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DESIGN METHOD OF INFORMATION INTERACTION OF COMPLEX SPACECRAFTS WITH
COMBINATION MODE

Abstract

The information interactive of complex spacecrafts is researched using the concrete object of telemetry. Based on the analysis of the characteristics of Chang 'e 5 lunar probe, the design method of Satellite and earth information interactive test under multi-spacecraft combination mode was invented on the basis of comprehensive consideration of feasibility and high reliability. The method allows the four spacecrafts to complete the generation, transmission, and data reception and processing of instructions as a unified system. By using the method, it can effectively analyse the spacecraft Simulate flight System's failure. It is also applicable to the design of Satellite and earth information interaction test with multiple modules of multiple satellites in the future. The design can meet the test application of multi-channel bit rate data stream of lunar probe in multi- spacecraft combination mode. The method of real-time and distributed interactive processing of telemetry data of multiple spacecraft avoids the problems of frame loss and packet loss caused by parallel processing of multiple data streams. The method has been successfully applied to Chang 'e 5 lunar probe. Even if the mechanism and operation mode of different spacecraft ground equipment are not compatible, this design method can be used to deal with it flexibly. This method can be adapted to the test requirements of various combination modes of complex spacecraft.