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## A Dual Usage of Cognitive Radio in Managing the WiMAX Bandwidth

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**Abstract:** The management of the available bandwidth in a WiMAX system is one of the active research areas since it deals not only with the available bandwidth but also with the QoS requirements of different traffic classes . In this paper, a new bandwidth management scheme, named WiMAX Dual Cognitive Radio Scheme (WDCRS), is proposed. A cognitive radio approach is applied in order to obtain high bandwidth utilization and high throughput , and lower the blocking probability. An analytical model for performance analysis of the proposed scheme is developed. The results show that the proposed scheme achieves higher bandwidth utilization and lower the blocking probability compared to existing schemes.