

Abstract for the 5th International Symposium on Environmental Testing
for Space Programmes

NASA Handbook for Spacecraft Structural Dynamics Testing

Dennis L. Kern
Jet Propulsion Laboratory, M.S 157-410
California Institute of Technology
4800 Oak Grove Drive
Pasadena, CA 91109, USA
Tel: (818) 354-3158
Fax: (818) 393-1156
Email: Dennis.L.Kern@jpl.nasa.gov

System verification testing is vital to the success of NASA missions. In the area of structural dynamics and vibrations, recent advances in both methodology and capability have the potential to make system testing more effective from technical, cost, schedule, and hardware safety points of view. However, application of these advanced test methods varies widely among the NASA Centers and their contractors. Identification and refinement of the best of these test methodologies and implementation approaches has been an objective of efforts by the Jet Propulsion Laboratory on behalf of the NASA Office of the Chief Engineer. But to develop the most appropriate overall test program for a flight project from the selection of advanced methodologies, as well as conventional test methods, spacecraft project managers and their technical staffs will need overall guidance and technical rationale. Thus, the Chief Engineer's Office has recently tasked JPL to prepare a NASA Handbook for Spacecraft Structural Dynamics Testing. A handbook on structural dynamics testing would provide project managers and technical specialists across the NASA enterprises with a broad view of the options available to them, and the technical, cost, and schedule data to help them plan and carry out an effective and cost effective structural verification and vibration qualification program, which minimizes risk of a flight failure.

This paper will discuss the plans and progress for the NASA Handbook. Examples of recently developed advanced system structural test methodologies will also be discussed.