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### IEEE P802.11­Wireless LANs

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| 11ax D2.0 MAC Comment Resolution for  |
| Date: 2018-02-28 |
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Abstract

This submission proposes resolutions for comments of TGax Draft 2.0 and the proposed change is for TGax Draft 2.2

CIDs: 12101, 11380, 11870, 12212, 11161, 11361, 11871, 12042, 13528, 13529 (10 CIDs)

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 D2.2 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax D2.0 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.***

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 12101 | 323.07 | 27.16.4 | The entire quiet time period mechanism is odd and unconvincing. Legacy devices will not understand, and will not remain quiet. Even for HE STAs, it is just a recommendation that the device "should" remain quiet, which is usually not worth anything. In a dense environment in which some devices follow the recommendation and others do not, the "quiet period" will actually be quite noisy. So what's the point? Apart from that the mechanism, even if it worked, would allow devices to make arbitrary reservations of the medium without a requirement for actually using it, and without a method of canceling unused quiet periods; even if this worked, it shouldn't be allowed. It is not enough to say that this mechanism might be useful in some circumstances; the question is whether it is useful \*enough\* to include in the draft? This is already a very bloated amendment and we should take the opportunity of deleting marginal modes. | Delete the "quiet time period" and all references to it in the draft. | Rejected:This is the same comment submitted in D 1.0 and was rejected for the following reason,“Rejected: The proposed feature provides an HE AP with a tool to mitigate interference when there are peer-to-peer operations in the HE BSS. The protocol is not meant to be deterministic or guaranteed. The protocol would do no harm to BSS operation even if no STA volunteered to stay silent in a quiet time period."After further discussion with the commenter, the commenter agrees to submit a contribution to addressing his concern.  |
| 11380 | 323.14 | 27.16.4.1 | The second sentence in the 1st paragraph of section 27.16.4.1 is redundant and can be removed. It captures the same information as the preceeding sentence. | Delete the 2nd sentence in the 1st paragraph of 27.16.4.1 | Rejected:The two sentences are trying to describe the behaviors of two types of STAs. The first sentence is to make it clear that a STA participating the specific peer-to-peer operation can send. The second sentence is to make it clear that a STA not participating the specific peer-to-peer operation should not send but it is not a “shall” requirement. As discussed before, the intent of the feature is to reduce the possibility of interference. |
| 11870 | 323.21 | 27.16.4.1 | Reference to field name is not consistent in this section. It should be QTP Support | As in comment | Accept:The “field” is not necessary and is deleted.**TGax editor, please make changes as shown in document 11-18/0444r2 under CID 11870**  |
| 12212 | 323.18 | 27.16.4.1 | " high priority"is ambiguous. | Suggest to explain which AC could participate in contention. | Revised:Agree with the comment. The “if ..” sentene is redundant and is deleted.**TGax editor, please make changes as shown in document 11-18/444r2 under CID 12212**  |
| 11161 | 324.05 | 27.16.4.2 | CCA rules are referred to once in the D2.0. A clause reference is missing of which rules to follow for HE STA during a Quiet Time Period. | Add a Note3 where CCA rules are defined for HE STA e.g., clause 27.16.4.2 and or other relevant clauses in the draft. | Revised:Agree with the comment and the text is revised to make it more clear.**TGax editor, please make changes as shown in document 11-18/444r2 under CID 11161** |
| 11361 | 323.27 | 27.16.4.2 | Fix references to different Quiet Time Period elements. There is only one element (call Quiet Time Period Setup) and the Control field identifies if this is a request, response or setup flavor of the element. Similarly, there is only Quiet Time Period action frame and the content (i.e., flavor of the Quiet element) determines whether it is a request, response or setup frame. | Fix all instances in this section (including fig 27-13) to refer to the correct element and frame name. Add spec text to make reference to the Control field in the element to differentiate the type of frame/element and corresponding procedure. | Revised:The text is revised accordingly**TGax editor, please make changes as shown in document 11-18/444r2 under CID 11361** |
| 11871 | 324.45 | 27.16.4.2 | Repetitive use of a word in the same sentence | Reword the 2nd sentence in the note as:"The interference mitigation protocol is to provide an AP a tool to manage and avoid interference." | Accepted:**TGax editor, please make changes as shown in document 11-18/444r2 under CID 11871** |
| 12042 | 323.65 | 27.16.4.2 | Is a quiet period established when the status code of the Quiet Time Period Response element indicates value COUNTER? Please clarify what operations are expected from the requesting STA when it receives a response with value COUNTER. | Please clarify the use of the status code value COUNTER. | Rejected:The operation of counter is stated as following in the specification, “.. AP counters the request with recommended values and the current request is rejected. Upon receiving the Countered, an HE STA shall send a new the Quiet Time request frame to set up the quiet time period”. |
| 13528 | 324.10 | 27.16.4.2 | There is no "vendor specific service identifier" in the Quiet Time Period Response, as shown in Figure 9-589db. | Change "vendor specific service identifier" to "Service Specific Identifier field" | Accepted:**TGax editor, please make changes as shown in document 11-18/444r2 under CID 13528** |
| 13529 | 324.38 | 27.16.4.2 | There is no "vendor specific service identifier" in the Quiet Time Period Setup, as shown in Figure 9-589cz. | Change "vendor specific service identifier" to "Service Specific Identifier field" | Accepted:**TGax editor, please make changes as shown in document 11-18/444r2 under CID 13529** |

**Discussion:**

See the table above

**Propose:**

Revised the following text per discussion and editing instructions in 11-18/0444r0.

***Instruction to the TGax Editor:***

***Instruction to the TGax Editor to revise the following clauses in draft 2.2.***

**27.16.4.1 General**

The QTP (Quiet time period) is an optional feature that defines a period for peer-to-peer operation during which only HE STA which supports the peer-to-peer operation may transmit frames. During the period an HE STA should not transmit frames unless it participates in peer-to-peer operation. All HE STAs in the HE BSS not participating peer-to-peer operation should stay quiet in the period. All HE STAs in the HE BSS not participating peer-to-peer operation may access the channel by following the CCA rule(CID 12212) .

An AP that supports QTP shall set the QTP Support (CID11870) in the AP's HE Capabilities element to 1 and shall set the QTP Capability field to 0 otherwise. An HE STA decides to stay quiet pause its countdown counter and resume count down when a quiet period ends. An STA can continue the countdown if choose not to be silent.

**27.16.4.2 Procedure at the requester HE STA**

Upon the reception of an MLME-QTP.request primitive, an HE STA shall perform the following procedure to start the quiet time period operation (Figure 27-13 (Quiet time period operation)):

1. If the responder AP and the requester HE STA are QTP capable as indicated by the QTP Support (CID11870) in the HE Capabilities element, the requester HE STA sends (CID 11361) an HE action frame with value of the control field set to 0. The Quiet Time Period Request element indicating the duration, interval, and type of operation (indicated by Service Specific Identifier). The requester HE STA may include multiple Quiet Time Period Request elements in one frame for multiple types of peer-to-peer operations.
2. If a Quiet Time Period Response (CID 11361)element is received with the dialog token matching the request token with a status code set to a value of SUCCESS, the AP has confirmed the reception of the Quiet Time Period Request element, and the MLME shall issue an MLME-QTP.confirm primitive indicating the success of the procedure.
3. When a Quiet Time Period Setup (CID 11361)element is received, the requester HE STA may transmit frames. The transmission of a frame by HE STA in this period shall follow the CCA rules (CID 11161) applying to HE STA.

NOTE 1—The HE STA can use the GAS protocol to transport an element that informs an AP about the type(s) of peer-to-peer operations that the HE STA supports.

NOTE 2—The frames belong to the requested type of peer-to-peer operation indicated by the (CID 13528) Service Specific Identifier field of the Quiet Time Period Response.

**27.16.4.3 Procedure at the responder AP**

A responder AP may operate as follows (Figure 27-13 (Quiet time period operation)):

a) When a QTP Request (CID 11361)element is received from an HE STA in an HE action frame, the MLME shall issue an MLME-QTP.indication primitive.

b) Upon receipt of the MLME-QTP.response primitive, the AP may respond by sending Quiet Time Period Response element in an HE action frame.

1) If the status code is SUCCESS, the request is accepted. The responder AP shall schedule the quiet period(s) according to the accepted request. Contained in the transmitted Quiet Time Period Response (CID 11361) element is a copy of the request token from the requester HE STA. The QTP procedure shall be terminated if the number of quiet periods exceeds the value of the Repetition Count field specified.

2) If the status code is REJECTED, the AP indicated the request can not be fulfilled.

3) If the status code is Countered, the AP counters the request with recommended values and the current request is rejected. Upon receiving the Countered, an HE STA shall send a new the Quiet Time request (CID 11361)element to set up the quiet time period.

1. When the scheduled quiet time periods arrive, the responder AP may transmit a (CID 11361)HE action frame including Quiet Time Period Setup element. Only HE STA which supports the operation indicated by the (CID 13529) Service Specific Identifier Field of the Quiet Time Period Setup element may transmit frames in the quiet time period. The responder AP shall set the Quiet Period Duration field of Quiet Time Period Setup frame to a value no larger than indicated in Quiet Period Duration field of the Quiet Time Period Request element sent by the requester HE STA.

NOTE—AP is not required to transmit Quiet Time Period Setup frame when a scheduled quiet time periods arrives. The interference mitigation protocol is to provide an AP a tool to (CID 11871) manage and avoid interference interference. How or whether AP will transmit Quiet Time Period Setup frame when a scheduled quiet time periods arrives is not in the scope of this specification.