Frequency Response Analysis of a Printed Circuit Board

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Abstract

During a practical course the students compare the measured frequency response of an assembled PCB with the simulated data out of COMSOL Multiphysics® software. For this the whole PCB with all components are feed in the simulator and afterwards an eigenfrequency-analysis is carried out. To simplify the effort to do this, an app was created (Fig. 1).

As result the user gets the eigenmodi and frequencies presented (Fig. 2), which can be compared with the measured frequency response of the PCB (Fig. 3).

The App shows the efficient use of COMSOL® at a student practical course. It simplifies the input and configuration effort, but shows all parts of the work with a FEM-tool. The app is modular constructed, so that the component library and the input functions can be extended.

Figures used in the abstract

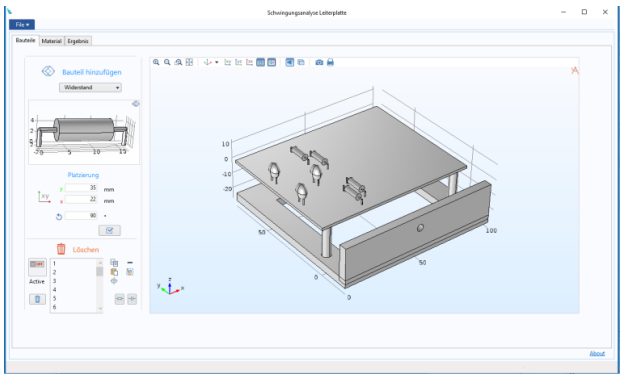

Figure 1: Screenshot during the component placing.

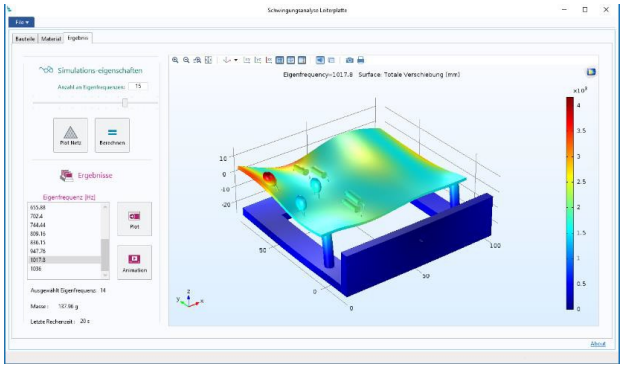

Figure 2: Screenshot of the result presentation.

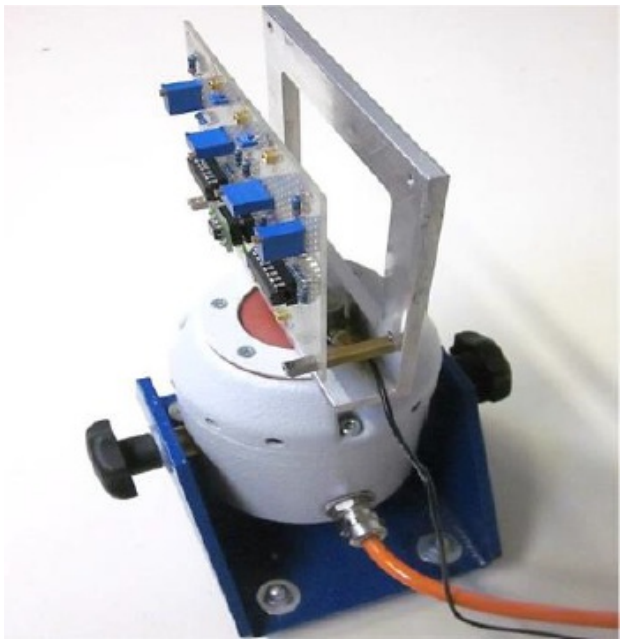

Figure 3: Frequency response measuring unit.