Study in synchronous 2D OFDM-CDMA system under distinctive antenna array deployments

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ABSTRACT

In this thesis a novel 2-D (2-dimension) receiver is proposed for adopting as the reception scheme to promote the system performance of an OFDM-MC-CDMA(orthogonal frequency division multiplexing multi-carrier coded-division multiple-access)system. The explanation of the system models includes the spread coding and the system block diagram of the 2-D receiver are shown graphically with 3-D (three dimensions) plots, thus, the meaning can be recognized quickly, and then the analytical calculation of system performance for an OFDM-MC-CDMA system combining with the proposed receiver equipment is investigated. Moreover, in order to evaluate the results from the effect of channel fading, which is considered over the correlated fading environments, the correlated-Nakagami-m statistical distribution has been taken into account the evaluation. The results shown that not only the user number and the subcarrier number generally affect the OFDM-MC-CDMA systems,but it also influenced by the Doppler shift and the signal propagation environments(fading parameter).

Keywords: 2-D reception   correlated-Nakagami-m   OFDM-MC-CDMA system   Doppler shift   fading parameter

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