Abstract

Rayleigh fading channel modeling using Hidden Markov Process (HMP) has been done by Turin and Nobelen at 1998. Verification of the model must be performed before using it as a foundation for other research or project in wireless channel modeling.

By doing total verification we have a complete view about how to enhanced and improve the models. In this thesis we verified the model analytically and by performing simulation.

Jakes simulation is treated as a data to test the accuray of HMP's model of the envelope of rayleigh fading and also to model binary symmetric rayleigh fading additive white gaussian noise channel. HMP's parameter is fitted using Excpectation Maximization algorithm. We compare HMP's analytical result for level crossing rate, mean fade duration and bit error probability and compare its to simulation.

The two results generally match closely. In *fade duration* distribution we note that normalizing the pdf will eliminate the ambiguity between analytical result and simulation result.