MULTIUSER-MIMO TRANSMISSION USING BLOCK DIAGONALIZATION

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"In the name of ALLAH S.W.T, The Most Gracious and The Most Merciful. Peace be upon the Holy Prophet, Muhammad S.A.W."

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ABSTRACT

This project was about the use of Block Diagonalization (BD) method in Multiuser-MIMO (MU–MIMO) downlink transmission. The aim of this project was to get the performance of signal in term of probability of error (BER). This project is focusing on downlink transmission only with using orthogonal frequency division multiplexing (OFDM). The simulation was done by using MATLAB simulation program. The BER performance was presented in the system with differing number of transmitter, number of users and compared with the other downlink transmission method.

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Chapter 1

INTRODUCTION

1.1 Background of Study

MIMO refers to the multiple-input multiple-output wireless communication system. MIMO is described as a technology that uses multiple antennas at the source (transmitter) and/or at the destination (receiver) to improve communication performance. It increases capacity at high SNR and provides diversity gain. It is expected that MIMO systems have better performance than SISO systems. Input and output means that radio channels which carrying signal between source and destination. Figure 1.1 shows a downlink MU–MIMO communication system. Multiple antennas at both ends of a wireless link hold the potential to drastically improve the spectral efficiency and link reliability of a wireless communications system.

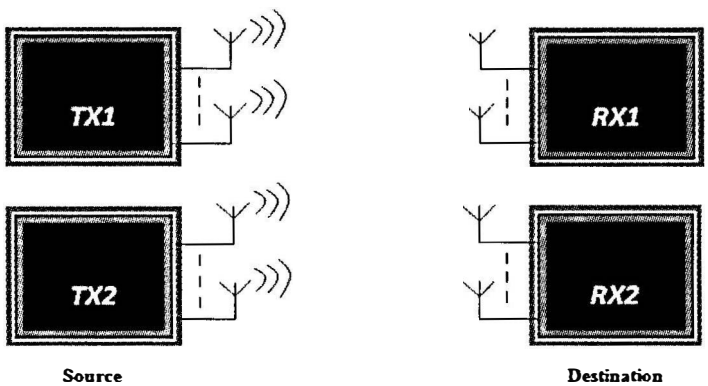

Figure 1.1: Downlink MU-MIMO communication systems