

Abstract

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A Novel Frame Synchronization Scheme Via Wavelet Packet Transform for OFDM systems

Orthogonal Frequency Division Multiplexing (OFDM) has been widely adopted in wireless communication. The aim of this paper is to analysis and improve performance of frame synchronization in OFDM system using wavelet packet transform. It is well known in OFDM that a cyclic prefix (CP) is appended to each symbol in order to mitigate the effect of Inter-Symbol-Interference (ISI). In this paper ternary sequences are added to the CP in the time domain. Wavelet packet transform is employed besides FFT-OFDM system. This improves the BER (Bit Error Rate) over Rayleigh fading channel. Also, the detection of the frame position is improved by evaluating the correlation characteristic. Wavelet families such as Daubechies and biorthogonal are studied.