Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**MIMO transmission for UL FAST_FEEDBACK and Fast MIMO Feedback Channels**
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Re:	Response to Recirculation Ballot #14c
Abstract	Enhance the UL feedback channels by space time coding
Purpose	To incorporate the changes here proposed into the 802.16e D5 draft.
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MIMO Transmission for UL FAST_FEEDBACK and Fast MIMO Feedback Channels

1 Introduction

The uplink feedback channels such as FAST_FEEDBACK and fast MIMO feedback channel are fundamental to the network operation, the high reliability of such channel is critical for the network and user performance. In this contribution, we propose to use existing UL MIMO transmit mechanics such STTD and collaborative SM for the two key feedback channel transmission: (1) FAST_FEEDBACK channel (2) fast MIMO feedback channel.
The advantages for the space time coded feedback channel transmission are:

(1) STTD to increased the CIR margin for feedback channel or reduce the MSS transmission power
(2) Multi-user collaborative SM to reduce the overall UL feedback channel overhead

2 Proposed Text

Add the text into Section 8.4.5.3.17

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------------Start Text ----------------------------
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The FAST_FEEDBACK channel can be transmitted by using 2-antenna STC matrix-A with the UL tile allocation shown in figure 249a for PUSC zone.
The FAST_FEEDBACK channel can be transmitted by using 2-antenna STC matrix-A with the UL tile allocation shown in figure 252a for optional PUSC zone.
The FAST_FEEDBACK channel can be transmitted by using STC matrix-B with the UL tile for 1-antenna MSS-1 and 1-antenna MMS-2, the allocation shown in figure 249a for PUSC zone
The FAST_FEEDBACK channel can be transmitted by using STC matrix-B with the UL tile for 1-antenna MSS-1 and 1-antenna MMS-2, the allocation shown in figure 252a for optional PUSC zone.

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------------End Text ----------------------------
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Add the text into Section 8.4.5.3.17.2

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------------Start Text ----------------------------
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The fast MIMO feedback channel can be transmitted by using 2-antenna STC matrix-A with the UL tile allocation shown in figure 249a for PUSC zone.
The fast MIMO feedback channel can be transmitted by using 2-antenna STC matrix-A with the UL tile allocation shown in figure 252a for optional PUSC zone.
The fast MIMO feedback channel can be transmitted by using STC matrix-B with the UL tile for 1-antenna MSS-1 and 1-antenna MMS-2, the allocation shown in figure 249a for PUSC zone
The fast MIMO feedback channel can be transmitted by using STC matrix-B with the UL tile for 1-antenna MSS-1 and 1-antenna MMS-2, the allocation shown in figure 252a for optional PUSC zone.

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------------End Text ----------------------------
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