

## Rotating Machinery Measurement & Analysis

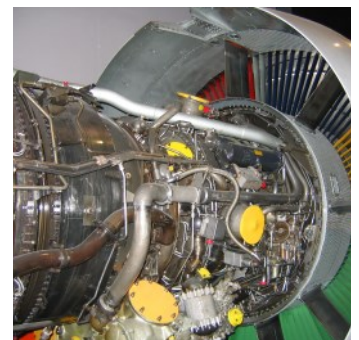
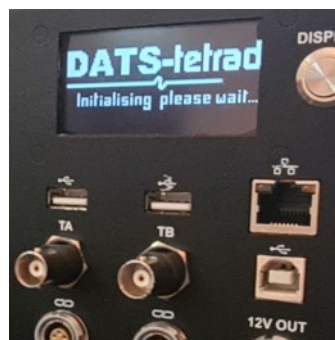
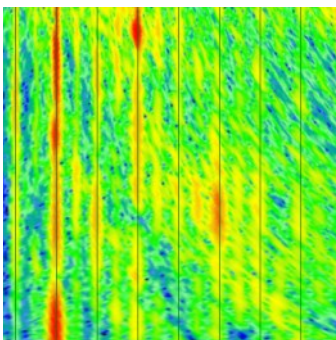
### Key Benefits

- Fully integrated hardware/software solution
- Waterfalls & order tracking
- Time sampled & angle sampled data
- Special analysis for angle sampled data
- Simple to setup, simple to use



The DATS Rotating Machinery option contains a complete set of tools for analyzing the sources of vibration and noise caused by cyclic forces such as those found in engines, motors, shafts, gearboxes and wheel excitation.

Prosig acquisition software has additional realtime displays for use with Rotating Machinery Analysis.



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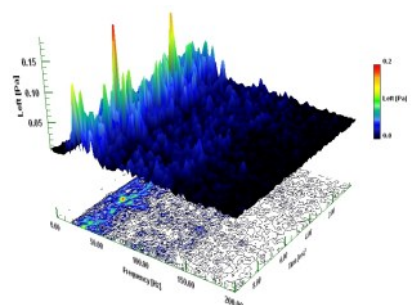
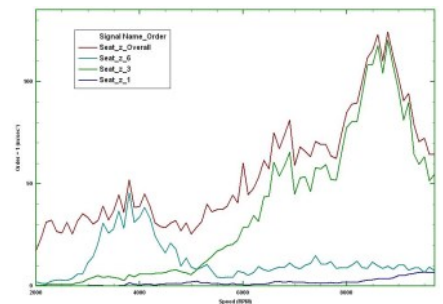
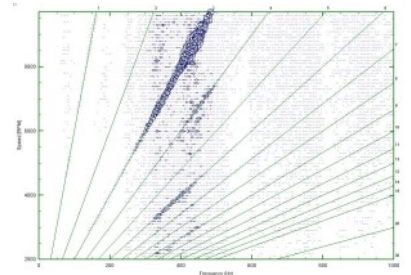
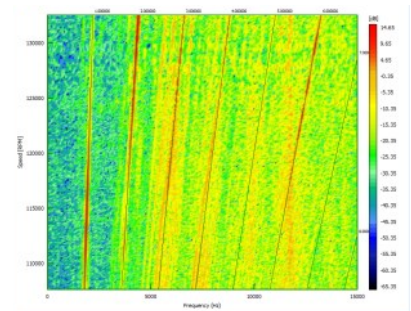
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The Time Sampled analysis enables a user to carry out classical Waterfall analysis, producing frequency spectra related to the speed of rotation. It includes comprehensive tacho conditioning software. The software allows waterfalls and orders to be visualized in many ways. Band-pass filtering and envelope analysis can be carried out for bearing analysis.

Various synchronous analyses can be used to

view the data in the order domain. In particular a discrete Fourier transform (DFT) can be used to extract orders directly. Data which has been sampled using a fixed time sample rate can be resampled using the tacho as the synchronous marker, so that the same number of samples are generated for each cycle.



### Time Sampled Data

Average Waterfalls  
Speed Signal from Tacho  
Extract Orders and Overall Level

Generate Waterfall  
Generate Waterfall with phase Equalisation Order Filter

### Advanced Tacho Analysis

Angular Vibration from Tacho  
Tacho Crossing times  
Tacho Ideal Equivalent  
Tacho to time periods  
Raw Speeds

Average period Speeds  
Smooth Curve Fitted Speeds  
Interpolated Speeds

Tacho Crossing Checks

### Synchronously Sampled Data

Angular Vibration of Shaft  
Asynchronous to Synchronous  
Order Waterfall

Order Waterfall with Phase Synchronous Orders

Calculate Average Cycle  
Calculate Cycle Statistics

Tacho Synthesis

### Order Domain Data Analysis

Auto Spectral Density  
Cross Spectral Density

DFT

FFT

Multiple Spectrum RMS Level

Spectrum Level

Spectrum RMS Over Order

Range

Transfer Function

Zoom Transfer

Zoom Auto Spectral Density

Zoom Cross Spectral Density

### Time Frequency Analysis

Born-Jordan

Wigner Ville

Zhao Atlas Marks

Mother Wavelet Generation

Wavelet Transforms



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