
ABSTRACT

IEEE's standard 802.16 gives a new perspective in high speed internet access without using a modem or wireless. The standard then is developed becoming IEEE's standard 802.16e that specializes on WiMAX (*Worldwide Interoperability for Microwave Access*). WiMAX is designed to fulfill the customer's needs on high mobility of broadband access service.

WiMAX can serve many applications, some of them are interactive game, Voice over IP (VoIP), video conference, media streaming, and internet browsing. If there are so many WiMAX's customers in an area, then there will a lot of traffic demand must be served by Base Station. That thing becoming a challenge how to gives good quality for each application which used by multitraffic users and how many customers can be supported by the system.

This research used two QoS Control parameter, *Over Subscription Ratio* (OSR) and *Contention Ratio* (CR), and also adding *Cyclic Prefix* (CP) parameter to reach a maximum *Base Station's* capacity.

From this research, shows that the number of maximum user is reach 86 users and SNR (Signal to Noise Ratio) is 4.7810 dB for the 110th user. We can also conclude that by changing the value of parameter OSR, CR, and CP, the output shows that the maximum number of user is proportional to OSR and CR value, but inversely with CP value.

Keywords : *mobile WiMAX , traffic demand, SNR, Contention Ratio, Over Subscription Ratio, Cyclic Prefix*