On the MC-SS System Operating in a Fading Channel with LOS

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ABSTRACT

A bivariate Rician pdf (probability density function) of SNR (signal-to-noise ratio) at an dual-branch MRC (maximal ratio combining) diversity output is proposed, and which is applied in analyzing the system performance of an MC-DS-CDMA system combines with a dual-branch MRC diversity in this paper. By representing as a rapidly converging infinite sum, useful analytical expressions for the performance of dual-branch MRC receivers are derived. The analytical formulae for the average BER (bit-error rate) and OP (outage probability) are obtained. On the basis of these infinite series expressions, the performance evaluation with some of system parameters, such as fading severity, average SNR and Rician correlation coefficient are conduct for analyzing various novel results having as parameters of interest. The series convergence rate is also studied verifying the fast convergence of the analytical expressions. The accuracy of most of the theoretical results has been verified by means of computer numerical illustration.

Keywords : bivariate Rician distributed ; maximal ratio combining, MRC ; MC-DS-CDMA ststem ; ultra-wideband system

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