ADAPTIVE CHANNEL EQUALIZER FOR WIRELESS COMMUNICATION SYSTEMS

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ABSTRACT

The Data rates and spectrum efficiency of Wireless Mobile Communication have been significantly improved over the last decade or so. Recently, the advanced systems such as 3GPP LTE and terrestrial digital TV broadcasting have been sophisticatedly developed using OFDM and CDMA technology. In general, most mobile communication systems transmit bits of information in the radio space to receiver. The radio channels in mobile radio systems are usually multipath fading channels, which cause inter symbol interference (ISI) in the received signal. To remove ISI from the signal there is a need of strong equalizer which required the knowledge on the channel impulse response. (LMS) Least Mean Square, (RLS) Recursive Least squares and (PSO) Particle swarm optimization algorithms are used to implement the adaptive channel equalizer. The results are measured in terms of mean square error (MSE) and bit error rate (BER) Vs the number of iterations.

KEYWORDS: LMS, RLS, PSO, MSE, BER