

Acoustic Induced Vibration Response Analysis of Honeycomb Panel

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Abstract : The main-body structure of satellite is mainly constructed by lightweight material, it should be able to withstand certain vibration load during launches. Since various kinds of change possibility in the space, it is an extremely important work to study the random vibration response of satellite structure. This paper based on the reciprocity relationship between sound and structure response and it will try to evaluate the dynamic response of satellite main body under random acoustic load excitation. This paper will study the technical process and verify the feasibility of sonic-borne vibration analysis. One simple plate exposed to the uniform acoustic field is utilized to take some important parameters and to validate the acoustics field model of the reverberation chamber. Then import both structure and acoustic field chamber models into the vibro-acoustic coupling analysis software to predict the structure response. During the modeling process, experiment verification is performed to make sure the quality of numerical models. Finally, the surface vibration level can be calculated through the modal participation factor, and the analysis results are presented in PSD spectrum.

Keywords : vibration, acoustic, modal, honeycomb panel

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