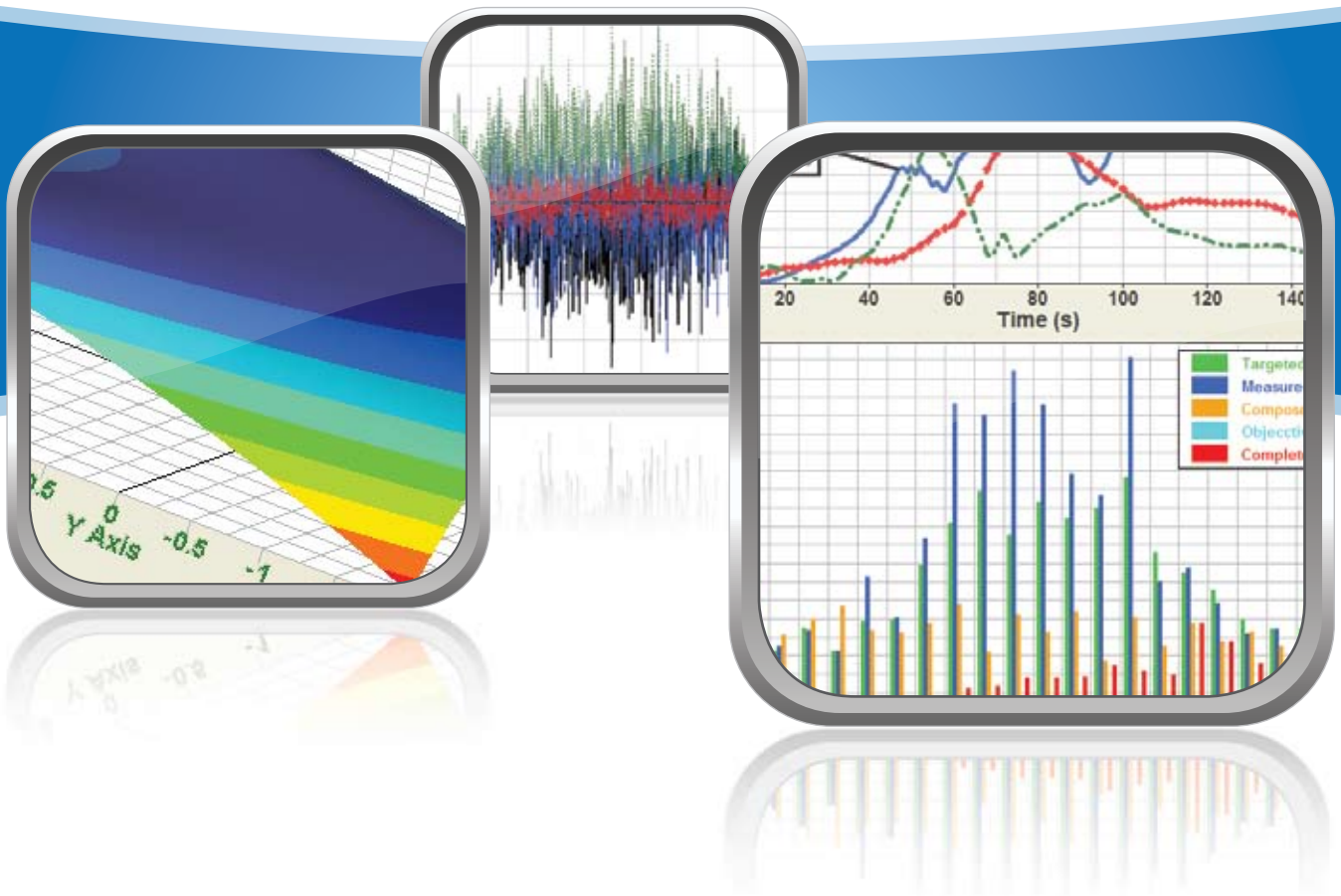




A Platform for Innovation™



# Altair® HyperGraph®

Plot and Analyze Data in an Environment  
Designed for the Most Demanding Scenarios

# Altair® HyperGraph®

Plot and Analyze Data in an Environment Designed for the Most Demanding Scenarios

Altair® HyperGraph® is a powerful data analysis and plotting tool with interfaces to many popular file formats. Its intuitive interface and sophisticated math engine make it easy to process even the most complex mathematical expressions. HyperGraph combines these features with high-quality presentation output and customization capabilities to create a complete data analysis system for any organization.

## Benefits

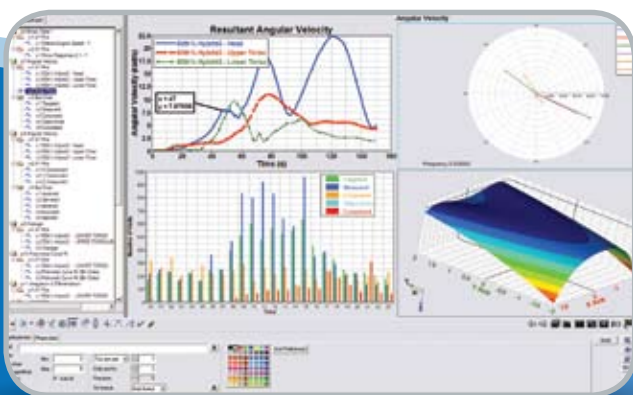
HyperGraph provides design, test and engineering professionals with an intuitive plotting and data analysis package for efficient data analysis. With an easy-to-use interface and robust suite of automation tools:

- **Minimize the manual effort and time required to generate plots** — the automatic plot builder generates a family of fully labeled plots from data file(s) using file header and channel information.
- **Eliminate repetitive tasks** — plot macros capture and automate common math expressions.
- **Eliminate repetitive plot generation** — report templates can capture and automate the building of entire pages of data plots.
- **Customize the interface** — modify the interface and the tools to fit any engineering environment.
- Add **user defined math functions** to Altair's robust math library.
- **Automate tasks** for efficient data analysis and report generation.

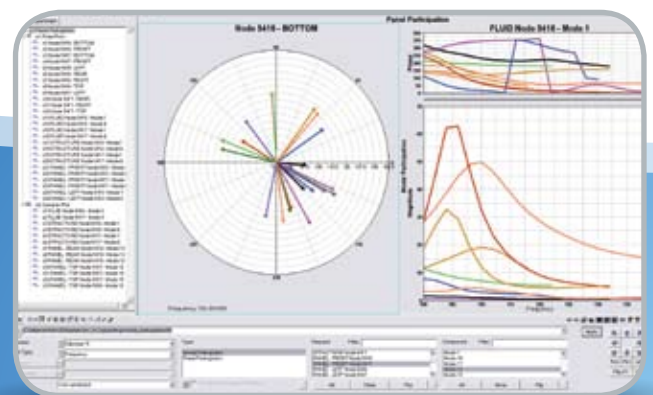
- **Overlay sequential test and simulation results** for visualization and analysis.
- **One click report generation** by directly exporting active session information to HTML or PowerPoint XML.

## Improve Productivity

- **Reports:** Automate the generation and presentation of standard plots and tables, compare results and perform correlation studies using the "Report: Overlay" option.
- **Plot Macros:** Use plot macros to capture and replay often-used mathematical curves.
- **Tcl/Tk Programming Layer:** Automate procedures through a programmable command layer.
- **Custom Import and Export Templates:** Read and write XY plot data.
- **User Written Math Functions:** Build custom math functions within the interface, register existing C and Fortran routines or use HyperGraph's interface with MATLAB to access your MATLAB math functions.
- **Custom Pull-down Menus:** Provide easy access to reports, plot macros, Tcl/Tk utilities and 3rd party executables.



Complete 2D & 3D Data Plotting



Polar and Complex Plotting

## Plot Builder And Plot Details

HyperGraph's automatic plot builder generates a series of fully annotated XY plots, polar plots, bar charts and complex plots directly from engineering and test data files. A wide array of formatting options allow users to specify how plotted data appears and is arranged on pages within the session. An intuitive interface provides direct access for users to edit or modify all plot areas including axes, header, footer, legend and curve properties.

Also, HyperGraph contains a style sheet utility that captures all plot settings, such as fonts and colors, and applies them to other plots within a session. HyperGraph supports Linear, Log10, Log20 and Decibel axis scaling, a variety of line styles, symbols and colors, as well as full user-control of text size, color and style.

## Analyzing Your Data

Create new math curves from existing data curves by writing mathematical expressions or by selecting from a library of over 150 built-in mathematical functions and operators. In addition users can take advantage of HyperGraph's interface with MATLAB to utilize any existing MATLAB math functions. HyperGraph also contains a sophisticated math engine for performing complex

mathematical operations or building custom math expressions including:

- Signal processing
- Curve fitting
- Filtering
- Eigen system analysis
- Integration and differentiation
- Statistical analysis
- User-defined math functions
- User-defined expressions

In addition HyperGraph also provides these data analysis tools:

- Configurable context sensitive menus to apply any math expression or macro to a curve with one click of the mouse.
- Interactive visual features for inspecting data.
- Reporting and retrieval of individual point data such as X and Y locations, slope and more.
- Plot statistics calculated over a specified range on a curve including minimum, maximum, mean and standard deviation.
- Custom statistics templates to highlight user/project statistics.
- Plot annotations can contain an unlimited amount of text, math and string functions, operators and Templex statements.

## Report Generation

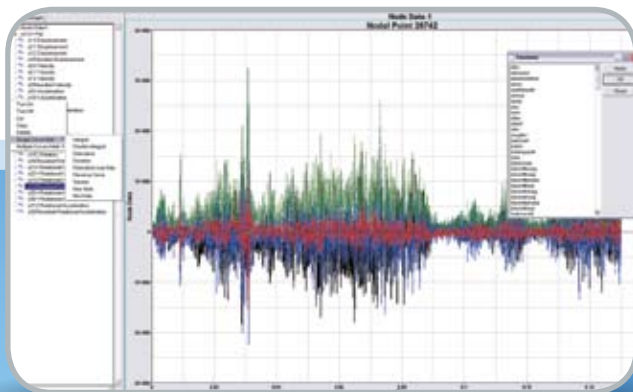
Generating a standard report is made easy with HyperGraph by using the

automated "Publish Session" tool along with the Report Template functionality. HyperGraph allows the user to export the active session to a HTML or PowerPoint XML report. The user has control over what to be exported and in which format.

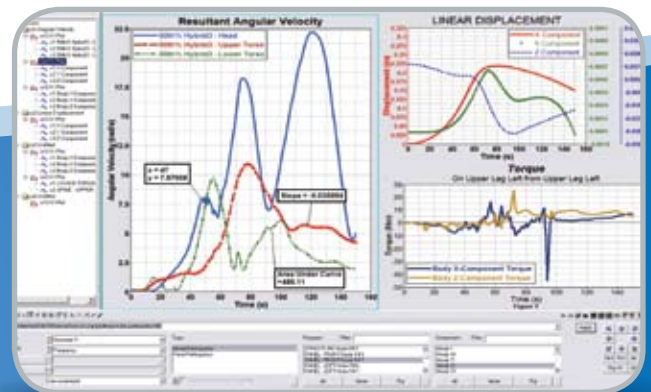
- Report export: HTML, PowerPoint.
- Animation and Video export: AVI.
- Image export: BMP, JPEG, PNG and TIFF.
- Data export: multi column, XY Data, ADAMS Spline, Altair Binary, DAC, RPC, user defined.

## Supported Data Formats

- Altair® HyperMesh® (.res)
- Altair® OptiStruct®
- Altair H3D
- RADIOSS
- LS-DYNA
- ADAMS
- MADYMO
- PAM-CRASH
- NASTRAN (sol1 108 & 111)
- Ride data files
- RPC-3
- nCode (dac)
- Excel (csv)
- Multi-column ASCII
- xyDATA files
- UNV
- DIADEM
- ISO 13499
- HDF4



Data Plotting and Analysis



High Performance Simulation and Test Data Correlation



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