Abstract

The propagation channel is the principal contributor to many of the problems and limitations that degrades the performance of mobile radio systems. One obvious example is multipath propagation which is a major characteristic of the mobile radio channels, which severely affects the performance of digital systems by reducing the carrier-to-interference ratio. Thus accurate characterization of the propagation channel is very important for cost effective planning of Land Mobile Communication System. This paper presents a simplified technique for modeling radio propagation channel applicable for microcellular environment. Two propagation channel models have been considered. These are statistical theory based Suzuki Model and deterministic Uniform Theory of Diffraction (UTD) based Ray Tracing model, to predict received signal in the microcellular environment. The various statistical parameters such as, cumulative distribution function (cdf), level crossing rate (lcr) and average duration of fade (adf) were obtained from the total received signal to characterize the propagation channel using both the models. The comparison of these characteristics is summarized which indicates the good agreement of statistical and deterministic models.
Propagation Prediction Model for Land Mobile Communication in Microcellular Environment

- Parson J. D., "The mobile radio propagation channel" Pentech press, 1994

Index Terms

- Computer Science
- Signal Processing

Keywords

- Channel characterization
- fading effect
- mobile cellular communication
- wireless system