

## A method which can Improve Capacity of WirelessMAN-CX

### IEEE 802.16 Presentation Submission Template (Rev. 8.3)

Document Number:

S802.16h-06/103

Date Submitted:

2006-11-14

Source:

Shulan Feng

Hisilicon Tech.

Bld.17, No.8, Dongbeiwang West Road,  
Hai-Dian District, Beijing, P. R. China

Voice: 86-10-82829151

Fax:

E-mail: [fengsl@hisilicon.com](mailto:fengsl@hisilicon.com)

Venue:

Session #46, 13-16 November, 2006

Base Document:

[http://le.wirelessman.org/C80216h-06\\_103.pdf](http://le.wirelessman.org/C80216h-06_103.pdf)

Purpose:

Offer a mechanism that can improve the throughput capacity of system and decrease the probability of occurrence of blind area.

Notice:

This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

Release:

The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.

IEEE 802.16 Patent Policy:

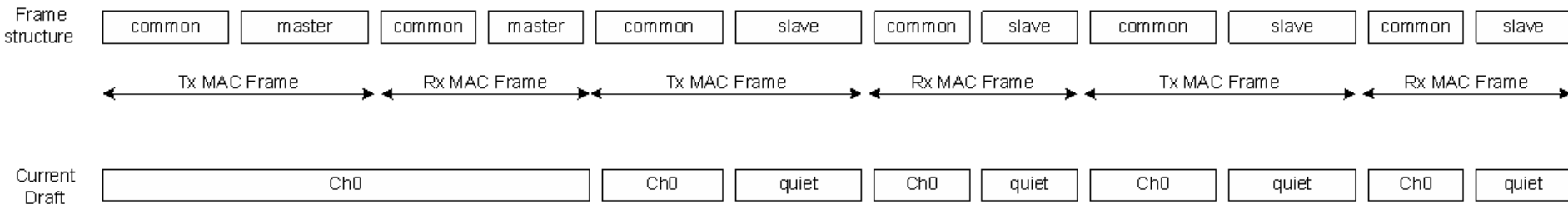
The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures <<http://ieee802.org/16/ipr/patents/policy.html>>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <<mailto:chair@wirelessman.org>> as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.16 Working Group. The Chair will disclose this notification via the IEEE 802.16 web site <<http://ieee802.org/16/ipr/patents/notices>>.

# Outline

- Current co-existence mechanism
- Multiple working channel mechanism
- How to implement the proposed mechanism based on current draft standard

# Co-existence Mechanism in Current 16h Draft

- System will share channel with others if no idle channel exist
- A MAC frame is divided into several sub-frame
  - Common sub-frame for non-interference service
  - Master sub-frame for interfered SSs
  - System is quiet during slave sub-frame

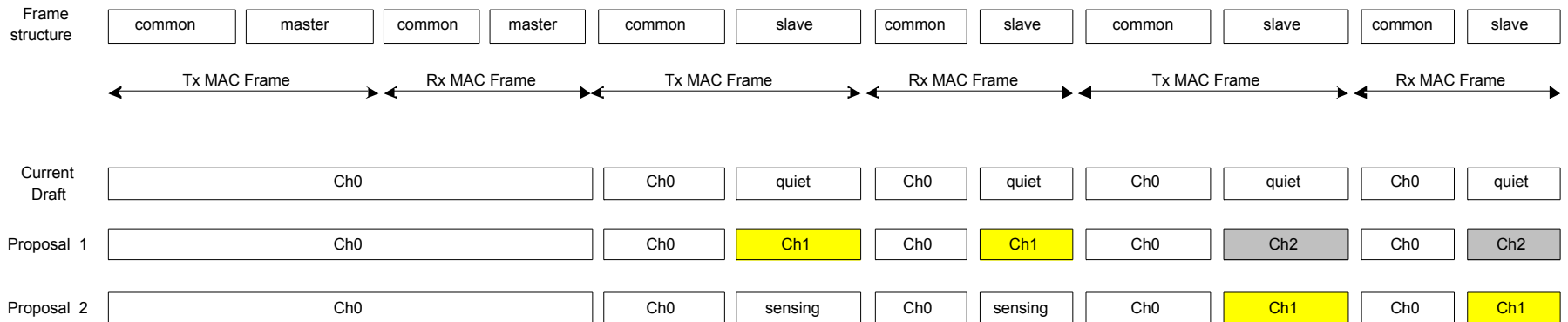


# Co-existence mechanism in current draft standard

- System do nothing during slave sub-frame
  - Except channel measurement
- Slave sub-frame is about 1/3 total of time with type 2,  $N=3$
- System capability is wasted
  - The number of SS can be registered to the BS is decreased.

# Proposed Multiple Channel Switching Mechanism

- Work on another channel during slave sub-frame



# How to Do

- System enters network as defined in 15.1.3
  - Work on an exclusively channel
  - Share channel with other systems
- Sensing and seeking for idle channel during quiet period
  - Using quiet CSI/CMI and CX protocol to find co-existence neighbor on other channels
  - See contribution C80216h-06\_105 for more details

# How to To -continue

- If an idle channel or idle sub-frame on non-working channel is found, switching to idle channel during corresponding slave sub-frame
  - Work on an exclusively channel
    - New idle channel is found
      - During one of sub-frame, works on newest idle channel
    - New idle sub-frame on non-working channel is found
      - During corresponding sub-frame, works on newest idle channel
  - Share channel with other systems
    - During corresponding sub-frame, works on newest idle channel

# Benefit of Proposed Mechanism

- System works all time
  - Throughput capacity is improved.
- The probability of blind area is decreased
  - Because system works on more than one channel



# Modifications to Current 16h Draft Standard

- Modifying the information table
- Add a new section to describe how to realize the multiple channel switching mechanism

# Conclusion

- A multiple working channels mechanism is provided.
  - Throughput capability increases
  - Probability of blind area decreases
- Influence on current 16h draft is introduced.
  - Only a little modification to current 16h draft standard
    - Modify the information table
    - Add section 15.4.4 to describe the implement of multiple working channels
    - See C80216h-06\_103 for text