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Analysis on the impact of outdated channel quality information (CQI) correction techniques on real-time quality of service (QoS)

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Abstract

Multimedia traffic is growing rapidly due to the advancement of the wireless technology and end user devices. These multimedia traffic demands for a satisfactory Quality of Service (QoS) and this becomes a challenge for the wireless network operators given the rapid radio propagation environments of the wireless channels. Channel Quality Information (CQI) report is an important parameter in wireless systems for determining the achievable data rate of multimedia transmission. However, a perfect CQI report is not always available at the base station. This requires the base station to correct the received CQI report. Therefore, this paper studies on a number of CQI correction techniques that can minimize the impact of imperfect CQI report on the QoS of Real-Time (RT) applications in the downlink Long Term Evolution-Advanced (LTE-A). Simulation results demonstrate that the Modified Average Smoothing CQI Correction (MASCC) technique has the best performance at 30 kmph user speed (i.e. 7.4% improvement compared to the ideal case) whereas its performance is comparable to the ideal case at 60 kmph user speed. Therefore, it can be concluded that the MASCC technique can significantly minimize the impact of outdated CQI on the RT QoS as compared to other CQI correction techniques.

Keywords

Author Keywords: [outdated CQI](#); [correction technique](#); [LTE-A](#); [Channel Quality Information \(CQI\) report](#); [imperfect CQI](#)

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