Date: 1/18/2023

Title: Changes to Draft 0.2/0.3 of P802.16t document

Purpose: This document has a list of changes, which would be required to the P802.16t specification draft.

1. In Section 6.3.37.1.1 “Minimizing MAC and PHY layer overhead”,
   1. in the first paragraph, references to previous specification versions should be added with regards to 1.25 MHz and 100 kHz bandwidths to reduce confusion to the reader who may not be aware the of the origins of these channel bandwidths.
   2. in the first paragraph and all throughout the document, kilohertz should be abbreviated with a lower case ‘k’, in other words “kHz”.
   3. in the second paragraph, suggest changing “are not transmitted” to “do not have to be transmitted” in “The bandwidth allocation messages are not transmitted in every frame.” in case the capability remains to send bandwidth allocation messages in every frame will not be specifically disallowed.
2. In Section 6.3.37.1.2 “Support of low latency applications”,
   1. in the third paragraph, instead of saying “Regular MAP messages” should refer to the specific messages in the specification (DL-MAP? UL-MAP?) to reduce confusion
3. In Section 6.3.37.1.3 “Allocation messages reduction”,
   1. In the first paragraph, instead of saying “current MAP messages” should refer to the specific messages in the specification (DL-MAP? UL-MAP?). Using words “current”, “past”, etc. should be avoided since these references become outdated over time.
4. In Section 6.3.37.1.4 “Support of BSC by the BS MAC layer”,
   1. It should be explained that BSC will be used only for radio resource control and not for data backhaul (or other network functions) to provide proper context. (In typical cellular context BSC provides both data and control planes to the base stations.)
5. In Section 6.3.37.2.1 “Frame Structure”,
   1. In the second paragraph, instead of “per the channel bandwidth” should refer to “NB subchannel bandwidth” or “subcarrier bandwidth”.
   2. The “Table 1” reference should be corrected to refer to Table 6.3.37.2 and the table should have a proper title.
6. In Section 6.3.37.3.1 “Super Frame Structure”,
   1. The introduction of Super Frames should include an explanation or motivation why Super Frames are being used in the standard.
7. In Section 6.3.37.3.4.2 “Between BSC and BSs in the control area” and all throughout the document,
   1. Instead of “GPS”, should consider using the acronym “GNSS” (Global Navigation Satellite System) instead. GNSS is becoming a more general term, which better covers the cases where other than GPS satellite constellations (Galileo, GLONASS, etc.) are being used.
8. In Section 6.3.37.4.1 “Unsolicited Grant Service (UGS)”,
   1. In the third paragraph, the statement “The validity is infinite” would be good to be accompanied with possible exception cases. Such exceptions might be for instance a remote radio disconnect or handover from the base, or another ALLOC-MSG overriding or cancelling the previous allocation.
9. In Section 6.3.37.4.2 “Semi Persistent Service (SPS)”,
   1. In the first paragraph, the statement “The service has a validity period which can be finite” should be replaced with a more specific sentence.
10. In Section 6.3.37.4.4 “Instantaneous Allocation Service”,
    1. The sentence “The scheduler will consider on demand bandwidth request” seems disconnected and could be either removed or combined with the previous sentence.
11. In Section 6.3.37.4.5 “Delivery of Allocation Message”,
    1. “In case of uplink allocations, BS can start the allocation after sending the allocation message and monitor the status.”
       1. Should split the sentence to remove ambiquity.
       2. “monitor the status” should be changed to “monitor the allocation usage”
    2. “BS shall schedule allocation in future frame offset considering the waiting period for ACK message and can start allocation only after receiving ACK message from the remote.” The highlighted part seems redundant and could be removed for clarity.
    3. “BS can resend the allocation message, In uplink, …” “In uplink/downlink, …” should be changed to “for uplink/downlink allocations”
12. In Section 6.3.37.4.6 “BS Scheduler”,
    1. “The scheduler maintains information of scheduled allocations which are valid.” Is there a possibility for non-valid allocations to be considered? The highlighted part is likely confusing to the reader and should be removed.
    2. “Allocation messages are sent over each self-sufficient subchannel group” Since all subchannel groups are self-sufficient, should remove the highlighted part and explain self-sufficiency in a separate sentence if needed.
    3. In the third paragraph,
       1. “In case” should be changed to “In case of”.
       2. Consider changing “determines the resource allocated” to “determines available resources”.
       3. Consider changing “In this mode, the BS shall have mixed operations, scheduling the available slots as primary and requesting for bandwidth as secondary” to “In this mode, the BS shall have mixed operations, scheduling the already granted slots as primary and requesting more resources from the BSC if congested as secondary”
13. In Section 6.3.37.5.1 “Allocation Message (ALLOC-MSG) format”,
    1. “The allocation information is of variable length, and it can be transmitted on the least common downlink FEC code of the remotes being allocated in the message.” In case other remotes, which do not have allocations, need to be able hear any “common to all” allocations, such as where to do ranging, this approach could cause issues and “Downlink Robust FEC” should be used instead.
14. In Section 6.3.37.6 “Simplified Nework Entry”
    1. Section hearder has a typo.
    2. “…the network entry procedure is simplified with minimum message exchanges…” Consider changing “minimum” to “less”.
15. In Section 8.6.3.2 “NB Subscriber Stations”,
    1. Change references “subchannel” to “subchannel group”
16. In Section 8.6.5.1 “TDD Frame Structure”,
    1. In Figure 5 and 6, the meaning of the index numbers needs to be clarified (if not meant to refer to PLMR channels). One way to do this is to add a (second) label.
    2. In the last paragraph figure explanations, the index numbers are referred to as “subchannels”. This should be changed to “subchannel groups” if that is what index numbers refer to. In other words, the meaning of the index numbers in the figures and in the explanations would need to match. Also, the numbers explained do not fully match what’s in the figures.
17. In Section 8.6.5.3 “TTG and RTG configuration”,
    1. The needing to be supported values or ranges of TTG and RTG would need to be specified.
18. In Section 8.6.6.2 “Modulation and FEC Rates”,
    1. In bullet (b), change “is” to “are”
19. In Section 8.6.7.1.5 “Repetition”,
    1. This section needs more detail on how repetition will be used and for instance answer the questions:
       1. Does repetition rate need to be communicated between base and remote?
       2. Will repetition become part of MCS and the link adaptation scheme?
20. In Section 8.6.7.5 “TX signal filtering”,
    1. “Any of the filter design techniques can be used to obtain a filter that satisfies the above.” An additional sentence needs to be added for the filter needing to be a phase linear FIR filter.
    2. “The response of the filter in the frequency domain for a single subchannel where the center subchannel is occupied is given below” Should instead use a reference to Figure 14.
    3. Figure 14 has a wrong plot and must be corrected.