

Exact Calculation Of The Union Bound For The Performance Of Turbo codes Over Fading Channels

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Wireless Communications and Networking Conference, 1999. WCNC. 1999 IEEE;Publication Date: 1999;ISBN: 0-7803-5668-3

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Summary

The transfer function technique has been used to give an upper bound on the bit error probability of turbo codes in the high signal-to-noise ratio (SNR) regions. Existing bounds use numerical integration to get the exact value of the pairwise error probability over the ideal flat Rayleigh channel. A new expression for the pairwise error probability over the ideal flat Rayleigh channel is derived in this paper. Using this expression, numerical integration can be avoided and this substantially reduces the computation time. This was obtained without compromising on the accuracy of the results. Examples for the $(1,5/7,5/7)$ and $(1,7/5,7/5)$ codes are given

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