ABSTRACT

A wide-band time-divition-code-divition multiple-access (TD-CDMA) medium access control (MAC) protocol is introduced in this final project (TA). A new minimum power allocation algorithm is developed to minimize the interference experienced by a code channel such that heterogeneous bit-error rate (BER) requirements of multimedia traffic are satisfied. Further, from analysis of the maximum capacity of a time slot, it is concluded that both rate and BER scheduling are necessary to reach a maximum capacity. Based on the new minimum-power allocation algorithm as well as on rate and BER scheduling concepts, a new scheduling scheme is proposed to serve packets with heterogeneous BER and quality of service (QoS) requirement in different time slots.

Index Terms--Bit-error rate (BER), medium access control (MAC), minimum-power allocation, quality of service (QoS), wide-band TD-CDMA.