Downlink Channel Estimation For IMT-DS

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Summary

IMT-DS system is an approved terrestrial radio interface standard for 3G mobile communication based on direct sequence code division multiple access (DS-CDMA). It employs a RAKE receiver to exploit multipath diversity. This paper discusses a new dimension in DS-CDMA channel estimation i.e., chip-level adaptive channel estimation. The DL channel of an IMT-DS system consists of time-multiplexed pilot and data symbols to facilitate coherent detection. To obtain channel estimates during pilot symbols, we propose a chip level adaptive channel estimation which performs better than the conventional method. For slow fading channels, like a pedestrian channel, zero order interpolation provides satisfactory performance. However, for fast fading channels, a common decision directed algorithm is applied whose performance is limited due to error propagation. The proposed schemes are assessed over the IMT-DS system by performing simulations