IEEE P802.11
Wireless LANs

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| MAC-PDT-CR for 37.11.5 |
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Abstract

This document contains comment resolutions for the following CIDs related to subclause 37.11.5.

* 104, 105, 173, 429, 430, 431, 436, , 668, 731, 732, 733, 734,
* 735, 756, 806, 807, 808, 809, 810, 888, 1308, 1309,
* 1310, 1311, 1312, 1313, 1768, 1841, 1843, 1888, 1972, 2162,
* 2163, 2501, 2502, 2503, 2614, 2615, 2616, 2617, 2618, 2683,
* 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3116, 3123,
* 3124, 3125, 3192, 3193, 3221, 3423, 3424, 3425, 3703, 3704,
* 3705, 3706, 3718, 3719, 3773, 3774, 3898.

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| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 104 | Xiangxin Gu | 37.11.5 | 84.06 | It is better to report the LOM before it happens | as the comment. | Revised –Agree in principle. Intent is to not require the STA to send the request “when” the Coex event has already happened. Proposed change removes “have changed”.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 104. |
| 105 | Xiangxin Gu | 37.11.5 | 84.39 | LOM is a result of CO-EX event. It can not be always guaranteed for an STA to not apply LOM parameter before receiving the response | the exact mechanism needs to be discussed. | Revised –Agree in principle with the comment. Changed “shall” to “should” and added a note to specify that the STA should send this request as soon as possible, so that the update applies when the STA needs it.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 105. |
| 173 | Jay Yang | 37.11.5 | 84.23 | what's "lie"? suppose it's a typo | as the comments | Rejected –It is not a typo. It means that fall within. Same term has been used elsewhere in the baseline as well e.g., “The originator may transmit QoS Data frames with a TID matching a block ack agreement in any orderprovided that their sequence numbers lie within the current transmission window”.  |
| 429 | Shuang Fan | 37.11.5 | 83.59 | dot11LimitedOperationModeImplemented is not defined in Annex C.3,please add it | as in comment | Revised –Agree. Defined in Annex C.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 429. |
| 430 | Shuang Fan | 37.11.5 | 83.59 | There is no 'Limited Operation Mode (LOM) Support ' subfield defined in the UHR MAC Capabilities Information in clause 9.4.2.aa2.2, please add it. | as in comment | Revised –Agree. Added the respective capability bit as suggested.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 430. |
| 431 | Shuang Fan | 37.11.5 | 84.01 | dot11LOModeImplemented' is conflict with the 'dot11LimitedOperationModeImplemented' mentioned in page83 line 59, Please replace one with the other. | as in comment | Revised –Agree. Used same terminology throughout.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 431. |
| 436 | Shuang Fan | 37.11.5 | 84.15 | The parameter about Maximum NSS should be considered | Add a bulleta Maximum NSS subfield that indicates the maximum NSS that is supported by the STA in transmit and/or receive when the non-AP STA is in LOM mode. | Revised –Agree. Added max NSS to the list.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 436. |
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| 668 | Suhwook Kim | 37.11.5 | 84.16 | Redundant hyphen | Delete redundant hyphen | Accepted |
| 731 | Chien-Fang Hsu | 37.11.5 | 83.59 | dot11LimitedOperationModeImplemented is not aligned with dot11LOModeImplemented on the next paragraph | Use dot11LOModeImplemented instead of dot11LimitedOperationModeImplemented | Revised –Agree. Used same terminology throughout.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 731. |
| 732 | Chien-Fang Hsu | 37.11.5 | 84.02 | "LOM Supporting AP" does not have corresponding capability and MIB setup in the UHR capabilties element | Add corresponding capabilities and MIB setup rules in this subclause. | Revised –Agree with comment. Clarified that the MIB and respective capability bit applies to both STA and AP.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 732. |
| 733 | Chien-Fang Hsu | 37.11.5 | 84.05 | "LOM mode" is not defined. Also LOM mode is easily misunderstood because in LOM, the M is from "mode". | Define the LOM mode and use a better terminology to avoid confusion. | Revised – Agree in principle.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 733. |
| 734 | Chien-Fang Hsu | 37.11.5 | 84.16 | extra dash before "An LDPC" | remove the dash | Accepted |
| 735 | Chien-Fang Hsu | 37.11.5 | 84.33 | In some coexistence scenarios, an antenna-shared non-AP STA may want to indicate the maximum NSS and other LOM parameters, and since these parameters are defined separately, the non-AP STA has to request to change them separately. Therefore LOM parameter set can also define the maximum BW and maximum NSS. | Add "maximum BW" and "maximum NSS" in the LOM parameter set. | Revised –Agree. Added Max NSS and max BW.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 735. |
| 756 | Junbin Chen | 37.11.5 | 84.08 | "The TBD Request frame includes fields for the parameters that may be changed and include at least the following fields:"The sedond "include" shall be "includes". | as commented | Revised –Agree in principle. Sentence is re-written for better clarity.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 756. |
| 806 | Seongho Byeon | 37.11.5 | 84.01 | Propose to change from "LOM requesting non-AP STA" to "LOM supporting non-AP STA" for consistency | As in comment. | Revised –Agree. Changed throughout but using AOM STA instead as suggested by other comments. Replaced “Limited” with “Adaptive” since the operation allows parameters to transition from high to low but also from low to high.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 806. |
| 807 | Seongho Byeon | 37.11.5 | 84.02 | Propose to change from "LOM responding AP" to "LOM Assisting AP" for consistency | As in comment. | Revised –Agree. Changed throughout.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 807. |
| 808 | Seongho Byeon | 37.11.5 | 84.01 | LOM stands for Limited Operation Mode, so that I suggest changing "LOM mode" to "LOM" simply. | As in comment. | Revised –Agree in principle. Used the expanded term and the acronym for ease of identification. Replaced “Limited” with “Adaptive” since the operation allows parameters to transition from high to low but also from low to high.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 808. |
| 809 | Seongho Byeon | 37.11.5 | 84.01 | This commenter is not sure why LOM operation is necessary. If LOM operates in an event-driven manner, it is very similar to DPS, so the difference between DPS LC mode and LOM should be clearly shown in the draft.Or, if LOM operates in a time-based manner, it becomes similar to partial unavailability, and it is desirable to merge or move fields that can be defined in LOM into DUO or PUO. | A clear explanation of the role and method of LOM is needed (difference from DPS LC or whether to merge as part of DUO/PUO's partial unavailability operation). | Rejected –The comment fails to identify a technical issue. The differences between DPS and LOM are pretty clear. Listing here some of them:* DPS stands for dynamic power save, which enables the STA to transition from low capability mode (LCM) to high capability mode (HCM) in a per-TXOP basis and per-traffic basis. STA is always assumed to have the HCM (highest advertised capabilities/operation parameters) available whenever the peer STA needs to use it.
* LOM stands for limited operation mode, which enables the STA to advertise that certain limitations in receive/transmit, which arise due to coex, for example the maximum PPDU duration that it supports, the maximum MCS that it supports, etc. These limitations will apply to both LCM and HCM if the LOM STA were to operate under DPS as well.

Hence, these are completely separate functionalities, which, of course the STA can use independently or together depending on the configurations. |
| 810 | Seongho Byeon | 37.11.5 | 84.49 | In DUO, PUO, or AP PUO, the following note is described:NOTE--If the AP/PUO Supporting AP/STA transmits PPDUs containing frames addressed to the AP during the AP's unavailability period, then the expectation is that the STA does not take into account the failed reception of the frames contained in the PPDUs for its rate selection algorithm nor for its EDCA function for the AC used to transmit these frames, unless required by regulatory rules.For consistency, it is necessary to define the same note for LOM responding AP. | As in comment. | Rejected –The quoted note is applicable to DUO, PUO and AP PUO during the periods of unavailability, which are intervals of time that the STA is considered to be unavailable. A LOM STA is not considered to be unavailable but rather operating with one or more of the parameters that have changed, but still available. Hence the note is not applicable in this case. |
| 888 | John Wullert | 37.11.5 | 84.04 | Given that all non-AP STAs that support LOM are requesting and all APs that support LOM are responding, including "requesting" and "responding" in their respective names seems redundant | Change "LOM requesting non-AP STA" to "LOM non-AP STA" and "LOM responding AP" to "LOM AP" | Revised –Several comments suggested using “LOM STA” and “LOM assisting AP” which helps differentiate roles as well. Going that route. Replaced “Limited” with “Adaptive” since the operation allows parameters to transition from high to low but also from low to high.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 888. |
| 1308 | Hong Won Lee | 37.11.5 | 83.60 | This subfield is not defined in the UHR Capabilities element | The Limited Operation Mode (LOM) Support field should be defined in the UHR MAC Capabilities Information field of the UHR Capabilities element or another proper container | Revised –Agree. Added to the UHR Caps.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1308. |
| 1309 | Hong Won Lee | 37.11.5 | 83.62 | TBD should be resolved. Is this Parameter Update mechanism peformed at the STA level or at the MLD level? | It would be beneficial to consider both the STA and MLD levels. Considering the STA level for the mechanism is fundamental, while considering the MLD level may enhance the mechanism. For example, a STA1 affiliated with a non-AP MLD can notify the parameters of other STAs affiliated with the same non-AP MLD | Revised –Agree in principle. Performed at STA level since it is a STA level functionality. Removed that sentence, including the TBD.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1309. |
| 1310 | Hong Won Lee | 37.11.5 | 84.06 | TBD should be resolved. Can the Request frame be new Action frame or existing Action frame(or another type of frame)? | Following options can be considered for the Request frame(only 1) or both)1) New Action frame(Request) + New element(or a field that are not elements)2) Extending Multi-Link Operation Update Request frame for MLD | Revised –Agree in principle. Proposed resolution is to use existing link reconfiguration frames. Avoids adding redundant spec text for the same thing and inherits beneficial functionalities from 11be that would otherwise need to be added to the new action frames which would need yet more redundant spec text.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1310. |
| 1311 | Hong Won Lee | 37.11.5 | 84.33 | TBD should be resolved. Are there any other fields which can be added for non-AP STA Parameter Update mechanism? | The NSS subfield can be added in fields for the parameters. The sentence, "a NSS subfield that indicates the maximum NSS, that is supported by the STA in transmit and/or receive when the non-AP STA is in LOM mode" can be added to include the NSS subfield. TBD should be removed if there is no other fields | Revised –Agree with comment. Max NSS and max BW are added, and this TBD is removed.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1311. |
| 1312 | Hong Won Lee | 37.11.5 | 84.36 | TBD should be resolved. Can the Response frame be new Action frame or existing Action frame(or another type of frame)? | Following options can be considered for the Response frame(only 1) or both)1) New Action frame(Response) + New element(or a field that are not elements)2) Reusing Multi-Link Operation Update Response frame for MLD | Revised –Agree in principle. Proposed resolution is to use existing link reconfiguration frames. Avoids adding redundant spec text for the same thing and inherits beneficial functionalities from 11be that would otherwise need to be added to the new action frames which would need yet more redundant spec text.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1312. |
| 1313 | Hong Won Lee | 37.11.5 | 84.39 | The synchronized LOM request/response procedure is described in two paragraphs starting from line 39. Why is the sync procedure needed? If the procedure is needed, is any other procedure, such as a rejection from an AP, not needed? Please clarify | As in the comment | Rejected –The comment fails to identify a technical issue and is asking certain questions. The request/response is not a procedure for synchronization but rather to give the possibility to the AP to account for the updated parameters reported by the STA and start using them once the update has occurred. Rejection from the AP is not needed because these reports from the STA are due to coexistence conditions and as such if the AP would be to reject them then the STA would not be able to operate with the old parameters.  |
| 1768 | Chaoming Luo | 37.11.5 | 84.22 | When the primary channel is disabled, during a non-AP's TXOP, we should allow the non-AP to switch to non-primary channel to continue the transmission. | Add text to allow the non-AP to switch to non-primary channel during its TXOP. | Revised –LOM STA should not disable the primary 20 as that is where all beacons, management frames and NAV setting frames are sent.Proposed change is to specify that the bit corresponding to the BSS primary shall not be disabled.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1768. |
| 1841 | Tong Xiao | 37.11.5 | 84.05 | The term "LOM mode" is contradictory as "LOM" already stands for Limited Operation Mode | "LOM mode"change to "LO mode" or "LOM" | Revised –Agree in principle. Used the expanded term and the acronym for ease of identification. Replaced “Limited” with “Adaptive” since the operation allows parameters to transition from high to low but also from low to high.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1841. |
| 1843 | Tong Xiao | 37.11.5 | 84.33 | It is recommended to add Unavailablity NSS information to the LOM Parameter to enable the device to optionally coexist with other free antennas | As in comment | Revised –Proposed resolution adds the maximum NSS that the STA supports in TX/RX as per other comments suggestions as well.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1843. |
| 1888 | Sanghyun Kim | 37.11.5 | 84.22 | In the Disabled subchannel bitmap transmitted by a non-AP STA, the bits corresponding to the BSS's disabled subchannels should always be set to 1 (or reserved). | As in comment | Revised –Disagree in principle. The Disabled Subchannel Bitmap sent by the non-AP STA is excepted to provide the channel view from the STAs perspective. It is the expectation that the AP will account for both when interacting with this STA. TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 1888. |
| 1972 | Michael Grigat | 37.11.5 | 84.16 | "-" at begin of bullet point to be deleted | delete "-" | Accepted |
| 2162 | Vishnu Ratnam | 37.11.5 | 84.12 | The current text reads: "a Maximum PPDU Duration subfield that indicates the maximum PPDU duration, in microseconds, that is supported by the STA in transmit and/or receive when...". Suggest to replace with "a Maximum PPDU Duration subfield that indicates the maximum PPDU duration, in microseconds, that is supported by the STA during transmit and/or receive operation when" | As in comment. | Rejected –Not clear what the technical issue is. Existing text clearly states that this is the maximum PPDU duration that the STA supports in transmit and/or receive. |
| 2163 | Vishnu Ratnam | 37.11.5 | 84.16 | The current text reads: "-An LDPC Mode subfield that indicates whether LDPC is supported by the STA in transmit and/or receive when the non-AP STA is in LOM mode." Suggest to replace with "An LDPC Mode subfield that indicates whether LDPC is supported by the STA during transmit and/or receive operation when the non-AP STA is in LOM mode." | As in comment. | Rejected –Not clear what the technical issue is. Existing text clearly states that this is the LDPC mode that the STA supports in transmit and/or receive. |
| 2501 | Laurent Cariou | 37.11.5 | 83.62 | Capability should be at the STA level as it's a STA feature. | as in comment | Revised –Agree. Removed sentence.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2501. |
| 2502 | Laurent Cariou | 37.11.5 | 84.06 | Define the request frame and the fields to carry the parameters that need to be changed. | as in comment | Revised –Agree. Defined frame and fields as suggested.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2502. |
| 2503 | Laurent Cariou | 37.11.5 | 84.33 | Good to also add NSS in this list | as in comment | Revised –Agree. Added.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2503. |
| 2614 | Minyoung Park | 37.11.5 | 83.60 | The LOM Support subfield is missing in the UHR MAC Capabilities subfield. Please define this field in Clause 9. | As in the comment | Revised –Agree. Defined.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2614. |
| 2615 | Minyoung Park | 37.11.5 | 83.60 | Inconsistent use of the MIB variable dot11LimitedOperationModeImplemented. Later dot11LOModeImplemented is used. Please unify. | As in the comment | Revised –Agree. Unified.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2615. |
| 2616 | Minyoung Park | 37.11.5 | 83.61 | This should be 'UHR MAC Capabilities' instead of 'the MAC Capabilities' | As in the comment | Revised –Agree. Fixed.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2616. |
| 2617 | Minyoung Park | 37.11.5 | 84.05 | Typo: An --> A | As in the comment | Accepted |
| 2618 | Minyoung Park | 37.11.5 | 84.06 | Please define TBD Request and Response frame throughout this subclause. | As in the comment | Agree. Defined. TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 2618. |
| 2683 | Xiaofei Wang | 37.11.5 | 84.08 | The LOM mode is very similar to LC mode of DPS, there is no reason to have two of the same features. Consider to remove one | consider to remove one of LOM or DPS to avoid duplicate features in the same amendment. | Rejected –The comment fails to identify a technical issue. The differences between DPS and LOM are pretty clear. Listing here some of them:* DPS stands for dynamic power save, which enables the STA to transition from low capability mode (LCM) to high capability mode (HCM) in a per-TXOP basis and per-traffic basis. STA is always assumed to have the HCM (highest advertised capabilities/operation parameters) available whenever the peer STA needs to use it.
* LOM stands for limited operation mode, which enables the STA to advertise that certain limitations in receive/transmit, which arise due to coex, for example the maximum PPDU duration that it supports, the maximum MCS that it supports, etc. These limitations will apply to both LCM and HCM if the LOM STA were to operate under DPS as well.

Hence, these are completely separate functionalities, which, of course the STA can use independently or together depending on the configurations. |
| 3096 | Mark RISON | 37.11.5 | 83.59 | "set the Limited Operation Mode (LOM) Support subfield in the MAC Capabilities" -- no such field, AND the field should not have a parenthesis in it | As it says in the comment | Revised –Agree. Fixed and defined.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3096. |
| 3097 | Mark RISON | 37.11.5 | 84.01 | "A non-AP STA with dot11LOModeImplemented equal to true is referred to as a LOM requesting non-AP STA. An AP with dot11LOModeImplemented equal to true is referred to as a LOM responding AP. " -- what's the point? Just call them LOM AP and LOM non-AP STA | As it says in the comment | Revised –Intent is to give some information in terms of functionality. Going with “LOM assisting AP, since the AP will assist these devices, and LOM STA, since these STAs are in LOM. Replaced “Limited” with “Adaptive” since the operation allows parameters to transition from high to low but also from low to high.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3097. |
| 3098 | Mark RISON | 37.11.5 | 0.00 | "An LOM" should be "A LOM" (2x) | As it says in the comment | Accepted |
| 3099 | Mark RISON | 37.11.5 | 84.04 | "An LOM requesting non-AP STA may notify a LOM responding AP of a change in its LOM mode and/or LOM parameters by transmitting a TBD Request frame if at least one of the LOM parameters have changed." is confusing because it suggests you can't transmit the TBD Request frame if only your LOM mode has changed, not any of the LOM parameters | As it says in the comment | Revised –Actually, that is the intention. A STA enters LOM only if at least one of the parameters have changed. I.e., there is no need for a STA to enter LOM if none of the parameters have changed. Proposed resolution is to further call out these conditions.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3099. |
| 3100 | Mark RISON | 37.11.5 | 84.08 | "The TBD Request frame includes fields for the parameters that may be changed and include at least the following fields:" -- all this stuff should be in Clause 9, not here | As it says in the comment | Revised –Agree in principle. Proposed resolution is to add the respective declarative statements to the appropriate clauses under 9. TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3100. |
| 3101 | Mark RISON | 37.11.5 | 84.16 | Spurious hyphen after bullet. Also initial letter in all bullets should be uppercase | As it says in the comment | Revised –Agree. Incorporated together with some other changes.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3101. |
| 3102 | Mark RISON | 37.11.5 | 84.35 | "An LOM responding AP that receives a TBD Request frame and that is ready to operate with the updatedparameters shall respond with a TBD Response frame. " -- not clear what "ready to operate" means, and also not clear what happens if not "ready to operate" | As it says in the comment | Revised –Agree in principle. Replaced “ready to operate” with “ready to serve” so that it is clear that it refers to an update of the parameters at the AP side for exchanging frames with the LOM STA, and also defined a transition timeout at the expiration of which the AP is ready to operate with these parameters. TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3102. |
| 3103 | Mark RISON | 37.11.5 | 84.39 | This para and the next one are about "updated" parameters but the initial establishment of LOM mode also needs to be covered | As it says in the comment | Revised –Agree in principle. Added normative behavior for establishment (enablement) and teardown (disablement) as well.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3103. |
| 3116 | Mark RISON | 37.11.5 | 0.00 | "LOM" is "low-operation mode", so "LOM mode" is "low-operation mode mode" | Change to "LO mode" or just "LOM" | Revised –Agree in principle. Accounted for the suggested change (second one).TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3116. |
| 3123 | Mark RISON | 37.11.5 | 84.18 | "An HT-Immediate BA Mode subfield that indicates whether all HT-immediate BA agreements areactive or suspended when the non-AP STA is in LOM mode." -- what happens to existing BA agreements if they become suspended, especially if the window is not empty? | As it says in the comment | Revised –Agree in principle. Proposed resolution clarifies these aspects.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3123. |
| 3124 | Mark RISON | 37.11.5 | 84.18 | "BA agreement" should be "block ack agreement" | As it says in the comment | Accepted |
| 3125 | Mark RISON | 37.11.5 | 0.00 | LOM, etc. should allow the power-saving STA to indicate a reduction in NSS (e.g. if it needs to use one antenna but not both for coex) | As it says in the comment | Revised –Agree in principle. Added as per suggestion. Replaced “Limited” with “Adaptive” since the operation allows parameters to transition from high to low but also from low to high.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3125. |
| 3192 | Yunbo Li | 37.11.5 | 84.16 | remove the short dash at the beginning of this subbullet | as in comment | Accepted |
| 3193 | Yunbo Li | 37.11.5 | 84.12 | "when the non-AP STA is in LOM mode" repeats in each subbullet, please move it to the main text. | as in comment | Revised –Agree. Moved as per suggestion.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3193. |
| 3221 | Qi Wang | 37.11.5 | 83.57 | "37.11.5 Non-AP STA Parameter Update mechanism". "A non-AP STA that has dot11LimitedOperationModeImplemented equal to true shall set the Limited Operation Mode (LOM) Support subfield in the MAC Capabilities subfield of the UHR Capabilities element that it transmits to 1 and to 0 otherwise. It is TBD whether this capability is at the STA level or at the MLD level." Please revise the text to indicate the relevance of 37.11.5 and 37.11. | As in comment. | Revised –Agree in principle. Changed the title to be more specific and the general text in 37.11.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3221. |
| 3423 | Qing Xia | 37.11.5 Non-AP STA Parameter Update mechanism | 84.11 | Suggest to capitalize the first letter "a" | same as comment | Revised –Agree in principle. Accounting for the suggested change along with additional text improvements.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3423. |
| 3424 | Qing Xia | 37.11.5 Non-AP STA Parameter Update mechanism | 84.14 | Suggest to capitalize the first letter "a" | same as comment | Revised –Agree in principle. Accounting for the suggested change along with additional text improvements.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3424. |
| 3425 | Qing Xia | 37.11.5 Non-AP STA Parameter Update mechanism | 84.16 | Suggest to delete the hyphen before "An" | same as comment | Accepted |
| 3703 | Sherief Helwa | 37.11.5 | 84.05 | "change" is a bit unclear. It is preferable to use "LOM mode enablement/disablement" | Explained in the comment | Revised –Agree in principle. Amended as per suggestion along with other improvements.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3703. |
| 3704 | Sherief Helwa | 37.11.5 | 84.06 | Proposal to reuse the Link Reconfiguration signaling framework for Request and Response frames. It is good to take leverage of signaling frameworks that are already in the spec. | Explained in the comment | Revised –Agree in principle. Amended as per suggestion.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3704. |
| 3705 | Sherief Helwa | 37.11.5 | 84.16 | Typo. Extra dash at the beginning of the line. | Explained in the comment | Accepted |
| 3706 | Sherief Helwa | 37.11.5 | 84.33 | This should be the BW and NSS. Or better group them with MCS as a triple. | Explained in the comment | Revised –Agree in principle. Added as per suggestion.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3706. |
| 3718 | Li-Hsiang Sun | 37.11.5 | 83.60 | Should there be a MAC capability for AP as well? | as in comment | Revised –Agree. It is the same capability bit. Specified accordingly. TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3718. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 3719 | Li-Hsiang Sun | 37.11.5 | 84.19 | Suggest BA mode change in a separate frame intended for MLD because this is MLD level parameter | as in comment | Revised –This parameter relates to the enablement/suspension of blockack sessions on that specific link since that is where coexistence conditions might occur.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3719. |
| 3773 | Yongho Seok | 37.11.5 | 84.11 | "a Maximum PPDU Duration subfield that indicates the maximum PPDU duration, in microseconds, that is supported by the STA in transmit and/or receive when the non-AP STA is in LOM mode.""Please clarify whether this constraint applies to TB PPDU as well." | As in the comment | Revised –The intent is already clear as the spec states that certain parameters, including the maximum PPDU duration applies in transmit, i.e., in the generation of TB PPDUs as well.But to make it even clearer we propose to add a note to explicitly call out TB PPDU generation.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3773. |
| 3774 | Yongho Seok | 37.11.5 | 84.19 | "An HT-Immediate BA Mode subfield that indicates whether all HT-immediate BA agreements are active or suspended when the non-AP STA is in LOM mode.""The meaning of suspension is unclear. Please clarify the behavior when HT-immediate BA agreements are suspended." | As in the comment | Revised –Agree in principle. Proposed resolution clarifies these aspects.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3774. |
| 3898 | Abhishek Patil | 37.11.5 | 83.60 | Add MIB to Annex C. Same comment for dot11LOModeImplemented | As in comment | Revised –Agree. Added the MIB to Annex C and relevant descriptions.TGbn editor to make the changes shown in 11-25/0744r0 under all headings that include CID 3898. |

***TGbn editor: Please insert the paragraphs below as follows:***

The AOM Parameters subfield provides adaptive operation mode (AOM) parameters and has a format that is shown in [Figure 9-1001ax (AOM Parameters subfield format)](#_bookmark227).

|  |
| --- |
|  B0 B13 B14 B18 B19 B22 B23 B26 B27 B28 B29 B46 B47 B55 |
| Maximum PPDU Duration | MaximumMCS | Maximum NSS | Maximum BW | LDPC Mode Suspend | HT-Immediate BA Suspend | Disabled Subchannel Bitmap | Reserved |

Bits: 14 5 4 4 1 1 16 11

**Figure 9-1001ax—AOM Parameters subfield format**

**Technical Discussion: Max PPDU duration is left flexible to indicate up to 16 ms in case it is expanded for other amendments, but for UHR limiting between 24 and 5.484 ms.**

The Maximum PPDU Duration subfield indicates the maximum PPDU duration, in microseconds, that is supported by the AOM STA for both reception and transmission. The Maximum PPDU Duration subfield indicates values that are greater than or equal to 24 us and less than or equal to 5 484 us for UHR STAs.

**Technical Discussion: MCSs from 13 and the new TBDs are missing. Check with PHY folks.**

The Maximum MCS subfield indicates the maximum value of the MCS is supported by the AOM STA for both reception and transmission. The Maximum MCS is encoded as follows:

* 0 indicates support for MCS 0 to 7
* 1 indicates support for MCS 0 to 9
* 2 indicates support for MCS 0 to 11
* 3 indicates support for MCS 0 to 13

**Technical Discussion: For maximum RX NSS I am NOT using the same terminology and conventions of OM control/EHT OM control which have different formula for leq 80 MHz and more than 80 MHz. Is there a preference?**

The Maximum NSS subfield indicates the maximum number of spatial streams that is supported by the AOM STA for both reception and transmission.

The BW subfield indicates the operating channel width supported by the AOM STA for both reception and transmission. The BW subfield is set to 0 for primary 20 MHz, 1 for primary 40 MHz, 2 for primary 80 MHz, and 3 for 160 MHz, 4 for 320 MHz.

The LDPC Mode Suspend subfield indicates whether the LDPC mode support by the AOM STA (for both reception and transmission) is suspended or not. The LDPC Mode subfield is set to 1 if LDPC is suspended; set to 0 if LDPC is not suspended.

The HT-Immediate BA Suspend subfield indicates whether all HT-immediate blockack agreements for which the AOM STA is the *recipient* are suspended or not. The HT-Immediate BA Mode Suspend subfield is set to 1 if all HT-immediate blockack agreements are suspended; and is set to 0 if all existing HT-immediate blockack agreements are not suspended.

The Disabled Subchannel Bitmap subfield indicates whether one or more of the 20 MHz subchannels that lie within the operating channel width of the AOM STA are enabled or disabled for both reception and transmission. The Disabled Subchannel Bitmap subfield is a 16-bit bitmap where the lowest numbered bit corresponds to the 20 MHz subchannel that lies within the the operating channel width and is the lowest in frequency of the set of all 20 MHz subchannels within the the operating channel width. Each successive bit in the bitmap corresponds to the next higher frequency 20 MHz subchannel. A bit in the bitmap that lies within the operating channel width is set to 1 to indicate that the corresponding 20 MHz subchannel is punctured and is set to 0 to indicate that the corresponding 20 MHz subchannel is not punctured. A bit in the bitmap that falls outside of the operating channel width is reserved.*[#2502, 3100]*

37.12 Unavailability reporting and parameter updates

37.12.1 General

The unavailability reporting and parameter updates subclause describes a set of mechanisms that allow a STA to inform a peer STA of its unavailabilities and/or its adaptive operation parameters *[#3221]*. Subclause 37.11.2 (Dynamic unavailability operation mode) describes how a non-AP STA can indicate unavailability in certain Control frames, where the unavailability might overlap with the ongoing TXOP. Subclause 37.11.3 (Periodic unavailability indication) describes how a non-AP STA can inform its associated AP about periodic service periods where the STA will be unavailable. Subclause 37.11.4 (AP Periodic Unavailability Operation mode) describes how and under which conditions an AP can operate its BSS with periodic service period(s) during which the AP will be unavailable. Finally, 37.11.5 (Adaptive operation mode)*[#3221]* describes a mode of operation*[#3221]* that allows a non-AP STA to adapt its operation parameters when experiencing in-device coexistence issues.

***TGbn editor: Please change the title as follows:***

37.11.5 Adaptive operation mode*[#M136, 137, 3221]*

***TGbn editor: Please change the paragraphs below as follows:***

A STA*[#732, 3718]* that has dot11AdaptiveOperationModeImplemented equal to true shall set the AOM Support subfield in the UHR MAC Capabilities subfield of the UHR Capabilities element that it transmits to 1 and to 0 otherwise.*[#431, 731, 3096][#1309, 2501]*

 . *[#806, 3097]* An AP with dot11AdaptiveOperationModeImplemented.*[#431, 731, 2615]* equal to true is referred to as an AOM assisting AP*[#807, 888, 3097]*.

A non-APSTA with dot11AdaptiveOperationModeImplemented*[#806, 888]* may notify an AOM assisting AP*[#807, 888, 3097]* of the enablement of the adaptive operation mode (AOM) *[#808, 1841, 3116]* , of the AOM parameters, and the disablement of AOM*[#3703]* by transmitting an AOM request frame.*[#104]* A non-AP STA with dot11AdaptiveOperationModeImplemented equal to true that sends an AOM request frame is referred to as an AOM STA.*[# 806, 3097]*

The AOM request frame shall contain a UHR Parameters element in the STA Profile field that corresponds to the AOM STA (see 37.X2 (Procedure to enable, disable or update parameters of UHR modes) and that has:

* The AOM Enabled subfield set to 1 if the AOM STA is enabling the adaptive operation mode
	+ The AOM Parameters Present subfield shall be set to 1 as the AOM STA is providing an update of the AOM parameters (see 9.4.2.aa4 (UHR Parameters element).
* The AOM Enabled subfield set to 0 if the corresponding AOM STA is disabling AOM
	+ The AOM Parameters Present subfield shall be set to 0 if the AOM Enabled subfield is 0.*[#1310, 2502, 2618, 3704, 3103]*

NOTE—The AOM request frame can request the enablement/disablement and update of AOM parameters for multiple non-AP STAs that are affiliated with the same non-AP MLD (see 37.X2 (Procedure to enable, disable or update parameters of UHR modes). This allows the non-AP MLD to adaptively allocate/update the resources/parameters for multiple links at the same time.

***TGbn editor: Please change the paragraph below as follows [756, 3913, 3424, 436, 735, 2843, 2504, 3125, 3706, 3124, 1312]:***

An AOM STA that sends an AOM request frame with an AOM parameter set shall satisfy the following requirements *[#756, 3193, 3099, 3100]*:

* The Maximum PPDU Duration subfield shall indicate the maximum PPDU durationthat is supported by the STA in transmit and receive i*[#3193, 3424]*.
* The Maximum MCS subfield shall indicate the maximum MCS that is supported by the STA in transmit and receive*[#3193, 3424]*.
* The Maximum NSS subfield shall indicate the maximum NSS that is supported by the STA in transmit and receive.*[#436, 735. 1843, 2503, 3125, 3706]*
* The Maximum BW subfield shall indicate the maximum channel width that is supported by the STA in transmit and receive.*[#735, 3706]*
* The LDPC Mode subfield shall indicate if LDPC mode is supported by the STA in transmit and receive*[#3193]*.
* The HT-Immediate BA Mode subfield shall indicate whether all HT-immediate block ack*[#3124]* agreements are suspended or not *[#3193]*.
* The Disabled Subchannel Bitmap subfield shall indicate whether any of the 20 MHz subchannels that lie within the channel width of the STA are disabled or not. The AOM STA shall not disable the 20 MHz subchannel that corresponds to the primary 20 MHz channel.*[#1768]*

*[#436, 735, 1312]****TGbn editor: Please change the paragraphs below as follows:***

An*[#3098]* AOM assisting AP*[#807, 888, 3097]* that receives an AOM request frame and that is ready to serve the AOM STA*[#3102]* in the adaptive operation mode, and with the requested AOM parameters, shall schedule for transmission an AOM response frame before the transition timeout expires. The AOM response frame shall be as defined in 37.X2.*[#1312, 2502, 2618, 3704, 3102]*

NOTE—The AOM assisting AP is recommended to cancel the transmission of the AOM response frame if the transition timeout expires however, it might still transmit the AOM response frame even after the transition timeout expires.

The AOM STA*[#806, 888, 3097]* shall not apply the updated AOM parameters included in the AOM request frame until the AOM STA has received the AOM response frame from the AOM assisting AP or until the transition timeout has expired, whichever comes first. The AOM assisting AP*[#807, 888, 3097]* shall not apply the AOM parameters indicated in the AOM request frame until the AOM assisting AP has successfully transmitted the AOM response frame or until the transition timeout has expired, whichever comes first.

NOTE—The AOM STA is recommended to schedule the transmission of the AOM request frame in such a way that the AOM assisting AP starts using the AOM parameters by the time the STA needs to use such AOM parameters (e.g., by having the transition timeout expiring at or before the time the AOM STA expects to operate with these AOM parameters). This ensures that the AOM assisting AP updates the AOM parameters at or before such time. If the AOM STA fails to send the AOM request frame ahead of that time, then the AOM assisting AP might exchange frames with the AOM STA with parameters that are not yet aligned with the AOM parameters requested by the STA.*[#105]*

The AOM STA*[#806, 888, 3097]* shall apply the AOM parameters that are included in the AOM request frame, either after receiving the AOM response frame or after the transition timeout has expired, whichever comes first. The AOM assisting AP*[#807, 888, 3097]* shall apply the AOM parameters that are included in the AOM request frame, either after successfully transmitting the AOM response frame or after the transition timeout has expired, whichever comes first.

The AOM assisting AP shall ensure that all PPDUs exchanged (in transmit and receive) with the AOM STA do not exceed the values of the maximum PPDU duration, the maximum MCS, the maximum NSS, and maximum BW in the AOM parameter set of the AOM STA.

The AOM assisting AP shall ensure that none of the PPDUs exchanged (in transmit and receive) with the AOM STA use LDPC coding if the LDPC Mode Suspend field is 1 in the AOM parameter set of the AOM STA. The AOM assisting AP may resume using LDPC coding when the LDPC Mode Suspend field in the AOM parameter set is 0.

The AOM assisting AP shall suspend all HT-immediate blockack agreements with the AOM STA if the HT-Immediate BA Mode Suspend subfield is 1 in the AOM parameter set of the AOM STA. The AOM assisting AP may resume all HT-immediate blockack agreements when the HT-Immediate BA Mode Suspend field in the AOM parameter set is 0.

NOTE—If the AOM STA has suspended all HT-immmediate blockack agreements then all corresponding temporary blockacknowledgment records are expected to be discarded (see 10.25.6 (HT-immediate block ack extensions), all inactivity timers for these HT-immediate blockack agreements are suspended (see 11.5.4 (Error recovery upon a peer failure), and the receive reordering buffer is expected to have passed all MSDUs and A-MSDUs up to the nex MAC process (see 10.25.6.6 (Receive reordering buffer control operation)).*[#3123, 3774]*

The AOM assisting AP should ensure that none of the portions of the PPDU (such as PHY header, or PSDU) that are exchanged (in transmit and receive) with the AOM STA fall within any of the 20 MHz subchannels that are indicated as punctured by the AOM STA in the Disabled Subchannel Bitmap field of the AOM parameter set.*[#1888]*

NOTE—The term “transmit” above applies to the transmission of a trigger based (TB) PPDU that is solicited by a triggering frame.*[#3733]*

**C.3 MIB Detail**

***TGbn editor: Insert the following in the dot11StationConfigEntry:***

Dot11StationConfigEntry ::= SEQUENCE

{

dot11StationIDMacAddress,

…

dot11AdaptiveOperationModeImplemented TruthValue,*[#429, 3898]*

}

***TGbn editor: Insert the following in the dot11StationConfig TABLE:***

dot11AdaptiveOperationModeImplemented OBJECT-TYPE*[#429, 3898]*

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a capability variable.

Its value is determined by device capabilities.

This attribute, when true, indicates the ability of the STA to support adaptive operation mode. If the attribute is false, the STA does not support adaptive operation mode."

::= { dot11StationConfigEntry <ANA> }

* UHR Capabilities element
* General

A STA declares that it is a UHR STA by transmitting the UHR Capabilities element.

The UHR Capabilities element contains a number of fields that are used to advertise the UHR capabilities of a UHR STA. The UHR Capabilities element is defined in Figure9-aa4 (UHR Capabilities element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | UHR MAC Capabilities Information | UHR PHY Capabilities Information |
| Octets: | 1 | 1 | 1 | TBD | TBD |
| * UHR Capabilities element format
 |

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

The UHR MAC Capabilities Information, UHR PHY Capabilities Information are defined in the subclauses below.

* UHR MAC Capabilities Information field

The format of the UHR MAC Capabilities Information field is defined in Figure9-aa5 (UHR MAC Capabilities Information field format). [TBD]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B4 | B5 |  B6  | B7 Bx |
|  | DPS Support | DPS Assisting Support | Multi-Link Power Management | NPCA Supported | BSR Enhancement Support | AOM Support*[#430, 1308, 2614, 3096]* | Reserved |
| Bits: | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| * UHR MAC Capabilities Information field format
 |

The subfields of the EHT MAC Capabilities Information field are defined in Table9-130a (Subfields of the UHR MAC Capabilities Information field).

|  |
| --- |
| * Subfields of the UHR MAC Capabilities Information field (continued)
 |
| Subfield | Definition | Encoding |
| DPS Support | Indicates whether or not DPS is supported | Set to 1 if dot11DynamicPowerSaveSupport is true (see 37.9.1 (Dynamic power save (DPS) operation)).Set to 0 otherwise. |
| DPS Assisting Support | Indicates whether or not the transmission of an ICF for DPS is supported | Set to 1 if dot11DynamicPowerSaveAssistingSupport is true (see 37.9.1 (Dynamic power save (DPS) operation)).Set to 0 otherwise. |
| Multi-Link Power Management Support | Indicates whether or not the multi-link power management is supported | For an AP MLD Set to 1 if the AP MLD supports the reception of frames with the multi-link power management signal. Set to 0 otherwise.For a non-AP MLD Set to 1 if the non-AP MLD supports the transmission of frame with multi-link power management signal. Set to 0 otherwise. |
| NPCA Supported | Indicates whether NPCA operation is supported | Set to 1 to indicate that NPCA operation is supported.Set to 0 to indicate that NPCA operation is not supported. |
| BSR Enhancement Support | For an AP, indicates support for receiving a frame with a BSR Enhancement field. For a non-AP STA, indicates support for transmitting a frame with a BSR Enhancement field. | Set to 1 if supported.Set to 0 otherwise. |
| AOM Support | Indicates whether adaptive operation mode (AOM) is supported. | Set to 1 to indicate that AOM is supported.Set to 0 to indicate that AOM is not supported.*[#430, 1308, 2614, 3096]* |