IEEE P802.11  
Wireless LANs

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| PAR Scope Related Comments | | | | |
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Abstract

This submission proposes resolutions of comments received from TGah 1st Sponsor Ballot (TGah Draft 5.0).

* CIDs: 8219, 8236, 8238, 8239, 8241, 8243, 8246, 8247, 8251, 8252, 8254, 8257, 8258, 8259, 8260, 8261, 8264, 8265, 8266, 8267, 8268, 8269, 8270, 8271, 8272, 8273, 8274, 8275, 8276 (29 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 TGah Draft. This introduction is not part of the adopted material.

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

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

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 8219 | 1 | 1 | the scope of the draft DOES exceed the work authorized by the PAR. Specifically: "and enhancements to the IEEE 802.11 Medium Access Control (MAC) to support this PHY": this amendment draft contains MAC additions and changes which are not required to support this PHY. | Remove MAC additions and changes not specifically required to support the new PHY. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that all MAC features contained in IEEE 802.11ah amendment draft are in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s). |
| 8236 | 10 | 4.3.13a.2 | S1G Relay: the scope of the draft does exceeds the work authorized by the PAR. This is adds MAC complexity not required to support this PHY, which exceeds the scope of the project authorization. | Delete definition. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8238 | 11 | 5.1.5.6 | The addition of this new MAC capability is outside the scope of the PAR s it is not necessary to support this PHY. | Remove MAC additions that are out of scope of the project authorization. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8239 | 13 | 6.3.3.2 | MAC changes out of scope of the project authorization: The "S1GRelay" appears to be additional MAC additions not necessary to support this PHY. | Remove all parameters and semantics associated with S1GRelay. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8241 | 75 | 8.2.3 | Why is introducing a new protocol version necessary to support the PHY? The PAR scope specifies "and enhancements to the IEEE 802.11 Medium Access Control (MAC) to support this PHY"; this draft goes way beyond that scope. | Remove all the MAC changes that are out of scope of the project authorization. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8243 | 116 | 8.4.2.6 | Why is it necessary to complicate the TIM element to support this PHY? The revised structure of the traffic induction field does not seem to save overhead, or support PHY limitations. | Remove TIM element modifications not necessary to support this PHY. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of associated STAs also increases.  When the number of associated STAs is large, a size of legacy TIM is proportionally increases.  Hierarchical TIM structure designed in 802.11ah saves this TIM overhead. Such MAC overhead reduction is essential for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8246 | 336 | 9.52 | Multicast AID appears to be a new MAC feature, not defined in the base standard. It is not clear that a new multicast delivery mechanism is necessary to support the sub-1GHz PHY. The scope of the authorized project does not include features added to the MAC which are not necessary to support the new PHY. | Remove MAC additions and changes not specifically required to support the new PHY. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of associated STAs also increases.  But, the problem is that a legacy multicast delivery mechanism does not work well when the number of associated STAs is large.  So, Multicast AID designed in 802.11ah provides more efficient multicast deliver, especially in a S1G BSS supporting a transmission range of 1 Km. |
| 8247 | 350 | 10.2.2.1 | The first sentence contradicts the base standard when PHYs other than S1G are in use. The rest introduces a rather complicted representation of the traffic indication bit mape, which is not required to support the S1G PHY. | Delete the first sentence. Then delete the rest of the inserted text and all reference to the paged and sliced traffic indication field | Revised-  Since the first sentence is conflicted with the base standard,  TGah editor makes change as following:  “If the AP is an S1G AP, the AP may additionally deliver these BUs using multicast AID as defined in 9.52 (Multicast AID).”  But, regarding the page slicing mechanism, the Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of associated STAs also increases.  When the number of associated STAs is large, a size of legacy TIM is proportionally increases.  Page slicing mechanism designed in 802.11ah saves this TIM overhead. Such MAC overhead reduction is essential for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8251 | 205 | 8.8.2 | The addition of a new MAC frame format is out of scope of the approved project scope. This amendment has created a frame format incompatible with the existing, base standard, thus requiring a new frame version value, but the purpose of this completely new format in the context of "necessary to support this PHY" is not at all clear. The elimination of the 2 octets of MAC Header saved by removing the Duration/ID field is nullified by the requirement to always send a second address? This seems a dangerously careless use of frame version values, of which there can never be more than 4. 802.11 has existed for 25 years supporting data rates as low as this PHY with the same MAC frame format, a practice which has many benefits, e.g. adopting a new PHY is far more practical if the MAC does not need to change. No characteristic of this PHY require a new MAC frame format. This change is not necessary to support this PHY and so out of scope of the PAR. | Remove "PV1" frame format throughout the draft. Use the existing MAC frame formt as required by the PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8252 | 75 | 8.2.3 | The addition of a new MAC frame format is exceeds the approved project scope. | Remove "PV1" frame format throughout the draft. Use the existing MAC frame formt as required by the PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8254 | 0 | 0 | The approved PAR includes in the scope "provides mechanisms that enable coexistence with other systems in the bands including IEEE 802.15.4 and IEEE P802.15.4g". I find no such mechanisms in this draft. | Withdrw the draft from sponsor ballot and resubmit when it is technically complete (contains technical content to meet the scope fo the PAR) | Rejected-  The Ballot Resolution Committee (BRC) believes that a coexistence mechanism is already included in the current TGah draft.  As in 11n/ac operated in 2.4GHz, the main mechanism for coexistence with non-802.11 devices (e.g., IEEE 802.15.4 and IEEE P802.15.4g) is clear channel assessment (CCA).  Please refer the following TGah Coexistence Assurance Document:  https://mentor.ieee.org/802.11/dcn/13/11-13-1088-04-00ah-coexistence-assurance.doc |
| 8257 | 76 | 8.2.4.1.1 | It appeastr that the inserted text is specifying different formats for existing 802.11 MAC frames when the S1G PHY is being used. This is not required to support this PHY. | Remove MAC changes that are out of scope of the PAR (from line 20 through pg 7 line 34) | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  S1G Control frame that is used for reducing the MAC header overhead is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8258 | 77 | 8.2.4.1.2 | A new MAC protocol version is not required to support this PHY. These changes are out of scope of the PAR. | Remove MAC changes that are out of scope of the PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8259 | 78 | 8.2.4.1.2 | S1G Relay is out of scope of the approved PAR. | Remove S1G Relay from the draft | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8260 | 327 | 9.51 | MAC changes out of scope of the project authorization: The "S1GRelay" is not necessary to support this PHY. | Remove S1G Relay from the draft | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8261 | 80 | 8.2.4.1.10 | MAC changes out of scope of the approved PAR. | Remove line 10-12 and clause 9.51. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8264 | 205 | 8.8 | This clause exceeds the scope of the approved PAR. A new frame version is not required to support this PHY. | Remove MAC content that re out of scope of the PAR (which limits MAC changes to those required to support this PHY) | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8265 | 236 | 9.3 | Why is a second virtual CS necessary to support the PHY defined by this amendmnt? There are no (obvious?) PHY characteristics, dependencies unique to the S1G PHY that require a second virtual CS. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of hidden nodes also increases.  Increased collisions between the hidden nodes make a severe performance issue.  The second virtual CS mechanism used in IEEE 802.11ah allows STAs to set the virtual CS through the PHY header, and consequently it can alleviate the collision between hidden nodes.  The second virtual CS mechanism is an absolutely necessary feature in a BSS supporting a transmission range up to 1 Km. |
| 8266 | 295 | 9.44 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of hidden nodes also increases.  Increased collisions between the hidden nodes make a severe performance issue.  Target wake times (TWTs) allow STAs to manage activity in the BSS by scheduling STAs to operate at different times in order to minimize contention. So, the TWT is necessary in order to support a transmission range up to 1 Km. |
| 8267 | 303 | 9.45 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of hidden nodes also increases.  Increased collisions between the hidden nodes make a severe performance issue.  Non-TIM STA operation is to minimize contention between hidden node STAs. So, the non-TIM STA operation is necessary in order to support a transmission range up to 1 Km. |
| 8268 | 306 | 9.46 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of hidden nodes also increases.  Increased collisions between the hidden nodes make a severe performance issue.  The Synchronization (Sync) frame operation used in IEEE 802.11ah allows STAs to more quickly synchronize its CS value with AP, and consequently it can alleviate the collision between hidden nodes.  The Synch frame operation is an useful feature in a BSS supporting a transmission range up to 1 Km. |
| 8269 | 308 | 9.47 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of hidden nodes also increases.  Increased collisions between the hidden nodes make a severe performance issue.  The Bidirectional TXOP is addressing a hidden node problem by allowing an exchange of an UL and DL frames within a single TXOP.  So, the Bidirectional TXOP is a necessary feature in a BSS supporting a transmission range up to 1 Km. |
| 8270 | 310 | 9.48 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of associated STAs also increases.  When the number of associated STAs is large, a size of legacy TIM is proportionally increases.  Page slicing mechanism designed in 802.11ah saves this TIM overhead. Such MAC overhead reduction is essential for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8271 | 313 | 9.49 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, through the Subchannel Selective Transmission mechanism, 802.11ah STA can obtain frequency selective scheduling gain and is possible to support a transmission range up to 1 Km. |
| 8272 | 327 | 9.51 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Especially, S1G Relay is necessary in order to support a transmission range up to 1 Km. |
| 8273 | 336 | 9.52 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Since a transmission range of S1G BSS is increased up to 1 Km, the number of associated STAs also increases.  But, the problem is that a legacy multicast delivery mechanism does not work well when the number of associated STAs is large.  So, Multicast AID designed in 802.11ah provides more efficient multicast deliver, especially in a S1G BSS supporting a transmission range of 1 Km. |
| 8274 | 338 | 9.55 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR including all reference to PV1. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate). |
| 8275 | 340 | 9.58 | Addition of new MAC features that exceed the scope of the approved PAR: this feature is not required to support the PHY defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  Supported data rates of IEEE 802.11ah are very heterogeneous (from  150 Kbps to 346.6 Mbps).  Flow control is used for preventing the overflow condition caused by the heterogeneous data rates and it is a critical feature for operating in a various data rates (>100 kbit/s) specified in the TGah PAR scope. |
| 8276 | 377 | 11 | Addition of new MAC features that exceed the scope of the approved PAR: Enhancing the security model is not related to the characteristics of the PHY being defined by this amendment. | Remove MAC additions that exceed the scope of the approved PAR. | Rejected-  The Ballot Resolution Committee (BRC) disagrees on the interpretation of the PAR. The BRC believes that the feature is in scope as it is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a transmission range up to 1 Km and a various data rates (>100 kbit/s).  PV1 MAC frame having a reduced MAC header is an enhancement to the IEEE 802.11 Medium Access Control (MAC) to support a various data rates (>100 kbit/s) and such protocol optimization is a critical feature for operating in very low data rate mode (e.g., 150 Kbps data rate).  And, the proposed changes on Clause 11 are just a minimal modification for supporting for the secure PV1 MAC frame. |