

## **ABSTRACT**

*Radio resources allocation is intended to allocate limited resources to be utilized optimally. OFDMA system is a combination of OFDM with multiple-access. Because the number of users that more than one radio resources are limited, we need a technique to allocate radio resources are limited it to an existing user. Radio resource allocation in OFDMA consists of two kinds of power allocation and subcarrier allocation.*

*OFDMA systems challenge is about the propagation channel conditions are always changing. Channel condition is changing is because due to the movement of the user and user distance difference of BS. However the channel condition changes can be utilized to produce the optimal quality with a particular scheduling scheme.*

*In this Final Project discussed issues concerning the allocation of radio resources by allocating subcarriers in OFDMA downlink cellular system by exploiting the existing channel conditions. Radio resource allocation algorithms used in this Final that K&H algorithm to maximize the amount of user data rate. As a comparison to determine the performance of K&H algorithm is used scheduling scheme Multi-carrier Proportional Fair (MPF). This final allocate a user based on the algorithm above to see the effect on the total maximum user data rate and also the fairness of each user. The speed of the user that is used is 120 km / hour which is modeled through a kind of Rayleigh AWGN channel with the distance of each user different to the BS.*

*From the simulation proved that the algorithm of K & H can provide the maximum amount of user data rate of 2.8199 Mbps is greater than the MPF Scheduling is only able to provide the value of the maximum user data rate of 1.9382 Mbps. In terms of fairness, MPF Scheduling able to produce a better fairness compared with Algorithm C & H. It can be viewed based on the level of fairness that produced each algorithm. Which if close to 0 the better. For MPF algorithm, the level of fairness to all users is 0.000103189 while for K & H algorithm, the user is a valuable 1.7216958, 0.055942 valuable user 2, user 3 and user-value 0.833228 0.944409 4 worth.*

*Keywords: OFDMA, K&H algorithm, MPF Scheduling, Fairness, the maximum user data rate*