Abstract

In telecommunications, direct-sequence spread spectrum (DSSS) is a modulation technique like other spread spectrum technologies; transmitted signal takes up additional bandwidth than the data signal which modulates the carrier frequency. DS-CDMA is beneficial for Ad hoc network because it eliminates the requirement for any frequency or time-slot coordination. The main issue in DS-CDMA (Ad hoc network) is the hindrance of a near-far problem. There are two solutions available for reducing this near far effect, first is Power control and second is Medium access problem. In this paper, we focus on medium access problem, for this, we design multiple access interference (MAI) at the protocol level. The aim is that, use VHDL implementation for MAC Based DSSS CDMA design, which consist transmitter & receiver with MAC protocol of a Ad-hoc network, which prevent fast degradation of network throughput. In this design, used DPSK modulation technique is non-coherent and has higher BER performance than BPSK. VHSIC Hardware Description Language (HDL) was used for committal to writing of the design. Model Sim Edition 10. 2 C was used for functional simulation and logic verification. The Xilinx Synthesis Technology (XST) 14. 1 of Xilinx ISE tool was used for synthesis of this project.


VHDL Implementation of MAC based DSSS-CDMA Protocol for Solving near Far Effect IN Ad-hoc Network

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Index Terms

Computer Science  Communications

Keywords

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Direct Sequence Spread Spectrum