

Key Technology of Space Exploration (8)

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## SCALED-DOWN CREW CAPSULE FLIGHT TEST

### Abstract

Scaled-down Crew Capsule (SCC) is a flight test platform to demonstrate blunt body reentry capabilities. It is assembled the Flush Air Data Sensing System (FADS) on the reentry module to obtain high-precision aerodynamic parameters. The flight test mission completed on June 26th 2016, which receive flight aerodynamic force and thermal data, validate the aerodynamic shape, demonstrate key technologies such as crew capsule reusable design. This paper presents the development of Scaled-down Crew Capsule, technical characteristics, the performance of the flight test and achievements, focusing on the Scale-down Crew Capsule design, reentry technology and aerodynamic parameters sensing system. First of all, the major development and technical characteristics of SCC is shown. Then, the performance of the flight test is described in detail. Thirdly, the application mode on the re-entry module with blunt body is discussed, including aerodynamic simulation, pressure distribution, trajectory reconstruction and the hardware should be used, such as flush air data sensing system (FADS), inertial navigation system (INS), data acquisition system, data storage system. Finally, the achievements of the flight test and the key technologies of SCC are shown.