A Low Power Hybride Procedure with Selective Retransmission for Aggregated Packets of Unequal Length

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Abstract:

This paper introduces a hybrid aggregated packet (or fragment) procedure with selective retransmission based on low power integer codes. An aggregated group of packets (a frame) is protected using two checksums at aggregated level. If errors are detected, an additional frame is transmitted, containing a pair of auxiliary checksums per each one of the individual packets. Auxiliary syndromes check the type of packet errors and either request retransmission of incorrect packets (if an uncorrectable error is detected), or correct the errors. In the latter case, the correction can be additionally verified and retransmission requested if the verification fails. The packets can be of unequal length, or they can be mapped into equal length fragments. Power saving is achieved by the coding procedure itself, and by the fact that all the auxiliary parameters for retransmission, correction and verification already exist as intermediary results of aggregated coding and syndrome forming procedures, so no additional processing is necessary. The performance analyses include the retransmission data, error control redundancy, delay and residual packet error rate.