DESIGN AND SIMULATION OF WIRELESS SPREAD SPECTRUM FOR COMMUNICATION LINK

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ABSTRACT

A spread Spectrum Communication technique has been widely acceptable in mobile and wireless communications. They have very beneficial and tempting features, like Antijam, security, and Multiple Access. It is the purpose of this paper to describe the features of Spread Spectrum systems. The emphasis will be on the Direct Sequence Spread Spectrum (DSSS) scheme, Pseudo Noise Signal (PN), Modulators and Demodulators. One method of spreading the spectrum of a data modulated signal is to modulate the signal second time using a very wideband-spreading signal. The second modulation usually some form of digital phase modulation, although analog amplitude or phase modulation conceptually possible. The spreading signal is chosen to have properties which facilitate demodulation of the transmitted signal by the intended receiver, and which make demodulation by an unintended receiver as difficult as possible. Bandwidth spreading by direct sequence modulation of data modulated carrier by a wideband-spreading signal or code is called direct sequence spread spectrum (DSSS).

The object of this thesis is to simulate a transmit receive unit to operate in the 915MHz band using the Direct sequence spread spectrum technique. In this thesis, a new integrated signal processing of Direct Sequence Spread Spectrum (DSSS) modulator a design is introduced. The analysis and for of the circuit is performed using a modeling simulation of code modulation sequence. The spreading and synchronizing information signal will be discussed. The effects of selection error coding on the performance-transmitting signal are investigated. The performance are evaluated through the channel for a given bit rate analysis and spectrum analysis.

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