ABSTRACT

High Speed Downlink Packet Access (HSDPA) is a new technology in celluler telecommunication system for data communication. The advantage of HSDPA is the access speed that can achieve up tp 14.4 Mbps theoritically. That high speed data transfer is achieved because it is supported with a couple of new feature such as new channel HS-DSCH (*High Speed Downlink Shared Channel*), using *Adaptive Modulation and Coding* (AMC), fast schedulling process, and fast cell selection. These features are used in HSDPA sytem and related to each other.

This final task analyze the use of AMC in HSDPA using threshold algorithm. AMC in HSDPA has role to determine the modulation scheme that will be used according the channel conditions. Threshold method is a simple algorithm which is choose the modulation scheme based on threshold value. Simulation performed using Matlab software with various user speed movement.

The results of the simulation in this final paper demonstrate the use of AMC that could improve the perfomance of HSDPA system. By using the AMC that use threshold method the perfomance of HSDPA can be maintained at BER 10^{-4} can be achieved channel conditions with SNR 8 dB and with higher user SNR conditions the BER is obtained even better. But when the user moves with high speed that cause the channel condition fluctuated, BER 10^{-4} can only be obtained when the channel conditions are still quite high SNR. It can be seen in the simulation with user movement of more than 60 km/h, where the Doppler frequency becomes large when the user by moving at high speed. The algorithm used in determining the modulation scheme on AMC also influence the performance itself. The threshold algorithm can not give best performance of AMC while channel conditions change very quickly and if there are any other interference effects.