Master's Dissertation at the Div. of Structural Mechanics

ANALYSIS AND MEASUREMENTS OF DOOR STRUCTURAL DYNAMIC RESPONSE

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Background

In order to reduce lead-time of the product development process and also cost for new automotive vehicle models, more development will be made virtually. To make this possible the simulation models must be able, with a certain amount of accuracy, to predict the performance. Therefore the simulation models need to be correlated versus measurements. In the case of simulation models for noise and vibration, vehicle system and trimmed body models are used. The models consist of e.g. body-in-white, doors, deck lids and interiors. All system influences the structural dynamics and acoustics behaviour.

Door model

Objectives

- Make finite element models of door including trim, hinge, door locks and seals, simulate the eigenmodes with and without the doors attached to the body.
- Perform measurements on hardware and make correlations. Based on the outcome of the correlations tune the simulation models for a better agreement with measurements.

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