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On the Performance Analysis of SSC Diversity System Over η - μ Fading Channels

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Abstract: In this paper we study key performance measures of dual-branch switch-and-stay combining (SSC) system operating in η - μ fading environment. Specifically, analytical expressions for the k th order moment, average signal-to-noise ratio, amount of fading, and outage probability are obtained for an SSC system operating over η - μ fading channels. Expressions of the average bit error rate (BER) for coherent detection and noncoherent detection were also derived with SSC for various modulation schemes. The BER expressions for the coherent detection case were derived using the moment generating function (MGF) based approach. Some of the final expressions are presented in the form of infinite series. Therefore, those series are truncated, and upper bounds are derived for truncation errors. Expressions to determine the optimum adaptive switching thresholds are also presented. Corresponding results for Nakagami- q , and Nakagami- m fading are derived in this paper as special cases. Numerical results are provided to demonstrate the applications of the new results.