Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Merging the figure of CXCC sub-channels**
Date Submitted	**2007-11-04**
Source(s)	Wu Xuyong Huawei, Huawei Industry Base, Bantian, Longgang, Shenzhen, China 518129 Voice: +86-755-28976776 Fax: wuxuyong@huawei.com，
Re:	**IEEE 802.16-07/050: IEEE 802.16 Working Group Letter Ballot #29: Announcement (2007-10-05)**
Abstract	**Merging CXCC sub-channels 1-4 and CSI sub-channel into one figure**
Purpose	To consolidate the 16h draft.
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Merging the figure of CXCC sub-channels

Wu Xuyong
Huawei Tech.

Overview

The following CXCC description and figure should be better organized, so that:

1) The basic allocation information of all the sub-channels needs to come together into 15.3.1.1;

2) The 2 figures should merge into one in case that we simplify and fix the parameter CSI_Cycle to 1 ;

3) The usage of different portion of CSI sub-channel should be provided within 15.3.1.2.5

Reference:

[1] *IEEE 802.16h-07/020r3 Comments in Task Group Review of Working Group Draft P802.16h/D2c (2007-10-04)*

[2] *IEEE P802.16h/D3: 802.16h draft 3(2007-10-01)*

[3] *IEEE 802.16-07/050: IEEE 802.16 Working Group Letter Ballot #29: Announcement (2007-10-05)*

[4] *IEEE C802.16h-07/09: Action Items and Ad-Hocs following Session #51 (Mariana Goldhamer; 2007-09-20)*

[5] *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)*

[6] *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)*

Proposed Changes accordingly:

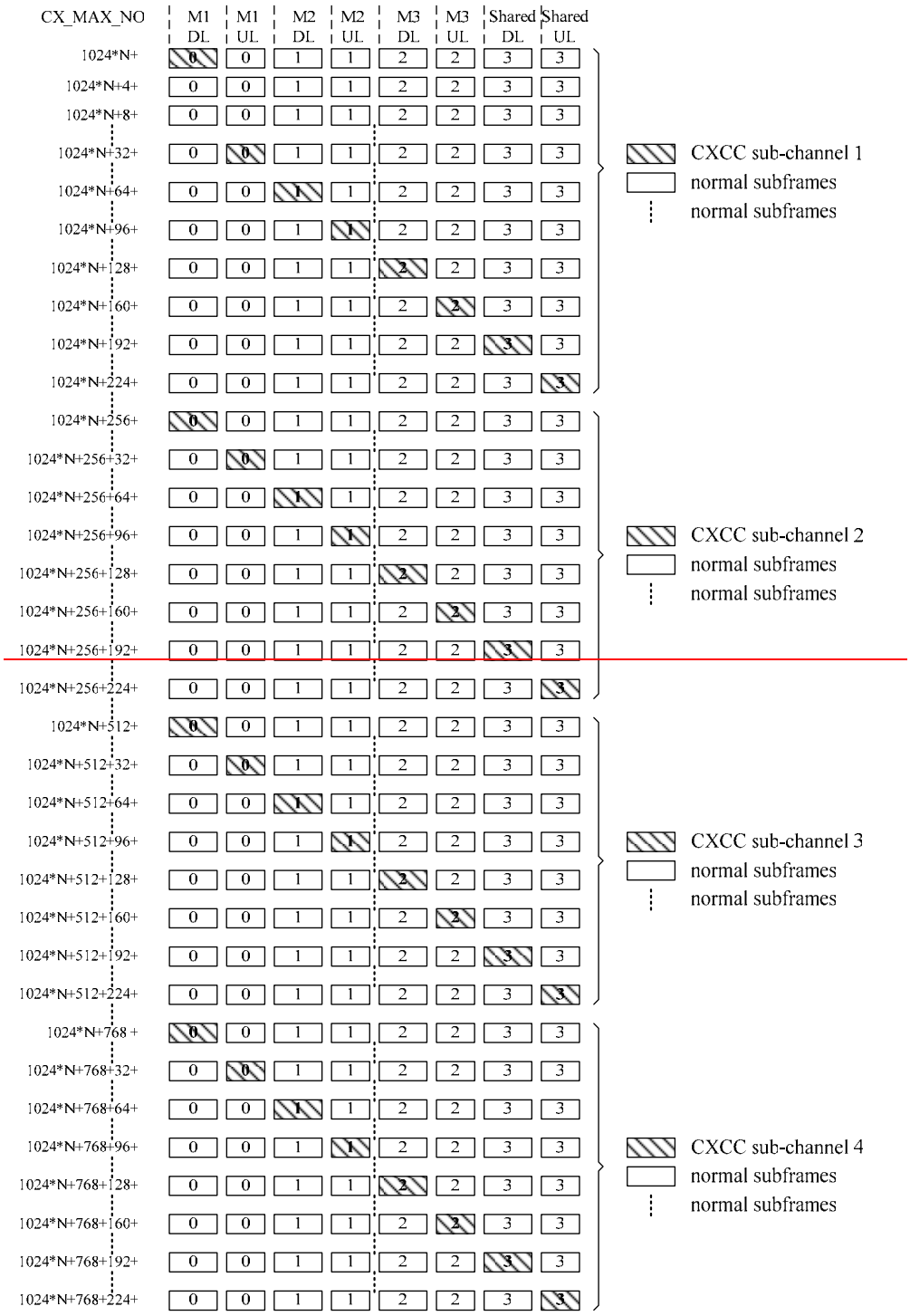
15.3.1 Coexistence Control Channel

15.3.1.1 Basic principles

The CXCC allocation usage will follow the following rules:

- The CXCC allocations are mapped to Master and Shared sub-frames.
- During the CXCC allocations, no Slave or Shared activity is allowed; however, depending of context, the Master sub-frames may be used for transmitting regular data. The optional common sub-frame preceding a Slave within a CXCC allocation will not be transmitted.
- The timing of the CXCC allocation, relative to the MAC Frame, is given in clause *10.5.2*.
- The timing of the CSI allocation is given in *10.5.3*
- *CX_MAC Frame numbering is binary having the length of 10bits; the CX_MAC_Frame = 0 is synchronized with the absolute time 00:00:00.*

- *The repetition period of CXCC for 5ms MAC Frames is 5.12s (1024 MAC Frames). Four CXCC cycles constitute a CXCC Multi-Frame.*
- *A sub-channel is formed from eight CXCC allocations, mapped within Master and Shared sub-frames,four for the DL and four for the UL.*
- *The CXCC four sub-channels are scheduled in consecutive order.*
- *The duration of a CXCC sub-channel is:*
  - *1024 / 4 = 256 MAC frames (1280 ms)*
  - *The CXCC allocations appear in average every 256/~~8~~ 4 = ~~32~~ 64 MAC Frames (~~160ms~~320ms).*
- *The CXCC allocations during ~~a~~any one of CXCC sub-channel1-4 are:*
  - *Master allocation 1~~ sub-frame DL~~: CX_MAC_NO mod 256 = 0*
  - ~~*Master 1 sub-frame UL: CX_MAC_NO mod 256 = 32*~~
  - *Master allocation 2~~ sub-frame DL~~: CX_MAC_NO mod 256 = 64+1*
  - ~~*Master 2 sub-frame UL: CX_MAC_NO mod 256 = 96+1*~~
  - *Master allocation 3~~ sub-frame DL~~: CX_MAC_NO mod 256 = 128+2*
  - ~~*Master 3 sub-frame UL: CX_MAC_NO mod 256 = 160+2*~~
  - *Shared allocation ~~sub-frame DL~~: CX_MAC_NO mod 256 = 192+3*
  - ~~*Shared sub-frame UL: CX_MAC_NO mod 256 = 224+3.*~~
- *The CXCC allocations during CSI sub-channel is:*
  - OCSI for the system with Master allocation 1: CX_MAC_NO mod 4 = 0
  - OCSI for the system with Master allocation 2: CX_MAC_NO mod 4 = 1
  - OCSI for the system with Master allocation 3: CX_MAC_NO mod 4 = 2
  - ICSI for the initialization system: CX_MAC_NO mod 4 = 3


CX_MAX_NO
M1 DL
M1 UL
M2 DL
M2 UL
M3 DL
M3 UL
Shared DL
Shared UL
1024*N+
1024*N+4+
1024*N+8+
1024*N+32+
1024*N+64+
1024*N+96+
1024*N+128+
1024*N+160+
1024*N+192+
1024*N+224+
1024*N+256+
1024*N+256+32+
1024*N+256+64+
1024*N+256+96+
1024*N+256+128+
1024*N+256+160+
1024*N+256+192+
1024*N+256+224+
1024*N+512+
1024*N+512+32+
1024*N+512+64+
1024*N+512+96+
1024*N+512+128+
1024*N+512+160+
1024*N+512+192+
1024*N+512+224+
1024*N+768 +
1024*N+768+32+
1024*N+768+64+
1024*N+768+96+
1024*N+768+128+
1024*N+768+160+
1024*N+768+192+
1024*N+768+224+
CXCC sub-channel 1
normal subframes
normal subframes
CXCC sub-channel 2
normal subframes
normal subframes
CXCC sub-channel 3
normal subframes
normal subframes
CXCC sub-channel 4
normal subframes
normal subframes

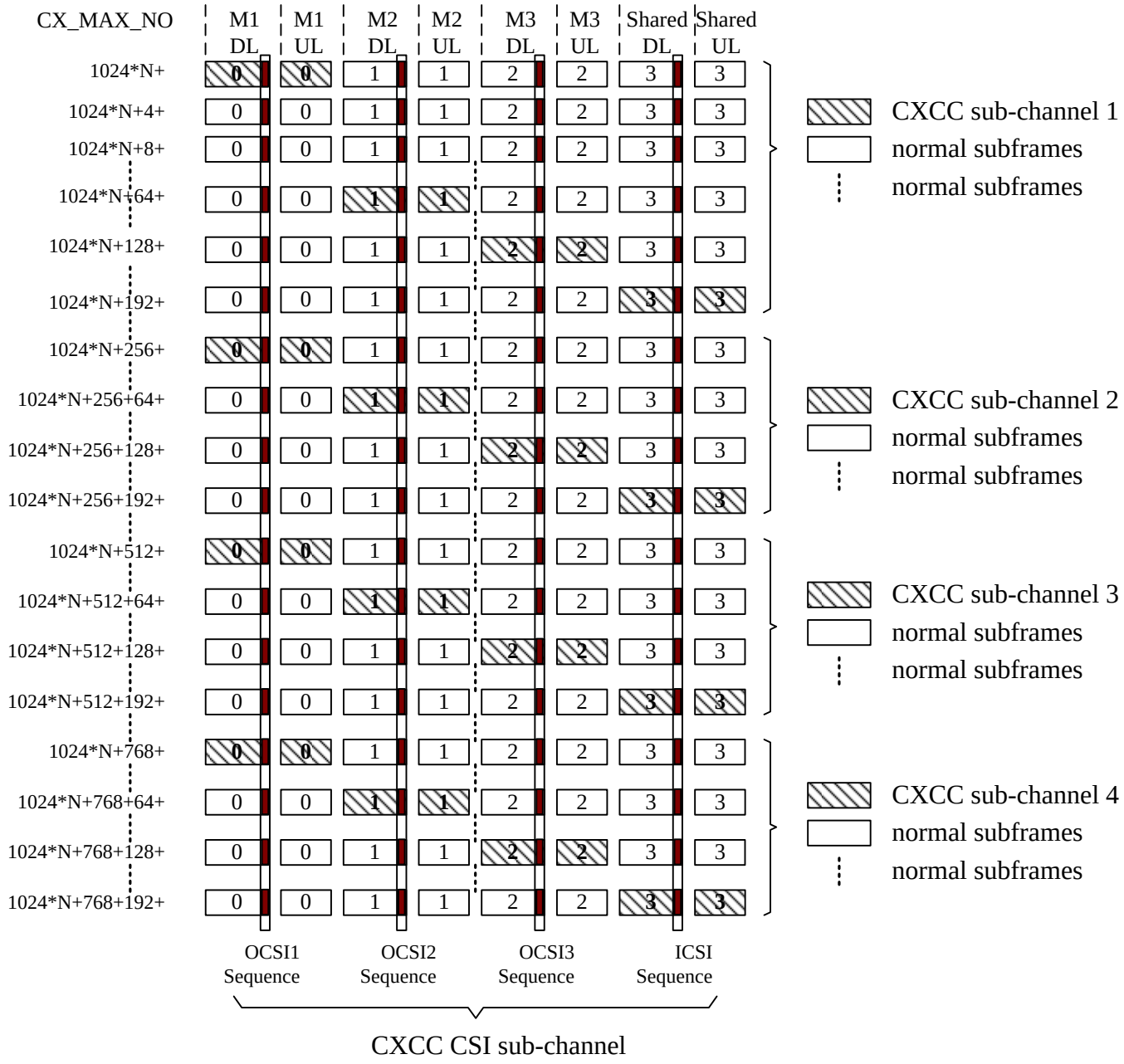


Figure h33—CXCC sub-channel~~s 1-4~~ allocation

15.3.1.2.5 CSI ~~Allocations~~sub-channel

The CSI ~~allocations will~~ shall be allocated ~~transmitted~~, if supported, in the last 100us of each DL subframe within CX-Frame. ~~of the Master sub-frame w allocations. No other transmissions are allowed during these intervals.~~
CSI sub-channel is used for interference identification and basic connectivity creation within interference neighborhood. The ICSI shall be allocated within the shared frame, which is used for initialization WirelessMAN-CX systems. And the OCSI shall be allocated for each WirelessMAN-CX system to the Master allocation, wich is used for operating WirelessMAN-CX systems.

The detailed structure is presented in *15.3.4.1*.

~~o Master 1 sub-frame DL: CX_MAC_NO mod CSI_cycle*4 = 0~~

- Master 2 sub-frame DL: CX_MAC_NO mod CSI_cycle*4 = 1
- Master 3 sub-frame DL: CX_MAC_NO mod CSI_cycle*4 = 2
- Shared sub-frame DL: CX_MAC_NO mod CSI_cycle*4 = 3

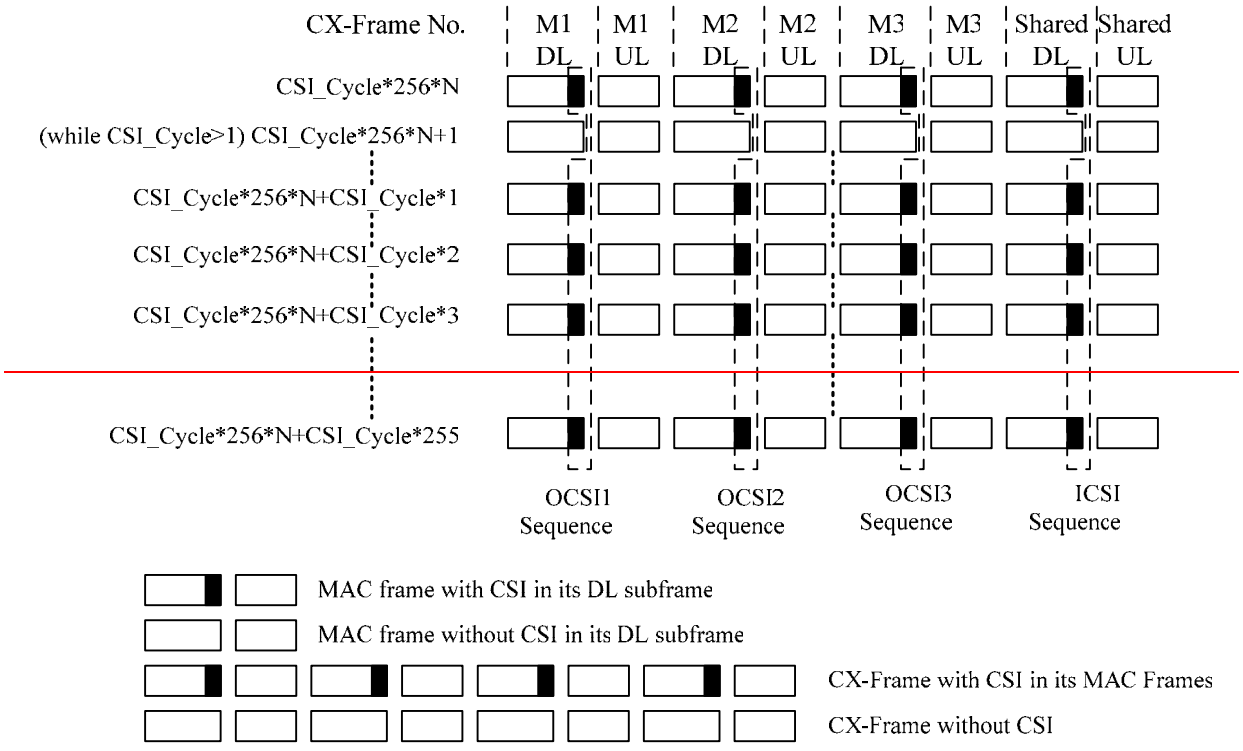


Figure h34 —CSI and CSI sequences allocation as a CXCC sub-channel