

ABSTRACT

Power control is an essential radio resource control function in WCDMA, because many users transmit at the same frequency band simultaneously and thus interfere with one another. Power control, based on a comparison between the measured SIR with the SIR target, produce the control command to adjust the power transmitted from the mobile station (MS) to achieve the Signal to Interference Ratio (SIR) target. The transmitted signal will experience variations in both amplitude and phase at receiver (due to fast fading), so that there is a possibility that measured SIR is no longer describe the current situation, and therefore there is a high probability to give an incorrect control command.

Power control designed to overcome the fast fading is a closed loop power control. However, because of a delay loop, will influence the accuracy of power control. In this final task conducted the test on the two power control algorithm that is adaptive power control and conventional power control. Test results showed how well the test performance of each algorithm in the fast fading condition in which the user moving at low speed to high speed.

From the results of the simulation can be seen that the performance of conventional power control work well for low speed (0-5 km/h) while the adaptive power control is still working well until the medium speed (10-40 km/h). In addition to the adaptive power control will give the improvement outage probability of 16.44 %, which means that the adaptive control more accurate.

Keywords: *Power control, Adaptive control, SIR, Fast fading.*