ABSTRACT
This paper describes the transient simulation of an automotive air conditioning system. A refrigerant cycle with the natural refrigerant CO_2 was build up on a test stand and measurements under steady-state and transient conditions were performed. The refrigerant cycle was modelled with a commercial software tool, which was extended by newly developed, transient component models. The models are linked to the software via an open interface. The over all model is verified with measurement data. Key values as low- and high pressure as well as various temperatures are compared to measurement data for the first minute after the cycle start up.