

## ABSTRACT

Telecommunication had made such tremendous advancement in just a few years. At this moment, 3<sup>rd</sup> Generation Partnership Project Long Term Evolution (3GPP LTE) is the latest evolution presented. For this system, user's velocity can be considered as one big factor affecting overall performance of the system. Hence, an effort to research the effect of user's velocity variation is urgently needed.

User's velocity affects channel condition, which is the main consideration factor of channel resources scheduling process by Channel Dependent Scheduling (CDS). More, CDS is one of enabling technologies of 3GPP LTE implementation. Hence, it can be expected that there will be some effect toward overall system performance.

For this research, a implementation model of CDS with two algorithm, Maximum C/I and Proportional Fair, will be established. User's velocity varied from 3 km/h, 15 km/h, 50 km/h and 120 km/h. As AWGN Rayleigh channel model established in Matlab R2008a Software, parameters of CDS Performance, such as Resource Allocation, Channel Capacity of each user and BER, will be eligible to be calculated.

The simulation result shows how user of higher velocity (120 km/h) tend to have more fluctuation in his channel condition than user of lower velocity (3 km/h). This similar fluctuation phenomenon occurs either in the calculation of resource allocation for each user. Furthermore, Maximum C/I algorithm enable higher capacity of data transmission than Proportional Fair. Though, Proportional Fair algorithm offers fairer resource allocation than Maximum C/I algorithm. Last, user of higher velocity had relatively worse BER value than user of lower velocity.

***Index Term : 3GPP LTE, CDS, Maximum C/I, Proportional Fair, User's Velocity***