

Abstract

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A space-frequency block codes MIMO single-carrier code-frequency-division multiple access system

In this paper, a novel space frequency block codes MIMO single-carrier code-frequency-division multiple access (SFBC MIMO SC-CFDMA) transceiver is proposed. The proposed SFBC SC-CFDMA system allocates a unique spreading code for each user. The proposed SFBC SC-CFDMA system offers robustness against the effect of carrier frequency offsets (CFOs). The proposed SFBC SC-CFDMA system is suggested to improve both of the peak-to-average power ratio (PAPR) performance and the bit error rate (BER) performance. The simulation results show that the proposed SFBC SC-CFDMA system has superior improvements in the BER performance over the traditional SFBC SC-FDMA system. Moreover, the PAPR performance of the proposed SFBC SC-CFDMA system is better than that of the traditional system for the case of a localized mapping scheme. Furthermore, BER analysis for the proposed SFBC SC-CFDMA and traditional SFBC SC-FDMA system over a frequency-Selective Rayleigh fading channel is presented for the case of zero-forcing (ZF) equalizer and QPSK modulation.