

Performance Analysis of Multi-Carrier Direct-Sequence (MC DS) CDMA with Fading

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Abstract—The performance of an MC DS CDMA wireless communication system over a Rayleigh Fading Channel is analyzed in the presence of Multiple Access Interference (MAI) and Inter-Carrier Interference (ICI). The Signal to Interference plus Noise Ratio (SINR) is derived in this environment. The analysis is also extended to MC-DS-CDMA system with Rake Receiver. The performance results are evaluated numerically in terms of SINR and BER considering several system parameters like number of users, processing gain, number of sub-carriers and number of rake fingers. The result shows that there are significant deterioration in SINR and BER performance due to fading. Optimum system design parameters are determined from the analytical results for a given performance level.

Keywords - CDMA, SINR, Rayleigh Fading, Rake Receiver



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