

## ABSTRACT

HSUPA (High Speed Uplink Packet Access) is a 3GPP release 6 which offers upload speeds up to 5.76 Mbps. HSUPA technology was already applied in Indonesia so that the number of users that take advantage of HSUPA technology is increasing. With the increasing numbers of users that take advantage of HSUPA service, then needed a method of controlling the capacity of HSUPA networks themselves.

In this Final Task is done call admission control algorithm simulation that consists of simple call admission control and call admission control enhancement algorithm to control new user. As for active user set has been carried out simulation using simple power control algorithm. There are three scenarios in determining the capacity of this Final Task, namely scenario 1 (70% class 1, 10% class 2, 10% class 3, 10% class 4, 70% active user, 15% new call, and 15% handoff user), scenario 2 (50% class 1, 20% class 2, 20% class 3, 10% class 4, 50% active user, 25% new call, and 25% handoff user), and scenario 3 (30% class 1, 30% class 2, 30% class 3, 10% class 4, 30% active user, 35% new call, and 35% handoff user).

Simple power control algorithm is suitable to be applied in controlling active user to increase HSUPA network capacity because its dropping probability is so small (2,593% in the scenario 1, 5,313% in the scenario 2, and 0% in the scenario 3). Call admission control enhancement algorithm is suitable to be applied in controlling new user to increase HSUPA network capacity because new call dropping probability is so small (5% in the scenario 1, 10% in the scenario 2, and 12,222% in the scenario 3) and handoff dropping probability is so small too (3,333% in the scenario 1, 2,5% in the scenario 2, and 11,111% in the scenario 3).

Keywords: *Admission Control, Capacity, HSUPA Network*