ABSTRACT

Communication technology has developed very fast. Third Generation Partnership Project (3GPP) has introduced LTE as the next generation of mobile networks which can fullfill the demand of mobile communications. In 3GPP Release 8 LTE providing speed data Up to 100 MB/ s for review downlink and 50 Mb/ s uplink for review. One of the problems at System Long Term Evolution (LTE) is the power allocation problem Power Allocation being a problem because of the need for energy efficiency better .

The problem with the Long Term Evolution (LTE) system is the allocation of resource allocation and allocation of power. The resource allocation process is needed to allocate the resource block for the service quality to the user to be optimal. While the allocation of power becomes a problem because of the need for optimal power for each user.

In this final project, simulation is done by using greedy algorithm and mean greedy as a comparison algorithm to allocate RB to user. With the need for optimal power then used waterfilling power allocation scheme. With a waterfilling scheme, users who have high noise will then be allocated high power as well, while users with low noise will then be allocated low power as well. The RB allocation algorithm is executed first. The waterfilling power allocation scheme will be performed thereafter to maximize one of the system performance parameters.

From the simulation results, obtained by using waterfilling scheme will have a better system fairness level compared to equal power allocation scheme but has lower user throughput and lower system spectral efficiency. The waterfilling scheme based on greedy algorithm has an average system fairness increase of 8.14%, while the greedy algorithm based waterfilling scheme has an average system fairness increase of 2.23%. On the averge side user throughput decrease of 226.15 kbps if using greedy algorithm, while at mean greedy decrease equal to 38.24 kbps. At spectral efficiency the decrease of 2.26 bps / Hz if using greedy algorithm, while at the mean greedy decrease of 0.39 bps / Hz. Waterfilling scheme have same time complexity with equal power allocation.

Keywords: Greedy, Mean Greedy, Equal Power, Waterfilling, LTE