

# Adaptive Forward Link Power Management for IS-95 Based Cellular CDMA Systems

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## Abstract

This paper considers the traffic and interference non-uniformity in IS-95 based cellular CDMA systems and shows how it can be efficiently handled. In FDMA or TDMA based cellular systems, this problem is treated by the scheme such as dynamic channel assignment (DCA). However, in CDMA systems, similar methods to DCA are not available because of the intrinsic feature of CDMA systems, reuse of all frequency channels in each cell. The concept of dynamic cell management (DCM) has been proposed as a possible solution for the traffic and interference non-uniformity in CDMA systems. The purpose of this paper is to propose a DCM algorithm for CDMA systems. The proposed algorithm will give optimal power levels of pilot channels and forward link traffic channels. For this purpose, we mathematically formulate the forward link power allocation problem in CDMA systems and call the formulation *forward link power management problem* (FLPM). Some computational experiments on the proposed algorithm are made under a realistic simulation model.