**IEEE P802.11
Wireless LANs**

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| **CC36 CRs for some CIDs** **on Restricted TWT**  |
| **Date:** 2022-03-01 |
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**Abstract**

This submission proposes resolutions for the following CIDs (12) for TGbe CC36:

4772, 5348, 6506, ~~6507~~, 4781,

6413, 7408, 5878, 4122, 5730,

~~7631~~, 4589

r1: 6507, 7631

Revisions:

* Rev 0: Initial version of the document
* Rev 1: Improved resolution of #6507 based on comments

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 TGbe Draft. This introduction is not part of the adopted material.

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

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

***TGbe editor: The baseline for this document is 11be D1.4 and 11meD1.0.***

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| **CID** | **Commenter** | **Clause** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 4772 | Chunyu Hu | 35.6.2 | 299.23 | rTWT SPs are associated with TIDs and MLO may map a TID to a subset of links. We need to describe necessary requirements or rules or clarifications to make sure that the TIDs are enabled over the link where rTWT agreement is setup on; and if not, what's the expected behavior. In the transition of TID2Link mapping, link enable/disable, power saving change, the above scenario may happen. | As in comment. | **Revised.** Agree in principle. The requirement that only the TIDs mapped to the link should be indicated in rTWT setup was added in 21/1224r10.**TGbe editor: The changes are already incorporated in 11beD1.4 and no further editions are needed.** |
| 5348 | Jarkko Knect | 35.6.3 | 298.35 | STAs that have setup Restricted TWT flow should be available only during the rTWT SPs that belong to the rTWT Flow. The rTWT shall not be available for all SPs in the remaining Beacon interval as defined for BC TWT operation. rTWT likely has very frequenctly repeating SPs and waking up for all of the rTWT SPs will cause very bad power save for the rTWT STA. | Please specify: Non-AP STA that has setup rTWT flow is avilable only during the SPs belonging in rTWT flow and the STA does not need to wake up for other BC TWT SPs.Please specify that BC TWT STAs do not need to wake up for rTWT SPs. | **Rejected.** The CID was discussed in 21/1802 and several comments were received from group that text in 26.8.5 specifies that only member STAs need to wake up for a bTWT SP, with some additional rules for announced TWT; so spec does not require non-member rTWT scheduled STAs to wake up for all SPs. So existing baseline text is sufficient.Any further comments were invited but no follow-up.  |
| 6506 | Pascal VIGER | 35.6 | 297.58 | According to Table 9-13--Ack policy, No Ack row "is not used for QoS Data frames with a TID forwhich a block ack agreement exists".Therefore all traffic of a TID shall follow same ACK policy, which is a pity when only subset of traffic is latency sensitive.There shall be a means to avoid ACK penalties for latency sensitive data, as the head-of-line blocking at the recipient re-ordering buffer. | Provide a means at recipient to avoid queuing latency sensitive data (re-ordering buffer), but immediately deliver it to upper layer. | **Rejected.** The referred penalty occurs only when there is a hole in the received frames’ SN. The current BA window control mechanism, e.g., BAR, can mitigate this already. |
| 6507 | Pascal VIGER | 35.6 | 297.58 | According to Table 9-13--Ack policy, No Ack row "is not used for QoS Data frames with a TID forwhich a block ack agreement exists".Therefore all traffic of a TID shall follow same ACK policy, which is a pity when only subset of traffic is latency sensitive.There shall be a means to avoid ACK for latency sensitive data. | Provide a no-ack delivery for latency sensitive data only, as example by a no-ack link reserved for Low latency traffic. | **Rejected.** The group didn’t reach consensus on a set of changes that would satisfy the commenter. |
| 4781 | Chunyu Hu | 35.6 | 298.58 | Both the TWT request and response setup frames have DL/UL TID indications (in the restricted TWT traffic info field). What is the expected values in response frames? Are the indicated TIDs per request as notification and/or they can be negotiable? Current text (per 11-21/462r9) is not clear about it. Need to add text in 35.7 (Restricted TWT agreement setup) per 11-21/462r9 and any other necessary place to clarify. | As in comment. | **Rejected.** The CID was discussed in 21/1224 and resolution proposed that TIDs are outside the scope of negotiation. However, group did not reach consensus. |
| 6413 | Muhammad Kumail Haider | 35.6.3 | 298.30 | A PDT and motion(#2920) was passed to make changes to TWT element to accommodate restricted TWT schedule announcements and negotiations. Part of proposed changes is to introduce a r-TWT traffic info field to indicate latency sensitive traffic TIDs. However, it is not specified whether TIDs are also within the scope of TWT setup negotiations. That is, TIDs are also negotiated as part of TWT setup. | TIDs included in TWT request frame should be treated as such (a request) and TWT negotiations (and Setup Commands) should apply to TWT parameters only, not TIDs to simplify the negotiation. | **Rejected.** The CID was discussed in 21/1224 and resolution proposed that TIDs are outside the scope of negotiation. However, group did not reach consensus. |
| 7408 | Subir Das | 35.6.3 | 298.32 | " If there is any restricted TWT agreement set up," is not clear how this is achieved. Does this mean the MIB variable is set? | As in comment | **Revised.** r-TWT agreement setup was clarified, and the text was developed in 21/1224 in ﻿35.8.2 (r-TWT agreement setup). **TGbe editor: The changes are already incorporated in 11beD1.4 and no further editions are needed.** |
| 5878 | Liangxiao Xin | 35.6.4 | 298.37 | Need mechaism to help the R-TWT member STA gains channel access at the scheduled start time of R-TWT SPs | The scheduling AP or R-TWT member STA shall be allowed to contend the channel before the scheduled start time of R-TWT SPs suject to TBD condition. | **Rejected.** The current text allows the r-TWT member STAs to content and obtain WM access outside of r-TWT SP, hence the raised concern doesn’t apply.  |
| 4122 | Akira Kishida | 35.6.4.2 | 0.00 | After a restricted TWT agreement is established, how restricted TWT can end? Some explicit features to tear-down restricted TWT operation should be defined.Note - This comment isn't for "Broadcast TWT" but for "Restricted TWT". | As in comment. | **Rejected.**﻿“9.6.24.9 TWT Teardown frame format” defines the mechanism to teardown existing TWT agreements, including bTWT. The same mechanism can be used for r-TWT by indicating the bTWT ID of the schedule. |
| 5730 | KENGO NAGATA | 35.6.4.2 | 298.01 | After a restricted TWT agreement is established, how restricted TWT can end? Some explicit features to tear-down restricted TWT operation should be defined.Note - This comment isn't for "Broadcast TWT" but for "Restricted TWT". | As in comment. | **Rejected.**﻿“9.6.24.9 TWT Teardown frame format” defines the mechanism to teardown existing TWT agreements, including bTWT. The same mechanism can be used for r-TWT by indicating the bTWT ID of the schedule. |
| 7631 | Tomoko Adachi | 35.6.2 | 0.00 | It may be good to add a new Status Code field value to be able to reject an association request from a non-AP STA that does not support restricted TWT. | As in comment. | **Revised.** Agree in principle. Added corresponding status code.**TGbe editor please implement changes as shown in this doc tagged by 7631.** |
| 4589 | Bo Yang | 9.4.2.199 | 0.00 | Multiple non-AP STAs may have the same latency sensitive traffics. Consequently, EHT AP may allocate one rTWT SP to multiple STAs. In that case, the EHT AP has to send multiple unicast action frames, containing almost the same information, to those STAs. That is a waste. | To reduce signalling overhead, 11be should include STA ID information in rTWT variant of TWT parameter set field. So an EHT AP can allocate one rTWT SP to multiple STAs with one broadcast frame. | **Reject.** Broadcast TWT negotiations are done via individually addressed frames even though SPs may be shared and rTWT builds on the same signalling mechanism. The proposed optimization only applies to the case when the r-TWT setup with multiple STAs happen precisely the same time. It’s very limited case. Further in the same situation, the overhead can be optimized/reduced by existing MU (OFDMA/MU-MIMO) frame exchange. |

# 9.4.1.9 Status Code field

**Table 9-78 – Status codes**

***TGbe editor: insert the following row at the end of the table as follows (change the code value as needed):***

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| **Status code** | **Name** | **Meaning** |
| … |  |  |
| (#7631)136 | DENIED\_RESTRICTED\_TWT\_OPERATION\_NOT\_SUPPORTED | Association denied because the requesting STA does not support restricted TWT operation. |