

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Enable closed-loop MIMO channel estimation using partially beamformed midamble	
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Source(s)	Qinghua Li, Xintian Eddie Lin, Shilpa Talwar, Intel Corporation	qinghua.li@intel.com Voice: +1-408-765-9698
Re:		
Abstract	Per-Stream ABL for MIMO Precoding Systems	
Purpose	Adoption of proposed changes into P802.16e Crossed-out indicates deleted text, <u>underlined blue indicates new text change to the Standard</u>	
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Enable Closed-Loop MIMO Channel Estimation Using Beamformed Midamble

Qinghua Li, Xintian Eddie Lin
Intel Corporation

Abstract

For closed-loop MIMO (i.e. MIMO precoding), there is no training mechanism in the current standard for the composite channel, which consists of the beamforming matrix, the transmit chain response at the transmitter, the wireless medium response, and the receive chain response at the receiver. This is because all the pilots and midamble are sent without beamforming. The receiver has to rely on the assumption that the receiver knows the beamforming matrix employed in the transmitter. However, the assumption doesn't hold for two cases. First, it fails when channel sounding and channel reciprocity is employed TDD modes. Secondly, it fails when there is a feedback error in FDD modes. For both cases, the MIMO precoding doesn't work. This can be solved by sending part the midamble in beamformed mode, which is employed for the data portion.

1 Beamformed Midamble

2 Specific Text Changes

References:

- [1] IEEE P802.16e/D5 Air Interface for Fixed and Mobile Broadband Wireless Access Systems – Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands, 2004.
- [2] IEEE P802.16-REVd/D5-2004 Draft IEEE Standards for local and metropolitan area networks, Part 16: Air interface for fixed broadband wireless access systems, 2004.