

**ANALYSIS OF RECEIVED SIGNAL STRENGTH INDICATOR
(RSSI) IMPROVEMENTS FOR RADIO NETWORK
OPTIMIZATION**

This thesis is presented in partial fulfillment for the award of the Bachelor of
Electrical Engineering (Hons)

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ABSTRACT

Recent years has shown the exploitation growth of mobile subscribers and services. This project is the analysis one of the important data measurement for optimization process to stabilize the radio network for mobile provider. The data that have been analyzed in this project is received signal strength indicator for radio network. Mobile network systems operate on the principle of frequency reuse. Frequency reuse in a mobile network market gives a mobile operator the ability to offer higher radio traffic intensity.

The data was taken from the company that does the radio network optimization for mobile provider. Tuning process is done to make a comparison for any improvement in the received signal strength. Drive test is done at the same route to measure the received signal strength. The route for the drive test is done for cluster of Pandan. There two different areas that will be analyze in this project that are covered by cluster of Pandan. Then received signal strength indication (RSSI) data was processed by using MATLAB version R2008a.

In order to prove the increase value of RSSI, the graph RSSI versus time was plotted. RSSI is a measurement of the power present in a received radio signal. RSSI is in the negative value number. Therefore the higher RSSI number the stronger the signal. The comparisons between before and after the tuning of antenna were displayed and RSSI improvements are achieved.

TABLE OF CONTENTS

CHAPTER		PAGES
	LIST OF FIGURES	
	LIST OF ABBREVIATIONS	
	LIST OF TABLES	
I	INTRODUCTION	1
	1.1 Introduction	1
	1.2 Objectives Project	3
	1.3 Project Overview	3
	1.4 Structure of the Project	4
II	LITERATURE REVIEW	5
	2.1 Introduction to 4G	5
	2.2 WiMAX Network	7
	2.2.1 Orthogonal Frequency-Division Multiplexing (OFDM)	9
	2.2.2 Orthogonal Frequency-Division Multiple Access (OFDMA)	10
	2.3 Radio Network Planning and Optimization	11
	2.4 Interference	12
	2.4.1 Co-channel Interference	12
	2.4.2 Adjacent channel Interference	13
III	METHODOLOGY	14
	3.1 Introduction	14
	3.2 Process to analyse the data	14
	3.3 X-CAL software	16
	3.3.1 Equipment setting	18

CHAPTER 1

INTRODUCTION

1.1 Introduction

Telecommunication industry is growing very fast due to the advancements in the semiconductor technologies industry. Since 20 years ago, the internet and mobile telecommunication technologies has grown at tremendous rate. The demands in this industry increase rapidly to meet the needs of human lifestyle. Every day we can see new technologies in the telecommunication area being launched which indicate improvements of the latest technologies.

The first generation (1G) is the starting of the telecommunication industries. These technologies used analog telecommunications standards that are introduced in 1980's. 1G is modulated in the higher frequency to transmit and receives the voice. Then the technologies were replaced by the second generation (2G) that used digital telecommunication standards and incorporated services for mobile users such as the short message systems (SMS). In early 2000, the third generation (3G) telecommunication systems was launched which provided application services that include wide area wireless voice telephone, mobile Internet access, video calls and mobile TV. To meet International Mobile Telecommunication-2000 (IMT-2000) standards, a system is required to provide peak data rates of at least 200 kbits/s.^[1] In 2008, the International Telecommunication Union, Radiocommunication Sector (ITU-R) organization specified the International Mobile Telecommunications Advanced (IMT-Advanced) requirements for fourth generation (4G) standard, by setting peak speed requirements for 4G service between 100 Mbit/s and 1 Gbit/s for both