

**ANALYZING AND OPTIMIZING WI-FI ACCESS POINT
PERFORMANCE**

The thesis is presented in partial fulfilment for the award of the
Master of Sciences in Telecommunication and Information Engineering
UNIVERSITI TEKNOLOGI MARA

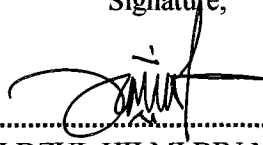


**FADHLI DZUL HILMI BIN MOHD FAUZI
FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA (UiTM)
SHAH ALAM
JAN 2013**

DECLARATION

It is hereby declared that all the materials in the thesis are the results of my own work and all the materials that not the results of my own work have been clearly acknowledged in this thesis.

Signature,



.....
FADHLI DZUL HILMI BIN MOHD FAUZI

ACKNOWLEDGEMENTS

All the praise and thanks to Allah SWT for his blessing and giving me the health, strength and the opportunity to complete this final year project. Alhamdulillah with His blessing the project was able to finish within the time given and I have gained experience and knowledge in completing this project. Without opportunity given, I may not be able to do and complete this project successfully.

Particularly I would like to express my thousands of gratitude and appreciation to my project supervisor and co-supervisor PM Ruhani Bt Ab. Rahman and PM DR. Mat Ikram Yusof for their guidance and advices that help me throughout the hard work of completing this project no matter in what condition and time. Without their hard work and cooperation this project may not have achieved its completion.

I would also like to express my gratitude to my technical examiner Encik Mohd Taib Bin Miskon for his comments and guidance that helps me to improve this project content and presentation. I want to especially want to express my gratitude to my mother, Salmah Bt Mohd Tahar and my wife, Wan Nurzulaikha Bt Wan Mohamad for their prayers, motivation and encouragement that gave me strength for completing this project successfully. Their hope for my success will be fulfilled with their prayers and encouragement as my backbone. Lastly I would like to thank my friends, lab technicians and UiTM staffs for suggestion and assistance in completing this project.

ABSTRACT

Wireless technology has improved to help the user to simplify networking by reducing the amount of cables uses and connecting multiple devices to simultaneously share and connects devices with each other. It is now common that wireless networking applies into many infrastructures and buildings for the connection of the clients to the internet or sharing information or data with each other. This consequently has brought pros and cons to the clients of wireless network. A Wireless Local Area Network (WLAN) is a type of Local Area Network (LAN) that uses high frequency radio waves to communicate and transmit data. A reliable WLAN network should satisfy the needs of the clients and give the best performance especially data sharing within the network thus Access Points (AP) is used in an area. Even with the usage of APs, propagation inside building suffers from interference and overlap channel. Hence it is necessary to identify the quality of the wireless connection and how to improve the communication through WLAN by positioning the AP. Therefore, in this paper, Analyzing and Optimizing WiFi Access Point Performance has been proposed to analyze a study case with APs network problems and its performance. The case study area used in the research is in the Intelek Building located in the Universiti Teknologi MARA, Terengganu.

TABLE OF CONTENTS

Cover Page	i
Approval	ii
Declaration	iii
Acknowledgements.....	iv
Abstract	v
Table of Contents	vi
List of Figures	ix
List of Tables	x
List of Abbreviations	xi
CHAPTER 1	1
INTRODUCTION	1
1.1 OVERVIEW.....	1
1.1.1 AP Wireless Management.....	1
1.1.2 AP Observation in Area.....	2
1.1.3 Received Signal Strength Indication (RSSI).....	3
1.1.4 Non-Overlapping Channels and Frequency Used.....	3
1.1.5 WiFi Interference	4
1.2 PROBLEM STATEMENT	5
1.3 OBJECTIVES	5
1.4 SIGNIFICANCE OF PROJECT	6
1.5 SCOPE OF PROJECT.....	6
1.6 ORGANIZATION OF THESIS.....	6
CHAPTER 2	8
LITERATURE REVIEW.....	8