Diversity Gain for Cooperative Satellite Terminals in a Moving Convoy

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Abstract:

We analyze the impact of cooperative satellite terminals on link availability within a land mobile satellite (LMS) scenario. By the use of multiple terminals the overall probability to encounter severe fading conditions is reduced. This reduction depends on the number of terminals and the terminal distance. The presented results are completely based on the analysis of measurements. These were conducted for two geostationary satellites and four different environments using a single mobile satellite terminal. Thus, in order to virtually increase the number of terminals we rely on a convoy scenario using shifted versions of the data. Analyzing up to four cooperative terminals and various terminal distances, a significant fading reduction is already achieved for rather small distances.