

MIMO-OFDM System for Improved Diversity Using STBC

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Abstract— Severe attenuation in a multipath wireless environment makes it extremely difficult for the receiver to determine the transmitted signal unless the receiver is provided with some form of diversity, i.e., some less-attenuated replica of the transmitted signal is provided to the receiver. Space–time block coding, is a solution to this problem. In this data is encoded using a space–time block code and the encoded data is split into n streams which are simultaneously transmitted using n transmit antennas. The received signal at each receive antenna is a linear superposition of the n transmitted signals affected by noise. Space–time block codes provides us the advantage to achieve the maximum diversity order for a given number of transmit and receive antennas subject to the constraint of having a simple decoding algorithm. In this paper we describe space time coding with OFDM and compare BER performance and diversity with different modulation schemes and different antenna arrangement.

Keywords: Diversity, multipath channels, multiple antennas, space–time block codes, wireless communication.