

PERFORMANCE STUDY ON WIDEBAND CODE DIVISION
MULTIPLE ACCESS (WCDMA) SYSTEM RAKE RECEIVER

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ABSTRACT

This paper presents the study of Rake receiver bit error rate (BER) performance on WCDMA. The BER performance analysis was done in a WCDMA Frequency Division Duplex (FDD) downlink system by simulating on different channel types and Rake receiver spreading factor. All the simulations were done using MATLAB Simulink models. The models included a transmitter, propagation channel (Additive White Gaussian Noise (AWGN) channel and Rayleigh multipath fading channel) and Rake receiver with up to four fingers and 4 to 256 spreading factor. The functionality of each blocks in the models were verified, then the models were simulated and finally the trade-offs between parameters affecting the Rake receiver performance were investigated. The result shows that the Rake receiver work best in multipath channel and the highest number of spreading factor, which in this paper is 256.

TABLE OF CONTENTS

CHAPTER DESCRIPTION	PAGE
Title	i
Approval	i
Declaration	ii
Acknowledgement	iii
Abstract	iv
Table of Contents	v
List of Figures	viii
List of Tables	x
Abbreviations	xi
References	xvi
Appendices	xviii

CHAPTER

1	INTRODUCTION	
	1.1	Problem Statement 1
	1.2	Objectives 2
	1.3	Scope of Work 2
2	LITERATURE REVIEW	
	2.1	Previous Research 3
	2.2	Theoretical Background
	2.2.1	Evolution of Mobile Communications System 5