W+W and TXVECTOR parameter FORMAT set to VHT).

b) A 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).

c) A TVHT\_W VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH set to TVHT\_W and TXVECTOR parameter FORMAT set to VHT) .

d) A 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).

**unscheduled service period (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 protocol data unit (untagged MPDU):** A medium access control (MAC) protocol data unit (MPDU) carried in an aggregate MPDU (A-MPDU) subframe that has the EOF/Tag field in the MPDU delimiter set to 0.

**uplink high-efficiency multi-user physical layer protocol data unit (UL HE MU PPDU):** An HE MU PPDU transmitted by a non–access point (non-AP) station (STA) intended for an AP. 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 orthogonal frequency division multiple access-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).

**very high throughput basic service set (VHT BSS):** A basic service set (BSS) in which a Beacon frame transmitted by a VHT station (STA) includes the VHT Operation element.

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

**very high throughput modulation and coding scheme (VHT-MCS):** A specification of the very high throughput (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 multi-user physical layer protocol data unit (VHT MU PPDU):** A very high throughput (VHT) physical layer (PHY) protocol data unit (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 MUMIMO) technique.

**very high throughput physical layer protocol data unit (VHT PPDU):** A Clause 21 (Very high throughput (VHT) PHY specification) physical layer (PHY) protocol data unit (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 single-user-only beamformee (VHT SU-only beamformee):** A very high throughput (VHT) beamformee that does not receive VHT multi-user (MU) physical layer (PHY) protocol data units (PPDUs).

**very high throughput single-user-only beamformer (VHT SU-only beamformee):** A very high throughput (VHT) beamformer that does not transmit VHT multi-user (MU) physical layer (PHY) protocol data units (PPDUs).

**very high throughput single-user physical layer protocol data unit (VHT SU PPDU):** A very high throughput (VHT) physical layer (PHY) protocol data unit (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.

**wake-up radio 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 basic physical layer protocol data unit (WUR basic PPDU):** A physical layer (PHY) protocol data unit (PPDU) transmitted with the TXVECTOR parameter FORMAT equal to WUR\_BASIC and TXVECTOR parameter CH\_BANDWIDTH equal to WUR\_CBW\_20.

**wake-up radio channel (WUR channel):** A channel in which a wake-up radio (WUR) access point (AP) transmits WUR Short Wake-up frames, WUR Wake-up frames, and WUR Vendor Specific frames.

**wake-up radio discovery channel (WUR discovery channel):** The channel used by a wake-up radio (WUR) access point (AP) to transmit WUR Discovery frames.

**wake-up radio duty cycle period (WUR duty cycle period):** The interval between the starting time of two successive wake-up radio (WUR) duty cycle service periods.

**wake-up radio duty cycle service period (WUR duty cycle service period):** A period of time of an established wake-up radio (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 radiofrequency division multiple access physical layer protocol data unit (WUR FDMA PPDU):** A physical layer (PHY) protocol data unit (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 integrity group temporal key (WIGTK):** A random value, assigned by a wake-up radio (WUR) access point (AP) that is used to protect broadcast and group addressed WUR frames from that AP.

**wake-up radio mode (WUR mode):** A negotiation status between a wake-up radio (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 primary 40 MHz channel (WUR primary 40 MHz channel):** The 40 MHz channel that is used to transmit 40 MHz wake-up radio (WUR) Frequency Division Multiple Access (FDMA) physical layer (PHY) protocol data units (PPDUs).

**wake-up radio primary channel (WUR primary):** The channel used by a wake-up radio (WUR) access point (AP) to transmit WUR Beacon frames.

**wake-up radio scanning (WUR scanning):** The process of scanning wake-up radio (WUR) discovery channels for WUR Discovery frames.

**wake-up radio secondary 40 MHz channel (WUR secondary 40 MHz channel):** 40 MHz channel adjacent to the wake-up radio (WUR) primary 40 MHz channel that together form the WUR 80 MHz channel.

**wake-up radiosecondary channel (WUR secondary channel):** The 20 MHz channel adjacent to the wake-up radio (WUR) primary channel that together form the WUR primary 40 MHz channel.

**wake-up radio temporal key (WTK):** A temporal key used to protect individually addressed WUR Wake-up frames.

**wireless network management sleep mode (WNM sleep):** An extended power save mode for non-access point (non-AP) stations (STAs) and non-AP multi-link devices (non-AP MLDs) whereby a non-AP STA or non-AP STAs affiliated with a non-AP MLD need not listen for every delivery traffic indication map (DTIM) beacon and does not perform group temporal key/integrity group temporal key/beacon integrity group temporal key (GTK/IGTK/BIGTK) updates.