ABSTRACT

The development of information technology and wireless communications

increase rapidly. However, the development of this technology limited by frequency

spectrum. Thus, the radio frequency spectrum for wireless communication becomes a

very expensive commodity. Some techniques are needed to allocate the frequency

channels of communication. HSDPA technology works with a wide frequency band 5

MHz for each downlink and uplink directions. To serve large user with 5 MHz

frequency spectrum, it requires special techniques. Thus, the utilization of frequency

channels can be optimized with a good of services.

One technique to optimize the use of the channel is by selecting the appropriate

channel allocation techniques. There are several channel allocation technique that can

be used in mikrosel HSDPA network, one of them is the Dynamic Channel Assignment

(DCA). By using this technique, each channel can be used temporarily during a

communication session. The main variation of the DCA scheme is Distributed and

Centralized. On Distributed Dynamic Channel Assignment, empty channel distributed

dynamically to call set-up and handover channels. Thus, the channel for call set-up can

be used to accept the handover, and vice versa.

From the simulation using the software MatLab 7.9, the Distributed Dynamic

Channel Assignment schemes in mikrosel HSDPA with cell radius 2210 m and channel

capacity of each cell is 53 user channels, results that channel optimization in scenario I

is 96,22% with the addition of user from 20 users to 47 users, in scenario II

the addition of users from 30 to 53 users, and in scenario III, the addition of users from

30 to 53 users. So, the channel optimization in scenario II and III is 100%. All users in

three scenarios could make communication session because of Eb / No value above the

threshold value (7dB).

Keyword: Distributed Channel Asignment, HSDPA, Channel Capacity

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