

IAF MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Space Structures I - Development and Verification (Space Vehicles and Components) (1)

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ANALYZING QUASI-STATIC AND DYNAMIC RESPONSES OF A 3U CUBESAT STRUCTURE
DURING LAUNCHING

Abstract

This paper illustrates the structural analyses of RaadSat CubeSat during launch. For a CubeSat to function properly, it is expected to withstand the harsh conditions during launch. In addition to the extreme thermal cycles while in orbit. In this paper, the focus is on the CubeSat's structure's response to the quasi-static and vibrational loads during launch. It is deemed necessary for a successful CubeSat mission that the structure sustains these loads without failure. The commercially available finite element software ABAQUS® was used to carry out the structural analyses, and CREO 6 was used to make the simplified 3D model of Raadsat with all subsystems. Modal analysis and quasi-static analysis were done considering the load and boundary conditions of the launcher Japan Aerospace Exploration Agency. The results of the finite element analyses show that Raadsat structure can survive the launch loads.