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