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Space Structures - Dynamics and Microdynamics (3)

Author: Mr. Zhao Yin

Beijing Institute of Spacecraft System Engineering, China Academy of Space Technology (CAST), China,
yinzhao08@126.com

Mr. Lai songbai

Beijing Institute of Spacecraft System Engineering, China Academy of Space Technology (CAST), China,
lsb0114@126.com

Mr. Liang lu

Beijing Institute of Spacecraft System Engineering, China Academy of Space Technology (CAST), China,
llu2008125@163.comIMPACT ENVIRONMENT ANALYSIS OF SPACECRAFT-ROCKET SEPARATION FOR NEW
GENERATION MANNED SPACECRAFT**Abstract**

Due to the fact that the new launch vehicle adopts a new linear separation device, spacecraft-rocket separation will produce a greater impact response. In order to ensure the safety and environmental adaptability of spacecraft structure and the equipments on it, it is necessary to obtain the real impact environment data of the critical stages such as the spacecraft-rocket separation in the ascent phase. For this reason, the sensor array needs to be arranged on the spacecraft-rocket separation Interface, which can monitor the impact mechanical environment of the spacecraft at the moment of spacecraft -rocket separation. In this paper, the measurement scheme of spacecraft-rocket separation impact is designed, and the impact load data generated by spacecraft-rocket separation in the ascending section of the new generation of spacecraft is processed. The shock response spectrum of interface between spacecraft and launch vehicle is obtained and the reason for the difference of impact magnitude and attenuation degree in different quadrants is analysed. The research results can provide reference for the optimization of ground mechanical test conditions.