

## ABSTRACT

*Wideband* CDMA (WCDMA) is a telecommunications technology that has a large capacity for service and depends on the interference. To limit the number of users which log in and keep the stability of the system, it required a Call Admission Control (CAC). Call Admission Control (CAC) algorithm is one part of the Radio Resource Management (RRM) that is able to accept or reject the user in accordance with certain parameters in the WCDMA system.

This final task is discussing the influence of power based *Multi-Cell Admission Control* (MC-AC) algorithm on the up-link direction of WCDMA. The analysis was conducted by compare MC-AC algorithm with *Single-Cell Admission Control* (SC-AC) on the same scenario. Next, analyzed from the resulted parameters such as capacity of the cell and blocking probability the new user. This simulation will include only two types of services, namely voice and data separately.

From the results of the simulation is found that for equal  $E_b/N_0$  the maximum capacity of voice services in the MC-AC is smaller than in the SC-AC, that is taken on the  $E_b/N_0 = 5$  dB cell capacity = 86 users (MC-AC) and 90 user (SC-AC). For data services on the  $E_b/N_0 = 5$  dB cell capacity = 51 users (MC-AC) and 77 users (SC-AC). New user blocking probability on MC-AC is bigger than on SC-AC for the voice services, which is taken by the average of user arrival per minute equal to 2 user/minute which the value of blocking probability is 0.0166 ( $h=1.8$  menit) on MC-AC, besides on SC-AC is 0.0083 ( $h=1.8$  menit). From the maximum cell capacity and MC-AC blocking probability is found that the MC-AC more conservative and selective in choosing a user because it is more prioritize the quality of service in whole of telecommunications system.

**Keywords :** WCDMA, *up-link*, *Multi Cell-Admission Control* (MC-AC), *Single Cell Admission Control* (SC-AC).