IEEE P802.11  
Wireless LANs

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| Comment resolutions for miscelleneous comments – part 3 | | | | |
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Abstract

This submission proposes resolutions for multiple comments related to TGba D2.0 with the following CIDs (14 CIDs):

* 2008, 2028, 2058, 2083, 2131, 2133, 2241, 2265, 2266, 2310,
* 2477, 2563, 2613, 2654

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.***

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| **CID** | **Commenter** | **Clause Number** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2008 | Albert Petrick | 32.1 | 84 | 2 | Clause 9.4.2.290 has bit section for 5 GHz operation. WUR AP shall not transmit a WUR PPDU on DFS channels. This should include ITS / DSRC 5.9 GHz 10 MHz channels (channel 171-184) | Change text to read: "includes the DFS 5 100 Behavior and the 5.9 GHz ITS non mobile operation and ITS mobile operation." | Rejected.  TGba is defined in 2.4 GHz and 5 GHz unlicensed bands and operates on a 20, 40, or 80 MHz channel. Other amendments such as 802.11ax D4.1 also does not have such definition. |
| 2028 | Albert Petrick | 32.1 | 84 | 2 | Clause 31.1 state the WUR AP shall not transmit WUR PPDU on DFS channels. This restriction should include ITS / DSRC 5.9 GHz 10 MHz channels (channel 171-184) | Change text to read: "includes the DFS 5 100 Behavior and the 5.9 GHz ITS non mobile operation and ITS mobile operation." | Rejected.  TGba is defined in 2.4 GHz and 5 GHz unlicensed bands and operates on a 20, 40, or 80 MHz channel. Other amendments such as 802.11ax D4.1 also does not have such definition. |
| 2058 | Allert Van Zelst | 31.1 | 83 | 39 | The OOK modulation has several disadvantages. The pulsed OOK signal could trigger radar detection at APs in the field, which is why 11ba prohibited operation in the DFS bands (see page 84, line 1). We should not define a modulation that cannot be used in part of the 5 GHz band. The pulsed nature may also affect energy detection, possibly resulting in incorrect deferral on OOK modulated packets. | Change the OOK modulation to a modulation that has a more constant power over the course of a packet, and then allow 11ba operation in the DFS bands. | Rejected.  This is an invalid comment.    The comment identifies a potentially “big issue”, but doesn’t provide specific changes – it is essentially giving the CRC permission to do more work.  The group has agreed to use OOK modulation more than a year ago. Based on the commenter’s request the group implemented the text that removes the DFS band from the TGba operation. After a year asking to make another substantial change is not reasonable for the group to consider based on the task group timelime. |
| 2083 | Bo Sun | 31.1 | 83 | 41 | The constellation symbols should contain the option 1024-QAM now that it has already been supported in 11ax. | As in comment | Rejected.  The constellation symbols are listed as options that the implementers can use and does not exclude the 1024 QAM. Current spec uses “may” in the sentence as follows, “*and the coefficients of WUR PHY subcarriers may take values from the BPSK, QPSK, 16-QAM, 64-QAM, or 256-QAM constellation symbols*.” |
| 2131 | Hongyuan Zhang | 31.1 | 83 | 22 | "The WUR PHY is based on the PHY defined in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification)."--this statement is incorrect, WUR PHY is OOK based and is unrelated to the OFDM PHY | Remove this sentence | Rejected.  The 20 MHz WUR PPDU and WUR FDMA PPDU both use L-STF, L-LTF, L-SIG, and BPSK-Mark fields which are based on Clause 17. Moreover the WUR-Sync and WUR-Data fields use 13 tones to generate MC-OOK waveform. |
| 2133 | Hongyuan Zhang | 31.1 | 83 | 46 | "and single stream", may not need to mention single stream because it is already part of the definition of "low data rate" and "high data rate". Also many other sentences mentioning "single stream" | Remove all the "single stream" | Rejected.  The same comment was discussed in the previous letter ballot and the group agreed to keep “single stream” based on the following reason: “*To avoid any confusion, we need to make it clear that there is no spatial multiplexing in 802.11ba*”. |
| 2241 | Kazuyuki Sakoda | 31.1 | 83 | 7 | Paragraphs described in 31.1 (Introduction) should be moved to a subclause 31.1.1 (General). Also, 31.1.1 (Introduction) section title "introduction" sounds a little weird, i.e., 32.1 is introduction and 32.1.1 is also introduction. | Please reformat the structure of 31.1. | Revised.  Instruction to TGba editor: Insert a new subclause heading “31.2 WUR PHY service interface” after 31.1 Introduction. Change subclause 31.2 WUR PHY to 31.3 WUR PHY. 31.3 to 31.4 and 31.4 to 31.5. |
| 2477 | Minyoung Park | 31.1.1 | 84 | 4 | Subclause heading missing for the "WUR PHY service interface" in P84L3 before the subclause 31.1.1 Introduction for the WUR PHY service interface. Please refer to Tgax Draft 3.3 P429L16. | Insert a new subclause heading in P84L4 of D2.0 as follows: "WUR PHY service interface" | Revised.  Instruction to TGba editor: In 802.11ba D2.1, insert a new subclause heading “31.2 WUR PHY service interface” after 31.1 Introduction. Change subclause 31.2 WUR PHY to 31.3 WUR PHY. 31.3 to 31.4 and 31.4 to 31.5. |
| 2265 | Lei Wang | 31.1 | 83 | 45 | Exactly the same text used for the mandatory feature for a WUR AP in line 46 on page 83 and the mandatory feature for a WUR non-AP STA in line 52 on page 83, but they are actually very different, one is Tx while the other is Rx. | make the following two changes: 1) change lines 46 / 48 on page 83 to the following: -- Transmitting the WUR PPDU with 20 MHz channel width, low data rate, and single stream. -- Transmitting the WUR PPDU with 20 MHz channel width, high data rate, and single stream.  2) change line 52 on page 83 to the following: -- Receiving the WUR PPDU with 20 MHz channel width, low data rate, and single stream. | Revised.  Agree in principle. The changes are made to clarify the transmission and reception capabilities of WUR AP and WUR non-AP STA.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0711r0 under all headings that include CID 2265. |
| 2266 | Lei Wang | 31.1 | 83 | 62 | It should be clearly stated that the a WUR non-AP STA receives a WUR PPDU. | Change line 62 on page 83 to the following: -- Receiving the WUR PPDU with 20 MHz channel width, high data rate, and single stream. | Revised.  Agree in principle.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0711r0 under all headings that include CID 2266. |
| 2310 | MARC EMMELMANN | 32.1 | 65 | 9 | A STA that supports WUR shall be capable of transmitting and receiving Clause 17 (i.e., 802.11a) PPDUs. So it must support 5 GHz. This is inconsistent with several other parts of the draft, e.g., Figure 9-751e, B1 (indicating whether 4.9 and 5 GHz are supported). | 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.  In Clause 3, a WUR STA is defined as a non-HT STA, HT-STA, VHT STA, or HE STA. Therefore, if a WUR STA is a non-HT STA, it supports Clause 17 that is defined for OFDM PHY. If a WUR STA is an HT STA, it supports Clause 19 defined for HT PHY. If a WUR STA is a VHT STA, it supports Clause 21 defined for VHT PHY. If a WUR STA is a HE STA, it supports Clause 27 defined for HE PHY.  TGba editor to make the changes shown in doc.: IEEE 802.11-19/0711r0 under all headings that include CID 2310. |
| 2536 | Po-Kai Huang | 31.2.2 | 87 | 1 | Is WUR PPDU used only when the transmission bandwidth is 20 MHz or WUR PPDU means both transmission badnwidth 20 MHz or more than 20 MHz? WUR FDMA PPDU means transmission bandwidth more than 20 MHz. It will be useful to consider changing the name or examing across the spec to see if WUR PPDU means "WUR PPDU or WUR FDMA PPDU." For example, in 31.2.4, should we use "WUR PPDU or WUR FDMA PPDU" for the waveform generation procedure. | Suggest to go through the usage of WUR PPDU and make sure that the right terminology is used. Also make sure that unify the usage of terms to avoid phrase like "a single channel WUR PPDU" or "WUR PPDU with FDMA". | Revised.  Agree in principle with the commenter.  TGba Editor: Please change the WUR PPDU throughout the next revision of 802.11ba draft specification where it refers to the transmission over single 20MHz channel to WUR Basic PPDU. |
| 2613 | Rui Cao | 31.1 | 83 | 39 | "The WUR PHY uses the Multicarrier On-Off Keying (MC-OOK) modulation, and the coefficients of WUR PHY subcarriers may take values from the BPSK, QPSK, 16-QAM, 64-QAM, or 256-QAM constellation symbols." The Introduction section only sumarries the major features, not specific implementation details. The MC-OOK waveform generation method is up to implementation. It is not appropriate to mention the constellation used. | Suggest to remove the description of constellation, and only mention MC-OOK . "The WUR PHY uses the Multicarrier On-Off Keying (MC-OOK) modulation". | Rejected.  The sentence already uses “may take the values from the BPSK, QPSK, 64-QAM, or 256-QAM constellation symbols.” Since choice of a constellation is optional, there is no need to remove the list of constellations. The list of constellations actually can help readers to know how to generate the signal waveform used in TGba. |
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| 2654 | Sudhir Srinivasa | 31.1 | 83 | 39 | It is mentioned that the WUR PHY subcarriers may take values from specific constellations (as examples). However, this should be completely left to mplementation. | Remove specific examples, and mention that the choice is left to implementation | Rejected.  The sentence already uses “may take the values from the BPSK, QPSK, 64-QAM, or 256-QAM constellation symbols.” Since choice of a constellation is optional, there is no need to remove the list of constellations. The list of constellations actually can help readers to know how to generate the signal waveform used in TGba. |
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**TGba Editor: *Please change the WUR PPDU throughout the next revision of 802.11ba draft specification where it refers to the transmission over single 20MHz channel to WUR Basic PPDU. (CID# 2536)***

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

**TGba Editor: *Change the following list in TGba Draft 2.1 as follows : (CID#2310)***

Clause 31 (Wake-Up Radio (WUR) PHY specification) specifies the PHY entity for orthogonal frequency division multiplexing (OFDM) and Multicarrier On-Off Keying (MC-OOK) systems. In addition to the requirements in Clause 31 (Wake-Up Radio (WUR) PHY specification), a WUR STA that supports WUR PHY specification shall be capable of transmitting and receiving PPDUs that are compliant with the mandatory requirements of the following PHY specifications:

— Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) if a WUR STA is a non-HT STA (#2310)

— Clause 19 (High-throughput (HT) PHY specification) if a WUR STA is an HT STA (#2310)

— Clause 21 (Very high throughput (VHT) PHY specification) if a WUR STA is a VHT STA (#2310)

— Clause 27 (High Efficiency (HE) PHY specification) if a WUR STA is an HE STA (#2310)

**TGba Editor: *Change the following list in TGba Draft 2.1 as follows : (CID#2265)***

A WUR AP shall support the following features:  
— Transmission of a WUR PPDU with 20 MHz channel width, low data rate, and single stream.(#2265)  
— Transmission of a WUR PPDU with 20 MHz channel width, high data rate, and single stream. (#2265)

A WUR non-AP STA shall support the following features:  
— Reception of a WUR PPDU with 20 MHz channel width, low data rate, and single stream. (#2265)

A WUR AP may support the following features:  
— Transmission of a WUR FDMA PPDU with 40 MHz and 80 MHz contiguous channel widths. (#2265)  
— Transmission of a WUR FDMA PPDU with subchannel puncturing for 80 MHz.(#2073) (#2265)

A WUR non-AP STA may support the following features:  
— Reception of a WUR PPDU with 20 MHz channel width, high data rate, and single stream. (#2266)  
— Reception of a WUR Beacon frame in one channel at one time and a WUR Wake-up frame in a different channel at a different time (see 30.10 (WUR FDMA operation)). (#2265)