Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Changes to the Section 15.1.4.1.2 Coexistence Messaging Interval**
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Re:	Changes to Draft Standard
Abstract	Editorial changes to provide clarity and change; changes as suggested by comments in LB#24
Purpose	Add consistency and clarity to draft document.
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Changes to the Section 15.1.4.1.2 Coexistence Messaging Interval

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Introduction

The current draft document [1] has an outdated description of the Coexistence Messaging Interval, which is now embedded within the CXCC. The following editorial changes give an updated description. Changes are undertaken to Section 15.1.4.1.2 and to Table 345c of [1].

This document addresses comments 262, 264,265, and 267 in [2].
Comment 262: Specific editorial changes to definitions have been made as suggested.
Comment 264: Inconsistency in 15.1.4.1.2 has been removed by general re-write of the section.
Comment 265:Inconsistency removed by general re-writing of this section.
Comment 266: Inconsistency removed by general re-writing of this section.

Specific Editorial Changes

This section provides a list of changes to [1]

Blue Underlined text represents specific editorial additions
~~Red strikethrough text~~ is to be deleted.
Black text is already in the draft.
Bold Italic text is editorial instructions to the editor.

Add the following additional row and values to Table 345c on Page 32 of [1]; lines 4-19. Undertake the shown deletions.

Table 345c---~~p~~Parameters of the control channel timer

Timer	Chapter	Reference	Value
Tcc	6.4.1.3,15.1.5.3.1, 15.1.4.1.2	Average period of the Control Channel time-slots or ½ period between DL slots or ½ period of UL slots.	200 ms
Tcc_s	6.4.1.3,15.1.5.3.1, 15.1.4.1.2	Duration of the Control Channel Slots	1.9 ms
Tcc_ss	6.4.1.3,15.1.5.3.1, 15.1.4.1.2	Offset of the DL Control Channel slots from the start of the ~~first~~ MAC frame.	1 ms
Tcc_se	6.4.1.3,15.1.5.3.1, 15.1.4.1.2	Duration from the end of the UL Control Channel slots to the end of the MAC Frame, for 5,10, and 20 ms.	0.2 ms
Tcxcc	6.4.1.3,15.1.5.3.1,	Duration of the Control Channel	10 sec

| 15.1.4.1.2 | (CXCC)Cycle. | |

Make the following changes to Section 15.1.4.1.2 currently located on page 49 of [1]; between lines 26 and 53.

15.1.4.1.2 Coexistence messaging interval

A Coexistence Messaging Intervals (CMI) is are a series of reserved physical frame slots used for the coexistence protocol messaging signaling purposes. The CMI is are used with systems using the Coexistence Control Channel (CXCC-Table 345d) and having the same profile (*15.2.5*) and synchronized MAC frames. The position of the a CMI is defined by its CX_MAC_NO, which is referenced with respect to a universally sychnronized time source. Each CMI has 2 pairs of slots (2 uplink and 2 downlink) in the Tcxcc cycle (See Table 345d). The slots are labeled CX_CMI_Dn and CX_CMI_Un where n=(1-6) represents a unique system and the subsequent IEEE 802.16 MAC frames are synchronized to a GPS timing signal (*15.2.1*). Furthermore, the CMI are identified by UTC time stamps (). For example, the beginningof the first CMI is at HH:MM:00 UTC, the second CMI is at HH:MM:06 UTC, etc. The beginning of every CMI is specified by a UTC message (time stamp) (*Figureh 17*).

The CMI is are used by WirelessMAN-CX systems (BSs and their SSs) to mediate their co-channel coexistence. The CMI will be an provide an opportunity for systems (BSs and their SSs) to indicate to other systems (BSs and their SSs) the extent of the interference they can cause; newly arriving IBSs will use the CMI to make themselves known to established communities of operating base stations (OBS). Newly entering SS will make their presence known when they are detected by base stations to which they are not associated (see Section **TBD**). Sporadic interference from BS or SS will also be detected by the same process.

A Coexistence Community can consist of a maximum of 9 n=3 (and up to n=6 in future) systems **(TBD)**. Each system claims a unique CMI by a process outlined in Section *15.3.2.3* Within the CXCC Tthere are a total of 10 6 CMI available which repeat twice every CXCC cycle (Tcxcc)) minute (**TBD**), but since CMI_ID 54 is reserved for noise measurement and foreign system identification purposes, there are only 9 CMI available to the Coexistence Community. For example, a system claiming the CX_CMI_D1 would have two downlink transmission opportunities labeled (CX_CMI_D1) and two uplink transmission opportunities (CX_CMI_U1) in the Tcxcc cycle. A system must broadcast its BSD and SSURF messages once respectively on all of its claimed downlink and uplink CMI a minute on its CMI; when it does this all other members of the Coexistence Community remain silent and monitor to detect the extent of the interference that is caused by these specific transmissions this. This operation is a mechanism used by the Wireless MAN-CX same-PHY systems to sense each other's presence, and allows Cognitive Radio methods to be used to control and mitigate interference amongst Coexistence Community systems. The sparse packing of the CMI with randomly placed BSD and SSURF messages allows the detection of interference sources that may exist outside the Coexistence Community, as detailed in Section 15.3.2.1. Figure h17 shows an example of a claimed CMI slot pair within the CXCC and shows the relation to the uplink and downlink frame structure. Also shown is an unclaimed CMI pair. The figure shows the events at a given CX_MAC_NO, for a 5 ms frame duration.

Delete the current Figure h17 located on page 50 of [1] between lines 1 and 24, as shown below..
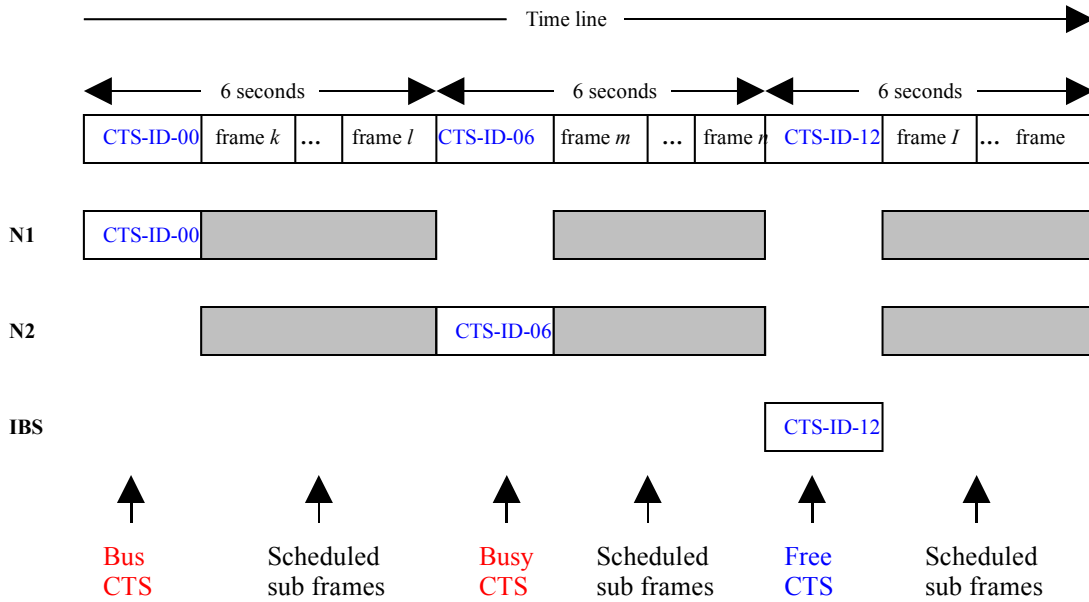
Figure h17 ----- CMI Timing

Replace the deleted Figure h17 above with the following new figure, and locate this new figure starting at Line 1 of Page 50 in the current [1].
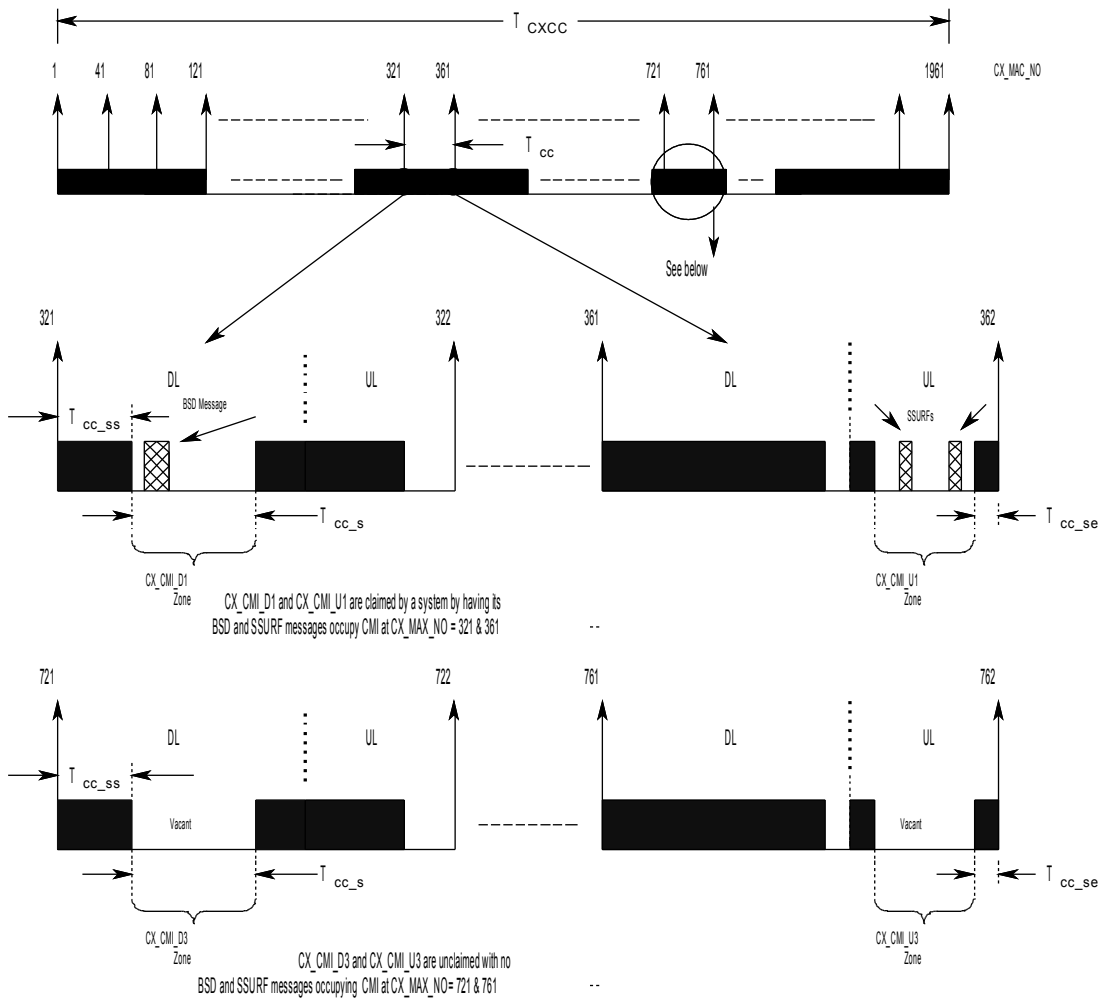
Figure h17 Example of claimed and unclaimed CMI (for a 5 Ms Frame Duration CXCC)

References

[1] IEEE P802.16h/D1: *Air Interface for Fixed Broadband Wireless Access Systems Improved Coexistence Mechanisms for License-Exempt Operation*, Draft Standard.

[2] IEEE 80216h-06_068r2: *Letter Ballot #24 Commentary file with resolutions from Session #46.*