

## SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)

Launch Services, Missions, Operations, and Facilities (2)

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FULL RANGE SIMULATION TEST TECHNOLOGY ON THE LAUNCH VEHICLE CONTROL  
SYSTEM**Abstract**

To meet the requirement of high precision, high coverage and high real-time performance demand on manned space docking mission, the control system of launch vehicle has developed full state simulation testing technology, which could conduct a comprehensive assessment on the performance, interface, hardware and software function of the control system. The testing technology mainly includes the following three aspects. 1) It realized the comprehensive review on the performance of control system hardware and software. 2) It Verified all the software and hardware interface between control system and the other system, giving a highly test coverage on control system testing and providing comprehensive flight telemetry information for the control system testing. The data which was not acquired before could give a hand on some problem solving time. 3) It greatly increased the measurement automatic degree and precision in the test of explosive devices circuit. It was easier and more reliable. The measuring precision was able to achieve 99 percent. The technology has provided strong guarantee for launching Shenzhou-10, Tiangong-2 and Shenzhou-11. It can be used as very good reference and has been promoted to others. The technology will create more social and economic benefits for the future manned space docking mission.