

Abstract:

The aim of this work is to study and analyze induction motor adjustable speed drive characteristics under voltage unbalance conditions. This paper tries to cover the main possible magnitude and phase unbalance. Two systems are considered: first, three phase induction motor connected directly to a three phase voltage source and the second is the three-phase adjustable speed drive, are simulated using MATLAB software. Increased torque ripple and decreased efficiency are the main effects of voltage unbalance on induction motor. Also, increased thermal stress on the power electronic switches and DC-link capacitor are the main effects of voltage unbalance on the converter.