A lower complexity K best algorithm for multiple input and multiple output detection.

ABSTRACT

This paper presents Multiple Input Multiple Output (MIMO) detection steps using tree search based method known as the 'K' best algorithm. This low complexity algorithm is based on probabilistic approach of sphere decoding with self adjustable capability depending on the levels (root, branch, leaf etc.) of a tree. While the tree was searched to estimate the transmitted symbols level by level, the algorithm took into account the effect of the undetected symbols in the search criteria. Simulation results showed that the proposed method reduced complexity (in terms of the average number of visited nodes) about 10% for higher (medium to high) signal to noise ratio (SNR) values without degrading the system BER performance.