IEEE P802.11
Wireless LANs

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| Comment Resolutions on Clause 32.2.4.7 (Construction of the WUR-Data for a single 20 MHz channel)  |
| Date: 2019-01-15 |
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Abstract

This submission proposes resolutions for the following 7 comments on Clause 32.2.4.7 of TGba D1.0 [1]:

186, 301, 656, 957, 958, 960, 1055

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax 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** | **Clause Number** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 186 | 32.2.4.7 | 75.42 | Pulse combination, what does it mean | Clean up the text | Revised—Proposed resolution accounts for the suggested change. TGba Editor to make the changes shown in IEEE 802.11-19/0xxxr0 under the tag with CID 186. |
| 301 | 32.2.4.7 and 32.2.4.8 | 79 | A square wave with 4 us ON time and 4 us OFF time may occur both in a valid LDR payload (data: 0000... or 1111.... ) or in a valid HDR packet (data: 0101...). Say t=0 at an ON to OFF transition. Then if we sample energy in this waveform at .5 us, we meaure no energy. 9 us (one VHT slot time) later at 9.5 us, in and OFF periode again. 9 us after that, at 18.5 us, again an OFF period. 9 us later at 27.5 us, in an OFF period again. So for 4 slot times the energy detect function of the MAC can be oblivious to the presence of a WUR packet. This isn't a problem in the primary channel where the LSIG protects the packet, but affects CCA in the secondary channel, as specified in section 11.16.9 of the 802.11 standard | Change 11ba waveform to avoid possibility of CCA not detecting a WUR packet. One possibiity is a constant envelope modulation such as BPSK or GFSK. Changing the existing standard text to require the CCA to cover the entire slot time is not an option because of equipment already in the field can, being standard-compliant, sample the channel anywhere in the 9 us slot time. | RejectedThe description in this comment reflects a very rare case, like all 0 or all 1 in case of LDR and a constant repetition of 0101…. in case of HDR which is very rare. In consideration of the cost and power consumption involved in the WUR coherent detection for a BPSK or GFSK, a Manchester code based ON-OFF keying is an optimum solution that we can take. |
| 656 | 32.2.4.7 | 75.42 | The text reads "Manchester based encoder: Pulse combination is determined according to the input bits as described in 32.2.9 (WUR-Data field)". The meaning of the word "Pulse" is unclear. This is the only place in the 802.11ba spec where the word "Pulse" is used. | Change the sentence to: "Manchester based encoder: the input bits are encoded as described in 32.2.9 (WUR-Data field)" | Revised—Proposed resolution accounts for the suggested change. TGba Editor to make the changes shown in IEEE 802.11-19/0xxxr0 under the tag with CID 656. |
| 957 | 32.2.4.7 | 75.42 | Poor wording | Change "Pulse combination is determined according to the input bits as described in 32.2.9" to "Information bits are encoded using a Manchester-based encoder as described in 32.2.9" | RevisedTGba Editor to make the changes shown in IEEE 802.11-19/0xxxr0 under the tag with CID 957. |
| 958 | 32.2.4.7 | 75.31 | A mathematical symbol is missing in the text. | I believe the missing symbol is T\_sync | RejectedA mathematical symbol is already in the draft text. |
| 960 | 32.2.4.7 | 75.47 | A number of mathematical symbols are missing in the text. | I believe the missing symbols are: T\_symbol, T\_SYM-HDR and T\_SYM-LDR | RejectedMathematical symbols are already in the draft text. |
| 1055 | 32.2.4.7 | 75.46 | The following sentence is confusing and it is not accurate: "The output of Manchester based encoder determines which samples to take either from On-WG or from Off-WG, depending on the WUR\_DATARATE." The encoded bit does not determine which samples to take, it determines wheteher to take samples from On-WG or Off-WG. | As shown in the comment. | Accepted. |

***TGba Editor: Please edit D1.0, Pg 75, ln 42 in section 32.2.4.7 as follows:***

~~Manchester based encoder: Pulse combination is determined according to the input bits as described in 32.2.9 (WUR-Data field).~~ Information bits are encoded using a Manchester-based encoder as described in 32.2.9. (#186, 656, and 957)

***TGba Editor: Please edit D1.0, Pg 75, ln 46 in section 32.2.4.7 as follows:***

~~The output of Manchester based encoder determines which samples to take either from On-WG or from Off-WG, depending on the WUR\_DATARATE.~~ The output of Manchester-based encoder determines whether to take samples from On-WG or Off-WG. (#1055)

**References:**

1. **IEEE P802.11baTM/D1.0, Sep 2018.**