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Sommario/riassunto	<p>The success of battery electric vehicles mainly depends on the reliability and predictability of the battery pack connected to different power electronics with high frequency current ripple inducing switching patterns. In this thesis, the influence of these current ripple on battery ageing and battery operating behaviour is investigated by cyclic ageing tests on lithium-ion-cells with induced high frequency current ripple by a specifically developed cell tester. Comparing the most important ageing parameters, i.~e. capacity loss, inner resistance and polarisation behaviour, yields only a minor and mostly neglectable influence of current ripple on battery ageing, compared to more severe impacts such as cycle depth. Moreover, the direct link between the ageing parameters is confirmed and independent from the cell's cycling. However, the measurements also show that the practical cycle depth is limited due to current ripple and suggest a quantitative connection between the size of the current ripple and the lowered reachable cycle depths. Hence, a severe impact of current ripple on the reliability of the battery pack is unlikely whereas the predictability might be noticeably reduced.</p>