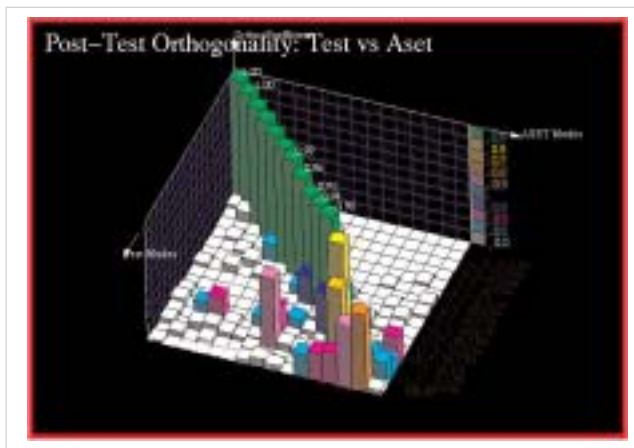# MSC.Patran ProCOR™

A suite of tools for assessing and comparing modal characteristics for models and test

OVERVIEW

ProCOR is a highly integrated vertical application utilizing a combination of MSC.Patran 2003 and MSC.Nastran™ to determine fundamental dynamic characteristics and correlate normal modes from two different sources. The tools within ProCOR provide a meaningful and intuitive graphical interface so that structural engineers can easily identify critical dynamic characteristics. Additional tools provide easy quantitative and qualitative assessment of modal correlation between two different math models, or a math model and a modal test.

This data sheet describes features specific to ProCOR. Please see the MSC.Nastran and MSC.Patran Basic™ data sheets for a description of the core capabilities of MSC.Nastran and MSC.Patran.

Comprehensive capabilities

Kinetic Energy (KE)
> Determine KE of each component or group per mode

Strain Energy (ESE)
> Determine ESE contribution of each component or group for each mode

Drive Point Residue (DPR)
> Determine likely shaker locations for testing to avoid missing modes

ASET Selection
> Graphical selection of ASET

Cross Orthogonality and Modal Assurance Criteria
> Cross-Ortho and MAC calculations between Full model/ASET model, Full model/Test, Reduced model/Test, Fine grid/Coarse grid models, Fail-safe models

CAPABILITIES

- Modal Characteristics:
    - Modal Effective Mass
    - Group Kinetic Energy
    - Group Strain Energy
    - Drive Point Residue

- Pre-Test Features
    - MEFFMASS
    - Kinetic Energy
    - Drive Point Residue
    - ASET selection tools
    - Cross-Ortho and MAC between Full/Reduced models

- Test Translation
    - UFF support
    - Output4 support

- Post-Test Features
    - Test Kinetic Energy
    - Cross-Ortho and MAC between Test/Analysis

BENEFITS

- User interface designed for the analyst

- Have greater confidence in your models through correlation

- Support certification requirements

- Achieve better communication between engineering groups with concise, clear reports and charts

MSC SOFTWARE®
SIMULATING REALITY

## Comprehensive support for dynamic characteristic determination and correlation

MSC.Patran ProCOR provides an powerful user interface for the analyst to obtain modal characteristics and utilities for modal test correlation. In addition to being within the MSC.Patran environment, ProCOR is seamlessly integrated with MSC.Nastran.

MSC.Patran ProCOR also performs analysis-analysis or "model-to-model" correlation. This capability can be used to correlate two totally different types of models, such as a coarse beam model with a detailed shell model. It can also be used to efficiently assess the correlation of two slightly different models, such as models that change slightly during the design phase, or models with slightly different payload configurations. The ability to qualitatively and quantitatively assess the differences between two models saves the analyst substantial time by eliminating comparisons "by hand."

ProCOR can answer these questions:
- What are my dominant modes?
- Is my accelerometer placement valid?
- Will this design change modify the dynamic response requiring additional analysis or retest?
- Does this fail-safe condition result in significantly different dynamic response?
- Do the dynamic characteristics of the refined model match the preliminary coarse model?
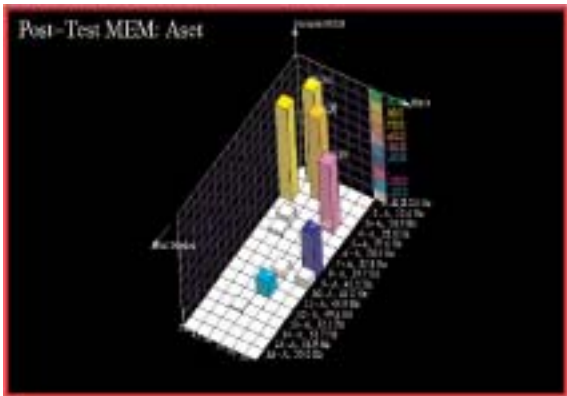
To find your local MSC.Software office or to learn more about our company and our products, please contact:

Corporate:
MSC.Software Corporation
2 MacArthur Place
Santa Ana, California 92707 USA
Tel: 1 714 540.8900
Fax: 1 714 784.4056

Customer Care Center:
1 800 642.7437 (U.S. only)
1 978 453.5310 (International)
customer.care@mscsoftware.com

Worldwide Web   - www.mscsoftware.com
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