

**GSM TELETRAFFIC ENGINEERING MEASUREMENT  
FOR TRAFFIC TYPE**

***This is presented in partial fulfillment for the award of the  
Bachelor of Engineering (Hons.) in Electrical  
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**KHAIRUL PARMAN BIN ZAKARIA**  
School of Electrical Engineering  
MARA Institute of Technology  
40450 Shah Alam  
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## **ABSTRACT**

The objective of this thesis is to collect and tabulate data of traffic type to control and to monitor the performance of Global System for Mobile Communication (GSM) telephone network. The data presented shows an overview of the traffic flow in an exchange. Traffic measurement are used primarily to check the service performance, to monitor the system capacity and to determine the grade of service (GOS) that the customer are receiving. The aim of traffic measurement is to enable the administration to manage and plan network effectively and efficiently. This paper explains how to measure the GSM telephone traffic and how to analyze the measured traffic data. Traffic data is collected only for basic traffic type which is defined by the origin and the destination. From the data, daily analysis is made and graphs are plotted. From this observation, the traffic measurement on exchange and surrounding telephone network will provide the data and traffic flow is monitored. Relatively simple program has been written in C++ computer language for system capacity planning-radio channel to the final solution for radio channel that is used for forecast and dimensioning for future requirements. The capacity planning is very useful to determine how many circuits are required on a given route in order to control the proportion of blocked calls. From this observation, further recommendations are made with other considerations in order to provide the best performance for the customers.

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# CHAPTER 1

## 1.0 INTRODUCTION

### 1.1 General

One of the reasons for developing a cellular mobile telephone system and deploying it in many cities is the operational limitation of conventional mobile telephone system; limited service capability, poor service performance, and inefficiency frequency spectrum utilization [1]. The ultimate aim of mobile communication system lies in ensuring an exchange of every information with 'anyone'; 'anywhere'; and 'anytime'; at low costs using handy devices [2].

Haruo Akimaru and Konosuke Kawashima [3] expressed that in telecommunications system, it would be uneconomical if exclusive resources such as switching and transmission facilities were dedicated to each customer. A solid understanding of the network involved is a must to undertake successful teletraffic engineering. It is an interesting subjects which requires intelligence, knowledge and experience .

Telecommunication networks are aid to carry 'traffic' consisting of telephone calls or data messages. The more traffic there is, the more circuits and exchanges