Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	Enhanced mode selection feedback initiated by MSS through MAC subheader
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Re:	IEEE P802.16e/D3-2004
Abstract	In this contribution, the method for MSS initiated mode selection feedback using MAC subheader is proposed
Purpose	Review and Adopt the suggested changes into P802.16e/D3
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1 Introduction

In IEEE802.16e/D3 text, mode selection feedback is sent on the fast feedback channel by the MSS, to select different MIMO and permutation modes. The mode selection feedback is either sent periodically on the CQICH as defined by the CQICH_Alloc_IE() or sent when polled by the BS using the FAST-FEEDBACK allocation subheader.

In the case of periodic mode selection feedback, the MSS has to send the mode selection information even though the information has not changed from the one previously reported. In the case of polling by the BS, the BS has no information on when the mode selection at the MSS has changed, and therefore the polling is typically done periodically. In both cases, the UL resource is unnecessarily used. In the latter case, the DL resource is also unnecessarily used.

Typically, the mode selection at the MSS does not change frequently. However, when the mode selection does change, the information needs to be fed back with minimum delay so that the newly selected can take effect quickly. Both the periodic feedback and the BS-polling-based feedback in the existing IEEE802.16e/D3 are not efficient in supporting the mode selection feedback.

We therefore propose that the MSS sends the mode selection feedback information on a newly proposed UL MAC subheader when the selected mode has changed from the one previously reported and when the MSS has UL resource assigned to transmit UL traffic. This proposal is complementary to the proposal in "Enhanced mode selection feedback initiated by MSS through Mode Selection Feedback MAC Header" which is used for the case when the MSS has no UL resource assigned for UL traffic transmission when a mode change occurs.

In this proposal, the generic MAC header is modified by using the Reserved bit (applicable only to UL) to indicate the presence of the Mode Selection Feedback Subheader. The one-byte Mode Selection Feedback Subheader carries either the MIMO mode and permutation selection or the Anchor BS selection for the support for SHO and fast BS switching.

2 Proposed Text Change

2.1 Modification of Generic MAC header

[*Modify 6.3.2.1.1, Figure 19 –Generic MAC header. In the UL generic MAC header, the reserved bit is replaced by Mode Selection Feedback type bit. If Mode Selection Feedback type bit = 0, the Mode Selection Feedback Subheader is absent; If Mode Selection Feedback type bit = 1, the Mode Selection Feedback Subheader is present.*

The BS shall only decode this Mode Selection Feedback type bit sent by an MSS capable of mode selection feedback indication. Otherwise, the BS shall ignore this bit. The mode selection feedback indication capability is exchanged in a new TLV defined for SBC-REQ/RSP]

Figure 19. Generic MAC header format.

HT=0 (1)	EC (1)	Type (6)	~~Rsv (1)~~ Mode Selection Feedback type (1)	CI(1)	EKS (2)	Rsv (1)	LEN MSB (3)
LEN LSB (8)			CID MSB (8)				
CID LSB (8)			HCS (8)				

2.2 Add a new Mode Selection Feedback Subheader

[Add a new section 6.3.2.2.7]

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6.3.2.2.7 Mode Selection Feedback Subheader

Table xx. MSS indication subheader format.

Name	Length (bits)	Description
Feedback type	4	Indicate the type of feedback (see Table yy)
Feedback content	4	Content of the feedback

Table yy. Feedback type

Feedback type	Description
0b0000	MIMO mode and permutation. If set to this type, the Feedback content is as described in Table 296a.
0b0001	Anchor BS selection. If set to this type, the MSB of the Feedback content is set to '0', and the 3 LSBs of the Feedback content is set to the TEMP_BS_ID of the new Anchor BS.
0b0010-0b1111	Reserved