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**AN INVESTIGATION INTO THE ADVANCED
TIME DIVISION MULTIPLE ACCESS(ATDMA)
PROTOCOL FOR A PERSONAL
COMMUNICATION NETWORK**

This thesis is presented in partial fulfilment of the requirements for
the degree of Master of Technology in Information Engineering at
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ABSTRACT

The performance of the Advanced Time Division Multiple Access (ATDMA) protocol in a microcell environment has been investigated in this thesis. The ATDMA protocol is a new generation protocol which can support both circuit switched and packet switched transmission modes. The protocol can also adapt in a varying propagation environment. This thesis examines the efficiency of the protocol in a microcell environment and also examines different access techniques for voice and data traffic to improve the efficiency of the protocol. To study the performance of the protocol a discrete event based simulation model has been developed which includes a microcell channel model of a city area.

A data block reservation scheme has been developed in this work, which increase the traffic efficiency of the protocol. By combining the data block reservation scheme and capture effect, the ATDMA protocol's performance in transmitting mixed voice and data traffic in an urban microcell environment was investigated by means of computer simulation. The simulation model was used to find out the appropriate parameters for the optimum performance of the protocol and then to investigate the performance of the protocol. With consideration of the capture ratio, the effect of capture has also been evaluated in a more practical manner.

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