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PRELIMINARY ANALYSIS OF COMMERCIAL SPACE TOURIST OPERATION SAFETY ISSUES
FOR SYSTEMS WITH CONVENTIONAL TAKEOFF AND LANDING

Abstract

The paper studies some aspects of reusable space tourist vehicle's missions from the point of view of mission safety assuring and time saving for development of used systems and complexes. The aim of the study is to perform a preliminary system analysis of a single-turn commercial space tourist operation that includes conventional takeoff and landing of a space system with a reusable orbital vehicle. The first stage of the system is an An-124 Ruslan aircraft. The second stage is a reusable launch vehicle and the upper stage is a reusable re-entry vehicle sited on top of the aircraft fuselage. In the paper some features of the space system launch are considered under the stipulation that the system takes off from a conditional spaceport near Vandenberg Air Force Base in the direction of Australia or/and South Pole. Earth orbital re-entry and runway landing of the reusable orbital vehicle are studied. The authors consider that the system makes a single turn around the Earth or a suborbital mission which is not exposed to debris collision threat and is relatively harmless for the environment.