



CHANNEL MODELING AND ESTIMATION FOR ROBUST MC-SS SYSTEMS (WedAmOR10)

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★ Abstract :

As a spread spectrum technique, multi-carrier spread spectrum (MC-SS) systems are able to mitigate the effects of fading, interferences and Doppler frequency shifts as well as to support multiple access schemes. It is possible to get optimum performance from MC-SS systems by carefully choosing the spreading sequences. However, due to inter-user interferences performance degrades as the number of users increases unless the transmission channels are modeled and estimated. In this paper, we present a new spreading sequence obtained from a complex quadratic sequence multiplied by a pseudo random noise sequence, thus exploiting the properties of constant envelope and statistical independence. The properties of the new spreading sequence enable us to estimate the multi-user channels and design a receiver that is robust to interference and intentional jammers. The performance of the proposed system is illustrated by simulations.