

## **ABSTRACT**

The fast development in telecommunication industries leads to inefficient allocation of frequencies for each telecommunication systems. Ultra Wideband (UWB) comes up with the solution by providing new systems able to converge with other existing radio systems with minimum interference and high data rates. Nevertheless, high multipath fading gives is a problem in UWB, especially in indoor communications.

In order to solve the problem, robust channel coding is implemented. In this thesis, Low Density Parity Check code (LDPC code) is used. The characteristic of LDPC is the very low density of bit 1 compared ti bit 0. LDPC is a good error correcting code with high performance, near to Shannon Limit which is able to handle multipath fading in UWB.

In this thesis, simulation will show the use of LDPC in UWB to test the robustness of LDPC in handling multipath fading. By varying LDPC parameters, the best BER performance of UWB would be achieved.

Lengthen the LDPC code matrix dimension, more decoding iteration, and less bit 1 in parity check matrix would improve UWB performance.



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