### IEEE P802.11 Wireless LANs

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| 11ax D1.0 MAC Comment Resolution for | | | | |
| Date: 2017-07-10 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | Email |
| Chao-Chun Wang | MediaTek Inc | 2840 Junction Ave, San Jose, CA 95134, USA |  | Chaochun.wang @mediatek.com |
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Abstract

This submission proposes resolutions for comments of TGax Draft 1.0 and the proposed change is for TGax Draft 1.4

CIDs: 3041, 3129, 6469, 6470, 8204, 3043, 3045, 5341, 4644, 5069, 5340, 5770, 5771, 5952, 5950, 3044, 5951, 7563, 5845, 8205, 5846, 6471, 6473, 7777, 8203, 8206, 9112 (27 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 D1.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax D1.0 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** |
| 3041 | 96.24 | 9.4.2.223 | Instead of IEEE defining/providing unique identifier for Vendor Specific Service Identifier, can STAs (involved in STA-to-STA) pick a (random) value for their STA-to-STA service and report it to their AP during the request? AP then advertises this value during the Quiet time setup. There is a chance of collision but it should be fairly small. This also helps the case where multiple disjoint set of STAs associated with the same AP request quiet time for the same type of service. This comment also applies to section 27.16.3 | Rename'Vendor Specific Service Identifier' to 'Specific Service Identifier' in figure and related description from sections 9.4.2.223, 224 & 225. Add text that describes that the requesting STA (in its request to the AP) indicates the identifier it has picked for the STA-to-STA service it wishes to run during the quiet time. | Revised: Agree with the suggestion. The revised text is in 9.4.2.242 |
| 3129 | 96.24 | 9.4.2.223 | "The Vendor Specific Service ID field contains a public unique identifier assigned by the IEEE."  Oh no it doesn't. The IEEE doesn't assign anything. The IEEE registration authority assigns various things like OUIs and CIDs - none of which are 2 octets.  (OK, they do provide 2 octet EtherTypes, but there's no way they are going to use that resource for this purpose.) | Remove cited sentence here and wherever it occurs. Add sentence mapping how a value provided by the IEEE Registration Authority is mapped into this field. Define which of the namespaces provided by the IEEE Registration Authority can be used for this purpose. | Duplicated:3041 |
| 6469 | 96.23 | 9.4.2.223 | Vague and uninformative language: "indicates a specified operation". Which oiperation? Where is it specified? | Provide additional, clarifying information. If this operation is specified elsewhere in the draft, say so and provide a reference. If the specification is by the vendor, and thus outside the scope of this draft, delete the word "specified". | Duplicated : CID 3041 |
| 6470 | 96.23 | 9.4.2.223 | Ambiguous langauge: "The Vendor Specific Service ID field indicates a specified operation, and the HE STA that supports it". Does "it" refer to the Vendor Specific Service ID field or the specified operation? | Clarify. | Duplicated: CID 3041 |
| 8204 | 96.23 | 9.4.2.223 | what role does "Vendor Specific Service Identifier" do? | clarify | Duplicated: CID 3041 |
| 3043 | 97.30 | 9.4.2.225 | Quiet Time Period Response doesn't need to carry all the fields in the Request - it can simply carry a status code field to indicate whether the request was successful | Remove fields (and corresponding description) between Dialog Token and Status code | Counter:  AP can counter the request by having different values in the response frame. Clauses  9.4.242.4 and 27.16.4.3 are revised to support the behaviour. |
| 3045 | 97.48 | 9.4.2.225 | There is no reason for status code to be 2 octet long. Also define possible values and their meaning for status code field for status code | Change status code to 1 octet field. Add a table that define values for status code - for example,  (0)success,  (1)reject - requested period too long  (2)reject - requested periodicity too long  (3) so on.... | Revised: Agree with the suggestion. The text is in 9.4.2.242.3 |
| 5341 | 97.49 | 9.4.2.225 | The values for Status Code are not defined | Define the values for Status Code | Duplicated: CID 3045 |
| 4644 | 80.10 | 9.4.2.218.2 | Add clarity and call out bit position in Table 9-262z for subfield "QTP Support" corresponding to those bit positions in Figure 9-589ck. | Add bit "B33:" in Definition column before the word "The" Add bits "B33:" in Encoding column before the word "If" | Rejected: This is a very good suggestion. But in the current table (in Draft 1.3), no entry ahs this type syntax. Suggesting to have a comment to update the syntax of table 9-262z, it seems out of place if QTP is the only one |
| 5069 | 96.22 | 9.4.2.223 | QTP setup frame only contains Vendor Specific Service Identifier, in order to distinguish different types of STA2STA operation, such as NAN, DLS, and etc. In dense environment, if many DLS links try to contend for channel in QTP period, they may collide or interferece with each other. | as in comment | Rejected: Since the Peer-to-peer operation may or may not belong to the same service, even there is collision, the interference is limited to the STAs of the peer-to-peer operation. |
| 5340 | 96.54 | 9.4.2.224 | The granularity of Quite Period Offset, Interval and Duration is too coarse (1TU or 1024 us) while the frame format allows to have values up to 65535 TUs, i.e. longer than 1 minute, which is hardly needed. | Express Quite Period Offset, Interval and Duration in 32 us, similarly to MCCA. Such unit provide a range for these values 32 us to 2s which is a good trade-off between granularity and scalability | Counter: Agree with part of the comment.   1. Since the offset field is anchor by TBTT, the offset field is reduced to one byte in TU. 2. The interval field remains unchanged, two bytes long in TU. 3. Since the quiet time duration should follow the TXOP rule, the duration field is change to one byte with resolution of 32 micro second. The maximum duration is 8ms. |
| 5770 | 96.28 | 9.4.2.224 | The details of setting Quiet Time Period request elements are missing | Clarify | Revised: revised text is in clauses 9.4.2.242.3 |
| 5771 | 96.28 | 9.4.2.224 | In case of not periodic QTP, how to set Quite Time Period is not defined | define the case for not periodic QTP | Revised: Repeat count 0 indicated that request is for one time only operation. Revised text is in clauses 9.4.2.242.3 |
| 5952 | 207.15 | 27.16.3.2 | The spec only provides the methods to setup new Quiet Time Periods. But once a periodic Quiet Time Period is configured, there should be some ways to cancel it when necessary. | As suggested | Revised:  Revised text is in clauses 9.4.2.242.3 |
| 5950 | 96.53 | 9.4.2.224 | The spec requires the Quiet Period Offset field is set to the offset of the start of the first quiet period from the Quiet Time Period Request. But since Quiet Time Period Request element defines a periodic sequence of quiet periods, it seems easier for implementations to just define an absoulte anchor point for the first quiet period instead of using an offset. | As suggested | Revised: Accept the comment and using TBTT as the anchor point. The revised text is in 9.4.2.242.3. |
| 3044 | 97.32 | 9.4.2.225 | The value of 'offset' field for the first quiet period should be consistent with the value indicated in the request | Change sentence to: "The reference time is the start of the preamble of the PPDU that contains request element to which this element is a response." Actually this field should be removed since it doesn't add any value. This element is in response to the request. It should only carry dialog token and status code. | Duplicated: the comment is address by CID 5950 |
| 5951 | 97.30 | 9.4.2.225 | Since the Quiet Time Period is periodic, it is not clear why in the response element, the first apperance of this period is expressed in offest and not an absolute time. It should be easier for implementations to just define an absoulte anchor point for the first quiet period instead of using an offset. | As suggested | Duplicated: The comment is addressed in CID 5950 |
| 7563 | 96.53 | 9.4.2.224 | The start time of SP per PPDU TX time is not good because of the retransmission of the frame: the receiver can't discard the duplicated frame. It is simpler to replace the offset field with a start timer field. | As in comment | Duplicated: The comment is addressed in CID 5950 |
| 5845 | 97.30 | 9.4.2.225 | The description of Quiet Time Period Offset field of Quiet Time Response element is wrong. | Replace: "Quiet Time Period Request", with "Quiet Time Period Response" | Duplicated: The comment is addressed in CID 5950 |
| 8205 | 96.31 | 9.4.2.224 | why there is a need to define a "periodic sequence" of quiet elements? | clarify | Rejected: The field is to address the need of certain per-to-peer operation that exchange frames in regular interval. |
| 5846 | 95.48 | 9.4.2.223 | Quiet Time Period Setup element is not needed. Since the Quiet Time Period is negotiated through Request & Response alerady, this Setup element is redundant | Remove it from the text | Rejected: The “Quiet Time Period Setup” element serves two purposes. To inform the STAs that an AP designates a period to give STAs participating in a specific peer-to-peer operation preference for channel access. It also allows the AP to dynamically control the allocation of quiet time period. |
| 6471 | 96.32 | 9.4.2.224 | The format of the element is "shown" in the Figure. In many other places in the draft, format is defined in figures. In the present instance, is this showing really a definition? If so, say so. | Change " shown" to "defined". | Rejected: The baseline 802.11-2016 uses “shown” when referring to a figure. |
| 6473 | 97.43 | 9.4.2.225 | Vague and uninformative language: "indicates a specified operation". Which oiperation? Where is it specified? | Provide additional, clarifying information. If this operation is specified elsewhere in the draft, say so and provide a reference. If the specification is by the vendor, and thus outside the scope of this draft, delete the word "specified". | Duplicated: CID 3041. The quoted text was removed. |
| 7777 | 96.22 | 9.4.2.223 | What does "the HE STA support it can transmit frames" mean? | Clarify. Same thing in 9.4.2.224 and 9.4.2.225. | Revised: Additional text is added to 9.4.2.242.3 to address the comment. |
| 8203 | 95.54 | 9.4.2.223 | What does "improve probability" mean? Improve with respect to what? | explain or delete | Revised: Additional text is added to 9.4.2.242.2 address the comment. |
| 8206 | 95.48 | 9.4.2.223 | Is there a field in the HE Capability element to indicate support for this feature? If not then I believe it needs to be added. | as in comment | Rejected: It is define in Table 9-262z |
| 9112 | 96.37 | 9.4.2.224 | The term "Vendor Specific Service Identifier" is used in Figure 9-589cz, "Vendor Specific Service ID" on P96L22 and also "Vendor Specific Service Type" on P207L48, which appear to be the same parameter. | Clarify and use a consistent term at the cited places. "Vendor Specific Service ID" may be the suitable one to use. In addition, an example of such a Service ID may be useful to avoid confusion with many specific service related terms introduced by the IEEE 802.11aq draft. | Rejected: The “Vendor Specific Service Identifier” is addressed by CID 3041 . The change of "Vendor Specific Service Type" on P207L48 was addressed by the companion submission 17-1009 |

**Discussion:**

3041 Revised: Agree with the suggestion. The revised text is in 9.4.2.242

3129 Duplicated: CID 3041

6469 Duplicated: CID 3041

6470 Duplicated: CID 3041

8204 Duplicated: CID 3041

6473 Duplicated: CID 3041. The quoted text was removed.

3043 Counter: AP can counter the request by having different values in the response frame. Clauses 9.4.242.4 and 27.16.4.3 are revised to support the behaviour.

3045 Revised: Agree with the suggestion. The text is in 9.4.2.242.3

5341 Duplicated: CID 3045

4644 Rejected: This is a very good suggestion. But in the current table (in Draft 1.3), no entry has this type syntax. Suggesting to have a comment to update the syntax of table 9-262z, it seems out of place if QTP is the only one

5069 Rejected: Since the Peer-to-peer operation may or may not belong to the same service, even there is collision, the interference is limited to the STAs of the peer-to-peer operation.

5340 Counter: Agree with part of the comment.

(1) Since the offset field is anchor by TBTT, the offset field is reduced to one byte in TU.

(2) The interval field remains unchanged, two bytes long in TU.

(3) Since the quiet time duration should follow the TXOP rule, the duration field is change to one byte with resolution of 32 micro second. The maximum duration is 8ms.

5770 Revised: revised text is in clauses 9.4.2.242.3

5771 Revised: Repeat count 0 indicated that request is for one time only operation. Revised text is in clauses 9.4.2.242.3

5952 Revised:

Revised text is in clauses 9.4.2.242.3

5950 Revised: Accept the comment and using TBTT as the anchor point. The revised text is in 9.4.2.242.3.

3044 Duplicated: the comment is address by CID 5950

5951 Duplicated: The comment is addressed by CID 5950

7563 Duplicated: The comment is addressed by CID 5950

5845 Duplicated: The comment is addressed by CID 5950

8205 Rejected: The field is to address the need of certain per-to-peer operation that exchange frames in regular interval.

5846 Rejected: The “Quiet Time Period Setup” element serves two purposes. To inform the STAs that an AP designates a period to give STAs participating in a specific peer-to-peer operation preference for channel access. It also allows the AP to dynamically control the allocation of quiet time period.

6471 Rejected: The baseline 802.11-2016 uses “shown” when referring to a figure.

7777 Revised: Additional text is added to 9.4.2.242.3 to address the comment.

8203 Revised: Additional text is added to 9.4.2.242.2 address the comment.

8206 Rejected: It is define in Table 9-262z

9112 Rejected: The “Vendor Specific Service Identifier” is addressed by CID 3041 . The change of "Vendor Specific Service Type" on P207L48 was addressed by the companion submission 17-1009

**Propose:**

Revised the following text per discussion and editing instructions in 11-17/1010r2.

***Instruction to the TGax Editor: Since 9.4.2.223 in draft 1.0 was revised in 693r5 (and will be include in 1.4 with submission from 693r5). The changes in this document are all on top of the revised text of 693r5***

***Instruction to the editor: revised 9.4.2.242 of draft 1.4 with the following changes***

**9.4.2.242 Quiet Time Period element**

**9.4.2.242.1 General(#Ed)** (#3038)

Quiet Time Period Action frame formats are defined to support quiet time Period functionality for peer-to-peer (Table 9-421ab) operation.

A Control field (Figure 9-589cy (The control filed is the byte after Element ID Extension)), in the octet immediately after the Quiet Time Period field, specifies the type of actions of the Quiet Time Period action frame. The first two-bits defines the value and referred to as Quiet Time Period Subtype field. The remaining 6 bits are reserved.

The format of the Quiet Time Period Element is shown in Figure 9-589cy (The control filed is the byte after Element ID Extension).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element ID | Length | Element ID Extension | Control | Quiet Time Content |

1 1 1 1 variable [#Ed]

**Figure 9-589cy—Quiet Time Period element format**

The values of the Control field in each frame format within the Quiet Time Period Action frame are defined in Table 9-262af (Control field encoding). The Quiet Time Content field is a variable length field which carries information of quiet time operation indicated by the value in the Control field.

**Table 9-262af—Control field encoding**

|  |  |
| --- | --- |
| **Value** | **Quiet Time Period Action frame subtype** |
| 0 | Quiet Time Period Setup subtype |
| 1 | Quiet Time Period Request subtype |
| 2 | Quiet Time Period Response subtype |
| 3-255 | Reserved |

**9.4.2.242.2 Quiet Time Period Setup**

The Quiet Time Period Setup subtype defines a period for a peer-to-peer operation (see 11.47 (Quieting HE STAs in an HE BSS)). The quiet time period can be used [8203] by an AP to mitigate the interference by reducing the contention from HE STAs in a period that gives preference to HE STAs participating in peer-to-peer operation.

The content of the Quiet Time Content subfield in the Quiet Time Period Setup subtype is shown Figure 9-589cz (Quiet Time Period Setup subtype).

|  |  |
| --- | --- |
| Quiet Period Duration | [3041] Service Specific Identifier |

1 [5340] 2

**Figure 9-589cz—Quiet Time Content subfield format in Quiet Time Period Setup subtype**

The Quiet Period Duration field is set to the duration of the quiet time period, , [5340] in units of 32 microseconds, that is no larger than the value indicated in the Quiet Period Interval subtype field of the Quiet Time Period Request subtype sent by the requester HE STA.

The [3041] Service Specific Identifier field indicates a specified peer-to-peer operation, and the HE STA supporting it can transmit frames. Value for the [3041] Service Specific Identifier field contains an identifier assigned by the peer-to-peer operation.

**9.4.2.242.3 Quiet Time Period Request [5770]**

The Quiet Time Period Request subtype defines a periodic sequence of quiet time periods that the requester HE STA requests the responder HE AP to schedule.

The content of the Quiet Time Content subfield in the Quiet Time Period Request subtype is shown in Figure 9-589da (Quiet Time Period Request subtype).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dialog Token | Quiet Period Offset | Quiet Period Duration | Quiet Period Interval | Repetition Count [#ED] | [3041] Service Specific Identifier |

2 1[5340] 2 1 [5340] 1 2

**Figure 9-589da—Quiet Time Content subfield format in Quiet Time Period Request subtype**

The Dialog Token field is used to identify the Quiet Time Period Response subtype to which this Quiet Time Period Request subtype corresponds.

The Quiet Period Offset field is set to the offset of the first quiet time period [5950] from the TBTT expressed in TUs

The Quiet Period Interval field is set to the requested interval between the start of two consecutive quiet time periods, expressed in TUs.

The Quiet Period Duration field is [5340] Duration field is a one byte field with resolution of 32 micro seconds. .

The Repetition Count field is set to the number of requested quiet time periods.

[5771] Repetition count equal to 0 indicated the setup of the quiet time period is for one time operation. [5952] Repetition count equals to FF indicated the setup of the quiet time period is cancelled.

The [3041] Service Specific Identifier field indicates a specified peer-to-peer operation, and the HE STA supporting it can transmit frames. The The [3041] Service Specific Identifier field indicates [7777] HE STAs participated in the peer-to-peer operation is given preference to transmit frames in the period. The [3041] Service Specific Identifier ID field contains an identifier assigned by the peer-to-peer applications..

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**9.4.2.242.4 Quiet Time Period Response**

The Quiet Period Response subtype defines the feedback information from the AP that received the Quiet Time Period Request element. [3043] If an AP decides to counter the request, the AP can set different values carried in the Quiet Period Response frame.

The content of Quiet Time Content subfiled in the Quiet Time Period Response subtype is shown in Figure 9-589db (Quiet Time Period Response subtype).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dialog Token | Status Code | Quiet Period Offset | Quiet Period Duration | Quiet Period Interval | Repetition Count | [3041] Service Specific Identifier |

2 1 [3045] 1 [5340] 2 1 [5340] 1 2

**Figure 9-589db—Quiet Time Content subfield format in Quiet Time Period Response subtype**

The Status Code field indicates the status of a requested operation. [3045] The value of the status code is shown in table 9-262ag

**Table 9-262ag — Status Code**

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0 | Success |
| 1 | Reject |
| 2 | Counter |
| 3-255 | reserved |

The Dialog Token field is used to identify Quiet Time Period Request subtype to which this Quiet Time Period Response subtype corresponds.

The Quiet Period Offset field is set to the offset of the start of the first quiet time period from the transmission time of the preamble of the PPDU that contains the Quiet Time Period Response subtype, expressed in TUs. The reference time is the start of the preamble of the PPDU that contains this element.

The Quiet Period Interval field is set to the interval between the start of two consecutive quiet time periods, expressed in TUs.

The Quiet Period Duration field is [5340] a one octect field with resolution of 32 micro seconds.

The Repetition Count field is set to the number of requested quiet time periods.

The [3041] Service Specific Identifier field indicates a peer-to-peer operation, and the HE STA supporting it can transmit frames. The [3041] Service Specific Identifier ID field contains an identifier assigned by the peer-to-peer applications..

**27.16.4.3 Procedure at the responder AP**

A responder AP may operate as follows (Figure 27-13 (Quiet(#6797) time period operation(#Ed))):

a) When a QTP Request frame is received from an HE STA, 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 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 frame is a(#6811) 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. [3043]. Upon receiving the Countered, an HE STA shall send a new the Quiet Time request frame to set up the quiet time period.

c) When the scheduled quiet time periods arrive, the responder AP may transmit a Quiet Time Period Setup frame including Quiet Time Period Setup element. Only HE STA(#6793) which supports the operation indicated by the Vendor Specific Service Identifier field of the Quiet Time Period Setup element may(#5744) 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(#6813) value no larger than indicated in Quiet Period Duration field of the Quiet Time Period Request element sent by the requester HE STA.