

# An Uplink Admission Control for 3G and Beyond Roaming Based Multi-Operator Cellular Wireless Networks with Multi-Services

The next wireless generation is calling for seamless integrated networks where users can roam freely among different 4G network operators. To accomplish this challenging objective, an effective resource sharing mechanism among 4G multioperator networks should be implemented. This paper investigates a new method of dynamically prioritized resource allocation for multi-operator WCDMA networks. This method is based on assigning uplink shared resources among users from different operators based on their current priority level which is a function of their current assignments as well as their previous assignments. More, the system under consideration assumes both original calls besides handoff calls. However, to ensure higher priority to soft handoff calls, queuing and 'soft guard channels', are introduced. The performance of this proposed allocation method is studied using simulation. It has been examined against the fixed resource allocation method under different traffic load situations. The Grade of Service (GoS) and the expected carried traffic are considered here to evaluate the system performance. The simulation results have shown the outstanding performance of the dynamic method compared with the fixed one. Moreover, the dynamically prioritized resource allocation method has shown fairness in assigning resources among networks operators' customers.