with a large set of modulation formats combined with powerful channel codes with adaptive coding rates can make unnecessary the use of power allocation strategies.

The effect of implementing FC on the system performance metrics is practically identical irrespective of the power and rate allocation strategies implemented at the cross-layer resource allocation unit. The average throughput per flow, delay, throughput JFI and service coverage are basically unaffected, and only an improvement in delay JFI is obtained with light and moderate traffic loads. Although not shown in the graphs, when implementing APA strategies, the use of FC also introduces a decrease in power consumption. This is due to the fact that resources (power and subbands) are only allocated when necessary, that is, when there is enough information in the queues ready to be transmitted.