

Enhanced Fractional Frequency Reuse (EFFR) Technique in WiMAX Cellular Network

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Abstract:

WiMAX is a broad band high speed wireless communication system which use cellular network topology to deploy services to different subscribers. One of the major problems of deploying WiMAX base stations is the signal interference caused by neighboring cells which causes reduction in cell coverage area and capacity. The standard of WiMAX allows several methods to overcome the interference problems such as frequency planning and Fractional Frequency Reuse (FFR) technique. In this paper we propose new design for FFR in urban area to mitigate inter cell interference and efficiently use the available network resources. The new FFR with coordination of two types of subcarriers permutation (PUCS and band-AMC) is presented to enhance system performance. The frequency diversity and user diversity are considered as tradeoff between the user's behavior and available resources, the resources are dynamically assigned to users to ensure best utilization of the available network resource.