

**ANALYSIS OF DATA IN CELL PLANNING IN TERMS  
OF TRAFFIC ANALYSIS AND GRADE OF SERVICE  
(GOS) DURING HARI RAYA 2009 AT EASTERN  
MALAYSIA**

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## ABSTRACT

The advancement in communication technology has witnessed by the developments of many different types of application. In communication system a lot of losses and issues are happen in term of capacity, coverage, cell planning, interference, and environment aspects. The analysis of data in term of traffic analysis and GoS is important to do cell planning. In this project we use Microsoft Access's software to create database system and also use Matlab's software to do analysis of traffic occurring before, during and after Raya.

Database created to being easy to us to analysis the data in order to determine the performance of the mobile system and the need new implementation such as upgrading Transceiver (Trx card), provide new site, provide new band channel, or provide new BTS in congested area. The congested area is already identifying using data analysis by database system.

After all the congested cell already identifying, recommendation of improvement to that cells which is has high utilization or high number of average block call will recommend. In the case where the utilization level cannot be upgraded anymore, propose of new site and if still congest then need to add services such as add 1800 band and if still congest also then the new base station has to be built. A residential area with high population is not necessary to have high traffic, but an area where high activities are carried out is identified to be the factor of increasing the block call.

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# CHAPTER I

## INTRODUCTION

### 1.1 Introduction

The tremendous growth in the demand for mobile communication services, with more and more carriers joining the market have triggered the need of cell planning improvement in order to give best performance in communication's field. Modern mobile network design involves several inter-dependent factors such as cell coverage, traffic, topography, propagation characteristics and system capacity. The selection of the number of cells, cell locations, power at base station and other design parameters have to be determined in the context of one another. The cell locations can be determined based on the number of cells, the coverage performance, traffic distribution, and propagation environments. Design parameters at base station and mobile units cannot be specified until the cell allocation is completed. For example, the channel assignment, which can improve system performances in terms of traffic services and interference avoidance, can only be determined after the architecture of the mobile cellular network has been specified [2]. Finally, cell planning is not a onetime task as the design has to be continually updated based on the mobile network scenario. Many studies have been carried out in the areas of mobile cellular network planning in terms of coverage analysis, channel assignment, routing and propagation, but relatively few studies [1]. In conventional cellular planning, the focus is mainly on the radio planning aspects which includes the optimal selection of cell sites, frequency channel allocation and antenna design. With set covering problem approach this becomes too cumbersome and leads to an inefficient implementation. In this paper we focus on the way we can do improvement in term of low capacity, low coverage, weak of cell planning, much interference, and environment aspects according to the data analysis.