UNIVERSITI TEKNOLOGI MARA

STUDY AND IMPLEMENTATION OF DRIVE TEST FOR DEVELOPMENT OF LONG TERM EVOLUTION (LTE) NETWORK

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JANUARY 2015

ABSTRACT

Drive Test is a method used by Radio Frequency (RF) Engineers to measure the quality of mobile radio network in open air interface. The requirement of Fourth Generation (4G) Long Term Evolution (LTE) as the latest technology in mobile network is far greater in term of data speed and it IP based technology makes it more challenge in voice services when synchronizing with previous technology. Circuit-Switched Fall Back (CSFB) is one of the services provide by the LTE technology in order to adapt with previous technology in voice services. This paper focuses on the idea of network optimization by collecting and analyzing the fourth generation LTE which include the drive test method on CSFB and Packet Switched (PS) services and analyzing the data using air interface post-processing NEMO Outdoor / Analyzer. This research has improved the mobile network performance with drive testing method by increasing the call setup rate and downlink throughput rate and decreasing the call drop rate.

ACKNOWLEDGEMENT

First and foremost, I would like to thank God Almighty, Allah S.W.T for his bless and consent, I have succeeded to complete this final year project.

I would like to express my extremely gratitude, appreciation and thousand thanks to my project supervisor, Dr Azita Laily Yusof for consistent help, guidance, inspiration and giving me a spirit as well as prevsion of her valuable time for me to completing this project.

I hope the knowledge that gathered and the experience gained from this project will help me to face the real challenge in working environments. The support and encouragement from all the people above will always be a pleasant memory throughout my life. May God bless to all of them.

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INTRODUCTION

1.1 Background Of Study

The emerging of the telecommunication network worldwide is view as the demand by the population with Second Generation (2G) Global System for Mobile (GSM) and Third Generation (3G) Universal Mobile Telecommunications System (UMTS) technologies serves nearly 90% of the mobile subscribers globally. Since the introduction of 3G UMTS mobile network on Malaysia by Celcom in 2005 with video call service, others operators in Malaysia has started to rollout their network and implement the newly and advanced mobile technology and services.

High Speed Packet Access (HSPA) network is introduce in Malaysia in September 2006 by Maxis Communications and Dual-Carrier High Speed Packet Access (DC-HSPA), advanced HSPA with dual-carrier with speed up to 42 Mbit/s, is start introduce by Umobile in 2011. HSPA technology is designed specifically for packet data services. The demand of data service is highly increased since 3G network introduction and the optimization specifically made on the network to provide more capacity and higher data rates.