

## ABSTRACT

*Worldwide Interoperability for microwave Access (Wimax) is Broadband Wireless Access service which provides broadband service. According to IEEE 802.16 standard, Wimax manages 2 lowest layers in OSI model which are MAC (Medium Access Control) layer and PHY(Physical) layer. In Wimax, MAC layer uses access method that is based on scheduling algorithm and resource allocation. Meanwhile, PHY layer is a channel system type which is OFDM channel. Each layer has different ability in doing its job. Important functions that are managed by PHY layer such as OFDM, Duplex System, Adaptive Modulation Variable Error Correction, dan Adaptive Antena System (AAS). Meanwhile MAC layer is designed for Point to multipoint application by using 2 high speed data traffic for 2 way communication between Base station (BS) and Subscriber station (SS). Functions that are carried out by MAC layer such as determine burst profile, Qos, mobility management, security management, resource allocation, and Power saving Mode.*

*This final project simulated the influence of algorithm on Adaptive Power Allocation(APA) towards throughput, delay, fairness and SNR on Wimax. The Algorithms which are used such as Sum Throughput Maximization (STM) and Fair Power Allocation (FPA) that are implemented using Matlab ver 7.6 and then the results are compared between both algorithm..The simulation indicates that Fairness Power Allocation (FPA) shows better performance compared to Sum Throughput Maximization (STM) algorithm. The FPA result for each parameter is 2,792 Mbps, 44,8 TTI (ms), dan 0,75307 without fading condition, and with fading the result is 2,432 Mbps, 47,2 TTI (ms) dan 0,65824. However STM produce better throughput value compared to FPA algorithm.with mean values is 2,8507 Mbps, 39,0 TTI(ms) dan 0.88954 without fading condition, and with fading condition is 2,222 Mbps, 40,2 TTI(ms) dan 0.72047.*

*Key words : APA, STM and FPA*