

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Frame structure with UC regions	
Date Submitted	2008-03-10	
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Re:	Call for Comments on C80216m-08/118r1 from [frame] Rapporteur Group	
Abstract	This contribution proposes frame structures with the UC regions to C80216m-08/118r1.	
Purpose	For discussion and approval by IEEE 802.16 Working Group	
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Frame structure with UC regions

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Introduction

C80216m-08/118r1 proposes an initial text to be included in the 802.16m SDD under the frame structure section, which includes the relay-enable frame structure. However, for 802.16m systems with multihop relays, the delay of the control signals becomes critical to the system efficiency. Therefore, we propose to allocate a Universal Control (UC) region in 802.16m systems to facilitate efficient and fast exchanges of control signals such as HO related signals, network entry related signals, HARQ related signals and CQI report signals. Table 1 lists the attributes of UC regions.

Table 1 UC Regions Attributes

UC region attribute	Options
UC region allocation	(a) centralized (b) distributed
Signaling about UC region configurations	(a) broadcast/multicast (b) persistent (c) unicast (d) hybrid
Multiple access scheme in UC region	(a) reservation-based (b) contention-based (c) hybrid
Security in UC region	(a) centralized (b) distributed
Control signal transception in UC region	(a) direct transception between the sender and receiver (b) in-frame relaying from sender to receiver (c) hybrid
Transmission Technology in UC region (UL)	(a) OFDMA (b) SC-FDMA (c) CDMA
Transmission Technology in UC region (DL)	(a) OFDMA
Number of transceivers	(a) one (b) two or more

This contribution proposes modifications to C80216m-08/118r1. In order to facilitate the incorporation of this proposal into C80216m-08/118r1, specific changes to C80216m-08/118r1 are listed below.

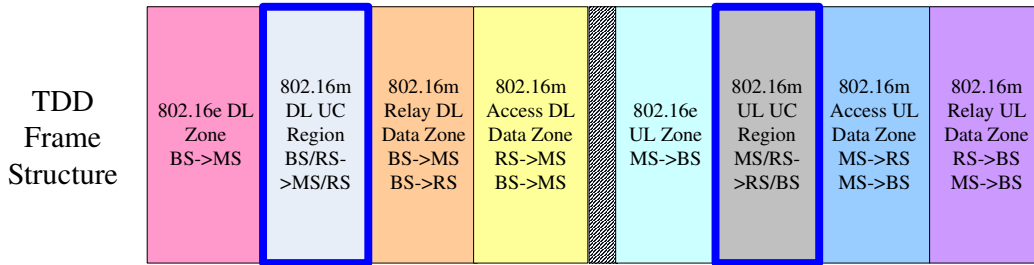
Proposed Changes

[Insert Subclause 11.4.4.1as follows:]

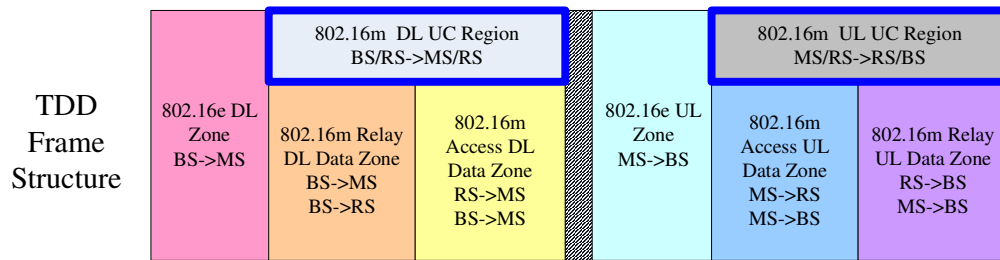
11.4.4.1 Frame structure with UC regions

In order to facilitate efficient and fast exchanges of control signals such as HO related signals, network entry related signals, HARQ related signals and CQI report signals in 16m systems with relays, the Universal Control (UC) regions are defined in the frame structure by either zone or frequency allocations. Figure 11.4-5-1(a) depicts an example of UC region allocations for TDD frame structure by zone, whereas Figure 11.4-5-1(b) depicts an example of UC region allocations for TDD frame structure by frequency. Figure 11.4-6-1(a) depicts

an example of UC region allocations for FDD frame structure by zone, whereas Figure 11.4-6-1(b) depicts an example of UC region allocations for FDD frame structure by frequency.

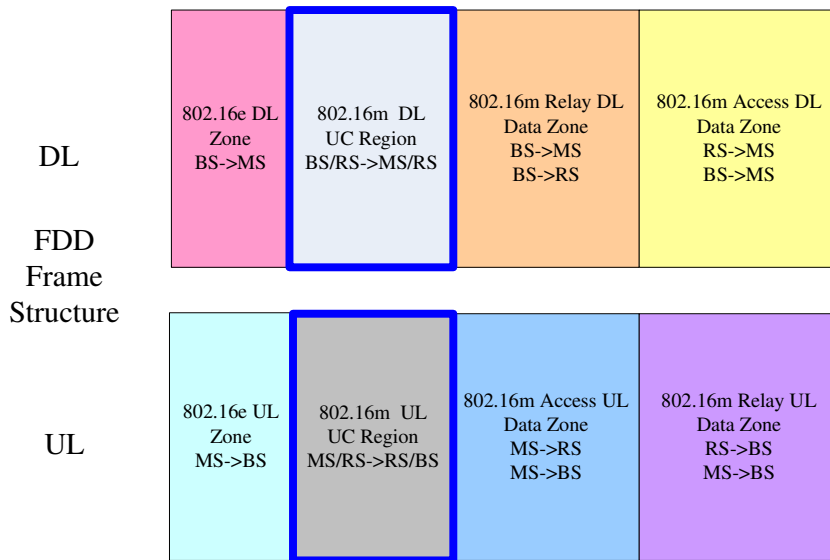


(a) Frame structure with zone-based UC regions in TDD mode

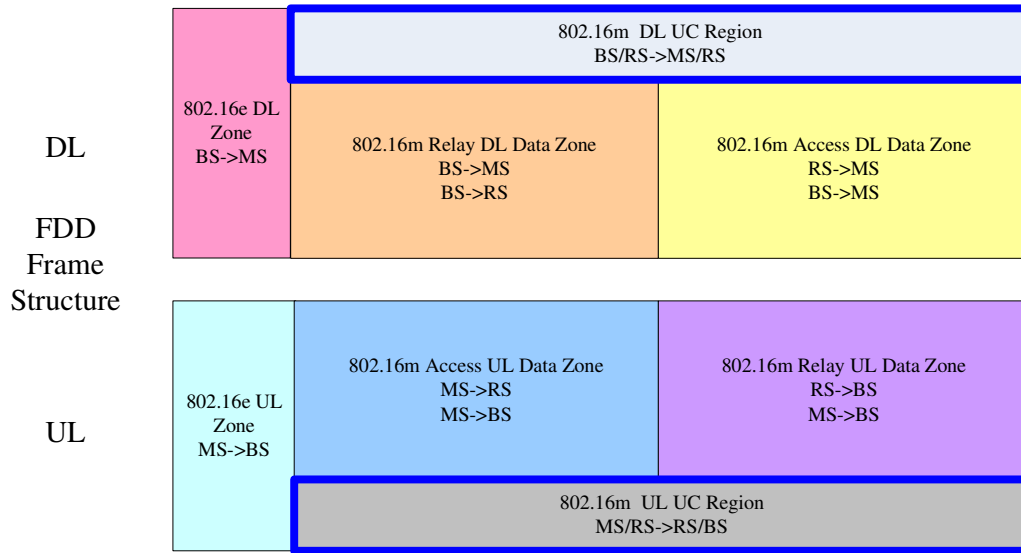


(b) Frame structure with frequency-based UC regions in TDD mode

Figure 11.4-5-1: Proposed Frame Structures in TDD mode



(a) Frame structure with zone-based UC regions in FDD mode



(b) Frame structure with frequency-based UC regions in FDD mode
Figure 11.4-6-1: Proposed Frame Structures in FDD mode