

Abstract

Mohamed S El-Mahallawy

Multi-Subcarrier OVSF Code Allocation in WCDMA

Supporting multimedia applications with quality of service (QoS) requirements is one of the challenge goals in a wireless communication system. The third generation (3G) standards employ orthogonal variable spreading factor-wideband code division multiple access (OVSF-WCDMA) technologies which flexibly support mixed and variable data rate services. The orthogonal property of OVSF codes leads to code blocking which further gives call blocking. This paper proposed a new allocation model by adding multiple subcarriers in the same OVSF code tree structure. The aim of using multiple subcarriers is to reduce the internal and external fragmentation of an OVSF code tree. Several common single code assignment strategies, namely, random, left-most and crowded-first code are used. The simulation results show significant increase in the code tree utilization and reduction in the code blocking probability.