

Mário Marques da Silva, Rui Dinis, Américo Correia, "A New V-BLAST Detector approach for W-CDMA signals with Frequency Selective Fading" – PIMRC 2005, Berlin, Germany, September 2005;

Abstract: Due to the multipath propagation, the wideband-code division multiple access (W-CDMA) channels are typically frequency-selective. For this reason, conventional vertical-Bell Laboratories layered space-time (V-BLAST) detection techniques are not suitable for W-CDMA-based MIMO systems (multiple input, multiple output). In this paper, we consider the use of MIMO schemes within W-CDMA systems and we propose a V-BLAST detector suitable for multipath, frequency-selective channels where the individual detection of each path is performed using a simple decorrelator, and the resulting signals are combined through an MSE-based (mean square error) multipath combining algorithm. Due to the high sensitiveness of this detector to interpath interference, a multipath-parallel interference cancellation (MPIC) is also considered, followed by either successive interference cancellation (SIC) and parallel interference cancellation (PIC).