

Bit Error Rate Measurement on WCDMA System in Multipath Channel

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TOPIC: Wireless Communication

Wireless access to global telecommunications is predicted to reach 28 million users by 2005. Mobile communications services are penetrating into our society at an explosive growth rate. To satisfy ever-increasing demands for higher data rates, as well as to allow more users to simultaneously access the network, interest has peaked in what has come to be known as wideband code division multiple access (WCDMA). In this paper, we discuss the principle of WCDMA that supports the high data rate transmission. Then, we also discuss the basic transmitter and receiver characteristics of WCDMA system that conforming to 3GPP specification. We then investigate the bit error rate (BER) of a WCDMA system at downlink direction for different channel conditions. The fading channel used for the simulation is based on the IMT-2000 standard specification. There are a number of independently Rayleigh faded components, but only 3 types of multipath channel were employed in the simulation namely Indoor A, Pedestrian A and Vehicular A channels. The figures below show the simulation results.

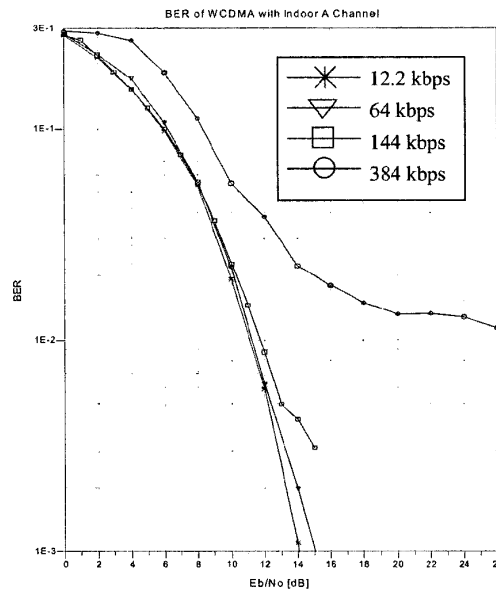


Fig.1: BER of WCDMA system with different data rates in Indoor A fading channel

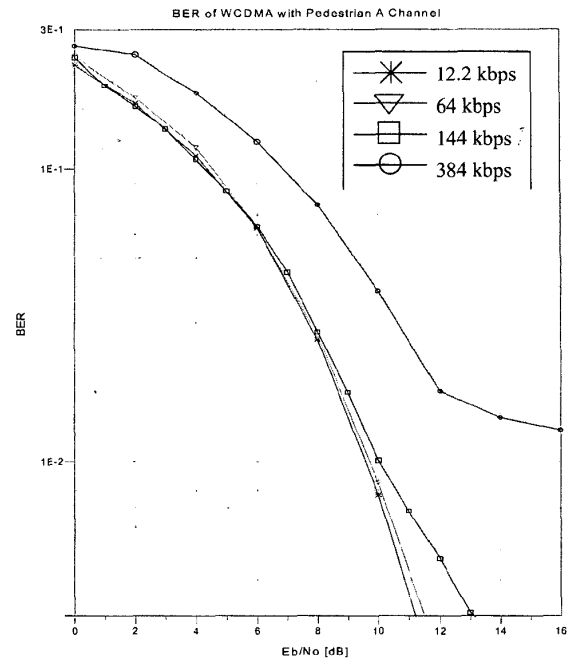


Fig.2: BER of WCDMA system with different data rates in Pedestrian A fading channel

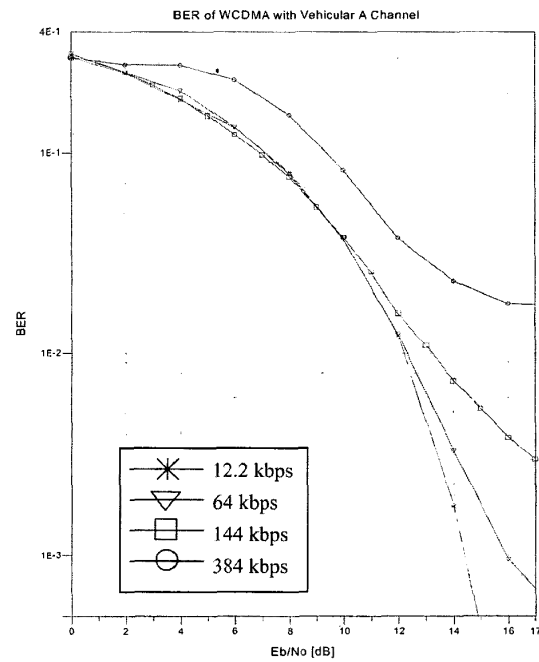


Fig.3: BER of WCDMA system with different data rates in Vehicular A fading channel