

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Solutions for Human Flights in China (9-D6.2)

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ANALYSIS ON TT&C SCHEME FOR THE LOWER ORBIT LONG-PLAYING FINAL-STAGE
ROCKET

Abstract

To improve the ability into space becomes common selection for every leading aerospace country. According to planning of manned moon-fall mission, the final-stage rocket will stay in low earth parking orbit for several days; therefore, it brings new TT&C demand. Firstly, this paper analyzes TT&C demand for final stage of a certain launch vehicle which will stay in orbit for a long time, such as remote control, image data transmission, whole journey coverage and power constraint. Next, the paper analyzes key points of TT&C scheme and compares different manners of scheme selections. The key points include ground-based and space-based TT&C systems, frequency selection, communication link budget, antenna selection and so on. Finally, it brings forward one TT&C scheme for the final-stage racket which will stay in LEO for a long time, including system composition, system working principle, and solutions for satisfying power saving in orbit.