Closed-Form Level Crossing Rates Expressions of Orthogonalized Correlated MIMO Channels

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References:

Abstract:

In this paper, the exact closed-form expressions for the level crossing rate (LCR) and the temporal autocorrelation function (ACF) of the signal-to-noise ratio (SNR), at the output of the spatially correlated multiple-input-multiple-output (MIMO) systems with orthogonal space-time block codes (OSTBCs), are derived. The expressions are derived for the case of an arbitrary number of Rayleigh distributed branches and any form of the covariance matrix. The derived identities can be applied to isotropic and nonisotropic scattering environments, and they are validated by Monte Carlo simulations.

Keywords:
Rayleigh fading, MIMO, level crossing rate, OSTBC, Autocorrelation function