ABSTRACT

In CDMA 2000 system, there are 2 kinds of spreading, first direct sequence spread spectrum (DSSS) and the second is frequency hopping. In direct sequence spread spectrum, PN code spread the signal. But in frequency hopping, signal will be spread using PN code yielded by frequency synthesizer that generated by PRG (Pseudo Random Generator).

At receiver frequency hopping have a complex block. To get the same format signal with the signal from transmitter needed PRG and frequency synthesizer which have same parameter with transmitter. The main problem in frequency hoping is time accuracy of the of tracking and acquisition process.

STFT (Short Time Fourier Transform) Algorithm is development from FFT (Fast Fourier Transform). Signal will be sampled during t second then translated in domain frequency, so that the signal will be known its position in time and frequency domain.

At this Final Project, STFT algorithm is used to generate the pattern PRG in receiver. So that without owning PRG which have same characteristic with transmitter, we can get hop of frequency hopping. Transmission channel that using in this algorithm is AWGN and multipath fading channel.

STFT algorithm will give 100% in accuration at all of channel condition if the receiver's window length is as wide as transmitter's time hopping or $\left(\dfrac{1}{2}\right)^{n}$ of wide of transmitter's time hopping. In multipath fading channel STFT have 100% in accuration at SNR $\geq$ -10 dB. At SNR = -15 dB STFT algorithm have 70% in accuration and at SNR=-20 dBis 43%.