Prosig Case Study

Flight Test Data Analysis

Prosig used their DATS software and P8000 hardware platform to develop a flight test suite that covers standard vibration and acoustic analysis as well as specific analyses for modal flutter analysis and stability analysis. The software is designed to operate either in real-time (in-flight) mode taking data from a telemetry server, or in off-line (post-flight) mode taking input data from stored media.

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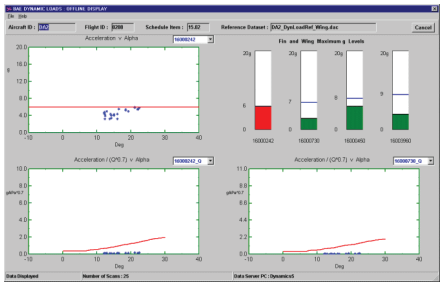
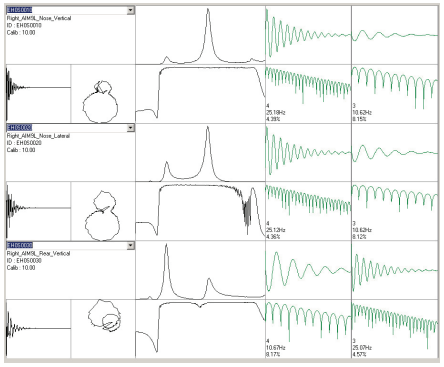
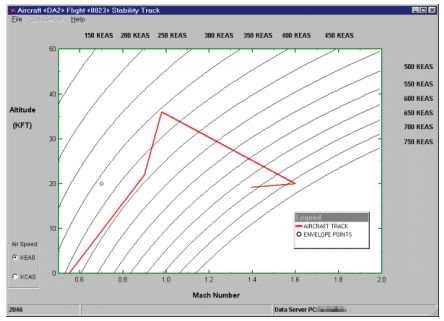




Flutter Analysis is primarily concerned with measuring the damped vibrations at the major resonance frequencies while the aircraft is in flight and tracking the changes in behavior with increasing speed. Essentially this is a form of modal analysis and can be performed either in the frequency domain (Potter method) or time domain (Eigen Realisation of Direct Correlations). The frequency-based method is completely automated in the sense that it is the software that decides which are the dominant modes of interest, whereas with time-based method the user chooses the main modes based on results presented in the form of a stability plot.



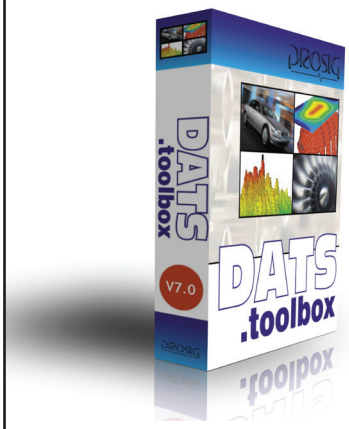
The structural behavior at a response point on an aircraft when subjected to a forced excitation can be analyzed as a Transfer Function in the frequency domain. When this data is displayed as a Nyquist plot (real versus imaginary) it gives clear insight into the stability of the response characteristics close to resonances.

System consists of

P8048
24-bit data acquisition system

1 x P8048 Chassis

DATS
Analysis software



1 x DATS.toolbox software

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