

Space Laboratory, Space Station and Space Exploration (2)
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DEVELOPMENT OF THE FLY-BY BUS FOR MANNED SPACE STATION IN LEO

Abstract

A new fly-by bus concept of China Manned Space Station (CMSS) is proposed to achieve more benefits for the flexible application, which will further improve the mission reliability and the supportive capability for space science and technology tests, especially such the large-scale space missions as space telescope. This paper presents the development of the fly-by bus for CMSS in LEO, which takes utilization of CMSS as the space homeport to reduce the mission risk of space science and technology tests. This fly-by bus is designed to independently fly within selected orbital phase accompanying CMSS for long-termed mission of space application. It can actively take rendezvous and docking mission to accept such maintenance service of resident crew in CMSS as updating test equipments; meanwhile it also can be refueled by cargo spacecraft docking with CMSS. This fly-by bus concept establishes a new space station operation mode of long-termed independent operation in orbit and short-termed docking with CMSS in case of an emergency or re-fueling. With the future establishment of China Manned Space Station (CMSS), the application of fly-by bus will provides more opportunities for international cooperation of space missions to make full use of the capability of CMSS crew maintenance in orbit and propellant re-fueling.