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Abstract

In order to improve the coverage and capacity of next generation cellular networks, low cost relays are deployed in the area, where users do not get required Signal to Noise Ratio (SNR) from the base station (BS), especially at the cell edge. The deployment of relays not only reduces the infrastructure cost of setting up new BSs but also supports the rapidly growing number of subscribers. However introduction of Relays introduces additional interferences, which affects the system capacity. In this paper, we analyze this interference in Relay based Orthogonal Frequency Division Multiplexing Access (OFDMA) system. We present an analytical model to characterize the interference experienced by a particular user in a reference cell from all interfering cells irrespective of the position of user. We consider the effect of path loss, shadowing and fading on interference powers from various cells. Then, we determine the Cumulative Distribution Function (CDF) of interference.

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