Abstract

The error rate link performance has been evaluated and compared for efficient Rake receiver structures in high data rate ultra-wide band (UWB) realistic channels. Exponential-Lognormal model for high data rate UWB indoor channels has been used for generating Power Delay Profiles (PDP). This model is based on extensive measurements in diversified Residential & Commercial environments. The PDPs for CM1 (0-4m), CM2 (0-4m) and CM3 (4-10m) UWB channel categories have been generated. The probability density functions (PDF) have been obtained through discrete realization in all channel categories. With the aid of PDFs, quasi-analytical error rate performance evaluation of sub-optimum Rake receivers has been done. Through simulative investigations of the outage probability and Average Bit Error Rate, it has been found that the low complexity (optimum number of fingers) partial Rake receiver is almost as good as the selective Rake receiver in high data rate UWB channels.
Reference


Index Terms

Computer Science Wireless
Key words

Ultra-Wide Band
Outage Probability
Average Bit Error Rate
Power delay profile
Bi-Orthogonal Keying

Wireless Personal Area Network