

## ABSTRACT

In wireless mobile system with wideband frequency, using a modulation system which is called multicarrier modulation.. Orthogonal Frequency Division Multiplexing (OFDM) is a technology that supports multicarrier modulation. Another technology in supporting broadband communication is Multiple Input Multiple Output (MIMO). MIMO system provides spatial diversity between transmitter and receiver. Diversity principal is used to solve the decreasing of CNR because of fading

In multiuser of OFDM system is needed the combination of multiple access technique that is called OFDMA. Multipath fading in propagation cause the variation of channel condition that change in frequency and time domain, so in OFDMA system is needed the strategy of radio resource allocation especially subcarrier efficiently. Final objective of this research to optimize of maximum data rate and fairness. In this research analyze the comparison between auction and round robin algorithm as strategy of radio resource allocation.

The result of this simulation show when use MIMO-OFDMA system generates much better CNR value than SISO-OFDMA system. Maximum data rate of with using auction algorithm is higher than round robin algorithm. Fairness in round robin algorithm show the much better index. The influence of adding the number of user in each algorithm make the capacity higher.

**Keywords:** MIMO-OFDMA, Alokasi Sumber Daya Radio, *Auction Algorithm*, Round Robin Algorithm, *subcarrier*, maximum data rate