

Performance Comparison of Wavelet Packet Modulation and OFDM over Multipath Wireless Channel with Narrowband Interference

Orthogonal Frequency Division Multiplexing (OFDM) suffers from high side lobes in transmitted signal which enhance its sensitivity to inter-carrier interference (ICI) and narrowband interference (NBI). In literature, Wavelet Packet Modulation (WPM) has been proposed as an alternative to OFDM. WPM offers much lower side lobes in transmitted signal, which reduce its sensitivity to ICI and NBI. This paper presents a performance comparison of OFDM and WPM over multipath wireless channel with NBI. WPM utilizes a time domain minimum mean square error (MMSE) equalizer for the equalization of multipath wireless channel. It is shown that WPM employing a time domain MMSE equalizer exhibits higher immunity to NBI compared to an OFDM system, over multipath wireless channel.