

PERFORMANCE ANALYSIS OF PROPAGATION MODELS FOR WiMAX NETWORK

By

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At present, became the joint action in worldwide about access Microwave (WiMAX) technology, also became more popular and receive growing acceptance as a wireless broadband access system (BWA). WiMAX can success at line-of-sight (LOS) and non-line-of-sight (NLOS) cases that working below 11GHz frequency. As will be there a big development about WiMAX networks. also calculate or estimate of path loss is so important in first propagation of wireless network, there are many of propagation models (e.g. Okumura Model, Hata Model) which can estimate of path loss, in this project we will analysis and compare between two of propagation models (COST 231 HATA, ECC-33 and HATA) in various receiver antenna heights (3 m, 6 m, 10 m) in urban areas. Will our main focus is determine which better model for urban areas. Results show that the ECC-33 model is the best compare with HATA model and COST 231 HATA model.

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APPROVAL

This thesis was submitted to the Senate of Infrastructure University Kuala Lumpur (IUKL) and has been accepted as partial fulfilment of the requirement for the degree of (Master in Information Technology).

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DECLARATION

I hereby declare that the work in this project is based on my original work except for quotations, citations and summaries which have been duly acknowledged. I also declare that it has not been previously submitted for any degree or award at Infrastructure University Kuala Lumpur or other institutions.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
WWW	World Wide Web
IEEE	Institute of Electrical and Electronics Engineers
SUI	Stanford University Interim
NLOS	Non-line-of-sight
LOS	line-of-sight
FWA	Fixed Wireless Access
BS	Base Station
CPE	Customer Premises Equipment
AP	Access Point
WiMAX	Worldwide Interoperability for Microwave Access
RF	radio frequency
OFDM	Orthogonal Frequency Division Multiplexing
NIST	National Institute of Standards and Technology
BWA	Broadband Wireless Access
OFDMA	Orthogonal recurrence segment different access
PMP	Point-to-multipoint
MAC	Medium Access Control
QoS	Quality of service
SUI	Stanford University Interim
UHF	Ultra High Frequency
ITU	International Telecommunication Union
Matlab	Matrix laboratory
SCS	symbolic computation system
OFDM	Orthogonal frequency division multiplexing
OFDMA	Orthogonal Frequency Division Multiple Access

CHAPTER 1

INTRODUCTION

1.1 Introduction

These days' individuals love remote web access for different gadgets, for example, telephones, radios, when they are in settled, portable or traveling conditions. The fast advancement of remote web lead to build rapid arrival to the (WWW) World Wide Web. To show the interest for access to the web anywhere any time and guarantee high caliber to administrations (Institute of Electrical and Electronics Engineers) the IEEE 802.16 working gathering exhibited another broadband remote access innovation it is " WiMAX " this intend to all World will utilize Microwave Access Propagation models are utilized widely as a part of system arranging, especially to conduct achievability concentrates on and amid beginning sending. They are additionally extremely helpful for performing impedance concentrates on as the sending continue (Abhayawardhana et al 2003).

In this study we will compare at and examine some path loss models (Okumura Model, Cost-231 Hata Propagation Model, and Stanford University Interim (SUI) model) in various collector receiving wire statures in urban in Non-line-of-sight (NLOS) case. We will focus on disclosure a fit model for urban to give rules to cell arranging of WiMAX (Shahajahan & Hes-Shafi, 2009).

1.2 Project Background

Propagation models are utilized with network planning, also for feasibility studies and during first Propagation process. Also it is useful for interference studies. These models diffuses to any area or environment, it is fit for Specific areas such as urban areas.

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