

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Macro Diversity Handoff with Fractional Frequency Reuse (FFR) and Coding	
Date Submitted	2007-11-11	
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Re:	[Cite the specific document number of the appropriate Call for Contributions, the ballot number, etc. Contributions that are not responsive to this section of the template, may be refused or assigned a low priority for review.]	
Abstract	Enhancement on cell-edge performance is imperative requirement for cellular communication systems. In this contribution, we propose a method to enhance the performance of mobile stations in a cell edge region. It provides the frequency diversity gain and coding gain while current MDHO transmission gives over-the-air (OTA) combining gain.	
Purpose	To be discussed and adopted by TGM for use in the 802.16m SDD	
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Macro-diversity Handoff with FFR and Coding

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Suggested ToC Topic for IEEE 802.16m SDD: Enhancements on Cell-edge Performance

Title: Macro-diversity Handoff (MDHO) with Fractional Frequency Reuse (FFR) and Increased Coding Gain

Description: We propose a method to enhance the performance of mobile stations in a cell edge region. It provides the frequency diversity gain and coding gain while current MDHO transmission gives over-the-air (OTA) combining gain. It is assumed that the macro-diversity handoff (MDHO) transmission in downlink is supported among cells as well as sectors. Brief operation can be summarized as

- A mobile may receive from two base stations (or sectors) using two different set of tones.
- Two set of tones may deliver same or differently generated sub-packets from the output of encoder
- Transmit diversity from each sector also may be applied
 - o The same set of tones may be utilized when non-orthogonal space time coding transmission is assumed. Each sector is equipped with multiple transmit antennas.

Different set of tones are used when orthogonal space time coding is assumed. Figure 1 shows the conceptual diagram showing the proposed transmission method.

Related Area(s) in SRD: Section 7.1.1: Relative performance (cell-edge user throughput), Section 7.1.2: Absolute performance (cell-edge user throughput), and Section 7.4: Cell coverage

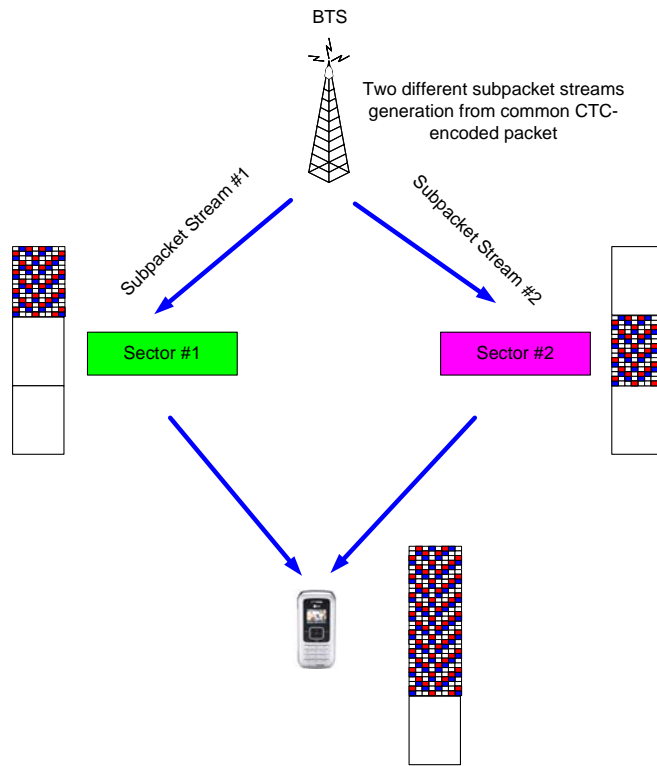


Figure 1: MDHO Transmission with FFR and Increased Coding Gain