Abstract

Recent innovations in wireless technology have made a need to propose hybrid systems to achieve excellent data rates and performance. One such system is multi-carrier code division multiple access (MC-CDMA), a combination of direct sequence code division multiple access (DS-CDMA) and orthogonal frequency division multiplexing (OFDM) systems. It offers high data rate, flexible bandwidth allocation and enhanced performance to each user simultaneously. Owing to these advantages, this system is chosen to be interfaced with the physical layer of software defined radio (SDR). SDR is defined as a reprogrammable hardware that suits emerging standards of next generation wireless communication. In MC-CDMA system, when the orthogonality is not maintained in the OFDM part, it leads to multiple access interference (MAI). To overcome the effects of MAI and to reduce complex detection to a great extent, super orthogonal turbo codes is chosen for the system. In this paper, MC-CDMA based SDR system is constructed using super orthogonal turbo codes with log-MAP algorithm. The simulation results show that the performance is remarkable when compared to a turbo system using recursive systematic codes (RSC). The BER performance of both the systems is analyzed for different iterations.
References

- Petri Komulainen and Kari Pehkonen, 'Performance Evaluation of Super...

**Index Terms**

Computer Science

Wireless Communications

**Keywords**

MC-CDMA  SDR  SOTC  RSC and MUD