

**AN ENHANCED TRANSMISSION RATE WITH
EFFICIENT BANDWIDTH USING DIVERSITY
TECHNIQUE FOR OFDMA RESOURCE
ALLOCATION**

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ABSTRACT

MIMO-OFDMA (Multiple Input Multiple Output-Orthogonal Frequency Division Multiple Access) resource allocation is studied in this paper. The considered problem is to provide each user with more data rate in wireless communication system. The objectives of this research focus on transmission rate on how to maintain or increase the data rate with efficient bandwidth. Diversity technique is also applied to see which one is the best for maximum achievement diversity between space time diversity, space frequency diversity and space time-frequency diversity. The simulation will show which technique will achieve the maximum diversity order in MIMO-OFDMA system and the suitable bandwidth to improve transmission rate.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

The wireless communication technologies growth is fast until now. One of the technologies is Orthogonal frequency division multiple access (OFDMA) which is broadband wireless air interface. OFDMA is a form of orthogonal frequency division multiplexing (OFDM) which it's a technique that has high potential for high speed wireless multiuser communication network.

The term Wi-Fi is obviously refers to the 802.11 standards. There are 802.11 a, b, g and n within the standards. This standard was known as indoor wireless networks. Many vendors want to extend these capabilities to outdoor networks by building Media Access Control (MAC) and Physical layer (PHY) systems. Some of it are using single carrier. Several leveraged OFDM capabilities. While others chose another approaches of Wideband Code Division Multiple Access (WCDMA) and Universal Mobile Telecommunication System (UMTS). The main idea was to create an advancement outdoor network.

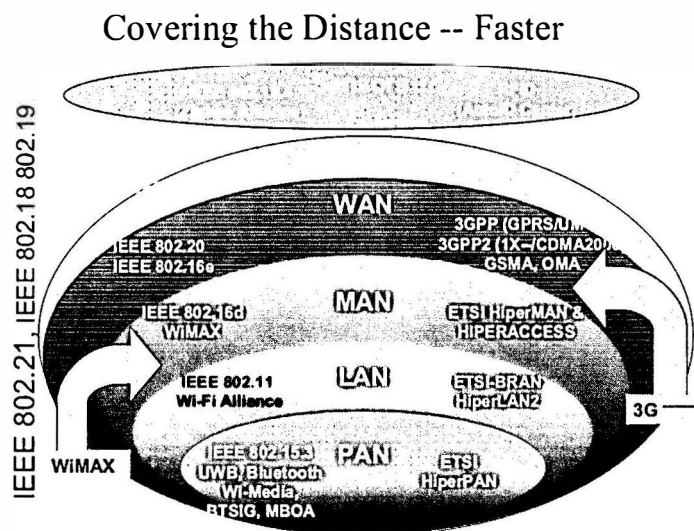


Figure 1.1.1: air interface standards[28]