Experimental investigations of space structure elements

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The article considers the problems related to organizing and conducting experimental tests on mechanical properties of materials used in production of space vehicle elements. The article also investigates dynamic characteristics of space vehicle elements on the example of deployable rod reflector. Parameters for the reflector finite-element model are determined according to ground-based frequency tests results. Load conditions during test are excluded from the mathematical model to define reflector orbit frequencies. Zinite elements describing anti-weight system loads, rigidity of load — exciter diaphragms and masses of their moving parts are also excluded from the article result finite-element model. The adjusted finite-element reflector model can be intergrated into general mathematical model of the spacecraft for its dynamic analysis.

Keywords: *deployable frame reflector, finite-element model, dynamic characteristics, frequency tests.*

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