

ASTRODYNAMICS SYMPOSIUM (C1)
Guidance, Navigation and Control (1) (1)

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RESULTS OF ZENITH-3SL ILV LAUNCH DYNAMICS ANALYSIS FROM AFLOAT SEA LAUNCH
PLATFORM

Abstract

One of the major international projects in the field of space rocket technology at the end of the 20-th and at the beginning of the 21-st century is Sea Launch program. During Sea Launch program realization a number of difficult problems was solved, one of which is a provision of launch vehicle (LV) launch in motions conditions. The LV launch problem in the conditions of moving floating launch complex imposed for developers a whole range of contradictory requirements: along with the provision of LV stable flight it is necessary to provide the LV motion without collisions with mobile and immobile elements of launch equipment, reduce impact of propulsion system plume on the launch platform surface and superstructures. The solving of the specified problem consists in special protective measures development, realized both at the LV development stages and in the process of pre-launch processing during each Zenith-3SL ILV launch under Sea Launch program. The report presents the analysis of Zenith-3SL ILV launches dynamics, characterizing the whole body of protective measures to meet launch safety requirements realized in Sea Launch program. The launch dynamics analysis, carried out based on the results of Zenith-3SL ILV launches, showed that the protective measures, realized in Sea Launch program, provide compliance with all requirements imposed on LV launch in motions conditions of the sea launch platform.