

Lunar Exploration (3)
Lunar Technologies (2B)

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DESIGN OF RELAY COMMUNICATION SYSTEM FOR LUNAR FAR SIDE EXPLORATION

Abstract

The Chang'E-4 probes include lander, rover and relay satellite. The relay satellite is launched before the lander and the rover, both of which will implement lunar surface exploration on the farside of moon. As one of the key components, relay communication system is responsible for establishing the communication link between ground stations and lunar surface probes. Based on the characteristics of Chang'E-4, the paper analyzes the requirement of relay communication system, and proposes the optimal scheme. The scheme takes the mission requirements into account, and inherits design of Chang'E-3 telecommunication system as far as possible, and carries out the system optimization design, which reduces the cost of lunar surface probes. At last, the paper introduces the working mode of relay communication system for critical stages, including power descent, separation of the lander and the rover, sleep and reboot, and so on.