Mobility Model Based Non-Stationary Mobile-to-Mobile Channel Modeling

ABSTRACT

Non-stationary mobile-to-mobile (M2M) channel modeling has gained strong momentum as it is vital for developing M2M communications technology. In this paper, a mobility model based method is proposed to incorporate non-stationarity into M2M channel modeling by introducing dynamic velocities and trajectories. A revised Gauss-Markov mobility model is first presented together with the cluster-based two-ring M2M reference model. The mobility model uses tuning parameters to adjust the degree of mobility randomness and covers different M2M mobility trajectories. Different propagation modes, cluster number, and intra-cluster nonisotropic scattering also have major impacts on channel nonstationarity. Moreover, the randomness of the mobility model is found to significantly increase the degree of channel nonstationarity. These conclusions are useful for M2M non-stationary channel simulation and communication system evaluation.

EXISTING SYSTEM

- In existing system, a fixed-to-mobile scenario is considered and the impact of mobile acceleration on the statistics of fading channel is proposed.
- The linearly time-variant velocity and moving direction are considered at both TX and RX for single-input single-output (SISO) double bounced M2M channels.
- However, these models use over-simplified mobility trajectories and a complete understanding of the relation between M2M mobility model and the non-stationary channel is still missing.

PROPOSED SYSTEM

- In proposed system, A cluster-based two-ring reference model is used and a revised Gauss-Markov mobility model is adopted to introduce dynamic velocities and trajectories.
- The mobility model is fairly general and has a few tuning parameters to adjust the degree of mobility randomness, which is found to affect channel non-stationarity.
- The proposed mobility based M2M channel model considers both double bounced and single bounced multipath components (MPCs) and includes the feature of multiple-input multiple-output (MIMO) channel.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

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