

Abstract

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,“Performance study on implementation of DVB-S2 Low Density Parity Check Codes on Additive White Gaussian Noise channel and Rayleigh fading channel”

The Low-Density Parity-Check (LDPC) codes are among the most powerful forward error correcting codes. LDPC codes enable performance close to the Shannon limit. This advantage combined with their relatively simple decoding algorithm makes these codes very attractive for the next digital transmission system generations. It is already the case for the next digital satellite broadcasting standard (DVB-S2). In the first part of this thesis, we propose soft decision LDPC algorithms. To evaluate the performance of LDPC FER, an implementation of Log-BP and MS LDPC soft decision decoding algorithms is done using matlab (M-file) on AWGN and Rayleigh Fading channels. In the second part of this thesis, the proposed algorithm is implemented using Lab- VIEW and VHDL programs for downloading the decoder on FPGA . The implemented decoder results are verified by a successful comparison with the simulated one. The decoder is then synthesized proving efficient hardware realization.