Abstract—The work presented in this paper focuses on an efficient erasure-only decoding algorithm for Generalized Reed-Solomon (in short, GRS) codes. The underlying principle of previous decoding algorithms for GRS is first to recover the codewords and further to obtain the original messages. Greatly different from the previous solutions, our novel algorithm, referred to as Direct Erasure-only Decoding, can directly obtain the original message in one step, which makes decoding process more efficient. In addition, we provide a circuit implementation for the algorithm over a finite field of characteristic 2.

Keywords: - Erasure decoding; Generalized Reed Solomon