

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Clarification on interleaver for vertically encoded MIMO	
Date Submitted	2005-01-11	
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Re:		
Abstract		
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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Clarification on Interleaver for Vertically Encoded MIMO

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1 Introduction

Interleaver is not defined for MIMO in D5a. For example, it is not clear whether the size of interleaver for rate 2 STC is twice of that of SISO. It is desirable the size to be double for this example because the two subchannels are not filled up by one coding block if the size is not doubled. Different for SISO interleaver, MIMO interleaver is different from SISO interleaver in the sense that it has the additional spatial dimension to work with. An ideal MIMO interleaver should collect the diversities from time, frequency, and space. An interleaver is proposed for vertically encoded MIMO, which is built on existing 16e SISO interleaver and flexibly supports open loop, closed loop, uniform bit loading, and adaptive bit loading.

2 Specific Text Changes

Added section 8.4.8.10 at line 33 on page 362 of [1] as follows

8.4.8.10 MMIO Interleaver

Figure 254a illustrates a transmitter for vertically encoded MIMO, where there are N_d data streams. The punctured code bits are distributed into N_d modulation chains. Each chain interleaves and modulates the distributed bits using the interleaving and permutation schemes specified for SISO transmission. The modulated symbols are circularly shifted by an increase number of subcarriers on each chain as follows. The shift steps are $0, 1, \dots, N_d-1$ for chain $1, \dots, N_d$ respectively.

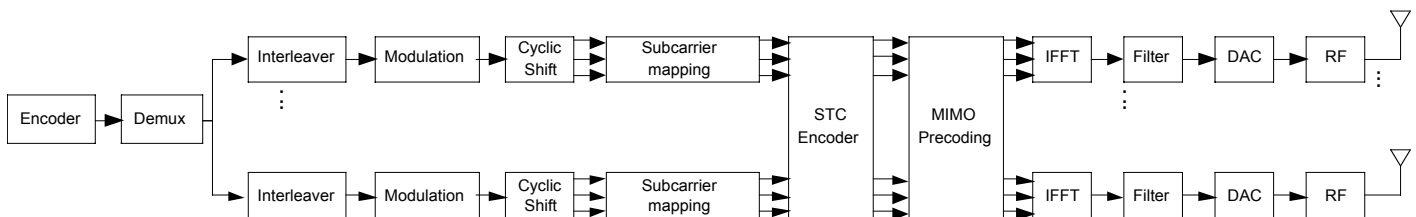


Figure 254a Illustration of Matrix C with vertically encoding for optional zones in DL.

References:

[1] IEEE P802.16e/D5a 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.