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Title	Scheduling master sub-frame/frame for coexistence messages transmission		
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Re:	IEEE 802.16 Working Group Letter Ballot #24a, on P802.16h/D2		
Abstract	This contribution proposes to schedule periodic idle gaps for SSs to perform non-working channel measurements.		
Purpose	To schedule periodic idle gaps for SS so that it can perform non-working channel measurements without affecting normal traffic between SS and serving BS.		
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Scheduling master subframe/frame for coexistence messages transmission

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Introduction

By scheduling the time system occupies the channel, more than one system can share the same frequency channel without interference. Many types of time sharing scheme have been discussed in 16h TG, now we prefer the time sharing scheme as shown in figure 1 for the reason of simplicity and good backward compatibility.

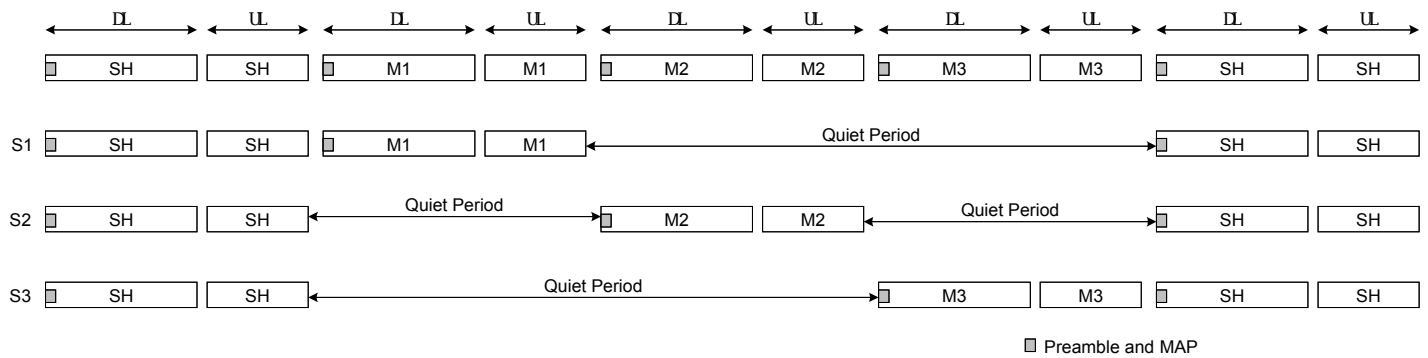
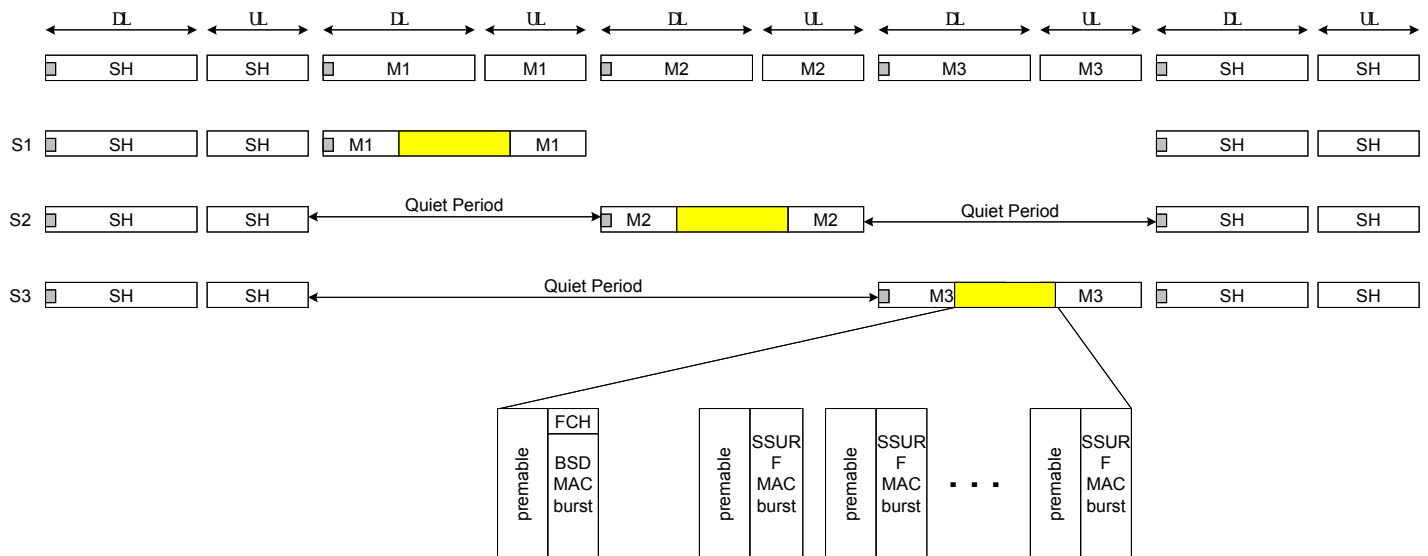


Figure 1 frame structure for coordinate coexistence protocol

In the current 16h draft, we schedule special interference free CXCC slot for coexistence messages transmission. Coexistence messages transmitted in CXCC slot should include an additional preamble and/or frame control header before the management transmission as shown in figure 2.



Using this mechanism, foreign SSs should scan for coexistence messages burst during CXCC slots. It may not easy for SSs to perform PHY synchronization and decode MAC message in one frame since the foreign SSs are always at the edge of BS's coverage. For uplink, additional preamble is added to let BS receive correctly SS's

uplink messages. Considering in 16d/16e, no preamble is transmitted in uplink, so this mechanism has bad backward compatibility.

Since now the master frames are interference free as CXCC slots, so we may let coexistence messages transmitted in master frames just like other management message. Coexistence messages directed to foreign SSs are transmitted company with non-coexistence data directed to serving SS. SSs can identify the coexistence message using management types. Serving SSs will ignore coexistence messages and keep non-coexistence data. Foreign SSs will pick up coexistence messages only and discard other data. In this method, no special CXCC for coexistence messages is needed and no changes to 16d/16e PHY layer.

As for uplink coexistence message, SSs in the interference area may access to foreign BS as relay and transmit uplink coexistence messages to it as suggested in C802.16h-07/027[4].

Coexistence messages may not be transmitted during every master frame. We may schedule which frame the coexistence message is transmitted. For example, system may send coexistence message once every 1024 frames.

For the other information, such as GPS Timing Recovery, frequency keys, absolute time, they may be transmitted in CXCC slots as specified in current 16h draft document.

Proposed Scheme

- 1) Downlink coexistence messages, including, BSD, MADD, SADD, ADPD, CXP-REQ-MAC and CXP-RSP-MAC messages, are transmitted using some of master frames.
- 2) Downlink coexistence messages are transmitted in master frames companied with non-coexistence messages.
- 3) System may transmit downlink coexistence messages once every 1024 frames.
- 4) Uplink coexistence messages, such as SSURF, may be transmitted by relay SSs as suggested in C802.16h-07/027[4].
- 5) Other coexistence information, such as GPS Timing Recovery, frequency keys, absolute time, are transmitted in CXCC slots as specified in current 16h draft document.

Proposed Text

[Add a new section at the end of 8.3.6.2.10]

[To be offered later]

Conclusion

Reference

- [1] IEEE 802.16h-D2: Air Interface for Fixed Broadband Wireless Access Systems: Amendment for Improved Coexistence Mechanisms for License-Exempt Operation
- [2] IEEE 802.16-2004: Air Interface for Fixed Broadband Wireless Access Systems
- [3] IEEE 802.16-2005: Air Interface for Fixed Broadband Wireless Access Systems: Amendment 2: Physical Media Access Control Layers for combined fixed and mobile operation in license band
- [4] C802.16-07/027: A method to implement Inter-system communication over air