

SELENE - Summary of the System Design and its Status

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SELENE (SELenological and ENgineering Explorer), which is now under Phase-C (Preliminary Design), will be launched in 2004 by Japanese H-IIA launch vehicle. The SELENE project is being promoted as the first joint project between NASDA and ISAS. The main objectives of the SELENE project are "to collect data necessary to elucidate the origin and evolution of the Moon" and "to develop the technology for soft landing on the Moon which is vital for future lunar exploration". The acquired data will also be used for research on the feasibility of future utilization of the lunar environment.

SELENE consists of 2 lunar orbiting satellites, a main polar orbiter and a small relay satellite. The main orbiter is made up of the Mission Module and the Propulsion/Landing Module. The main orbiter contains mission instruments in the Mission Module and accomplishes the global survey of the Moon from the polar orbit of 100km altitude for 1 year. The Propulsion Module separates from the Mission Module after the observation mission, and demonstrates the soft-landing experiment. For the propulsion and guidance-control subsystem of the main orbiter are concentrated in the Propulsion/Landing Module, we call this satellite configuration "the unified system". The small relay satellite is used for the gravity field mapping in conjunction with the Propulsion Module.

The original concept of SELENE was proposed in 1996 (Phase-A study) as a moon explorer that consisted of a mother orbiter, a landing probe, and a relay satellite. The landing probe in this concept is released from the mother orbiter in the early phase of the mission. But system configuration of SELENE was changed into the unified one to simplify the system and realize large cost reduction. The unified system was adopted as a baseline for the Phase-B study which started in June 1998. The Definition Design Review was completed in July 1999 and the project moved into the Phase-C study. During the fiscal 2000, the spacecraft undergoes the critical components tests and the Prototype-Model tests. The system-mechanical/thermal tests start next year, 2001. The paper presents the latest design summary and current status of the spacecraft.