UNIVERSITI TEKNOLOGI MARA

PERFORMANCE EVALUATION OF CORNER EFFECT IN UMTS

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ABSTRACT

In cellular network such as UMTS, corner effect is one of the problem that effected the performance evaluation of handover algorithms. Handover is one of the key functionalities which tries to keep a user equipment (UE) connected to the best base station (Node B). Handover is on the downlink received signal strength (RSS) and carrier-to-interference ratio(CIR) measurements. This paper determines the corner effect at three location of urban area. Parameter of Ec/No (dB) is considered to evaluate the quality of services of the system. Meanwhile, parameter RSCP is used to measure the percentage of signal dropped. The NEMO ANALYZE software is used in this project to analyze the measurement at selected route. The actual data of Ec/No and RSCP was obtained from drive test measurements. Hence, the comparison between three location was done to determine the worst route that had been effected by the corner effect environment.

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CHAPTER 1

INTRODUCTION

1.1 Project Overview

Mobility is the most important feature of a wireless cellular communication system. Usually, continuous service is achieved by supporting handoff (or handover) from one cell to another. Handoff is the process of changing the channel (frequency, time slot, spreading code, or combination of them) associated with the current connection while a call is in progress. It is often initiated either by crossing a cell boundary or by a deterioration in quality of the signal in the current channel. Handoff is divided into two broad categories— hard and soft handoffs. They are also characterized by "break before make" and "make before break." In hard handoffs, current resources are released before new resources are used; in soft handoffs, both existing and new resources are used during the handoff process. Poorly designed handoff schemes tend to generate very heavy signaling traffic and, thereby, a dramatic decrease in quality of service (QoS).

The reason why handoffs are critical in cellular communication systems ıs that neighboring cells are always using a disjoint subset of frequency bands, so negotiations must take place between the mobile station (MS), the current serving base station (BS), and the next potential BS. Other related issues, such as decision making and priority strategies during overloading, might influence the overall performance.