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Title: Performance Evaluation of Punctured Convolutional Hamming Code in AWGN Channel

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Abstract:

Error control coding is a key factor for satisfactory performance of digital communication systems. The main two classes of error correction and detection codes are block codes and convolutional codes. This work reports on a new error control coding scheme which is termed as “punctured convolutional hamming code” and the performance of this code has been analyzed in additive white gaussian noise channel. The aim is to gain the advantages of both block codes and convolutional codes and at the same time achieving a good coding rate. The (7, 4) hamming code and two types of rate convolutional codes have been used to construct the proposed code and to analyze the performance of the same. Comparisons have been made between the performance of this new code and those of hamming and convolutional codes. These investigations have been done via MATLAB simulations. Additive white gaussian noise channel model is used for the whole simulation procedure. The performance has been evaluated based on the bit error rate. It has been observed that the proposed coding scheme performs well in the higher values of signal to noise ratio.