ADAPTIVE DS/CDMA RECEIVER FOR MULTIUSER DETECTION

This thesis is presented in partial fulfillment for the award of the Bachelor in Electrical Engineering (Hons.)

UNIVERSITITEKNOLOGI MARA

NOOR HALILA BINTI MANSOR
Faculty of Electrical Engineering
Universiti Teknologi MARA
40450 Shah Alam, Selangor

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Noor Halila Binti Mansor
Faculty of Electrical Engineering
Universiti Teknologi MARA
Shah Alam

ABSTRACT

An adaptive receiver is considered for use in combating the near-far problem in Direct-Sequence Code-Division Multiple-Access (DS/CDMA) communication network. The focus of the paper is on the multiuser interference rejecting capability of the receiver. This technique was implemented by using Matrix Laboratory (MATLAB) 6.5. The receiver uses a chip matched filter followed by an adaptive equalizer to perform dispreading operation. The adaptive structure allows the receiver to adjust the weights and improve the system combating interference and noise capability. So, it can combat the near-far problem in DS/CDMA. From the simulation results, the error probability of a Code Division Multiple Access (CDMA) network using this receiver structure is obtained and compared with a system using conventional receivers. The receiver is shown to be immune to the near-far problem in the sense that the performance without any power control is nearly identical to the performance with perfect power control.

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