ABSTRACT

This final project will be discussed about inter-cell interference in mobile WiMAX (Worldwide for Microwave Acces) network. Since the OFDMA-based mobile cellular network like mobile WiMAX cause use the frequency reuse factor one, it can suffer from serious inter-cell interference escpecially to users near cell boundary

A reuse scheme called Fractional frequency reuse (FFR) is considerd to mitigate the inter-cell interference problem in mobile WiMAX network for maximizing the user capacity for the users near the cell boundary. In FFR, the users at the cell/sector edge operate with a fraction of all subband while the inner cell users operate with all subband.

Simulation results show that the fractional frequency reuse (FFR) scheme can improve capacity of users near the cell boundary. For users in a direction of 60 degree, the best performace are obtined with reuse factor 0 (FRS 0). Average user capactiy for the distance of 0,5 – 0,8 km is 46,4 Mbps (reuse-1 = 23,1 Mbps). In addition, users in a direction of 30 degree, the best performace are obtined with reuse factor 1 (FRS 1). Average user capactiy for the distance of 0,7 – 1,0 km is 31,7 Mbps (reuse-1= 1,34 Mbps).

Key Words : *mobile WiMAX, OFDM, intercell interference, universal frequency reuse, fractional frequency reuse*