IEEE P802.11  
Wireless LANs

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| Comment resolutions for 9.4.2.200 part 2 | | | | |
| Date: 2018-03-01 | | | | |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D2.0 with the following CIDs:

* 11835, 12306 (2 CIDs)

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 11835 | Guoqing Li | 128.44 | Why "Reject TWT" is N/A. Does it mean a STA cannot reject a TWT setup? | Clarify | Revised –  Agree in principle with the comment. There has been an incidental removal of that portion of the text which was later added on back by the comment resolution for CIDs 11368, 12037, and 12401.  The proposed resolution is the same as for those CIDs which re-set the condition of rejecting the TWT setup.  Note to TGax editor: These changes have already been incorporated in D2.2 of the draft. However, please note that there are changes in this document that address some inconsistencies that arose during the editorial review of D2.2.    TGax editor to make the changes shown in 11-18/1893r6 under all headings that include CID 11368, 12037, and 12401.  TGax editor to make the changes shown in 11-18/1893r6 under all headings that include CID AA. |
| 12306 | Laurent Cariou | 129.27 | TWT flow identifier is used for broadcast TWT to indicate the target transmission time of specific frames, like TIM element, or OFDMA random access. There are currently no ways to indicate the target transmission time of NDP feedback report triggers, while these triggers are meant to be sent in a regular manner. | Modify the TWT flow identifier for broadcast TWT table to define an explicit way to schedule NDP feedback report triggers. The simplest solution is to define a new field value specifically for NDP feedback report. | Revised –  This was already possible in D2.0 but more details were added by document 1893r6 for enabling better the use case mentioned by the commenter. Please refer to 11-18-1893r6.  Note to TGax editor: These changes have already been incorporated in D2.2 of the draft.  TGax editor to make the changes shown in 11-18/1893r6 under all headings that include CID 12313, 12409. |

**Discussion: *None***

* TWT element

Replace Figure 9-589av (TWT element format) with the following:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  | Element ID | Length | Control | TWT Parameter Information |
| Octets: | 1 | 1 | 1 | variable |
| * TWT element format | | | | |

Insert after the 1st paragraph, a new paragraph and two figures as follows:(#11123)

The TWT Parameter Information field contains a single Individual TWT Parameter Set field with format defined in Figure 9-589av1 (Individual TWT Parameter Set field format) when the Broadcast subfield in the Control field is 0 and contains one or more Broadcast TWT Parameter Set fields with format defined in Figure 9-589av2 (Broadcast TWT Parameter Set field format) when the Broadcast subfield of the Control field is 1. The number of Broadcast TWT Parameter Set fields present is determined by the values of the Implicit/Last Broadcast Parameter Set subfields of the Request Type fields.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Request Type | Target Wake Time | TWT Group Assignment | Nominal Minimum TWT Wake Duration | TWT Wake Interval Mantissa | TWT Channel | NDP Paging (optional) |
| Octets: | 2 | 0 or 8 | 0, 3 or 9 | 1 | 2 | 1 | 0 or 4 |
| * Individual TWT Parameter Set field format | | | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Request Type | Target Wake Time | Nominal Minimum TWT Wake Duration | TWT Wake Interval Mantissa | Broadcast TWT Info |
| Octets: | 2 | 2 | 1 | 2 | 2 |
| * Broadcast TWT Parameter Set field format | | | | | |

Change Figure 9-589aw (Control field format) as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ~~B1~~B0 | ~~B2~~B1 | B2              B3 | ~~B3~~B4 ~~B8~~B7 |
|  | NDP Paging Indicator | Responder PM Mode | Negotiation Type | Reserved |
| Bits: | 1 | 1 | 2 | ~~6~~4 |
| * Control field format | | | | |

Insert the following three paragraphs and table after the 5th paragraph (“The Responder PM Mode subfield...”):

**TGax Editor: *Change the paragraphs below of this subclause as follows (#CID AA):***

The Negotiation Type subfield indicates whether the information included in the TWT element is for the negotiation of parameters of broadcast or individual TWT(s) or a Wake TBTT interval. The MSB of the Negotiation Type subfield is the Broadcast field. *(#AA)*

**TGax Editor: *Change the paragraphs below of this subclause as follows (#CID AA):***

If the Broadcast field is 1 then one or more broadcast TWT parameter sets are contained in the TWT element (see 9-589av2 (Broadcast TWT Parameter Set field format). If the Broadcast field is 0 then only one Individual TWT parameter set is contained in the TWT element (see 9-589av1 (Individual TWT Parameter Set field format)) *(#AA)*. An S1G STA sets the Negotiation Type subfield to 0.

The Negotiation Type subfield determines the interpretation of the Target Wake Time, TWT Wake Interval Mantissa and TWT Wake Interval Exponent subfields of the TWT element as defined in Table 9-262j1 (Interpretation of Negotiation Type subfield, Target Wake Time, TWT Wake Interval Mantissa and TWT Wake Interval Exponent fields(#11007)).

**TGax Editor: *Change the table below of this subclause as follows (#CID AA):***

|  |  |  |  |
| --- | --- | --- | --- |
| * Interpretation of Negotiation Type subfield, Target Wake Time, TWT Wake Interval Mantissa and TWT Wake Interval Exponent fields(#11007) | | | |
| Negotiation Type subfield | Target Wake Time field | TWT Wake Interval Mantissa and TWT Wake Interval Exponent fields | Description |
| 0 | A future Individual TWT SP start time | Interval between individual TWT SPs | Individual TWT negotiation between TWT requesting STA and TWT responding STA or individual TWT announcement by TWT responder. See 10.43 (Target wake time (TWT)), and 27.7.2 (Individual TWT agreements).(#12394)  The TWT element contains one individual TWT parameter set. *(#AA)* |
| 1 | Next Wake TBTT time | Interval between wake TBTTs | Wake TBTT and wake interval negotiation between TWT scheduled STA and TWT scheduling AP. See 27.7.3.4 (Negotiation of wake TBTT and wake interval).  The TWT element contains one individual TWT parameter set. *(#AA)* |
| 2 | A future Broadcast TWT SP start time | Interval between broadcast TWT SPs | Provide broadcast TWT schedules to TWT scheduled STAs by including the TWT element in broadcast MGMT frames sent by TWT scheduling AP. See 27.7.3.2 (Rules for TWT scheduling AP).  The TWT element contains one or more broadcast TWT parameter sets. *(#AA)* |
| 3 | A future Broadcast TWT SP start time | Interval between broadcast TWT SPs | Manage memberships in broadcast TWT schedules by including the TWT element in individually addressed MGMT frames sent by either a TWT scheduled STA or a TWT scheduling AP. See 27.7.3 (Broadcast TWT operation).  The TWT element contains one or more broadcast TWT parameter sets. *(#AA)* |

Change Figure 9-589ax (Request Type field format) as follows:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 B3 | B4 | B5 | B6 | B7 B9 | B10 B14 | B15 |
|  | TWT  Request | TWT Setup Command | ~~Reserved~~  Trigger | Implicit / Last Broadcast Parameter Set | Flow  Type | TWT Flow Identifier/ Broadcast TWT Recommendation | TWT Wake Interval Exponent | TWT Protection |
| Bits: | 1 | 3 | 1 | 1 | 1 | 3 | 5 | 1 |
| * Request Type field format | | | | | | | | |

Change the 6th and 7th paragraphs as follows:

A STA that transmits a TWT element with the TWT Request subfield equal to 1 is a TWT requesting STA or TWT scheduled STA. Otherwise, it is a TWT responding STA or TWT scheduling AP.

**TGax Editor: *Change the paragraphs below of this subclause as follows (#CID AA):***

The TWT Setup Command subfield values indicate the type of TWT command ~~as shown in Table 9-262k~~. The use of the TWT Setup Command field for the negotiation of individual and broadcast TWT is described in Table 9-262k (TWT Setup Command field values). The entries in the table apply to cases where the Negotiation Type subfield is not equal to 1. *(#AA)* For TWT Setup Command field use when the Negotiation Type subfield is equal to 1 *(#AA)*see 27.7.3.4 (Negotiation of wake TBTT and wake interval).(#12397, #12398)

Change Table 9-262k (TWT Setup Command field values) as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| * TWT Setup Command field values | | | |
| TWT Setup Command field value | Command name | ~~Description when transmitted by a TWT requesting STA~~  Description | ~~Description when transmitted by a TWT responding STA~~ |
| 0 | Request TWT | ~~The Target Wake Time field of the TWT element contains 0s as the TWT responding STA specifies the target wake time value for this case, other TWT parameters\* are suggested by the TWT requesting STA in the TWT request.~~  A TWT requesting or TWT scheduled STA requests to join a TWT without specifying a target wake time.  This command is valid if the TWT Request field is equal to 1; otherwise the command is not applicable. | ~~N/A~~ |
| 1 | Suggest TWT | ~~TWT requesting STA includes a set of TWT parameters such that if the requested target wake time value and/or other TWT parameters cannot be accommodated, then the TWT setup might still be accepted.~~  A TWT requesting or TWT scheduled STA requests to join a TWT and specifies a suggested set of TWT parameters with the possibility that if the requested target wake time and/or other TWT parameters cannot be accommodated, then the TWT setup might still be accepted by the TWT requesting or TWT scheduled STA.  This command is valid if the TWT Request field is equal to 1; otherwise it is not applicable. | ~~N/A~~ |
| 2 | Demand TWT | ~~TWT requesting STA includes a set of TWT parameters such that if the requested target wake time value and/or other TWT parameters cannot be accommodated, then the TWT setup will be rejected.~~  A TWT requesting or TWT scheduled STA requests to join a TWT and specifies a demanded set of TWT parameters which, if not accommodated by the responding STA or TWT scheduling AP will cause the TWT requesting STA or TWT scheduled STA to reject the TWT setup.  This command is valid if the TWT Request field is equal to 1; otherwise it is not applicable. | ~~N/A~~ |
| 3 | TWT Grouping | ~~N/A~~  The TWT responding STA suggests TWT group parameters that are different from the suggested or demanded TWT parameters of the TWT requesting STA  This command is valid if the TWT Request field is 0, the Negotiation Type subfield has the value b00 and is sent by an S1G STA; otherwise not applicable.(#11367) | ~~TWT responding STA suggests TWT group parameters that are different from the suggested or demanded TWT parameters of the TWT requesting STA~~ |
| 4 | Accept TWT | ~~N/A~~  A TWT responding STA or TWT scheduling AP accepts the TWT request with the TWT parameters (see NOTE) indicated in the TWT element transmitted by the TWT responding STA or TWT scheduling AP.  This command is valid if the TWT Request field is 0; otherwise not applicable. | ~~TWT responding STA accepts the TWT request with the TWT parameters (See NOTE) indicated in the TWT element transmitted by the responding STA~~ |
| 5 | Alternate TWT | ~~N/A~~  A TWT responding STA or TWT scheduling AP*(#AA)* suggests TWT parameters that are different from those suggested by the TWT requesting STA or TWT scheduled STA.(#12402)  This command is valid if the TWT Request field is 0; otherwise not applicable. | ~~TWT responding STA suggests TWT parameters that are different from TWT requesting STA suggested or demanded TWT parameters~~ |
| 6 | Dictate TWT | ~~N/A~~  A TWT responding STA indicates TWT parameters that are different from TWT requesting STA suggested parameters.(#12400) | ~~TWT responding STA demands TWT parameters that are different from TWT requesting STA TWT suggested or demanded parameters~~ |
| 7 | Reject TWT | ~~N/A~~  A TWT responding STA rejects setup or a TWT scheduling STA terminates an existing broadcast TWT or a TWT scheduled STA terminates its membership in a broadcast TWT.(#11368, #12037, #12401) | ~~TWT responding STA rejects TWT setup~~ |
| NOTE—TWT Parameters are: TWT, Nominal Minimum Wake Duration, TWT Wake Interval and TWT Channel subfield values indicated in the element. The Trigger subfield value indicated in the element is also a TWT parameter for an HE STA. | | | |

Insert the following paragraph after the 7th paragraph (“The TWT Setup Command subfield...”):

The Trigger field indicates whether or not the TWT SP indicated by the TWT element includes Trigger frames or frames carrying a UMRS Control subfield(#12403) as defined in 27.7 (TWT operation)(#11987). The Trigger field is set to 1 to indicate that at least one Trigger frame is transmitted during the TWT SP. The Trigger field is set to 0 otherwise.

Change the 8th and 9th paragraphs as follows:

When transmitted by a TWT requesting STA, the Implicit / Last Broadcast Parameter Set subfield is set to 1 and the Broadcast subfield is set to 0 to request an implicit TWT.

When transmitted by a TWT requesting STA, the Implicit / Last Broadcast Parameter Set subfield is set to 0 and the Broadcast subfield is set to 0 to request an explicit TWT.

When the Broadcast subfield is equal to 1, the Implicit / Last Broadcast Parameter Set subfield is set to 0 to indicate that another broadcast TWT Parameter set follows this set. When the Broadcast subfield is equal to 1, the Implicit / Last Broadcast Parameter Set subfield is set to 1 to indicate that this is the last broadcast TWT Parameter set in the element.

Change the 11th paragraph as follows:

The TWT Flow Identifier/Broadcast TWT Recommendation subfield(#12405) contains a 3-bit value which identifies the specific information for this TWT request uniquely from other requests made between the same TWT requesting STA and TWT responding STA pair. For a TWT SP that is indicated in a TWT response transmission that is a broadcast TWT SP, the TWT Flow Identifier/Broadcast TWT Recommendation subfield(#12405) contains a value that indicates recommendations on the types of frames that are transmitted by TWT scheduled STAs and scheduling AP during the broadcast TWT SP, encoded according to Broadcast TWT Recommendation field for a broadcast TWT element. The TWT Flow Identifier/Broadcast TWT Recommendation is reserved when transmitted by a TWT scheduled STA.(#11369, #12404)

Insert a new table as follows:

|  |  |
| --- | --- |
| * Broadcast TWT Recommendation field(#12405) for a broadcast TWT element | |
| Broadcast TWT Recommendation field value | Description when transmitted in a broadcast TWT element |
| 0 | No constraints on the frames transmitted during a broadcast TWT SP. |
| 1 | Frames transmitted during a broadcast TWT SP by a TWT scheduled STA are recommended to be limited to solicited feedback and status:   * PS-Poll and QoS Null frames(#12313) * Feedback can be contained in the QoS Control field or in the HE variant HT Control field of the frame, if either is present (see (#12406)27.5.3 (UL MU operation), 27.8 (Operating mode indication), 27.13 (Link adaptation using the HLA Control subfield(#14137)), etc.) * Feedback in an HE TB NDP PPDU, if solicited by the AP (see 27.5.6 (NDP feedback report procedure))(#12313, #12409) * BQRs (see 27.5.2 (HE bandwidth query report operation for MU))(#11008, #12407) * Frames that are sent as part of a sounding feedback exchange (see 27.6 (HE sounding protocol)) * Management frames: Action or Action No Ack frames * Control response frames   Trigger frames transmitted by the TWT scheduling AP during the broadcast TWT SP do not contain RUs for random access (see 27.7.3.2 (Rules for TWT scheduling AP)), otherwise, there are no other restrictions on the frames transmitted by the TWT scheduling AP. |
| 2 | Frames transmitted during a broadcast TWT SP by a TWT scheduled STA are recommended to be limited to solicited status and feedback:   * PS-Poll and QoS Null frames * Feedback can be contained in the QoS Control field or in the HE variant HT Control field of the frame, if either is present (see (#12406)27.5.3 (UL MU operation), 27.8 (Operating mode indication), 27.13 (Link adaptation using the HLA Control subfield(#14137)), etc.) * BQRs (see 27.5.2 (HE bandwidth query report operation for MU))(#11008, #12407) * Frames that are sent as part of a sounding feedback exchange (see 27.6 (HE sounding protocol)) * Management frames: Action, Action No Ack frames or (Re)Association Request frames * Control response frames   Trigger frames transmitted by the TWT scheduling AP during the broadcast TWT SP contain at least one RU for random access (see 27.7.3.2 (Rules for TWT scheduling AP)), otherwise there are no restrictions on the frames transmitted by the TWT scheduling AP. |
| 3 | No constraints on the frames transmitted during a broadcast TWT SP except that the AP transmits a TIM frame or a FILS Discovery frame including a TIM element at the beginning of each TWT SP (see 27.14.3.2 (AP operation for opportunistic power save)). |
| 4-7 | Reserved |

Change the 12th and 13th paragraphs as follows:

In a TWT element transmitted by a TWT requesting or TWT scheduled STA, the TWT wake interval is equal to the average time that the ~~TWT requesting~~ STA expects to elapse between successive TWT SPs start times (see Table 9-262j1 (Interpretation of Negotiation Type subfield, Target Wake Time, TWT Wake Interval Mantissa and TWT Wake Interval Exponent fields(#11007))). In a TWT element transmitted by a TWT responding STA or TWT scheduling AP, the TWT wake interval is equal to the average time that the ~~TWT responding~~ STA expects to elapse between successive TWT SPs start times(#12035). In a TWT element contained in a TWT request that is sent by the scheduled STA to negotiate its wake intervals, the TWT wake interval indicates the value of the wake interval (see 27.7.3.4 (Negotiation of wake TBTT and wake interval)).(#12410) The TWT Wake Interval Exponent subfield is set to the value of the exponent of the TWT wake interval value in microseconds, base 2. The TWT wake interval of the requesting STA is equal to (TWT Wake Interval Mantissa) × 2(TWT Wake Interval Exponent).

When transmitted by a TWT requesting STA or a TWT scheduled STA and the TWT Setup Command subfield contains a value corresponding to the command "Suggest TWT" or "Demand TWT", the Target Wake Time field contains ~~a positive~~ an unsigned integer ~~which~~ that corresponds to a TSF time at which the STA requests to wake~~, or a value of zero when the TWT Setup Command subfield contains the value corresponding to the command “Request TWT”~~. When transmitted by a TWT requesting STA or a TWT scheduled STA and the TWT Setup Command subfield contains the value corresponding to the command "Request TWT", the Target Wake Time field contains the value 0. The Target Wake Time field is 8 octets when the Broadcast field is 0; otherwise it is 2 octets with the lowest bit of the 2 octets corresponding to bit 4 of the relevant TSF value. When a TWT responding STA with dot11TWTGroupingSupport equal to 0 transmits a TWT element to the TWT requesting STA, the TWT element contains a value in the Target Wake Time field ~~which~~ that corresponds to a TSF time at which the TWT responding STA requests the TWT requesting STA to wake for the corresponding TWT SP and it does not contain the TWT Group Assignment field.(#12412, #12413)

Insert the following paragraphs and figure after paragraph 21 (“The TWT Wake Interval Mantissa...”):

(#11123)The Broadcast TWT Info subfield is defined in Figure 9-589ay1 (Broadcast TWT Info subfield format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0                       B2 | B3             B7 | B8                     B15 |
|  | Broadcast TWT Persistence Exponent(#11005) | Broadcast TWT ID | Broadcast TWT Persistence Mantissa(#11005) |
| Bits: | 3 | 5 | 8 |
| * Broadcast TWT Info subfield format | | | |

The Broadcast TWT Persistence Mantissa subfield and Broadcast TWT Persistence Exponent subfield together indicate the number of beacon intervals during which the Broadcast TWT SPs corresponding to this broadcast TWT Parameter set are present. The number of beacon intervals during which the Broadcast TWT SPs are present is equal to the value in the Broadcast TWT Persistence Mantissa subfield plus 1 then multiplied by 2Broadcast TWT Persistence Exponent subfield, except that the value 255 in the Broadcast Persistence Mantissa subfield indicates that the Broadcast TWT SPs are present until explicitly terminated.(#11005, #12036)

Within a TWT element that includes a TWT setup command value of Request TWT, Suggest TWT or Demand TWT, the Broadcast TWT ID, if present, indicates a specific Broadcast TWT in which the transmitting STA is requesting to participate. Within a TWT element that includes a TWT setup command value of Accept TWT, Alternate TWT, Dictate TWT or Reject TWT, the Broadcast TWT ID, if present, indicates a specific Broadcast TWT for which the transmitting STA is providing TWT parameters. Within a TWT element that includes a TWT setup command value of TWT Grouping, the Broadcast subfield is 0 and the Broadcast TWT ID~~,~~ is not present. The value 0 in the Broadcast TWT ID subfield indicates the (#12084)broadcast TWT whose membership corresponds to all STAs that are members of the BSS corresponding to the BSSID of the management frame carrying the TWT element.

Change the 22nd and subsequent two paragraphs as follows:

When transmitted by a TWT requesting STA that is not an S1G STA, the TWT Channel field is reserved. When transmitted by a TWT requesting STA that is an S1G STA, the TWT Channel field contains a bitmap indicating which channel the STA requests to use as a temporary primary channel during a TWT SP. When transmitted by a TWT responding STA that is an S1G STA, the TWT Channel field contains a bitmap indicating which channel the TWT requesting STA is allowed to use as a temporary channel during the TWT SP. Each bit in the bitmap corresponds to one minimum width channel for the band in which the TWT responding STA's associated BSS is currently operating, with the least significant bit corresponding to the lowest numbered channel of the operating channels of the BSS. The minimum width channel is equal to the SST Channel Unit field of the SST Operation element if such an element has been previously received or is equal to 1 MHz for a BSS with a BSS primary channel width of 1 MHz and 2 MHz for a BSS with a BSS primary channel width of 2 MHz if no such element has been previously received from the AP to which the SST STA is associated. A value of 1 in a bit position in the bitmap transmitted by a TWT requesting STA means that operation with that channel as the primary channel is requested during a TWT SP. A value of 1 in a bit position in the bitmap transmitted by a TWT responding STA means that operation with that channel as the primary channel is allowed during the TWT SP. The TWT Channel field is not present when the Broadcast field has the value 1.

~~A TWT requesting STA sets the TWT Protection subfield to 1 to request the TWT responding STA to provide protection of the set of TWT SPs corresponding to the requested TWT flow identifier by allocating RAW(s) that restrict access to the medium during the TWT SP(s) for that (those) TWTs. A TWT requesting STA sets the TWT Protection subfield to 0 if TWT protection by RAW allocation is not requested for the corresponding TWT(s).~~

A TWT requesting STA sets the TWT Protection subfield to 1 to request the TWT responding STA to provide protection of the set of TWT SPs corresponding to the requested TWT flow identifier by:

* Allocating RAW(s) that restrict access to the medium during the TWT SP(s) for the TWTs that are set up within an S1G BSS
* Enabling NAV protection during the TWT SP(s) for the TWTs that are set up within an HE BSS

A TWT requesting STA sets the TWT Protection subfield to 0 if TWT protection is not requested for the corresponding TWT(s).

A TWT scheduled STA sets the TWT Protection subfield to 0.

~~When transmitted by a TWT responding STA that is an AP, the TWT Protection subfield indicates whether the TWT SP(s) identified in the TWT element will be protected. A TWT responding STA sets the TWT Protection subfield to 1 to indicate that the TWT SP(s) corresponding to the TWT flow identifier(s) of the TWT element will be protected by allocating RAW(s) that restrict access to the medium during the TWT SP(s) for that (those) TWT(s). A TWT responding STA sets the TWT Protection subfield to 0 to indicate that the TWT SP(s) identified in the TWT element might not be protected from TIM STAs by allocating RAW(s).~~

When transmitted by a TWT responding STA or TWT scheduling AP, the TWT Protection subfield indicates whether the TWT SP(s) identified in the TWT element will be protected. A TWT responding STA or TWT scheduling AP sets the TWT Protection subfield to 1 to indicate that the TWT SP(s) corresponding to the TWT flow identifier(s) of the TWT element will be protected by:

* Allocating RAW(s) that restrict access to the medium during the TWT SP(s) for the TWTs where the responding STA or scheduling STA is an S1G STA.
* Enabling NAV protection during the TWT SP(s) for the TWTs where the responding STA or scheduling AP is an HE STA.

A TWT responding STA or TWT scheduling AP sets the TWT Protection subfield to 0 to indicate that the TWT SP(s) identified in the TWT element might not be protected.