AARJMD VOLUME 5 ISSUE 5 (MAY 2018) ISSN : 2319 - 2801

A Peer Reviewed International Journal of Asian Academic Research Associates

AARJMD

ASIAN ACADEMIC RESEARCH JOURNAL OF MULTIDISCIPLINARY

DUAL CODES DECODING ALGORITHM FOR HIGH DENSITY PARITY CHECK CODES

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Abstract

This paper presents the Dual Codes Decoding Algorithm (DCA) based on the use of dual codes applied to high density parity check codes. The proposed algorithm, that uses soft information received from all bit codes in the dual-code space to decide the output codeword, gives decoding gain up to 1.57 dB in case of Hamming code and 1.86 dB in case of Golay code in comparision with hard decision decoding at BER $=10^{-4}$. The increase in the length of check parity bit corresponds to the increase in the complexity of the algorithm with the rate of 2^r, where r is the number of check parity bit.

Keywords: *Channel codes, dual codes, soft decision decoding, HDPC codes.*

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