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Abstract

This paper is concerned with evaluating the performance of differential space time block coding (DSTBC) over very high frequency (VHF) aeronautical communication channels (i. e. air-to-ground). Differential phase shift key (DPSK) is one of the differential transmission schemes that transmit information without full channel state information (CSI) at the receiver. There are two main problems that degrade the performance of the communication over this channel, multipath fading which is a common problem in any wireless channel and Doppler shifts which result from aircraft speeds. In order to combat such fading and improve the bit error rate (BER) performance of the communication system over this channel, the paper investigated the usage of multiple input multiple output (MIMO) systems with differential transmission scheme. This was done through computer simulations that analyze the performance of DSTBC using two antennas at the transmitter and N antennas at the receiver.

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Index Terms

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Keywords

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