

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Mobile Satellite Communications and Navigation Technology (3)

Author: Ms. Ningning Liu
Xi'an Institute of Space Radio Technology, China, liuning504@hotmail.com

Prof. Chen Hao
Xi'an Institute of Space Radio Technology, China, chenhao504@live.cn

FREQUENCY-DOMAIN EQUALIZATION FOR BROADBAND SATELLITE COMMUNICATION
WITH MOBILE PLATFORMS

Abstract

The telecommunication market is reaching new types of customers who require their applications in transportation. The provision of cost-effective broadband multimedia services to mobile platforms (train, vessel, and aircraft) seems feasible only via a satellite system. Broadband satellite communication system for mobile platforms, especially in the land mobile satellite scenarios, subjects to hard propagation conditions such as high Doppler spread, shadowing, blockage, and non-negligible multipath fading. The mobility effects bring a challenge for equalization of broadband satellite channel. In this paper, mobile satellite downlink channel is modeled and a new efficient frequency-domain equalizer (FDE) based on block processing and soft interference cancellation is proposed. Computer simulations show that the novel FDE outperforms the conventional equalizers in both performance and complexity.