ABSTRACT

The problems that we often encountered in mobile communication system user capacity is limited due to inter-cell interference, especially users who are on the edge of the cell. To overcome this frequency planning with the use of the frequency reuse factor can be applied, one with the scheme of fractional frequency reuse (FFR)[9]. Scheme of fractional frequency reuse (FFR) can effectively improve the user capacity. In order to further reduce the effects of inter-cell interference, the use of dynamic power control is also considered as it can adjust the allocation of the same power per user[2], with the power level to maintain a predetermined SINR (SINR Target), so a better quality system can be achieved.

This final thesis analysis on the use of power control and without power control on fractional frequency reuse scheme. Where there are 10 users are simulated with the scenario of random spacing, and velocity variations in the number of users.

From the simulation results obtained without power control user with the furthest distance (885 m) will produce the most minimal SINR (12.417 dB), and user with the closest distance of eNode B (253 m) will produce the highest SINR (33.218 dB). But with the use of power control variations in the distance the user who encrypted the random and vary the number of users will not have a significant effect on the output SINR is still located around the target SINR (22.3 dB and 24.5 dB), as well as with the resulting spectral efficiency is around 4.54 bps / Hz and 4.67 bps / Hz. Implementation of the user variable speed chart shows SINR and spectral efficiency is decreased due to Rayleigh fading which affects the movement of the user. User capacity is based on the achievement of justice Fairness Index against user scenarios by using the variation distance power control scheme is almost perfect 0.99.

Keywords : Inter-cell Interference, Power Control, Fractional Frequency Reuse, SINR.