

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Consolidation proposal on CSI/CMI/CXCC	
Date Submitted	2007-03-04	
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Re:	IEEE 802.16-07/010: IEEE 802.16 Working Group Letter Ballot Recirc #24a: Announcement (2007-02-01)	
Abstract	Discussion and proposals within CSI/CMI/CXCC adhoc.	
Purpose	To consolidate the 16h draft.	
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Consolidation proposal on CSI/CMI/CXCC.

Wu Xuyong Huawei

Overview

We are starting to harmonize all the idea of the CSI/CMI/CXCC from the conclusion in IEEE802.16 meeting 47 in London, and thank to the coordination by the Chair of the ad-hoc *John Sydor*, we have a lot of progress during the discussion.

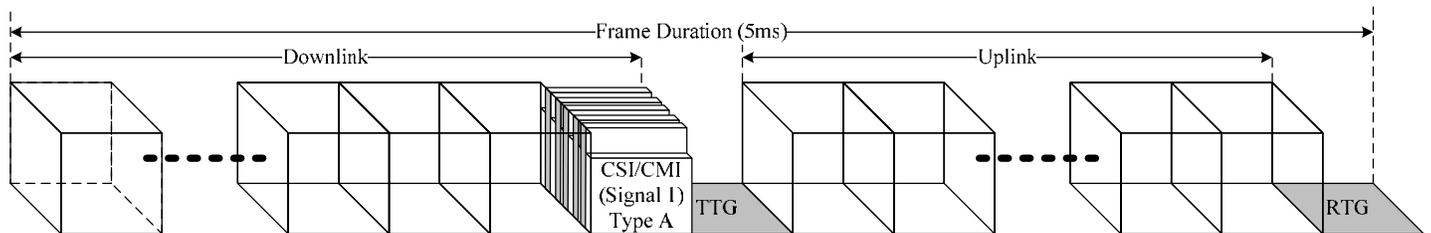
Base on some consensus during the discussion, here is some graph to show some principle which may impact the text in the draft of IEEE802.16h.

Here is some understanding of mine of the ad-hoc’s conclusion by now:

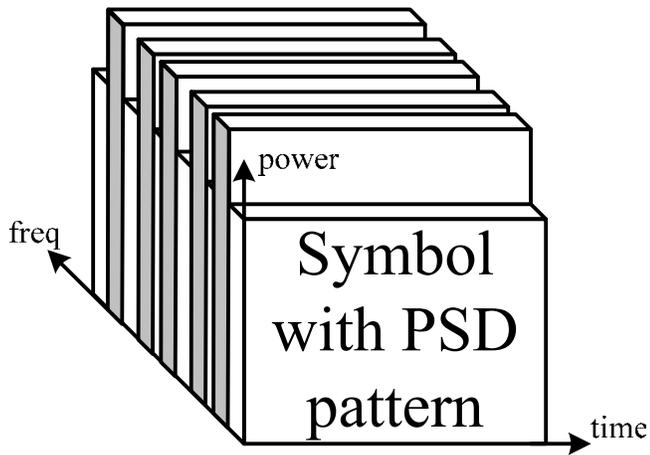
- 1) We agree to make use of absolute time to synchronize the frame number, so that all the system will have the same interpreting of the time allocation of any interval (signaling or messaging).
- 2) Both signaling and messaging interval will take the same allocation of the interval which is right before the primary GAPS within the primary 802.16 standard, and use offset to indicating the timing of the interval within the frame duration.
- 3) We will make use of some periodical intervals within the sequence of the CSI in D2 to transmit the messaging, e.g the 8 transmitting intervals within the 256. (Logically, the content of the CSI sequence within the signaling will not be all 0, which lead to silence, so we have plenty of intervals to transmit modulated messaging within these intervals.)
- 4) The PSD pattern information is under discussion to be included in the harmonized CSI/CMI intervals above.

Here is some figure which may help us to show what it will be look like for the new interpreting of “CXI”. (Maybe we can call it back to CTS, which we once used to indicating both CSI and CMI.)

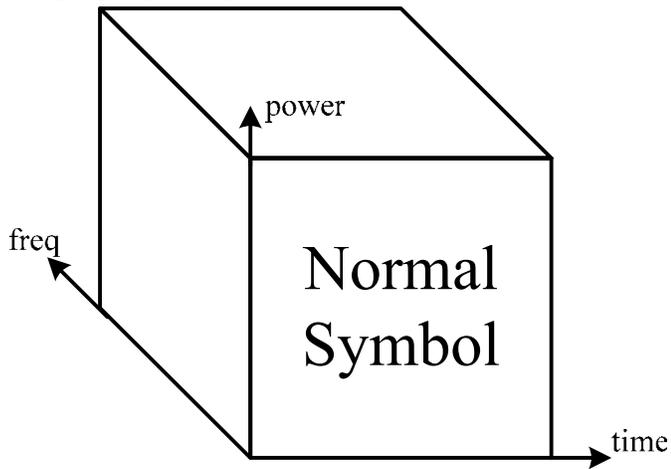
We can list out all the potential profiles which may use these intervals to deliver the message through signaling and messaging method. For each band, we may choose the right duration (one time duration parameter may lead to different number of symbols according to different profile.) of this interval to ensure the feasibility of the function.



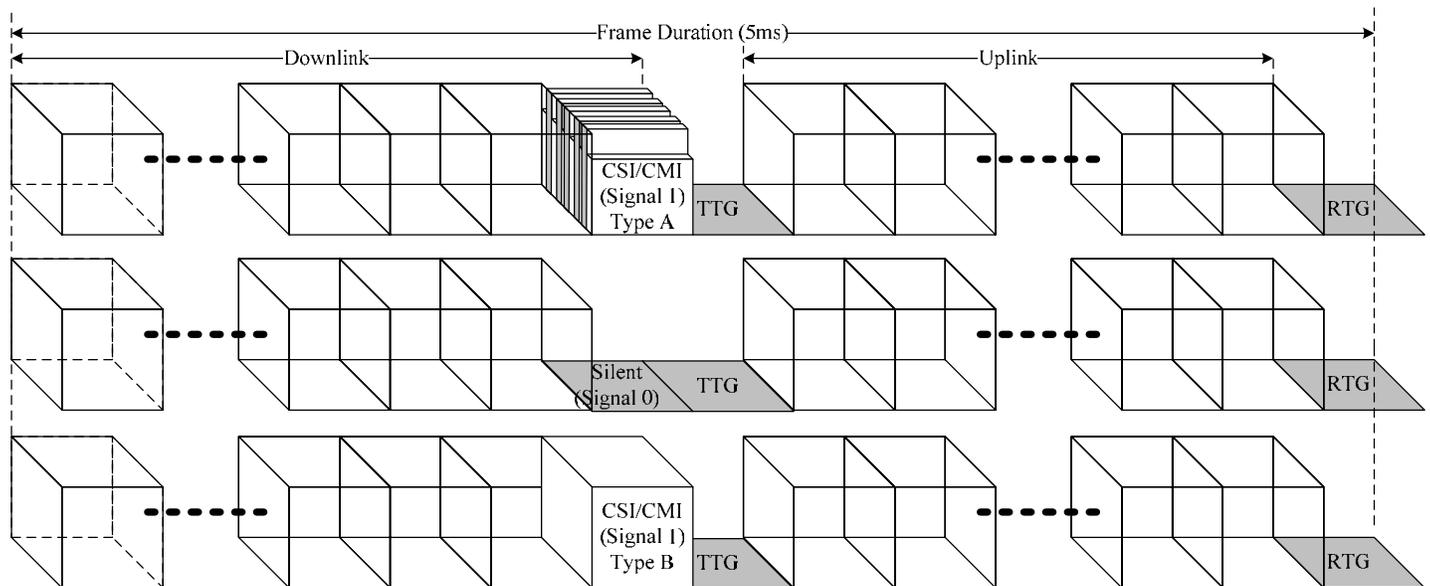
During these so called “interference free” intervals, the symbol can be different from the original symbol, since these symbols, the functionality is all for coexistence and will not bother the normal service data. So, we may modify these symbols to follow specific PSD pattern like the frequency bin mechanism in D2, to allow further functionality of coexistence. See below the example of one symbol with PSD pattern:



For those receivers which can not support the frequency bin, they may still treat it as normal symbol for messaging or time keying signaling functionality. For those transmitters which can not support frequency bin, if they ignore the functionality of this part, they can still use normal symbol to implement the coexistence messaging/signaling.



Despite of the detail of the scheduling and sequence of the coexistence intervals, we may provide to compliable type of the symbol used in the interval. The figure below shows three different situation of one interval, (actually one transmitter can have only one type, either A or B in real deployment.):



Reference:

- [1] *IEEE 802.16-06/068r5: comment database of IEEE 802.16 LB24 (2007-01-31)*
- [2] *IEEE P802.16h/D2: Working Document for P802.16h (2007-01-31)*
- [3] *IEEE 802.16-07/010: IEEE 802.16 Working Group Letter Ballot Recirc #24a: Announcement (2007-02-01)*
- [4] *IEEE 802.16-2004: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems (2004-10-01)*
- [5] *IEEE 802.16e-2005: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands and Corrigendum 1 (2006-02-28)*
- [6] *IEEE C802.16-07/020: Action Items from Session #47 (Mariana Goldhamer; 2007-01-18)*

Proposed Changes accordingly: