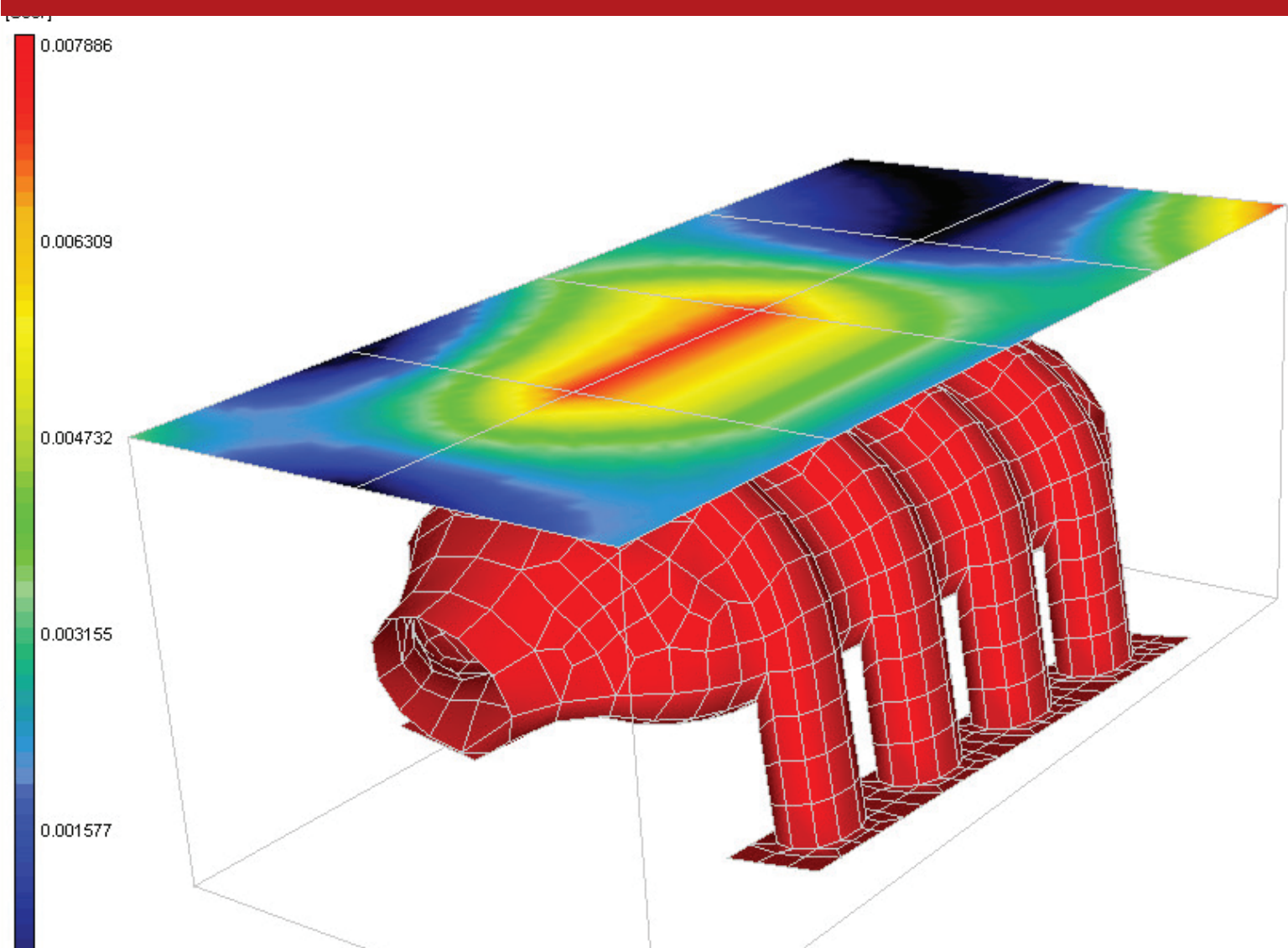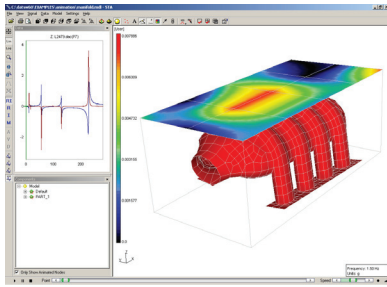# Modal Analysis

Everything you need to capture & analyze modal frequency response data

The DATS Modal Analysis software consists of three options that may be used together or independently depending on the requirements of the test. These are

- **Hammer Impact Analysis**
- **Modal Analysis Suite**
- **Structural Animation Software**

Hammer Impact Analysis Software

Structural response measurements are an essential requirement for engineers working on noise and vibration problems. The DATS Hammer software guides the user through the process of making the measurements. The software gives the user full control over all aspects of the test.
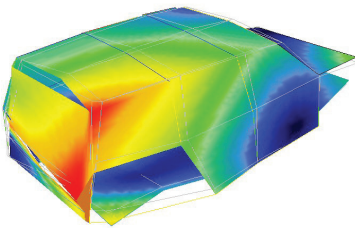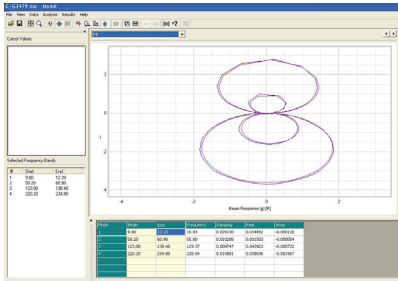
Modal Analysis Suite

The DATS Modal Analysis suite is provided for analysts who want to determine Modal Frequencies, Damping Factors & Modal Amplitudes from either measured frequency response functions, impulse response functions or response-only data.

A variety of frequency and time domain identification methods are provided. These include Half-Power methods, SDOF, MSDOF, MDOF and ERA-DC. The identified mode shapes can be displayed and animated using the DATS Structural Animation package. A synthesis module is provided to enable Frequency Response Functions (FRF) to be regenerated from the identified parameters thereby revealing the accuracy of the modal model fitting. Forced responses can also be predicted by convolution of the regenerated FRFs with either simulated or known force inputs.

Structural Animation Software

How is it vibrating? Use Structural Animation with either frequency data or time data to visualize the vibration patterns.

Frequency Animation uses the magnitude and phase of FFTs, Frequency Response Functions (FRFs) or cross spectra at each measurement position on the structure to reveal the motion at different frequencies. Time Animation takes time based data and uses it to directly show the true position at each measurement point at each time step. The model may be created using the fully featured 3D editor provided with the Structural Animation software. Models can also be imported from NASTRAN, CSV and Universal files.

Find out more about Rotating Machinery Analysis at prosig.com/dats/optmodal.html

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Modal Analysis
Features

- **Frequency Response Functions**
- **Structural Response Measurements**
- **Double Impact Detection**
- **Experimental Modal Analysis (EMA)**
- **Operational Modal Analysis (OMA)**
- **Modal Parameter Identification**
- **Alternative Curve Fitting Algorithms:**
- **SDOF**
- **MSDOF & MDOF (Frequency Domain)**

- **ERA-DC (Time Domain)**
- **Stability Diagram**
- **FRF Synthesis from Modal Parameters**
- **Forced Response Prediction**
- **Animate v Frequency**
- **Animate v Time**
- **Full 3D Views**
- **Sophisticated Model Editor**

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