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Title	**Alignment of Feedback Period Control**	
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Source(s)	Jerry Chow So Tricci Peiying Zhu	Voice: +1 613 765 8089 pyzhu@nortel.com

Re:	IEEE Std 802.16e-2005
Abstract	The contribution aligns how feedback period is specified amongst all MAP IEs that contain this control.
Purpose	Adoption of proposed changes into IEEE Std 802.16e-2005
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Alignment of Feedback Period Control

Jerry Chow, Tricci So, Peiying Zhu

Nortel

Introduction

Several MAP IEs provide control of periodic reporting of feedback from the MS, but the way in which the reporting Period (p) fields are defined is not consistent between them. Specifically, CQICH_Enhanced_Alloc_IE() and Dedicated MIMO DL Control IE() use a 3-bit exponent to the power of 2, which supports periods from 2^0, or every frame, to 2^7, or every 128 frames, whereas CQICH_Alloc_IE() and Feedback polling IE() use a 2-bit exponent to the power of 2, which limits the maximum period to 2^3, every 8, frames. We propose to align the way in which feedback reporting period is specified amongst all of these IEs so that the most appropriate range of periods can be specified regardless of which of the IEs is being used. More specifically, we propose the alignment between the IEs be with the 3-bit exponent approach for the following reasons:

1. The maximum reporting period of once every 8 frames provided by the 2-bit exponent approach is much more frequent than is required for scenarios where the channel changes being tracked are significantly slower than every 8 frames
2. In scenarios where periodic reporting at rates less than once every 8 frames is sufficient, being able to operate at the lower reporting rates allow greater multiplexing gain for CQI channel allocations, thus, allowing smaller Fast Feedback regions to be defined to support the required number of CQI channels. Similarly for feedback reporting via Feedback header, a lower periodic reporting rate requires less UL bandwidth allocation for Feedback header transmissions per feedback duration.

Therefore, it is proposed that the Period (p) field in CQICH_Alloc_IE() and Feedback polling IE() be increased from 2 to 3 bits.

Proposed changes

Modify the following Tables as highlighted in red.

Table 300—CQICH alloc IE format

Syntax	Size	Notes
CQICH_Alloc_IE() (){		
Extended ~~D~~UIUC	4 bits	CQICH = 0x03
Length	4 bits	Length of the message in bytes (variable)
CQICH_ID	variable	Index to uniquely identify the CQICH resource assigned to the SS. The size of this field is dependent on system parameter defined in ~~D~~UCD.
Allocation offset	6 bits	Index to the fast-feedback channel region marked by UIUC = 0.
Period (p)	~~2~~3 bits	A CQI feedback is transmitted on the CQICH every ~~2p~~2^p frames.
Frame offset	3 bits	The SS starts reporting at the frame of which the number has the same 3 LSB as the specified frame offset. If the current frame is specified, the SS should start reporting in eight frames.

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Table 302v—Feedback polling IE format

Syntax	Size	Notes
Feedback polling IE () {		
Extended-2 DIUC	4 bits	0x0F
Length	8 bits	Length in bytes of following fields
Num_Allocations	4 bits	
Dedicated UL Allocation Included	1 bit	0: No dedicated UL resource is allocated in this feedback polling IE. BS shall provide UL allocation for the Feedback header transmission through UL-MAP at each designated transmitting frame defined by this IE 1: Dedicated UL resource is included
Reserved	3 bits	Shall be set to 0
For (i=0; i < Num Allocations; i++) {	—	—
Basic CID	16 bits	—
Allocation Duration (d)	3 bits	The allocation is valid for $4^{(d-1)}$ frame starting from the frame defined by Frame_Offset If d == 0b000, the pre-scheduled Feedback header transmission is released If d == 0b111, the pre-scheduled Feedback header transmission shall be valid until the BS commands to release it.
If (d != 0b000) {	—	—

Feedback type	4 bits	See Table 7i
Frame Offset	3 bits	The offset (in units of frames) from the current frame in which the first UL feedback header shall be transmitted on the allocated UL resource. The start value of frame offset shall be 1.
Period (p)	~~2~~3 bits	The UL resource region is dedicated to the MS every 2^p frame.
If (Dedicated UL Allocation Included == 1) {	—	—
UIUC	4 bits	—
OFDMA symbol offset	8 bits	—
Subchannel offset	7 bits	—
Duration	3 bits	In OFDMA Slots
Repetition coding indication	2 bits	0b00 - No repetition coding 0b01 - Repetition coding of 2 used 0b10 - Repetition coding of 4 used 0b11 - Repetition coding of 6 used
}	—	—
}	—	—
}	—	—
Padding bits	*variable*	To align octet boundary
}	—	—