Structural Design of Electronic Equipment Bracket for LEO Satellite

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Large mechanical loads act on satellite during the process of injection into the given orbit by launch vehicle. The electronic equipments mounted on satellite should not fail under the loads. Several electronic equipments are attached to satellite structures not directly but using brackets. So, natural frequency of bracket should be decoupled with natural frequency of attached structure to prevent vibration transmitted from satellite structures from resonating with equipment. Also, bracket should have positive margin of safety for strength to get stability of equipment. We carried out design optimization for mass reduction by design of experiment. As a result, the designed bracket to meet the natural frequency and strength requirements has less mass than initial design.