IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment resolutions for HDR/LDR related comments | | | | |
| Date: 2019-4-12 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Minyoung Park | Intel Corporation |  |  | Minyoung.park@intel.com |

Abstract

This submission proposes resolutions for multiple comments related to TGba D2.0 with the following CIDs (16 CIDs):

* 2059, 2071, 2072, 2476, 2442,
* 2527, 2303, 2304, 2305, 2306,
* 2348, 2349, 2358, 2360, 2361,
* 2362

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

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

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2059 | Alphan Sahin | 31.1 | 83 | 26 | Change "The WUR PHY provides support for data rates of 62.5 kb/s and 250 kb/s." to "The WUR PHY provides support for data rates of 62.5 kb/s and optionally 250 kb/s.", similar to the description for channel widths on line 33 of this page | See the comment | Accepted. |
| 2071 | Bo Sun | 31.1 | 83 | 46 | "low data rate" is not clear and not defined anywhere. | replace with "62.5 kb/s data rate" or define "low data rate" somewehre in the spec. | Revised.  Agree in principle. In D2.0, there is no clear mapping between low data rate (LDR) to 62.5kbps and high data rate (HDR) to 250 kbps. The proposed resolution is to add the following sentence “LDR (low data rate) indicates 62.5 kbps and HDR (high data rate) indicates 250 kbps.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2071. |
| 2072 | Bo Sun | 31.1 | 83 | 48 | "high data rate" is not clear and not defined anywhere. | replace with "250 kb/s data rate" or define "high data rate" somewehre in the spec | Agree in principle. In D2.0, there is no clear mapping between low data rate (LDR) to 62.5kbps and high data rate (HDR) to 250 kbps. The proposed resolution is to add the following sentence “LDR (low data rate) indicates 62.5 kbps and HDR (high data rate) indicates 250 kbps.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2072. |
| 2476 | Minyoung Park | 31.1 | 83 | 48 | Mandating both HDR and LDR at the WUR AP increases complexity. Since HDR support at the WUR non-AP STA is optional, it becomes a burden to the WUR AP to implement HDR without knowing if there will be a WUR STA that supports HDR. Support of HDR at WUR AP should be optional. | Move "-- A WUR PPDU with 20 MHz channel width, high data rate, and single stream." to P83L55 of D2.0 under "A WUR AP may support the following features:" | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2476. |
| 2442 | Minyoung Park | 4.3.15a | 21 | 38 | The capability to transmit 20MHz WUR PPDU at HDR should be optional for a WUR AP because the capability is optional for a WUR non-AP STA and depending on the location of the WUR non-AP STA, the WUR AP may or may not use the HDR. Also it increases the implementation complexity for the WUR AP by mandating the support of HDR. The mandatory features should be a minimum set of features that are necessary for the 802.11ba system to work. In that sense, HDR is an addtional optimization and the 802.11ba still works without HDR. | Move "-- Transmit a 20 MHz WUR PPDU at HDR" to P21L51 under the optional feature list of the WUR AP. | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2442. |
| 2527 | Po-Kai Huang | 4.3.15a | 21 | 38 | Mandating WUR AP to support HDR may slow down the adoption rate of 11ba on existing AP. Specifically, HDR has a 2us symbol boundary on the data field, which is different from the existing 4us symbol boundary supported by 11n/ac/ax APs. As a result, mandating HDR for WUR AP will require more HW change for the existing AP. On the other hand, if we only mandate LDR for WUR AP, then we may have a chance to allow SW and firmware update for existing AP to support 11ba. Note that it is true that WUR sync field also has 2 us boundary. However, WUR sync field is fixed and can be created and saved in a buffer. Since WUR data field is not fixed, further HW change is then required. | Make it optional for AP to support transmitting WUR frame with HDR. | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2527. |
| 2303 | MARC EMMELMANN | 32.1 | 65 | 56 | why do not WUR receiver STA support a WUR PPDU with 20MHz channel width, high data rate, and single stream ? for the efficient transmission, this feature supported on WUR transmitter STA as a mandatory feature should be supported on WUR receiver. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Rejected.  Implementing both LDR and HDR at the WUR non-AP STA is more complex than just implementing the LDR and may increase more power consumption. In order to meet the scope of the project “The WUR has an expected active receiver power consumption of less than one milliwatt,” it is important to develop the amendment such that it does not mandate a mode that increases the power consumption of the WUR non-AP STA. |
| 2304 | MARC EMMELMANN | 32.1 | 65 | 56 | Propose that WUR non-AP STA to support Receive 20 MHz WUR PPDU with High Data Rate as a mandatory feature | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Rejected.  Implementing both LDR and HDR at the WUR non-AP STA is more complex than just implementing the LDR and may increase more power consumption. In order to meet the scope of the project “The WUR has an expected active receiver power consumption of less than one milliwatt,” it is important to develop the amendment such that it does not mandate a mode that increases the power consumption of the WUR non-AP STA. |
| 2305 | MARC EMMELMANN | 32.1 | 65 | 55 | HDR is mandatory at TX but optional at RX. In the conventional 802.11 system, TX and RX have the same mandatory and optional MCS featrures. So, it would be better if WUR uses the same mandatory data rates between TX and RX. Since HDR provides several advantages such as less overhead and higher throughput, it is recommended that HDR is used as a mandatory feature at both TX and RX. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Rejected.  Implementing both LDR and HDR at the WUR non-AP STA is more complex than just implementing the LDR and may increase more power consumption. In order to meet the scope of the project “The WUR has an expected active receiver power consumption of less than one milliwatt,” it is important to develop the amendment such that it does not mandate a mode that increases the power consumption of the WUR non-AP STA. To have the same minimum manatory data rate support for both WUR AP and WUR non-AP STA, manatory support of LDR on both WUR AP and WUR non-AP STA and optional support of HDR on both WUR AP and WUR non-AP STA will be better approach. |
| 2306 | MARC EMMELMANN | 32.1 | 65 | 51 | The 20 MHz WUR PPDU transmission at HDR should be optional since it is optional for the WUR non-AP STA. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2306. |
| 2348 | MARC EMMELMANN | 9.4.2.274 | 33 | 56 | Propose that WUR non-AP STA to support Receive 20 MHz WUR PPDU with High Data Rate as a mandatory feature | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Rejected.  Implementing both LDR and HDR at the WUR non-AP STA is more complex than just implementing the LDR and may increase more power consumption. In order to meet the scope of the project “The WUR has an expected active receiver power consumption of less than one milliwatt,” it is important to develop the amendment such that it does not mandate a mode that increases the power consumption of the WUR non-AP STA. |
| 2349 | MARC EMMELMANN | 9.4.2.274 | 33 | 48 | The support for the transmission and reception of a 20 MHz WUR PPDU at HDR (high data rate) should be optional for both the WUR AP and the WUR non-AP STA since it is optional for the WUR non-AP STA. Therefore "Indicate support for the reception of 20 MHz WUR PPDU with HDR." should be replaced by the following "Indicate support for the 20 MHz WUR PPDU at HDR.", and "Set to 1 to indicate support for the reception of 20 MHz WUR PPDU with HDR. Set to 0 otherwise." should be replaced by the following "Set to 1 to indicate support for the 20 MHz WUR PPDU at HDR. Set to 0 otherwise." and delete the following in P33L54 "Reserved for a WUR AP." | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2349. |
| 2358 | MARC EMMELMANN | 4.3.15a | 22 | 3 | To simplify the spec., implementation and operation, Receive 20 MHz WUR PPDU with High Data Rate should be mandatory for WUR non-AP STA. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Rejected.  Mandatory support of HDR for 20 MHz WUR PPDU reception doesn’t simplify the spec. It actually increases the complexity at the WUR non-AP STA. Implementing both LDR and HDR at the WUR non-AP STA is more complex than just implementing the LDR and may increase more power consumption. In order to meet the scope of the project “The WUR has an expected active receiver power consumption of less than one milliwatt,” it is important to develop the amendment such that it does not mandate a mode that increases the power consumption of the WUR non-AP STA. |
| 2360 | MARC EMMELMANN | 4.3.15a | 21 | 58 | To simplify the spec., implementation and WUR operation, receive 20 MHz WUR PPDU with High Data Rate should be mandatory for WUR non-AP STA. It is a fairly simple effort to add this capability in the WUR non-AP STA considering that the spec. already requires the WUR non-AP STA to implement a mechanism to receive Low Data Rate. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Rejected.  Mandatory support of HDR for 20 MHz WUR PPDU reception doesn’t simplify the spec. It actually increases the complexity at the WUR non-AP STA. Implementing both LDR and HDR at the WUR non-AP STA is more complex than just implementing the LDR and may increase more power consumption. In order to meet the scope of the project “The WUR has an expected active receiver power consumption of less than one milliwatt,” it is important to develop the amendment such that it does not mandate a mode that increases the power consumption of the WUR non-AP STA. |
| 2361 | MARC EMMELMANN | 4.3.15a | 21 | 31 | Mandating WUR AP to support HDR may slow down the adoption rate of 11ba on existing AP. Specifically, HDR has a 2us symbol boundary on the data field, which is different from the existing 4us symbol boundary supported by 11n/ac/ax APs. As a result, mandating HDR for WUR AP will require more HW change for the existing AP. On the other hand, if we only mandate LDR for WUR AP, then we may have a chance to allow SW and firmware update for existing AP to support 11ba. Note that it is true that WUR sync field also has 2 us boundary. However, WUR sync field is fixed and can be created and saved in a buffer. Since WUR data field is not fixed, further HW change is then required. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2361. |
| 2362 | MARC EMMELMANN | 4.3.15a | 21 | 9 | "Transmit 20 MHz WUR PPDU with High Data Rate" should be an optional feature since the reception of the WUR PPDU at High Data Rate is optional. | Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to "Move to resolve CIDs that have no approved resolution as rejected with a reason read "TGba is unable to reach consensus on a resolution" in the interest of releasing draft 2.0". Also, the statement ""TGba is unable to reach consensus on a resolution" was added to the motion text there was one person speaking against the motion." was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.  The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution. | Revised.  Agree in principle.  Discussion: Mandating the HDR at the AP gives more burden to the AP implementation to add the WUR to the existing AP implementation. Since the WUR only works when the AP supports the WUR, it is important to implement the spec such that there is a minimum set of mandatory features that are really needed to make WUR work so that the WUR is easily adopted by the AP implementers.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0645r0 under all headings that include CID 2362. |

**4.3.15a Wake-up radio (WUR) AP and WUR non-AP STA**

**TGba Editor: *Change the following list in TGba Draft 2.1 as follows***

A WUR AP has the following mandatory main features:

— Transmit a WUR PPDU on a 20 MHz subchannel at low data rate (LDR).

(#2361, 2442, 2527)— Support of the WUR power management procedure.

— Support of the WUR wake-up operation.

— Support of the WUR duty cycle operation.

— Transmit an individually addressed fixed-length (FL) WUR Wake-up frame.

— Transmit a broadcast FL WUR Wake-up frame.

— Transmit a WUR Beacon frame.

A WUR AP has the following optional main features:

— Transmit a WUR PPDU on a 20 MHz subchannel at high data rate (HDR).(#2361, 2442, 2527)— Transmit a WUR FDMA PPDU on a 40 MHz or 80 MHz channel.

— Transmit a variable-length (VL) WUR frame.

— Transmit a protected WUR frame.

— Transmit a WUR Wake-up frame with a WUR group ID.

— Transmit a WUR Discovery frame.

— Transmit a WUR Vendor Specific frame.

**9.4.2.290 WUR Capabilities element**

**TGba Editor: *Change the following table in P47L6 and L11 in TGba Draft 2.1 as follows:***

|  |  |  |
| --- | --- | --- |
| * Subfields of the WUR Capabilities Information field | | |
| Subfield | Definition | Encoding |
| Transition Delay | Indicates the maximum time that the non-AP STA requires to transition from the doze state to the awake state. | The indicated value is equal to 256 × (value of the field plus 1) µs.  Reserved for a WUR AP. |
| VL WUR Frame Support | Indicates support for VL WUR frames. | For a WUR non-AP STA:   * Set to 1 to indicate support for the reception of VL WUR frames. Set to 0 otherwise.   For a WUR AP:   * Set to 1 to indicate support for the transmission of VL WUR frames. Set to 0 otherwise. |
| WUR Group IDs Support | Indicates WUR Group IDs support. | For a WUR non-AP STA:   * Set to 0 to indicate no support for WUR group IDs if the VL WUR Frame Support subfield is 0 and to indicate support for one WUR group ID when the VL WUR Frame Support subfield is 1. * Set to 1 to indicate support for up to 16 WUR group IDs. * Set to 2 to indicate support for up to 32 WUR group IDs. * Set to 3 to indicate support for up to 64 WUR group IDs.   For a WUR AP:   * Set to 0 to indicate no support for WUR group IDs. * Set to 1 to indicate support for WUR group IDs. |
| Protected WUR Frame Support | Indicate support for protected WUR frames. | For a WUR non-AP STA:   * Set to 1 to indicate support for the reception of protected WUR frames. Set to 0 otherwise.   For a WUR AP:   * Set to 1 to indicate support for the transmission of protected WUR frames. Set to 0 otherwise. |
| 20 MHz WUR PPDU with HDR Support | Indicate support for the 20 MHz WUR PPDU with HDR.(#2349) | Set to 1 to indicate support for the 20 MHz WUR PPDU with HDR. Set to 0 otherwise. (#2349)  (#2349) |
| WUR FDMA Channel Switching Support | Indicates whether the WUR FDMA channel switching capability for receiving WUR Beacon and WUR Wake-up frames that are transmitted in different WUR channels from the WUR primary channel is supported or not for the WUR FDMA operation (see 30.10 (WUR FDMA operation)). | For a WUR non-AP STA:   * Set to 0 if the WUR FDMA channel switching capability is not supported. * Set to 1 if the WUR FDMA channel switching capability is supported.   Reserved for a WUR AP. |

**31. Wake-Up Radio (WUR) PHY specification  
31.1 Introduction**

**TGba Editor: *Change the sentence below in P91L26 in TGba Draft 2.1 as follows:***

The WUR PHY provides support for data rates of 62.5 kb/s and optionally (#2059) 250 kb/s. LDR (low data rate) indicates 62.5 kbps and HDR (high data rate) indicates 250 kbps.(#2071, 2072)

**TGba Editor: *Change the sentences below in P91L45 in TGba Draft 2.1 as follows:***

A WUR AP shall support the following features:  
— A WUR PPDU with 20 MHz channel width, low data rate, and single stream.  
— (#2476, 2306)

A WUR non-AP STA shall support the following features:  
— A WUR PPDU with 20 MHz channel width, low data rate, and single stream.

A WUR AP may support the following features:

— A WUR PPDU with 20 MHz channel width, high data rate, and single stream. (#2476, 2306)  
— A WUR FDMA PPDU with 40 MHz and 80 MHz contiguous channel widths.  
— A WUR FDMA PPDU with subchannel puncturing for 80 MHz.