

Abstract

In BS (Base Station) cooperation architectures the MTs (Mobile Terminals) in adjacent cells can operate in the same frequency, with the signal's separation and/or MTs detection being performed by a CPU (Central Processing Unit). This results in a substantial improvement in the overall system's capacity and spectral efficiency when compared to conventional cellular systems. To decrease the data load in the backhaul links, the received signals at a given BS must be sampled and quantized before being sent to the CPU, which results in a significant increase of quantization errors. We consider the uplink of BS cooperation schemes employing SC-FDE (Single-Carrier with Frequency-Domain Equalization) modulations and a detection performed through receivers based on the IB-DFE (Iterative Block Decision Feedback Equalization) concept. We present accurate approaches for obtaining the spectral characterization of the quantization noise. Moreover, we propose the design of robust receivers that can take into account the quantization noise effects.