Abstract

Linear adaptive equalizers are widely used in wireless communication systems in order to reduce the effects of the channel distortion. Various researchers have used linear block equalizers for different modulations techniques. In this paper the BER performance of different M-PSK and M-QAM modulations with the block based LMS and RLS linear equalizers are compared over the flat and frequency selective Rayleigh fading channel. For achieving better performance the Rayleigh channel is modeled with four multipath channels and normalized channel impulse response under the presence of AWGN noise. The maximum Doppler shifts frequencies are varied for evaluating the performance of the equalizers. Using the normalized channel impulse response improves the BER performance of the communication system for the higher values of M as 512 and 1024. Transmitted and received constellation diagrams are also compared for different equalizers. Performance is also compared for the different equalizer weights and block sizes.

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Index Terms

Computer Science

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Keywords

Linear Equalizers  LMS  RLS algorithm  Normalized channel impulse response
Bit error rate.