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## Analysis of the airstream in the ECS roller dynamometer building



Presented at the STAR Global Conference 2012

This presentation explores the analysis of the airstream in a roller dynamometer at the Engineering Center Steyr, which is mainly used as a testing facility and engineering tool for vehicles.

To ensure that vehicles being tested are adequately cooling, a CFD simulation of roller dynamometer predicts the airflow in the building. In order to achieve realistic results, the simulation model of the empty roller dynamometer building is first created from measurements before a virtual vehicle is imported into the roller dynamometer building. These results are compared with a simulation of the same vehicle on an open road to assess the suitability of the ventilation system.

Simulation results are assessed in terms of the mass flow through the cooling package and past the underbody. Additionally, the thermal performance of the cooling package is evaluated with the software KULI®. In order to allow a verification of the simulation results, experimental measurements of a real vehicle on the roller dynamometer are carried out.

The verification shows that the simulation provides mainly correct results that compare well with measurement.

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