

Improved predictive power control of CDMA system in rayleigh fading channel

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Abstrak

In this paper an improved prediction-based power control is proposed for code division multiple access (CDMA) systems in Rayleigh fading channel environments. One of the most serious problems which degrades the performance of power control algorithm is the effect of feedback delay. To overcome the effect of feedback delay, power control needs to employ prediction algorithm which utilises the correlation property of the past channel samples measurements to predict the future sample values. In CDMA power control, however, the correlation property of channel measurements is destroyed because the transmit power is continuously updated for each power control interval. The prediction algorithm in this paper uses the recursive least square (RLS) technique and an improved predictor algorithm is proposed to compensate for the channel correlation. The result shows that the performance of improved predictive power control proposed in this paper evaluated in terms of bit error rate (BER) as a function of bit energy-to-interference power density ratio E_b/I_0 improved significantly from that of the conventional predictor.