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# On the Performance of Multiuser MIMO in UTRA FDD Uplink

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## Abstract

We study the uplink performance of MIMO systems in UTRA FDD using noise rise and system load as performance measures. Results show that the uplink coverage and capacity of the UTRA FDD mode are significantly improved by SIMO and MIMO techniques that require only minor modifications to existing 3GPP specifications. Receive diversity in base station increases coverage and capacity in a straightforward manner, but the gain from transmit diversity in mobile station is small because of the fast closed-loop power control, which is essential to CDMA uplink performance. However, multiple transmit antennas in the mobile can be used to achieve higher than 2 Mbps single-user data rates.

## Keywords

MIMO, UTRA FDD uplink