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RELIABILITY DESIGN OF THE MARS PROBE BASED ON THE MISSION AND
ENVIRONMENTAL PROFILES ANALYSIS

Abstract

After the successful implementation of lunar exploration, the Mars has become the next target for Chinese deep space exploration. The reference mission of Mars exploration objectives and environments has been established in this paper. The characteristic and challenge technologically for Mars exploration has been illustrated compared with lunar exploration in mission profile and environmental profile. Based on analysis of constraint conditions for Mars probe subsystems, essential reliability design and test verifications have been proposed which can provide effective guidance for the design of mars probe in the future.