

# **SPREAD SPECTRUM AND CODING TECHNIQUES IN COMMUNICATION SYSTEMS**



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## **ABSTRACT**

With the increase in complexity of military communications networks, a combination of spectrum spreading and error correction coding is typically required to provide adequate antijam protection. The specific system architecture utilizing these techniques is established in this presentation by performance requirements, system constraints, interface problems, and assumed jammer models.

This presentation will describe various processing techniques with emphasis on their interactions and limitations. Two spread spectrum techniques for permitting operations in a jamming environment are considered: direct sequence (PN) and frequency hopping. The advantages and limitations of each technology will be discussed. The antijam capability of these spread spectrum systems can be improved by using various error correction coding schemes. These can (make more efficient use of the bandwidth allocation) as well as provide enhanced protection against pulse and tone jammers. The advantages, limitations, and constraints imposed on a communication system using various combinations of these techniques are discussed with particular emphasis on the system performance.