

Jordan University of Science and Technology

Performance of multihop CDMA ad hoc networks over kappa-mu fading channels

Authors: Mahmoud A. Khodeir, Sari Khatalin, and Sahar Al Ahmad

Abstract: This paper analyzes the performance of wireless code-division multiple access (CDMA) ad hoc networks in the kappa-mu fading environment in terms of the expected progress per hop. Expressions for the probability density function (PDF) and the cumulative density function (CDF) of the interference power over kappa-mu fading channels are derived by using the characteristic function approach. Furthermore, the CDF for interference power is used to derive the unconditional CDF of the signal-to-noise-and-interference ratio (SNIR), which is utilized to obtain an expression for the expected progress per hop. The corresponding expressions for Rayleigh, Rician, and Nakagami-m fading are presented in this paper as special cases of kappa-mu fading. Numerical results are presented for illustration purposes.