

ABSTRACT

Application of IEEE 802.16/WiMAX-*broadband wireless access* technology to *telemedicine* services has been emerged in the past few years at United States of America (USA), India, then will be very potential for Indonesia to use since Indonesian WiMAX delivery May 2008. Basically, application of IEEE 802.16/WiMAX-*broadband wireless access* technology to *telemedicine* growth up because of various type of *telemedicine* user and various *Quality of Service* (QoS) of *telemedicine* services. *Adaptive subchannel allocation* algorithm and *admission control scheme* is design specifically for WiMAX *telemedicine* services to enhance QoS performances of each *telemedicine* services.

Adaptive subchannel allocation algorithm is an algorithm that allocating a particular connection to a particular *subchannel* to achieve higher rate transmission. This allocation works adaptively depend on type of services and channel characteristic that user passes through. This adaptive allocation involves WiMAX technology such as : *Orthogonal Frequency Division Multiple Access* (OFDMA), *Adaptive Modulation and Coding* (AMC), and *Time Division Duplexing* (TDD). Admission control is used to reserve radio resources for higher priority connection. *Telemedicine* system needs this admission control because telemedicine has a different priority level of service, for example, service from ambulance connection has an emergency priority level.

The main purpose of this final task is to simulate *Adaptive subchannel allocation* algorithm and *admission control* then to analyze it's performance on *telemedicine* services called QoS (include rate transmission, delay, blocking probability) and it's maximum number of user at particular user SNR.

The result of this final task analysis is for showing that each *telemedicine* service have average rate transmission 251,787 Kbps, maximum number of user connection at 18 dB is 475 connection, maximum delay can be suppressed to 100 ms..

Keyword : *Adaptive subchannel allocation algorithm and admission control scheme, telemedicine WiMAX, OFDMA, AMC, TDD, QoS.*