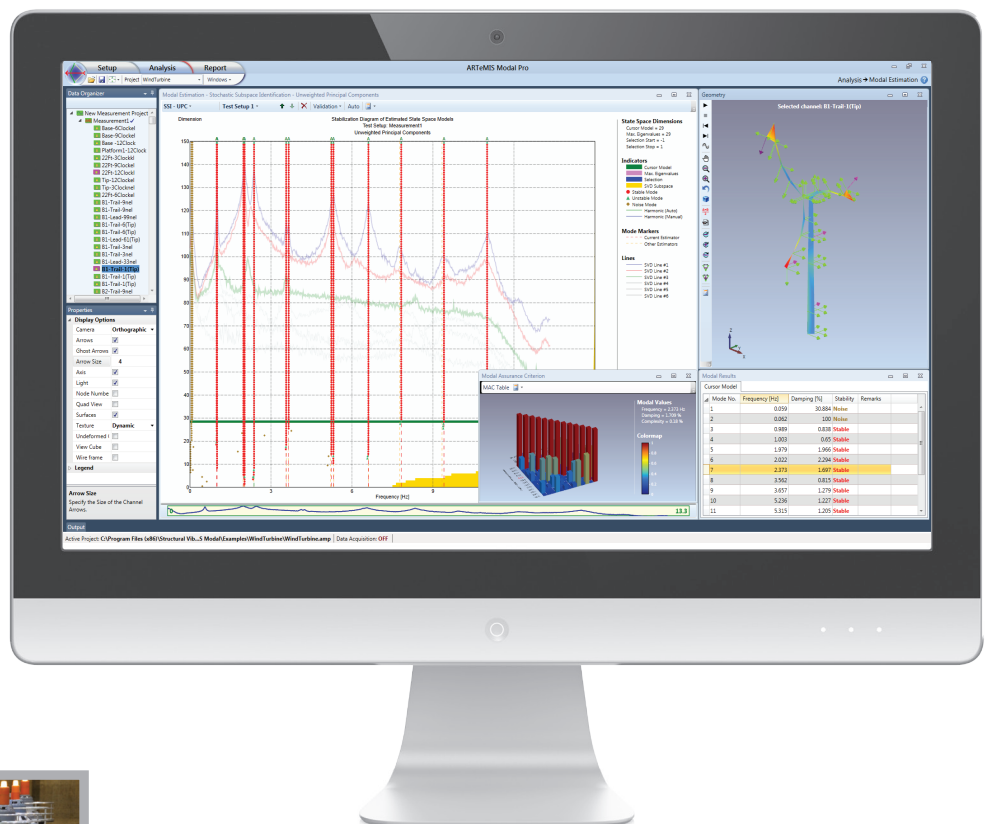


# ARTeMIS

Leading Software for Operational Modal Analysis



## ARTeMIS Modal

- New ease-of-use and intuitive user interface that dramatically will shorten the learning curve
- Easier and faster signal processing and modal estimation
- New modal validation features
- Report generation through seamless integration with Microsoft Office products

# ARTEMIS Modal

The Complete Software Solution for Operational Modal Analysis and Operating Deflection Shapes

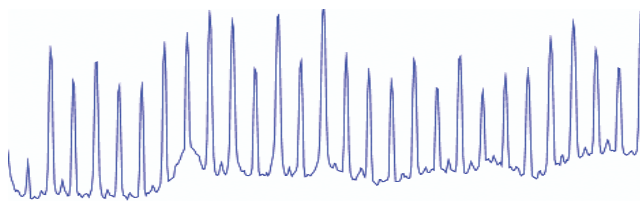
ARTEMIS Modal helps our customers to determine and solve vibration issues in the vast number of cases where the excitation cannot be measured or controlled. The software is used by engineers all over the world for modal analysis of all kinds of structures:

- Operating machinery or other mechanical structures with or without rotating components.
- Large civil engineering structures like bridges, dams and buildings subjected to ambient loads.
- Structures with rotating components such as wind turbines, stream turbines, engines and gas compressors.
- Maritime structures like ships and offshore structures.
- Automotive, trucks, trains and vehicles and sub parts systems.
- Aerospace structures such as launch vehicles and aircrafts.

## The best software on the market

ARTEMIS Modal is the most powerful and versatile tool for Operational Modal Analysis on the market today. Its ability to produce validated modal parameter estimates, based on parallel analysis of up to seven different analysis techniques, makes it the natural choice in mission critical applications. The unique Crystal Clear Stochastic Subspace Identification (CC-SSI) techniques enable engineers to estimate the mode shapes, natural frequencies and damping ratios, directly from the raw measured time series data of structures under natural conditions.

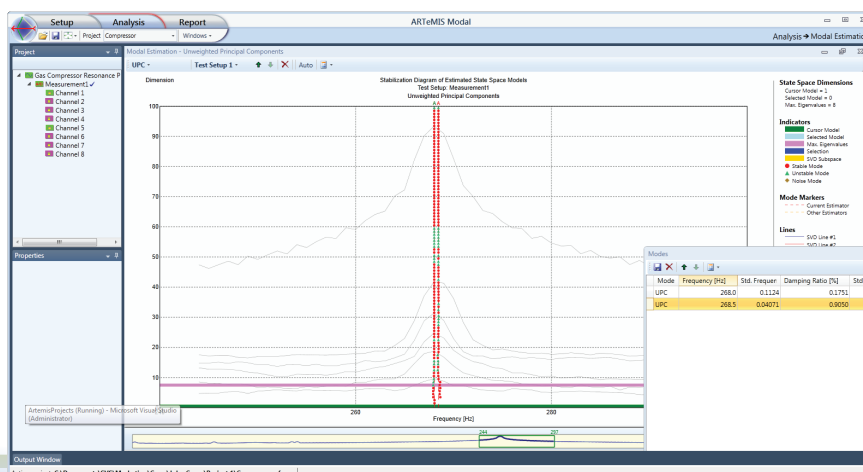
## Challenged by Harmonics?



**Get fast and accurate modal parameters from rotating machinery under running conditions!**

## Seamless Modal Analysis on Rotating Machinery during Operation

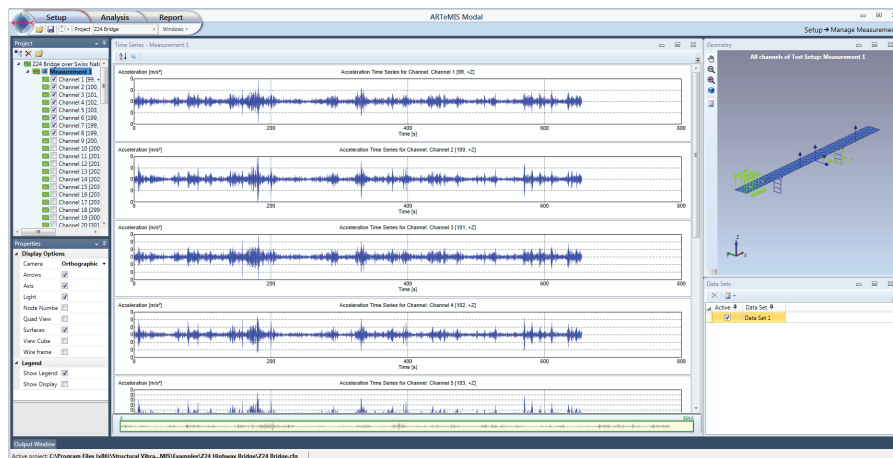
The presence of rotating components “harmonics” in the data has for years been a nightmare to deal with. In many applications where rotating machinery is present in the structure being tested, it has been necessary to turn off the operation while doing the modal analysis or it has been necessary to rely on the use of Operating Deflection Shapes (ODS). However, ARTEMIS is born with the ability to handle “harmonics” from rotating components, such as engines, pumps, propellers, wind turbines, generators etc.



ARTEMIS Modal is analysis of a gas compressor having a severe resonance problem. The Crystal Clear SSI estimator finds both the mode shape, natural frequency and damping ratio of the resonant mode as well as the frequency and ODS shape of the harmonic forcing function.

# The Setup Task

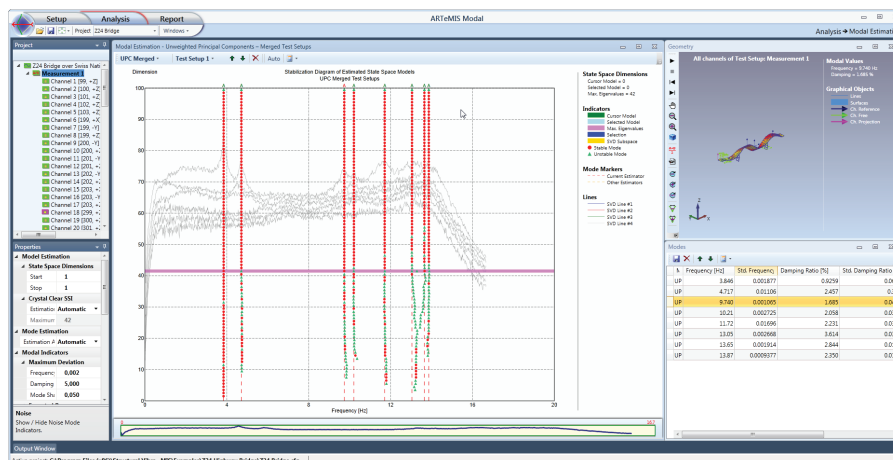
The Setup task consists of three sub tasks called Prepare Geometry, Manage Measurements and Assign DOF Information.



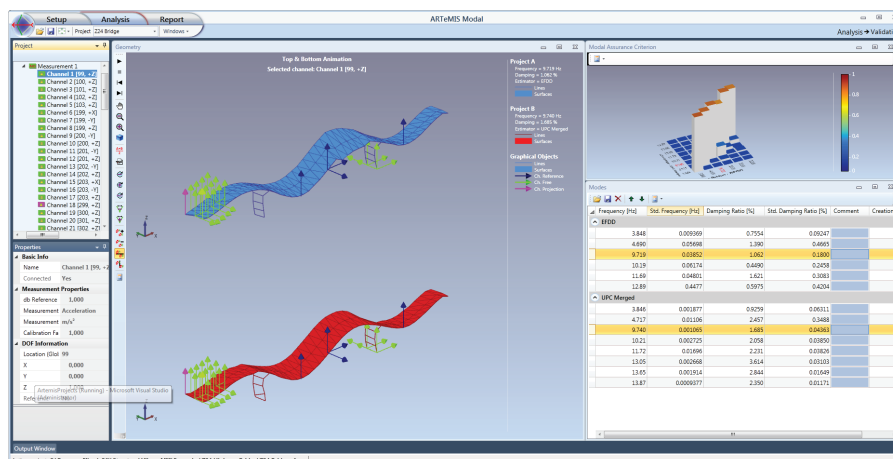
**Manage Measurements:**  
Organize measurements into appropriate Test Setups and optional e.g. crop the measurements before analysis.

# The Analysis Task

The Analysis task consists of three sub tasks called Prepare Data, Modal Estimation and Validate. These tasks all relate to signal processing of the measurement and the modal analysis.



**Modal Estimation:**  
Use one or more of the modal estimators using the same consistent layout. All Frequency Domain Decomposition algorithms are available along with the Fast Crystal Clear SSI algorithms.



**Validate:**  
Validate the estimated results across estimators or against imported modal parameters. Validation can be made using Modal Assurance Criterion, Complexity Plots, Overlaid or Side-by-Side.

# The Report Task

The Report task allows the user to generate report using either Microsoft Word or Microsoft PowerPoint. The user selects templates to use and the dumped images and tables are automatically inserted on the requested places in the document.



ARTEMIS Modal	MODAL Basic	MODAL STD	MODAL PRO
<b>SETUP</b>			
<b>Geometry Generator</b>			
- Create geometry from scratch	•	•	•
- Import/modify existing geometry	•	•	•
<b>Manage Measurements</b>			
- Import measurement files	•	•	•
- Merge measurement files	•	•	•
- Integrate/differentiate measurements	•	•	•
- View raw time histories	•	•	•
- Connect/disconnect channels and Test Setups	•	•	•
<b>Assign DOF Information</b>			
- Link channels with geometry nodes and directions	•	•	•
- Link using drag-and-drop or by direct editing	•	•	•
- Automatic identification of reference channels	•	•	•
<b>ANALYSIS</b>			
<b>Prepare Data</b>			
- Configure all preprocessing of measurements	•	•	•
- View processed data of channels and Test Setups	•	•	•
- Option for automatic selection of projection channels	•	•	•
- Compare processed data of reference channels	•	•	•
- Harmonic detection using fast and extended kurtosis analysis		•	•
<b>Operating Deflection Shapes</b>			
- Animate physical behavior at user-selectable frequencies	•	•	•
- Store specific ODS shapes	•	•	•
- Display unscaled and/or driving point scaled ODS shapes	•	•	•
<b>Modal Estimation</b>			
- Estimation of natural frequencies	•	•	•
- Estimation of damping ratios		•	•
- Estimation and animation of mode shapes	•	•	•
- Frequency Domain Decomposition - FDD	•	•	•
- Enhanced Frequency Domain Decomposition - EFDD		•	•
- Curve-fit Frequency Domain Decomposition - CFDD		•	•
- Crystal Clear SSI® Stochastic Subspace Identification – SSI-UPC			•
- Crystal Clear SSI® Stochastic Subspace Identification – SSI-PC			•
- Crystal Clear SSI® Stochastic Subspace Identification – SSI-CVA			•
- Crystal Clear SSI® Stochastic Subspace Identification Merged Test Setups			•
<b>Validation</b>			
- Overlaid mode shapes animation		•	•
- Mode shapes difference animation		•	•
- Mode shapes side-by-side animation		•	•
- Mode shapes top-bottom animation		•	•
- Modal Assurance Criterion		•	•
- Comparison of Mode Complexity		•	•
- Comparison between estimated and imported modes		•	•
<b>REPORT</b>			
- Easy selection of graphics and tables	•	•	•
- Store selected in "as is" colors or in B&W	•	•	•
- Seamless integration - Microsoft® Office 2000, XP, 2003, 2007 and 2010 32bit/64bit	•	•	•
- Generate Word documents and Power Point presentations	•	•	•
- Predefined standard templates	•	•	•

Available Plugins	MODAL Basic	MODAL STD	MODAL PRO
- Data Acquisition			•
- Statistical Damage Detection			•

